

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

**FORM S-1
REGISTRATION STATEMENT**
*UNDER
THE SECURITIES ACT OF 1933*

TCR² Therapeutics Inc.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

2836
(Primary Standard Industrial
Classification Code Number)

47-4152751
(I.R.S. Employer
Identification No.)

TCR² Therapeutics Inc.

100 Binney Street

Suite 710

Cambridge, Massachusetts 02142

(617) 949-5200

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Garry E. Menzel, Ph.D.
President and Chief Executive Officer
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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large Accelerated filer ☐
Non-accelerated filer ☒

Accelerated filer ☐
Smaller reporting company ☐
Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

CALCULATION OF REGISTRATION FEE

TITLE OF EACH CLASS OF SECURITIES TO BE REGISTERED	PROPOSED MAXIMUM AGGREGATE OFFERING PRICE ⁽¹⁾	AMOUNT OF REGISTRATION FEE ⁽²⁾
Common stock, \$0.0001 par value per share	\$100,000,000	\$12,120

(1) Estimated solely for the purpose of computing the registration fee in accordance with Rule 457(o) under the Securities Act of 1933, as amended. Includes the aggregate offering price of shares that the underwriters have the option to purchase to cover over-allotments, if any.

(2) Registration fee will be paid when registration statement is first publicly filed under the Securities Act of 1933, as amended.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant files a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. We may not sell these securities until the Securities and Exchange Commission declares our registration statement effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED DECEMBER 28, 2018

Preliminary Prospectus

Shares



Common Stock

We are offering _____ shares of common stock. This is our initial public offering of our common stock. Prior to this offering, there has been no public market for our shares. We expect that the initial public offering price will be between \$ _____ and \$ _____ per share. We have applied to list our common stock on The Nasdaq Global Market under the symbol "TCRR".

We are an "emerging growth company" under the federal securities laws and, as such, we have elected to comply with certain reduced public company reporting requirements for this prospectus and for future filings.

Investing in our common stock involves a high degree of risk. Before buying any shares, you should read carefully the discussion of the material risks of investing in our common stock under the heading "[Risk Factors](#)" starting on page 13 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission approved or disapproved of the securities that may be offered under this prospectus, nor have any of these organizations determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	PER SHARE	TOTAL
Public offering price	\$ _____	\$ _____
Underwriting discount (1)	\$ _____	\$ _____
Proceeds, before expenses, to TCR ² Therapeutics Inc.	\$ _____	\$ _____

(1) We refer you to "Underwriting" beginning on page 182 of this prospectus for additional information regarding underwriting compensation.

Delivery of the shares of common stock is expected to be made on or about _____, 2019.

We have granted the underwriters an option for a period of 30 days to purchase an additional _____ shares of our common stock. If the underwriters exercise the option in full, the total underwriting discounts and commissions payable by us will be \$ _____, and the total proceeds to us, before expenses, will be \$ _____.

Jefferies

Leerink Partners

BMO Capital Markets

Wedbush PacGrow

China Renaissance

The date of this prospectus is _____, 2019.

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Neither we nor the underwriters have authorized anyone to provide you with information different from, or in addition to, that contained in this prospectus, any amendment or supplement to this prospectus and any related free writing prospectus prepared by or on behalf of us or to which we have referred you. We and the underwriters take no responsibility for, and can provide no assurances as to the reliability of, any information that others may give you. This prospectus is not an offer to sell, nor is it seeking an offer to buy, these securities in any jurisdiction where the offer or sale is not permitted. The information contained in this prospectus or in any free writing prospectus is only accurate as of its date, regardless of its time of delivery or the time of any sale of our common stock. Our business, financial condition, results of operations and future growth prospects may have changed since that date. No action is being taken in any jurisdiction outside the United States to permit a public offering of our common stock or possession or distribution of this prospectus in that jurisdiction. Persons who come into possession of this prospectus in jurisdictions outside the United States are required to inform themselves about and to observe any restrictions as to this offering and the distribution of this prospectus applicable to that jurisdiction.

We own or have rights to various trademarks, service marks and trade names that we use in connection with the operation of our business. This prospectus may also contain trademarks, service marks and trade names of third parties, which are the property of their respective owners. Our use or display of third parties' trademarks, service marks, trade names or products in this prospectus is not intended to, and does not imply a relationship with, or endorsement or sponsorship by us. Solely for convenience, the trademarks, service marks and trade names referred to in this prospectus may appear without the ®, TM or SM symbols, but the omission of such references is not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the right of the applicable owner of these trademarks, service marks and trade names.

Until and including , 2019 (25 days after the date of this prospectus), all dealers that buy, sell or trade our common stock, whether or not participating in this offering, may be required to deliver a prospectus. This delivery requirement is in addition to the obligation of dealers to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

PROSPECTUS SUMMARY

This summary highlights information contained in greater detail elsewhere in this prospectus. This summary does not contain all of the information that you should consider in making your investment decision. Before investing in our common stock, you should carefully read this entire prospectus, including our financial statements and the related notes thereto and the information set forth under the sections titled "Risk Factors," "Special Note Regarding Forward-Looking Statements," and "Management's Discussion and Analysis of Financial Condition and Results of Operations," in each case included in this prospectus. Unless the context otherwise requires, we use the terms "TCR2," "TCRR," the "Company," "we," "us," "our," and similar designations in this prospectus to refer to TCR2 Therapeutics Inc.

Overview

We are an innovative immunotherapy company developing the next generation of novel T cell therapies for patients suffering from cancer. Our proprietary TCR Fusion Construct T cells (TRuC-T cells) specifically recognize and kill cancer cells by harnessing the entire T cell receptor (TCR) signaling complex, which we believe is essential for T cell therapies to be effective in patients with solid tumors. We have also designed our TRuC-T cells so that tumor cell recognition does not require human leukocyte antigens (HLA), which provides two important additional benefits. First, in contrast to current engineered T cell therapies that use the full TCR (TCR-T cells), our technology is designed so that it can be applied to all patients that express the cancer surface antigen irrespective of HLA subtype, which we believe will allow us to address a significantly larger patient population. Second, HLA is downregulated or lost in many tumors which can prevent their recognition by T cells and lead to diminished response rates and higher relapse rates. We therefore believe our approach will allow us to deliver the first HLA-independent TCR-T cell therapy for patients with solid tumors. We also believe that our product candidates have the potential to improve upon the efficacy and safety of currently approved chimeric antigen receptor T (CAR-T) cell therapies in CD19-positive B-cell hematological malignancies. This belief is based on preclinical studies comparing our product candidates to CAR-T cells that we engineered.

We filed an investigational new drug application (IND) in December 2018 for our lead solid tumor product candidate, TC-210, to treat patients with mesothelin-positive solid tumors in a Phase 1/2 clinical trial. We estimate the patient population for TC-210 is up to 81,000 in the United States alone. We expect to generate our first clinical data for TC-210 in the second half of 2019. We expect to file an IND in the second half of 2019 for our lead hematology product candidate, TC-110, to treat patients with CD19-positive B-cell hematological malignancies and expect to generate our first clinical data for TC-110 in the second half of 2020. In addition, we plan to file an IND for our second solid tumor product candidate, TC-220, to treat MUC16-positive solid tumors, in early 2020 and we expect to generate our first clinical data for TC-220 in the first half of 2021.

A Revolution in T Cell Therapies

According to a 2017 press release from the U.S. Food and Drug Administration (FDA) on the licensure of the first engineered T cell therapy for cancer, the field is "entering a new frontier in medical innovation with the ability to reprogram a patient's own cells to attack a deadly cancer." We founded our company to build on these early T cell therapy innovations while addressing their limitations and making our product candidates available to a broader patient population.

The immune system is responsible for protecting the human body by eliminating agents that threaten our health, including cancer cells. One of the key components of the immune system are sentinels called T cells that are able to target these agents for elimination by using TCR recognition of cell surface markers known as antigens. When a T cell recognizes a tumor antigen through the TCR, it kills the malignant cell on which it resides. Existing T cell therapies for cancer, including CAR-T cells and engineered TCR-T cells, attempt to replicate this mechanism. While current T cell therapies have shown encouraging efficacy data, they have limitations that we believe our product candidates can address.

CAR-T cell therapies have been approved for use in certain CD19-positive B-cell hematological malignancies on the basis of encouraging efficacy data. However, the durable benefit of these therapies has been limited to

a subset of cancer patients, while the risk of potentially fatal side effects for patients is high. In solid tumors, CAR-T cells have not shown meaningful patient benefit. We believe these limitations are a consequence of the CAR construct using only one subunit of the entire TCR signaling complex and operating independently of the normal signaling mechanisms in the T cell. As a result, CAR-T cells do not benefit from all of the activation and regulatory elements of the natural TCR complex. This results in CAR-T cells overproducing cytokines that frequently lead to severe toxicities, including cytokine release syndrome (CRS) and neurotoxicity. CAR-T cells are also limited in their ability to persist and overcome the hostile tumor microenvironment.

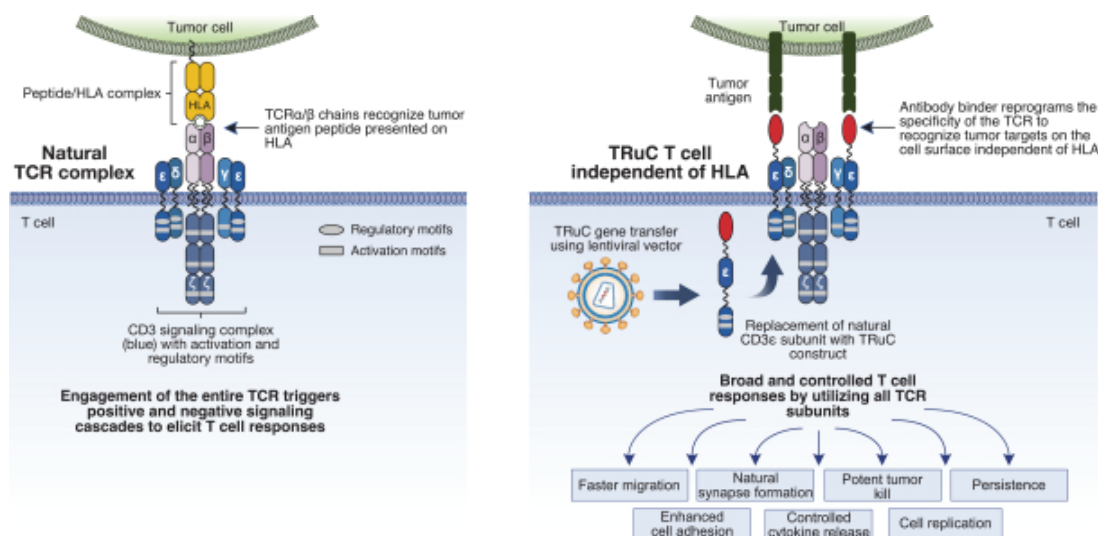
TCR-T cell approaches were developed in an attempt to leverage the power of the entire TCR signaling complex. TCR-T cells have produced clinical responses in patients with solid tumors. However, recognition of the tumor antigen by existing TCR-T cell approaches occurs in the context of HLA. This significantly limits the number of patients that can be treated with each specific TCR-T cell therapy because they can only be used for one specific HLA subtype, of which there are many. In addition, the downregulation or loss of HLA in many tumors can prevent tumor antigen recognition by TCR-T cells and lead to diminished response rates and higher relapse rates.

Our Novel Platform

We are pioneering the development of a novel, transformative T cell engineering platform which, based on its design and our preclinical studies, we believe has the potential to address the shortcomings of CAR-T cells and TCR-T cells and is fundamentally different from existing approaches. Research over more than two decades has shown that each of the TCR subunits makes distinct contributions to the activation and regulation of T cells and only the sum of the TCR subunits can adequately activate and control all functions of T cells. We believe that engaging the entire TCR signaling complex is required to fully leverage T cells in their fight against cancer.

Our T cell engineering approach relies upon natural TCR elements to produce therapeutic T cells that function independent of HLA restriction. To that end, we fuse a cancer antigen recognition domain directly to a subunit of the TCR and use a lentiviral vector to transfer the genetic information for the TRuC construct into a patient's own T cells. This modified subunit then naturally integrates into the native TCR complex. The result is the generation of an engineered T cell equipped with a new "homing device" to detect and engage a specific antigen on the surface of cancer cells. Upon antigen engagement, these T cells harness the entire TCR to produce a more powerful yet controlled T cell response against cancer. We refer to T cells engineered with our TCR fusion constructs as TRuC-T cells. In preclinical studies of both solid tumors and hematological malignancies, we have observed greater anti-tumor activity, longer persistence and less cytokine release compared to CAR-T cells we have engineered to target the same cancer antigen. We believe that these properties could translate into more durable responses with potentially fewer adverse events for patients with cancer.

The figure below describes the natural HLA-restricted TCR complex as compared to the HLA-independent TRuC-T cell.

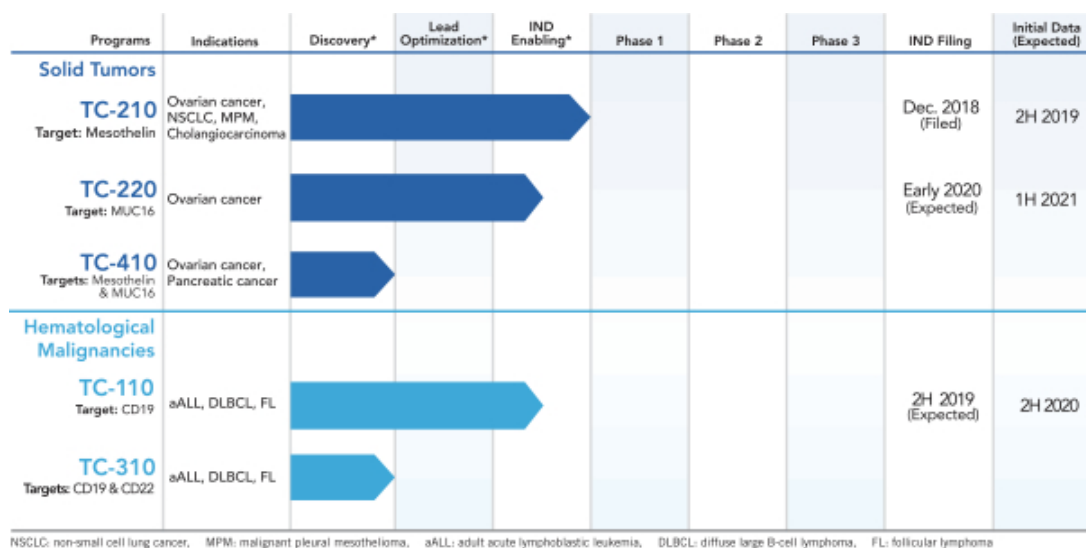


We are using our TRuC-T cell platform to target many different cancer antigens. Our core format, in which we target a single cancer antigen, is known as a mono TRuC-T cell. Our mono TRuC-T cell product candidates have shown promising anti-tumor activity and persistence in our preclinical studies. We are supplementing our core format with a series of next-generation enhancements that may further improve clinical outcomes. These fall into two broad categories. First, we are developing formats that target two antigens, known as dual TRuC-T cells, which could improve tumor response in patients who express more than one cancer antigen and combat potential antigen escape which is a leading mechanism of cancer relapse in patients receiving CAR-T cell therapy. Second, we are developing several strategies to counter the immunosuppressive microenvironment of solid tumors including mechanisms to block a key cancer defense known as the programmed cell death 1 (PD-1) and programmed death-ligand 1 (PD-L1) checkpoint pathway.

We are also evaluating multiple proprietary designs for allogeneic, or off-the-shelf, TruC-T cells.

Our Pipeline

The versatility of our platform is highlighted by the multiple programs and multiple formats of the product candidates in our pipeline. In preclinical studies with multiple TRuC-T cell product candidates, we have shown better anti-tumor activity, longer persistence and lower cytokine release compared to CAR-T cells we have engineered to bear the same tumor antigen binding domains as our product candidates. We have generated a broad pipeline with assets that address both solid tumors and hematological malignancies. Our product candidates are listed in the figure below.



*In the Discovery stage, we identify the antigen-specific binders, tether these to a TCR subunit via a linker and then, upon introduction into T cells, test the killing activity and cytokine release *in vitro*. Thereafter, the programs enter Lead Optimization stage, where we optimize the antigen binder sequence and linker length and re-test T cells expressing the enhanced TRuC sequences in cellular assays for functional activity and specificity. At this stage, we also investigate the anti-tumor activity, cytokine release, pharmacodynamics and phenotype of TRuC-T cells in mouse studies. The IND-Enabling stage is defined by the nomination of a product candidate. At this stage of drug development, we initiate the GMP production of lentiviral vector and process development of TRuC-T cells. In addition, we conduct studies addressing the specificity and toxicity to support the submission of an IND application.

- TC-210: Our Lead Mono TRuC-T Cells Targeting Mesothelin Positive Solid Tumors.** Our most advanced mono TRuC-T cell product candidate is TC-210, which targets mesothelin-positive solid tumors. While its expression in normal tissues is low, mesothelin is highly expressed on many solid tumors. The cancer types that we intend to treat in our planned Phase 1/2 clinical trial include non-small cell lung cancer, ovarian cancer, malignant pleural mesothelioma and cholangiocarcinoma. These cancers represent a patient population of up to 81,000 in the United States alone. By comparison, the addressable U.S. patient population with hematological malignancies for approved CD19-directed CAR-T therapies is estimated to be approximately 8,000. In our preclinical studies we have observed better anti-tumor activity and persistence of TRuC-T cells compared to CAR-T cells we engineered to target mesothelin while also exhibiting lower levels of cytokine release. We filed an IND for TC-210 in December 2018 and expect to initiate a Phase 1/2 clinical trial in early 2019. We also plan to apply for FDA Fast Track designation for TC-210.
- TC-110: Our Lead Mono TRuC-T Cells Targeting CD19-Positive B-Cell Hematological Malignancies.** We are developing a mono TRuC-T cell, TC-110, targeting CD19-positive B-cell hematological malignancies. The clinical development plan for TC-110 will initially focus on three specific areas: adult acute lymphoblastic leukemia (ALL), diffuse large B-cell lymphoma (DLBCL) and follicular lymphoma (FL). These are indications for which CAR-T cells have either been approved but faced clinical outcome limitations (specifically, DLBCL), proven to be too toxic for use (specifically, adult ALL), or have not been approved at all (specifically, FL). In our preclinical studies we have observed

better tumor clearance and persistence of TRuC-T cells compared to CAR-T cells we engineered to target CD19 while also exhibiting lower levels of cytokine release. We expect to file an IND for TC-110 in the second half of 2019 and seek FDA Fast Track designation.

- *TC-220: Our Mono TRuC-T Cells Targeting MUC16 Positive Solid Tumors.* We are conducting IND-enabling studies for our mono TRuC-T cell product candidate, TC-220, targeting MUC16-positive solid tumors. While its expression in normal tissues is low, MUC16 is highly expressed in many solid tumors, including ovarian, pancreatic, gastric and colorectal cancers. We plan to develop TC-220 initially for the treatment of MUC16 overexpressing ovarian cancer, which represents a patient population of up to 17,000 in the United States alone. TC-220 has shown strong anti-tumor activity in preclinical models of MUC16-positive ovarian cancers. Our goal is to file an IND for TC-220 in early 2020.
- *TC-310 and TC-410: Our Dual TRuC-T Cell Programs Targeting CD19/22 and MSLN/MUC16.* We have developed dual TRuC-T cells designed to reduce the potential for antigen escape in solid tumors or hematological malignancies by targeting more than one cancer antigen. These second generation TRuC-T cells are also able to integrate platform enhancements to counter the hostile tumor microenvironment. We are currently developing these for preclinical studies and will determine their clinical indications based on the outcome of those studies.

Manufacturing

We are currently producing good manufacturing practices (GMP) grade materials in preparation for our Phase 1/2 clinical trial of TC-210. Our process is semi-automated and functionally closed to ensure quality product. We have scaled and refined our technology to allow all of our product candidates to be manufactured on the same platform. While we have transferred our current capabilities to various partners for our Phase 1/2 clinical trial of TC-210, we plan to develop our own manufacturing capabilities. We believe this will help us to meet our anticipated demand from a large patient population while allowing direct oversight of quality.

Our Strategy

Our goal is to cure cancer with our TRuC-T cell therapies. We intend to make a difference in the lives of patients by building a fully integrated cancer immunotherapy company offering the first HLA-independent TCR-T cell therapies. The key components of our strategy are:

- *Rapidly advance our solid tumor pipeline.* We filed an IND for TC-210, our lead mono TRuC-T cell targeting patients with mesothelin-expressing solid tumors in December 2018. We expect to generate data from this first clinical trial in the second half of 2019. Our goal is to obtain FDA Fast Track designations for both malignant pleural mesothelioma (MPM) and cholangiocarcinoma (bile duct cancer), and we believe this will provide the potential for FDA Accelerated Approval based on Phase 2 clinical data. We anticipate filing an IND for our second mono TRuC-T cell, TC-220, targeting patients with MUC16-positive solid tumors, in early 2020. We are also developing product candidates targeting other cancer antigens expressed on solid tumors.
- *Rapidly advance our hematological malignancy pipeline.* We intend to file an IND for TC-110, our lead mono TRuC-T cell targeting patients with CD19-positive B-cell hematological malignancies, in the second half of 2019. Our goal is to obtain FDA Fast Track designations for both adult ALL and DLBCL and we believe this will provide the potential for FDA Accelerated Approval based on Phase 2 clinical data.
- *Exploit the versatility of our platform to broaden our pipeline.* We have developed several additional tools that may be incorporated into our future product candidates to overcome tumor defense mechanisms, including dual-antigen targeting TRuC-T cells to minimize potential for antigen escape and cancer relapse. Our most advanced dual-antigen targeting programs include a dual mesothelin/MUC16 TRuC-T cell for solid tumors and a dual CD19/CD22 TRuC-T cell for hematological malignancies. We are also evaluating multiple proprietary designs for allogeneic, or off-the-shelf, TRuC-T cells.

- *Scale our manufacturing capacity to match our future product needs.* We plan to develop our own manufacturing capabilities. We are currently manufacturing GMP-grade clinical lots for TC-210 through third-party contractors. We have also entered into an agreement with Cell Therapy Catapult Limited (Catapult), which will allow us to manufacture our TRuC-T cells using our own personnel at Catapult's facility, while also expanding our capacity to supply future clinical trials. If our clinical trials are successful, given the size of the patient population that can potentially be targeted by our product candidates, we plan to build our own manufacturing plant.
- *Retain significant economic and commercial rights to our product candidates.* We currently own all rights to our product candidates and programs and intend to build a fully integrated cancer immunotherapy company. We intend to maintain product rights in key geographies, in particular for TC-210. We believe the versatility of our platform presents an opportunity for us to selectively form collaborations and strategic partnerships to expand our capabilities and product offerings into other therapeutic areas and potentially accelerate the development and maximize the commercial potential of our product candidates.

Our Management Team and Founders

Our company was founded by MPM Capital executive partner Dr. Patrick Baeuerle, a world-renowned immunologist who previously developed the first commercial bi-specific antibody at Micromet, Inc. (subsequently acquired by Amgen Inc.), currently being used for patients with Philadelphia chromosome negative relapsed or refractory ALL under the tradename Blincyto. We have also benefited from working closely with Dr. Mitchell Finer, an MPM Capital executive partner who has three decades of cell therapy manufacturing experience, including the design of GMP processes for bluebird bio, Inc. and Cell Genesys, Inc. The development of our TRuC-T cell platform has been further supported by the collective expertise and know-how of MPM Capital and its breadth of oncology portfolio companies.

Our strategy will be executed by a management team with a strong track record of relevant accomplishments as well as the experience necessary to build a fully integrated cancer immunotherapy company. This includes leading edge scientific innovation and design, process development, clinical development, manufacturing, commercial expertise and business acumen. Key employees include:

- Our Chief Scientific Officer, Dr. Robert Hofmeister, who developed Bavencio, one of the first PD-L1 inhibitors, while at EMD Serono, Inc., currently being used for patients with metastatic Merkel cell carcinoma and metastatic urothelial carcinoma.
- Our Chief Medical Officer, Dr. Alfonso Quintás Cardama, who has extensive experience with both CAR-T and TCR-T therapies and was pivotal in the approval process for Kymriah (Novartis) which is one of only two licensed T cell therapies for hematological malignancies.
- Our Chief Financial Officer, Mr. Ian Somaiya, who was a Wall Street research analyst for two decades with coverage of numerous leading immunotherapy companies.
- Our Chief Executive Officer, Dr. Garry Menzel, who has extensive operational and transactional expertise having previously served in the C-suite of three healthcare companies and led the biotechnology practices for two leading Wall Street firms, Goldman Sachs & Co. LLC and Credit Suisse Group AG.

We have been well-funded to date raising approximately \$170 million in capital from investors including founding investors MPM Capital and F2 Ventures and other investors including 6 Dimensions Capital, ArrowMark Partners, Cathay Fortune Capital, Curative Ventures, Hillhouse Capital Group, MiraeAsset Financial Group and Redmile Group.

Risks Associated with Our Business

Our ability to implement our business strategy is subject to numerous risks that you should be aware of before making an investment decision. These risks are described more fully in the section entitled "Risk Factors" in this prospectus. These risks include, among others:

- we are a preclinical-stage company with a limited operating history, have incurred significant losses since our inception, and anticipate that we will continue to incur significant losses for the foreseeable future;
- even if this offering is successful, we will need to raise additional funding before we can expect to generate any revenues from product sales;
- if we are unable to successfully develop our current programs into a portfolio of product candidates, or experience significant delays in doing so, we may not realize the full commercial potential of our current and future product candidates;
- we are heavily dependent upon the success of our lead product candidates, TC-210 and TC-110, and if we are unable to conduct clinical trials or obtain regulatory approval for our lead product candidates or any other product candidates that we are developing or may identify or develop, our business will be substantially harmed;
- we are very early in our development efforts and all of our product candidates are still in preclinical development. If we are unable to advance our product candidates through clinical development, obtain regulatory approval and ultimately commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed;
- results of earlier studies may not be predictive of future study or trial results, and we may fail to establish an adequate safety and efficacy profile to conduct clinical trials or obtain regulatory approval for TC-210, TC-110 or any other product candidates that we may pursue;
- if serious adverse events, undesirable side effects, or unexpected characteristics are identified during the development of any of our product candidates, we may need to delay, abandon or limit our further clinical development of those product candidates;
- manufacturing and administering our product candidates is complex and we may encounter difficulties in production, particularly with respect to process development or scaling up of our manufacturing capabilities, whether we do so ourselves or through the engagement of third parties;
- we may acquire and establish our own manufacturing facility and infrastructure in addition to or in lieu of relying on third parties for the manufacture of our product candidates, which will be costly, time-consuming, and which may not be successful;
- we are highly dependent on intellectual property licensed from third parties and termination of any of these licenses could result in the loss of significant rights, which would harm our business;
- if we are unable to obtain and maintain sufficient intellectual property protection for TC-210, TC-110, our other product candidates and technologies or any future product candidates, we may not be able to compete effectively in our markets; and
- our future success depends in part upon our ability to retain our key employees, consultants and advisors and to attract, retain and motivate other qualified personnel.

Corporate Information

We were incorporated in May 2015 under the laws of the State of Delaware under the name TCR2, Inc. On November 14, 2016, we changed our name to TCR2 Therapeutics Inc. Our principal executive offices are located at 100 Binney Street, Suite 710, Cambridge, Massachusetts 02142, and our telephone number is (617) 949-5200. Our website address is <http://www.tcr2.com>. The information contained in or accessible from our website is not incorporated into this prospectus, and you should not consider it part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Implications of Being an Emerging Growth Company

We qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, as amended. As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- being permitted to provide only two years of audited financial statements in addition to any required unaudited interim financial statements with correspondingly reduced “Management’s Discussion and Analysis of Financial Condition and Results of Operations” disclosure;
- reduced disclosure about our executive compensation arrangements;
- not being required to hold advisory votes on executive compensation or to obtain stockholder approval of any golden parachute arrangements not previously approved; and
- an exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting.

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of \$1.07 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of the completion of this offering; (iii) the date on which we have issued more than \$1.0 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission (SEC). We may choose to take advantage of some but not all of these exemptions. We have taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock.

THE OFFERING

Shares of common stock offered by us	shares
Shares of our common stock to be outstanding after this offering	shares (or shares if the underwriters exercise their option to purchase additional shares in full).
Option to purchase additional shares	We have granted the underwriters a 30-day option to purchase up to additional shares of our common stock at the public offering price, less underwriting discounts and commissions on the same terms as set forth in this prospectus.
Use of proceeds	We estimate that the net proceeds to us from the sale of shares of our common stock in this offering will be approximately \$ million, or \$ million if the underwriters exercise their option to purchase additional shares in full, assuming an initial public offering price of \$ per share, the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use the net proceeds of this offering, together with our existing cash, cash equivalents and short-term investments, for (i) developing TC-210 through the completion of our planned Phase 1/2 clinical trial, (ii) developing TC-110 through a Phase 1 clinical trial, (iii) developing TC-220 through a Phase 1/2 clinical trial, (iv) funding manufacturing activities to support our planned Phase 1/2 clinical trial of TC-210, Phase 1 clinical trial of TC-110 and Phase 1/2 clinical trial of TC-220 and (v) working capital and other general corporate purposes. See “Use of Proceeds.”
Proposed Nasdaq Global Market symbol	“TCRR”
Risk Factors	Investment in our common stock involves substantial risks. You should read this prospectus carefully, including the section entitled “Risk Factors” and the financial statements and the related notes to those statements included in this prospectus, before investing in our common stock.
<p>The number of shares of our common stock outstanding after this offering is based on 112,626,475 shares of our common stock outstanding as of September 30, 2018, after giving effect to the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 107,000,001 shares of common stock upon the completion of this offering and excludes:</p> <ul style="list-style-type: none"> ▪ 12,175,409 shares of common stock issuable upon exercise of options outstanding under our 2015 Stock Option and Grant Plan (2015 Plan) at a weighted-average exercise price of \$0.56 per share as of September 30, 2018; ▪ 49,661 shares of common stock issuable upon the exercise of outstanding options issued outside of our 2015 Plan at an exercise price of \$0.12 per share as of September 30, 2018; 	

- 1,261,541 shares of common stock issuable upon the exercise of warrants to purchase common stock at a weighted-average exercise price of \$0.12 per share as of September 30, 2018;
- 1,408,399 shares of unvested common stock options, unvested warrants and restricted stock that has been issued but was subject to repurchase by us as of September 30, 2018;
- 2,500,614 shares of common stock reserved for issuance under our 2015 Plan as of September 30, 2018;
- shares of common stock to be reserved for future issuance under our 2018 Stock Option and Incentive Plan to be effective upon the effectiveness of the registration statement of which this prospectus forms a part; and
- shares of common stock to be reserved for future issuance under our 2018 Employee Stock Purchase Plan to be effective upon the effectiveness of the registration statement of which this prospectus forms a part.

Except as otherwise noted, all information in this prospectus:

- gives effect to a for reverse stock split of our common stock effected on ;
- assumes no exercise of the underwriters' option to purchase up to additional shares of common stock in this offering;
- assumes no exercise of the outstanding options and warrants described above;
- gives effect to the automatic conversion upon the completion of this offering of all of our outstanding shares of preferred stock into an aggregate of 107,000,001 shares of common stock; and
- assumes the filing of our amended and restated certificate of incorporation and the effectiveness of our amended and restated bylaws, which will occur upon the closing of this offering.

SUMMARY FINANCIAL INFORMATION

The following tables summarize our financial and operating data for the periods indicated. The summary statements of operations and comprehensive loss data for the years ended December 31, 2016 and 2017 have been derived from our audited financial statements included elsewhere in this prospectus. The summary statements of operations and comprehensive loss data for the nine months ended September 30, 2017 and 2018 and the summary balance sheet data as of September 30, 2018 have been derived from our unaudited financial statements included elsewhere in this prospectus and have been prepared on the same basis as the audited financial information in those statements. Our historical results are not necessarily indicative of the results that may be expected in the future, and results for the nine-month period ended September 30, 2018 are not necessarily indicative of the results to be expected for the full year ending December 31, 2018.

The summary financial information below should be read in conjunction with the information contained in "Selected Financial Information," "Management's Discussion and Analysis of Financial Condition and Results of Operations," our financial statements and notes thereto, and other financial information included elsewhere in this prospectus.

(In thousands, except share and per share data)	YEARS ENDED DECEMBER 31,		NINE MONTHS ENDED SEPTEMBER 30,	
	2016	2017	2017	2018
Statements of Operations and Comprehensive Loss Data:				
Operating expenses:				
Research and development	\$ 7,670	\$ 9,569	\$ 6,822	\$ 13,454
General and administrative	2,260	3,611	2,321	4,558
Total operating expenses and loss from operations	(9,930)	(13,180)	(9,143)	(18,012)
Other income, net	15	110	85	1,451
Net loss	(9,915)	(13,070)	(9,058)	(16,561)
Accretion of redeemable convertible preferred stock to redemption value	(787)	(1,794)	(1,272)	(33,568)
Net loss attributable to common stockholders	\$ (10,702)	\$ (14,864)	\$ (10,330)	\$ (50,129)
Other Comprehensive Loss:				
Net loss	\$ (9,915)	\$ (13,070)	\$ (9,058)	\$ (16,561)
Unrealized gain (loss) on investments	(2)	2	2	(3)
Total comprehensive loss	\$ (9,917)	\$ (13,068)	\$ (9,056)	\$ (16,564)
Net loss per share of common stock—basic and diluted (1)	\$ (6.24)	\$ (6.45)	\$ (4.65)	\$ (13.53)
Weighted average shares of common stock outstanding—basic and diluted (1)	1,715,547	2,304,853	2,223,081	3,703,728
Pro forma net loss per share of common stock—basic and diluted (unaudited) (1)		\$ (0.41)		\$ (0.18)
Pro forma weighted average shares of common stock outstanding—basic and diluted (unaudited) (1)		31,789,785		92,996,769

(In thousands)	AS OF SEPTEMBER 30, 2018		
	ACTUAL	PRO FORMA (2)	PRO FORMA AS ADJUSTED (3)
Balance Sheet Data:			
Cash and cash equivalents	\$107,769	\$ 107,769	
Short-term investments	23,229	23,229	
Working capital (4)	127,598	127,598	
Total assets	134,668	134,668	
Redeemable convertible preferred stock	205,500	—	
Additional paid-in capital	—	205,489	
Accumulated deficit	(75,033)	(75,033)	
Total stockholders' (deficit) equity	(75,036)	(130,464)	

- (1) See Note 3 to our audited financial statements included elsewhere in this prospectus for an explanation of the calculations of our basic and diluted net loss per share, basic and diluted pro forma net loss per share and the shares used in computing basic and diluted net loss per share and basic and diluted pro forma net loss per share.
- (2) Pro forma amounts give effect to the automatic conversion of all of our outstanding shares of preferred stock into an aggregate of _____ shares of common stock upon the closing of this offering.
- (3) Pro forma as adjusted amounts reflect the pro forma adjustments described in footnote 2 above as well as the sale of _____ shares of our common stock in this offering at the assumed initial public offering price of \$ _____ per share, the midpoint of the price range set forth on the cover page of this prospectus, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.
- (4) We define working capital as current assets less current liabilities. See our financial statements for further details regarding our current assets and current liabilities.

The pro forma as adjusted information discussed above is illustrative only and will change based on the actual initial public offering price and other terms of this offering determined at pricing. A \$1.00 increase (decrease) in the assumed initial public offering price of \$ _____ per share, the midpoint of the price range set forth on the cover of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash and cash equivalents, working capital, total assets and total stockholders' (deficit) equity by approximately \$ _____ million, assuming that the number of shares offered by us, as set forth on the cover of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase (decrease) of 1.0 million shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash and cash equivalents, working capital, total assets and total stockholders' (deficit) equity by approximately \$ _____ million, assuming the assumed initial public offering price remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this prospectus, including our financial statements and the related notes and the section of this prospectus titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" before you make an investment decision. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and growth prospects. As a result, the market price of our common stock could decline, and you may lose all or part of your investment in our common stock.

Risks Related to Our Financial Condition and Capital Requirements

Our limited operating history may make it difficult for you to evaluate the success of our business to date and to assess our future viability.

We are a preclinical-stage immunotherapy company with a limited operating history. We commenced operations in May 2015, and our operations to date have been limited to organizing and staffing our company, business planning, raising capital, conducting discovery and research activities, filing patent applications, identifying potential product candidates, undertaking preclinical studies and establishing arrangements with third parties for the manufacture of initial quantities of our product candidates and component materials. All of our product candidates are still in preclinical development. We have not yet demonstrated our ability to successfully initiate or complete any clinical trials, obtain marketing approvals, manufacture a commercial-scale product or arrange for a third party to do so on our behalf, or conduct sales, marketing and distribution activities necessary for successful product commercialization. Consequently, any predictions you make about our future success or viability may not be as accurate as they could be if we had a longer operating history.

In addition, as a young business, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown factors. We will need to transition at some point from a company with a research and development focus to a company capable of supporting commercial activities. We may not be successful in such a transition.

We expect our financial condition and operating results to continue to fluctuate significantly from quarter to quarter and year to year due to a variety of factors, many of which are beyond our control. Accordingly, you should not rely upon the results of any quarterly or annual periods as indications of future operating performance.

We have incurred significant losses since inception, and we expect to incur losses over the next several years and may not be able to achieve or sustain revenues or profitability in the future.

Investment in biopharmaceutical product development is a highly speculative undertaking and entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate effect or an acceptable safety profile, gain regulatory approval and become commercially viable. We are still in the early stages of development of our product candidates, and have not yet initiated our first clinical trial. We have no products licensed for commercial sale and have not generated any revenue from product sales to date, and we continue to incur significant research and development and other expenses related to our ongoing operations. We have financed our operations primarily through private placements of our preferred stock.

We have incurred significant net losses in each period since our inception in May 2015. For the years ended December 31, 2016 and 2017, we reported net losses of \$9.9 million and \$13.1 million, respectively. For the nine months ended September 30, 2017 and 2018, we reported net losses of \$9.1 million and \$16.5 million, respectively. As of September 30, 2018, we had an accumulated deficit of \$75.0 million. We expect to continue to incur significant losses for the foreseeable future, and we expect these losses to increase substantially if and as we:

- continue our research and development efforts and submit investigational new drug applications (INDs) for our lead product candidates;
- conduct preclinical studies and clinical trials for our current and future product candidates based on our TRuC-T cell platform;
- seek marketing approvals for any product candidates that successfully complete clinical trials;

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- build commercial infrastructure to support sales and marketing for our product candidates;
- expand, maintain and protect our intellectual property portfolio;
- hire additional clinical, regulatory and scientific personnel; and
- operate as a public company.

Because of the numerous risks and uncertainties associated with pharmaceutical product development, we are unable to accurately predict the timing or amount of increased expenses we will incur or when, if ever, we will be able to achieve profitability. Even if we succeed in commercializing one or more of our product candidates, we will continue to incur substantial research and development and other expenditures to develop, seek regulatory approval for, and market additional product candidates. We may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenue. Our prior losses and expected future losses have had and will continue to have an adverse effect on our stockholders' equity and working capital.

We have not generated any revenue from our product candidates and may never be profitable.

Our ability to become profitable depends upon our ability to generate revenue. To date, we have not generated any revenue from any of our product candidates. We do not expect to generate significant revenue unless or until we successfully complete clinical development and obtain regulatory approval of, and then successfully commercialize, at least one of our product candidates. All of our product candidates are in the early stages of development and will require additional preclinical studies, clinical development, regulatory review and approval, substantial investment, access to sufficient commercial manufacturing capacity and significant marketing efforts before we can generate any revenue from product sales. TC-210, our most advanced mono TRuC-T cell product candidate targeting mesothelin-positive solid tumors, has not yet been evaluated in clinical trials. TC-110, our mono TRuC-T cell product candidate targeting CD-19-positive B-cell hematological malignancies, and TC-220 have yet to complete IND-enabling studies. Our other TRuC-T cell product candidates are in early preclinical stages. We have not yet administered any of our product candidates in humans and, as such, we face significant translational risk as our product candidates advance to the clinical stage. Our ability to generate revenue depends on a number of factors, including, but not limited to:

- timely completion of our preclinical studies and clinical trials, which may be significantly slower or cost more than we currently anticipate and will depend substantially upon the performance of third-party contractors;
- our ability to complete IND-enabling studies and successfully submit INDs or comparable applications;
- whether we are required by the U.S. Food and Drug Administration (FDA) or similar foreign regulatory authorities to conduct additional clinical trials or other studies beyond those planned to support the approval and commercialization of our product candidates or any future product candidates;
- our ability to demonstrate to the satisfaction of the FDA and similar foreign regulatory authorities the safety, potency, purity and acceptable risk to benefit profile of our product candidates or any future product candidates;
- the prevalence, duration and severity of potential side effects or other safety issues experienced with our product candidates or future product candidates, if any;
- the timely receipt of necessary marketing approvals from the FDA and similar foreign regulatory authorities;
- the willingness of physicians, operators of clinics and patients to utilize or adopt any of product candidates or future product candidates to treat solid tumors and hematological malignancies;
- our ability and the ability of third parties with whom we contract to manufacture adequate clinical and commercial supplies of our product candidates or any future product candidates, remain in good standing with regulatory authorities and develop, validate and maintain commercially viable manufacturing processes that are compliant with current good manufacturing practices (cGMP);
- our ability to successfully develop a commercial strategy and thereafter commercialize our product candidates or any future product candidates in the United States and internationally, if licensed for marketing, reimbursement, sale and distribution in such countries and territories, whether alone or in collaboration with others;

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- patient demand for our product candidates and any future product candidates, if licensed; and
- our ability to establish and enforce intellectual property rights in and to our product candidates or any future product candidates.

Many of the factors listed above are beyond our control, and could cause us to experience significant delays or prevent us from obtaining regulatory approvals or commercialize our product candidates. Even if we are able to commercialize our product candidates, we may not achieve profitability soon after generating product sales, if ever. If we are unable to generate sufficient revenue through the sale of our product candidates or any future product candidates, we may be unable to continue operations without continued funding.

If we fail to obtain additional financing, we may be unable to continue our research and product development programs.

Our operations have consumed substantial amounts of cash since inception. We expect to continue to spend substantial amounts to continue the clinical development of our product candidates, including our planned Phase 1/2 clinical trial of TC-210 and ongoing and planned IND-enabling studies for our other product candidates. If licensed, we will require significant additional amounts in order to launch and commercialize our product candidates.

We had cash, cash equivalents and short-term investments of approximately \$131.0 million as of September 30, 2018. We estimate that our net proceeds from this offering will be approximately \$ million, based on an assumed initial public offering price of \$ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The net proceeds of this offering and our existing cash, cash equivalents and short-term investments may not be sufficient to fund all of our efforts that we plan to undertake.

We believe that net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, will be sufficient to fund our operations through . However, we have based this estimate on assumptions that may prove to be wrong. Additionally, changing circumstances may cause us to consume capital significantly faster than we currently anticipate, and we may need to spend more money than currently expected because of circumstances beyond our control. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. We cannot be certain that additional funding will be available on acceptable terms, or at all. If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue our research and development initiatives. We could be required to seek collaborators for our product candidates at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available or relinquish or license on unfavorable terms our rights to our product candidates in markets where we otherwise would seek to pursue development or commercialization ourselves.

Any of the above events could significantly harm our business, prospects, financial condition and results of operations and cause the price of our common stock to decline.

Risks Related to the Development of Our Product Candidates

Our approach to the discovery and development of product candidates based on our TRuC-T cell platform represents a novel approach to cancer treatment, which creates significant challenges for us.

Our future success depends on the successful development of our product candidates, which target solid tumors and hematologic malignancies using the complete T cell receptor (TCR) complex without the need for human leukocyte antigen (HLA) matching. Advancing our product candidates based on our innovative TRuC-T cell platform creates significant challenges for us, including:

- educating medical personnel about the administration of TRuC-T cell therapies on a stand-alone basis or in combination with built-in immune and tumor modulators;
- educating medical personnel regarding the potential side effect profile of our product candidates, such as the potential adverse side effects related to cytokine release syndrome (CRS), neurotoxicity or autoimmune or rheumatologic disorders;

- administering chemotherapy to patients in advance of administering our product candidates, which may increase the risk of adverse side effects;
- sourcing clinical and, if licensed, commercial, supplies for the materials used to manufacture and process our product candidates;
- manufacturing viral vectors to deliver TRuC constructs to T cells;
- developing a robust and reliable TRuC-T cell manufacturing process as well as a complete shipment lifecycle and supply chain, including efficiently managing shipment of patient cells from and to clinical sites, minimizing potential contamination to the cell product and effectively scaling manufacturing capacity to meet demand;
- managing costs of inputs and other supplies while scaling production;
- using medicines to manage adverse side effects of our product candidates, which may not adequately control the side effects and/or may have a detrimental impact on the potency of the treatment;
- obtaining and maintaining regulatory approval from the FDA for our product candidates; and
- establishing sales and marketing capabilities upon obtaining any regulatory approval to gain market acceptance of a novel therapy.

In developing our product candidates, we have not exhaustively explored different options in the design of the TRuC construct and in the method for manufacturing TRuC-T cells. We may find our existing TRuC-T cells and manufacturing process may be substantially improved with future design or process changes, necessitating development of new or additional TRuC constructs and further clinical testing and delaying commercial launch of our first products. For example:

- We have made several TRuC constructs and used preclinical studies to select product candidates to advance into clinical trials. The preclinical studies are limited in their ability to predict behavior in patients. As we gain experience working with TRuC constructs, we may decide to select other TRuC constructs for clinical development.
- We have used a lentiviral vector to deliver the TRuC construct to T cells. In the future, we may find that another viral vector or non-viral transfer process offers advantages. Switching from lentiviral to another delivery system would necessitate additional process development and clinical testing and delay the development of existing product candidates.
- The process by which patient cells are converted into a TRuC-T cell has many steps that can influence quality and activity. We have explored a subset of variables and expect to continue to improve and optimize the manufacturing process. Depending upon the nature of the process changes, we may be compelled to perform bridging studies and/or to re-start clinical development, causing delays in time to market and potentially introducing a risk of failure if new processes do not perform as expected.

We are very early in our development efforts. All of our product candidates are still in preclinical development. If we are unable to advance our product candidates through clinical development, obtain regulatory approval and ultimately commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.

We are very early in our development efforts. All of our product candidates are still in preclinical development. Our ability to generate product revenues, which we do not expect will occur for many years, if ever, will depend heavily on the successful development and eventual commercialization of one or more of our product candidates. The success of our product candidates will depend on several factors, including the following:

- successful completion of preclinical studies;
- successful initiation of clinical trials;
- successful patient enrollment in and completion of clinical trials;
- receipt and related terms of marketing approvals and licensures from applicable regulatory authorities;
- obtaining and maintaining patent and trade secret protection and regulatory exclusivity for our product candidates;
- making arrangements with third-party manufacturers, or establishing manufacturing capabilities, for both clinical and commercial supplies of our product candidates;

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- establishing sales, marketing and distribution capabilities and launching commercial sales of our products, if and when approved, whether alone or in collaboration with others;
- acceptance of our products, if and when approved, by patients, the medical community and third-party payors;
- effectively competing with other cancer therapies;
- obtaining and maintaining third-party coverage and adequate reimbursement;
- maintaining a continued acceptable safety profile of our products following licensure; and
- effectively competing with other therapies.

If we do not achieve one or more of these factors in a timely manner or at all, we could experience significant delays or be unable to successfully commercialize our product candidates, which would materially harm our business.

We have no experience as a company in conducting clinical trials.

We have no experience as a company in conducting clinical trials. In part because of this lack of experience, we cannot be certain that our ongoing preclinical studies will be completed on time or if the planned preclinical studies and clinical trials will begin or be completed on time, if at all. Large-scale clinical trials would require significant additional financial and management resources and reliance on third-party clinical investigators, contract research organizations (CROs) and consultants. Relying on third-party clinical investigators, CROs and consultants may force us to encounter delays that are outside of our control.

Our business is highly dependent on our lead product candidates, TC-210 and TC-110, and we must complete IND-enabling studies and clinical testing before we can seek regulatory approval and begin commercialization of any of our product candidates.

There is no guarantee that any of our product candidates will proceed in preclinical or clinical development or achieve regulatory approval. The process for obtaining marketing approval for any product candidate is very long and risky and there will be significant challenges for us to address in order to obtain marketing approval as planned or, if at all.

There is no guarantee that the results obtained in current preclinical studies or our planned Phase 1/2 clinical trial of TC-210 or TC-110 will be sufficient to obtain regulatory approval or marketing authorization for such product candidates. Negative results in the development of our lead product candidates may also impact our ability to obtain regulatory approval for our other product candidates, either at all or within anticipated timeframes because, although other product candidates may target different indications, the underlying technology platform, manufacturing process and development process is the same for all of our product candidates. Accordingly, a failure in any one program may affect the ability to obtain regulatory approval to continue or conduct clinical programs for other product candidates.

In addition, because we have limited financial and personnel resources and are placing significant focus on the development of our lead product candidates, we may forgo or delay pursuit of opportunities with other future product candidates that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and other future product candidates for specific indications may not yield any commercially viable future product candidates. If we do not accurately evaluate the commercial potential or target market for a particular future product candidate, we may relinquish valuable rights to those future product candidates through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such future product candidates.

Our preclinical studies and clinical trials may fail to demonstrate adequately the safety, potency and purity of any of our product candidates, which would prevent or delay development, regulatory approval and commercialization.

Before obtaining regulatory approvals for the commercial sale of our product candidates, including TC-210 and TC-110, we must demonstrate through lengthy, complex and expensive preclinical studies and clinical trials that our product candidates are both safe and effective for use in each target indication. Preclinical and clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the preclinical study and clinical trial processes, and, because our product candidates are in an early stage of development, there is a high risk of failure and we may never succeed in developing marketable products.

The results of preclinical studies and early clinical trials of our product candidates may not be predictive of the results of later-stage clinical trials. There is typically an extremely high rate of attrition from the failure of product candidates proceeding through preclinical studies and clinical trials. Product candidates in later stages of clinical trials may fail to show the desired safety, potency and purity profile despite having progressed through preclinical studies and initial clinical trials. A number of companies in the biopharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of potency or efficacy, insufficient durability of potency or efficacy or unacceptable safety issues, notwithstanding promising results in earlier trials. Most product candidates that commence preclinical studies and clinical trials are never approved as products.

Any preclinical studies or clinical trials that we may conduct may not demonstrate the safety, potency and purity necessary to obtain regulatory approval to market our product candidates. If the results of our ongoing or future preclinical studies and clinical trials are inconclusive with respect to the safety, potency and purity of our product candidates, if we do not meet the clinical endpoints with statistical and clinically meaningful significance, or if there are safety concerns associated with our product candidates, we may be prevented or delayed in obtaining marketing approval for such product candidates. In some instances, there can be significant variability in safety, potency or purity results between different preclinical studies and clinical trials of the same product candidate due to numerous factors, including changes in trial procedures set forth in protocols, differences in the size and type of the patient populations, changes in and adherence to the clinical trial protocols and the rate of dropout among clinical trial participants. Additionally, our preclinical studies comparing our product candidates to chimeric antigen receptor T (CAR-T) cells utilized CAR-T cells that we engineered, rather than the CAR-T cell therapies that are currently approved by the FDA. Although we believe, based on the results we observed in these preclinical studies, that our product candidates have the potential to improve upon the safety and efficacy of currently approved CAR-T cell therapies, these results may not be predictive of the outcome of our future preclinical studies and clinical trials, including any potential preclinical studies and clinical trials that may compare our product candidates to FDA-approved CAR-T cells.

Clinical development involves a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future clinical trial results. If our preclinical studies and clinical trials are not sufficient to support regulatory approval of any of our product candidates, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development of such product candidate.

We cannot be certain that our preclinical study and clinical trial results will be sufficient to support regulatory approval of our product candidates. Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Human clinical trials are expensive and difficult to design and implement, in part because they are subject to rigorous regulatory requirements. Failure or delay can occur at any time during the clinical trial process.

We may experience delays in obtaining the FDA's authorization to initiate clinical trials under such IND, completing ongoing preclinical studies of our other product candidates, and initiating our planned preclinical studies and clinical trials. Additionally, we cannot be certain that preclinical studies or clinical trials for our product candidates will begin on time, not require redesign, enroll an adequate number of subjects on time, or be completed on schedule, if at all. Clinical trials can be delayed or terminated for a variety of reasons, including delays or failures related to:

- the FDA or comparable foreign regulatory authorities disagreeing as to the design or implementation of our clinical trials;
- delays in obtaining regulatory approval to commence a clinical trial;
- reaching agreement on acceptable terms with prospective CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical trial sites;
- obtaining institutional review board (IRB) approval at each clinical trial site;
- recruiting an adequate number of suitable patients to participate in a clinical trial;
- having subjects complete a clinical trial or return for post-treatment follow-up;
- clinical trial sites deviating from clinical trial protocol or dropping out of a clinical trial;

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- addressing subject safety concerns that arise during the course of a clinical trial;
- adding a sufficient number of clinical trial sites; or
- obtaining sufficient product supply of product candidate for use in preclinical studies or clinical trials from third-party suppliers.

We may experience numerous adverse or unforeseen events during, or as a result of, preclinical studies and clinical trials that could delay or prevent our ability to receive marketing approval or commercialize our product candidates, including:

- we may receive feedback from regulatory authorities that requires us to modify the design of our clinical trials;
- clinical trials of our product candidates may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon our research efforts for our other product candidates;
- the number of patients required for clinical trials of our product candidates may be larger than we anticipate, enrollment in these clinical trials may be slower than we anticipate or participants may drop out of our clinical trials at a higher rate than we anticipate;
- our third-party contractors may fail to comply with regulatory requirements, fail to maintain adequate quality controls or be unable to provide us with sufficient product supply to conduct and complete preclinical studies or clinical trials of our product candidates in a timely manner, or at all;
- we or our investigators might have to suspend or terminate clinical trials of our product candidates for various reasons, including non-compliance with regulatory requirements, a finding that our product candidates have undesirable side effects or other unexpected characteristics or a finding that the participants are being exposed to unacceptable health risks;
- the cost of clinical trials of our product candidates may be greater than we anticipate;
- the quality of our product candidates or other materials necessary to conduct preclinical studies or clinical trials of our product candidates may be insufficient or inadequate;
- regulators may revise the requirements for approving our product candidates, or such requirements may not be as we anticipate; and
- future collaborators may conduct clinical trials in ways they view as advantageous to them but that are suboptimal for us.

If we are required to conduct additional clinical trials or other testing of our product candidates beyond those that we currently contemplate, if we are unable to successfully complete clinical trials of our product candidates or other testing, if the results of these trials or tests are not positive or are only moderately positive or if there are safety concerns, our business and results of operations may be adversely affected and we may incur significant additional costs. In addition, costs to treat patients with relapsed or refractory cancer and to treat potential side effects that may result from our product candidates can be significant. Accordingly, our clinical trial costs are likely to be significantly higher than those for more conventional therapeutic technologies or drug product candidates.

We could also encounter delays if a clinical trial is suspended or terminated by us, by the IRBs of the institutions in which such clinical trials are being conducted, by the Data Safety Monitoring Board (DSMB) for such clinical trial or by the FDA or other regulatory authorities. Such authorities may suspend or terminate a clinical trial due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical trial protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from the product candidates, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial.

If we experience delays in the completion, or termination, of any preclinical study or clinical trial of our product candidates, the commercial prospects of our product candidates may be harmed, and our ability to generate revenues from any of these product candidates will be delayed or not realized at all. In addition, any delays in completing our preclinical studies or clinical trials may increase our costs, slow down our product candidate

development and approval process and jeopardize our ability to commence product sales and generate revenues. Any of these occurrences may significantly harm our business, financial condition and prospects. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates. If one or more of our product candidates generally prove to be ineffective, unsafe or commercially unviable, our entire pipeline and TRuC-T cell platform would have little, if any, value, which would have a material and adverse effect on our business, financial condition, results of operations and prospects.

We may rely on third parties to manufacture our clinical product supplies, and we may rely on third parties to produce and process our product candidates, if licensed.

We do not currently own any facility that may be used as our clinical scale manufacturing and processing facility and expect to rely on outside vendors to manufacture supplies and process our product candidates. We have not yet caused any product candidates to be manufactured or processed on a commercial scale and may not be able to do so for any of our product candidates. We plan to make changes as we work to optimize the manufacturing process. For example, we may switch or be required to switch from research-grade materials to commercial-grade materials in order to get regulatory approval of our product candidates. We cannot be sure that even minor changes in the process will result in therapies that are safe and effective and licensed for commercial sale.

The facilities used by our contract manufacturers to manufacture our product candidates must be approved by the FDA or other foreign regulatory authorities following inspections that will be conducted after we submit an application to the FDA or other foreign regulatory authorities. We may not control the manufacturing process of, and may be completely dependent on, our contract manufacturing partners for compliance with cGMPs and any other regulatory requirements of the FDA or other regulatory authorities for the manufacture of our product candidates. We have no control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates, if licensed.

We cannot guarantee that our product candidates will show any functionality in the solid tumor microenvironment.

There are no approved CAR-T or engineered TCR-T cell immunotherapies for solid tumors. We believe our TRuC-T cell product candidates will be effective against solid tumors. While we plan to develop product candidates for use in solid tumors, including TC-210, we cannot guarantee that our product candidates will show any functionality in the solid tumor microenvironment. The cellular environment in which solid tumor cells thrive is generally hostile to T cells due to factors such as the presence of immunosuppressive cells, humoral factors and limited access to nutrients. Our TRuC-T cell-based product candidates may not be able to access the solid tumor, and even if they do, they may not be able to exert anti-tumor effects in a hostile tumor microenvironment. In addition, the safety profile of our product candidates may differ in a solid tumor setting. As a result, our product candidates may not demonstrate potency in solid tumors. If we are unable to make our product candidates function in solid tumors, our development plans and business may be significantly harmed.

Since the number of patients that we plan to dose in our planned Phase 1/2 clinical trial of TC-210 is small, the results from such clinical trial, once completed, may be less reliable than results achieved in larger clinical trials, which may hinder our efforts to obtain regulatory approval for our product candidates.

In our planned Phase 1/2 clinical trial of TC-210, we plan to evaluate the safety profile of TC-210 and establish the recommended Phase 2 dose in approximately 50 patients with non-small cell lung cancer (NSCLC), ovarian cancer, malignant mesothelioma (MPM) and cholangiocarcinoma. The preliminary results of clinical trials with smaller sample sizes, such as our planned Phase 1/2 clinical trial of TC-210, can be disproportionately influenced by various biases associated with the conduct of small clinical trials, such as the potential failure of the smaller sample size to accurately depict the features of the broader patient population, which limits the ability to generalize the results across a broader community, thus making the clinical trial results less reliable than clinical trials with a larger number of patients. As a result, there may be less certainty that such product candidates would achieve a statistically significant effect in any future clinical trials. If we conduct any future clinical trials of TC-210, we may not achieve a statistically significant result or the same level of statistical significance, if any, that we might have anticipated based on the results observed in our initial Phase 1/2 clinical trial.

We may not be able to file INDs or IND amendments to commence additional clinical trials on the timelines we expect, and even if we are able to, the FDA may not permit us to proceed.

We submitted an IND for TC-210 in December 2018 and expect to submit an IND for TC-110 in the second half of 2019 and for TC-220 in early 2020. However, we may not be able to file such INDs on the timelines we expect. For example, we may experience manufacturing delays or other delays with IND-enabling studies. In July 2018, for example, a power failure that occurred during a manufacturing run to produce virus for our planned Phase 1/2 clinical trial of TC-210 caused us to abandon that manufacturing run and resulted in a month-long delay in the process of manufacturing the requisite virus to support our IND filing for TC-210 and consequently a delay in the IND filing itself. Moreover, we cannot be sure that submission of an IND will result in the FDA allowing further clinical trials to begin, or that, once begun, issues will not arise that suspend or terminate clinical trials. Additionally, even if such regulatory authorities agree with the design and implementation of the clinical trials set forth in an IND, we cannot guarantee that such regulatory authorities will not change their requirements in the future. These considerations also apply to new clinical trials we may submit as amendments to existing INDs.

Our product candidates may cause undesirable side effects or have other properties that could halt their clinical development, prevent their regulatory approval, require expansion of the trial size, limit their commercial potential, or result in significant negative consequences.

Undesirable side effects caused by our product candidates could cause us or regulatory authorities, including IRBs, to interrupt, delay, or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other comparable foreign regulatory authorities. Further, clinical trials by their nature utilize a sample of the potential patient population. With a limited number of subjects and limited duration of exposure, rare and severe side effects of our product candidates may only be uncovered with a significantly larger number of patients exposed to the drug. Because of our planned dose escalation design for our clinical trials, undesirable side effects could also result in an expansion in the size of our clinical trials, increasing the expected costs and timeline of our clinical trials. Additionally, results of our clinical trials could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics, which may stem from our therapies specifically or may be due to an illness from which the clinical trial subject is suffering.

Autoimmunity may occur after TRuC-T cell treatment. TRuC-T cells are generated from a patient's own T cells isolated from their peripheral blood. There is a theoretical risk that this process will expand a patient's own T cell that has autoreactivity, or that may recognize healthy cells, and upon re-infusion may trigger an autoimmune reaction resulting in damage to normal tissues and potentially even death.

Autoimmune reaction triggered by an interaction between a patient's naturally occurring antibodies and engineered T cells is a theoretical safety risk of product candidates we develop using our TRuC-T cell platform. If a patient's self-generated antibodies were directed to a target expressed on the surface of cells in normal tissue (autoantibodies), engineered T cells would be directed to attack these same tissues, potentially resulting in off-tumor effects. These autoantibodies may be present whether or not the patient has an active autoimmune disease. In our clinical testing, we plan to take steps to minimize the likelihood that this occurs, for example by excluding patients with a history of severe autoimmune disease from our trials. There is no guarantee, however, that we will not observe autoimmune reactions in the future and no guarantee that if we do, that we will be able to implement interventions to address the risk.

Immunogenicity, which is the reaction between a patient's immune system and a foreign protein outside of the autoimmune context, is an additional theoretical safety risk of product candidates we develop using our TRuC-T cell platform. Patients' immune systems may recognize the TRuC construct on the TRuC-T cell as a foreign protein and fight against it, potentially rendering it ineffective, or even provoking an allergic/anaphylactoid response or other adverse side effects. The immunogenic potential of novel therapeutics like TRuC-T cells is difficult to predict. There is no guarantee that we will not observe immunogenic reactions in the future and no guarantee that if we do, that we will be able to implement interventions to address the risk.

If unacceptable toxicities arise in the development of our product candidates, we could suspend or terminate our clinical trials or the FDA or comparable foreign regulatory authorities, or local regulatory authorities such as IRBs, could order us to cease clinical trials. Competent national health authorities, such as the FDA, could also deny approval of our product candidates for any or all targeted indications. Treatment-related side effects could also affect patient recruitment or the ability of enrolled patients to complete the clinical trial or result in potential product

liability claims. In addition, these side effects may not be appropriately recognized or managed by the treating medical staff, as toxicities resulting from T cell therapy are not normally encountered in the general patient population and by medical personnel. We expect to have to train medical personnel using our product candidates to understand the side effect profile of our product candidates for both our planned clinical trials and upon any commercialization of any product candidates, if licensed. Inadequate training in recognizing or managing the potential side effects of our product candidates could result in patient deaths. Any of these occurrences may significantly harm our business, financial condition and prospects.

Our product candidates may target healthy cells expressing target antigens leading to potentially fatal adverse effects.

Our product candidates target specific antigens that are also expressed on healthy cells. For example, our lead product candidate, TC-210, targets mesothelin, an antigen commonly found on mesotheliomas, ovarian cancers, and NSCLC, as well in healthy cells that line the pleura, pericardium and peritoneum. TC-110 targets CD19, which is overexpressed in several cancers including B-cell leukemias and lymphomas, but is also expressed by normal B-cells. Our product candidates may target healthy cells, leading to serious and potentially fatal adverse effects. In our planned Phase 1/2 clinical trial of TC-210, we plan to use a dose escalation model to closely monitor the effect of TC-210 on vital organs and other potential side effects. In clinical testing of TC-110, we also plan to closely monitor the effect of TC-110 on normal B-cells that express CD19 and for other side effects. Even though we intend to closely monitor the side effects of our product candidates in both preclinical studies and clinical trials, we cannot guarantee that products will not target and kill healthy cells.

Our product candidates may have serious and potentially fatal cross-reactivity to other peptides or protein sequences within the body.

Our product candidates may recognize and bind to a peptide unrelated to the target antigen to which it is designed to bind. If this peptide is expressed within normal tissues, our product candidates may target and kill the normal tissue in a patient, leading to serious and potentially fatal adverse effects. Detection of any cross-reactivity may halt or delay any ongoing clinical trials for any TRuC-T cell based product candidate and prevent or delay regulatory approval. Unknown cross-reactivity of the TRuC-T cell binding domain to related proteins could also occur. We have also developed a preclinical screening process to identify cross-reactivity of the TRuC-T cell binders. Any cross-reactivity that impacts patient safety could materially impact our ability to advance our product candidates into clinical trials or to proceed to marketing approval and commercialization.

The viral vectors used to manufacture our TRuC-T cells may incorrectly modify the genetic material of a patient's T cells, potentially triggering the development of a new cancer or other adverse events.

Our TRuC-T cells are manufactured by using a viral vector to insert genetic information encoding the TRuC construct into the patient's T cells. The TRuC construct is then integrated into the natural TCR complex and transported to the surface of the patient's T cells. Because the viral vector modifies the genetic information of the T cell, there is a theoretical risk that modification will occur in the wrong place in the T cell's genetic code, leading to vector-related insertional oncogenesis, and causing the T cell to become cancerous. If the cancerous T cell is then administered to the patient with the TRuC-T cells, the cancerous T cell could trigger the development of a new cancer in the patient. We use lentiviral vectors to insert genetic information into T cells, which we believe have a lower risk of insertional oncogenesis as opposed to other types of viral vectors. However, the risk of insertional oncogenesis remains a concern for gene therapy and we cannot assure that it will not occur in any of our ongoing or planned preclinical studies or clinical trials. There is also the potential risk of delayed adverse events following exposure to gene therapy products due to persistent biological activity of the genetic material or other components of vectors used to carry the genetic material. The FDA has stated that lentiviral vectors possess characteristics that may pose high risks of delayed adverse events. If any such adverse events occur, further advancement of our preclinical studies or clinical trials could be halted or delayed, which would have a material adverse effect on our business and operations.

If we encounter difficulties enrolling patients in our clinical trials, our clinical development activities could be delayed or otherwise adversely affected.

We may experience difficulties in patient enrollment in our clinical trials for a variety of reasons. The timely completion of clinical trials in accordance with their protocols depends on, among other things, our ability to enroll a sufficient number of patients who remain in the clinical trial until its conclusion. The enrollment of patients depends on many factors, including:

- the patient eligibility criteria defined in the clinical trial protocol;
- the size of the patient population required for analysis of the clinical trial's primary endpoints;
- the proximity of patients to clinical trial sites;
- the design of the clinical trial;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;
- our ability to obtain and maintain patient consents;
- reporting of the preliminary results of any of our clinical trials; and
- the risk that patients enrolled in clinical trials will drop out of the clinical trials before the manufacturing and infusion of our product candidates or clinical trial completion.

In addition, our clinical trials will compete with other clinical trials for product candidates that are in the same therapeutic areas as our product candidates, and this competition will reduce the number and types of patients available to us because some patients who might have opted to enroll in our clinical trials may instead opt to enroll in a clinical trial being conducted by one of our competitors. Since the number of qualified clinical investigators is limited, we expect to conduct some of our clinical trials at the same clinical trial sites that some of our competitors use, which will reduce the number of patients who are available for our clinical trials at such clinical trial sites. Moreover, because our product candidates represent a departure from more commonly used methods for cancer treatment, potential patients and their doctors may be inclined to use conventional therapies, such as chemotherapy and hematopoietic stem cell transplantation, rather than enroll patients in any future clinical trial. Additionally, because some of our clinical trials are in patients with relapsed/refractory cancer, the patients are typically in the late stages of their disease and may experience disease progression independent from our product candidates, making them unevaluable for purposes of the clinical trial and requiring additional patient enrollment.

Delays in completing patient enrollment may result in increased costs or may affect the timing or outcome of our ongoing and planned clinical trials, which could prevent completion or commencement of these clinical trials and adversely affect our ability to advance the development of our product candidates.

Manufacturing and administering our product candidates is complex and we may encounter difficulties in production, particularly with respect to process development or scaling up of our manufacturing capabilities. If we encounter such difficulties, our ability to provide supply of our TRuC-T cells for clinical trials or for commercial purposes could be delayed or stopped.

The process of manufacturing and administering our product candidates is complex and highly regulated. The manufacture of our product candidates involves complex processes, including the manufacture of a lentiviral delivery vector containing the genetic information for our TRuC construct and manufacturing T cells containing the TRuC construct for the final product candidates. More specifically, the manufacture of our product candidates includes harvesting white blood cells from the patient, isolating certain T cells from the white blood cells, combining patient T cells with our lentiviral delivery vector through a process known as transduction, expanding the transduced T cells to obtain the desired dose, and ultimately infusing the modified T cells back into the patient's body. As a result of the complexities entailed in this process, our manufacturing and supply costs are likely to be higher than those at more traditional manufacturing processes and the manufacturing process is less reliable and more difficult to reproduce. Additionally, the number of facilities that are capable of harvesting patients' cells for the manufacture of our product candidates and other autologous cell therapy products and product candidates is limited. As the number of autologous cell therapy products and product candidates increases, the limited number of facilities capable of harvesting patients' cells could result in delays in the manufacture and administration of our product candidates.

We rely on third parties for the manufacture of our lentiviral vectors and our product candidates. These third party manufacturers may incorporate their own proprietary processes into our lentiviral vector and product candidate

manufacturing processes. We have limited control and oversight of a third party's proprietary process, and a third party may elect to modify its process without our consent or knowledge. These modifications could negatively impact our manufacturing, including product loss or failure that requires additional manufacturing runs or a change in manufacturer, both of which could significantly increase the cost of and significantly delay the manufacture of our product candidates.

Our manufacturing process is and will be susceptible to product loss or failure due to logistical issues, including manufacturing issues associated with the differences in patients' white blood cells, interruptions in the manufacturing process, contamination, equipment or reagent failure, power failures, supplier error and variability in patient characteristics. For example, in July 2018, a power failure that occurred during a manufacturing run to produce virus for our planned Phase 1/2 clinical trial of TC-210 caused us to abandon that run, and resulted in a month-long delay in the process of manufacturing the requisite virus to support our IND filing for TC-210 and consequently a delay in the IND filing itself. Even minor deviations from normal manufacturing processes could result in reduced production yields, product defects and other supply disruptions. If for any reason we lose a patient's white blood cells, or such material gets contaminated or processing steps fail at any point, the manufacturing process of the TRuC-T cells for that patient will need to be restarted and the resulting delay may adversely affect that patient's outcome. If microbial, viral or other contaminations are discovered in our product candidates or in the manufacturing facilities in which our product candidates are made or administered, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination.

As our product candidates progress through preclinical studies and clinical trials towards licensure and commercialization, it is expected that various aspects of the manufacturing and administration process will be altered in an effort to optimize processes and results. We have already identified some improvements to our manufacturing and administration processes, but these changes may not achieve the intended objectives, and could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials. In addition, such changes may require amendments to be made to regulatory applications which may further delay the timeframes under which modified manufacturing processes can be used for any of our product candidates.

Developing a commercially viable process is a difficult and uncertain task, and there are risks associated with scaling to the level required for advanced clinical trials or commercialization, including, among others, increased costs, potential problems with process scale-out, process reproducibility, stability issues, lot consistency, and timely availability of reagents or raw materials. We may ultimately be unable to reduce the expenses associated with our product candidates to levels that will allow us to achieve a profitable return on investment.

We do not have our own clinical-scale manufacturing facility and are currently reliant on a limited number of manufacturers for our lentiviral vector and a single manufacturer to provide our needs for producing our TRuC-T cell product candidates. We are in the process of adding manufacturing capacity to support larger clinical trials for our product candidates and have contracted with Cell Therapy Catapult Limited (Catapult) to occupy a suite in their GMP manufacturing center in Stevenage, United Kingdom, which we expect to be operational in the second half of 2019. We plan to pursue additional manufacturing capacity in the United States and in Europe to meet our future demands and may build our own manufacturing capabilities to meet the patient demand for our product candidates. These third-party manufacturing providers may not be able to provide adequate resources or capacity to meet our needs.

We plan to establish our own manufacturing facility and infrastructure in addition to or in lieu of relying on third parties for the manufacture of our product candidates and the use of third party manufacturing suites, which will be costly, time-consuming, and which may not be successful.

We are in the process of adding manufacturing capacity within Catapult's GMP manufacturing center for our larger clinical trials and we may establish our own commercial manufacturing facility to mitigate our reliance on third-party vendors and ensure we can manage the supply chain, change control and reduction of costs and other benefits. The establishment of our own commercial manufacturing facility would be a costly and time-consuming process that we expect to require additional capital to fund and take several years before becoming operational.

We have no experience as a company in setting up, building or managing a manufacturing facility or manufacturing suite, and may never be successful in developing our own manufacturing suite, manufacturing facility or

manufacturing capability. We will need to hire additional personnel to manage our operations and facilities and develop the necessary infrastructure to continue the research and development, and eventual commercialization, if licensed, of our product candidates. If we fail to recruit the required personnel and generally manage our growth effectively or fail to select the correct location, the development and production of our product candidates could be curtailed or delayed. Even if we are successful in establishing a manufacturing suite or manufacturing facility, our manufacturing capabilities could be affected by cost-overruns, unexpected delays, equipment failures, labor shortages, natural disasters, power failures and numerous other factors that could prevent us from realizing the intended benefits of our manufacturing strategy and have a material adverse effect on our business.

In addition, the FDA, the European Medicines Agency (EMA) and other foreign regulatory authorities may require us to submit samples of any lot of any licensed product together with the protocols showing the results of applicable tests at any time. Under some circumstances, the FDA, the EMA or other foreign regulatory authorities may require that we not distribute a lot until the relevant agency authorizes its release. Slight deviations in the manufacturing process, including those affecting quality attributes and stability, may result in unacceptable changes in the product that could result in lot failures or product recalls. Lot failures or product recalls could cause us to delay product launches or clinical trials, which could be costly to us and otherwise harm our business, financial condition, results of operations and prospects. Problems in our manufacturing process could restrict our ability to meet market demand for our products.

We also may encounter problems hiring and retaining the experienced scientific, quality-control and manufacturing personnel needed to operate our manufacturing processes, which could result in delays in production or difficulties in maintaining compliance with applicable regulatory requirements.

Any problems in our manufacturing process or facilities could make us a less attractive collaborator for potential partners, including larger pharmaceutical companies and academic research institutions, which could limit our access to additional attractive development programs.

We may have difficulty validating our manufacturing process as we manufacture TRuC-T cells from an increasingly diverse patient population for our clinical trials.

During our development of the manufacturing process, our TRuC-T cells have demonstrated consistency from lot to lot and from donor to donor. However, our sample size is small and the starting material is from healthy donors. Once we have experience with working with white blood cells taken from our patient population, we may encounter unforeseen difficulties due to starting with material from donors who are not healthy, including challenges inherent in harvesting white blood cells from unhealthy patients.

Although we believe our current manufacturing process is scalable for commercialization, we may encounter challenges in validating our process due to the heterogeneity of the product starting material. However, we anticipate that during the early phases of our clinical trials we will be able to adapt our process to account for these differences resulting in a more robust process. We cannot guarantee that any other issues relating to the heterogeneity of the starting material will not impact our ability to commercially manufacturing our product candidates.

The market opportunities for our product candidates may be relatively small as it will be limited to those patients who are ineligible for or have failed prior treatments and our estimates of the prevalence of our target patient populations may be inaccurate.

Cancer therapies are sometimes characterized as first line, second line, or third line, and the FDA often approves new therapies initially only for a particular line of use. When cancer is detected early enough, first line therapy is sometimes adequate to cure the cancer or prolong life without a cure. Whenever first line therapy, usually chemotherapy, antibody drugs, tumor-targeted small molecules, hormone therapy, radiation therapy, surgery, or a combination of these, proves unsuccessful, second line therapy may be administered. Second line therapies often consist of more chemotherapy, radiation, antibody drugs, tumor-targeted small molecules, or a combination of these. Third line therapies can include hematopoietic stem cell transplantation in certain cancers, chemotherapy, antibody drugs and small molecule tumor-targeted therapies, more invasive forms of surgery and new technologies. We expect to initially seek approval of our product candidates in most instances at least as a second or third line therapy, for use in patients with relapsed or refractory metastatic cancer. Subsequently, for those product candidates that prove to be sufficiently safe and beneficial, if any, we would expect to seek approval as a second line therapy and

potentially as a first line therapy, but there is no guarantee that our product candidates, even if licensed as a second or third or subsequent line of therapy, would be licensed for an earlier line of therapy, and, prior to any such approvals, we may have to conduct additional clinical trials. Consequently, the potentially addressable patient population for our product candidates may be extremely limited or may not be amenable to treatment with our product candidates.

Our projections of both the number of people who have the cancers we are targeting, as well as the subset of people with these cancers in a position to receive a particular line of therapy and who have the potential to benefit from treatment with our product candidates, are based on our beliefs and estimates. These estimates have been derived from a variety of sources, including scientific literature, surveys of clinics, patient foundations or market research, and may prove to be incorrect. Further, new therapies may change the estimated incidence or prevalence of the cancers that we are targeting. Consequently, even if our product candidates are approved for a second or third line of therapy, the number of patients that may be eligible for treatment with our product candidates may turn out to be much lower than expected.

Our product candidates rely on the use of protein binding domains, or binders, to target specific cancers, which we may develop or which may be developed by third parties. We are limited in our ability to apply our product candidates to a wider range of potential target cancers by our ability to develop, partner for or acquire these binders on commercially reasonable terms.

TRuC-T cell therapies require the use of antigen-specific protein binding domains, or binders, which guide the TRuC-T cells and bind to the antigens on the surface of a tumor to target specific types of cancers. Our ability to develop and commercialize our product candidates will depend on our ability to develop these binders or partner for such binders on commercially reasonable terms for use in clinical trials as well as the availability of such binders for use in commercialized products, if licensed. For example, we have a non-exclusive license for the mesothelin binder incorporated into the TRuC construct for TC-210 from Harpoon Therapeutics, Inc. (Harpoon). However, we cannot be certain that our Harpoon license or potential future collaborations will provide us with a steady supply of binders that we can utilize in combination with the TRuC construct to develop future product candidates. If we are unable to enter into such collaborations on commercially reasonable terms or fail to realize the benefits of any such collaboration, we may be limited to using antibody fragments that we are able to independently develop which may limit the ability of our product candidates to target and kill cancer cells.

The failure to enter into a successful collaboration or to develop our own binders may delay our development timelines, increase our costs and jeopardize our ability to develop future product candidates as a commercially viable drug, which could result in delays in product development and harm our business.

We currently have no marketing and sales organization and have no experience in marketing products. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell our product candidates, if licensed, we may not be able to generate product revenue.

We currently have no sales, marketing or distribution capabilities and have no experience in marketing products. We intend to develop an in-house marketing organization and sales force, which will require significant capital expenditures, management resources and time. We will have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train and retain marketing and sales personnel.

If we are unable or decide not to establish internal sales, marketing and distribution capabilities, we will pursue collaborative arrangements regarding the sales and marketing of our products, if licensed. However, there can be no assurance that we will be able to establish or maintain such collaborative arrangements, or if we are able to do so, that they will have effective sales forces. Any revenue we receive will depend upon the efforts of such third parties, which may not be successful. We may have little or no control over the marketing and sales efforts of such third parties and our revenue from product sales may be lower than if we had commercialized our product candidates ourselves. We also face competition in our search for third parties to assist us with the sales and marketing efforts of our product candidates.

There can be no assurance that we will be able to develop in-house sales and distribution capabilities or establish or maintain relationships with third-party collaborators to commercialize any product in the United States or overseas.

A variety of risks associated with marketing our product candidates internationally could materially adversely affect our business.

We plan to seek regulatory approval of our product candidates outside of the United States and, accordingly, we expect that we will be subject to additional risks related to operating in foreign countries if we obtain the necessary approvals, including:

- differing regulatory requirements in foreign countries;
- unexpected changes in tariffs, trade barriers, price and exchange controls and other regulatory requirements;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign taxes, including withholding of payroll taxes;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- difficulties staffing and managing foreign operations;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- potential liability under the Foreign Corrupt Practices Act of 1977 or comparable foreign regulations;
- challenges enforcing our contractual and intellectual property rights, especially in those foreign countries that do not respect and protect intellectual property rights to the same extent as the United States;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and
- business interruptions resulting from geo-political actions, including war and terrorism.

These and other risks associated with international operations may materially adversely affect our ability to attain or maintain profitable operations.

We face significant competition, and our operating results will suffer if we fail to compete effectively.

The biopharmaceutical industry is characterized by intense competition and rapid innovation. Our competitors may be able to develop other products or drugs that are able to achieve similar or better results. Our potential competitors include larger biotechnology and pharmaceutical companies with greater resources than us, academic institutions, governmental agencies, public and private research institutions and early stage or smaller companies. Many of our competitors have substantially greater financial, technical and other resources, such as larger research and development staff, experienced marketing and manufacturing organizations and well-established sales forces. In addition, many of these competitors are active in seeking patent protection and licensing arrangements in anticipation of collecting royalties for use of technology that they have developed. Mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated in our competitors. Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these industries. Our competitors, either alone or with collaborative partners, may succeed in developing, acquiring or licensing on an exclusive basis drug or biologic products that are more effective, safer, more easily commercialized or less costly than our product candidates or may develop proprietary technologies or secure patent protection that we may need for the development of our technologies and products. We believe the key competitive factors that will affect the development and commercial success of our product candidates are safety, potency, purity, tolerability, reliability, convenience of use, price and reimbursement.

Specifically, by genetically engineering T cell products, we face significant competition in both the chimeric antigen receptor technology and TCR space from multiple companies, including Novartis AG, Kite Pharma Inc. (recently acquired by Gilead Sciences, Inc.), Adaptimmune Therapeutics PLC, Juno Therapeutics, Inc. (recently acquired by Celgene Corporation), bluebird bio, Inc., Bayer AG, Selecta Biosciences, Inc. and Regeneron Pharmaceuticals, Inc. Even if we obtain regulatory approval of our product candidates, the availability and price of our competitors' products could limit the demand and the price we are able to charge for our product candidates. We may not be able to implement our business plan if the acceptance of our product candidates is inhibited by price competition or the reluctance of physicians to switch from existing methods of treatment to our product candidates, or if physicians

switch to other new drug or biologic products or choose to reserve our product candidates for use in limited circumstances. For additional information regarding our competition, see “Business—Competition.”

Risks Related to Government Regulation

The FDA regulatory approval process is lengthy and time-consuming, and we may experience significant delays in the clinical development and regulatory approval of our product candidates.

We have not previously submitted a Biologics License Application (BLA) to the FDA or similar licensure applications to comparable foreign regulatory authorities. A BLA must include extensive preclinical and clinical data and supporting information to establish the product candidate's safety, purity and potency for each desired indication. The BLA must also include significant information regarding the manufacturing controls for the product. We expect the novel nature of our product candidates to create further challenges in obtaining regulatory approval. Accordingly, the regulatory approval pathway for our product candidates may be uncertain, complex, expensive and lengthy, and licensure may not be obtained.

We may also experience delays in completing planned clinical trials for a variety of reasons, including delays related to:

- the availability of financial resources to commence and complete the planned trials;
- reaching agreement on acceptable terms with prospective CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical trial sites;
- obtaining approval at each clinical trial site by an IRB or ethics committee;
- recruiting suitable patients to participate in a clinical trial;
- having patients complete a clinical trial or return for post-treatment follow-up;
- clinical trial sites deviating from trial protocol or dropping out of a trial;
- adding new clinical trial sites; or
- manufacturing sufficient quantities of qualified materials under cGMPs, including current Good Tissue Practices (cGTPs), and applying them on a subject by subject basis for use in clinical trials.

We could also experience delays if physicians encounter unresolved ethical issues associated with enrolling patients in clinical trials of our product candidates in lieu of prescribing existing treatments that have established safety, efficacy, potency and purity profiles. Further, a clinical trial may be suspended or terminated by us, the IRBs for the institutions in which such trials are being conducted, the Data Monitoring Committee for such trial, or by the FDA or other regulatory authorities due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a product candidate, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. If we experience termination of, or delays in the completion of, any clinical trial of our product candidates, the commercial prospects for our product candidates will be harmed, and our ability to generate product revenue will be delayed. In addition, any delays in completing our clinical trials will increase our costs, slow down our product development and approval process and jeopardize our ability to commence product sales and generate revenue.

Securing regulatory approval also requires the submission of information about the biologic manufacturing process and inspection of manufacturing facilities by the relevant regulatory authority. The FDA or comparable foreign regulatory authorities may fail to approve our manufacturing processes or facilities, whether run by us or our commercial manufacturing organizations (CMOs). In addition, if we make manufacturing changes to our product candidates in the future, we may need to conduct additional preclinical studies to bridge our modified product candidates to earlier versions.

Many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may ultimately lead to the denial of regulatory approval of our product candidates.

We may be unable to obtain regulatory approval for our product candidates under applicable regulatory requirements. The denial or delay of any such approval would delay commercialization of our product candidates and adversely impact our potential to generate revenue, our business and our results of operations.

The research, testing, manufacturing, labeling, licensure, sale, marketing and distribution of biologic products are subject to extensive regulation by the FDA and other regulatory authorities in the United States and other countries, and such regulations differ from country to country. We are not permitted to market our product candidates in the United States or in any foreign countries until they receive the requisite licensure from the applicable regulatory authorities of such jurisdictions.

The FDA or any foreign regulatory authorities can delay, limit or deny licensure of our product candidates for many reasons, including:

- our inability to demonstrate to the satisfaction of the FDA or the applicable foreign regulatory authority that any of our product candidates are safe, potent and pure;
- the FDA's or the applicable foreign regulatory agency's disagreement with our trial protocol or the interpretation of data from preclinical studies or clinical trials;
- our inability to demonstrate that the clinical and other benefits of any of our product candidates outweigh any safety or other perceived risks;
- the FDA's or the applicable foreign regulatory agency's requirement for additional preclinical studies or clinical trials;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for licensure;
- the FDA's or the applicable foreign regulatory agency's failure to approve the manufacturing processes or facilities of third-party manufacturers upon which we rely;
- the potential for approval policies or regulations of the FDA or the applicable foreign regulatory authorities to significantly change in a manner rendering our clinical data insufficient for licensure;
- the data collected from clinical trials of our product candidates may not be sufficient to the satisfaction of the FDA or comparable foreign regulatory authorities to support the submission of a BLA or other comparable submission in foreign jurisdictions or to obtain licensure of our product candidates in the United States or elsewhere; or
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

Any of these factors, many of which are beyond our control, may result in our failing to obtain regulatory approval to market any of our product candidates, which would significantly harm our business, results of operations, and prospects. Of the large number of biological products in development, only a small percentage successfully complete the FDA or other regulatory approval processes and are commercialized. Even if we eventually complete clinical testing and receive licensure from the FDA or applicable foreign regulatory authorities for any of our product candidates, the FDA or the applicable foreign regulatory agency may grant licensure contingent on the performance of costly additional clinical trials which may be required after licensure. The FDA or the applicable foreign regulatory agency also may license our product candidates for a more limited indication or a narrower patient population than we originally requested, and the FDA, or applicable foreign regulatory agency, may not license our product candidates with the labeling that we believe is necessary or desirable for the successful commercialization of such product candidates.

In addition, even if the trials are successfully completed, preclinical and clinical data are often susceptible to varying interpretations and analyses, and we cannot guarantee that the FDA or comparable foreign regulatory authorities will interpret the results as we do, and more clinical trials could be required before we submit our product candidates for approval. To the extent that the results of the clinical trials are not satisfactory to the FDA or comparable foreign regulatory authorities for support of a marketing application, approval of our product candidates may be significantly delayed, or we may be required to expend significant additional resources, which may not be available to us, to conduct additional clinical trials in support of potential approval of our product candidates.

Any delay in obtaining, or inability to obtain, applicable regulatory approval would delay or prevent commercialization of our product candidates and would materially adversely impact our business and prospects.

We may seek orphan drug status for TC-210, TC-110 and some of our other future product candidates, but we may be unable to obtain such designations or to maintain the benefits associated with orphan drug status, including market exclusivity, which may cause our revenue, if any, to be reduced.

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, defined as a disease or condition with a patient population of fewer than 200,000 in the United States, or a patient population greater than 200,000 in the United States when there is no reasonable expectation that the cost of developing and making available the drug or biologic in the United States will be recovered from sales in the United States for that drug or biologic. Orphan drug designation must be requested before submitting a BLA. In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and user-fee waivers. After the FDA grants orphan drug designation, the generic identity of the drug and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process.

If a product that has orphan drug designation subsequently receives the first FDA approval for a particular active ingredient for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications, including a BLA, to market the same biologic for the same indication for seven years, except in limited circumstances such as a showing of clinical superiority to the product with orphan drug exclusivity or if FDA finds that the holder of the orphan drug exclusivity has not shown that it can assure the availability of sufficient quantities of the orphan drug to meet the needs of patients with the disease or condition for which the drug was designated. As a result, even if one of our product candidates receives orphan exclusivity, the FDA can still approve other drugs that have a different active ingredient for use in treating the same indication or disease. Furthermore, the FDA can waive orphan exclusivity if we are unable to manufacture sufficient supply of our product.

We may seek orphan drug designation for TC-210, TC-110 and some or all of our other future product candidates in specific orphan indications in which there is a medically plausible basis for the use of these products, including MPM and cholangial carcinoma. Even when we obtain orphan drug designation, exclusive marketing rights in the United States may be limited if we seek licensure for an indication broader than the orphan designated indication and may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition. In addition, although we intend to seek orphan drug designation for other product candidates, we may never receive such designations.

On August 3, 2017, the Congress passed the FDA Reauthorization Act of 2017 (FDARA). FDARA, among other things, codified the FDA's pre-existing regulatory interpretation, to require that a drug sponsor demonstrate the clinical superiority of an orphan drug that is otherwise the same as a previously approved drug for the same rare disease in order to receive orphan drug exclusivity. The new legislation reverses prior precedent holding that the Orphan Drug Act unambiguously requires that the FDA recognize the orphan exclusivity period regardless of a showing of clinical superiority. The FDA may further reevaluate the Orphan Drug Act and its regulations and policies. We do not know if, when, or how the FDA may change the orphan drug regulations and policies in the future, and it is uncertain how any changes might affect our business. Depending on what changes the FDA may make to its orphan drug regulations and policies, our business could be adversely impacted.

A Breakthrough Therapy designation by the FDA, even if granted for any of our product candidates, may not lead to a faster development or regulatory review or approval process and it does not increase the likelihood that our product candidates will receive marketing approval.

We plan to seek a Breakthrough Therapy designation for TC-210 and TC-110 and may seek Breakthrough Therapy designation for some or all of our future product candidates. A breakthrough therapy is defined as a drug or biologic that is intended, alone or in combination with one or more other drugs or biologics, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the drug, or biologic, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as

substantial treatment effects observed early in clinical development. For product candidates that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor of the trial can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens. Biologics designated as breakthrough therapies by the FDA may also be eligible for other expedited approval programs, including Accelerated Approval.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe one of our product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. In any event, the receipt of a Breakthrough Therapy designation for a product candidate may not result in a faster development process, review or licensure compared to candidate products considered for licensure under non-expedited FDA review procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of our product candidates qualify as breakthrough therapies, the FDA may later decide that the product no longer meets the conditions for qualification. Thus, even though we intend to seek Breakthrough Therapy designation for TC-210 and some or all of our future product candidates for the treatment of various cancers, there can be no assurance that we will receive breakthrough therapy designation.

A Fast Track designation by the FDA, even if granted for TC-210, TC-110 or any other future product candidate(s), may not lead to a faster development or regulatory review or approval process, and does not increase the likelihood that our product candidates will receive marketing approval.

If a drug is intended for the treatment of a serious or life-threatening condition and the drug demonstrates the potential to address unmet medical needs for this condition, the drug sponsor may apply for FDA Fast Track designation for a particular indication. We plan to seek Fast Track designation for TC-210 and TC-110 and may seek Fast Track designation for certain of our future product candidates, but there is no assurance that the FDA will grant this status to any of our proposed product candidates. Marketing applications filed by sponsors of products in Fast Track development may qualify for priority review under the policies and procedures offered by the FDA, but the Fast Track designation does not assure any such qualification or ultimate marketing approval by the FDA. The FDA has broad discretion whether or not to grant Fast Track designation, so even if we believe a particular product candidate is eligible for this designation, there can be no assurance that the FDA would decide to grant it. Even if we do receive Fast Track designation, we may not experience a faster development process, review or licensure compared to conventional FDA procedures, and receiving a Fast Track designation does not provide assurance of ultimate FDA approval. In addition, the FDA may withdraw Fast Track designation if it believes that the designation is no longer supported by data from our clinical development program. In addition, the FDA may withdraw any Fast Track designation at any time.

Accelerated approval by the FDA, even if granted for TC-210 and TC-110 or any other future product candidates, may not lead to a faster development or regulatory review or approval process and it does not increase the likelihood that our product candidates will receive marketing approval.

We plan to seek approval of TC-210 and TC-110, and may seek approval of future product candidates using FDA's accelerated approval pathway. A product may be eligible for accelerated approval if it treats a serious or life-threatening condition and generally provides a meaningful advantage over available therapies. In addition, it must demonstrate an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality (IMM) that is reasonably likely to predict an effect on IMM or other clinical benefit. As a condition of approval, the FDA may require that a sponsor of a drug or biologic receiving accelerated approval perform adequate and well-controlled post-marketing clinical trials. These confirmatory trials must be completed with due diligence. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product. Even if we do receive accelerated approval, we may not experience a faster development or regulatory review or approval process, and receiving accelerated approval does not provide assurance of ultimate FDA approval.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not mean that we will be successful in obtaining regulatory approval of our product candidates in other jurisdictions.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory approval in any other jurisdiction, while a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in

others. For example, even if the FDA grants marketing approval of a product candidate, comparable regulatory authorities in foreign jurisdictions must also approve the manufacturing, marketing and promotion of the product candidate in those countries. Approval and licensure procedures vary among jurisdictions and can involve requirements and administrative review periods different from, and greater than, those in the United States, including additional preclinical studies or clinical trials as clinical trials conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions. In many jurisdictions outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we intend to charge for our products is also subject to approval.

We may also submit marketing applications in other countries. Regulatory authorities in jurisdictions outside of the United States have requirements for approval of product candidates with which we must comply prior to marketing in those jurisdictions. Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our products in certain countries. If we fail to comply with the regulatory requirements in international markets and/or receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of our product candidates will be harmed.

Even if we receive regulatory approval of our product candidates, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our product candidates.

Any regulatory approvals that we receive for our product candidates will require surveillance to monitor the safety, potency and purity of the product candidate. The FDA may also require a risk evaluation and mitigation strategy in order to license our product candidates, which could entail requirements for a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA or a comparable foreign regulatory authority approves our product candidates, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export and recordkeeping for our product candidates will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMPs, cGTPs and good clinical practices (GCPs) for any clinical trials that we conduct post-licensure. Later discovery of previously unknown problems with our product candidates, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on the marketing or manufacturing of our product candidates, withdrawal of the product from the market or voluntary or mandatory product recalls;
- revisions to the labeling, including limitation on approved uses or the addition of additional warnings, contraindications or other safety information, including boxed warnings;
- imposition of a Risk Evaluation and Mitigation Strategy (REMS), which may include distribution or use restrictions;
- requirements to conduct additional post-market clinical trials to assess the safety of the product;
- fines, warning letters or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications filed by us or suspension or revocation of license approvals;
- product seizure or detention, or refusal to permit the import or export of our product candidates; and
- injunctions or the imposition of civil or criminal penalties.

The FDA's and other regulatory authorities' policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability.

Coverage and reimbursement may be limited or unavailable in certain market segments for our product candidates, which could make it difficult for us to sell our product candidates, if licensed, profitably.

In both domestic and foreign markets, successful sales of our product candidates, if licensed, will depend on the availability of adequate coverage and reimbursement from third-party payors. In addition, because our product candidates represent new approaches to the treatment of cancer, we cannot accurately estimate the potential revenue from our product candidates.

Patients who are provided medical treatment for their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their treatment. Adequate coverage and reimbursement from governmental healthcare programs, such as Medicare and Medicaid, and commercial payors is critical to new product acceptance.

Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which drugs and treatments they will cover and the amount of reimbursement. Reimbursement by a third-party payor may depend upon a number of factors, including, but not limited to, the third-party payor's determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

Obtaining coverage and reimbursement approval of a product from a government or other third-party payor is a time-consuming and costly process that could require us to provide to the payor supporting scientific, clinical and cost-effectiveness data for the use of our products. Even if we obtain coverage for a given product, the resulting reimbursement payment rates might not be adequate for us to achieve or sustain profitability or may require co-payments that patients find unacceptably high. Patients are unlikely to use our product candidates unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost of our product candidates.

In the United States, no uniform policy of coverage and reimbursement for products exists among third-party payors. Therefore, coverage and reimbursement for products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our product candidates to each payor separately, with no assurance that coverage and adequate reimbursement will be obtained.

We intend to seek approval to market our product candidates in both the United States and in selected foreign jurisdictions. If we obtain licensure in one or more foreign jurisdictions for our product candidates, we will be subject to rules and regulations in those jurisdictions. In some foreign countries, particularly those in the European Union (EU), the pricing of biologics is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after obtaining marketing approval of a product candidate. In addition, market acceptance and sales of our product candidates will depend significantly on the availability of adequate coverage and reimbursement from third-party payors for our product candidates and may be affected by existing and future healthcare reform measures.

Third-party payors, whether domestic or foreign, or governmental or commercial, are developing increasingly sophisticated methods of controlling healthcare costs. In both the United States and certain foreign jurisdictions, there have been a number of legislative and regulatory changes to the healthcare system that could impact our ability to sell our products profitably. In particular, in 2010, Patient Protection and Affordable Care Act as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, the Affordable Care Act) was enacted. The Affordable Care Act and its implementing regulations, among other things, revised the methodology by which rebates owed by manufacturers to the state and federal government for covered outpatient drugs and certain biologics, including our product candidates, under the Medicaid Drug Rebate Program are calculated, increased the minimum Medicaid rebates owed by most manufacturers under the Medicaid Drug Rebate Program, extended the Medicaid Drug Rebate Program to utilization of prescriptions of individuals enrolled in Medicaid managed care

organizations, subjected manufacturers to new annual fees and taxes for certain branded prescription drugs and provided incentives to programs that increase the federal government's comparative effectiveness research.

Members of the U.S. Congress and the Trump administration have expressed an intent to pass legislation or adopt executive orders to fundamentally change or repeal parts of the Affordable Care Act. While Congress has not passed repeal legislation to date, the Tax Cuts and Jobs Act of 2017 (TCJA) repealed, effective January 1, 2019, the tax-based shared responsibility payment imposed by the Affordable Care Act on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate." On December 14, 2018, a federal district court in Texas ruled that upon the repeal of the shared responsibility payment, the ACA's individual mandate will become unconstitutional. The court further ruled that the individual mandate is not severable from the remaining provisions of the Affordable Care Act, and that the remaining provisions are therefore invalid. The court, however, did not grant an injunction against enforcement of the Affordable Care Act. An appeal of the decision is expected.

Further, on January 20, 2017, President Trump signed an Executive Order directing federal agencies with authorities and responsibilities under the Affordable Care Act to waive, defer, grant exemptions from, or delay the implementation of any provision of the Affordable Care Act that would impose a fiscal burden on states or a cost, fee, tax, penalty or regulatory burden on individuals, healthcare providers, health insurers, or manufacturers of pharmaceuticals or medical devices. On October 13, 2017, President Trump signed an Executive Order terminating the cost-sharing subsidies that reimburse insurers under the Affordable Care Act. Several state Attorneys General filed suit to stop the administration from terminating the subsidies, but their request for a restraining order was denied by a federal judge in California on October 25, 2017. In addition, the Centers for Medicare & Medicaid Services (CMS) within the U.S. Department of Health and Human Services (HHS) has recently proposed regulations that would give states greater flexibility in setting benchmarks for insurers in the individual and small group marketplaces, which may have the effect of relaxing the essential health benefits required under the Affordable Care Act for plans sold through such marketplaces. There may be further changes to the Affordable Care Act as a result of new legislation or further executive, administrative or judicial action.

Other legislative changes have been proposed and adopted in the United States since the Affordable Care Act was enacted. In August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least \$1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers up to 2% per fiscal year. In January 2013, President Obama signed into law the American Taxpayer Relief Act of 2012 (ATRA), which delayed for another two months the budget cuts mandated by these sequestration provisions of the Budget Control Act of 2011. In March 2013, President Obama signed an executive order implementing sequestration, and in April 2013, the 2% Medicare payment reductions went into effect. ATRA also, among other things, reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

In addition, on May 11, 2018, the Trump administration issued a plan to lower drug prices. Under this blueprint for action, the Trump administration indicated that HHS will: take steps to end the use of regulatory and patent processes by drug makers to protect their products from competition; advance biosimilars and generics to boost price competition; evaluate the inclusion of prices in drug makers' ads to enhance price competition; speed access to and lower the cost of new drugs by clarifying policies for sharing information between insurers and drug makers; avoid excessive pricing by relying more on value-based pricing by expanding outcome-based payments in Medicare and Medicaid; work to give Part D plan sponsors more negotiation power with drug makers; examine which Medicare Part B drugs could be negotiated for a lower price by Part D plans, and improving the design of the Part B Competitive Acquisition Program; update Medicare's drug-pricing dashboard to increase transparency; prohibit Part D contracts that include "gag rules" that prevent pharmacists from informing patients when they could pay less out-of-pocket by not using insurance; and require that Part D plan members be provided with an annual statement of plan payments, out-of-pocket spending, and drug price increases.

At the state level, individual states are increasingly aggressive in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. In addition, regional health care authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other health care programs. These measures could reduce the ultimate demand for our products, once licensed, or put pressure on our product pricing.

We expect that additional state and federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in reduced demand for our product candidates or additional pricing pressures.

The impact of recent healthcare reform legislation and other changes in the healthcare industry and in healthcare spending on us is currently unknown, and may adversely affect our business model.

Our revenue prospects could be affected by changes in healthcare spending and policy in the United States and abroad. We operate in a highly regulated industry and new laws, regulations or judicial decisions, or new interpretations of existing laws, regulations or decisions, related to healthcare availability, the method of delivery or payment for healthcare products and services could negatively impact our business, operations and financial condition.

There have been, and likely will continue to be, legislative and regulatory proposals at the foreign, federal and state levels directed at broadening the availability of healthcare and containing or lowering the cost of healthcare. We cannot predict the initiatives that may be adopted in the future, including repeal, replacement or significant revisions to the Affordable Care Act. The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare and/or impose price controls may adversely affect:

- the demand for our product candidates, if we obtain regulatory approval;
- our ability to set a price that we believe is fair for our products;
- our ability to obtain coverage and reimbursement approval for a product;
- our ability to generate revenue and achieve or maintain profitability;
- the level of taxes that we are required to pay; and
- the availability of capital.

Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors, which may adversely affect our future profitability.

Regulatory requirements in the United States and abroad governing cell therapy products have changed frequently and may continue to change in the future, which could negatively impact our ability to complete clinical trials and commercialize our product candidates in a timely manner, if at all.

Regulatory requirements in the United States and abroad governing cell therapy products have changed frequently and may continue to change in the future. The FDA has established the Office of Tissues and Advanced Therapies within its Center for Biologics Evaluation and Research to consolidate the review of gene therapy and related products, and has established the Cellular, Tissue and Gene Therapies Advisory Committee, among others, to advise this review. Recently, the National Institutes of Health proposed to revise its guidelines for overseeing gene therapy research, including deleting the protocol registration and reporting requirements for certain therapies and eliminating Recombinant DNA Advisory Committee review and reporting requirements for human gene transfer research.

Our employees, independent contractors, consultants, commercial partners and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk of employee fraud or other illegal activity by our employees, independent contractors, consultants, commercial partners and vendors. Misconduct by these parties could include intentional, reckless and/or negligent conduct that fails to: comply with the regulations of the FDA and other similar foreign regulatory authorities, provide true, complete and accurate information to the FDA and other similar foreign regulatory

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authorities, comply with manufacturing standards we have established, comply with healthcare fraud and abuse laws in the United States and similar foreign fraudulent misconduct laws or report financial information or data accurately or to disclose unauthorized activities to us. If we obtain FDA approval of any of our product candidates and begin commercializing those products in the United States, our potential exposure under such laws and regulations will increase significantly, and our costs associated with compliance with such laws and regulations are also likely to increase. These laws may impact, among other things, our current activities with principal investigators and research patients, as well as proposed and future sales, marketing and education programs. In particular, the promotion, sales and marketing of healthcare items and services, as well as certain business arrangements in the healthcare industry, are subject to extensive laws designed to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, structuring and commission(s), certain customer incentive programs and other business arrangements generally. Activities subject to these laws also involve the improper use of information obtained in the course of patient recruitment for clinical trials. The laws that may affect our ability to operate include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits, among other things, knowingly and willfully soliciting, receiving, offering or paying any remuneration (including any kickback, bribe, or rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for, either the referral of an individual, or the purchase, lease, order or recommendation of any good, facility, item or service for which payment may be made, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs;
- federal civil and criminal false claims laws and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment or approval from Medicare, Medicaid, or other third-party payors that are false or fraudulent or knowingly making a false statement to improperly avoid, decrease or conceal an obligation to pay money to the federal government;
- the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), which created new federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of the payor (for example, public or private) and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 (HITECH), and their respective implementing regulations, which impose requirements on certain covered healthcare providers, health plans, and healthcare clearinghouses as well as their respective business associates that perform services for them that involve the use, or disclosure of, individually identifiable health information, relating to the privacy, security and transmission of individually identifiable health information without appropriate authorization;
- the federal Physician Payment Sunshine Act, created under the Affordable Care Act and its implementing regulations, which require manufacturers of drugs, devices, biologicals and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) to report annually to HHS information related to payments or other transfers of value made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members; and
- federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers.

Additionally, we are subject to state and foreign equivalents of each of the healthcare laws described above, among others, some of which may be broader in scope and may apply regardless of the payor.

Effective upon the closing of this offering, we will adopt a code of business conduct and ethics, but it is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent inappropriate

conduct may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant criminal, civil and administrative sanctions including monetary penalties, damages, fines, disgorgement, individual imprisonment, and exclusion from participation in government funded healthcare programs, such as Medicare and Medicaid, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, reputational harm, and we may be required to curtail or restructure our operations, any of which could adversely affect our ability to operate our business and our results of operations.

The risk of our being found in violation of these laws is increased by the fact that many of them have not been fully interpreted by the regulatory authorities or the courts, and their provisions are open to a variety of interpretations. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management's attention from the operation of our business. The shifting compliance environment and the need to build and maintain robust and expandable systems to comply with multiple jurisdictions with different compliance and/or reporting requirements increases the possibility that a healthcare company may run afoul of one or more of the requirements.

The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order or use of medicinal products is also prohibited in the EU. The provision of benefits or advantages to physicians is governed by the national anti-bribery laws of EU Member States, such as the U.K. Bribery Act 2010, or the Bribery Act. Infringement of these laws could result in substantial fines and imprisonment. Payments made to physicians in certain EU Member States must be publicly disclosed. Moreover, agreements with physicians often must be the subject of prior notification and approval by the physician's employer, his or her competent professional organization and/or the regulatory authorities of the individual EU Member States. These requirements are provided in the national laws, industry codes or professional codes of conduct, applicable in the EU Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

The collection, use, disclosure, transfer, or other processing of personal data regarding individuals in the EU, including personal health data, is subject to the EU General Data Protection Regulation (GDPR), which became effective on May 25, 2018. The GDPR is wide-ranging in scope and imposes numerous requirements on companies that process personal data, including requirements relating to processing health and other sensitive data, obtaining consent of the individuals to whom the personal data relates, providing information to individuals regarding data processing activities, implementing safeguards to protect the security and confidentiality of personal data, providing notification of data breaches, and taking certain measures when engaging third-party processors. The GDPR also imposes strict rules on the transfer of personal data to countries outside the EU, including the United States, and permits data protection authorities to impose large penalties for violations of the GDPR, including potential fines of up to €20 million or 4% of annual global revenues, whichever is greater. The GDPR also confers a private right of action on data subjects and consumer associations to lodge complaints with supervisory authorities, seek judicial remedies, and obtain compensation for damages resulting from violations of the GDPR. Compliance with the GDPR will be a rigorous and time-intensive process that may increase our cost of doing business or require us to change our business practices, and despite those efforts, there is a risk that we may be subject to fines and penalties, litigation, and reputational harm in connection with our European activities.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological and radioactive materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials.

Even if we are able to commercialize any product candidates, the products may become subject to unfavorable pricing regulations, third party reimbursement practices or healthcare reform initiatives, which would harm our business.

The regulations that govern marketing approvals, pricing, coverage and reimbursement for new drug products vary widely from country to country. Current and future legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a product candidate in a particular country, but then be subject to price regulations that delay our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenues, if any, we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if our product candidates obtain marketing approval.

Our ability to commercialize any product candidates successfully also will depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government healthcare programs, private health insurers and other organizations. Government authorities and third party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, government authorities and third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Coverage and reimbursement may not be available for any product that we commercialize and, even if these are available, the level of reimbursement may not be satisfactory. Reimbursement may affect the demand for, or the price of, any product candidate for which we obtain marketing approval. Obtaining and maintaining adequate reimbursement for our products may be difficult. We may be required to conduct expensive pharmacoeconomic studies to justify coverage and reimbursement or the level of reimbursement relative to other therapies. If coverage and adequate reimbursement are not available or reimbursement is available only to limited levels, we may not be able to successfully commercialize any product candidate for which we obtain marketing approval.

There may be significant delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the purposes for which the drug is approved by the FDA or similar regulatory authorities outside of the United States. Moreover, eligibility for coverage and reimbursement does not imply that a drug will be paid for in all cases or at a rate that covers our costs, including research, development, intellectual property, manufacture, sale and distribution expenses. Interim reimbursement levels for new drugs, if applicable, may also not

be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. Third party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. Our inability to promptly obtain coverage and adequate reimbursement rates from both government-funded and private payors for any approved products that we develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

Risks Related to Our Intellectual Property

If we are unable to obtain and maintain patent protection for any products we develop and for our technology, or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to commercialize any product candidates we may develop, and our technology may be adversely affected.

Our success depends in large part on our ability to obtain and maintain patent protection in the United States and other countries with respect to our product candidates, their respective components, formulations, combination therapies, methods used to manufacture them and methods of treatment and development that are important to our business. If we do not adequately protect our intellectual property rights, competitors may be able to erode or negate any competitive advantage we may have, which could harm our business and ability to achieve profitability. To protect our proprietary position, we file patent applications in the United States and abroad related to our novel product candidates that are important to our business; we may in the future also license or purchase patent applications filed by others. If we are unable to secure or maintain patent protection with respect to our antibody technology and any proprietary products and technology we develop, our business, financial condition, results of operations, and prospects could be materially harmed.

If the scope of the patent protection we or our potential licensors obtain is not sufficiently broad, we may not be able to prevent others from developing and commercializing technology and products similar or identical to ours. The degree of patent protection we require to successfully compete in the marketplace may be unavailable or severely limited in some cases and may not adequately protect our rights or permit us to gain or keep any competitive advantage. We cannot provide any assurances that any of our patents have, or that any of our pending patent applications that mature into issued patents will include, claims with a scope sufficient to protect our current and future product candidates or otherwise provide any competitive advantage. In addition, to the extent that we license intellectual property in the future, we cannot assure you that those licenses will remain in force. In addition, the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. Furthermore, patents have a limited lifespan. In the United States, the natural expiration of a patent is generally 20 years after it is filed. Various extensions may be available; however, the life of a patent, and the protection it affords, is limited. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized.

Even if they are unchallenged, our patents and pending patent applications, if issued, may not provide us with any meaningful protection or prevent competitors from designing around our patent claims to circumvent our patents by developing similar or alternative technologies or therapeutics in a non-infringing manner. For example, a third party may develop a competitive therapy that provides benefits similar to one or more of our product candidates but that uses a formulation and/or a device that falls outside the scope of our patent protection. If the patent protection provided by the patents and patent applications we hold or pursue with respect to our product candidates is not sufficiently broad to impede such competition, our ability to successfully commercialize our product candidates could be negatively affected, which would harm our business. Although we currently own all of our patents and our patent applications, similar risks would apply to any patents or patent applications that we may in-license in the future.

Patent positions of life sciences companies can be uncertain and involve complex factual and legal questions. No consistent policy governing the scope of claims allowable in the field of antibodies has emerged in the United

States. The scope of patent protection in jurisdictions outside of the United States is also uncertain. Changes in either the patent laws or their interpretation in any jurisdiction that we seek patent protection may diminish our ability to protect our inventions, maintain and enforce our intellectual property rights; and, more generally, may affect the value of our intellectual property, including the narrowing of the scope of our patents and any that we may license.

The patent prosecution process is complex, expensive, time-consuming and inconsistent across jurisdictions. We may not be able to file, prosecute, maintain, enforce, or license all necessary or desirable patent rights at a commercially reasonable cost or in a timely manner. In addition, we may not pursue or obtain patent protection in all relevant markets. It is possible that we will fail to identify important patentable aspects of our research and development efforts in time to obtain appropriate or any patent protection. While we enter into non-disclosure and confidentiality agreements with parties who have access to confidential or patentable aspects of our research and development efforts, including for example, our employees, corporate collaborators, external academic scientific collaborators, CROs, contract manufacturers, consultants, advisors and other third parties, any of these parties may breach the agreements and disclose such output before a patent application is filed, thereby endangering our ability to seek patent protection. In addition, publications of discoveries in the scientific and scholarly literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Consequently, we cannot be certain that we were the first to file for patent protection on the inventions claimed in our patents or pending patent applications.

The issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Further, the scope of the invention claimed in a patent application can be significantly reduced before the patent is issued, and this scope can be reinterpreted after issuance. Even where patent applications we currently own or that we may license in the future issue as patents, they may not issue in a form that will provide us with adequate protection to prevent competitors or other third parties from competing with us, or otherwise provide us with a competitive advantage. Any patents that eventually issue may be challenged, narrowed or invalidated by third parties. Consequently, we do not know whether any of our product candidates will be protectable or remain protected by valid and enforceable patent rights. Our competitors or other third parties may be able to evade our patent rights by developing new antibodies, biosimilar antibodies, or alternative technologies or products in a non-infringing manner.

The issuance or grant of a patent is not irrefutable as to its inventorship, scope, validity or enforceability, and our patents may be challenged in the courts or patent offices in the United States and abroad. There may be prior art of which we are not aware that may affect the validity or enforceability of a patent claim. There also may be prior art of which we are aware, but which we do not believe affects the validity or enforceability of a claim, which may, nonetheless, ultimately be found to affect the validity or enforceability of a claim. We may in the future, become subject to a third-party pre-issuance submission of prior art or opposition, derivation, revocation, re-examination, post-grant and *inter partes* review, or interference proceeding and other similar proceedings challenging our patent rights or the patent rights of others in the U.S. Patent and Trademark Office (USPTO) or other foreign patent office. An unfavorable determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, our patent rights, allow third parties to commercialize our technology or products and compete directly with us, without payment to us, or extinguish our ability to manufacture or commercialize products without infringing third-party patent rights.

In addition, given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our intellectual property may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours. Moreover, some of our owned and in-licensed patents and patent applications are, and may in the future be, co-owned with third parties. If we are unable to obtain an exclusive license to any such third-party co-owners' interest in such patents or patent applications, such co-owners may be able to license their rights to other third parties, including our competitors, and our competitors could market competing products and technology. In addition, we or our licensors may need the cooperation of any such co-owners of our owned and in-licensed patents in order to enforce such patents against third parties, and such cooperation may not be provided to us or our licensors. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations and prospects.

We depend on intellectual property licensed from third parties and termination of any of these licenses could result in the loss of significant rights, which would harm our business.

We are dependent on patents, know-how and proprietary technology, both our own and licensed from others. For example, we have a non-exclusive license for the mesothelin binder incorporated into the TRuC construct for TC-210 from Harpoon. Harpoon has the ability to terminate our license in the event we materially breach our agreement with Harpoon and fail to cure this breach within sixty days. If the license with Harpoon is terminated, we would need to partner for another mesothelin binder or independently develop our own mesothelin binder. In addition, we cannot prevent Harpoon from also licensing the mesothelin binder we use in TC-210 to a third-party. If Harpoon licenses the mesothelin binder to another immuno-oncology company, that company could develop a competitive product to TC-210.

We are currently, and expect in the future to be, party to material license or collaboration agreements. These agreements typically impose numerous obligations, such as diligence and payment obligations. Any termination of these licenses could result in the loss of significant rights and could harm our ability to commercialize our product candidates. These licenses do and future licenses may include provisions that impose obligations and restrictions on us. This could delay or otherwise negatively impact a transaction that we may wish to enter into.

Disputes may also arise between us and our licensors regarding intellectual property subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether and the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- our right to sublicense patent and other rights to third parties under collaborative development relationships;
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates, and what activities satisfy those diligence obligations; and
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates.

We are generally also subject to all of the same risks with respect to protection of intellectual property that we license, as we are for intellectual property that we own, which are described below. If we or our licensors fail to adequately protect this intellectual property, our ability to commercialize products could suffer.

If we fail to comply with our obligations under our patent licenses with third parties, we could lose license rights that are important to our business.

We are a party to a license agreement with Harpoon, pursuant to which we in-license key patent and patent applications for use in one or more of our product candidates. This existing license imposes various diligence, milestone payment, royalty, insurance and other obligations on us. If we fail to comply with these obligations, Harpoon may have the right to terminate the license, in which event we would not be able to develop or market the products covered by such licensed intellectual property.

We rely on certain of our licensors to file and prosecute patent applications and maintain patents and otherwise protect the intellectual property we license from them and may continue to do so in the future. We have limited control over these activities or any other intellectual property that may be related to our in-licensed intellectual property. For example, we cannot be certain that such activities by these licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents and other intellectual property rights. We have limited control over the manner in which our licensors initiate an infringement proceeding against a third-party infringer of the intellectual property rights, or defend certain of the intellectual property that is licensed to us. It is possible that any licensors' infringement proceeding or defense activities may be less vigorous than had we conducted them ourselves.

Our proprietary position depends upon patents that are manufacturing, formulation or method-of-use patents, which may not prevent a competitor or other third party from using the same product candidate for another use.

Composition-of-matter patents on the active pharmaceutical ingredient (API) in prescription drug products are generally considered to be the strongest form of intellectual property protection for drug products because such patents provide protection without regard to any particular method of use or manufacture or formulation of the API used. We do not currently have any claims in our owned or in-licensed issued U.S. patents that cover the composition-of-matter of our other product candidates. We are pursuing claims in our pending owned or in-licensed patent applications that cover the composition-of-matter of our product candidates. We cannot be certain that claims in any future patents issuing from our pending owned or in-licensed patent applications or our future owned or in-licensed patent applications will cover the composition-of-matter of our current or future product candidates.

If our efforts to protect the proprietary nature of the intellectual property related to our technologies are not adequate, we may not be able to compete effectively in our market.

Biotechnology and pharmaceutical companies generally, and we in particular, compete in a crowded competitive space characterized by rapidly evolving technologies and aggressive defense of intellectual property. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions during the patent process. There are situations in which noncompliance can result in abandonment or lapse of a patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, competitors might be able to enter the market earlier than would otherwise have been the case.

We rely upon a combination of patents, confidentiality agreements, trade secret protection and license agreements to protect the intellectual property related to our technologies. Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to quickly duplicate or surpass our technological achievements, thus eroding our competitive position in our market. We, or any future partners, collaborators, or licensees, may fail to identify patentable aspects of inventions made in the course of development and commercialization activities before it is too late to obtain patent protection on them. Therefore, we may miss potential opportunities to strengthen our patent position.

It is possible that defects of form in the preparation or filing of our patents or patent applications may exist, or may arise in the future, for example with respect to proper priority claims, inventorship, claim scope, or requests for patent term adjustments. If we or our partners, collaborators, licensees or licensors fail to establish, maintain or protect such patents and other intellectual property rights, such rights may be reduced or eliminated. If our partners, collaborators, licensees or licensors are not fully cooperative or disagree with us as to the prosecution, maintenance or enforcement of any patent rights, such patent rights could be compromised. If there are material defects in the form, preparation, prosecution, or enforcement of our patents or patent applications, such patents may be invalid and/or unenforceable, and such applications may never result in valid, enforceable patents. Any of these outcomes could impair our ability to prevent competition from third parties, which may have an adverse impact on our business.

Currently, our patents and patent applications are directed to our TRuC-T cells and accompanying technologies. We seek or plan to seek patent protection for our TRuC-T cell platform and product candidates by filing and prosecuting patent applications in the United States and other countries as appropriate. As of December 15, 2018, our patent portfolio included at least 15 pending U.S. provisional or non-provisional patent applications including one allowed U.S. nonprovisional patent application, at least five pending Patent Cooperation Treaty (PCT) international applications, and at least 19 pending foreign patent applications, which patent applications we owned or in-licensed. The claims of these patent applications are directed toward various aspects of our product candidates and research programs including compositions of matter, methods of use, and processes. These patent applications, if issued, are expected to expire on various dates from 2036 through 2039, in each case without taking into account any possible patent term adjustments or extensions.

We anticipate additional patent applications will be filed both in the United States and in other countries, as appropriate. However, we cannot predict:

- if and when patents will issue;

- the degree and range of protection any issued patents will afford us against competitors including whether third parties will find ways to invalidate or otherwise circumvent our patents;
- whether any of our intellectual property will provide any competitive advantage;
- whether any of our patents that may be issued may be challenged, invalidated, modified, revoked, circumvented, found to be unenforceable or otherwise may not provide any competitive advantage;
- whether or not others will obtain patents claiming aspects similar to those covered by our patents and patent applications; or
- whether we will need to initiate or defend litigation or administrative proceedings which may be costly regardless of whether we win or lose.

Additionally, we cannot be certain that the claims in our pending patent applications covering composition of matter of our product candidates will be considered patentable by the USPTO, or by patent offices in foreign countries, or that the claims in any of our issued patents will be considered patentable by courts in the United States or foreign countries.

Method of use patents protect the use of a product for the specified method. These types of patents do not prevent a competitor from making and marketing a product that is identical to our product for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products "off-label." Although off-label prescriptions may induce or contribute to the infringement of method of use patents, the practice is common and such infringement is difficult to prevent or prosecute.

The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. The patent applications that we own or in-license may fail to result in issued patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries. Even if the patents do successfully issue, third parties may challenge the validity, enforceability or scope thereof, which may result in such patents being narrowed, invalidated or held unenforceable. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property or prevent others from designing around our claims. If the breadth or strength of protection provided by the patent applications we hold with respect to our product candidates is threatened, it could dissuade companies from collaborating with us to develop, and threaten our ability to commercialize, our product candidates. Further, if we encounter delays in our clinical trials, the period of time during which we could market our product candidates under patent protection would be reduced. Since patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we were the first to file any patent application related to our product candidates. Furthermore, for U.S. applications in which all claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third-party or instituted by the USPTO to determine who was the first to invent any of the subject matter covered by the patent claims of our applications. We cannot be certain that we are the first to invent the inventions covered by pending patent applications and, if we are not, we may be subject to priority disputes. We may be required to disclaim part or all of the term of certain patents or all of the term of certain patent applications. Various post grant review proceedings, such as *inter partes* review and post grant review, are available for any interested third party to challenge the patentability of claims issued in patents to us. While these post grant review proceedings have been used less frequently to invalidate biotech patents, they have been successful regarding other technologies, and these relatively new procedures are still changing, and those changes might affect future results. No assurance can be given that if challenged, our patents would be declared by a court to be valid or enforceable or that even if found valid and enforceable, a competitor's technology or product would be found by a court to infringe our patents. We may analyze patents or patent applications of our competitors that we believe are relevant to our activities, and consider that we are free to operate in relation to our product candidates, but our competitors may achieve issued claims, including in patents we consider to be unrelated, which block our efforts or may potentially result in our product candidates or our activities infringing such claims. The possibility exists that others will develop products which have the same effect as our products on an independent basis which do not infringe our patents or other intellectual property rights, or will design around the claims of patents that we have had issued that cover our products.

Recent or future patent reform legislation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents. In March 2013, under the recently enacted Leahy-Smith America Invents Act, or America Invents Act, the United States moved from a “first to invent” to a “first-to-file” system. Under a “first-to-file” system, assuming the other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to a patent on the invention regardless of whether another inventor had made the invention earlier. The America Invents Act includes a number of other significant changes to U.S. patent law, including provisions that affect the way patent applications are prosecuted, redefine prior art and establish a new post-grant review system. The effects of these changes are currently unclear as the USPTO only recently developed new regulations and procedures in connection with the America Invents Act and many of the substantive changes to patent law, including the “first-to-file” provisions, only became effective in March 2013. In addition, the courts have yet to address many of these provisions and the applicability of the act and new regulations on specific patents discussed herein have not been determined and would need to be reviewed. However, the America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business and financial condition.

The degree of future protection for our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. For example:

- others may be able to make or use compounds or cells that are similar to the biological compositions of our product candidates but that are not covered by the claims of our patents;
- the active biological ingredients in our current product candidates will eventually become commercially available in biosimilar drug products, and no patent protection may be available with regard to formulation or method of use;
- we or our licensors, as the case may be, may fail to meet our obligations to the U.S. government in regards to any in-licensed patents and patent applications funded by U.S. government grants, leading to the loss of patent rights;
- we or our licensors, as the case may be, might not have been the first to file patent applications for these inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies;
- it is possible that our pending patent applications will not result in issued patents;
- it is possible that there are prior public disclosures that could invalidate our or our licensors' patents, as the case may be, or parts of our or their patents;
- it is possible that others may circumvent our owned or in-licensed patents;
- it is possible that there are unpublished applications or patent applications maintained in secrecy that may later issue with claims covering our products or technology similar to ours;
- the laws of foreign countries may not protect our or our licensors', as the case may be, proprietary rights to the same extent as the laws of the United States;
- the claims of our owned or in-licensed issued patents or patent applications, if and when issued, may not cover our product candidates;
- our owned or in-licensed issued patents may not provide us with any competitive advantages, may be narrowed in scope, or be held invalid or unenforceable as a result of legal challenges by third parties;
- the inventors of our owned or in-licensed patents or patent applications may become involved with competitors, develop products or processes which design around our patents, or become hostile to us or the patents or patent applications on which they are named as inventors;
- it is possible that our owned or in-licensed patents or patent applications omit individual(s) that should be listed as inventor(s) or include individual(s) that should not be listed as inventor(s), which may cause these patents or patents issuing from these patent applications to be held invalid or unenforceable;
- we have engaged in scientific collaborations in the past and will continue to do so in the future, and such collaborators may develop adjacent or competing products to ours that are outside the scope of our patents;
- we may not develop additional proprietary technologies for which we can obtain patent protection;

- it is possible that product candidates or diagnostic tests we develop may be covered by third parties' patents or other exclusive rights; or
- the patents of others may have an adverse effect on our business.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to the protection afforded by patents, we seek to rely on trade secret protection, confidentiality agreements, and license agreements to protect proprietary know-how that is not patentable, processes for which patents are difficult to enforce and any other elements of our product discovery and development processes that involve proprietary know-how, information, or technology that is not covered by patents. Although we require all of our employees to assign their inventions to us, and require all of our employees, consultants, advisors and any third parties who have access to our proprietary know-how, information, or technology to enter into confidentiality agreements, we cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Furthermore, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent unauthorized material disclosure of our intellectual property to third parties, we will not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, operating results and financial condition.

Courts outside the United States are sometimes less willing to protect trade secrets. If we choose to go to court to stop a third party from using any of our trade secrets, we may incur substantial costs. These lawsuits may consume our time and other resources even if we are successful. For example, significant elements of our products, including aspects of sample preparation, methods of manufacturing, cell culturing conditions, computational-biological algorithms, and related processes and software, are based on unpatented trade secrets that are not publicly disclosed. Although we take steps to protect our proprietary information and trade secrets, including through contractual means with our employees and consultants, third parties may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets or disclose our technology.

Thus, we may not be able to meaningfully protect our trade secrets. It is our policy to require our employees, consultants, outside scientific collaborators, sponsored researchers and other advisors to execute confidentiality agreements upon the commencement of employment or consulting relationships with us. These agreements provide that all confidential information concerning our business or financial affairs developed or made known to the individual or entity during the course of the party's relationship with us is to be kept confidential and not disclosed to third parties except in specific circumstances. In the case of employees, the agreements provide that all inventions conceived by the individual, and which are related to our current or planned business or research and development or made during normal working hours, on our premises or using our equipment or proprietary information, are our exclusive property. In addition, we take other appropriate precautions, such as physical and technological security measures, to guard against misappropriation of our proprietary technology by third parties. We have also adopted policies and conduct training that provides guidance on our expectations, and our advice for best practices, in protecting our trade secrets.

Third-party claims of intellectual property infringement may prevent or delay our product discovery and development efforts.

Our commercial success depends in part on our avoiding infringement of the patents and proprietary rights of third parties. There is a substantial amount of litigation involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries, as well as administrative proceedings for challenging patents, including interference, reexamination, and post grant review proceedings before the USPTO or oppositions and other comparable proceedings in foreign jurisdictions. We may be exposed to, or threatened with, future litigation by third parties having patent or other intellectual property rights alleging that our product candidates and/or proprietary technologies infringe their intellectual property rights. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing our product candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our

product candidates may give rise to claims of infringement of the patent rights of others. Moreover, it is not always clear to industry participants, including us, which patents cover various types of drugs, products or their methods of use or manufacture. Thus, because of the large number of patents issued and patent applications filed in our fields, there may be a risk that third parties may allege they have patent rights encompassing our product candidates, technologies or methods.

If a third party claims that we infringe its intellectual property rights, we may face a number of issues, including, but not limited to:

- infringement and other intellectual property claims which, regardless of merit, may be expensive and time-consuming to litigate and may divert our management's attention from our core business;
- substantial damages for infringement, which we may have to pay if a court decides that the product candidate or technology at issue infringes on or violates the third party's rights, and, if the court finds that the infringement was willful, we could be ordered to pay treble damages and the patent owner's attorneys' fees;
- a court prohibiting us from developing, manufacturing, marketing or selling our product candidates, or from using our proprietary technologies, unless the third party licenses its product rights to us, which it is not required to do;
- if a license is available from a third party, we may have to pay substantial royalties, upfront fees and other amounts, and/or grant cross-licenses to intellectual property rights for our products; and
- redesigning our product candidates or processes so they do not infringe third party intellectual property rights, which may not be possible or may require substantial monetary expenditures and time.

Some of our competitors may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations or could otherwise have a material adverse effect on our business, results of operations, financial condition and prospects.

Third parties may assert that we are employing their proprietary technology without authorization. Generally, conducting preclinical and clinical trials and other development activities in the United States is not considered an act of infringement. If TC-210, TC-110 or another product candidate is licensed by the FDA, a third party may then seek to enforce its patent by filing a patent infringement lawsuit against us. While we do not believe that any claims that could otherwise have a materially adverse effect on the commercialization of our product candidates, if licensed, are valid and enforceable, we may be incorrect in this belief, or we may not be able to prove it in litigation. In this regard, patents issued in the United States by law enjoy a presumption of validity that can be rebutted only with evidence that is "clear and convincing," a heightened standard of proof. There may be issued third-party patents of which we are currently unaware with claims to compositions, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates. Patent applications can take many years to issue. There may be currently pending patent applications which may later result in issued patents that our product candidates may infringe. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. Moreover, we may fail to identify relevant patents or incorrectly conclude that a patent is invalid, not enforceable, exhausted, or not infringed by our activities. If any third-party patents were held by a court of competent jurisdiction to cover the manufacturing process of our product candidates, constructs or molecules used in or formed during the manufacturing process, or any final product itself, the holders of any such patents may be able to block our ability to commercialize the product candidate unless we obtained a license under the applicable patents, or until such patents expire or they are finally determined to be held invalid or unenforceable. Similarly, if any third-party patent were held by a court of competent jurisdiction to cover aspects of our formulations, processes for manufacture or methods of use, including combination therapy or patient selection methods, the holders of any such patent may be able to block our ability to develop and commercialize the product candidate unless we obtained a license or until such patent expires or is finally determined to be held invalid or unenforceable. In either case, such a license may not be available on commercially reasonable terms or at all. If we are unable to obtain a necessary license to a third-party patent on commercially reasonable terms, or at all, our ability to commercialize our product candidates may be impaired or delayed, which could in turn significantly harm

our business. Even if we obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, it could dissuade companies from collaborating with us to license, develop or commercialize current or future product candidates.

Parties making claims against us may seek and obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize our product candidates. Defense of these claims, regardless of their merit, could involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure. We cannot predict whether any such license would be available at all or whether it would be available on commercially reasonable terms.

Furthermore, even in the absence of litigation, we may need or may choose to obtain licenses from third parties to advance our research or allow commercialization of our product candidates. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we would be unable to further develop and commercialize our product candidates, which could harm our business significantly.

We may not be successful in obtaining or maintaining necessary rights to product components and processes for our development pipeline through acquisitions and in-licenses.

Presently we have rights to certain intellectual property, through licenses from third parties and under patent applications that we own or will own, related to TC-210, TC-110 and certain other product candidates. Because additional product candidates may require the use of proprietary rights held by third parties, the growth of our business will likely depend in part on our ability to acquire, in-license or use these proprietary rights. In addition, while we have patent rights directed to certain TRuC constructs we may not be able to obtain intellectual property to broad TRuC-T cell or engineered TCR-T cell constructs.

Our product candidates may also require specific formulations to work effectively and efficiently and these rights may be held by others. Similarly, efficient production or delivery of our product candidates may also require specific compositions or methods, and the rights to these may be owned by third parties. We may be unable to acquire or in-license any compositions, methods of use, processes or other third-party intellectual property rights from third parties that we identify as necessary or important to our business operations. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all, which would harm our business. We may need to cease use of the compositions or methods covered by such third-party intellectual property rights, and may need to seek to develop alternative approaches that do not infringe on such intellectual property rights which may entail additional costs and development delays, even if we were able to develop such alternatives, which may not be feasible. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to develop or license replacement technology. Moreover, the specific antibodies that will be used with our product candidates may be covered by the intellectual property rights of others.

Additionally, we sometimes collaborate with academic institutions to accelerate our preclinical research or development under written agreements with these institutions. In certain cases, these institutions provide us with an option to negotiate a license to any of the institution's rights in technology resulting from the collaboration. Regardless of such option, we may be unable to negotiate a license within the specified timeframe or under terms that are acceptable to us. If we are unable to do so, the institution may offer the intellectual property rights to others, potentially blocking our ability to pursue our program. If we are unable to successfully obtain rights to required third-party intellectual property or to maintain the existing intellectual property rights we have, we may have to abandon development of such program and our business and financial condition could suffer.

The licensing and acquisition of third-party intellectual property rights is a competitive area, and companies, which may be more established, or have greater resources than we do, may also be pursuing strategies to license or acquire third-party intellectual property rights that we may consider necessary or attractive in order to commercialize our product candidates. More established companies may have a competitive advantage over us due to their size, cash resources and greater clinical development and commercialization capabilities.

We may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time-consuming and unsuccessful.

Competitors may infringe our patents or the patents of our licensors. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that one or more of our patents is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated, held unenforceable, or interpreted narrowly and could put our patent applications at risk of not issuing. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure.

Post-grant proceedings provoked by third parties or brought by the USPTO may be necessary to determine the validity or priority of inventions with respect to our patents or patent applications or those of our licensors. An unfavorable outcome could result in a loss of our current patent rights and could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Litigation or post-grant proceedings may result in a decision adverse to our interests and, even if we are successful, may result in substantial costs and distract our management and other employees. We may not be able to prevent, alone or with our licensors, misappropriation of our trade secrets or confidential information, particularly in countries where the laws may not protect those rights as fully as in the United States.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Some of our patent applications have been allowed or may be allowed in the future. We cannot be certain that an allowed patent application will become an issued patent. There may be events that cause withdrawal of the allowance of a patent application. For example, after a patent application has been allowed, but prior to being issued, material that could be relevant to patentability may be identified. In such circumstances, the applicant may pull the application from allowance in order for the USPTO to review the application in view of the new material. We cannot be certain that the USPTO will re-allow the application in view of the new material. Further, periodic maintenance fees on any issued patent are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process and following the issuance of a patent. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Noncompliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. In such an event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

Issued patents covering our product candidates could be found invalid or unenforceable if challenged in court or the USPTO.

If we or one of our licensing partners initiate legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that the patent covering our product candidate, as applicable, is invalid and/or unenforceable. In patent litigation in the United States, defendant counterclaims

alleging invalidity and/or unenforceability are commonplace, and there are numerous grounds upon which a third party can assert invalidity or unenforceability of a patent. Third parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, *inter partes* review, post grant review and equivalent proceedings in foreign jurisdictions (such as opposition proceedings). Such proceedings could result in revocation or amendment to our patents in such a way that they no longer cover our product candidates. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we, our patent counsel and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, or if we are otherwise unable to adequately protect our rights, we would lose at least part, and perhaps all, of the patent protection on our product candidates. Such a loss of patent protection could have a material adverse impact on our business and our ability to commercialize or license our technology and product candidates.

Changes to patent law in the United States and in foreign jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our products.

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involve both technological and legal complexity, and is therefore costly, time-consuming and inherently uncertain. In addition, the United States continues to adapt to wide-ranging patent reform legislation that became effective starting in 2012. Moreover, recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. For example, in the case *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, the U.S. Supreme Court held that certain claims to DNA molecules are not patentable. While we do not believe that any of the patents owned or licensed by us will be found invalid based on this decision, we cannot predict how future decisions by the courts, Congress or the USPTO may impact the value of our patents. Similarly, any adverse changes in the patent laws of other jurisdictions could have a material adverse effect on our business and financial condition. Changes in the laws and regulations governing patents in other jurisdictions could similarly have an adverse effect on our ability to obtain and effectively enforce our patent rights.

We have limited foreign intellectual property rights and may not be able to protect our intellectual property rights throughout the world.

Certain of our key patent families have been filed in the United States, however, we have less robust intellectual property rights outside the United States, and, in particular, we may not be able to pursue generic coverage of the TRuC-T cell platform outside of the United States. Filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and further, may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. Most of our patent portfolio is at the very early stage. We will need to decide whether and in which jurisdictions to pursue protection for the various inventions in our portfolio prior to applicable deadlines.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property protection, particularly those relating to biopharmaceutical products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in

foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

We may be subject to claims challenging the inventorship or ownership of our patents and other intellectual property.

We generally enter into confidentiality and intellectual property assignment agreements with our employees, consultants, and contractors. These agreements generally provide that inventions conceived by the party in the course of rendering services to us will be our exclusive property. However, those agreements may not be honored and may not effectively assign intellectual property rights to us. Moreover, there may be some circumstances, where we are unable to negotiate for such ownership rights. Disputes regarding ownership or inventorship of intellectual property can also arise in other contexts, such as collaborations and sponsored research. If we are subject to a dispute challenging our rights in or to patents or other intellectual property, such a dispute could be expensive and time consuming. If we were unsuccessful, we could lose valuable rights in intellectual property that we regard as our own.

The intellectual property landscape around adoptive cell therapy is crowded, and third parties may initiate legal proceedings alleging that we are infringing, misappropriating, or otherwise violating their intellectual property rights, the outcome of which would be uncertain and could have a material adverse effect on the success of our business. We are aware of certain third-party patents and third-party patent applications in this landscape that may, if issued as patents, be asserted to encompass our technology.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

We have received confidential and proprietary information from third parties. In addition, we employ individuals who were previously employed at other biotechnology or pharmaceutical companies. We may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of these third parties or our employees' former employers or our consultants' or contractors' current or former clients or customers. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial cost and be a distraction to our management and employees. If we are not successful, we could lose access or exclusive access to valuable intellectual property.

We may be subject to damages resulting from claims that we or our employees have wrongfully used or disclosed alleged trade secrets of our competitors or are in breach of non-competition or non-solicitation agreements with our competitors.

Many of our employees were previously employed at other pharmaceutical companies, including our competitors or potential competitors, in some cases until recently. We may be subject to claims that we or our employees have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of these former employers or competitors. In addition, we have been and may in the future be subject to claims that we caused an employee to breach the terms of his or her non-competition or non-solicitation agreement. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial costs and could be a distraction to management. If our defense to those claims fails, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Any litigation or the threat thereof may adversely affect our ability to hire employees. A loss of key personnel or their work product could hamper or prevent our ability to commercialize product candidates, which could have an adverse effect on our business, results of operations and financial condition.

If we do not obtain patent term extension and data exclusivity for any of our current or future product candidates, our business may be materially harmed.

Depending upon the timing, duration and specifics of any FDA marketing approval of any of our current or future product candidates, one or more of our U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent extension term of up to five years as compensation for patent term lost during the FDA regulatory review process. A patent term extension cannot extend the remaining term of a patent beyond a

total of 14 years from the date of product approval, only one patent may be extended and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. However, we may not be granted an extension because of, for example, failing to exercise due diligence during the testing phase or regulatory review process, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents, or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain patent term extension or term of any such extension is less than we request, our competitors may obtain approval of competing products following our patent expiration, and our business, financial condition, results of operations, and prospects could be materially harmed.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our marks of interest and our business may be adversely affected.

Our trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. We rely on both registration and common law protection for our trademarks. We may not be able to protect our rights to these trademarks and trade names or may be forced to stop using these names, which we need for name recognition by potential partners or customers in our markets of interest. During the trademark registration process, we may receive Office Actions from the USPTO objecting to the registration of our trademark. Although we would be given an opportunity to respond to those objections, we may be unable to overcome such rejections. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and/or to seek the cancellation of registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings. If we are unable to establish name recognition based on our trademarks and trade names, we may not be able to compete effectively and our business may be adversely affected.

The U.S. government may exercise its march-in rights with regards to certain patents.

Pursuant to the Bayh-Dole Act, the U.S. government has march-in rights with regards to government-funded technology. The U.S. government can exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of the government-funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to U.S. industry. In addition, our rights in such inventions may be subject to certain requirements to manufacture products embodying such inventions in the United States. Any exercise by the government of any of the foregoing rights could harm our competitive position, business, financial condition, results of operations, and prospects.

Numerous factors may limit any potential competitive advantage provided by our intellectual property rights.

The degree of future protection afforded by our intellectual property rights, whether owned or in-licensed, is uncertain because intellectual property rights have limitations, and may not adequately protect our business, provide a barrier to entry against our competitors or potential competitors, or permit us to maintain our competitive advantage. Moreover, if a third party has intellectual property rights that cover the practice of our technology, we may not be able to fully exercise or extract value from our intellectual property rights. The following examples are illustrative:

- pending patent applications that we own or license may not lead to issued patents;
- patents, should they issue, that we own or license, may not provide us with any competitive advantages, or may be challenged and held invalid or unenforceable;
- others may be able to develop and/or practice technology that is similar to our technology or aspects of our technology but that is not covered by the claims of any of our owned or in-licensed patents, should any such patents issue;
- third parties may compete with us in jurisdictions where we do not pursue and obtain patent protection;
- we (or our licensors) might not have been the first to make the inventions covered by a pending patent application that we own or license;
- we (or our licensors) might not have been the first to file patent applications covering a particular invention;
- others may independently develop similar or alternative technologies without infringing our intellectual property rights;
- we may not be able to obtain and/or maintain necessary licenses on reasonable terms or at all;

- third parties may assert an ownership interest in our intellectual property and, if successful, such disputes may preclude us from exercising exclusive rights, or any rights at all, over that intellectual property;
- we may not be able to maintain the confidentiality of our trade secrets or other proprietary information;
- we may not develop or in-license additional proprietary technologies that are patentable; and
- the patents of others may have an adverse effect on our business.

Should any of these events occur, they could significantly harm our business and results of operation.

Risks Related to Our Reliance On Third Parties

We plan to rely on third parties to conduct our clinical trials. If these third parties do not properly and successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval of or commercialize our product candidates.

We plan to utilize and depend upon independent investigators and collaborators, such as medical institutions, CROs, CMOs and strategic partners to conduct our preclinical studies and clinical trials under agreements with us. We expect to have to negotiate budgets and contracts with CROs, trial sites and CMOs which may result in delays to our development timelines and increased costs. We will rely heavily on these third parties over the course of our clinical trials, and we control only certain aspects of their activities. As a result, we will have less direct control over the conduct, timing and completion of these clinical trials and the management of data developed through clinical trials than would be the case if we were relying entirely upon our own staff. Nevertheless, we are responsible for ensuring that each of our studies is conducted in accordance with applicable protocol, legal and regulatory requirements and scientific standards, and our reliance on third parties does not relieve us of our regulatory responsibilities. We and these third parties are required to comply with GCPs, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for product candidates in clinical development. Regulatory authorities enforce these GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of these third parties fail to comply with applicable GCP regulations, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot assure you that, upon inspection, such regulatory authorities will determine that any of our clinical trials comply with the GCP regulations. In addition, our clinical trials must be conducted with biologic product produced under cGMP regulations, including cGTP regulations, and will require a large number of test patients. Our failure or any failure by these third parties to comply with these regulations or to recruit a sufficient number of patients may require us to repeat clinical trials, which would delay the regulatory approval process. Moreover, our business may be implicated if any of these third parties violates federal or state fraud and abuse or false claims laws and regulations or healthcare privacy and security laws.

Any third parties conducting our clinical trials are not and will not be our employees and, except for remedies available to us under our agreements with such third parties, we cannot control whether or not they devote sufficient time and resources to our ongoing, clinical and non-clinical product candidates. These third parties may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other drug development activities, which could affect their performance on our behalf. If these third parties do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to complete development of, obtain regulatory approval of or successfully commercialize our product candidates. As a result, our financial results and the commercial prospects for our product candidates would be harmed, our costs could increase and our ability to generate revenue could be delayed.

Switching or adding third parties to conduct our clinical trials involves substantial cost and requires extensive management time and focus. In addition, there is a natural transition period when a new third party commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines.

We may form or seek collaborations or strategic alliances or enter into additional licensing arrangements in the future, and we may not realize the benefits of such collaborations, alliances or licensing arrangements.

We may form or seek strategic alliances, create joint ventures or collaborations, or enter into additional licensing arrangements with third parties that we believe will complement or augment our development and commercialization efforts with respect to our product candidates and any future product candidates that we may develop. Any of these relationships may require us to incur non-recurring and other charges, increase our near and long-term expenditures, issue securities that dilute our existing stockholders or disrupt our management and business.

In addition, we face significant competition in seeking appropriate strategic partners and the negotiation process is time-consuming and complex. Moreover, we may not be successful in our efforts to establish a strategic partnership or other alternative arrangements for our product candidates because they may be deemed to be at too early of a stage of development for collaborative effort and third parties may not view our product candidates as having the requisite potential to demonstrate safety, potency and purity and obtain marketing approval.

Further, collaborations involving our product candidates are subject to numerous risks, which may include the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply to a collaboration;
- collaborators may not pursue development and commercialization of our product candidates or may elect not to continue or renew development or commercialization of our product candidates based on clinical trial results, changes in their strategic focus due to the acquisition of competitive products, availability of funding or other external factors, such as a business combination that diverts resources or creates competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial, stop a clinical trial, abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates;
- a collaborator with marketing and distribution rights to one or more products may not commit sufficient resources to their marketing and distribution;
- collaborators may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;
- disputes may arise between us and a collaborator that cause the delay or termination of the research, development or commercialization of our product candidates, or that result in costly litigation or arbitration that diverts management attention and resources;
- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates; and
- collaborators may own or co-own intellectual property covering our products that results from our collaborating with them, and in such cases, we would not have the exclusive right to commercialize such intellectual property.

As a result, if we enter into additional collaboration agreements and strategic partnerships or license our product candidates, we may not be able to realize the benefit of such transactions if we are unable to successfully integrate them with our existing operations and company culture, which could delay our timelines or otherwise adversely affect our business. We also cannot be certain that, following a strategic transaction or license, we will achieve the revenue or specific net income that justifies such transaction. Any delays in entering into new collaborations or strategic partnership agreements related to our product candidates could delay the development and commercialization of our product candidates in certain geographies for certain indications, which would harm our business prospects, financial condition and results of operations.

If or until we develop our own manufacturing facility, we expect to rely on the use of manufacturing suites in third-party GMP facilities or third parties to manufacture our product candidates. Our business could be harmed if we are unable to use third-party manufacturing suites or if the third party manufacturers fail to provide us with sufficient quantities of our product candidates or fail to do so at acceptable quality levels or prices.

We do not currently own any facility that may be used as our clinical-scale manufacturing and processing facility and must currently rely on outside vendors to manufacture and process our product candidates, which is and will need to be done on a patient-by-patient basis. We are in the process of adding manufacturing capacity at a suite in Catapult's GMP manufacturing center, which we expect to be operational in the second half of 2019, but the build-out and staffing of the manufacturing suite may be delayed and the suite may never become operational. We have not yet caused our product candidates to be manufactured or processed on a commercial scale and may not be able to do so for any of our product candidates.

Although in the future we plan to build our own manufacturing facility, we also intend to use the manufacturing suite at Catapult and other third parties as part of our manufacturing process and may, in any event, never be successful in developing our own manufacturing facility. Our anticipated reliance on a limited number of third-party manufacturers exposes us to the following risks:

- we may be unable to identify manufacturers on acceptable terms or at all because the number of potential manufacturers is limited and the FDA must inspect any manufacturers for current cGMP and cGTP compliance as part of our marketing application;
- a new manufacturer would have to be educated in, or develop substantially equivalent processes for, the production of our product candidates;
- our manufacturers may have little or no experience with autologous cell products, which are products made from a patient's own cells, and therefore may require a significant amount of support from us in order to implement and maintain the infrastructure and processes required to manufacture our product candidates;
- our third-party manufacturers might be unable to timely manufacture our product candidates or produce the quantity and quality required to meet our clinical and commercial needs, if any;
- our third-party suppliers or collaborators from whom we receive our antibodies used in combination with our product candidates may be unable to timely manufacture or provide the applicable antibody or produce the quantity and quality required to meet our clinical and commercial needs;
- contract manufacturers may not be able to execute our manufacturing procedures and other logistical support requirements appropriately;
- our future contract manufacturers may not perform as agreed, may not devote sufficient resources to our product candidates or may not remain in the contract manufacturing business for the time required to supply our clinical trials or to successfully produce, store, and distribute our products, if any;
- manufacturers are subject to ongoing periodic unannounced inspection by the FDA and corresponding state agencies to ensure strict compliance with cGMP, cGTP and other government regulations and corresponding foreign standards. We do not have control over third-party manufacturers' compliance with these regulations and standards;
- we may not own, or may have to share, the intellectual property rights to any improvements made by our third-party manufacturers in the manufacturing process for our product candidates;
- our third-party manufacturers could breach or terminate their agreements with us;
- raw materials and components used in the manufacturing process, particularly those for which we have no other source or supplier, may not be available or may not be suitable or acceptable for use due to material or component defects;
- our contract manufacturers and critical reagent suppliers may be subject to inclement weather, as well as natural or man-made disasters; and
- our contract manufacturers may have unacceptable or inconsistent product quality success rates and yields, and we have no direct control over our contract manufacturers' ability to maintain adequate quality control, quality assurance and qualified personnel.

Each of these risks could delay or prevent the completion of our clinical trials or the approval of any of our product candidates by the FDA, result in higher costs or adversely impact commercialization of our product candidates. In

addition, we will rely on third parties to perform certain specification tests on our product candidates prior to delivery to patients. If these tests are not appropriately done and test data are not reliable, patients could be put at risk of serious harm and the FDA could place significant restrictions on our company until deficiencies are remedied.

The manufacture of biological drug products is complex and requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of biologic products often encounter difficulties in production, particularly in scaling up or out, validating the production process and assuring high reliability of the manufacturing process (including the absence of contamination). These problems include logistics and shipping, difficulties with production costs and yields, quality control, including stability of the product, product testing, operator error and availability of qualified personnel, as well as compliance with strictly enforced federal, state and foreign regulations. Furthermore, if contaminants are discovered in our supply of our product candidates or in the manufacturing facilities, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination. We cannot assure you that any stability failures or other issues relating to the manufacture of our product candidates will not occur in the future.

We may fail to manage the logistics of collecting and shipping patient material to the manufacturing site and shipping the product candidate back to the patient. Logistical and shipment delays and problems caused by us, our vendors or other factors not in our control, such as weather, could prevent or delay the delivery of product candidates to patients. Additionally, we have to maintain a complex chain of identity and chain of custody with respect to patient material as it moves to the manufacturing facility, through the manufacturing process and back to the patient. Failure to maintain chain of identity and chain of custody could result in patient death, loss of product or regulatory action.

Our product candidates rely on the availability of specialty raw materials, which may not be available to us on acceptable terms or at all.

Our product candidates require many specialty raw materials, some of which are manufactured by small companies with limited resources and experience to support a commercial product. In addition, those suppliers normally support blood-based hospital businesses and generally do not have the capacity to support commercial products manufactured under cGMP by biopharmaceutical firms. The suppliers may be ill-equipped to support our needs, especially in non-routine circumstances like an FDA inspection or medical crisis, such as widespread contamination. We also do not have contracts with many of these suppliers and may not be able to contract with them on acceptable terms or at all. Accordingly, we may experience delays in receiving key raw materials to support clinical or commercial manufacturing.

In addition, some of our raw materials are currently available from a single supplier, or a small number of suppliers. The type of cell culture media and cryopreservation buffer that we currently use in our manufacturing process for the TRuC-T cells for TC-210 and TC-110 are each only available from a single supplier. In addition, the cell processing equipment and tubing that we use in our current manufacturing process is only available from a single supplier. We also use certain biologic materials, including certain activating antibodies, that are available from multiple suppliers, but each version may perform differently, requiring us to characterize them and potentially modify some of our protocols if we change suppliers. We cannot be sure that these suppliers will remain in business, or that they will not be purchased by one of our competitors or another company that is not interested in continuing to produce these materials for our intended purpose. Accordingly, if we no longer have access to these suppliers, we may experience delays in our clinical or commercial manufacturing which could harm our business or results of operations.

Our manufacturing process needs to comply with FDA regulations relating to the quality and reliability of such processes. Any failure to comply with relevant regulations could result in delays in or termination of our clinical programs and suspension or withdrawal of any regulatory approvals.

In order to commercially produce our products either at our own facility or at a third party's facility, we will need to comply with the FDA's cGMP regulations and guidelines, including cGTPs. We may encounter difficulties in achieving quality control and quality assurance and may experience shortages in qualified personnel. We are subject to inspections by the FDA and comparable foreign regulatory authorities to confirm compliance with applicable regulatory requirements. Any failure to follow cGMP, cGTP or other regulatory requirements or delay, interruption or other issues that arise in the manufacture, fill-finish, packaging, or storage of our TRuC-T cells as a result of a failure of our facilities or the facilities or operations of third parties to comply with regulatory requirements or pass

any regulatory authority inspection could significantly impair our ability to develop and commercialize our TRuC-T cell programs, including leading to significant delays in the availability of our TRuC-T cells for our clinical trials or the termination of or suspension of a clinical trial, or the delay or prevention of a filing or approval of marketing applications for our TRuC-T cell product candidates. Significant non-compliance could also result in the imposition of sanctions, including warning or untitled letters, fines, injunctions, civil penalties, failure of regulatory authorities to grant marketing approvals for our TRuC-T cell product candidates, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of products, operating restrictions and criminal prosecutions, any of which could damage our reputation and our business.

If our third-party manufacturers use hazardous and biological materials in a manner that causes injury or violates applicable law, we may be liable for damages.

Our research and development activities involve the controlled use of potentially hazardous substances, including chemical and biological materials, by our third-party manufacturers. Our manufacturers are subject to federal, state and local laws and regulations in the United States governing the use, manufacture, storage, handling and disposal of medical and hazardous materials. Although we believe that our manufacturers' procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, we cannot completely eliminate the risk of contamination or injury resulting from medical or hazardous materials. As a result of any such contamination or injury, we may incur liability or local, city, state or federal authorities may curtail the use of these materials and interrupt our business operations. In the event of an accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. We do not have any insurance for liabilities arising from medical or hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may impair our research, development and production efforts, which could harm our business, prospects, financial condition or results of operations.

Risks Related to Employee Matters and Managing Growth

We are highly dependent on our key personnel, and if we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

Our ability to compete in the highly competitive biotechnology and pharmaceutical industries depends upon our ability to attract and retain highly qualified managerial, scientific and medical personnel. We are highly dependent on our management, scientific and medical personnel, including our Chief Executive Officer and President, our Chief Financial Officer, our Chief Scientific Officer and our Chief Medical Officer. The loss of the services of any of our executive officers, other key employees and other scientific and medical advisors, and an inability to find suitable replacements could result in delays in product development and harm our business.

We conduct our operations at our facility in Cambridge, Massachusetts. This region is headquarters to many other biopharmaceutical companies and many academic and research institutions. Competition for skilled personnel in our market is intense and may limit our ability to hire and retain highly qualified personnel on acceptable terms or at all. Changes to U.S. immigration and work authorization laws and regulations, including those that restrain the flow of scientific and professional talent, can be significantly affected by political forces and levels of economic activity. Our business may be materially adversely affected if legislative or administrative changes to immigration or visa laws and regulations impair our hiring processes and goals or projects involving personnel who are not U.S. citizens.

To encourage valuable employees to remain at our company, in addition to salary and cash incentives, we have provided stock options that vest over time. The value to employees of stock options that vest over time may be significantly affected by movements in our stock price that are beyond our control, and may at any time be insufficient to counteract more lucrative offers from other companies. Despite our efforts to retain valuable employees, members of our management, scientific and development teams may terminate their employment with us on short notice. Although we have employment agreements with our key employees, these employment agreements provide for at-will employment, which means that any of our employees could leave our employment at any time, with or without notice. Our success also depends on our ability to continue to attract, retain and motivate highly skilled junior, mid-level and senior managers as well as junior, mid-level and senior scientific and medical personnel.

We will need to grow the size of our organization, and we may experience difficulties in managing this growth.

As of December 15, 2018, we had 45 full-time employees and one part-time employee. As our development and commercialization plans and strategies develop, and as we transition into operating as a public company, we expect to need additional managerial, operational, sales, marketing, financial and other personnel, as well as additional facilities to expand our operations. Future growth would impose significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, maintaining and motivating additional employees;
- managing our internal development efforts effectively, including the clinical and FDA review process for our product candidates, while complying with our contractual obligations to contractors and other third parties; and
- improving our operational, financial and management controls, reporting systems and procedures.

Our future financial performance and our ability to commercialize our product candidates will depend, in part, on our ability to effectively manage any future growth, and our management may also have to divert a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time to managing these growth activities.

We currently rely, and for the foreseeable future will continue to rely, in substantial part on certain independent organizations, advisors and consultants to provide certain services, including substantially all aspects of regulatory approval, clinical trial management and manufacturing. There can be no assurance that the services of independent organizations, advisors and consultants will continue to be available to us on a timely basis when needed, or that we can find qualified replacements. In addition, if we are unable to effectively manage our outsourced activities or if the quality or accuracy of the services provided by consultants is compromised for any reason, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain regulatory approval of our product candidates or otherwise advance our business. There can be no assurance that we will be able to manage our existing consultants or find other competent outside contractors and consultants on economically reasonable terms, or at all.

If we are not able to effectively expand our organization by hiring new employees and expanding our groups of consultants and contractors, or we are not able to effectively build out new facilities to accommodate this expansion, we may not be able to successfully implement the tasks necessary to further develop and commercialize our product candidates and, accordingly, may not achieve our research, development and commercialization goals.

Our internal computer systems, or those used by our third-party CROs or other contractors or consultants, may fail or suffer security breaches, which could result in a material disruption of the development programs of our product candidates.

Despite the implementation of security measures, our internal computer systems and those of our current and future CROs and other contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, and telecommunication and electrical failures. While we have not experienced any such material system failure or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our development programs and our business operations. For example, the loss of data from completed or future preclinical studies and clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. Likewise, we rely on third parties for the manufacture of our product candidates and to conduct clinical trials, and similar events relating to their computer systems could also have a material adverse effect on our business. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development and commercialization of our product candidates could be delayed.

Business disruptions could seriously harm our future revenue and financial condition and increase our costs and expenses.

Our operations, and those of our CROs, CMOs and other contractors and consultants, could be subject to earthquakes, power shortages, telecommunications failures, water shortages, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics and other natural or man-made disasters or business interruptions, for which we are predominantly self-insured. The occurrence of any of these business disruptions could seriously

harm our operations and financial condition and increase our costs and expenses. We rely on third-party manufacturers to produce and process our product candidates on a patient-by-patient basis. Our ability to obtain clinical supplies of our product candidates could be disrupted if the operations of these suppliers are affected by a man-made or natural disaster or other business interruption.

Even if we obtain regulatory approval of our product candidates, the products may not gain market acceptance among physicians, patients, hospitals, cancer treatment centers and others in the medical community.

The use of engineered T cells as a potential cancer treatment is a recent development and may not become broadly accepted by physicians, patients, hospitals, cancer treatment centers and others in the medical community. Various factors will influence whether our product candidates are accepted in the market, including:

- the clinical indications for which our product candidates are licensed;
- physicians, hospitals, cancer treatment centers and patients considering our product candidates as a safe and effective treatment;
- the potential and perceived advantages of our product candidates over alternative treatments;
- our ability to demonstrate the advantages of our product candidates over other engineered TCR-T cell and CAR-T cell therapies;
- the prevalence and severity of any side effects;
- the prevalence and severity of any side effects for other adoptive cell therapies, engineered TCR-T cell and CAR-T cell products and public perception of other adoptive cell therapies, engineered TCR-T cell and CAR-T cell products;
- product labeling or product insert requirements of the FDA or other regulatory authorities;
- limitations or warnings contained in the labeling approved by the FDA;
- the timing of market introduction of our product candidates as well as competitive products;
- the cost of treatment in relation to alternative treatments;
- the availability of adequate coverage, reimbursement and pricing by third-party payors and government authorities;
- the willingness of patients to pay out-of-pocket in the absence of coverage by third-party payors and government authorities;
- relative convenience and ease of administration, including as compared to alternative treatments and competitive therapies; and
- the effectiveness of our sales and marketing efforts.

In addition, although we are not utilizing embryonic stem cells or replication competent vectors, adverse publicity due to the ethical and social controversies surrounding the therapeutic use of such technologies, and reported side effects from any clinical trials using these technologies or the failure of such clinical trials to demonstrate that these therapies are safe and effective may limit market acceptance of our product candidates. If our product candidates are licensed but fail to achieve market acceptance among physicians, patients, hospitals, cancer treatment centers or others in the medical community, we will not be able to generate significant revenue.

In addition, although our product candidates differ in certain ways from other engineered TCR-T cell and CAR-T cell approaches, serious adverse events or deaths in other clinical trials involving engineered TCR, CAR-T or other T cell products or with our use of licensed engineered TCR-T cell or CAR-T cell products, even if not ultimately attributable to our product or product candidates, could result in increased government regulation, unfavorable public perception and publicity, potential regulatory delays in the testing or licensing of our product candidates, stricter labeling requirements for those product candidates that are licensed, and a decrease in demand for any such product candidates.

Even if our products achieve market acceptance, we may not be able to maintain that market acceptance over time if new products or technologies are introduced that are more favorably received than our products, are more cost effective or render our products obsolete.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of our product candidates.

We face an inherent risk of product liability as a result of the planned clinical testing of our product candidates and will face an even greater risk if we commercialize any products. For example, we may be sued if our product candidates cause or are perceived to cause injury or are found to be otherwise unsuitable during clinical testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability or a breach of warranties. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidates. Even successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our product candidates or products that we may develop;
- injury to our reputation;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue;
- exhaustion of any available insurance and our capital resources;
- the inability to commercialize any product candidate; and
- a decline in our share price.

Failure to obtain or retain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of products we develop, alone or with corporate collaborators. Although we have clinical trial insurance, our insurance policies also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. We may have to pay any amounts awarded by a court or negotiated in a settlement that exceed our coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient capital to pay such amounts. Even if our agreements with any future corporate collaborators entitle us to indemnification against losses, such indemnification may not be available or adequate should any claim arise.

Comprehensive tax reform legislation could adversely affect our business and financial condition.

On December 22, 2017, President Trump signed into law the TCJA, which significantly reformed the Internal Revenue Code of 1986, as amended. The TCJA, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense, limitation of the deduction for net operating losses and elimination of net operating loss carrybacks, in each case, for losses arising in taxable years beginning after December 31, 2017 (though any such tax losses may be carried forward indefinitely), and modifying or repealing many business deductions and credits, including reducing the business tax credit for certain clinical testing expenses incurred in the testing of certain drugs for rare diseases or conditions generally referred to as "orphan drugs". We continue to examine the impact this tax reform legislation may have on our business. However, the effect of the TCJA on us and our affiliates, whether adverse or favorable, is uncertain and may not become evident for some period of time. You are urged to consult your tax adviser regarding the implications of the TCJA on an investment in our common stock.

Our ability to utilize our net operating loss carryforwards and certain other tax attributes may be limited.

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an "ownership change" (generally defined as a greater than 50% change (by value) in its equity ownership over a three-year period), the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change taxable income may be limited. As a result of our most recent private placements

and other transactions that have occurred over the past three years, we may have experienced, and, upon closing of this offering, may experience, an “ownership change.” We may also experience ownership changes in the future as a result of subsequent shifts in our stock ownership. As of December 31, 2017, we had U.S. federal net operating loss carryforwards of \$1.8 million and U.S. federal research and development tax credit carryforwards of \$0.4 million, each of which will begin to expire in 2037 and which could be limited if we experience an “ownership change.” The reduction of the corporate tax rate under the TCJA may cause a reduction in the economic benefit of our net operating loss carryforwards and other deferred tax assets available to us. Under the TCJA, federal net operating losses generated after December 31, 2017 will not be subject to expiration.

Unstable market and economic conditions may have serious adverse consequences on our business, financial condition and stock price.

As widely reported, global credit and financial markets have experienced extreme volatility and disruptions in the past several years, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. There can be no assurance that further deterioration in credit and financial markets and confidence in economic conditions will not occur. Our general business strategy may be adversely affected by any such economic downturn, volatile business environment or continued unpredictable and unstable market conditions. If the current equity and credit markets deteriorate, or do not improve, it may make any necessary debt or equity financing more difficult, more costly, and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance and stock price and could require us to delay or abandon clinical development plans. In addition, there is a risk that one or more of our current service providers, manufacturers and other partners may not survive these difficult economic times, which could directly affect our ability to attain our operating goals on schedule and on budget.

As of September 30, 2018, we had cash, cash equivalents and short-term investments of \$131.0 million. While we are not aware of any downgrades, material losses, or other significant deterioration in the fair value of our cash equivalents and short-term investments since September 30, 2018, no assurance can be given that further deterioration of the global credit and financial markets would not negatively impact our current portfolio of cash equivalents or our ability to meet our financing objectives. Furthermore, our stock price may decline due in part to the volatility of the stock market and the general economic downturn.

We currently have no marketing and sales organization and have no experience in marketing products. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell our product candidates, if licensed, we may not be able to generate product revenue.

We currently have no sales, marketing or distribution capabilities and have no experience in marketing products. We intend to develop an in-house marketing organization and sales force, which will require significant capital expenditures, management resources and time. We will have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train and retain marketing and sales personnel.

If we are unable or decide not to establish internal sales, marketing and distribution capabilities, we will pursue collaborative arrangements regarding the sales and marketing of our products, if licensed. However, there can be no assurance that we will be able to establish or maintain such collaborative arrangements, or if we are able to do so, that they will have effective sales forces. Any revenue we receive will depend upon the efforts of such third parties, which may not be successful. We may have little or no control over the marketing and sales efforts of such third parties and our revenue from product sales may be lower than if we had commercialized our product candidates ourselves. We also face competition in our search for third parties to assist us with the sales and marketing efforts of our product candidates.

There can be no assurance that we will be able to develop in-house sales and distribution capabilities or establish or maintain relationships with third-party collaborators to commercialize any product in the United States or overseas.

Risks Related to This Offering and Ownership of our Common Stock

We do not know whether an active, liquid and orderly trading market will develop for our common stock or what the market price of our common stock will be and, as a result, it may be difficult for you to sell your shares of our common stock.

Prior to this offering, there was no public trading market for shares of our common stock. Although we have applied to list our common stock on The Nasdaq Global Market, an active trading market for our shares may never develop or be sustained following this offering. You may not be able to sell your shares quickly or at the market price if trading in shares of our common stock is not active. The initial public offering price for our common stock will be determined through negotiations with the underwriters, and the negotiated price may not be indicative of the market price of the common stock after the offering. As a result of these and other factors, you may be unable to resell your shares of our common stock at or above the initial public offering price. Further, an inactive market may also impair our ability to raise capital by selling shares of our common stock and may impair our ability to enter into strategic partnerships or acquire companies or products by using our shares of common stock as consideration.

The price of our stock may be volatile, and you could lose all or part of your investment.

The trading price of our common stock following this offering is likely to be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control, including limited trading volume. In addition to the factors discussed in this "Risk Factors" section and elsewhere in this prospectus, these factors include:

- the results of our ongoing, planned or any future preclinical studies, clinical trials or clinical development programs;
- the commencement, enrollment, or results of clinical trials of our product candidates or any future clinical trials we may conduct, or changes in the development status of our product candidates;
- adverse results or delays in preclinical studies and clinical trials;
- our decision to initiate a clinical trial, not to initiate a clinical trial, or to terminate an existing clinical trial;
- any delay in our regulatory filings or any adverse regulatory decisions, including failure to receive regulatory approval of our product candidates;
- changes in laws or regulations applicable to our products, including but not limited to clinical trial requirements for approvals;
- adverse developments concerning our manufacturers or our manufacturing plans;
- our inability to obtain adequate product supply for any licensed product or inability to do so at acceptable prices;
- our inability to establish collaborations if needed;
- our failure to commercialize our product candidates;
- additions or departures of key scientific or management personnel;
- unanticipated serious safety concerns related to the use of our product candidates;
- introduction of new products or services offered by us or our competitors;
- announcements of significant acquisitions, strategic partnerships, joint ventures or capital commitments by us or our competitors;
- our ability to effectively manage our growth;
- the size and growth of our initial cancer target markets;
- our ability to successfully treat additional types of cancers or at different stages;
- actual or anticipated variations in quarterly operating results;
- our cash position;
- our failure to meet the estimates and projections of the investment community or that we may otherwise provide to the public;
- publication of research reports about us or our industry, or immunotherapy in particular, or positive or negative recommendations or withdrawal of research coverage by securities analysts;
- changes in the market valuations of similar companies;

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- overall performance of the equity markets;
- sales of our common stock by us or our stockholders in the future;
- trading volume of our common stock;
- changes in accounting practices;
- ineffectiveness of our internal controls;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;
- significant lawsuits, including patent or stockholder litigation;
- general political and economic conditions; and
- other events or factors, many of which are beyond our control.

In addition, the stock market in general, and The Nasdaq Global Market and biopharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. If the market price of our common stock after this offering does not exceed the initial public offering price, you may not realize any return on your investment in us and may lose some or all of your investment. In the past, securities class action litigation has often been instituted against companies following periods of volatility in the market price of a company's securities. This type of litigation, if instituted, could result in substantial costs and a diversion of management's attention and resources, which would harm our business, operating results, or financial condition.

If you purchase our common stock in this offering, you will incur immediate and substantial dilution in the book value of your shares.

The initial public offering price will be substantially higher than the net tangible book value per share of our common stock. Investors purchasing common stock in this offering will pay a price per share that substantially exceeds the book value of our tangible assets after subtracting our liabilities. As a result, investors purchasing common stock in this offering will incur immediate dilution of \$ per share, based on the assumed initial public offering price of \$ per share, which is the midpoint of the price range set forth on the cover page of this prospectus. Further, investors purchasing common stock in this offering will contribute approximately % of the total amount invested by stockholders since our inception, but will own only approximately % of the total number of shares of our common stock outstanding after this offering.

This dilution is due to our investors who purchased shares prior to this offering having paid substantially less when they purchased their shares than the price offered to the public in this offering and the exercise of stock options granted to our employees. To the extent that outstanding stock options or warrants are exercised, there will be further dilution to new investors. As a result of the dilution to investors purchasing common stock in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation. For a further description of the dilution that you will experience immediately after this offering, see the section of this prospectus entitled "Dilution."

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our 2018 Stock Option and Incentive Plan, could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.

We expect that significant additional capital may be needed in the future to continue our planned operations, including conducting clinical trials, expanded research and development activities, and costs associated with operating as a public company. To raise capital, we may sell common stock, convertible securities, or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell common stock, convertible securities, or other equity securities, investors may be materially diluted by subsequent sales. Such sales may also result in material dilution to our existing stockholders, and new investors could gain rights, preferences, and privileges senior to the holders of our common stock, including shares of common stock sold in this offering.

Pursuant to our 2018 Stock Option and Incentive Plan (2018 Plan), which will become effective upon the effectiveness of the registration statement of which this prospectus is a part, our management is authorized to grant stock options to our employees, directors, and consultants.

Initially, the aggregate number of shares of our common stock that may be issued pursuant to stock awards under the 2018 Plan will be _____ shares, plus the shares of common stock remaining available for issuance under our 2015 Stock Option and Grant Plan. The number of shares of our common stock reserved for issuance under the 2018 Plan shall be cumulatively increased on January 1, and each January 1 thereafter by _____ % of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year or a lesser number of shares determined by our board of directors. Unless our board of directors elects not to increase the number of shares available for future grant each year, our stockholders may experience additional dilution, which could cause our stock price to fall.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our technologies or product candidates.

We may seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships and alliances and licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect your rights as a stockholder. The incurrence of indebtedness would result in increased fixed payment obligations and could involve certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we raise additional funds through strategic partnerships and alliances and licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies or product candidates, or grant licenses on terms unfavorable to us.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds from this offering, including for any of the purposes described in the section entitled "Use of Proceeds," and you will not have the opportunity as part of your investment decision to assess whether the net proceeds are being used appropriately. Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our management might not apply our net proceeds in ways that ultimately increase or maintain the value of your investment.

We do not intend to pay dividends on our common stock, so any returns will be limited to the value of our stock.

We currently anticipate that we will retain future earnings for the development, operation, and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. In addition, we may enter into agreements that prohibit us from paying cash dividends without prior written consent from our contracting parties, or which other terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. Any return to stockholders will therefore be limited to the appreciation of their stock, which may never occur.

Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant influence over matters subject to stockholder approval.

Prior to this offering, our executive officers, directors, and 5% stockholders beneficially owned approximately _____ % of our voting stock as of _____, 2018, and, assuming the sale by us of _____ shares of common stock in this offering, based on an assumed initial public offering price of \$ _____ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, that same group will hold approximately _____ % of our outstanding voting stock (assuming no exercise of the underwriters' option to purchase additional shares). Therefore, even after this offering, these stockholders will have the ability to influence us through this ownership position. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders may be able to control elections of directors, amendments of our organizational documents, or approval of any merger, sale of assets, or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may feel are in your best interest as one of our stockholders.

We are an emerging growth company, and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an emerging growth company, as defined in the Jumpstart Our Business Startups Act (JOBS Act) enacted in April 2012. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth

companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended (Sarbanes-Oxley Act), reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements, and exemptions from the requirements of holding nonbinding advisory votes on executive compensation and stockholder approval of any golden parachute payments not previously approved. We could be an emerging growth company for up to five years following the year in which we complete this offering, although circumstances could cause us to lose that status earlier. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the closing of this offering, (b) in which we have total annual gross revenue of at least \$1.07 billion or (c) in which we are deemed to be a large accelerated filer, which requires the market value of our common stock that is held by non-affiliates to exceed \$700 million as of the prior June 30th, and (2) the date on which we have issued more than \$1 billion in non-convertible debt during the prior three-year period.

Under the JOBS Act, emerging growth companies can also delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have elected to avail ourselves of this exemption from complying with new or revised accounting standards and, therefore, will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

Even after we no longer qualify as an emerging growth company, we may still qualify as a “smaller reporting company,” which would allow us to take advantage of many of the same exemptions from disclosure requirements, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements. We cannot predict if investors will find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

We will incur significant increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives.

As a public company, we will incur significant legal, accounting, and other expenses that we did not incur as a private company. We will be subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, which will require, among other things, that we file with the Securities and Exchange Commission (SEC), annual, quarterly, and current reports with respect to our business and financial condition. In addition, the Sarbanes-Oxley Act, as well as rules subsequently adopted by the SEC and The Nasdaq Global Market to implement provisions of the Sarbanes-Oxley Act, impose significant requirements on public companies, including requiring establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. Further, in July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act) was enacted. There are significant corporate governance and executive compensation related provisions in the Dodd-Frank Act that require the SEC to adopt additional rules and regulations in these areas, such as “say on pay” and proxy access. Recent legislation permits emerging growth companies to implement many of these requirements over a longer period and up to five years from the pricing of this offering. We intend to take advantage of this new legislation but cannot guarantee that we will not be required to implement these requirements sooner than budgeted or planned and thereby incur unexpected expenses. Stockholder activism, the current political environment, and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact the manner in which we operate our business in ways we cannot currently anticipate.

We expect the rules and regulations applicable to public companies to substantially increase our legal and financial compliance costs and to make some activities more time-consuming and costly. If these requirements divert the attention of our management and personnel from other business concerns, they could have a material adverse effect on our business, financial condition, and results of operations. The increased costs will decrease our net income or increase our net loss and may require us to reduce costs in other areas of our business or increase the prices of our products or services. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain the same or similar coverage. We cannot predict or estimate the amount or timing of additional costs we may incur to respond to these requirements. The impact of these requirements could also make it more difficult for

us to attract and retain qualified persons to serve on our board of directors, our board committees, or as executive officers.

Sales of a substantial number of shares of our common stock by our existing stockholders in the public market could cause our stock price to fall.

If our existing stockholders sell, or indicate an intention to sell, substantial amounts of our common stock in the public market after the lock-up and other legal restrictions on resale discussed in this prospectus lapse, the trading price of our common stock could decline. Based on the number of shares of common stock outstanding as of September 30, 2018, upon the closing of this offering, we will have outstanding a total of _____ shares of common stock. Of these shares, only the shares of common stock sold in this offering by us, plus any shares sold upon exercise of the underwriters' option to purchase additional shares, will be freely tradable without restriction in the public market immediately following this offering, unless purchased by our affiliates. Jefferies LLC, Leerink Partners LLC and BMO Capital Markets Corp., however, may, in their sole discretion, permit our officers, directors and other stockholders who are subject to these lock-up agreements to sell shares prior to the expiration of the lock-up agreements.

The lock-up agreements pertaining to this offering will expire 180 days from the date of this prospectus. In addition, shares of common stock that are either subject to outstanding options or reserved for future issuance under our 2018 Plan and our 2018 Employee Stock Purchase Plan, each to be effective upon the effectiveness of the registration statement of which this prospectus forms a part, will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements and Rule 144 and Rule 701 under the Securities Act of 1933, as amended (the Securities Act). If these additional shares of common stock are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

After this offering, the holders of _____ shares of our common stock will be entitled to rights with respect to the registration of their shares under the Securities Act, subject to the 180-day lock-up agreements described above. See "Description of Capital Stock—Registration Rights." Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares held by affiliates, as defined in Rule 144 under the Securities Act. Any sales of securities by these stockholders could have a material adverse effect on the trading price of our common stock.

Anti-takeover provisions under our charter documents and Delaware law could delay or prevent a change of control, which could limit the market price of our common stock and may prevent or frustrate attempts by our stockholders to replace or remove our current management.

Our amended and restated certificate of incorporation and amended and restated bylaws, which are to become effective upon the closing of this offering, will contain provisions that could delay or prevent a change of control of our company or changes in our board of directors that our stockholders might consider favorable. Some of these provisions include:

- a board of directors divided into three classes serving staggered three-year terms, such that not all members of the board will be elected at one time;
- a prohibition on stockholder action through written consent, which requires that all stockholder actions be taken at a meeting of our stockholders;
- a requirement that special meetings of stockholders be called only by the chairperson of the board of directors, the chief executive officer, or by a majority of the total number of authorized directors;
- advance notice requirements for stockholder proposals and nominations for election to our board of directors;
- a requirement that no member of our board of directors may be removed from office by our stockholders except for cause and, in addition to any other vote required by law, upon the approval of not less than two-thirds of all outstanding shares of our voting stock then entitled to vote in the election of directors;
- a requirement of approval of not less than two-thirds of all outstanding shares of our voting stock to amend any bylaws by stockholder action or to amend specific provisions of our certificate of incorporation; and

- the authority of the board of directors to issue preferred stock on terms determined by the board of directors without stockholder approval and which preferred stock may include rights superior to the rights of the holders of common stock.

In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporate Law, which may prohibit certain business combinations with stockholders owning 15% or more of our outstanding voting stock. These anti-takeover provisions and other provisions in our amended and restated certificate of incorporation and amended and restated bylaws could make it more difficult for stockholders or potential acquirers to obtain control of our board of directors or initiate actions that are opposed by the then-current board of directors and could also delay or impede a merger, tender offer, or proxy contest involving our company. These provisions could also discourage proxy contests and make it more difficult for you and other stockholders to elect directors of your choosing or cause us to take other corporate actions you desire. Any delay or prevention of a change of control transaction or changes in our board of directors could cause the market price of our common stock to decline.

Our bylaws to be effective upon the consummation of this offering designate certain courts as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our bylaws that will become effective upon the completion of this offering provide that, unless we consent in writing to an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of fiduciary duty owed by any of our directors, officers, and employees to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws or (iv) any action asserting a claim that is governed by the internal affairs doctrine, in each case subject to the Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein. This exclusive forum provision will not apply to any causes of action arising under the Exchange Act. In addition, our amended and restated bylaws will provide that any person or entity purchasing or otherwise acquiring any interest in shares of our common stock is deemed to have notice of and consented to the foregoing provisions. We have chosen the United States District Court for the District of Massachusetts as the exclusive forum for causes of action arising under the Securities Act because our principal executive offices are located in Cambridge, Massachusetts. Some companies that have adopted similar federal district court forum selection provisions are currently subject to a suit in the Court of Chancery of the State of Delaware brought by stockholders who assert that the federal district court forum selection provision is not enforceable. We recognize that the federal district court forum selection clause may impose additional litigation costs on stockholders who assert the provision is not enforceable and may impose more general additional litigation costs in pursuing any such claims, particularly if the stockholders do not reside in or near the Commonwealth of Massachusetts. Additionally, the forum selection clauses in our amended and restated bylaws may limit our stockholders' ability to obtain a favorable judicial forum for disputes with us. Alternatively, if the federal district court forum selection provision is found inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could have an adverse effect on our business, financial condition or results of operations. The United States District Court for the District of Massachusetts may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments may be more or less favorable to us than our stockholders.

We have chosen the Court of Chancery of the State of Delaware as the exclusive forum for such causes of action because we are incorporated in the State of Delaware and we are familiar with the procedures and rules applicable in such forum.

If we fail to establish and maintain proper and effective internal control over financial reporting, our operating results and our ability to operate our business could be harmed.

Ensuring that we have adequate internal financial and accounting controls and procedures in place so that we can produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be re-evaluated frequently. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance

with generally accepted accounting principles. In connection with this offering, we intend to begin the process of documenting, reviewing, and improving our internal controls and procedures for compliance with Section 404 of the Sarbanes-Oxley Act, which will require annual management assessment of the effectiveness of our internal control over financial reporting. We have begun recruiting additional finance and accounting personnel with certain skill sets that we will need as a public company.

Implementing any appropriate changes to our internal controls may distract our officers and employees, entail substantial costs to modify our existing processes, and take significant time to complete. These changes may not, however, be effective in maintaining the adequacy of our internal controls, and any failure to maintain that adequacy, or consequent inability to produce accurate financial statements on a timely basis, could increase our operating costs and harm our business. In addition, investors' perceptions that our internal controls are inadequate or that we are unable to produce accurate financial statements on a timely basis may harm our stock price and make it more difficult for us to effectively market and sell our service to new and existing customers.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.

The trading market for our common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If no securities or industry analysts commence coverage of our company, the trading price for our stock would likely be negatively impacted. In the event securities or industry analysts initiate coverage, if one or more of the analysts who cover us downgrades our stock or publishes inaccurate or unfavorable research about our business, our stock price may decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the sections entitled “Prospectus Summary,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and “Business,” contains express or implied forward-looking statements that are based on our management’s belief and assumptions and on information currently available to our management. Although we believe that the expectations reflected in these forward-looking statements are reasonable, these statements relate to future events or our future operational or financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements in this prospectus include, but are not limited to, statements about:

- the timing of preclinical studies and clinical trials of TC-210, TC-110 and any other product candidates;
- our need to raise additional funding before we can expect to generate any revenues from product sales;
- our ability to submit our planned INDs and conduct successful clinical trials or obtain regulatory approval for TC-210, TC-110 or any other product candidates that we may identify or develop;
- the ability of our TRuC-T cell platform to generate and advance additional product candidates;
- our ability to establish an adequate safety, potency and purity profile for TC-210, TC-110 or any other product candidates that we may pursue;
- our ability to manufacture TC-210, TC-110 or any other product candidate in conformity with the U.S. Food and Drug Administration’s requirements and to scale up manufacturing of our product candidates to commercial scale, if approved;
- the implementation of our strategic plans for our business, any product candidates we may develop and our technology;
- our intellectual property position, including the scope of protection we are able to establish and maintain for intellectual property rights covering our product candidates and technology;
- the rate and degree of market acceptance and clinical utility for any product candidates we may develop;
- our ability to use the proceeds of this offering in ways that increase the value of your investment;
- our expectations related to the use of proceeds from this offering, and estimates of our expenses, future revenues, capital requirements and our needs for additional financing;
- our ability to maintain and establish collaborations;
- our financial performance;
- our ability to effectively manage our anticipated growth;
- developments relating to our competitors and our industry, including the impact of government regulation;
- our estimates regarding the market opportunities for our product candidates;
- our ability to retain the continued service of our key professionals and to identify, hire and retain additional qualified professionals; and
- other risks and uncertainties, including those listed under the section titled “Risk Factors.”

In some cases, you can identify forward-looking statements by terminology such as “may,” “should,” “expects,” “intends,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “potential,” “continue” or the negative of these terms or other comparable terminology. These statements are only predictions. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties, and other factors, which are, in some cases, beyond our control and which could materially affect results. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under the section titled “Risk Factors” and elsewhere in this prospectus. If one or more of these risks or uncertainties occur, or if our underlying assumptions prove to be incorrect, actual events or results may vary significantly from those implied or projected by the forward-looking statements. No forward-looking statement is a guarantee of future performance. You should read this prospectus and the documents that we reference in this prospectus and have filed with the Securities and Exchange Commission as exhibits to the registration statement, of which this prospectus forms a part, completely and with the understanding that our actual future results may be materially different from any future results expressed or implied by these forward-looking statements.

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The forward-looking statements in this prospectus represent our views as of the date of this prospectus. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should therefore not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this prospectus.

This prospectus also contains estimates, projections and other information concerning our industry, our business and the markets for our product candidates. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances that are assumed in this information. Unless otherwise expressly stated, we obtained this industry, business, market, and other data from our own internal estimates and research as well as from reports, research surveys, studies, and similar data prepared by market research firms and other third parties, industry, medical and general publications, government data and similar sources. While we are not aware of any misstatements regarding any third-party information presented in this prospectus, their estimates, in particular, as they relate to projections, involve numerous assumptions, are subject to risks and uncertainties and are subject to change based on various factors, including those discussed under the section titled “Risk Factors” and elsewhere in this prospectus.

USE OF PROCEEDS

We estimate that the net proceeds to us from the sale of _____ shares of our common stock in this offering will be approximately \$ _____ million, or approximately \$ _____ if the underwriters exercise in full their option to purchase additional shares, assuming an initial public offering price of \$ _____ per share, the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

A \$1.00 increase (decrease) in the assumed initial public offering price of \$ _____ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us from this offering by \$ _____ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase (decrease) of 1.0 million shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) our net proceeds from this offering by \$ _____ million, assuming no change in the assumed initial public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We do not expect that a change in the offering price or the number of shares by these amounts would have a material effect on our intended uses of the net proceeds from this offering, although it may impact the amount of time prior to which we may need to seek additional capital.

As of September 30, 2018, we had cash, cash equivalents and short-term investments of \$131.0 million. We currently intend to use the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, as follows:

- approximately \$ _____ million to fund the development of our lead product candidate, TC-210, targeting mesothelin-positive solid tumors, through the completion of our planned Phase 1/2 clinical trial in patients with mesothelin-positive non-small cell lung cancer, ovarian cancer, malignant pleural mesothelioma and cholangiocarcinoma;
- approximately \$ _____ million to fund the development of our lead product candidate, TC-110, targeting CD19-positive B-cell hematological malignancies through a Phase 1 clinical trial;
- approximately \$ _____ million to fund the development of TC-220 for the treatment of patients with MUC16-positive ovarian cancer through a Phase 1/2 clinical trial;
- approximately \$ _____ million to fund manufacturing activities to support our planned Phase 1/2 clinical trial of TC-210, our Phase 1 clinical trial of TC-110 and our Phase 1/2 clinical trial of TC-220; and
- the remaining proceeds, if any, to fund new and ongoing research and development activities, our product platform, working capital and other general corporate purposes, which may include funding for the hiring of additional personnel, capital expenditures and the costs of operating as a public company.

Based on our current plans, we believe our existing cash, cash equivalents and short-term investments, together with the net proceeds from this offering, will be sufficient to fund our operating expenses and capital expenditure requirements through _____.

This expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. For example, we may use a portion of the net proceeds for the acquisition of businesses or technologies to continue to build our pipeline, our research and development capabilities and our intellectual property position, although we currently have no agreements, commitments or understandings with respect to any such transaction. We cannot predict with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering or the amounts that we will actually spend on the uses set forth above. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our research and development, the status of and results from non-clinical studies or clinical trials we may commence in the future, as well as any collaborations that we may enter into with third parties for our product candidates or strategic opportunities that

become available to us, and any unforeseen cash needs. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering.

Pending our use of proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation instruments, including short-term, investment-grade, interest-bearing instruments and U.S. government securities.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain any future earnings to fund the development and expansion of our business, and therefore we do not anticipate paying cash dividends on our common stock in the foreseeable future. Any future determination to pay dividends will be at the discretion of our board of directors and will depend on our results of operations, financial condition, capital requirements, contractual restrictions and other factors deemed relevant by our board of directors.

CAPITALIZATION

The following table sets forth our cash, cash equivalents and short-term investments and our capitalization as of September 30, 2018:

- on an actual basis;
- on a pro forma basis to give effect to (i) the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 107,000,001 shares of common stock upon the closing of this offering, and (ii) the filing and effectiveness of our amended and restated certificate of incorporation, which will occur upon the closing of this offering; and
- on a pro forma as adjusted basis to give further effect to the sale and issuance by us of _____ shares of our common stock in this offering at an assumed initial public offering price of \$ _____ per share, the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

You should read the information below in conjunction with the financial statements and the related notes thereto and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included elsewhere in this prospectus.

(In thousands, except share and per share data)	AS OF SEPTEMBER 30, 2018		
	ACTUAL	PRO FORMA	PRO FORMA AS ADJUSTED
Cash, cash equivalents and short-term investments	<u>\$130,998</u>	<u>\$ 130,998</u>	<u>\$</u>
Redeemable convertible preferred stock (Series A and B), \$0.0001 par value; 107,000,001 shares authorized and 107,000,001 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma; no shares authorized, issued or outstanding, pro forma as adjusted	205,500	—	—
Stockholders' equity (deficit):			
Common stock, \$0.0001 par value; 130,000,000 shares authorized, 5,626,474 shares issued and outstanding, actual; 160,000,000 shares authorized, 112,626,475 shares issued and outstanding, pro forma; 160,000,000 shares authorized, _____ shares issued and outstanding, pro forma as adjusted	—	11	—
Preferred stock, \$0.0001 par value; no shares authorized, issued or outstanding, actual; 10,000,000 shares authorized and no shares issued and outstanding, pro forma and pro forma as adjusted	—	—	—
Additional paid-in capital	—	205,489	—
Accumulated other comprehensive loss	(3)	(3)	—
Accumulated deficit	(75,033)	(75,033)	—
Total stockholders' equity (deficit)	<u>(75,036)</u>	<u>130,464</u>	<u>—</u>
Total capitalization	<u>\$130,464</u>	<u>\$ 130,464</u>	<u>\$</u>

A \$1.00 increase (decrease) in the assumed initial public offering price of \$ _____ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of cash, cash equivalents and short-term investments, additional paid-in capital, total stockholders' equity and total capitalization by approximately \$ _____ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase (decrease) of 1.0 million shares in the number of shares offered by us in this offering would increase (decrease) the pro forma as adjusted amount of cash, cash equivalents and short-term investments, additional paid-in capital, total stockholders' equity and total capitalization by approximately \$ _____ million, assuming the assumed initial public offering price of \$ _____ per share,

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the midpoint of the price range set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The table above excludes each of the following:

- 12,175,409 shares of common stock issuable upon exercise of options outstanding under our 2015 Stock Option and Grant Plan (2015 Plan) at a weighted-average exercise price of \$0.56 per share as of September 30, 2018;
- 49,661 shares of common stock issuable upon the exercise of outstanding options issued outside of our 2015 Plan at an exercise price of \$0.12 per share as of September 30, 2018;
- 1,261,541 shares of common stock issuable upon the exercise of warrants to purchase common stock at a weighted-average exercise price of \$0.12 per share as of September 30, 2018;
- 1,408,399 shares of unvested common stock options, unvested warrants and restricted stock that has been issued but was subject to repurchase by us as of September 30, 2018;
- 2,500,614 shares of common stock reserved for issuance under our 2015 Plan as of September 30, 2018;
- shares of common stock to be reserved for future issuance under our 2018 Stock Option and Incentive Plan to be effective upon the effectiveness of the registration statement of which this prospectus forms a part; and
- shares of common stock to be reserved for future issuance under our 2018 Employee Stock Purchase Plan to be effective upon the effectiveness of the registration statement of which this prospectus forms a part.

DILUTION

If you invest in our common stock in this offering, your interest will be diluted immediately to the extent of the difference between the public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock after this offering. As of September 30, 2018, our historical net tangible book value was (\$75.0) million, or (\$17.79) per share. Our historical net tangible book value represents total tangible assets less total liabilities and preferred stock, all divided by the number of shares of common stock outstanding on September 30, 2018.

Our pro forma net tangible book value as of September 30, 2018 was \$130.5 million, or \$1.17 per share, after giving effect to the automatic conversion of all outstanding shares of our preferred stock into shares of our common stock upon the completion of this offering. After giving effect to the sale of _____ shares of common stock offered in this offering at an assumed initial public offering price of \$ _____ per share, the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of September 30, 2018 would have been \$ _____ million, or \$ _____ per share. This represents an immediate increase in pro forma as adjusted net tangible book value of \$ _____ per share to existing stockholders and an immediate dilution of \$ _____ per share to new investors in this offering, or approximately _____ % of the assumed initial public offering price of \$ _____ per share. The following table illustrates this dilution on a per share basis:

Assumed initial public offering price per share	\$
Historical net tangible book value per share as of September 30, 2018	\$(17.79)
Increase per share attributable to the pro forma adjustments described above	18.96
Pro forma net tangible book value per share as of September 30, 2018, before giving effect to this offering	1.17
Increase in pro forma as adjusted net tangible book value per share attributable to this offering	
Pro forma as adjusted net tangible book value per share after giving effect to this offering	
Dilution in pro forma as adjusted net tangible book value per share to new investors in this offering	\$

A \$1.00 increase (decrease) in the assumed initial public offering price of \$ _____ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted net tangible book value by \$ _____ per share and the dilution to investors participating in this offering by \$ _____ per share, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated expenses payable by us. Similarly, each increase (decrease) of 1.0 million shares in the number of shares offered by us in this offering would increase (decrease) the pro forma as adjusted net tangible book value by \$ _____ per share and the dilution to investors participating in this offering by \$ _____ per share, assuming the assumed initial public offering price of \$ _____ per share, the midpoint of the price range set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated expenses payable by us.

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The following table summarizes, on a pro forma as adjusted basis as of September 30, 2018, the differences between the number of shares of common stock purchased from us on an as converted basis, the total cash consideration paid and the average price per share paid to us by existing stockholders and by new investors purchasing shares in this offering, at the assumed initial public offering price of \$ per share, the midpoint of the price range set forth on the cover of this prospectus before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us:

	SHARES PURCHASED		TOTAL CONSIDERATION		AVERAGE PRICE PER SHARE
	NUMBER	PERCENT	AMOUNT	PERCENT	
Existing stockholders		%	\$	%	\$
New investors participating in this offering					
Total		100.0%	\$	100.0%	

A \$1.00 increase (decrease) in the assumed initial public offering price of \$ per share, the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the total consideration paid by investors in this offering by approximately \$ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase (decrease) of 1.0 million shares in the number of shares offered by us in this offering would increase (decrease) the total consideration paid by investors in this offering by approximately \$ million, assuming the assumed initial public offering price of \$ per share, the midpoint of the price range set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The table above assumes no exercise of the underwriters' option to purchase additional shares in this offering. If the underwriters exercise their option to purchase additional shares of our common stock in full, our existing stockholders would own % and our new investors would own % of the total number of shares of our common stock outstanding after this offering.

The foregoing tables and calculations exclude:

- 12,175,409 shares of common stock issuable upon exercise of options outstanding under our 2015 Stock Option and Grant Plan (2015 Plan) at a weighted-average exercise price of \$0.56 per share as of September 30, 2018;
- 49,661 shares of common stock issuable upon the exercise of outstanding options issued outside of our 2015 Plan at an exercise price of \$0.12 per share as of September 30, 2018;
- 1,261,541 shares of common stock issuable upon the exercise of warrants to purchase common stock at an exercise price of \$0.12 per share as of September 30, 2018;
- 1,408,399 shares of unvested common stock options, unvested warrants and restricted stock that has been issued but was subject to repurchase by us as of September 30, 2018;
- 2,500,614 shares of common stock reserved for issuance under our 2015 Plan as of September 30, 2018;
- shares of common stock to be reserved for future issuance under our 2018 Stock Option and Incentive Plan to be effective upon the effectiveness of the registration statement of which this prospectus forms a part; and
- shares of common stock to be reserved for future issuance under our 2018 Employee Stock Purchase Plan to be effective upon the effectiveness of the registration statement of which this prospectus forms a part.

To the extent that outstanding options or warrants are exercised or shares are issued under our equity incentive plans, you will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities may result in further dilution to our stockholders.

SELECTED FINANCIAL INFORMATION

The statements of operations and comprehensive loss data for the years ended December 31, 2016 and 2017 and the balance sheet data as of December 31, 2016 and 2017 are derived from our audited financial statements included elsewhere in this prospectus. The statements of operations and comprehensive loss data for the nine months ended September 30, 2017 and 2018 and the balance sheet data as of September 30, 2018 are derived from our unaudited financial statements included elsewhere in this prospectus and have been prepared on the same basis as the audited financial statements. You should read this data together with our financial statements and related notes included elsewhere in this prospectus and in the section of this prospectus titled "Management's Discussion and Analysis of Financial Condition and Results of Operations." Our historical results are not necessarily indicative of the results to be expected in the future, and results for the nine-month period ended September 30, 2018 are not necessarily indicative of the results to be expected for the full year ending December 31, 2018.

(In thousands, except share and per share data)	YEARS ENDED DECEMBER 31,		NINE MONTHS ENDED SEPTEMBER 30,	
	2016	2017	2017	2018
Statements of Operations and Comprehensive Loss Data:				
Operating expenses:				
Research and development	\$ 7,670	\$ 9,569	\$ 6,822	\$ 13,454
General and administrative	2,260	3,611	2,321	4,558
Total operating expenses and loss from operations	(9,930)	(13,180)	(9,143)	(18,012)
Other income, net	15	110	85	1,451
Net loss	(9,915)	(13,070)	(9,058)	(16,561)
Accretion of redeemable convertible preferred stock to redemption value	(787)	(1,794)	(1,272)	(36,568)
Net loss attributable to common stockholders	\$ (10,702)	\$ (14,864)	\$ (10,330)	\$ (50,129)
Other comprehensive loss:				
Net loss	\$ (9,915)	\$ (13,070)	\$ (9,058)	\$ (16,561)
Unrealized (loss) gain on investments	(2)	2	2	(3)
Total comprehensive loss	\$ (9,917)	\$ (13,068)	\$ (9,056)	\$ (16,564)
Net loss per share of common stock—basic and diluted (1)	\$ (6.24)	\$ (6.45)	\$ (4.65)	\$ (13.53)
Weighted average shares of common stock outstanding—basic and diluted (1)	1,715,547	2,304,853	2,223,081	3,703,728
Pro forma net loss per share of common stock—basic and diluted (unaudited) (1)		\$ (0.41)	\$ (0.30)	\$ (0.18)
Pro forma weighted average shares of common stock outstanding—basic and diluted (unaudited) (1)		31,789,785	30,556,415	92,996,769

(1) See Note 3 to our audited financial statements included elsewhere in this prospectus for an explanation of the calculations of our basic and diluted net loss per share, basic and diluted pro forma net loss per share and the shares used in computing basic and diluted net loss per share and basic and diluted pro forma net loss per share.

(In thousands)	AS OF DECEMBER 31,		AS OF
	2016	2017	SEPTEMBER 30,
2018			
Balance Sheet Data:			
Cash and cash equivalents	\$ 7,992	\$ 19,811	\$ 107,769
Short-term investments	8,348	—	23,229
Working capital (2)	16,349	19,472	127,598
Total assets	18,251	22,039	134,668
Redeemable convertible preferred stock	29,169	47,102	205,500
Additional paid-in capital	—	—	—
Accumulated deficit	(11,882)	(26,324)	(75,033)
Total stockholders' equity (deficit)	(11,884)	(26,324)	(75,036)

(2) We define working capital as current assets less current liabilities. See our financial statements for further details regarding our current assets and current liabilities.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with the "Selected Financial Data" section of this prospectus and our financial statements and related notes appearing elsewhere in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this prospectus, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are an innovative immunotherapy company developing the next generation of novel T cell therapies for patients suffering from cancer. Our proprietary TCR Fusion Construct T cells (TRuC-T cells) specifically recognize and kill cancer cells by harnessing the entire T cell receptor (TCR) signaling complex, which we believe is essential for T cell therapies to be effective in patients with solid tumors. We have also designed our TRuC-T cells so that tumor cell recognition does not require human leukocyte antigens (HLA), which provides two important additional benefits. First, in contrast to current engineered T cell therapies that use the full TCR (TCR-T cells), our technology is designed so that it can be applied to all patients that express the cancer surface antigen irrespective of HLA subtype, which we believe will allow us to address a significantly larger patient population. Second, HLA is downregulated or lost in many tumors which can prevent their recognition by T cells and lead to diminished response rates and higher relapse rates. We therefore believe our approach will allow us to deliver the first HLA-independent TCR-T cell therapy for patients with solid tumors. We also believe that our product candidates have the potential to improve upon the efficacy and safety of currently approved chimeric antigen receptor T (CAR-T) cell therapies in CD19-positive B-cell hematological malignancies. This belief is based on preclinical studies comparing our product candidates to CAR-T cells that we engineered.

Since our inception in May 2015, we have focused significant efforts and financial resources on developing our TRuC platform, establishing and protecting our intellectual property portfolio, conducting research and development of our product candidates, manufacturing drug product material for use in preclinical studies, staffing our company and raising capital. We do not have any products approved for sale and have not generated any revenue from product sales. To date, we have funded our operations with proceeds from the sale of our preferred stock. Through September 30, 2018 we have received gross proceeds of \$169.8 million from the sale of our preferred stock, stock option exercises and warrant exercises.

Since our inception, we have incurred significant operating losses. Our ability to generate product revenue sufficient to achieve profitability will depend heavily on the successful development and eventual commercialization of one or more of our product candidates. We reported net losses of \$9.9 million, \$13.1 million, \$9.1 million and \$16.5 million for the years ended December 31, 2016 and 2017 and for the nine months ended September 30, 2017 and 2018, respectively. As of September 30, 2018, we had an accumulated deficit of \$75.0 million. We expect to continue to incur significant expenses and increasing operating losses for at least the next several years. We expect that our expenses and capital requirements will increase substantially in connection with our ongoing activities, particularly if and as we:

- conduct additional preclinical studies for our product candidates;
- initiate and conduct clinical trials for our product candidates;
- continue to discover and develop additional product candidates;
- acquire or in-license other product candidates and technologies;
- maintain, expand, and protect our intellectual property portfolio;
- hire additional clinical and scientific personnel;
- expand our manufacturing capabilities with third parties and establish manufacturing capabilities in-house;
- seek regulatory approvals for any product candidates that successfully complete clinical trials; and
- add operational, financial, and management information systems and personnel, including personnel to support our product development and planned future commercialization efforts, as well as to support our transition to a public reporting company.

We will not generate revenue from product sales unless and until we successfully complete clinical development and obtain regulatory approval for our product candidates. If we obtain regulatory approval for any of our product candidates and do not enter into a commercialization partnership, we expect to incur significant expenses related to developing our internal commercialization capability to support product sales, marketing and distribution. Additionally, we expect to incur significant expenses if we acquire and establish our own commercial manufacturing facility, which will be a costly and time-consuming process. Further, upon the closing of this offering, we expect to incur additional costs associated with operating as a public company.

As a result, we will need substantial additional funding to support our continuing operations and pursue our growth strategy. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through a combination of equity offerings, debt financings, collaborations, strategic alliances, and marketing, distribution or licensing arrangements. We may be unable to raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements as, and when, needed, we may have to significantly delay, scale back or discontinue the development and commercialization of one or more of our product candidates.

Components of Our Results of Operations

Operating Expenses

Research and Development Expenses

Research and development expenses consist primarily of costs incurred for our research activities, including our drug discovery efforts and the development of our product candidates, which include:

- employee-related expenses, including salaries, benefits and stock-based compensation;
- expenses incurred in connection with the preclinical and clinical development of our product candidates, including under agreements with third parties, such as consultants, contractors and contract research organizations (CROs);
- the cost of acquiring and manufacturing preclinical and clinical trial materials, including under agreements with third parties, such as consultants, contractors and contract manufacturing organizations (CMOs);
- consultant fees and expenses associated with outsourced professional scientific development services;
- facilities, depreciation and other expenses, which include direct and allocated expenses for rent and maintenance of facilities and insurance; and
- payments made under third-party licensing agreements.

We expense research and development costs as incurred. Any nonrefundable advance payments that we make for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses. The prepaid amounts are expensed as the related goods are delivered or the services are performed.

We typically use our employee, consultant and infrastructure resources across our development programs. We track certain outsourced development costs by product candidate, but we do not allocate personnel costs or other internal costs to specific product candidates.

Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. We expect that our research and development expenses will increase substantially in connection with our planned preclinical and clinical development and manufacturing activities in the near term and in the future. At this time, we cannot reasonably estimate or know the nature, timing, and costs of the efforts that will be necessary to complete the preclinical and clinical development of any of our product candidates. The successful development and commercialization of our product candidates is highly uncertain. This is due to the numerous risks and uncertainties associated with product development and commercialization, including the following:

- the timing and progress of our preclinical studies and clinical trials, which may be significantly slower or cost more than we currently anticipate and will depend substantially upon the performance of third-party contractors;

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- the number and scope of preclinical and clinical programs we decide to pursue;
- the progress of the development efforts of parties with whom we may enter into collaboration arrangements;
- our ability to maintain our current research and development programs and to establish new ones;
- our ability to establish licensing or collaboration arrangements;
- our ability to complete investigational new drug application (IND)-enabling studies and successfully submit IND or comparable applications;
- whether we are required by the U.S. Food and Drug Administration (FDA) or similar foreign regulatory authorities to conduct additional clinical trials or other studies beyond those planned to support the approval and commercialization of our product candidates or any future product candidates;
- the timely receipt of necessary marketing approvals from the FDA and similar foreign regulatory authorities;
- our ability and the ability of third parties with whom we contract to manufacture adequate clinical and commercial supplies of our product candidates or any future product candidates, remain in good standing with regulatory agencies and develop, validate and maintain commercially viable manufacturing processes that are compliant with current good manufacturing practices (cGMP);
- our ability to demonstrate to the satisfaction of the FDA and similar foreign regulatory authorities the safety, potency, purity and acceptable risk to benefit profile of our product candidates or any future product candidates;
- the prevalence, duration and severity of potential side effects or other safety issues experienced with our product candidates or future product candidates, if any;
- our ability to establish and enforce intellectual property rights in and to our product candidates or any future product candidates;
- our ability to successfully develop a commercial strategy and thereafter commercialize our product candidates or any future product candidates in the United States and internationally, if licensed for marketing, reimbursement, sale and distribution in such countries and territories, whether alone or in collaboration with others;
- the willingness of physicians, operators of clinics and patients to utilize or adopt any of our product candidates or future product candidates to treat solid and hematologic cancers;
- patient demand for our product candidates and any future product candidates, if licensed;
- competition with other products; and
- continued acceptable safety profile of our therapies following approval.

A change in the outcome of any of these variables with respect to the development of any of our product candidates could significantly change the costs and timing associated with the development of that product candidate. We may never succeed in obtaining regulatory approval for any of our product candidates.

General and Administrative Expenses

General and administrative expenses consist primarily of salaries and related costs, including stock-based compensation, for personnel in executive, finance and administrative functions. General and administrative expenses also include direct and allocated facility-related costs as well as professional fees for legal, patent, consulting, investor and public relations, accounting and audit services. We anticipate that our general and administrative expenses will increase in the future as we increase our headcount to support our continued research activities and development of our product candidates. We also anticipate that we will incur increased accounting, audit, legal, regulatory, compliance, and director and officer insurance costs as well as investor and public relations expenses associated with operating as a public company.

Other Income, Net

Other income, net consists of interest earned on our cash equivalents and short-term investment balances. Our interest income is due to interest earned on invested balances.

Results of Operations

The following table summarizes our results of operations for the periods indicated:

(In thousands, except share and per share data)	YEARS ENDED DECEMBER 31,		NINE MONTHS ENDED SEPTEMBER 30,	
	2016	2017	2017	2018
Statements of Operations and Comprehensive Loss Data:				
Operating expenses:				
Research and development	\$ 7,670	\$ 9,569	\$ 6,822	\$ 13,454
General and administrative	2,260	3,611	2,321	4,558
Total operating expenses and loss from operations	(9,930)	(13,180)	(9,143)	(18,012)
Other income, net	15	110	85	1,451
Net loss	\$ (9,915)	\$ (13,070)	\$ (9,058)	\$ (16,561)

Comparison of the Nine Months Ended September 30, 2017 and 2018

Research and Development Expenses

Research and development expenses were \$6.8 million for the nine months ended September 30, 2017 compared to \$13.4 million for the nine months ended September 30, 2018. The following table summarizes our research and development expenses for the nine months ended September 30, 2017 and 2018:

(In thousands)	NINE MONTHS ENDED SEPTEMBER 30,		CHANGE
	2017	2018	
TC-210 preclinical expenses	\$ 542	\$ 3,566	\$ 3,024
Platform development (preclinical)	1,868	1,630	(238)
Personnel expenses	3,237	5,762	2,525
Allocated facilities costs	980	2,297	1,317
Other expenses	195	199	4
Total research and development expenses	<u>\$6,822</u>	<u>\$13,454</u>	<u>\$ 6,632</u>

The \$6.6 million increase in expense is primarily attributable to the \$3.0 million increase in expenses to third parties progressing the preclinical development of our lead solid tumor product candidate, TC-210, an increase in personnel expenses of \$2.5 million due to our increase in headcount, and an increase in allocated facilities costs of \$1.3 million. These increases were offset by a decrease in preclinical expenses related to our platform development of \$0.2 million.

General and Administrative Expenses

General and administrative expenses were \$2.3 million for the nine months ended September 30, 2017, compared to \$4.6 million for the nine months ended September 30, 2018. The increase in general and administrative expenses was primarily due to an increase in personnel costs of \$1.5 million due to our increase in headcount, an increase in professional service expenses of \$0.3 million and an increase in facility and other expenses of \$0.5 million.

Other Income, Net

Interest income, net was \$0.1 million for the nine months ended September 30, 2017, compared to \$1.5 million for the nine months ended September 30, 2018. The increase in interest income, net was due to higher interest rates and a higher average balance in our commercial and investment accounts during the nine months ended September 30, 2018 compared to the nine months ended September 30, 2017.

Comparison of the Years Ended December 31, 2016 and 2017

Research and Development Expenses

Research and development expenses were \$7.7 million for the year ended December 31, 2016, compared to \$9.6 million for the year ended December 31, 2017. The following table summarizes our research and development expenses for the years ended December 31, 2016 and 2017:

(In thousands)	YEARS ENDED DECEMBER 31,		CHANGE
	2016	2017	
TC-210 preclinical expenses	\$ —	\$ 929	\$ 929
Platform development (preclinical)	3,378	2,197	(1,181)
Personnel expenses	2,925	4,769	1,844
Allocated facilities costs	1,233	1,422	189
Other expenses	134	252	118
Total research and development expenses	<u>\$7,670</u>	<u>\$9,569</u>	<u>\$ 1,899</u>

The \$1.9 million increase in expense is primarily attributable to the \$0.9 million increase in expenses to third parties progressing the preclinical development of our lead solid tumor product candidate, TC-210, during 2017, an increase in personnel expenses of \$1.8 million due to our increase in headcount, an increase in allocated facilities costs of \$0.2 million and an increase in other research and development expenses of \$0.1 million primarily attributable to an increase in scientific advisory board fees and equipment maintenance contracts. These increases were offset by a decrease of \$1.2 million in preclinical expenses related to our platform development. The decrease in platform development costs is the result of us shifting our focus and resources to the advancement of our lead product candidate, TC-210.

General and Administrative Expenses

General and administrative expenses for the year ended December 31, 2016 were \$2.3 million, compared to \$3.6 million for the year ended December 31, 2017. The increase in general and administrative expenses was primarily due to an increase in personnel costs of \$0.7 million due to our increase in headcount, an increase in professional service expenses of \$0.4 million and an increase in facility and other expenses of \$0.2 million.

Other Income, Net

Other income, net for the year ended December 31, 2016 was \$15,000, compared to \$0.1 million for the year ended December 31, 2017. The increase was due to interest income as a result of a higher average cash balance in our commercial and investment accounts in 2017.

Liquidity and Capital Resources

Since our inception, we have incurred net losses and generated negative cash flows from operations. Since inception, we have funded our operations with proceeds from the sale of our Series A and Series B preferred stock. We have received aggregate gross cash proceeds of approximately \$45.0 million in connection with the sale of our Series A preferred stock and \$125.0 million in connection with the sale of our Series B preferred stock. As of September 30, 2018, we had cash, cash equivalents and short-term investments of \$131.0 million.

Cash Flows

The following table summarizes our sources and uses of cash for each of the periods presented:

(In thousands)	YEARS ENDED DECEMBER 31,		NINE MONTHS ENDED SEPTEMBER 30,	
	2016	2017	2017	2018
Operating activities	\$ (9,380)	\$ (12,036)	\$ (7,795)	\$ (12,309)
Investing activities	(9,219)	7,672	5,045	(23,990)
Financing activities	22,486	16,183	3	124,257
Net increase (decrease) in cash	<u>\$ 3,887</u>	<u>\$ 11,819</u>	<u>\$ (2,747)</u>	<u>\$ 87,958</u>

Operating Activities

During the nine months ended September 30, 2017, we used \$7.8 million of cash in operating activities, primarily resulting from our net loss of \$9.1 million offset by increases in non-cash charges of \$0.4 million, which primarily consisted of depreciation, accretion of investments and stock-based compensation, and a net decrease in operating assets and liabilities of \$0.9 million. The net decrease in operating assets and liabilities was primarily attributable to a decrease in prepaid expenses and other current assets.

During the nine months ended September 30, 2018, we used \$12.3 million of cash in operating activities, primarily resulting from our net loss of \$16.5 million offset by increases in net non-cash charges of \$1.3 million, which primarily consisted of depreciation, accretion of investments and stock-based compensation, and a net decrease in operating assets and liabilities. The net decrease in operating assets and liabilities was primarily attributable to an increase in accounts payable, accrued expenses and other current liabilities and a decrease in prepaid expenses and other current assets.

During the year ended December 31, 2016, we used \$9.4 million of cash in operating activities, primarily resulting from our net loss of \$9.9 million offset by non-cash charges of \$0.3 million, which related to depreciation and amortization and stock-based compensation, and a net decrease in operating assets and liabilities of \$0.2 million. The net decreases in operating assets and liabilities were primarily attributable to the timing in which we paid our vendors.

During the year ended December 31, 2017, we used \$12.0 million of cash in operating activities, primarily resulting from our net loss of \$13.1 million offset by non-cash charges of \$0.8 million, which primarily consisted of depreciation and stock-based compensation, and a net decrease in operating assets and liabilities of \$0.3 million.

Investing Activities

During the nine months ended September 30, 2017, our cash provided by investing activities was \$5.0 million, consisting primarily of maturities and sales of short-term investments of \$12.1 million, partially offset by purchases of short-term investments of \$6.5 million, purchases of property and equipment of \$0.3 million and changes in restricted cash of \$0.3 million.

During the nine months ended September 30, 2018, our cash used in investing activities was \$24.0 million, consisting primarily of purchases of short-term investments of \$36.0 million and purchases of property and equipment of \$0.9 million, partially offset by maturities of short-term investments of \$12.9 million.

During the year ended December 31, 2016, cash used in investing activities was \$9.2 million, consisting primarily of purchases of short-term investments of \$8.3 million and purchases of property and equipment of \$0.9 million.

During the year ended December 31, 2017, cash provided by investing activities was \$7.7 million, consisting primarily of maturities of investments of \$14.8 million, offset by related purchases of short-term investments of \$6.5 million, purchases of property and equipment of \$0.4 million and an increase in restricted cash of \$0.3 million.

Financing Activities

During the nine months ended September 30, 2017, our cash provided by financing activities was \$3,000, consisting of proceeds from the exercise of stock options.

During the nine months ended September 30, 2018, our cash provided by financing activities was \$124.3 million, consisting of gross proceeds received from the sale and issuance of our Series B preferred stock. We issued and sold an aggregate 62.5 million shares of Series B preferred stock for gross proceeds of \$125.0 million during the nine months ended September 30, 2018. We also paid \$0.8 million in deferred offering costs, \$0.2 million in Series B offering costs and received \$0.2 million in connection with the exercise of stock options and warrants, including options and warrants that were unvested and remain subject to repurchase until vesting.

During the year ended December 31, 2016 and 2017, net cash provided by financing activities was \$22.5 million and \$16.2 million, respectively, in each case consisting of net cash proceeds from the sale and issuance of our Series A preferred stock. We also received proceeds of \$44,000 during the year ended December 31, 2017 in connection with the exercise of stock options, including options that were unvested and remain subject to repurchase until vesting.

Funding Requirements

We expect our expenses to increase substantially in connection with our ongoing activities, particularly as we advance the preclinical studies and clinical trials of our product candidates in development. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to establishing sales, marketing, distribution and other commercial infrastructure to commercialize such products. Furthermore, upon the closing of this offering, we expect to incur additional costs associated with operating as a public reporting company.

In addition, our expenses will increase as we:

- commence enrollment of clinical trials for our product candidates;
- seek regulatory approval for any product candidates that successfully complete preclinical and clinical trials;
- establish manufacturing capabilities in-house for the production of preclinical and clinical supply;
- hire additional clinical, medical, research and operational personnel; and
- maintain, expand, and protect our intellectual property portfolio.

As of September 30, 2018, we had cash, cash equivalents and short-term investments of \$131.0 million. We believe that the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, will enable us to fund our operating expenses and capital expenditure requirements through . We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we expect. Additionally, changing circumstances may cause us to consume capital significantly faster than we currently anticipate, and we may need to spend more money than currently expected because of circumstances beyond our control. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our operations through a combination of equity offerings, debt financings, collaborations, strategic alliances, and marketing, distribution, or licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making acquisitions or capital expenditures, or declaring dividends. If we raise additional funds through collaborations, strategic alliances, or marketing, distribution, or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or drug candidates, or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings or other arrangements when needed, we may be required to delay, limit, reduce, or terminate our research, product development, or future commercialization efforts, or grant rights to develop and market drug candidates that we would otherwise prefer to develop and market ourselves.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations as of December 31, 2017 and the effects that such obligations are expected to have on our liquidity and cash flows in future periods:

(In thousands)	PAYMENTS DUE BY PERIOD				
	TOTAL	LESS THAN 1 YEAR	1 TO 3 YEARS	4 TO 5 YEARS	MORE THAN 5 YEARS
Operating lease commitments (1)	\$366	\$366	\$—	\$—	\$—
Total	\$366	\$366	\$—	\$—	\$—

(1) Reflects payments due for our office and laboratory space in Cambridge, Massachusetts under an operating lease that expired in April 2018.

In March 2018, we began occupying office and laboratory facilities under a new lease that expires in July 2025.

Collaboration Agreement with Cell Therapy Catapult Limited

In December 2018, we signed a collaboration agreement (the Collaboration Agreement) with Cell Therapy Catapult Limited (Catapult) to establish our manufacturing process in Catapult's GMP manufacturing facility in the United Kingdom. We paid a £200,000 non-refundable contribution to Catapult to reserve a GMP manufacturing cleanroom in October 2018. The non-refundable contribution will be applied against our input contributions (or fees) once we and Catapult have determined the various inputs that Catapult will contribute to the collaboration in order to support our manufacturing process under the Collaboration Agreement. The initial term of the Collaboration Agreement is three years and assumes an occupancy date of March 1, 2019. We can terminate the Collaboration Agreement earlier with twelve months' notice and continued payment for contributions during the twelve-month termination period. The only fee fixed over the three-year term is a specified facility input contribution. The total financial contribution from us under the Collaboration Agreement comprises our portion of the shared costs for the infrastructure of the center and its operation as a licensed GMP facility. Our exact costs under the Collaboration Agreement are based on input-related contributions and will change year to year, and are partially dependent on the inputs we require from Catapult to meet the collaboration aim of establishing our manufacturing of autologous cell therapies.

We enter into contracts in the normal course of business with CROs, CMOs and other third parties for clinical trials and preclinical research studies and testing. These contracts provide for termination upon notice. Payments due upon cancellation consist only of payments for services provided and expenses incurred, including non-cancelable obligations of our service providers, up to the date of cancellation.

Critical Accounting Policies and Significant Judgments and Estimates

Our financial statements are prepared in accordance with generally accepted accounting principles in the United States (GAAP). The preparation of our financial statements and related disclosures requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, and expenses, and the disclosure of contingent assets and liabilities in our financial statements. We base our estimates on historical experience, known trends and events, and various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in Note 3 to our audited financial statements appearing elsewhere in this prospectus, we believe that the following accounting policies are those most critical to the judgments and estimates used in the preparation of our financial statements.

Research and Development Expenses

Research and development expenses consist primarily of costs incurred in connection with the development of our product candidates. We expense research and development costs as incurred.

As part of the process of preparing our financial statements, we are required to estimate our accrued research and development expenses. This process involves reviewing open contracts and purchase orders, communicating with our applicable personnel to identify services that have been performed on our behalf, and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of actual costs. The majority of our service providers invoice us in arrears for services performed, on a pre-determined schedule or when contractual milestones are met; however, some require advance payments. We make estimates of our accrued expenses as of each balance sheet date in the financial statements based on facts and circumstances known to us at that time. We periodically confirm the accuracy of the estimates with the service providers and make adjustments, if necessary. Examples of estimated accrued research and development expenses include fees paid to:

- vendors in connection with preclinical development activities;
- CMOs in connection with the production of preclinical and clinical trial materials; and
- CROs in connection with preclinical studies and clinical trials.

We base our expenses related to preclinical studies and clinical trials on our estimates of the services received and efforts expended pursuant to quotes and contracts with multiple CMOs and CROs that supply, conduct, and manage preclinical studies on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract, and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the expense. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from the estimate, we adjust the accrual or prepaid expense accordingly. Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in reporting amounts that are too high or too low in any particular period. To date, there have not been any material adjustments to our prior estimates of accrued research and development expenses.

Stock-Based Compensation

We measure stock options and other stock-based awards granted to employees based on their fair value on the date of the grant and recognize compensation expense of those awards over the requisite service period, which is generally the vesting period of the respective award. We apply the straight-line method of expense recognition to all awards with service-based vesting conditions.

For stock-based awards granted to non-employees, compensation expense is recognized over the period during which services are rendered by such non-employees until completed. At the end of each financial reporting period prior to the completion of the service, the fair value of these awards is remeasured using the then-current fair value of our common stock and updated assumption inputs in the Black-Scholes option-pricing model for options and warrants.

We estimate the fair value of restricted stock at the then-current fair value of our common stock and for other stock-based awards we use the Black-Scholes option-pricing model, which requires subjective assumptions, including the fair value of our common stock, volatility, the expected term of our common stock options, the risk-free interest rate for a period that approximates the expected term of our common stock options, and our expected dividend yield. The assumptions used in our Black-Scholes option-pricing model represent management's best estimates and involve a number of variables, uncertainties and assumptions and the application of management's judgment, as they are inherently subjective. If any assumptions change, our stock-based compensation expense could be materially different in the future.

These assumptions are estimated as follows:

- *Risk-Free Interest Rate.* The risk-free interest rate was based on the yields of U.S. Treasury securities with maturities commensurate with the expected term of the award.
- *Expected Dividend Yield.* We have not paid dividends on our common stock nor do we expect to pay dividends in the foreseeable future.
- *Expected Term.* The expected term represents the period that our stock options are expected to be outstanding. We calculated the expected term using the simplified method based on the average of each option's vesting term and the contractual period during which the option can be exercised, which is typically 10 years following the date of grant.
- *Expected Volatility.* The expected volatility was based on the historical stock volatility of several comparable publicly traded companies over a period of time equal to the expected term of the options, as we do not have any trading history to use the volatility of our own common stock.
- *Fair Market Value of Common Stock.* As our common stock has not historically been publicly traded, we have periodically estimated the fair market value of common stock. See "—Fair Market Value of Common and Preferred Stock."

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The following table reflects the weighted average assumptions used to estimate the fair value of the options and warrants granted during the periods presented:

	YEAR ENDED DECEMBER 31,		NINE MONTHS ENDED SEPTEMBER 30,	
	2016	2017	2017	2018
Risk-free interest rate	2.15%	2.14%	1.92%	2.87%
Expected dividend yield	—	—	—	—
Expected term (in years)	7.06	6.58	6.23	6.08
Expected volatility	69.30%	65.70%	66.15%	64.70%

Fair Market Value of Common and Preferred Stock

As there has been no public market for our common or preferred stock to date, the estimated fair value of our common and preferred stock has been determined by our board of directors as of the date of each option grant, with input from management, considering our most recently available third-party valuations of common stock, and our board of directors' assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. These third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. In addition to considering the results of these third-party valuations, our board of directors considered various objective and subjective factors to determine the fair value of our common stock as of each grant date, including:

- the prices at which we sold shares of our preferred stock and the superior rights and preferences of the preferred stock relative to our common stock at the time of each grant;
- the progress of our research and development programs, including the status and results of preclinical studies for our product candidates;
- our stage of development and our business strategy;
- external market conditions affecting the biopharmaceutical industry and trends within the biopharmaceutical industry;
- our financial position, including cash on hand, and our historical and forecasted performance and operating results;
- the lack of an active public market for our common stock and our preferred stock;
- the likelihood of achieving a liquidity event, such as an initial public offering (IPO) or sale of our company in light of prevailing market conditions; and
- the analysis of IPOs and the market performance of similar companies in the biopharmaceutical industry.

Based on an assumed initial public offering price of \$ per share, the midpoint of the price range set forth on the cover page of this prospectus, the intrinsic value of vested and unvested stock options outstanding as of September 30, 2018 was \$ million and \$ million, respectively.

Common and Preferred Stock Valuation Methodology

Our common and preferred stock valuations were prepared using a hybrid between the option pricing method (OPM) and the probability-weighted expected return method (PWERM), both of which used market approaches to estimate our enterprise value. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preferences at the time of the liquidity event, such as a strategic sale, a merger or initial public offering. The common stock has a claim on the equity value at an exercise price equal to the remaining value immediately after the preferred stock is liquidated. The OPM is appropriate to use when the range of possible future outcomes is so difficult to predict that forecasts would be highly speculative. The OPM commonly uses the Black-Scholes option pricing model to determine the price of the call option.

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In the OPM, the backsolve method can be used to infer the total equity value implied by the pricing and terms of our Series A and Series B preferred stock financing transactions by making assumptions regarding the expected time to liquidity, expected volatility and risk-free interest rate, and then solve for the value of equity such that the implied value for the most recent financing equals the amount paid. At certain valuation dates, the equity value inferred from the OPM backsolve method was adjusted for company and market specific events that occurred between the financing date and the valuation date.

The PWERM involves a forward-looking analysis of the possible future outcomes, estimation of ranges of future and present value under each outcome and application of a probability factor to each outcome as of the valuation date. Under this method, discrete future outcomes, including an IPO, and non-IPO scenarios, are weighted based on the estimated probability of each scenario.

The hybrid method is generally appropriate to use when the time to a liquidity event is short, making the range of possible future outcomes relatively easy to predict. In the IPO scenario, all shares of preferred stock were assumed to convert to common stock. Accordingly, the estimated equity value was allocated pro rata among our preferred stock and common stock on an as converted basis, which caused the common stock to have a higher relative value per share than under the scenarios captured by the OPM. The weighting between the PWERM and OPM employed in the hybrid method was based on our board of directors' estimate of the probability of each scenario as of each valuation date. These third-party valuations were performed at various dates, which resulted in valuations of our common stock of \$0.12 per share as of September 30, 2016, \$0.28 per share as of December 31, 2017, \$0.95 per share as of February 28, 2018 and \$1.30 per share as of August 31, 2018. The fair value of our Series A preferred stock was \$1.50 per share as of August 31, 2018 and the fair value of our Series B preferred stock was \$2.22 per share as of August 31, 2018.

The assumptions underlying these valuations represented management's best estimate, which involved inherent uncertainties and the application of management's judgment. As a result, if we had used significantly different assumptions or estimates, the fair value of our common stock and our stock-based compensation expense could have been materially different.

Once a public trading market for our common stock has been established in connection with the closing of this offering all of our outstanding preferred stock will convert to common stock and it will no longer be necessary for our board of directors to estimate the fair value of our common stock in connection with our accounting for granted stock options and other such awards we may grant, as the fair value of our common stock will be determined based on the quoted market price of our common stock.

Options Granted

The following table summarizes by grant date the number of shares of our common stock subject to options granted between January 1, 2017 and December 15, 2018, the per share exercise price of the options, the fair value of common stock underlying the options on each grant date, and the per share estimated fair value of the options:

GRANT DATE	NUMBER OF SHARES SUBJECT TO OPTIONS GRANTED	PER SHARE EXERCISE PRICE OF OPTIONS	PER SHARE FAIR VALUE OF COMMON STOCK ON GRANT DATE	PER SHARE ESTIMATED FAIR VALUE OF OPTIONS
May 9, 2017	49,661	\$ 0.12	\$ 0.12	\$ 0.09
June 21, 2017	92,390	\$ 0.12	\$ 0.12	\$ 0.07
September 12, 2017	554,340	\$ 0.12	\$ 0.12	\$ 0.07
October 10, 2017	461,950	\$ 0.12	\$ 0.12	\$ 0.07
December 7, 2017	3,119,981	\$ 0.12	\$ 0.28 (1)	\$ 0.18
April 30, 2018	1,501,737	\$ 0.95	\$ 0.95	\$ 0.58
July 26, 2018	4,961,115	\$ 0.95	\$ 1.30 (2)	\$ 0.88
October 11, 2018	413,199	\$ 1.30	\$ 1.30	\$ 0.81
December 13, 2018	464,500	\$ 1.30	\$ 1.30	\$ 0.85

(1) In the third quarter of 2018, we undertook a retrospective valuation of the fair value of our common stock as of December 31, 2017 and this value represents our estimated fair value per common share in accordance with such retrospective valuation.

(2) In the fourth quarter of 2018, we undertook a retrospective valuation of the fair value of our common stock as of July 31, 2018 and this value represents our estimated fair value per common share in accordance with such retrospective valuation.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Recently Issued and Adopted Accounting Pronouncements

A description of recently issued accounting pronouncements that may potentially impact our financial position and results of operations is disclosed in Note 3 to our audited financial statements appearing elsewhere in this prospectus.

Quantitative and Qualitative Disclosures about Market Risks

Interest Rate Sensitivity

As of September 30, 2018, we had cash, cash equivalents and short-term investments of \$131.0 million, which consisted of cash, money market funds, U.S. Treasury notes, and U.S. government agency bonds. Interest income is sensitive to changes in the general level of interest rates; however, due to the nature of these investments, an immediate 10% change in interest rates would not have a material effect on the fair market value of our investment portfolio.

Emerging Growth Company Status

We are an “emerging growth company,” as defined in the Jumpstart Our Business Startups Act of 2012 (JOBS Act), and are eligible to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies. Section 107 of the JOBS Act provides that an emerging growth company may take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933 for complying with new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. Section 107 of the JOBS Act provides that we can elect to opt out of the extended transition period at any time, which election is irrevocable. We have elected to avail ourselves of this exemption from complying with new or revised accounting standards and, therefore, will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

We are in the process of evaluating the benefits of relying on other exemptions and reduced reporting requirements under the JOBS Act. Subject to certain conditions, as an emerging growth company, we may rely on certain of these exemptions, including without limitation (i) providing an auditor’s attestation report on our system of internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act and (ii) complying with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor’s report providing additional information about the audit and the financial statements, known as the auditor discussion and analysis. We will remain an emerging growth company until the earlier of (a) the last day of the fiscal year in which we have total annual gross revenue of \$1.07 billion or more; (b) the last day of the fiscal year following the fifth anniversary of the date of the completion of this offering; (c) the date on which we have issued more than \$1.0 billion in nonconvertible debt during the previous three years; or (d) the date on which we are deemed to be a large accelerated filer under the rules of the SEC.

BUSINESS

Overview

We are an innovative immunotherapy company developing the next generation of novel T cell therapies for patients suffering from cancer. Our proprietary TCR Fusion Construct T cells (TRuC-T cells) specifically recognize and kill cancer cells by harnessing the entire T cell receptor (TCR) signaling complex, which we believe is essential for T cell therapies to be effective in patients with solid tumors. We have also designed our TRuC-T cells so that tumor cell recognition does not require human leukocyte antigens (HLA), which provides two important additional benefits. First, in contrast to current engineered T cell therapies that use the full TCR (TCR-T cells), our technology is designed so that it can be applied to all patients that express the cancer surface antigen irrespective of HLA subtype, which we believe will allow us to address a significantly larger patient population. Second, HLA is downregulated or lost in many tumors which can prevent their recognition by T cells and lead to diminished response rates and higher relapse rates. We therefore believe our approach will allow us to deliver the first HLA-independent TCR-T cell therapy for patients with solid tumors. We also believe that our product candidates have the potential to improve upon the efficacy and safety of currently approved chimeric antigen receptor T (CAR-T) cell therapies in CD19-positive B-cell hematological malignancies. This belief is based on preclinical studies comparing our product candidates to CAR-T cells that we engineered.

We filed an investigational new drug application (IND) in December 2018 for our lead solid tumor product candidate, TC-210, to treat patients with mesothelin-positive solid tumors and expect to initiate a Phase 1/2 clinical trial in early 2019. We estimate the patient population for TC-210 is up to 81,000 in the United States alone. We expect to generate our first clinical data for TC-210 in the second half of 2019. We expect to file an IND in the second half of 2019 for our lead hematology product candidate, TC-110, to treat patients with CD19-positive B-cell hematological malignancies. We expect to generate our first clinical data for TC-110 in the second half of 2020. In addition, we plan to file an IND for our second solid tumor product candidate, TC-220, to treat MUC16-positive solid tumors, in early 2020 and we expect to generate our first clinical data for TC-220 in the first half of 2021.

A Revolution in T Cell Therapies

According to a 2017 press release from the U.S. Food and Drug Administration (FDA) on the licensure of the first engineered T cell therapy for cancer, the field is “entering a new frontier in medical innovation with the ability to reprogram a patient's own cells to attack a deadly cancer.” We founded our company to build on these early T cell therapy innovations while addressing their limitations and making our product candidates available to a broader patient population.

The immune system is responsible for protecting the human body by eliminating agents that threaten our health, including cancer cells. One of the key components of the immune system are sentinels called T cells that are able to target these agents for elimination by using TCR recognition of cell surface markers known as antigens. When a T cell recognizes a tumor antigen through the TCR, it kills the malignant cell on which it resides. Existing T cell therapies for cancer, including CAR-T cells and engineered TCR-T cells, attempt to replicate this mechanism. While current T cell therapies have shown encouraging efficacy data, they have limitations that we believe our product candidates can address.

CAR-T cell therapies have been approved for use in certain CD19-positive B-cell hematological malignancies on the basis of encouraging efficacy data. However, the durable benefit of these therapies has been limited to a subset of cancer patients, while the risk of potentially fatal side effects for patients is high. In solid tumors, CAR-T cells have not shown meaningful patient benefit. We believe these limitations are a consequence of the CAR construct using only one subunit of the entire TCR signaling complex and operating independently of the normal signaling mechanisms in the T cell. As a result, CAR-T cells do not benefit from all of the activation and regulatory elements of the natural TCR complex. This results in CAR-T cells overproducing cytokines that frequently lead to severe toxicities, including cytokine release syndrome (CRS) and neurotoxicity. CAR-T cells are also limited in their ability to persist and overcome the hostile tumor microenvironment.

TCR-T cell approaches were developed in an attempt to leverage the power of the entire TCR signaling complex. TCR-T cells have produced clinical responses in patients with solid tumors. However, recognition of the tumor

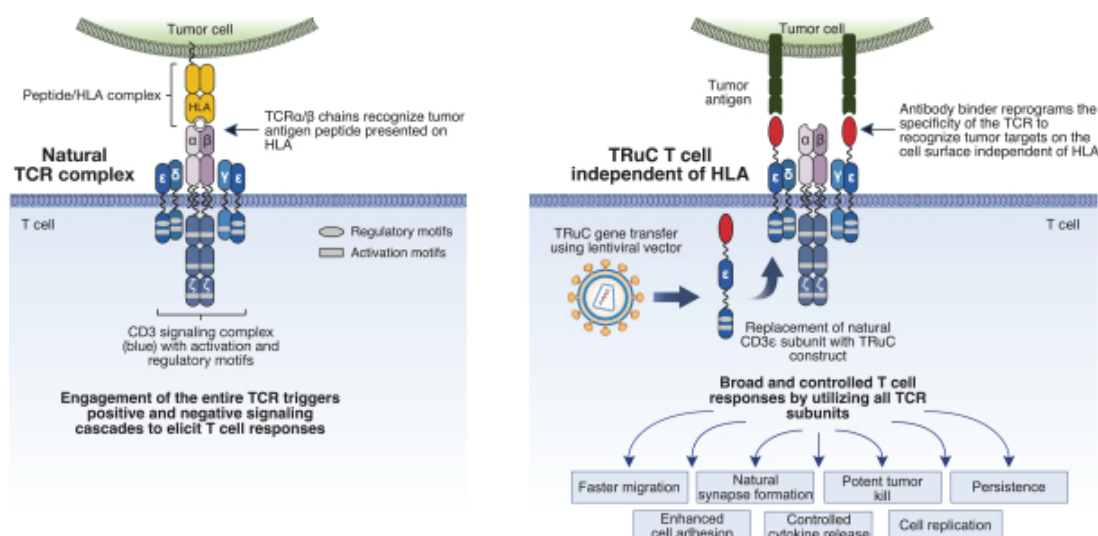
antigen by existing TCR-T cell approaches occurs in the context of HLA. This significantly limits the number of patients that can be treated with each specific TCR-T cell therapy because they can only be used for one specific HLA subtype, of which there are many. In addition, the downregulation or loss of HLA in many tumors can prevent tumor antigen recognition by TCR-T cells and lead to diminished response rates and higher relapse rates.

Our Novel Platform

We are pioneering the development of a novel, transformative T cell engineering platform which, based on its design and our preclinical studies, we believe has the potential to address the shortcomings of CAR-T cells and TCR-T cells and is fundamentally different from existing approaches. Research over more than two decades has shown that each of the TCR subunits makes distinct contributions to the activation and regulation of T cells and only the sum of the TCR subunits can adequately activate and control all functions of T cells. We believe that engaging the entire TCR signaling complex is required to fully leverage T cells in their fight against cancer.

Our T cell engineering approach relies upon natural TCR elements to produce therapeutic T cells that function independently of HLA restriction. To that end, we fuse a cancer antigen recognition domain directly to a subunit of the TCR and use a lentiviral vector to transfer the genetic information for the TRuC construct into a patient's own T cells. This modified subunit then naturally integrates into the native TCR complex. The result is the generation of an engineered T cell equipped with a new "homing device" to detect and engage a specific antigen on the surface of cancer cells. Upon antigen engagement, these T cells harness the entire TCR to produce a more powerful yet controlled T cell response against cancer. We refer to T cells engineered with our TCR fusion constructs as TRuC-T cells. In preclinical studies of both solid tumors and hematological malignancies we have observed greater anti-tumor activity, longer persistence and less cytokine release compared to CAR-T cells we have engineered to target the same cancer antigen. We believe that these properties could translate into more durable responses with potentially fewer adverse events for patients with cancer.

The figure below describes the natural HLA-restricted TCR complex as compared to the HLA-independent TRuC TCR.



Our platform enables the design of TRuC-T cells with a number of potential advantages, as described in the table below:

ATTRIBUTES	FEATURES	MECHANISMS	DESIRED PATIENT OUTCOME
Enhanced signaling	TRuC construct integrates into and utilizes the entire TCR	<ul style="list-style-type: none"> ▪ Naturally controlled T cell responses ▪ No requirement for built-in costimulatory domain ▪ Lower cytokine production 	<ul style="list-style-type: none"> ▪ Produce a more powerful, yet controlled T cell response ▪ Improved clinical outcomes, including lower adverse event rates
Efficient metabolism	Longer persistence and survival of TRuC-T cells in the hostile tumor microenvironment	<ul style="list-style-type: none"> ▪ Enhanced tumor penetration and retention ▪ Enhanced energy production ▪ Promotion of memory T cell phenotype 	<ul style="list-style-type: none"> ▪ Higher T cell tumor infiltration leading to improved response rates ▪ Long-term persistence reducing risk of relapse
Advanced targeting	Antibody-based tumor cell recognition	<ul style="list-style-type: none"> ▪ Reprogramming of T cell specificity to recognize tumor surface antigen ▪ HLA-independent binding to tumor 	<ul style="list-style-type: none"> ▪ Access to larger patient population ▪ TRuC-T cells have the potential to improve upon existing therapies because of HLA downregulation
	Dual targeting	<ul style="list-style-type: none"> ▪ Ability to attack tumors based on the recognition of two different antigens 	<ul style="list-style-type: none"> ▪ Reduced risk of relapse due to antigen escape ▪ Improved response rates in tumors with heterogeneous target antigen expression
	Amenability to various tumor cell recognition modalities	<ul style="list-style-type: none"> ▪ Binder formats include, but are not limited to, single-chain variable fragments, single-domain antibodies and receptors ▪ Humanized binders 	<ul style="list-style-type: none"> ▪ Improved response rates and lower relapse rates

We use our TRuC-T cell platform to target many different cancer antigens. Our core format, in which we target a single cancer antigen, is known as a mono TRuC-T cell. Our mono TRuC-T cell product candidates have shown promising anti-tumor activity and persistence in our preclinical studies. We are supplementing our core format with a series of next-generation enhancements that may further improve clinical outcomes. These fall into two broad categories. First, we are developing formats that target two antigens, known as dual TRuC-T cells, which could improve tumor response in patients who express more than one cancer antigen and combat potential antigen escape, which is a leading mechanism of cancer relapse in patients receiving CAR-T cell therapy. Second, we are developing several strategies to counter the immunosuppressive microenvironment of solid tumors including mechanisms to

block a key cancer defense known as the programmed cell death 1 (PD-1) and programmed death-ligand 1 (PD-L1) checkpoint pathway.

Our TRuC-T cell platform is a novel, transformative approach because it incorporates the entire TCR to redirect T cells to kill cancer while operating independently of HLA. It is a flexible and versatile approach that has allowed us to continue our innovation beyond the core TRuC-T cell format. We believe our TRuC-T cells can be used against numerous solid tumors and hematological malignancies and can significantly improve patient outcomes.

Our Strategy

Our goal is to cure cancer with our TRuC-T cell therapies. We intend to make a difference in the lives of patients by building a fully integrated cancer immunotherapy company offering the first HLA-independent TCR-T cell therapies. The key components of our strategy are:

- *Rapidly advance our solid tumor pipeline.* We filed an IND for TC-210, our lead mono TRuC-T cell targeting patients with mesothelin-expressing solid tumors in December 2018. We expect to generate data from this clinical trial in the second half of 2019. Our plan is to begin the dose-escalation portion of our Phase 1/2 clinical trial in patients who have malignant pleural mesothelioma (MPM), cholangiocarcinoma (bile duct cancer), ovarian cancer or non-small cell lung cancer (NSCLC). Our goal is to obtain FDA Fast Track designations for both MPM and cholangiocarcinoma, and we believe this will provide the potential for FDA Accelerated Approval based on Phase 2 data. We anticipate filing an IND for our second mono TRuC-T cell, TC-220, targeting patients with MUC16 positive solid tumors, in early 2020. We are also developing product candidates targeting other cancer antigens expressed on solid tumors.
- *Rapidly advance our hematological malignancy pipeline.* We intend to file an IND for TC-110, our lead mono TRuC-T cell targeting patients with CD19-positive B-cell hematological malignancies, in the second half of 2019. We are conducting preclinical studies and have developed a clinical plan for patients with adult acute lymphoblastic leukemia (ALL), diffuse large B-cell lymphoma (DLBCL), or follicular lymphoma (FL). Our goal is to obtain FDA Fast Track designations for both ALL and DLBCL, and we believe this will provide the potential for FDA Accelerated Approval based on Phase 2 clinical data.
- *Exploit the versatility of our platform to broaden our pipeline.* We have developed several additional tools that may be incorporated into our future product candidates to overcome tumor defense mechanisms, including dual-antigen targeting TRuC-T cells to minimize potential for antigen escape and cancer relapse. Our most advanced dual-antigen targeting programs include a dual mesothelin/MUC16 TRuC-T cell for solid tumors and a dual CD19/CD22 TRuC-T cell for hematological malignancies. We are also developing several tools to counter the immunosuppressive tumor microenvironment, including interference with immune checkpoint pathways. We are also evaluating multiple proprietary designs for allogeneic, or off-the-shelf, TRuC-T cells.
- *Scale our manufacturing capacity to match our future product needs.* We plan to develop our own manufacturing capabilities. We are currently manufacturing GMP-grade clinical lots for TC-210 through third-party contractors. We have also entered into an agreement with Cell Therapy Catapult Limited (Catapult), which will allow us to manufacture our TRuC-T cells using our own personnel at Catapult's facility, while also expanding our capacity to supply future clinical trials. If our clinical trials are successful, given the size of the patient population that can potentially be targeted by our product candidates, we plan to build our own manufacturing plant.
- *Retain significant economic and commercial rights to our product candidates.* We currently own all rights to our product candidates and programs and intend to build a fully integrated cancer immunotherapy company. We intend to maintain product rights in key geographies, in particular for TC-210. We believe the versatility of our platform presents an opportunity for us to selectively form collaborations and strategic partnerships to expand our capabilities and product offerings into other therapeutic areas and potentially accelerate the development and maximize the commercial potential of our product candidates.

Background on Cancer and Therapeutic Approaches Using T Cells

Cancer is caused by fatal changes in the genes of single cells. These mutations deregulate proteins that normally control the survival, growth and division of cells. As a result, mutated cells change their behavior and can undergo

unlimited growth to form tumors, a key attribute of cancer. Our immune system is an essential defense against the growth and spread of cancer cells. T cells are a special type of immune cell that patrol our body to recognize and kill cells with abnormal proteins. This recognition is based on the TCR, a large complex comprised of six different protein subunits (denoted as TCR α , TCR β , CD3 ϵ , CD3 γ , CD3 δ , CD3 ζ). When the α and β subunits of the TCR recognize a specific tumor antigen presented by the HLA complex on the cancer cell, a broad cascade is triggered that regulates all of the T cell's necessary functions to perform as a killer cell, including T cell activation, survival, differentiation, migration, adhesion, chemotaxis, metabolic adaption, tumor cell killing, cytokine release and persistence. All of these functions are required to orchestrate tumor cell killing and prevent relapse. Deficiencies in the TCR signaling system allow the escape and unrestricted growth of malignant cells, which can culminate in a patient's death. The loss of the antigen-presenting HLA complex on cancer cells makes them invisible for T cells, thereby escaping immune surveillance.

Adoptive T Cell Therapies Against Cancer

Adoptive T cell transfer (ACT) is a cancer therapy modality that involves the infusion of tumor-infiltrating lymphocytes or genetically manipulated peripheral T cells to attack tumor cells. The two most common engineered T cell platforms currently being developed and/or commercialized are CAR-T cells and TCR-T cells.

CAR-T cell therapies have been shown to induce durable clinical responses in some patients whose cancers had become otherwise refractory to standard therapies. In contrast to normal T cells and TCR-T cells that signal through the entire TCR, CAR-T cells use only the CD3 ζ subunit of the TCR, often in combination with a synthetic co-stimulatory domain, to trigger T cell activation once cancer cells have been identified by a fused antibody-derived tumor antigen recognition domain. CD19-targeting CAR-T cell therapies have shown clinical responses in ALL, B-cell lymphomas and multiple myeloma and two of them, Kymriah and Yescarta, have been approved for pediatric patients with ALL and patients with DLBCL. However, CAR-T cell therapies are limited by serious adverse events caused by high levels of inflammatory cytokines, such as CRS and neurotoxicity. These adverse events are black box warnings for both Kymriah and Yescarta, which are only available through a risk evaluation and mitigation strategy (REMS) program. In solid tumors, CAR-T cells have been much less successful, with a lack of meaningful clinical activity. We believe that the severe side effects in hematological malignancies and the lack of efficacy in solid tumors are a consequence of the CAR construct being physically and functionally separate from the TCR and therefore unable to trigger the full repertoire of activation and regulatory signaling pathways.

Unlike CAR-T cells, engineered TCR-T cells rely on the entire TCR for signaling. In this approach, affinity matured TCR α and β subunits that recognize tumor antigens are introduced via gene transfer into T cells isolated from a patient's blood. Upon expression, these subunits are integrated into the natural TCR complex to activate the T cells. TCR-T cells have shown benefits in multiple myeloma and also solid tumors, such as synovial sarcoma, melanoma, esophageal and ovarian cancer. However, a primary limitation of this type of therapy is that TCR-T cells require matching with the right HLA counterpart to kill tumor cells. More specifically, most synthetic TCR-T cell therapies currently in clinical development are directed against antigens presented on the HLA-A*02 subtype, which is present only in 40% to 45% of patients of Caucasian descent and at lower frequencies in patients of other ethnic backgrounds, thus preventing the use of these therapies in the majority of cancer patients. The use of synthetic TCR-T cells may be further limited by the loss or down-regulation of HLA molecules by cancer cells as part of the tumor escape mechanism. As a result, these T cells can no longer recognize and kill tumor cells, which leads to relapse.

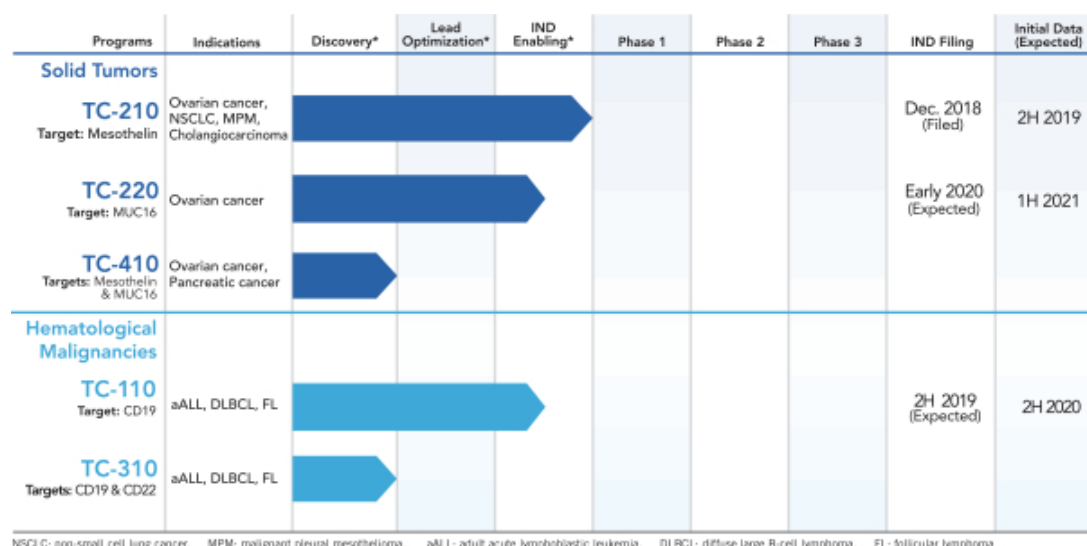
We have developed a platform to address the limitations of existing T cell therapies. We believe our TRuC-T cell platform has the potential to deliver the first HLA-independent TCR-T cell therapies to a broader population of patients with solid tumors and hematological malignancies.

Our Pipeline

The versatility of our platform is highlighted by the multiple programs and multiple formats of the product candidates in our pipeline. In preclinical studies with multiple TRuC-T cell product candidates, we have shown better anti-tumor activity, longer persistence and lower cytokine release compared to CAR-T cells we have engineered to bear the same tumor antigen binding domains as our product candidates. We have generated a broad pipeline

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with assets that address both solid tumors and hematological malignancies. Our product candidates are listed in the figure below.



NSCLC: non-small cell lung cancer, MPM: malignant pleural mesothelioma, aALL: adult acute lymphoblastic leukemia, DLBCL: diffuse large B-cell lymphoma, FL: follicular lymphoma

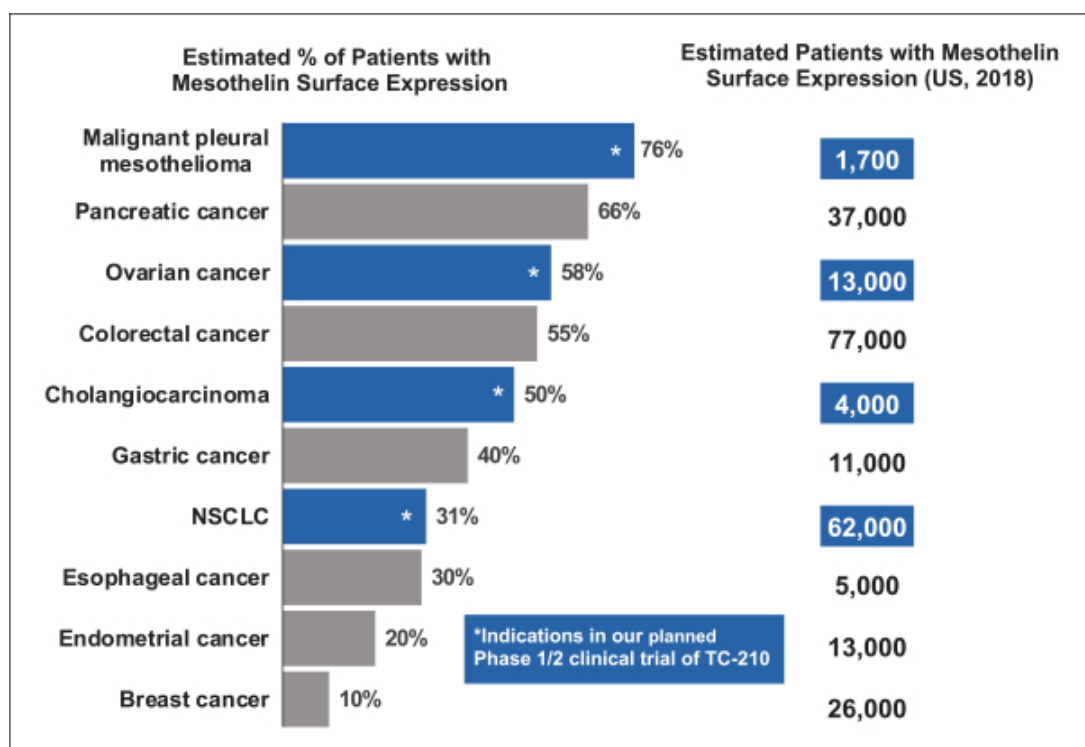
*In the Discovery stage, we identify the antigen-specific binders, tether these to a TCR subunit via a linker and then, upon introduction into T cells, test the killing activity and cytokine release *in vitro*. Thereafter, the programs enter Lead Optimization stage, where we optimize the antigen binder sequence and linker length and re-test T cells expressing the enhanced TRuC sequences in cellular assays for functional activity and specificity. At this stage, we also investigate the anti-tumor activity, cytokine release, pharmacodynamics and phenotype of TRuC-T cells in mouse studies. The IND-Enabling stage is defined by the nomination of a product candidate. At this stage of drug development, we initiate the GMP production of lentiviral vector and process development of TRuC-T cells. In addition, we conduct studies addressing the specificity and toxicity to support the submission of an IND application.

Our TRuC-T Cell Product Candidates for Solid Tumors

TC-210: Our Lead Mono TRuC-T Cells Targeting Mesothelin Positive Solid Tumors

Our most advanced mono TRuC-T cell product candidate is TC-210, which targets mesothelin-positive solid tumors. Mesothelin is a cell-surface protein whose expression is mostly restricted to mesothelial cell layers lining the pleura, pericardium and peritoneum but which is not known to be expressed on any vital organs. While its expression on normal tissues is low, mesothelin is highly expressed in many solid tumors. The cancer types that we intend to treat in our planned Phase 1/2 clinical trial include non-small cell lung cancer, ovarian cancer, malignant pleural mesothelioma and cholangiocarcinoma. These cancers represent a patient population of up to 81,000 in the United States alone. By comparison, the addressable U.S. patient population with hematological malignancies for approved CD19-directed CAR-T therapies is estimated to be approximately 8,000. In our preclinical studies we have observed better anti-tumor activity and persistence of TRuC-T cells compared with CAR-T cells we engineered to target mesothelin while also exhibiting lower levels of cytokine release. We filed an IND for TC-210 in December 2018 and expect to initiate a Phase 1/2 clinical trial in early 2019. We also plan to apply for FDA Fast Track designation for TC-210.

Mesothelin is overexpressed in multiple cancers, including approximately 76% of MPMs, 58% of ovarian cancers and 31% of NSCLC, among others. The following figure illustrates the proportion of cancer patients that express high levels of mesothelin and are therefore candidates for TC-210 therapy.



NSCLC Background

NSCLC remains the leading cause of cancer-related mortality worldwide, accounting for approximately 18% of all cancer deaths. There are an estimated 200,000 new cases in the United States annually with an estimated 62,000 (31%) expressing mesothelin on the cell surface.

The current standard of care for NSCLC involves the use of a platinum-based chemotherapy. Patients with epidermal growth factor receptor (EGFR) mutations or anaplastic lymphoma kinase (ALK) rearrangements can be treated with targeted agents such as EGFR inhibitors and ALK inhibitors, respectively. Patients with metastatic NSCLC have a poor prognosis with a median survival of approximately ten months and a five-year survival rate of approximately 15% to 20%. While recent advances with checkpoint inhibitors have demonstrated promising results, the majority of patients treated with these agents do not derive a long-term benefit. Notably, no standard of care is available for patients failing to respond or relapsing after checkpoint inhibitor therapy, a segment of the NSCLC market which is expected to grow in size as the use of immune checkpoint inhibitors increases in first- and second-line settings.

Ovarian Cancer Background

Epithelial ovarian cancer comprises approximately 90% of all ovarian malignancies. Approximately 22,000 patients in the United States were diagnosed with ovarian cancers in 2018 with an estimated 13,000 cases expressing mesothelin on the cell surface.

Taxane and platinum-based combinations have been the backbone of ovarian cancer treatment for the past 20 years, despite having very low efficacy rates (below 15%) in patients with advanced forms of the disease. While recently approved poly (ADP-ribose) polymerase (PARP) inhibitors are improving outcomes for ovarian cancer patients with

BRCA mutations, the use of such therapeutics is limited to the approximately 15% of ovarian cancer patients that carry those mutations. The majority of patients progressing after platinum retreatment have no approved treatment options. However, even with these subsequent treatments, ovarian cancer remains incurable with an estimated 14,000 deaths in 2018 in the United States alone.

MPM Background

MPM is a rare and aggressive malignancy arising from mesothelial cells lining the cavity surrounding the lungs. Asbestos exposure causes approximately 80% of MPM cases. There are an estimated 2,200 new cases per year of MPM in the United States of which an estimated 1,700 express mesothelin on the cell surface.

Effective treatment options for patients with MPM are very limited. The standard of care recommended for MPM is chemotherapy that includes a platinum salt and an anti-folate. Unfortunately, the ORR is 17% to 40% and the median overall survival of patients with MPM is 12 to 19 months when systemic chemotherapy is used with or without anti-angiogenic agents or targeted therapy. MPM caused approximately 2,200 deaths in 2018 in the United States alone.

Cholangiocarcinoma Background

Cholangiocarcinoma is a form of cancer that is composed of mutated epithelial cells that originate in the bile ducts which drain bile from the liver into the small intestine. There are an estimated 8,000 new cholangiocarcinoma cases in the United States per year with about 50% expressing mesothelin on the cell surface. Most patients with cholangiocarcinoma have advanced-stage disease at presentation due to its aggressiveness and the difficulty of early diagnosis. While surgery is the preferred therapy, only 35% of patients have early disease amenable to surgical resection. For unresectable cholangiocarcinoma, the available standard-of-care chemotherapy (gemcitabine and cisplatin) renders a median overall survival of less than one year. Multiple products, including checkpoint inhibitors and others, are being tested in clinical trials, but cholangiocarcinoma remains an unmet medical need. Cholangiocarcinoma causes over 7,000 deaths per year in the United States alone.

In addition to applying for FDA Fast Track designation for TC-210, we plan to apply for FDA Breakthrough Therapy and Orphan Drug designations, where applicable, as well as Accelerated Approval.

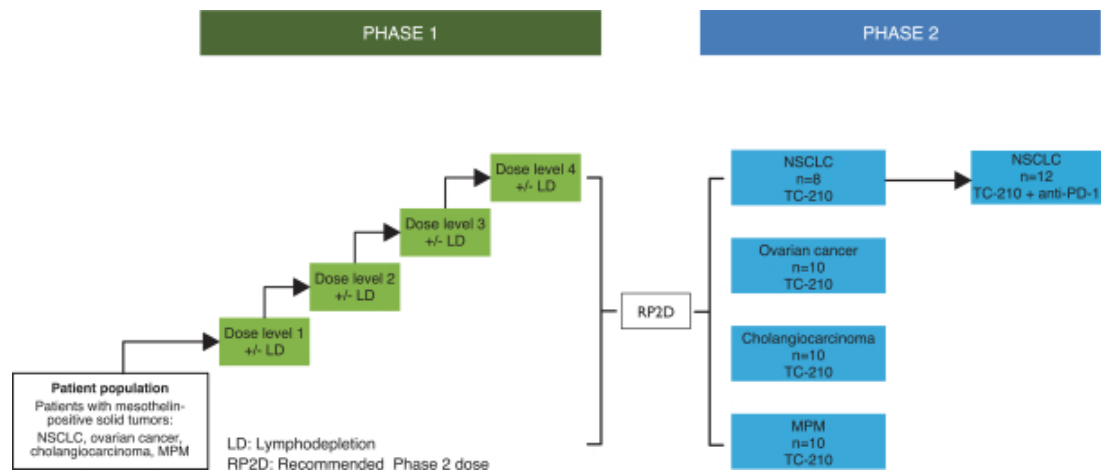
TC-210 Phase 1/2 Trial in Mesothelin-Positive Tumors

We submitted an IND for TC-210 in December 2018 to treat patients with mesothelin-positive solid tumors. In early 2019, we also plan to initiate a Phase 1/2 clinical trial at leading cancer institutions, including Fred Hutchinson Cancer Research Center, Memorial Sloan Kettering Cancer Center, MD Anderson Cancer Center, The National Cancer Institute, Stanford Cancer Center, and The University of California San Francisco. We intend to conduct the Phase 1/2 trial of TC-210 in patients with NSCLC, ovarian cancer, MPM and cholangiocarcinoma. Given the high unmet need and limited treatment options in MPM and cholangiocarcinoma, our goal is to obtain Fast Track designations for TC-210 in those indications from the FDA, which we believe will provide the potential for accelerated licensing based on Phase 2 clinical trial data.

Our planned Phase 1/2 clinical trial consists of two parts:

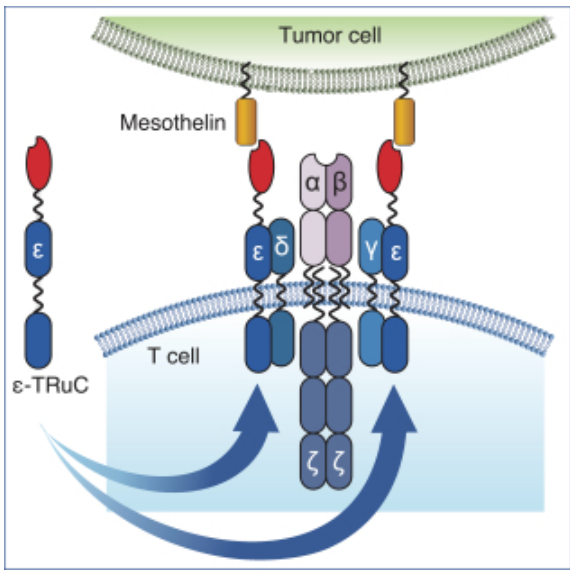
- In the Phase 1 portion of the clinical trial, patients will receive TC-210 at four dose levels with or without lymphodepleting chemotherapy to determine the recommended Phase 2 dose (RP2D).
- The objective of the Phase 2 portion of the clinical trial, in addition to further characterizing the safety profile of TC-210, is to evaluate the efficacy of TC-210 in mesothelin-expressing cancers as assessed by ORR according to standard Response Evaluation Criteria In Solid Tumors (RECIST) v1.1 criteria (ORR: complete response + partial response). Secondary endpoints will include time to response, duration of response, progression free survival and overall survival. A total of 50 patients will receive TC-210 at the RP2D schedule and will be stratified according to their cancer diagnosis in four groups: NSCLC, ovarian cancer, MPM and cholangiocarcinoma. A total of ten patients per indication will be infused with TC-210 T cells, except in the NSCLC cohort where 20 patients will be treated, including eight receiving TC-210 as single agent and 12 receiving TC-210 in combination with the programmed cell death 1 (PD-1) blocking antibody.

The design of our planned Phase 1/2 clinical trial, as illustrated in the figure below, will allow us to further expand individual cohorts in the Phase 2 portion of the trial to evaluate the efficacy of TC-210 in a larger sample size, which we believe may accelerate regulatory timelines for approval in the United States.



Design of TC-210

The construct to generate TC-210 is comprised of a humanized single-domain antibody that specifically binds to mesothelin on the cell surface. This binding domain is tethered to the human CD3 ϵ subunit via a flexible linker to form the mesothelin-targeting TRuC construct, as shown below. We use a lentiviral vector to transfer the genetic information for the TRuC construct into a patient's own T cells. Once in the T cell, the TRuC protein is expressed and integrated into the endogenous TCR followed by transport of the reprogrammed TCR to the cell surface. There, it redirects the TRuC-T cells to recognize mesothelin-positive tumor cells and activate them to eliminate mesothelin-positive tumors. We believe that TC-210's unique way of engaging and powering T cells as well as its humanized binding domain could lead to improved clinical outcomes for patients. The following figure illustrates the design of TC-210.



Preclinical Studies of TC-210

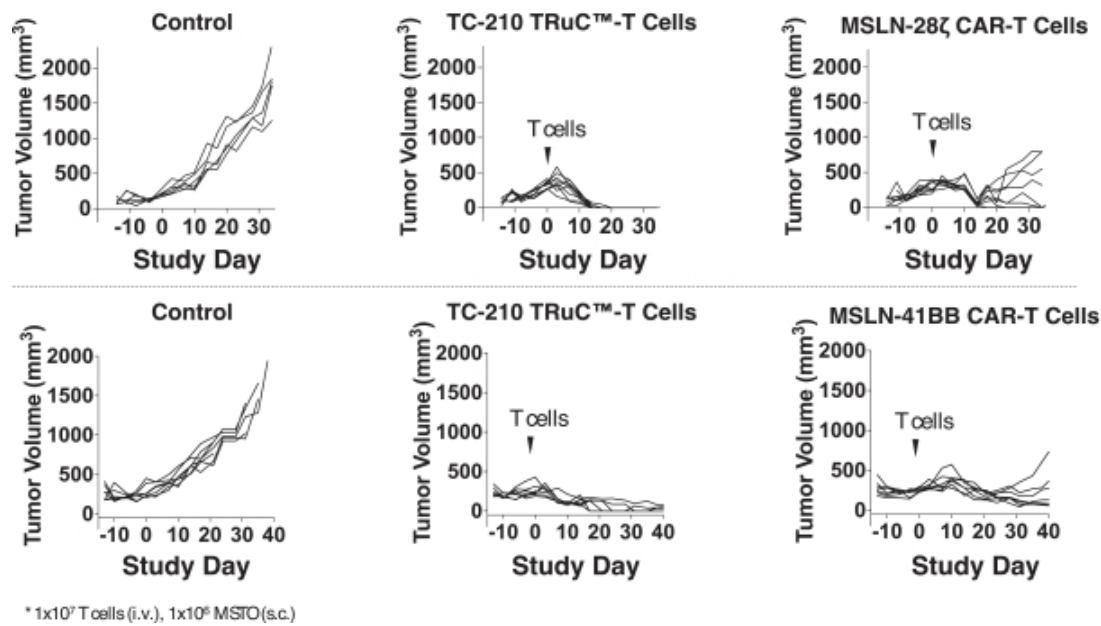
TC-210 has shown robust anti-tumor activity in cellular assays and animal models of lung, ovarian and MPM cancers. We have completed a number of preclinical studies that have generated data on the mechanism-of-action, pharmacodynamic and pharmacology/toxicology data of TC-210. In those studies, TC-210 was compared head-to-head against mesothelin-targeting CAR-T cells (MSLN CAR-T cells) that we engineered with the same mesothelin binder expressed by TC-210. Our preclinical studies have highlighted the following attributes of TC-210 that we believe to be important for solid tumor clearance:

- Migration to and accumulation in the tumor site that was significantly faster and greater for TC-210 than that observed for the MSLN CAR-T cells;
- Mesothelin-dependent T cell activation, expansion and tumor clearance by TC-210 was faster than that observed for the MSLN CAR-T cells;
- Long-term functional persistence of TC-210 which is critical for preventing relapse; and
- Systemic cytokine levels produced by TC-210 were lower compared to the MSLN CAR-T cells, which could potentially translate into lower rates of adverse events.

TC-210 Showed Robust Mesothelioma Tumor Clearance

To compare the anti-tumor activity of TC-210 and MSLN CAR-T cells, we used a mouse xenograft model of mesothelioma. In the set of experiments shown below, we tested TC-210 against MSLN CAR-T cells that we engineered to incorporate the two most common CAR-T designs. These designs incorporate either the CD28 or 4-1BB costimulatory domains—described below as MSLN-28z CAR-T and MSLN-41BBz CAR-T, respectively. Mesothelioma cells overexpressing mesothelin were injected into mice. When tumors reached approximately 200 to 300 mm³, the mice were infused with a total of 1.0×10^7 T cells containing either 2.0×10^6 TC-210 or 1.0×10^6 MSLN-28z CAR-T cells. A separate group of nine animals was treated with a control. Treatment of tumor-bearing animals with TC-210 showed rapid tumor control and clearance of tumors by day 25 after start of treatment in all of the nine animals tested. In contrast, while the MSLN-28z CAR-T cell treated animals showed initial tumor regression, tumor relapse was only observed in four out of the nine animals tested with MSLN CAR-T cells. These observations conform to prior published studies showing poor long-term activity of MSLN-28z CAR-T cells in similar models.

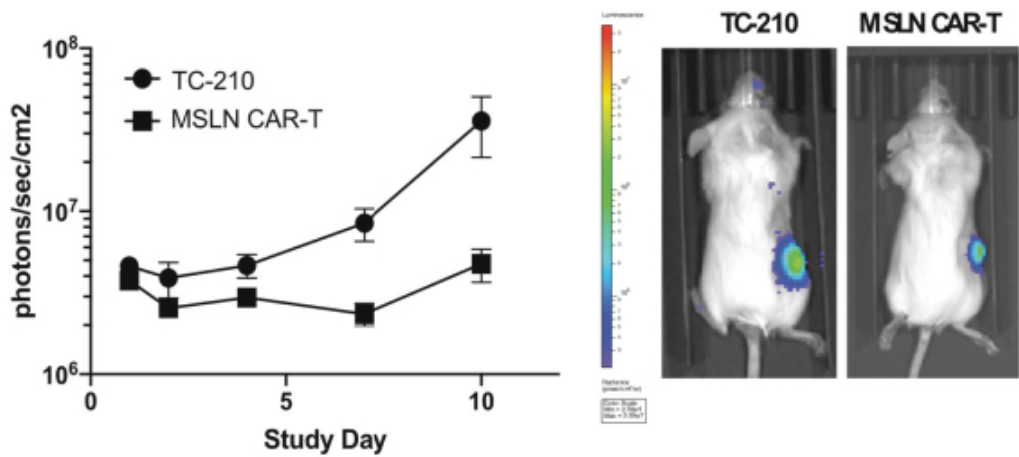
An additional mouse xenograft model of mesothelioma was also conducted to compare the activity of TC-210 to MSLN-41BBz CAR-T cells that we engineered. In this study, when tumors reached approximately 200 to 300 mm³, the mice were infused with a total of 1x10⁷ T cells containing either 4.8x10⁶ TC-210 or 3.9x10⁶ MSLN-41BBz CAR-T cells. Treatment of tumor-bearing animals with TC-210 showed rapid tumor control and clearance of tumors by day 20 after start of treatment in all seven of the animals tested, while the MSLN-41BBz CAR-T cell treatment showed tumor clearance in only four of seven animals tested by day 20.



TC-210 showed faster trafficking to and accumulation in MPM tumors

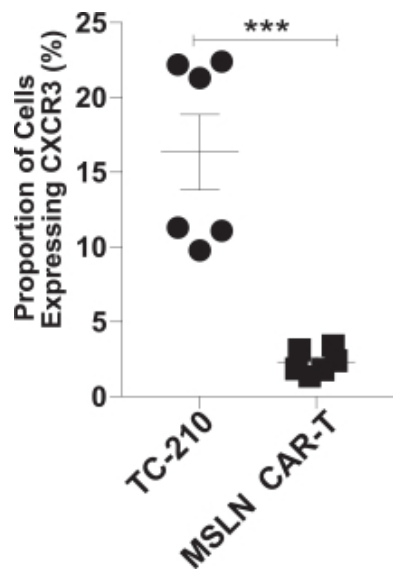
One of the major challenges for CAR-T cell therapies has been the ability of CAR-T cells to migrate into the tumor tissue in significant numbers. In our preclinical studies, we observed that TC-210 expressed higher levels of the chemokine receptors CXCR3 and CCR10 than MSLN CAR-T cells we engineered. We believe this is one of the major factors causing the faster migration to and greater accumulation of TC-210 in tumors as compared to the MSLN CAR-T cells we engineered.

We investigated the ability of TC-210 to traffic to and accumulate in MPM tumors. After mesothelin-overexpressing xenograft tumors reached a mean volume of approximately 200 mm³, the mice were randomized into two groups of five mice. The mice were then intravenously infused with either TC-210 or the MSLN CAR-T cells, which we engineered to co-express a tracing agent to analyze the migration pattern of TC-210 and the MSLN CAR-T cells using living images. As illustrated in the figure below, imaging studies showed that TC-210 migrated into the tumor faster and accumulated in greater number than observed for the MSLN CAR-T cells. The faster trafficking and accumulation of TC-210 correlated with faster tumor clearance compared to the MSLN CAR-T cells. Therefore, we believe that these properties of TC-210 could translate into improved clinical outcomes in patients.



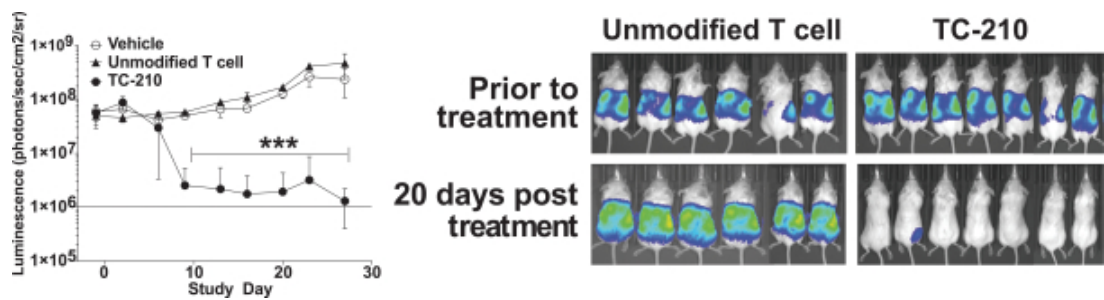
CXCR3 expression was higher on TC-210 compared to MSLN CAR-T cells

One of the major challenges for CAR-T cell therapies in solid tumors has been their inability to migrate into the tumor tissue in significant numbers. In our preclinical studies, we observed that TC-210 expressed higher levels of the chemokine receptors CXCR3 (shown below) and CCR10 than the MSLN CAR-T cells we engineered. We believe this higher chemokine receptor expression is one of the main factors causing the faster migration to and greater accumulation of TC-210 in tumors as compared to the MSLN CAR-T cells in our preclinical studies.

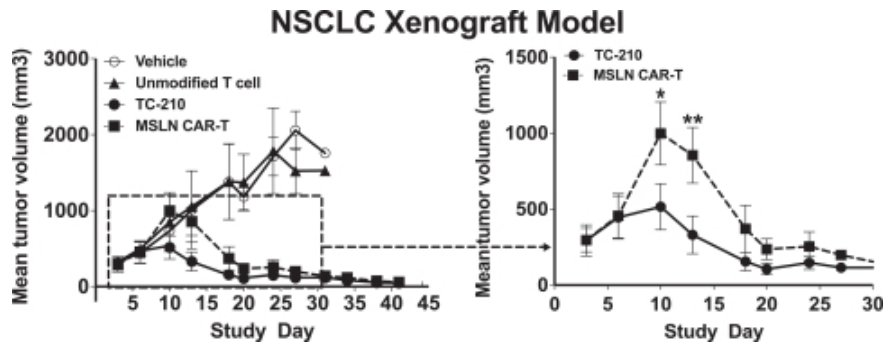


TC-210 showed mesothelin-dependent T cell activation, expansion and faster tumor cell killing in both ovarian cancer and NSCLC models when compared to MSLN CAR-T cells

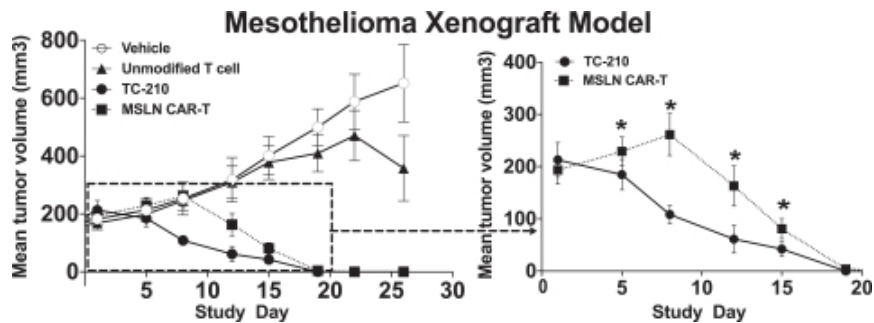
We tested the ability of TC-210 to migrate into the tumor site and then recognize and kill mesothelin-positive ovarian cancers in a mouse xenograft model. The ovarian adenocarcinoma cells in this study were engineered to express a tracing agent to monitor tumor clearance. The labeled ovarian cancer cells were injected into the peritoneal space to mirror a frequent location of metastatic ovarian cancer in humans. Five days after injection of cancer cells, mice were given either TC-210 or unmodified T cells. As shown below, unlike animals treated with unmodified T cells, all mice treated with TC-210 experienced a robust reduction of tumor mass, with six of seven mice showing a complete eradication.



We further tested TC-210 in a mouse NSCLC xenograft model. Lung cancer cells were engineered to overexpress mesothelin and injected into the dorsal flank of mice. When the mean tumor volume reached 200 mm³, the mice were randomized into four groups and received either (i) the same number of TC-210, MSLN CAR-T cells we engineered, or unmodified T cells or (ii) the vehicle phosphate buffered saline. Administration of unmodified T cells had no impact on tumor growth compared to vehicle. Both treatment with TC-210 and the MSLN CAR-T cells resulted in tumor clearance. Notably, as shown in the figure below, treatment with TC-210 led to a faster tumor clearance than the MSLN CAR-T cells. This accelerated clearance by TC-210 was also associated with less cytokine production compared to the MSLN CAR-T cells.



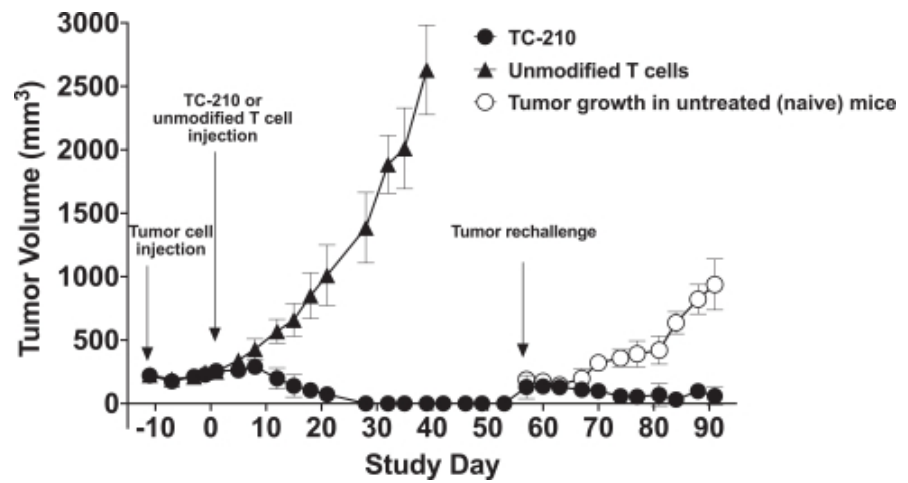
The ability of TC-210 to eradicate mesothelin-expressing tumors was also observed in a mouse xenograft model of mesothelioma, as shown in the figure below. Primary mesothelioma cells overexpressing mesothelin were injected into mice. When tumors reached approximately 200 mm³, the mice were infused with the same number of TC-210, the MSLN CAR-T cells, or unmodified T cells, or treated with vehicle. Treatment of tumor-bearing animals with TC-210 showed rapid tumor control and eventually clearance of tumors by day 25 after start of treatment. As observed in the NSCLC model, TC-210 cleared mesothelioma faster than the MSLN CAR-T cells. Infusion of non-transduced T cells had no impact on tumor growth.



TC-210 demonstrated persistent anti-tumor activity in a mesothelioma rechallenge model

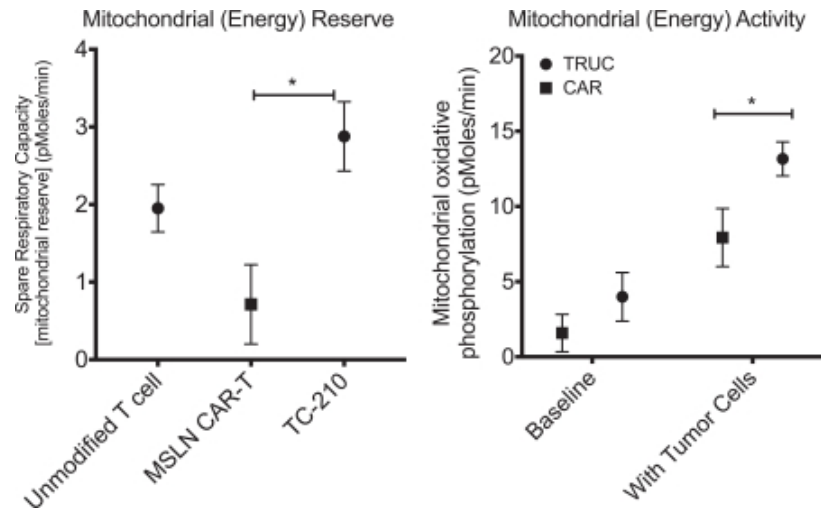
To evaluate the ability of TC-210 to persist and maintain its anti-tumor activity, we conducted a mesothelioma xenograft mouse study. The experiment consisted of two phases. In the first phase, mice with established mesothelioma tumors were treated with TC-210 or unmodified T cells. As shown before, tumors were cleared in all mice and no relapse was observed until 56 days after treatment with a single dose of TC-210. In the second phase, TC-210-treated mice were reinjected with mesothelioma cells to stimulate tumor recurrence. As shown in the graph below, TC-210 controlled the outgrowth of new tumors until the end of the study after 90 days. By contrast, in untreated mice, the rechallenge with mesothelioma cells caused a rapid outgrowth of tumors.

In this study, TC-210 showed both long-term elimination of the primary mesothelin-expressing tumor cells and lasting functional persistence. This persistence is associated with the ability to migrate to new tumor sites and recognize and kill tumor cells expressing mesothelin.



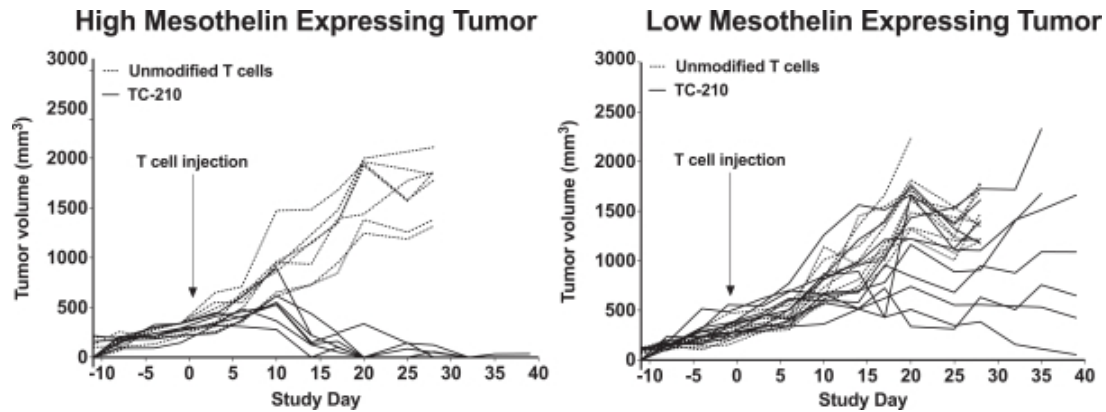
TC-210 persistence correlates with a favorable metabolic profile

To further understand potential causes of TC-210's persistence, we investigated its metabolic profile. T cell respiratory reserve and mitochondrial activity are correlated with long-term functional persistence and resistance to exhaustion in the tumor microenvironment—properties which help T cells maintain long-term tumor control and prevent relapse. We analyzed TC-210's respiratory reserve and mitochondrial activity as compared to the MSLN CAR-T cells we engineered to have the same mesothelin binder expressed by TC-210. As shown in the figure below, prior to exposure to tumor cells, TC-210 had a higher respiratory reserve when compared to the MSLN CAR-T cells, and, when exposed to mesothelin-positive tumors, TC-210 generated more energy through oxidative phosphorylation than the MSLN CAR-T cells, a potentially more efficient process in the hostile tumor microenvironment than glucose metabolism. Based on these observations, we believe that the metabolic profile of TC-210 may correlate with a better ability to persist and prevent relapse of mesothelin-positive tumors.



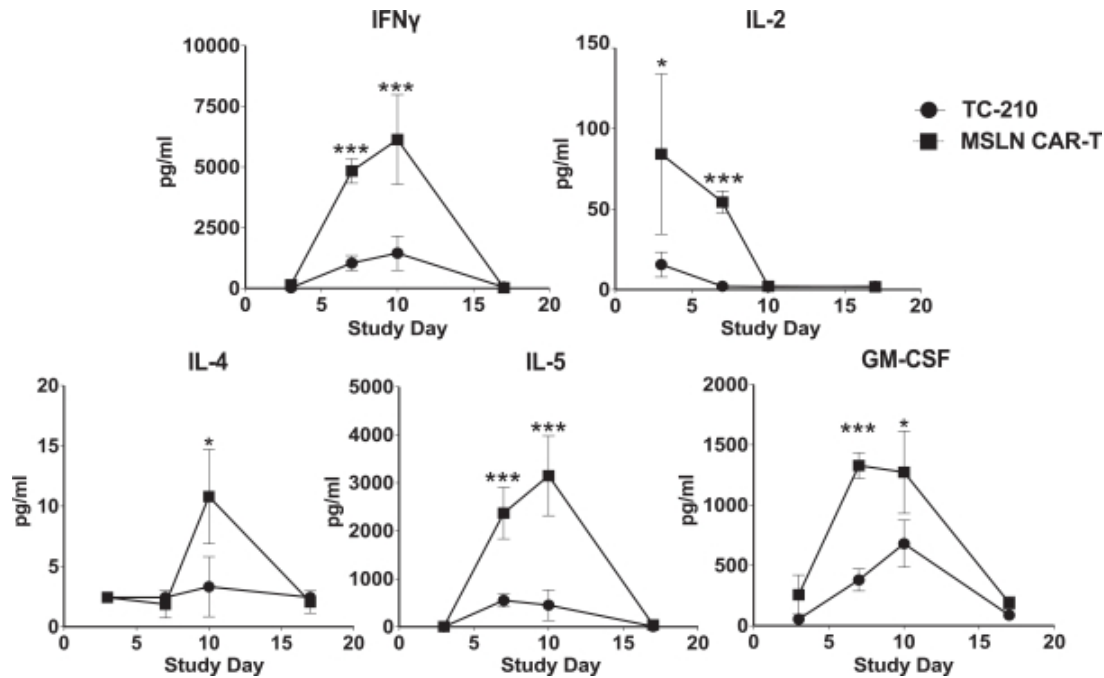
TC-210 showed preferential killing of high expressing mesothelin tumor cells

On-target, off-tumor activity of engineered T cells is a safety concern that may result in damage to normal tissue expressing mesothelin. We studied the potential of TC-210 to preferentially kill cancer tissue expressing high levels of mesothelin and spare tissue expressing low levels of mesothelin. Mesothelin-high or mesothelin-low expressing tumor cells were injected into mice to establish subcutaneous tumors with a size of approximately 200 to 400 mm³. The difference in mesothelin expression between high and low expressing cells was 65-fold. As shown in the following figure, TC-210 cleared tumors formed by cells highly expressing mesothelin, but showed limited effect on the growth of tumors expressing low levels of mesothelin. This suggests that TC-210 can spare normal tissue expressing low levels of mesothelin but eliminate tumors expressing mesothelin. We believe this property will play a critical role in the clinic as it potentially widens the therapeutic window for TC-210 and may minimize, if not completely prevent, any damage to mesothelin-expressing normal tissue.



TC-210 produced less cytokines than MSLN CAR-T cells

CRS is a life-threatening toxicity frequently associated with approved CD19-targeting CAR-T cell therapies. We compared the systemic release of cytokines in a mesothelin-positive lung cancer xenograft mouse model where one cohort was treated with TC-210 and another cohort with our engineered MSLN CAR-T cells we engineered. The serum levels of cytokines IFN γ IL-2, IL-4, IL-5 and GM-CSF were measured at several time points after treatment. As shown in the figure below, TC-210 treated animals consistently produced lower circulating cytokine levels than the MSLN CAR-T cell treated animals over the time course examined. We believe this was due to natural feedback loops integrated into the entire TCR complex that could regulate overproduction of cytokines. We have observed similar results in a mesothelioma xenograft model. Based on our preclinical studies, we also believe that lower cytokine production by TC-210 and other TRuC-T cells could translate into low levels of CRS and improved tolerability.



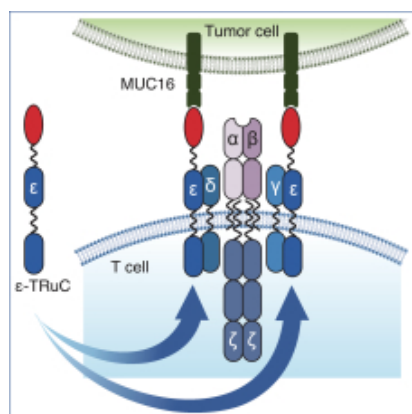
TC-220: Our Mono TRuC-T Cells Targeting MUC16 Positive Solid Tumors

We are conducting IND-enabling studies for our mono TRuC-T cell product candidate, TC-220, targeting MUC16-positive solid tumors. While its expression in normal tissues is low, MUC16 is highly expressed in many solid tumors, including ovarian, pancreatic, gastric and colorectal cancers. We plan to initially develop TC-220 for the treatment of MUC16 overexpressing ovarian cancer, which represents a patient population of up to 17,000 in the United States alone. TC-220 has shown strong anti-tumor activity in preclinical models of MUC16-positive ovarian cancers. We plan to file an IND for TC-220 in early 2020 and we expect to generate our first clinical data in the first half of 2021.

MUC16 is a highly glycosylated transmembrane protein with a very large extracellular region. It serves as a physical mucous barrier protecting the epithelium from invasion by pathogens. In cancer, MUC16 expression increases the risk of metastases and contributes to tumor immunosuppression. When overexpressed in tumors, the large extracellular domain of the MUC16 protein, known as CA-125, is shed. CA-125 is used as a biomarker of tumor progression in patients with ovarian, pancreatic and other cancers. Previous therapeutic approaches targeting MUC16 have not proven to be effective because they bind to soluble CA-125, whereas TC-220 is activated only upon binding to MUC16 expressed on the surface of tumor cells.

Design of TC-220

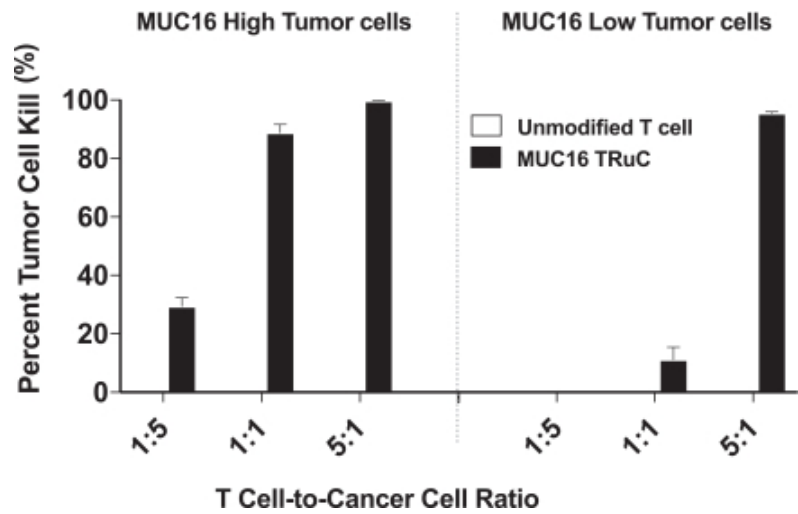
TC-220 uses a humanized single-domain antibody that specifically recognizes MUC16 fused to the human CD3 ϵ subunit via a flexible linker to form the MUC16-targeting fusion construct. We use a lentiviral vector to transfer the genetic information for the construct into a patient's own T cells. Once in the cell, the fusion construct is integrated into the natural TCR and transported to the cell surface. The reprogramming of the TCR specificity enables TC-220 to attack and destroy MUC16-positive tumors. The figure below illustrates the design of TC-220.



Preclinical Studies with TC-220

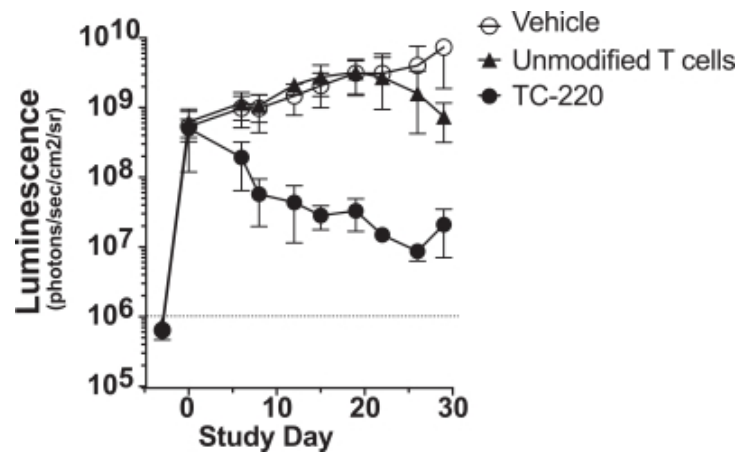
TC-220 killed ovarian cancer cells in cellular assays

We tested TC-220 in cellular assays using ovarian cell lines expressing either high or low levels of MUC16. In these studies, TC-220 killed cancer cells depending on their level of MUC16 expression on the cell surface, killing cancer cells with high levels of MUC16 but largely sparing cells expressing low levels of MUC16, providing a potential therapeutic window in patients. We believe that TC-220 can therefore distinguish between cancer cells overexpressing the target antigen and normal tissues expressing low levels of MUC16. The graph below shows the dose-dependent killing of MUC16-positive ovarian cancer cells in our preclinical studies expressing high or low levels of the target antigen.



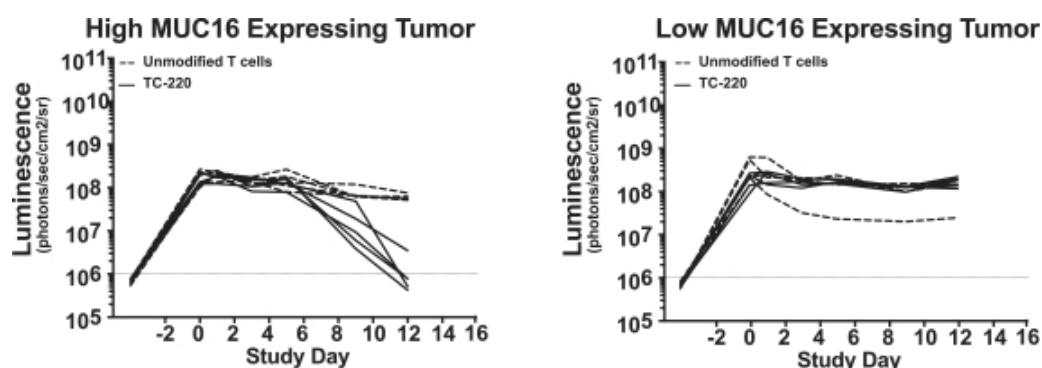
TC-220 reduced tumor burden in ovarian cancer model

We tested the ability of TC-220 to kill MUC16-positive ovarian cancers in a mouse xenograft model. The ovarian cancer cells in this study were engineered to express a tracing agent to monitor tumor clearance. The cells were injected into the peritoneal space to mirror the site where ovarian cancer is located in humans. Five days after injection of cancer cells, mice were given either vehicle control, TC-220 or unmodified T cells. As shown below, unlike mice treated with vehicle or unmodified T cells, all mice treated with TC-220 experienced a robust reduction of tumor mass. Tumors were completely cleared in five of seven mice tested.



TC-220 showed preferential killing of tumor cells with high levels of MUC16

We further studied the potential of TC-220 to preferentially kill cancer tissue expressing high levels of MUC16 and spare tissue expressing low levels of MUC16 in a mouse model. Ovarian adenocarcinoma cells expressing high or low levels of MUC16 in this preclinical study were engineered to express a tracing agent to monitor tumor clearance. MUC16-high or MUC16-low cells were injected into the peritoneal cavity to mirror the site where ovarian cancer is located in humans. Five days after injection of cancer cells, mice were given either TC-220 or unmodified T cells. As shown in the figure below, TC-220 cleared tumors formed by cells with high MUC16 expression but showed limited effect on the growth of tumors expressing low levels of MUC16. This suggests that TC-220 can spare tissues expressing low levels of MUC16 but eliminate tumors overexpressing MUC16, which may prevent damage to MUC16-expressing normal tissue in human patients.



TC-410: Our Dual TRuC-T Cell Program Targeting Mesothelin and MUC16

In cancer therapy, loss of antigen expression is one tumor escape mechanism that can lead to relapse. Once the antigen recognized by a T cell therapy is lost from the tumor cell surface, such cancer cells become invisible to T cells and can regrow a resistant tumor. For example, patients with glioblastoma multiforme (GBM) treated with CAR-T cells have been reported to relapse with target-negative tumor cells. Dual targeting is a means to potentially increase the response rates by binding to two target antigens. We believe that combined antigen targeting will enhance the potential of TRuC-T cells to more broadly recognize cancer cells, which may result in fewer cases of relapse due to target loss.

We are developing TC-410, a dual TRuC-T cell designed to increase response rates and reduce the potential for antigen escape in solid tumors by targeting both mesothelin and MUC16. We are conducting preclinical studies to further characterize the expression profile of mesothelin and MUC16 in various cancers. We plan to advance TC-410 into IND-enabling studies in 2019.

The table below shows the prevalence of mesothelin and MUC16 expression in selected tumor types.

TUMOR TYPE	PREVALENCE OF MESOTHELIN SURFACE EXPRESSION (%)	PREVALENCE OF MUC16 EXPRESSION (%)
Ovarian	58	80
Pancreatic	66	81
Colorectal	55	64
Esophageal	30	70
Gastric	40	42

Our TRuC-T Cell Therapeutic Candidates for Hematological Malignancies

TC-110: Our Lead Mono TRuC-T Cells Targeting CD19-Positive B-Cell Hematological Malignancies

We are developing a mono TRuC-T cell, TC-110, targeting CD19-positive B-cell hematological malignancies. The clinical development plan for TC-110 will initially focus on three specific areas: adult ALL, DLBCL and FL. These are indications for which CAR-T cells have either been approved but faced clinical outcome limitations (specifically, DLBCL), proven to be too toxic for use (specifically, adult ALL), or have not been approved at all (specifically, FL). In our preclinical studies, we have observed better anti-tumor activity and persistence of TRuC-T cells compared to CAR-T cells we engineered to target CD19 while also exhibiting lower levels of cytokine release. We expect to file an IND for TC-110 in the second half of 2019 and seek FDA Fast Track designation.

Background on Adult ALL

ALL is a cancer that results from the malignant proliferation of lymphoid progenitor cells in the bone marrow. It is characterized by an excess of malignant lymphoblasts, which in the vast majority of cases arise from progenitors of the B-cell lineage. In 2018, there were an estimated 6,000 cases of adult ALL and over 1,400 related deaths in the United States.

While 80% to 90% of patients with pediatric ALL can be cured with standard therapy and the remaining 10-20% can be effectively treated with allogeneic stem cell transplantation or anti-CD19 CAR-T cell therapy, like Kymriah, the prognosis of adults with ALL is much worse, with a five-year overall survival of 30% to 40%. Furthermore, while Kymriah has been approved for pediatric patients with ALL, no CAR-T cell therapy has been deemed safe in adults with ALL. Thus, the development of T cell therapies in adult patients with ALL will only be possible with platforms that are associated with significantly lower rates of severe CRS and neurotoxicity.

Background on Adult DLBCL

Non-Hodgkin lymphomas (NHL) comprise a heterogeneous group of malignancies. DLBCL is the most common subtype of NHL, constituting up to 40% of cases globally. In 2018, there were an estimated 75,000 new cases of NHL and 20,000 related deaths in the United States. Approximately two-thirds of patients with DLBCL are cured of their disease with frontline chemoimmunotherapy (R-CHOP). However, refractory patients have a median overall survival of only 6.3 months.

CD19-directed CAR-T cell therapy has shown activity in heavily pre-treated patients with CD19-positive DLBCL and two CAR-T cell therapies, Kymriah and Yescarta, have been approved for that indication. However, the response rate six months post-infusion ranges from 37% to 41% and both therapies are associated with high rates of severe CRS (13% to 23%) and neurotoxicity (12% to 28%). Our preclinical data show better anti-tumor activity and lower cytokine release with TC-110 compared to CD28-based or 4-1BB-based CAR-T cells we engineered against CD19-expressing tumors.

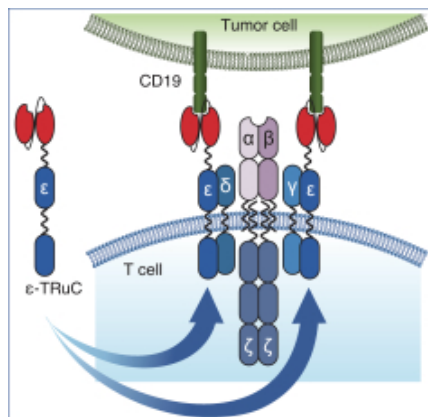
Background on Follicular Lymphoma

FL is the most common indolent NHL in the Western hemisphere accounting for 20% of patients with newly diagnosed NHL. Approximately 15,000 patients were diagnosed in the United States with FL in 2018. The clinical course of patients with FL is generally indolent, with many patients remaining asymptomatic for months or even years after diagnosis. Although FL is considered incurable, the current overall survival of patients with FL approaches or exceeds ten years for many patients. However, 20% of patients with FL relapse within two years of R-CHOP therapy and have a median five-year survival rate of only 50% compared to 90% for the remaining 80% of patients with a longer response duration. The experience with CAR-T cell therapy in FL is much more limited than in ALL or DLBCL but preliminary data indicate that CD19-directed adoptive T cell approaches are promising in high-risk FL.

In addition to applying for FDA Fast Track designation for TC-110, we plan to apply for FDA Breakthrough Therapy and Orphan Drug designations, where applicable, as well as Accelerated Approval.

Design of TC-110

The construct to generate TC-110 is comprised of the single chain variable fragment, FMC63, that specifically binds to CD19 on the cell surface that is fused with a flexible linker to the human CD3 ϵ subunit. We use a lentiviral vector to introduce the genetic information of TC-110 into a patient's own T cells. In the cell, the fusion construct is integrated into the natural TCR and transported to the cell surface. The reprogramming of the TCR specificity enables TC-110 to attack and destroy hematological malignancies that are CD19-positive. The following figure illustrates the design of TC-110:



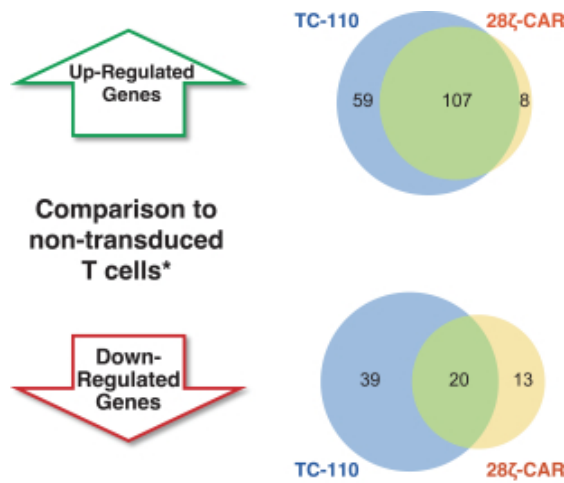
Summary of our Preclinical Data on TC-110

TC-110 showed robust activity in preclinical models where we compared the T cell signaling, cytokine production and anti-tumor activity of TC-110 with CD19-targeting CAR-T cells, which we engineered with the same CD19 binder as TC-110. These CAR-T cells had a similar design as currently used in approved CD19 CAR-T cell therapies but are not identical. Our preclinical data support our hypothesis that TC-110 could result in potent anti-tumor activity with lower cytokine levels than existing T cell therapies. In our preclinical studies of TC-110, we observed the following results:

- Rapid regression and clearance of tumors in a CD19-positive leukemia model;
- Elimination of tumors in a subcutaneous CD19 lymphoma model; and
- Lower cytokine release compared to CD19-targeting CAR-T cells that we engineered.

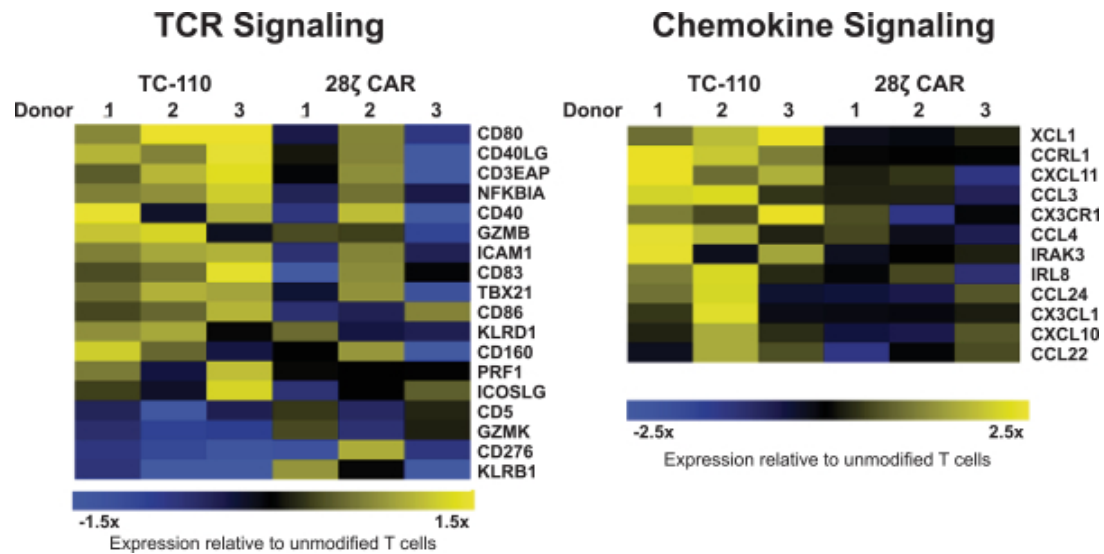
TC-110 triggered distinct gene expression compared to CAR-T cells

Initial experiments were conducted to examine the differences in gene expression between TC-110 and CAR-T cells we engineered to target CD19 and express a CD28 costimulatory domain (28z-CAR) compared to non-transduced T cells after four hours of stimulation with CD19 expressing lymphoma cells. As shown in the figure below, TC-110 had a broader set of genes both upregulated and downregulated compared to the CD19-targeting CAR-T cells we engineered.



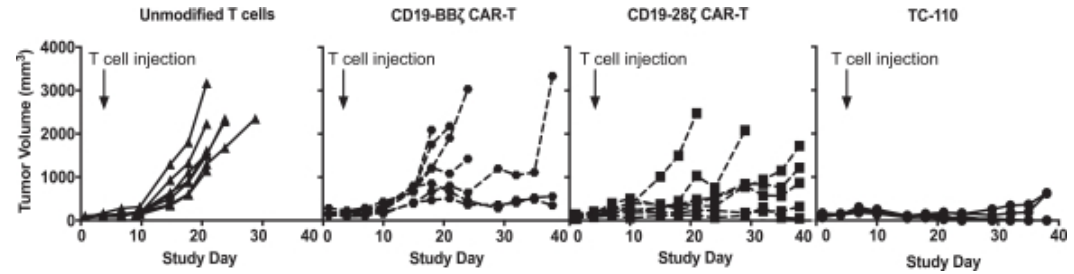
* Gene expression measured four hours post-stimulation

Specifically, several genes involved in TCR and chemokine signaling were significantly upregulated in TC-110 compared to the CD19-CAR T cells we engineered, as shown in the figure below. Because the expression of chemokines leads to improved trafficking of T cells to cancer cells and TCR signaling indicates broader T cell activation, we believe this differential gene expression will lead to enhanced functional activity of TC-110 *in vivo*.



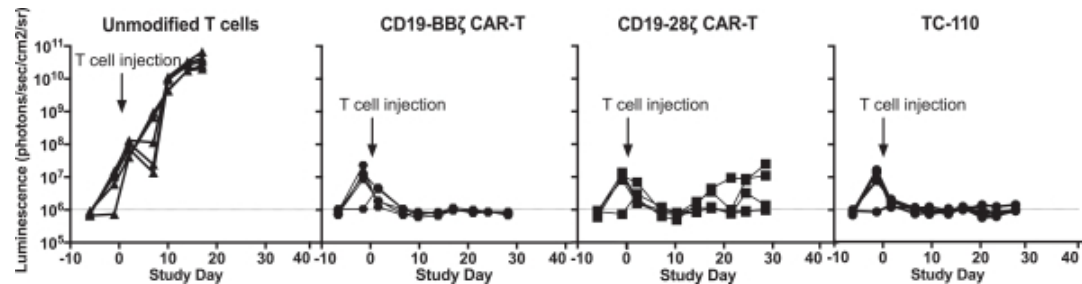
TC-110 cleared subcutaneous lymphoma in a mouse model more efficiently than CAR-T cells

We compared the anti-tumor activity of TC-110 with that of two CD19 CAR-T cells that we engineered to replicate approved CAR-T cell therapies in a subcutaneous lymphoma xenograft model (Raji cell line). Six days after lymphoma cell injection under the skin, mice were treated with similar numbers of either unmodified T cells, TC-110, our CD19 CAR-T cells with a BBz costimulatory domain or the CD19 CAR-T cells we engineered with a 28z costimulatory domain, in each case bearing an identical CD19-binding domain (FMC63). As shown below, treatment with TC-110 resulted in tumor clearance in the majority of mice at the end of the study. In contrast, the CD19 CAR-T cells we engineered were not capable of eradicating the lymphoma cells and despite an initial response, a significant number of animals relapsed. We believe these data support that TC-110 may have a higher and more sustained activity in treating lymphoma than the two CAR-T cell variants. The following figure shows a comparison of the tumor control of TC-110 and the two CAR-T cell variants in the Raji NSG model.



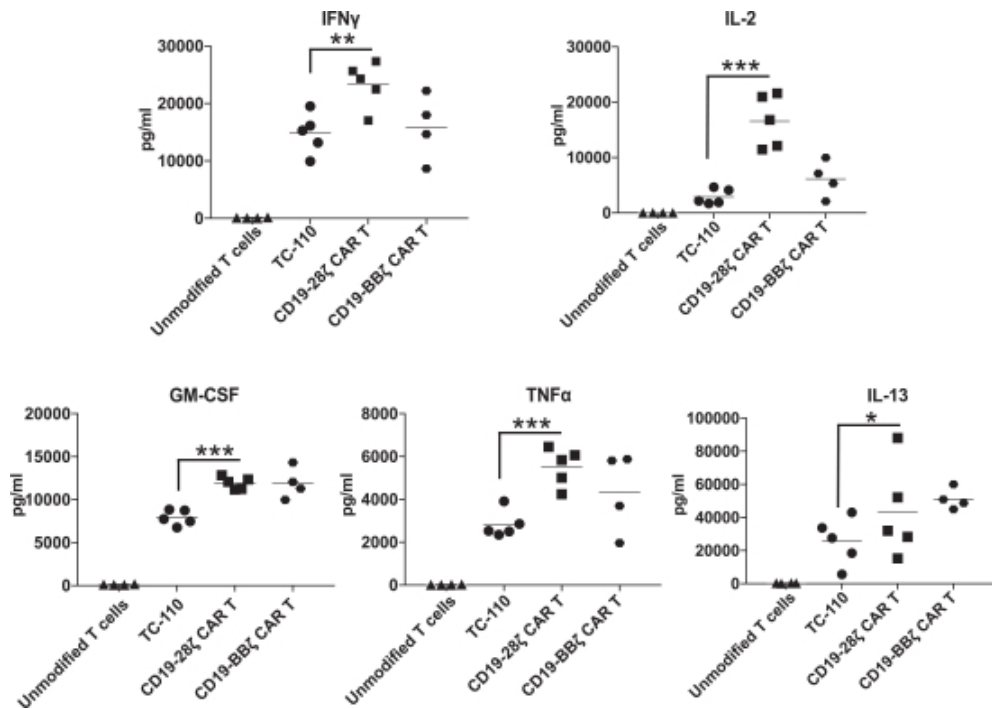
TC-110 cleared tumors in a leukemia xenograft model

We also explored the anti-tumor activity of TC-110 in a leukemia xenograft model (Nalm-6 cell line). Nalm-6 cells lack co-stimulatory molecules. The leukemia cells were injected into the blood stream of mice with a tracing agent to monitor leukemic cell load monitored over time. As shown below, treatment with TC-110 and both variants of CAR-T cells resulted in tumor clearance within ten days. Importantly, TC-110 showed a similar degree of leukemia cell clearance as CAR-T cells we engineered, despite not having built-in costimulatory domains derived from 4-1BB or CD28.



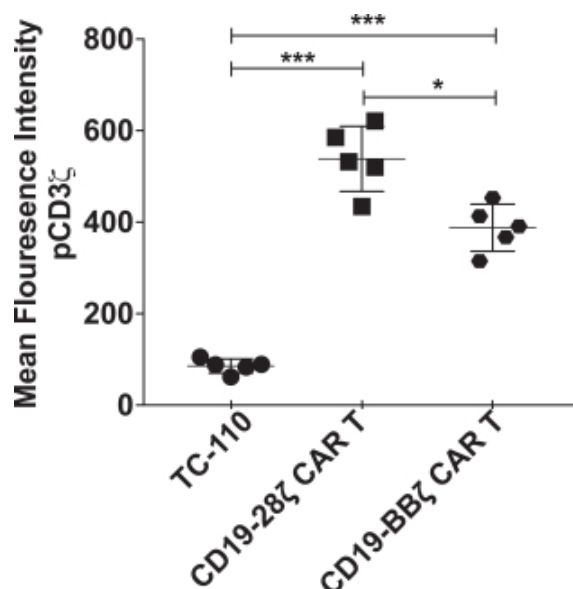
TC-110 releases less cytokines than CAR-T cells

We investigated the effect of TC-110 on cytokine release compared to CAR-T cells we engineered in a cell culture model. CRS is a major safety concern for CAR-T cell therapies. In the model, cytokine levels produced by TC-110 were significantly lower than those released by the CAR-T cells we engineered. These results, as illustrated below, are consistent with the lower levels of cytokine release observed in solid tumor models treated with TC-210 or the engineered CAR-T cells.



TC-110 showed less tonic signaling than CAR-T cells

Antigen-independent activation, referred to as tonic signaling, is the level of T cell activation that occurs in the absence of stimulation by the tumor antigen. While naturally occurring in all T cells, the high levels of tonic signaling observed in CAR-T cells have been linked to CAR-T cell exhaustion and lack of persistence. To study tonic signaling of TC-110 in comparison to CAR-T cells, we measured the phosphorylation of the CD3 ζ subunit as a means for baseline T cell activation. We chose the CD3 ζ subunit because both TC-110 and CAR-T cells use this subunit as an integral part of their respective signaling complexes. Compared to TC-110, the CAR-T cells we engineered with either a CD28 or 4-1BB costimulatory domain showed higher levels of CD3 ζ phosphorylation in the absence of target stimulation, indicating increased tonic signaling in the CAR-T cells. We believe that the reduced tonic signaling in TC-110 contributes to the enhanced anti-tumor activity of TC-110 and functional persistence observed in our other preclinical studies.



TC-310: Our Dual TRuC-T Cell Program Targeting CD19/22

Antigen escape is a leading mechanism of relapse in patients treated with CD19-targeting CAR-T cells. For example, 40% of patients treated with Kymriah relapsed within twelve months post-infusion, and 65% of those relapsing cases are CD19-negative. This phenomenon has also been recently identified as a mechanism whereby DLBCL can relapse post CD19-directed CAR-T cell therapy. We believe simultaneously targeting two tumor antigens on leukemia or lymphoma cells will potentially improve response rates and reduce the risk of recurrence due to antigen escape, thus leading to more durable responses.

We are developing TC-310, dual TRuC-T cells targeting both CD19 and CD22. We believe that CD22 is an ideal partner for CD19 because it is present on most cases of ALL and DLBCL and both CD19 and CD22 expression on normal cells is restricted to the B-cell lineage. In a third-party Phase 1 clinical trial of a CD22-directed CAR-T cell therapy, 73% of patients showed initial objective response rates. But similar to CD19-targeting CAR-T cell therapies, patients relapsed due to loss of CD22 expression on tumor cells, which rendered the therapy ineffective. These findings underscore the continued high medical need for patients with ALL and DLBCL and the possibility of improving clinical outcomes through the targeting of more than one antigen. We intend to advance TC-310, which is currently at the preclinical development stage, into IND-enabling studies in 2019.

Target Selection and Prioritization

We have systematically prioritized cancer antigens to select the targets for our lead product candidates and programs. From a list of over 40 potential targets, we assessed each antigen based on:

- Clinical need;

- Unique expression or overexpression in tumor tissue;
- Little to no expression in other non-tumor associated tissues;
- Validation of the antigen as a potential target for cancer therapies; and
- Number of cell therapies and other competition targeting the antigen.

The targets for our current programs—mesothelin, MUC16, CD19 and CD22—were the most promising based on the factors described above. We continue to actively evaluate other targets in our discovery-stage research based on these factors.

Broadening our Core TRuC-T Cell Platform with a Series of Next-Generation Enhancements

We have developed a novel, transformative platform to address the limitations of existing T cell therapies. Our TRuC-T cell platform is designed to deliver the first HLA-independent TCR-T cell therapies to a broader population of patients with solid tumors and hematological malignancies. Our approach is to fuse a cancer antigen recognition domain directly to a subunit of the TCR, which becomes fully integrated into the natural complex. This has the effect of activating the entire TCR to produce a more powerful, yet controlled T cell response to cancer.

We are focused on continued innovation to broaden our platform through internal research and collaboration with leading academic laboratories and industry partners in the field of T-cell immunology, cell therapy, gene editing, and process development. These innovations fall into three broad categories:

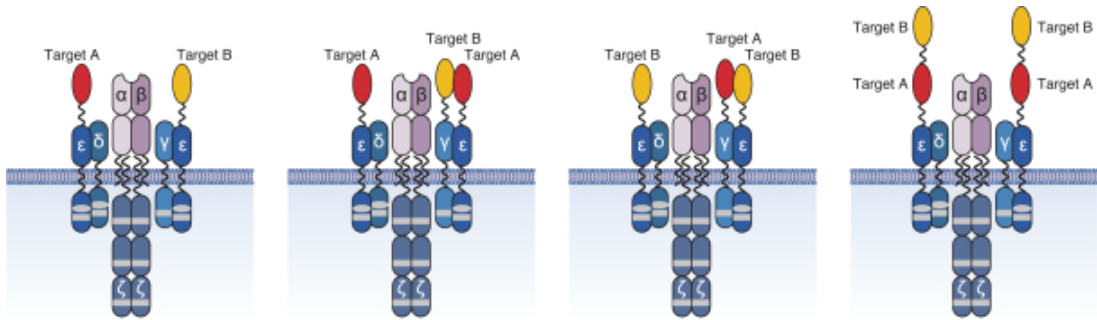
- First, we are developing enhancements that target two antigens, or dual TRuC-T cells, to deal with potential antigen escape, a leading mechanism of cancer relapse in patients receiving CAR-T cell therapy.
- Second, we are developing several enhancements to control on-target, off-tumor activity and counter the immunosuppressive microenvironment of solid tumors. These include mechanisms to block a key cancer defense known as the PD-1/PD-L1 pathway.
- Third, we are evaluating multiple proprietary designs for off-the-shelf TRuC-T cells, aiming to give patients faster access to and reduce the costs of TRuC-T cell therapies.

The table below describes new platform elements to broaden and enhance the core TRuC-T cell platform.

NEXT-GENERATION PLATFORM ENHANCEMENTS	MECHANISMS	DESIRED PATIENT OUTCOME
Dual antigen recognition	<ul style="list-style-type: none">Ability to attack tumors based on the recognition of two different antigens	<ul style="list-style-type: none">Reduced risk of relapse due to antigen escapeGreater efficacy in tumors with heterogeneous target expression
Release of immune checkpoint brakes	<ul style="list-style-type: none">Prevent dampening of the T cell performance by the tumor microenvironmentEnhance the endogenous immune response	<ul style="list-style-type: none">Greater anti-tumor efficacyLonger-lasting therapeutic benefitDecrease systemic toxicities related to immune checkpoint blockers
Inducible TRuC-T cells	<ul style="list-style-type: none">Activation of TRuC-T cells only in the tumor, which dampens on-target, off-tumor activityControlled release of immunostimulatory factors	<ul style="list-style-type: none">Improved safety profile
Off-the-shelf TRuC-T cells	<ul style="list-style-type: none">Universal TRuC-T cells for improved patient access	<ul style="list-style-type: none">Ability to treat patients sooner after diagnosisMinimize risk of TRuC-T cell production failuresReduced costs of therapy

Dual TRuC-T Cell Programs

Antigen loss has been reported in solid tumors and CD19-positive B-cell hematological malignancies after treatment with CAR-T cells. In each case, patients relapsed with cancer cells no longer expressing the targeted antigen. The versatility of our TRuC-T cell platform allows us to program TRuC-T cells with more than one tumor binding domain. As illustrated in the figure below, this can be done by harnessing different subunits of the TCR complex.



TRuC-T Cells Modulating the Hostile Tumor Microenvironment

T cells express a series of proteins that control the scale of an immune response as triggered by the TCR. One group is called checkpoint inhibitors and includes the PD-1 receptor, which is able to dampen a T cell response upon interaction with its ligand PD-L1. This important immunoregulatory mechanism has been hijacked by tumor cells, which express PD-L1, thereby inhibiting the ability of T cells to kill cancer cells. In lung cancer and melanoma, treatment with monoclonal antibodies against PD-1 or PD-L1 can result in long-lasting clinical responses in a

subgroup of patients. Because of the established role of the PD-1/PD-L1 axis in lung cancer, we intend to investigate in our planned Phase 1/2 clinical trial of TC-210 whether the combination of TC-210 with an anti-PD-1 antibody is safe and has the potential to improve on the activity of single-agent TC-210 in NSCLC. These results will inform the future clinical development of the PD-1 TRuC-T cell enhancements.

Given the importance of the PD-1 pathway as a cancer defense mechanism, we are also engineering TRuC-T cells with features that can intrinsically counteract PD-1. An advantage of these approaches is that they comprise two different immunotherapies (engineered T cells and anti-PD-1 therapy) in a single cell therapy, which may simplify clinical development, prevent systemic toxicities of the anti-PD-1 agent as it is delivered exclusively to the tumor, and be more cost-efficient than co-administration of two therapeutics. In this context, we are evaluating the utility of a chimeric PD-1/CD28 switch receptor designed to convert the negative PD-1 signal into an immune-activating signal via a CD28 intracellular signaling domain. Early preclinical studies have shown that the co-expressed switch receptor can enhance the expansion of our TRuC-T cells.

Inducible TRuC-T Cells

We are developing a range of technologies designed to restrict the activation of TRuC-T cells only in the tumor and release immune-stimulating factors only upon engagement of the TRuC-T cell complex. Such modalities have the potential to reduce the risk of TRuC-T cell activation outside the tumor thereby protecting normal tissues.

Off-The-Shelf TRuC-T Cells

The development of off-the-shelf TRuC-T cells using third-party donor T cells is an attractive alternative to using a patient's own T cells. An off-the-shelf therapy would enable us to treat patients immediately after diagnosis without them having to wait for production of their individual T cell products. Moreover, off-the-shelf TRuC-T cells offer an opportunity to treat patients who have too few T cells for TRuC-T cell manufacturing. We are evaluating multiple proprietary off-the-shelf TRuC-T cell designs. We are also exploring the use of different types of cells that are less prone to elicit a graft-versus-host-reaction, a serious complication observed in individuals who receive cells from non-HLA matching donors.

Competition

We believe our novel TRuC-T cell platform, its design flexibility, superior performance over CAR-T cell and TCR-T cell therapies, emerging enhancements, and our knowledge of cellular immunotherapy should enable us to successfully develop novel and highly effective treatments for cancer. However, we may face intense and increasing competition from larger biotechnology and pharmaceutical companies with greater financial resources, who are also developing immuno-oncology therapies (including cellular therapies) and more traditional treatments for cancer. In addition, academic institutions, governmental agencies, public and private research institutions, and early stage or smaller companies could also prove competitive.

The market opportunity in oncology has led to a number of collaborations (GlaxoSmithKline plc (GlaxoSmithKline)/Adaptimmune Therapeutics PLC (Adaptimmune), Janssen Biotech, Inc. (Janssen)/ Nanjing Legend Pharmaceutical & Chemical Co., Ltd (Legend), bluebird bio, Inc. (bluebird)/ Regeneron Pharmaceuticals Inc. (Regeneron) and bluebird/Gritstone Oncology, Inc.) and major acquisitions (Gilead Sciences, Inc. (Gilead)/Kite Pharma Inc. (Kite), Celgene Corporation (Celgene)/Juno Therapeutics, Inc. (Juno)) among companies focused on cellular cancer therapies. For example, the first CAR-T cell therapy licensed for pediatric ALL achieved a remarkable 81% ORR for patients with a minimum follow-up of three months and 76% of patients survived more than one year. Subsequently, Kite and Juno, two leading clinical-stage CAR-T cell therapy companies, were acquired for approximately \$12 billion and \$10 billion, respectively. If this trend continues, which we expect, we could see further consolidation of technical expertise and human capital. This potentially provides a partnership opportunity for us but could also make it more challenging for us to acquire complementary technology or products and recruit and retain qualified scientific and management personnel. In addition, this competition could impact our ability to recruit clinical trial sites and patients in a timely manner for our clinical trials. Larger companies with greater financial flexibility and global reach may be able to obtain regulatory approvals and gain widespread market acceptance before us, which could impact our commercial launch and could make our products obsolete or non-competitive.

We are developing one of our lead product candidates, TC-210, in combination with an immune checkpoint inhibitor for the treatment of NSCLC. Others are evaluating these immune checkpoint inhibitor approaches in combination with CAR-T cells and TCR-T cells to enhance efficacy in the treatment of solid tumors and hematological malignancies. We therefore could experience significant direct competition from this type of combination immunotherapy. We may also face substantial competition in the future from other immunotherapies, if their use alone or in combination demonstrates a significant improvement in efficacy. Development of more effective small molecules, antibody-based approaches, cancer vaccines, oncolytic viruses and other products could lead to them preferentially being used as first- or second-line treatments, which would reduce the opportunity for our product candidates.

Despite the unique approach that we have developed to address the limitations of CAR-T cells and TCR-T cells, we expect to face increasing competition as new more effective treatments for cancer enter the market and further advancements in technologies are made. We expect market adoption of any treatments that we develop and commercialize to be dependent on, among other things, efficacy, safety, delivery, price and the availability of reimbursement from government and other third-party payors.

We expect the commercial opportunity for our products that we take to regulatory licensing to be reduced or eliminated if competitors develop and commercialize products that are more effective, safer (have fewer or less severe side effects), are more convenient or are less expensive or better reimbursed than any products that we may commercialize. We compete with larger, better-funded companies, who may obtain regulatory approval for their products more rapidly than we may obtain licensing for ours. This could result in our competitors establishing a strong market position for either the product or a specific indication before we are able to enter the market.

Competition for TC-210

The overexpression of mesothelin by numerous solid tumors, combined with its low expression on mesothelial cells lining the pleura, peritoneum, and pericardium, has led to a number of different mesothelin-targeting agents being tested in Phase 1/2 trials. These approaches include novel antibody therapeutics, such as unconjugated monoclonal antibodies and antibody-drug conjugates, as well as vaccines. Antibody-based approaches are being pursued by F. Hoffmann-La Roche Ltd, Bayer AG, Bristol-Myers Squibb Company, Selecta Biosciences, Inc. and Morphotek, Inc., among others. Antibody-based agents in development have been limited to date by immunogenicity, poor tumor penetration and dose-limiting toxicities associated with the therapy. Novartis, Memorial Sloan Kettering Cancer Center, the National Institutes of Health Clinical Center and several Chinese academic institutions are developing anti-mesothelin CAR-T cell therapies. Anti-mesothelin CAR-T cell therapies have been limited in the clinic by poor expansion, short persistence and immunogenicity.

Competition for TC-220

Approaches targeting tumors expressing MUC16 include antibody-based therapeutics, such as monoclonal antibodies and recombinant immunotoxins, as well as T cell-based approaches, such as CAR-T cells, and vaccines. Regeneron (in collaboration with Sanofi S.A.) is conducting a Phase 1/2 trial with a bispecific MUC16xCD3 antibody in patients with advanced platinum resistant ovarian cancer. Juno, in collaboration with Memorial Sloan Kettering Cancer Center, is conducting a Phase 1 trial of CAR-T cells against MUC16.

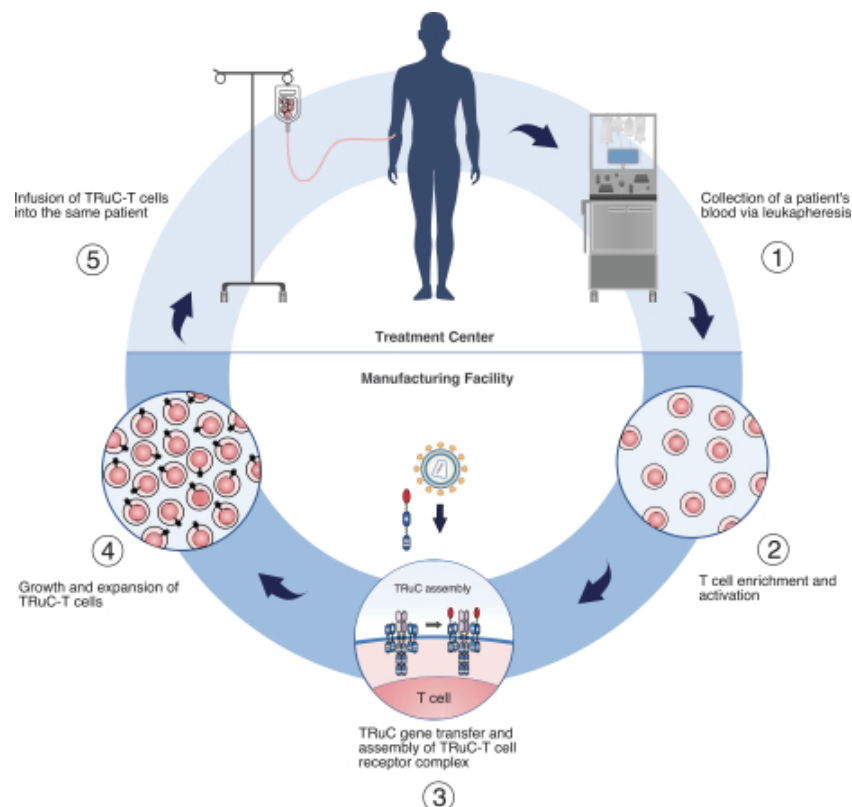
Competition for TC-110 and TC-310

Recent regulatory approvals of Gilead's and Novartis' CAR-T cell therapies and clinical results for Juno's CAR-T cell therapy have led a number of companies to increase their research and development efforts in the cell therapeutics field, including Janssen through its collaboration with Legend, as well as the entry into the field by many other companies. In addition to these CAR-T cell therapies, many companies are developing enhanced TCR-T cells, which may compete with TC-110 and TC-310 in B-cell hematological malignancies. These include Cellectis S.A./Allogene Therapeutics, Inc., Mustang Bio, Inc., Autolus Therapeutics plc, Unum Therapeutics, Inc., Eureka Therapeutics, Inc., Triumvira Immunologics, Inc., Poseida Therapeutics, Inc. and Miltenyi Biotec GmbH, among others. Companies such as F. Hoffmann-La Roche Ltd, Amgen Inc., Regeneron, MorphoSys AG, Forty Seven, Inc., and others are pursuing antibody based approaches. We therefore expect competition within the cell therapy field to intensify and for antibody-based approaches to more directly compete with TCR-T cell therapies in the future.

Manufacture and Delivery of TRuC-T Cells to Patients

TRuC-T Cell Production and Delivery

The process of manufacturing cell and gene therapies, such as TRuC-T cells, is highly complex. As shown in the figure below, the generation of our TRuC-T cells starts with the collection of white blood cells from patients, known as leukapheresis, at the treatment center. The blood cells are shipped to a central manufacturing facility where they are further processed. Following the enrichment of the sample T cells, they are activated, which causes them to divide. In the next step, a viral vector is used to shuttle the genetic information encoding the TRuC construct into the T cells. During the assembly process of the TCR, the TRuC construct is integrated into the natural TCR complex and transported to the cell surface. The now reprogrammed TRuC-T cells are further stimulated to replicate and produce enough quantities to administer a therapeutic dose to the patient from whom the cells were originally collected.



We use a next-generation cell processing platform that performs cell sample loading, cell washing, density-based cell separation, magnetic separation, cell culture and final product formulation. This is a semi-automated and functionally closed system that we believe will enable us to scale our TRuC-T cell manufacturing and overcome the constraints associated with current processes.

TRuC-T Cell Manufacturing Strategy

We are devoting extensive resources to process development and manufacturing to optimize the reliability of our product candidates and reduce manufacturing costs and vein-to-vein time. This investment will ensure that our manufacturing and delivery process will have utility across all the product candidates in our pipeline.

The generation of a genetically-modified autologous T cell therapy such as TRuC-T cells involves several integrated and complex steps, including the collection of T cells through apheresis, cryopreservation, manufacture of the

transfer vector under cGMP conditions, *ex vivo* selection, activation, transduction, and expansion of the TRuC-T cells, ultimately leading to infusion of TRuC-T cells into patients. The technical, logistical, and regulatory challenges associated with the virus and cell manufacturing processes are significant. We plan to simplify the manufacturing process through the implementation of automated technologies and the development of scalable processes aimed at reducing the cost of goods.

We have already taken two critical steps geared towards simplifying our manufacturing process. First, our TRuC-T cells are manufactured via a semi-automated and functionally closed system (CliniMACS Prodigy), which provides a common platform that will be employed in the development of all of the product candidates in our pipeline. This manufacturing process is economical, reliable, and scalable, and can support rapid development of the product candidates throughout the clinical life cycle and regulatory approvals. This system has a small footprint, which enables us to manufacture multiple products in parallel units within the same minimally controlled space, thereby reducing operating costs. Second, both the input leukapheresis material that enters the manufacturing process as well as the final TRuC-T cells are cryopreserved products, which simplifies the logistics for delivery to the patient and reduces the risk of product delivery failure. The entire vein-to-vein manufacturing process has safe-guards in place designed to ensure product identity and integrity throughout the production life-cycle.

We have entered into manufacturing agreements for the supply of GMP-S plasmids for generation of the viral vectors, which are manufactured by third parties. The viral vectors are manufactured through established agreements with Brammer Bio, LLC, WuXi AppTec Inc. and LentiGen Technology, Inc. (a Miltenyi Biotec company). We outsource our T cell manufacturing process and we may enter into additional agreements to increase capacity for future clinical trials and commercialization if licensed. Because our starting materials are frozen, we expect to be able to base future agreements on rolling forecasts of regularly scheduled manufacturing runs, which we expect will minimize any cost overruns due to loss of reservation fees. Depending on the results of our clinical trials, we may choose to develop our own manufacturing capabilities.

As part of our manufacturing strategy, we plan to expand our capacity as we begin clinical trials and are planning for potential further expansion in anticipation of an approval for any of our TRuC-T cell product candidates. Under our existing agreements with Miltenyi Biotec, Inc., we estimate that we have potential access to capacity to produce up to approximately 100 annual treatments per year, which we believe will be sufficient to conduct our initial planned clinical trials. We are in the process of adding manufacturing capacity to support larger clinical trials for our product candidates. To that end, in December 2018, we contracted with Cell Therapy Catapult Limited, United Kingdom to occupy a suite with our own personnel in their GMP manufacturing center in Stevenage, United Kingdom. We expect the suite to be operational in the second half of 2019, which we estimate would expand our manufacturing capacity to a total of approximately 400 treatments per year and facilitate conducting clinical trials in Europe. If our clinical trials are successful, we plan to acquire and develop our own manufacturing infrastructure to generate the additional capacity needed to support expanded clinical trials and commercial scale production. We believe our manufacturing platform can be scaled with minimal infrastructure while meeting GMP requirements, which will facilitate the design and building of a standard centralized manufacturing facility. Further into the future, however, we expect this system to be amenable to manufacturing in a controlled non-classified environment closer to or at the point of care, such as at a regional hub or hospital, resulting in a decentralized manufacturing model. We anticipate that this decentralized model would require minimal infrastructure, be led by operators that would require minimal technical training, shorten vein-to-vein time, and decrease costs.

Commercialization

We have not established a commercial organization or developed distribution capabilities given our current stage of development. However, over time we plan to create and expand our global commercial footprint as our product candidates approach regulatory licensing. As we approach the submission of a biologics license application (BLA), we plan to leverage our extensive experience with gene and cell therapy manufacturing and oncology to ensure each clinical site and manufacturer has the necessary oversight and management to support a successful launch. Overall, the main focus of our commercialization plan will be the development of our own manufacturing capacity. We believe the manufacturing platform's efficient use of space, short utilization time and minimal foot print will facilitate commercial scaling.

Advisory Board

We work with a world-class Advisory Board, comprised of leaders in T cell biology and cell therapy, who provide feedback and guidance on the company's direction. Our Advisory Board is comprised of the following individuals:

- Mitchell Finer, Ph.D., Chairman of the Advisory Board, has over two decades of manufacturing and strategic development experience, including serving as the Chief Scientific Officer of bluebird bio, Inc. from 2010 to 2015, and is also a member of our Board of Directors.
- Stephan Grupp, M.D., Ph.D., is a world-renowned pediatric oncologist and cancer researcher who has pioneered CAR-T cell therapies at the University of Pennsylvania. He is the Yetta Deitch Novotny Professor of Pediatrics at the Perelman School of Medicine at the University of Pennsylvania, and Chief of the Section of Cellular Therapy and Transplant at Children's Hospital of Philadelphia.
- Marcela Maus, M.D., Ph.D., is a leading expert in CAR-T cell therapies and cancer immunotherapy. She is Director of Cellular Immunotherapy, Cancer Center, Massachusetts General Hospital and Assistant Professor of Medicine at Harvard Medical School.
- Wolfgang Schamel, Ph.D., is an innovator and leader in the field of TCR signaling. He is professor and Chairman at the Institute of Biology III (Molecular Immunology) and a professor at the Centre for Biological Signaling Studies of the University of Freiburg, Germany.
- Kai Wucherpfennig, M.D., Ph.D., is a prominent T cell biologist and cancer immunologist and is Director of Center for the Cancer Immunotherapy Research, Dana-Farber Cancer Institute and Professor of Microbiology and Immunology at Harvard University.

Intellectual Property

Intellectual property is a fundamental component of our business and of vital importance in our field. We actively seek to protect the intellectual property and proprietary technology that we believe is important to our business, including seeking, maintaining, enforcing and defending patent rights for our product candidates and processes, whether developed internally or licensed from third parties. We may additionally rely on regulatory protection afforded through orphan drug designations, data exclusivity, market exclusivity, and patent term extensions where available.

The TRuC-T cell platform was initially conceived and developed by our scientific founder, Dr. Patrick Baeuerle. The priority patent application disclosing the TRuC-T cell platform was filed in May 2015. Our further work encompassing a broad range of TRuC concepts has been described in subsequent patent applications.

Additional patent applications filed by us since 2015 include at least the following additional technological innovations and product-related claims:

- TRuC-T cells targeting an array of tumor antigens;
- TRuC-T cells targeting multiple types of antigens on the same tumor;
- engineered TRuC-T cells with enhanced activity and/or modulated activity;
- second generation off-the-shelf TRuC-T cells; and
- methods of using TRuC-T cells to treat human diseases, including solid tumors.

Our strategy is to pursue a variety of broad claims in the United States and foreign jurisdictions to provide multiple layers of patent protection, including:

- pursuing broad claims in the United States for the TRuC concept;
- pursuing claims to specific compositions of matter in connection with particular TRuC constructs (including specific protein and nucleic acid sequences); and
- methods of using the TRuC-T cell platform as monotherapy or in combination with other anti-cancer or immune system enhancing therapeutics.

All of the patent applications that we own or in-license, including our trademark filings, are still in the early stages of prosecution and no claims have yet issued. Examination of most of the patent applications that we own has not yet commenced, because they are either provisional applications or Patent Cooperation Treaty (PCT) applications that

are not examined. We will need to decide whether and where to pursue protection for the inventions disclosed in these provisional and PCT applications before applicable statutory deadlines, our applications will only be examined in jurisdictions where we elect to pursue protection, and we will only have the opportunity to attempt to obtain patents in such jurisdictions where we elect to pursue protection. We are seeking protection across a range of commercially important territories, including (but not limited to) countries in North America, Europe, and Asia. As of December 15, 2018, our patent portfolio includes at least 15 pending U.S. provisional or nonprovisional patent applications including one allowed U.S. nonprovisional patent application, at least five pending Patent Cooperation Treaty (PCT) international applications, and at least 19 pending foreign patent applications, which patent applications we own or in-license. The claims of these patent applications are directed toward various aspects of our product candidates and research programs including compositions of matter, methods of use, and processes. These patent applications, if issued, are expected to expire on various dates from 2036 through 2039, in each case without taking into account any possible patent term adjustments or extensions.

Within our patent portfolio, as of December 15, 2018, we owned at least six pending U.S. provisional or U.S. nonprovisional patent applications including one allowed U.S. nonprovisional patent application, at least two pending PCT international applications, and at least 14 pending foreign patent applications, and had a nonexclusive license from Harpoon Therapeutics, Inc. (Harpoon) to at least one pending U.S. provisional or U.S. nonprovisional patent application, and at least one pending PCT international application, and had an exclusive license to at least four pending foreign patent applications that include claims directed to TC-210, such as compositions of matter, manufacturing precursors or uses thereof. These patent applications, if issued, are expected to expire on various dates from 2036 through 2039, in each case without taking into account any possible patent term adjustment or extensions.

Within our patent portfolio, as of December 15, 2018, we owned at least six pending U.S. provisional or U.S. nonprovisional patent applications, at least one pending PCT international application, and at least 13 pending foreign patent applications, and had an exclusive license to at least four pending foreign patent applications that include claims directed to TC-220, such as compositions of matter, manufacturing precursors or uses thereof. These owned patent applications, if issued, are expected to expire on various dates from 2036 through 2039, in each case without taking into account any possible patent term adjustment or extensions.

Within our patent portfolio, as of December 15, 2018, we owned at least five pending U.S. provisional or U.S. nonprovisional patent applications, at least one pending PCT international application, and at least 13 pending foreign patent applications, and had an exclusive license to at least four pending foreign patent applications that include claims directed to TC-110, such as compositions of matter, manufacturing precursors or uses thereof. These owned patent applications, if issued, are expected to expire on various dates from 2036 through 2039, in each case without taking into account any possible patent term adjustment or extensions.

Within our patent portfolio, as of December 15, 2018, we owned at least nine pending U.S. provisional or U.S. nonprovisional patent applications including one allowed U.S. nonprovisional patent application, at least three pending PCT international applications, and at least 14 pending foreign patent applications; and had a non-exclusive license to at least one pending U.S. provisional or U.S. nonprovisional patent application, and at least one pending PCT international application and had an exclusive license to at least four pending foreign patent applications, that include claims directed to TC-410, such as compositions of matter, manufacturing precursors or uses thereof. These owned and in-licensed patent applications, if issued, are expected to expire on various dates from 2036 through 2039, in each case without taking into account any possible patent term adjustment or extensions.

Within our patent portfolio, as of December 15, 2018, we owned at least five pending U.S. provisional or U.S. nonprovisional patent applications, at least two pending PCT international applications, and at least 13 pending foreign patent applications and had an exclusive license to at least four pending foreign patent applications that include claims directed to TC-310, such as compositions of matter, manufacturing precursors or uses thereof. These owned patent applications, if issued, are expected to expire on various dates from 2036 through 2039, in each case without taking into account any possible patent term adjustment or extensions.

The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In most countries in which we file, the patent term is 20 years from the date of filing of the first

non-provisional application to which priority is claimed. In the United States, a patent's term may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the U.S. Patent and Trademark Office (PTO) in granting a patent or may be shortened if a patent is terminally disclaimed over an earlier-filed patent. The term of a patent that covers an FDA-approved drug may also be eligible for a patent term restoration of up to five years under the Hatch-Waxman Act, which is designed to compensate for the patent term lost during the FDA regulatory review process. The length of the patent term restoration is calculated based on the length of time the drug is under regulatory review. A patent term restoration under the Hatch-Waxman Act cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval and only one patent applicable to an approved drug may be restored. Moreover, a patent can only be restored once, and thus, if a single patent is applicable to multiple products, it can only be extended based on one product. Similar provisions are available in Europe and certain other foreign jurisdictions to extend the term of a patent that covers an approved drug. If and when possible, we expect to apply for patent term extensions for patents covering our product candidates or their methods of use.

Our commercial success may depend in part on our ability to obtain and maintain patent and other proprietary protection for commercially important technology, inventions and know-how related to our business; defend and enforce our patents; preserve the confidentiality of our trade secrets; and operate without infringing the valid enforceable patents and proprietary rights of third parties. Our ability to stop third parties from making, using, selling, offering to sell or importing our products may depend on the extent to which we have rights under valid and enforceable patents or trade secrets that cover these activities. With respect to both in-licensed and company-owned intellectual property, we cannot be sure that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications filed by us in the future, nor can we be sure that any of our existing patents or any patents that may be granted to us in the future will be commercially useful in protecting our commercial products and methods of manufacturing the same. Development and commercialization of products can be subject to substantial delays and it is possible that, at the time of commercialization, any patent covering the product has expired or will be in force for only a short period of time following commercialization. Numerous third-party U.S. and non-U.S. issued patents exist in the area of programmed T cell therapies, including patents held by our competitors. We cannot predict with any certainty if any third-party U.S. or foreign patent rights, or other proprietary rights, will be deemed infringed by the use of our technology, nor can we predict with certainty which, if any, of these rights will or may be asserted against us by third parties. Should we need to defend ourselves against any such claims, substantial costs may be incurred, regardless of whether such defense is successful. Furthermore, parties making such claims may be able to obtain injunctive or other equitable relief, which could effectively block our ability to develop or commercialize some or all our product candidates in the United States, the EU and other major markets.

We may rely, in some circumstances, on trade secrets to protect our technology. However, trade secrets can be difficult to protect. We seek to protect our proprietary technology and processes, in part, by entering into confidentiality agreements with our employees, consultants, scientific advisors and contractors. We also seek to preserve the integrity and confidentiality of our data and trade secrets by maintaining physical security of our premises and physical and electronic security of our information technology systems. While we have confidence in these individuals, organizations and systems, agreements or security measures may be breached, and we may not have adequate remedies for any breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors. To the extent that our consultants, contractors or collaborators use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

Our trademark portfolio currently contains registration applications for TCR2, TRuC, and our logo in the United States.

License

In June 2017, we entered into a license with Harpoon (the Harpoon License) that grants us a perpetual, irrevocable, world-wide, non-exclusive, royalty free, sublicensable license to research, develop, make, use, sell, commercialize or otherwise exploit products based on Harpoon's MSLN polypeptide binding proteins (the MSLN Binder). We have incorporated the MSLN Binder into TC-210.

As consideration for the Harpoon License, we granted Harpoon a perpetual, irrevocable, world-wide, non-exclusive, royalty free, sublicensable license to research, develop, make, use, sell, commercialize or otherwise exploit products based on certain binding proteins which we had developed (the Out-Licensed Binder). We do not incorporate the Out-Licensed Binder into any of our product candidates.

Under the Harpoon License, we retain ownership of the Out-Licensed Binder and own any of our improvements to the MSLN Binder and any of our product candidates incorporating the MSLN Binder. Similarly, Harpoon retains ownership of the MSLN Binder and owns any of its improvements to the Out-Licensed Binder and any of its products incorporating the Out-Licensed Binder. Each party is responsible for the prosecution and maintenance of the patent rights owned by such party.

The Harpoon License is effective through the expiration of all patents underlying the MSLN Binder and Out-Licensed Binder and it may be terminated by either party upon a material breach that remains uncured for 60 days after receiving notice thereof, or in the event of the other party's bankruptcy.

Cell Therapy Catapult Limited Collaboration Agreement

On December 18, 2018, we entered into a Collaboration Agreement with Cell Therapy Catapult Limited (Catapult) to establish our GMP manufacturing and supply chain at their GMP manufacturing center in Stevenage, United Kingdom. The agreement also provides us with an option to expand our collaboration area with a second GMP cleanroom suite in Catapult's second phase of development. The agreement is for a term of three years with earlier termination available to us on provision of twelve months' notice. Termination is also possible in the event of material breach of the Agreement that remains uncured for 90 days and insolvency of a party.

The Catapult manufacturing center is a GMP facility. The agreement will enable us to have our own dedicated manufacturing space in the Catapult manufacturing center. Catapult's contribution to collaboration is their GMP support, expertise, and inbound and outbound logistics and supply chain, being developed at the center. We expect the GMP manufacturing to be operational in the second half of 2019. We will use our own manufacturing process and we will be responsible for the operation of the manufacturing process in the suite.

Government Regulation and Product Licensure

Government authorities in the United States, at the federal, state, and local level, and in other countries and jurisdictions, including the EU, extensively regulate, among other things, the research, development, testing, manufacture, pricing, quality control, approval, packaging, storage, recordkeeping, labeling, advertising, promotion, distribution, marketing, post-approval monitoring and reporting, and import and export of biopharmaceutical products. The processes for obtaining marketing approvals in the United States and in foreign countries and jurisdictions, along with compliance with applicable statutes and regulations and other regulatory authorities, require the expenditure of substantial time and financial resources.

Licensure and Regulation of Biologics in the United States

In the United States, biological products including gene therapy products, such as our lead product candidates, are licensed for marketing by the FDA under the Public Health Service Act (PHSA), and regulated by the FDA under the Federal Food, Drug, and Cosmetic Act (FDCA), as well as by other federal, state and local statute and regulations. Both the FDCA and the PHSA and their corresponding regulations govern, among other things, the testing, manufacturing, safety, potency, labeling, packaging, storage, record keeping, distribution, reporting, advertising, and other promotional practices involving biological products. Additionally, each clinical trial protocol for a gene therapy product candidate is reviewed by the FDA and, in limited situations, the National Institutes for Health (NIH) through its Recombinant DNA Advisory Committee (RAC). The FDA must license a biological product before it may be marketed within the United States.

Within the FDA, the Center for Biologics Evaluation and Research (CBER) regulates gene therapy products. Within the CBER, the review of gene therapy and related products is consolidated in the Office of Tissues and Advanced Therapies and the FDA has established the Cellular, Tissue and Gene Therapies Advisory Committee to advise the CBER on its reviews. The CBER works closely with the NIH and the RAC, which makes recommendations to the NIH on gene therapy issues and engages in a public discussion of scientific, safety, ethical and societal issues related to proposed and ongoing gene therapy protocols. To date, the FDA has licensed three human gene therapy products for

sale and the agency has provided guidance for the development of other gene therapy products. This guidance includes a growing body of guidance documents on chemistry, manufacturing and control (CMC), clinical investigations and other areas of gene therapy development, all of which are intended to facilitate the industry's development of gene therapy products and their implementing regulations. Recently, NIH proposed to revise its guidelines overseeing gene therapy research, including deleting the protocol registration and reporting requirements for certain therapies and eliminating RAC review and reporting requirements for human gene transfer research.

The failure of an applicant to comply with the applicable regulatory requirements at any time during the product development process, including non-clinical testing, clinical testing, the approval process or post-approval process, may result in delays to the conduct of a study, regulatory review and approval, and/or administrative or judicial sanctions. These sanctions may include, but are not limited to, the FDA's refusal to allow an applicant to proceed with clinical trials, refusal to approve pending applications, license suspension or revocation, withdrawal of an approval, warning letters, adverse publicity, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, and civil or criminal investigations and penalties brought by the FDA or Department of Justice (DOJ), or other government entities, including state agencies.

An applicant seeking licensing to market and distribute a new biologic in the United States generally must satisfactorily complete each of the following steps before the product candidate will be licensed by the FDA:

- preclinical testing including laboratory tests, animal studies, and formulation studies, which must be performed in accordance with the FDA's good laboratory practice (GLP) regulations and standards;
- submission to the FDA of an IND for human clinical testing, which must become effective before human clinical trials may begin;
- approval by an institutional review board (IRB) representing each clinical site before each clinical trial may be initiated;
- performance of adequate and well-controlled human clinical trials to establish the safety, potency, and purity of the product candidate for each proposed indication, in accordance with current good clinical practices (GCP);
- preparation and submission to the FDA of a BLA for a biological product which includes not only the results of the clinical trials, but also detailed information on the chemistry, manufacture, and quality controls for the product candidate and proposed labeling for one or more proposed indication(s) and the payment of user fees (unless exempt);
- FDA acceptance and substantive review of the BLA;
- review of the product candidate by an FDA advisory committee, where appropriate or if applicable;
- satisfactory completion of an FDA inspection of the manufacturing facility or facilities, including those of third parties, at which the product candidate or components thereof are manufactured to assess compliance with cGMP requirements and to assure that the facilities, methods, and controls are adequate to preserve the product's identity, strength, quality, and purity;
- satisfactory completion of any FDA audits of the non-clinical and clinical trial sites to assure compliance with GCP and the integrity of clinical data in support of the BLA;
- securing FDA licensure of the BLA to allow marketing of the new biological product; and
- compliance with any post-licensing requirements, including the potential requirement to implement a REMS and the potential requirement to conduct and any post-licensing studies required by the FDA.

Preclinical Studies and Investigational New Drug Application

Before an applicant begins testing a product candidate with potential therapeutic value in humans, the product candidate enters preclinical testing. Preclinical tests include laboratory evaluations of product chemistry, formulation, and stability, as well as other studies to evaluate, among other things, the toxicity of the product candidate. The conduct of the preclinical tests and formulation of the compounds for testing must comply with federal regulations and requirements, including GLP regulations and standards. The results of the preclinical tests, together with manufacturing information and analytical data, are submitted to the FDA a part of an IND. Some long-term preclinical testing, such as animal tests of reproductive adverse events and carcinogenicity, and long-term toxicity studies, may continue after the IND is submitted.

The IND and IRB Processes

An IND is an exemption from the FDCA that allows an unapproved product candidate to be shipped in interstate commerce for use in an investigational clinical trial and a request for FDA authorization to administer such investigational product to humans. Such authorization must be secured prior to interstate shipment and administration of any product candidate that is not the subject of an approved BLA. In support of a request for an IND, applicants must submit a protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA as part of the IND. In addition, the results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and plans for clinical trials, among other things, must be submitted to the FDA as part of an IND. The FDA requires a 30-day waiting period after the filing of each IND before clinical trials may begin. This waiting period is designed to allow the FDA to review the IND to determine whether human research subjects will be exposed to unreasonable health risks. At any time during this 30-day period, or thereafter, the FDA may raise concerns or questions about the conduct of the trials as outlined in the IND and impose a clinical hold or partial clinical hold. In this case, the IND sponsor and the FDA must resolve any outstanding concerns before clinical trials can begin.

Following commencement of a clinical trial under an IND, the FDA may also place a clinical hold or partial clinical hold on that trial. A clinical hold is an order issued by the FDA to the sponsor to delay a proposed clinical investigation or to suspend an ongoing investigation. A partial clinical hold is a delay or suspension of only part of the clinical work requested under the IND. For example, a specific protocol or part of a protocol is not allowed to proceed, while other protocols may do so. No more than 30 days after imposition of a clinical hold or partial clinical hold, the FDA will provide the sponsor a written explanation of the basis for the hold. Following issuance of a clinical hold or partial clinical hold, an investigation may only resume after the FDA has notified the sponsor that the investigation may proceed. The FDA will base that determination on information provided by the sponsor correcting the deficiencies previously cited or otherwise satisfying the FDA that the investigation can proceed.

A sponsor may choose, but is not required, to conduct a foreign clinical trial under an IND. When a foreign clinical trial is conducted under an IND, all FDA IND requirements must be met unless waived. When a foreign clinical trial is not conducted under an IND, the sponsor must ensure that the study complies with certain regulatory requirements of the FDA in order to use the study as support for an IND or application for marketing approval or licensing. In particular, such studies must be conducted in accordance with GCP, including review and approval by an independent ethics committee (IEC) and informed consent from subjects. The GCP requirements in the final rule encompass both ethical and data integrity standards for clinical studies and the FDA must be able to validate the data through an onsite inspection, if deemed necessary by the FDA. The FDA's regulations are intended to help ensure the protection of human subjects enrolled in non-IND foreign clinical studies, as well as the quality and integrity of the resulting data. They further help ensure that non-IND foreign studies are conducted in a manner comparable to that required for IND studies.

If a gene therapy trial is conducted at, or sponsored by, institutions receiving NIH funding for recombinant DNA research, prior to the submission of an IND to the FDA, a protocol and related documents must be submitted to, and the study registered with, the NIH Office of Biotechnology Activities (OBA) pursuant to the NIH Guidelines for Research Involving Recombinant DNA Molecules (the NIH Guidelines). Compliance with the NIH Guidelines is mandatory for investigators at institutions receiving NIH funds for research involving recombinant DNA. However, many companies and other institutions, not otherwise subject to the NIH Guidelines, voluntarily follow them. NIH is responsible for convening the RAC that discusses protocols that raise novel or particularly important scientific, safety or ethical considerations at one of its quarterly public meetings. The OBA will notify the FDA of the RAC's decision regarding the necessity for full public review of a gene therapy protocol. RAC proceedings and reports are posted to the OBA website and may be accessed by the public.

In addition to the foregoing IND requirements, an IRB representing each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution, and the IRB must conduct continuing review and reapprove the study at least annually. The IRB must review and approve, among other things, the study protocol and informed consent information to be provided to study subjects. An IRB must operate in compliance with FDA regulations. An IRB can suspend or terminate approval of a clinical trial at its institution, or an institution it represents, if the clinical trial is not being conducted in accordance with the IRB's requirements or if the product candidate has been associated with unexpected serious harm to patients.

Additionally, some trials are overseen by an independent group of qualified experts organized by the trial sponsor, known as a data safety monitoring board or committee (DSMB). This group provides authorization as to whether or not a trial may move forward at designated check points based on access that only the group maintains to available data from the study. Suspension or termination of development during any phase of clinical trials can occur if it is determined that the participants or patients are being exposed to an unacceptable health risk. Other reasons for suspension or termination may be made by us based on evolving business objectives and/or competitive climate.

Information about clinical trials must be submitted within specific timeframes to the NIH for public dissemination on its ClinicalTrials.gov website.

Additional Regulation for Gene Therapy Clinical Trials

In addition to the regulations discussed above, there are a number of additional standards that apply to clinical trials involving the use of gene therapy. The FDA has issued various guidance documents regarding gene therapies, which outline additional factors that the FDA will consider at each of the above stages of development, which relate to, among other things: the proper preclinical assessment of gene therapies; the CMC information that should be included in an IND; the proper design of tests to measure product potency in support of an IND or BLA; and measures to observe delayed adverse effects in subjects who have been exposed to investigational gene therapies when the risk of such effects is high. Further, the FDA usually recommends that sponsors observe subjects for potential gene therapy-related delayed adverse events for a 15-year period, including a minimum of five years of annual examinations followed by ten years of annual queries, either in person or by questionnaire, although the FDA recently proposed updating its guidance on long-term follow-up after administration of human gene therapy products.

The NIH and the FDA have a publicly accessible database, the Genetic Modification Clinical Research Information System, which includes information on gene therapy trials and serves as an electronic tool to facilitate the reporting and analysis of adverse events on these trials.

Human Clinical Trials in Support of a BLA

Clinical trials involve the administration of the investigational product candidate to human subjects under the supervision of a qualified investigator in accordance with GCP requirements which include, among other things, the requirement that all research subjects provide their informed consent in writing before their participation in any clinical trial. Clinical trials are conducted under written clinical trial protocols detailing, among other things, the objectives of the study, inclusion and exclusion criteria, the parameters to be used in monitoring safety, and the effectiveness criteria to be evaluated.

Human clinical trials are typically conducted in three sequential phases, but the phases may overlap or be combined. Additional studies may also be required after licensing.

- *Phase 1* clinical trials are initially conducted in a limited population to test the product candidate for safety, including adverse effects, dose tolerance, absorption, metabolism, distribution, excretion, and pharmacodynamics in healthy humans or in patients. During Phase 1 clinical trials, information about the investigational biological product's pharmacokinetics and pharmacological effects may be obtained to permit the design of well-controlled and scientifically valid Phase 2 clinical trials.
- *Phase 2* clinical trials are generally conducted in a limited patient population to identify possible adverse effects and safety risks, evaluate the potency or efficacy of the product candidate for specific targeted indications, and determine dose tolerance and optimal dosage. Multiple Phase 2 clinical trials may be conducted by the sponsor to obtain information prior to beginning larger and more costly Phase 3 clinical trials. Phase 2 clinical trials are well controlled, closely monitored and conducted in a limited patient population.
- *Phase 3* clinical trials proceed if the Phase 2 clinical trials demonstrate that a dose range of the product candidate is potentially potency or effective and has an acceptable safety profile. Phase 3 clinical trials are undertaken within an expanded patient population to further evaluate dosage, provide substantial evidence of clinical potency or efficacy, and further test for safety in an expanded and diverse patient population at multiple, geographically dispersed clinical trial sites. A well-controlled, statistically robust Phase 3 trial may be designed to deliver the data that regulatory authorities will use to decide whether or not to license, and, if licensed, how to appropriately label a biologic. Such Phase 3 studies are referred to as "pivotal."

In some cases, the FDA may approve a BLA for a product candidate but require the sponsor to conduct additional clinical trials to further assess the product candidate's safety and effectiveness after approval. Such post-approval trials are typically referred to as Phase 4 clinical trials. These studies are used to gain additional experience from the treatment of a larger number of patients in the intended treatment group and to further document a clinical benefit in the case of biologics licensed under accelerated approval regulations. Failure to exhibit due diligence with regard to conducting Phase 4 clinical trials could result in withdrawal of approval for products.

Progress reports detailing the results of the clinical trials must be submitted at least annually to the FDA. In addition, IND safety reports must be submitted to the FDA for any of the following: serious and unexpected suspected adverse reactions; findings from other studies or animal or *in vitro* testing that suggest a significant risk in humans exposed to the product; and any clinically important increase in the case of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. Phase 1, Phase 2 and Phase 3 clinical trials may not be completed successfully within any specified period, or at all. Furthermore, the FDA or the sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution, or an institution it represents, if the clinical trial is not being conducted in accordance with the IRB's requirements or if the product has been associated with unexpected serious harm to patients. The FDA will typically inspect one or more clinical sites to assure compliance with GCP and the integrity of the clinical data submitted.

Review and Approval of a BLA

In order to obtain approval to market a biological product in the United States, a marketing application must be submitted to the FDA that provides sufficient data establishing the safety, purity and potency of the proposed biological product for its intended indication. The application includes all relevant data available from pertinent preclinical and clinical trials, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls and proposed labeling, among other things. Data can come from company-sponsored clinical trials intended to test the safety and effectiveness of a use of a product, or from a number of alternative sources, including studies initiated by investigators. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety, purity and potency of the biological product to the satisfaction of the FDA.

The BLA is a vehicle through which applicants formally propose that the FDA license a new product for marketing and sale in the United States for one or more indications. Every new biological product candidate must be the subject of an approved BLA before it may be commercialized in the United States. Under federal law, the submission of most BLAs is subject to an application user fee, which for federal fiscal year 2019 is \$2,588,478 for an application requiring clinical data. The sponsor of an approved BLA is also subject to an annual program fee, which for fiscal year 2019 is \$309,915. Certain exceptions and waivers are available for some of these fees, such as an exception from the application fee for products with orphan designation and a waiver for certain small businesses.

Following submission of a BLA, the FDA conducts a preliminary review of the application generally within 60 calendar days of its receipt and strives to inform the sponsor by the 74th day after the FDA's receipt of the submission whether the application is sufficiently complete to permit substantive review. The FDA may request additional information rather than accept the application for filing. In this event, the application must be resubmitted with the additional information. The resubmitted application is also subject to review before the FDA accepts it for filing. Once the submission is accepted for filing, the FDA begins an in-depth substantive review. The FDA has agreed to specified performance goals in the review process of the BLAs. Under that agreement, 90% of original BLA submissions are meant to be reviewed within ten months of the 60-day filing date, and 90% of original BLAs that have been designated for "priority review" are meant to be reviewed within six months of the 60-day filing date. The review process and the Prescription Drug User Fee Act goal date may be extended by the FDA for three additional months to consider new information or clarification provided by the applicant to address an outstanding deficiency identified by the FDA following the original submission.

Before approving an application, the FDA typically will inspect the facility or facilities where the product is or will be manufactured. These pre-approval inspections may cover all facilities associated with a BLA submission, including component manufacturing, finished product manufacturing and control testing laboratories. The FDA will not

approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving a BLA, the FDA will typically inspect one or more clinical sites to assure compliance with GCP.

In addition, as a condition of approval, the FDA may require an applicant to develop a REMS. REMS use risk minimization strategies beyond the professional labeling to ensure that the benefits of the product outweigh the potential risks. To determine whether a REMS is needed, the FDA will consider the size of the population likely to use the product, seriousness of the disease, expected benefit of the product, expected duration of treatment, seriousness of known or potential adverse events and whether the product is a new molecular entity.

The FDA may refer an application for a novel product to an advisory committee or explain why such referral was not made. Typically, an advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates and provides a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Fast Track, Breakthrough Therapy, Priority Review and Regenerative Advanced Therapy Designations

The FDA is authorized to designate certain products for expedited review if they are intended to address an unmet medical need in the treatment of a serious or life-threatening disease or condition. These programs are referred to as Fast Track designation, Breakthrough Therapy designation, Priority Review designation and Regenerative Advanced Therapy designation.

Specifically, the FDA may designate a product for Fast Track review if it is intended, whether alone or in combination with one or more other products, for the treatment of a serious or life-threatening disease or condition, and it demonstrates the potential to address unmet medical needs for such a disease or condition. For Fast Track products, sponsors may have greater interactions with the FDA and the FDA may initiate review of sections of a Fast Track product's application before the application is complete. This rolling review may be available if the FDA determines, after preliminary evaluation of clinical data submitted by the sponsor, that a Fast Track product may be effective. The sponsor must also provide, and the FDA must approve, a schedule for the submission of the remaining information and the sponsor must pay applicable user fees. However, the FDA's time period goal for reviewing a fast track application does not begin until the last section of the application is submitted. In addition, the Fast Track designation may be withdrawn by the FDA if the FDA believes that the designation is no longer supported by data emerging in the clinical trial process.

Second, a product may be designated as a Breakthrough Therapy if it is intended, either alone or in combination with one or more other products, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The FDA may take certain actions with respect to Breakthrough Therapies, including holding meetings with the sponsor throughout the development process; providing timely advice to the product sponsor regarding development and approval; involving more senior staff in the review process; assigning a cross-disciplinary project lead for the review team; and taking other steps to design the clinical trials in an efficient manner.

Third, the FDA may designate a product for priority review if it is a product that treats a serious condition and, if licensed, would provide a significant improvement in safety or effectiveness. The FDA determines, on a case-by-case basis, whether the proposed product represents a significant improvement when compared with other available therapies. Significant improvement may be illustrated by evidence of increased effectiveness in the treatment of a condition, elimination or substantial reduction of a treatment-limiting product reaction, documented enhancement of patient compliance that may lead to improvement in serious outcomes, and evidence of safety and effectiveness in a new subpopulation. A priority designation is intended to direct overall attention and resources to the evaluation of such applications, and to shorten the FDA's goal for taking action on a marketing application from ten months to six months.

With passage of the 21st Century Cures Act (the Cures Act), in December 2016, Congress authorized the FDA to accelerate review and approval of products designated as regenerative advanced therapies. A product is eligible for

this designation if it is a regenerative medicine therapy that is intended to treat, modify, reverse or cure a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the product has the potential to address unmet medical needs for such disease or condition. The benefits of a regenerative advanced therapy designation include early interactions with FDA to expedite development and review, benefits available to breakthrough therapies, potential eligibility for priority review and accelerated approval based on surrogate or intermediate endpoints.

Accelerated Approval Pathway

The FDA may grant accelerated approval to a product for a serious or life-threatening condition that provides meaningful therapeutic advantage to patients over existing treatments based upon a determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit. The FDA may also grant accelerated approval for such a condition when the product has an effect on an intermediate clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality (IMM) and that is reasonably likely to predict an effect on IMM or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. Products granted accelerated approval must meet the same statutory standards for safety and effectiveness as those granted traditional approval.

For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign, or other measure that is thought to predict clinical benefit, but is not itself a measure of clinical benefit. Surrogate endpoints can often be measured more easily or more rapidly than clinical endpoints. An intermediate clinical endpoint is a measurement of a therapeutic effect that is considered reasonably likely to predict the clinical benefit of a drug, such as an effect on IMM. The FDA has limited experience with accelerated approvals based on intermediate clinical endpoints, but has indicated that such endpoints generally may support accelerated approval where the therapeutic effect measured by the endpoint is not itself a clinical benefit and basis for traditional approval, if there is a basis for concluding that the therapeutic effect is reasonably likely to predict the ultimate clinical benefit of a product.

The accelerated approval pathway is most often used in settings in which the course of a disease is long and an extended period of time is required to measure the intended clinical benefit of a product, even if the effect on the surrogate or intermediate clinical endpoint occurs rapidly. Thus, accelerated approval has been used extensively in the development and approval of products for treatment of a variety of cancers in which the goal of therapy is generally to improve survival or decrease morbidity and the duration of the typical disease course requires lengthy and sometimes large trials to demonstrate a clinical or survival benefit. Thus, the benefit of accelerated approval derives from the potential to receive approval based on surrogate endpoints sooner than possible for trials with clinical or survival endpoints, rather than deriving from any explicit shortening of the FDA approval timeline, as is the case with priority review.

The accelerated approval pathway is usually contingent on a sponsor's agreement to conduct, in a diligent manner, additional post-approval confirmatory studies to verify and describe the product's clinical benefit. As a result, a product candidate licensed on this basis is subject to rigorous post-marketing compliance requirements, including the completion of Phase IV or post-approval clinical trials to confirm the effect on the clinical endpoint. Failure to conduct required post-approval studies, or confirm a clinical benefit during post-marketing studies, would allow the FDA to initiate expedited proceedings to withdraw approval of the product. All promotional materials for product candidates licensed under accelerated regulations are subject to prior review by the FDA.

The FDA's Decision on a BLA

On the basis of the FDA's evaluation of the application and accompanying information, including the results of the inspection of the manufacturing facilities, the FDA may issue an approval letter or a complete response letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A complete response letter generally outlines the deficiencies in the submission and may require substantial additional testing or information in order for the FDA to reconsider the application. If and when those deficiencies have been addressed to the FDA's satisfaction in a resubmission of the BLA, the FDA will issue an approval letter. The FDA has committed to reviewing such resubmissions in two or six months depending on the type of information included. Even with submission of this additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for licensing.

If the FDA licenses a new product, it may limit the licensed indications for use of the product. The agency may also require testing and surveillance programs to monitor the product after commercialization, or impose other conditions, including distribution restrictions or other risk management mechanisms, including REMS, to help ensure that the benefits of the product outweigh the potential risks. REMS can include medication guides, communication plans for health care professionals, and elements to assure safe use (ETASU). ETASU can include, but are not limited to, special training or certification for prescribing or dispensing, dispensing only under certain circumstances, special monitoring and the use of patent registries. The FDA may prevent or limit further marketing of a product based on the results of post-market studies or surveillance programs. After licensing, many types of changes to the licensed product, such as adding new indications, manufacturing changes and additional labeling claims, are subject to further testing requirements and FDA review and approval.

Post-Licensing Regulation

If regulatory licensing for marketing of a product or new indication for an existing product is obtained, the sponsor will be required to comply with all regular post-licensing regulatory requirements as well as any post-licensing requirements that the FDA may have imposed as part of the licensing process. The sponsor will be required to report, among other things, certain adverse reactions and manufacturing problems to the FDA, provide updated safety and potency or efficacy information and comply with requirements concerning advertising and promotional labeling requirements. Manufacturers and certain of their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with ongoing regulatory requirements, including cGMP regulations, which impose certain procedural and documentation requirements upon manufacturers. Changes to the manufacturing processes are strictly regulated and often require prior FDA approval before being implemented. Accordingly, the sponsor and its third-party manufacturers must continue to expend time, money, and effort in the areas of production and quality control to maintain compliance with cGMP regulations and other regulatory requirements.

A product may also be subject to official lot release, meaning that the manufacturer is required to perform certain tests on each lot of the product before it is released for distribution. If the product is subject to official release, the manufacturer must submit samples of each lot, together with a release protocol showing a summary of the history of manufacture of the lot and the results of all of the manufacturer's tests performed on the lot, to the FDA. The FDA may in addition perform certain confirmatory tests on lots of some products before releasing the lots for distribution. Finally, the FDA will conduct laboratory research related to the safety, purity, potency, and effectiveness of pharmaceutical products.

Once a license is granted, the FDA may withdraw the license if compliance with regulatory requirements is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the licensed labeling to add new safety information; imposition of post-market studies or clinical trials to assess safety risks; or imposition of distribution or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market, or product recalls;
- fines, warning letters, or holds on post-licensing clinical trials;
- refusal of the FDA to approve pending applications or supplements to licensed applications, or suspension or revocation of product license licenses;
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates the marketing, labeling, advertising and promotion of prescription drug products placed on the market. This regulation includes, among other things, standards and regulations for direct-to-consumer advertising, communications regarding unapproved uses, industry-sponsored scientific and educational activities, and promotional activities involving the Internet and social media. Promotional claims about a drug's safety or effectiveness are prohibited before the drug is licensed. After licensing, a drug product generally may not be promoted for uses that are not licensed by the FDA, as reflected in the product's prescribing information. In the

United States, health care professionals are generally permitted to prescribe drugs for such uses not described in the drug's labeling, known as off-label uses, because the FDA does not regulate the practice of medicine. However, FDA regulations impose rigorous restrictions on manufacturers' communications, prohibiting the promotion of off-label uses. It may be permissible, under very specific, narrow conditions, for a manufacturer to engage in nonpromotional, non-misleading communication regarding off-label information, such as distributing scientific or medical journal information.

If a company is found to have promoted off-label uses, it may become subject to adverse public relations and administrative and judicial enforcement by the FDA, the Department of Justice, or the Office of the Inspector General of the Department of Health and Human Services (HHS), as well as state authorities. This could subject a company to a range of penalties that could have a significant commercial impact, including civil and criminal fines and agreements that materially restrict the manner in which a company promotes or distributes drug products. The federal government has levied large civil and criminal fines against companies for alleged improper promotion, and has also requested that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed.

In addition, the distribution of prescription pharmaceutical products is subject to the Prescription Drug Marketing Act (PDMA) and its implementing regulations, as well as the Drug Supply Chain Security Act (DSCA), which regulate the distribution and tracing of prescription drug samples at the federal level, and set minimum standards for the regulation of distributors by the states. The PDMA, its implementing regulations and state laws limit the distribution of prescription pharmaceutical product samples, and the DSCA imposes requirements to ensure accountability in distribution and to identify and remove counterfeit and other illegitimate products from the market.

Pediatric Studies and Exclusivity

Under the Pediatric Research Equity Act, a BLA or supplement thereto for a biological product with a new active ingredient, indication, dosage form, dosing regimen or route of administration must contain data that are adequate to assess the safety and effectiveness of the product for the claimed indications in all relevant pediatric subpopulations, and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. Sponsors must also submit pediatric study plans prior to the assessment data. Those plans must contain an outline of the proposed pediatric study or studies the applicant plans to conduct, including study objectives and design, any deferral or waiver requests and other information required by regulation. The applicant, the FDA, and the FDA's internal review committee must then review the information submitted, consult with each other and agree upon a final plan. The FDA or the applicant may request an amendment to the plan at any time.

For products intended to treat a serious or life-threatening disease or condition, the FDA must, upon the request of an applicant, meet to discuss preparation of the initial pediatric study plan or to discuss deferral or waiver of pediatric assessments. In addition, FDA will meet early in the development process to discuss pediatric study plans with sponsors and FDA must meet with sponsors by no later than the end-of-Phase 1 meeting for serious or life-threatening diseases and by no later than ninety (90) days after FDA's receipt of the study plan.

The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of some or all pediatric data until after licensing of the product for use in adults, or full or partial waivers from the pediatric data requirements. Additional requirements and procedures relating to deferral requests and requests for extension of deferrals are contained in FDASIA. Unless otherwise required by regulation, the pediatric data requirements do not apply to products with orphan designation.

The FDA Reauthorization Act of 2017 established new requirements to govern certain molecularly targeted cancer indications. Any company that submits a BLA three years after the date of enactment of that statute must submit pediatric assessments with the BLA if the biologic is intended for the treatment of an adult cancer and is directed at a molecular target that FDA determines to be substantially relevant to the growth or progression of a pediatric cancer. The investigation must be designed to yield clinically meaningful pediatric study data regarding the dosing, safety and preliminary potency to inform pediatric labeling for the product. Deferrals and waivers as described above are also available.

Pediatric exclusivity is another type of non-patent marketing exclusivity in the United States and, if granted, provides for the attachment of an additional six months of marketing protection to the term of any existing regulatory

exclusivity, including the non-patent and orphan exclusivity. This six-month exclusivity may be granted if a BLA sponsor submits pediatric data that fairly respond to a written request from the FDA for such data. The data do not need to show the product to be effective in the pediatric population studied; rather, if the clinical trial is deemed to fairly respond to the FDA's request, the additional protection is granted. If reports of requested pediatric studies are submitted to and accepted by the FDA within the statutory time limits, whatever statutory or regulatory periods of exclusivity or patent protection cover the product are extended by six months. This is not a patent term extension, but it effectively extends the regulatory period during which the FDA cannot license another application.

Orphan Drug Designations and Exclusivity

Under the Orphan Drug Act, the FDA may designate a biological product as an "orphan drug" if it is intended to treat a rare disease or condition, generally meaning that it affects fewer than 200,000 individuals in the United States, or more in cases in which there is no reasonable expectation that the cost of developing and making a product available in the United States for treatment of disease or condition will be recovered from sales of the product. A company must seek orphan drug designation before submitting a BLA for the candidate product. If the request is granted, the FDA will disclose the identity of the therapeutic agent and its potential use. Orphan drug designation does not shorten the PDUFA goal dates for the regulatory review and licensing process, although it does convey certain advantages such as tax benefits and exemption from the PDUFA application fee.

If a product with orphan designation receives the first FDA approval for the disease or condition for which it has such designation or for a select indication or use within the rare disease or condition for which it was designated, the product generally will receive orphan drug exclusivity. Orphan drug exclusivity means that the FDA may not license another sponsor's marketing application for the same drug for the same condition for seven years, except in certain limited circumstances. Orphan exclusivity does not block the licensing of a different product for the same rare disease or condition, nor does it block the licensing of the same product for different conditions. If a biologic designated as an orphan drug ultimately receives marketing licensing for an indication broader than what was designated in its orphan drug application, it may not be entitled to exclusivity.

Orphan drug exclusivity will not bar licensing of another product under certain circumstances, including if a subsequent product with the same biologic for the same condition is shown to be clinically superior to the licensed product on the basis of greater potency, purity or safety, or providing a major contribution to patient care, or if the company with orphan drug exclusivity is not able to meet market demand. This is the case despite an earlier court opinion holding that the Orphan Drug Act unambiguously required the FDA to recognize orphan exclusivity regardless of a showing of clinical superiority.

Biosimilars and Exclusivity

The 2010 Patient Protection and Affordable Care Act, which was signed into law on March 23, 2010, included a subtitle called the Biologics Price Competition and Innovation Act of 2009 (BPCIA). The BPCIA established a regulatory scheme authorizing the FDA to license biosimilars and interchangeable biosimilars. The FDA has licensed several biosimilar products for use in the United States. As of September 30, 2018, however, no interchangeable biosimilars, however, have been licensed. The FDA has issued several guidance documents outlining an approach to review and licensing of biosimilars. Additional guidances are expected to be proposed and finalized by the FDA in the near term.

Under the BPCIA, a manufacturer may submit an application for licensure of a biological product that is "biosimilar to" or "interchangeable with" a previously licensed biological product or "reference product." In order for the FDA to license a biosimilar product, it must find, among other things, that the product is "highly similar" to the reference product notwithstanding minor differences in clinically inactive components and that there are no clinically meaningful differences between the reference product and proposed biosimilar product in terms of safety, purity, and potency. For the FDA to license a biosimilar product as interchangeable with a reference product, the agency must find that the biosimilar product can be expected to produce the same clinical results as the reference product, and, for products administered multiple times, that the biologic and the reference biologic may be switched after one has been previously administered without increasing safety risks or risks of diminished potency relative to exclusive use of the reference biologic.

Under the BPCIA, an application for a biosimilar or interchangeable biological product may not be submitted to the FDA until four years following the date of licensing of the reference product. The FDA may not license a biosimilar or

interchangeable biological product until 12 years from the date on which the reference product was licensed. Even if a product is considered to be a reference product eligible for exclusivity, another company could market a competing version of that product if the FDA licenses a full BLA for such product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity, and potency of their product. The BPCIA also created certain exclusivity periods for biosimilars licensed as interchangeable products. At this juncture, it is unclear whether products deemed "interchangeable" by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law.

Patent Term Restoration and Extension

A patent claiming a new biological product may be eligible for a limited patent term extension under the Hatch-Waxman Act, which permits a patent restoration of up to five years for patent term lost during product development and FDA regulatory review. The restoration period granted on a patent covering a product is typically one-half the time between the effective date of an IND and the submission date of a marketing application (such as a BLA), plus the time between the submission date of a marketing application and the ultimate licensing date. Patent term restoration cannot be used to extend the remaining term of a patent past a total of 14 years from the product's licensing date. Only one patent applicable to a licensed product is eligible for the extension, and the application for the extension must be submitted prior to the expiration of the patent in question and within 60 days after approval of the relevant marketing application. A patent that covers multiple products for which licensing is sought can only be extended in connection with one of the licenses. The USPTO reviews and licenses the application for any patent term extension or restoration in consultation with the FDA.

The 21st Century Cures Act

On December 13, 2016, President Obama signed the Cures Act into law. The Cures Act is designed to modernize and personalize healthcare, spur innovation and research, and streamline the discovery and development of new therapies through increased federal funding of particular programs. It authorizes increased funding for the FDA to spend on innovation projects. The new law also amends the PHS Act to reauthorize and expand funding for the NIH. The Cures Act establishes the NIH Innovation Fund to pay for the cost of development and implementation of a strategic plan, early stage investigators and research. It also charges NIH with leading and coordinating expanded pediatric research. Further, the Cures Act directs the Centers for Disease Control and Prevention to expand surveillance of neurological diseases.

With amendments to the FDCA and the PHS Act, Title III of the Cures Act seeks to accelerate the discovery, development, and delivery of new medicines and medical technologies. To that end, and among other provisions, the Cures Act reauthorizes the existing priority review voucher program for certain drugs intended to treat rare pediatric diseases until 2020; creates a new priority review voucher program for drug applications determined to be material national security threat medical countermeasure applications; revises the FDCA to streamline review of combination product applications; requires FDA to evaluate the potential use of "real world evidence" to help support approval of new indications for approved drugs; provides a new "limited population" approval pathway for antibiotic and antifungal drugs intended to treat serious or life-threatening infections; and authorizes FDA to designate a drug as a "regenerative advanced therapy," thereby making it eligible for certain expedited review and approval designations.

Healthcare Law and Regulation

Health care providers and third-party payors play a primary role in the recommendation and prescription of biological products that are granted marketing licensing. Arrangements with providers, consultants, third-party payors and customers are subject to broadly applicable fraud and abuse, anti-kickback, false claims laws, patient privacy laws and regulations and other health care laws and regulations that may constrain business and/or financial arrangements. Restrictions under applicable federal and state health care laws and regulations, include the following:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons and entities from knowingly and willfully soliciting, offering, paying, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made, in whole or in part, under a federal health care program such as Medicare and Medicaid;
- the federal civil and criminal false claims laws, including the civil False Claims Act, and civil monetary penalties laws, which prohibit individuals or entities from, among other things, knowingly presenting, or

causing to be presented, to the federal government, claims for payment that are false, fictitious or fraudulent or knowingly making, using or causing to made or used a false record or statement to avoid, decrease or conceal an obligation to pay money to the federal government.

- the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), which created additional federal criminal laws that prohibit, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any health care benefit program or making false statements relating to health care matters;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, and their respective implementing regulations, including the Final Omnibus Rule published in January 2013, which impose obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information;
- the federal false statements statute, which prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with the delivery of or payment for health care benefits, items or services;
- the federal transparency requirements known as the federal Physician Payments Sunshine Act, under the 2010 Patient Protection and Affordable Care Act, as amended by the Health Care Education Reconciliation Act (the ACA), which requires certain manufacturers of drugs, devices, biologics and medical supplies to report annually to the Centers for Medicare & Medicaid Services (CMS) within the HHS, information related to payments and other transfers of value made by that entity to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members; and
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to health care items or services that are reimbursed by non-government third-party payors, including private insurers.

Some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring manufacturers to report information related to payments to physicians and other health care providers or marketing expenditures. State and foreign laws also govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts.

Pharmaceutical Insurance Coverage and Health Care Reform

In the United States and markets in other countries, patients who are prescribed treatments for their conditions and providers performing the prescribed services generally rely on third-party payors to reimburse all or part of the associated health care costs. Significant uncertainty exists as to the coverage and reimbursement status of products licensed by the FDA and other government authorities. Thus, even if a product candidate is licensed, sales of the product will depend, in part, on the extent to which third-party payors, including government health programs in the United States such as Medicare and Medicaid, commercial health insurers and managed care organizations, provide coverage and establish adequate reimbursement levels for, the product. The process for determining whether a payor will provide coverage for a product may be separate from the process for setting the price or reimbursement rate that the payor will pay for the product once coverage is licensed. Third-party payors are increasingly challenging the prices charged, examining the medical necessity and reviewing the cost-effectiveness of medical products and services and imposing controls to manage costs. Third-party payors may limit coverage to specific products on a licensed list, also known as a formulary, which might not include all of the licensed products for a particular indication.

In order to secure coverage and reimbursement for any product that might be licensed for sale, a company may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of the product, in addition to the costs required to obtain FDA or other comparable marketing licenses. Nonetheless, product candidates may not be considered medically necessary or cost effective. A decision by a third-party payor not to cover a product could reduce physician utilization once the product is licensed and have a material adverse effect on sales, results of operations and financial condition. Additionally, a payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be licensed. Further, one

payor's determination to provide coverage for a product does not assure that other payors will also provide coverage and reimbursement for the product, and the level of coverage and reimbursement can differ significantly from payor to payor.

The containment of health care costs also has become a priority of federal, state and foreign governments and the prices of products have been a focus in this effort. Governments have shown significant interest in implementing cost-containment programs, including price controls, restrictions on reimbursement and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit a company's revenue generated from the sale of any licensed products. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which a company or its collaborators receive marketing licenses, less favorable coverage policies and reimbursement rates may be implemented in the future.

There have been a number of federal and state proposals during the last few years regarding the pricing of pharmaceutical and biopharmaceutical products, limiting coverage and reimbursement for drugs and biologics and other medical products, government control and other changes to the health care system in the United States. In March 2010, the Affordable Care Act was enacted, which includes measures that have significantly changed health care financing by both governmental and private insurers. The provisions of the Affordable Care Act of importance to the pharmaceutical and biotechnology industry are, among others, the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain branded prescription drug agents or biologic agents, which is apportioned among these entities according to their market share in certain government health care programs;
- an increase in the rebates a manufacturer must pay under the Medicaid Drug Rebate Program to 23.1% and 13% of the average manufacturer price for branded and generic drugs, respectively;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts to negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D;
- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations, unless the drug is subject to discounts under the 340B drug discount program;
- a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new mandatory eligibility categories for certain individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program;
- new requirements under the federal Physician Payments Sunshine Act for drug manufacturers to report information related to payments and other transfers of value made to physicians and teaching hospitals as well as ownership or investment interests held by physicians and their immediate family members;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- creation of the Independent Payment Advisory Board, which, if and when impaneled, will have authority to recommend certain changes to the Medicare program that could result in reduced payments for prescription drugs; and
- establishment of a Center for Medicare and Medicaid Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending.

Other legislative changes have been proposed and adopted since the ACA was enacted. These changes include the Budget Control Act of 2011, which, among other things, led to aggregate reductions to Medicare payments to providers of up to 2% per fiscal year that started in 2013 and will stay in effect through 2024 unless additional Congressional action is taken, and the American Taxpayer Relief Act of 2012, which, among other things, reduced Medicare payments to several types of providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding and otherwise affect the prices we may obtain for any of our product candidates for which we may obtain regulatory licensing or the frequency with which any such product candidate is prescribed or used. Further, there have been several recent U.S. congressional inquiries and proposed state and federal legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the costs of drugs under Medicare and reform government program reimbursement methodologies for drug products.

These healthcare reforms, as well as other healthcare reform measures that may be adopted in the future, may result in additional reductions in Medicare and other healthcare funding, more rigorous coverage criteria, new payment methodologies and additional downward pressure on the price for any licensed product and/or the level of reimbursement physicians receive for administering any licensed product. Reductions in reimbursement levels may negatively impact the prices or the frequency with which products are prescribed or administered. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors.

Further, since enactment of the Affordable Care Act, there have been numerous legal challenges and Congressional actions to repeal and replace provisions of the law. In May 2017, the U.S. House of Representatives passed legislation known as the American Health Care Act of 2017. Thereafter, the Senate Republicans introduced and then updated a bill to replace the Affordable Care Act known as the Better Care Reconciliation Act of 2017. The Senate Republicans also introduced legislation to repeal the Affordable Care Act without companion legislation to replace it, and a “skinny” version of the Better Care Reconciliation Act of 2017. In addition, the Senate considered proposed healthcare reform legislation known as the Graham-Cassidy Bill. None of these measures were passed by the U.S. Senate.

The Trump Administration has also taken executive actions to undermine or delay implementation of the Affordable Care Act. In January 2017, President Trump signed an Executive Order directing federal agencies with authorities and responsibilities under the Affordable Care Act to waive, defer, grant exemptions from, or delay the implementation of any provision of the Affordable Care Act that would impose a fiscal or regulatory burden on states, individuals, healthcare providers, health insurers, or manufacturers of pharmaceuticals or medical devices. In October 2017, the President signed a second Executive Order allowing for the use of association health plans and short-term health insurance, which may provide fewer health benefits than the plans sold through the Affordable Care Act exchanges. At the same time, the Administration announced that it will discontinue the payment of cost-sharing reduction (CSR) payments to insurance companies until Congress approves the appropriation of funds for such CSR payments. The loss of the CSR payments is expected to increase premiums on certain policies issued by qualified health plans under the Affordable Care Act. A bipartisan bill to appropriate funds for CSR payments was introduced in the Senate, but the future of that bill is uncertain. Further, in July 2018 following a federal district court decision from New Mexico, the Administration announced that it would be freezing payments to insurers under the Affordable Care Act to cover sicker patients until it or Congress can address the appropriate methodology for calculating and making such payments. It remains to be seen how this action will affect the implementation of the Affordable Care Act.

More recently, with enactment of the Tax Cuts and Jobs Act of 2017, which was signed by the President on December 22, 2017, Congress repealed the “individual mandate.” The repeal of this provision, which requires most Americans to carry a minimal level of health insurance, will become effective in 2019. According to the Congressional Budget Office, the repeal of the individual mandate will cause 13 million fewer Americans to be insured in 2027 and premiums in insurance markets may rise. Additionally, on January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain Affordable Care Act-mandated fees, including the so-called “Cadillac” tax on certain high cost employer-sponsored

insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. The Congress will likely consider other legislation to replace elements of the Affordable Care Act, during the next Congressional session.

Further, there have been several recent U.S. congressional inquiries and proposed federal and proposed and enacted state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the costs of drugs under Medicare and reform government program reimbursement methodologies for drug products. At the federal level, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, individual states are increasingly aggressive in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. In addition, regional health care authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other health care programs. These measures could reduce the ultimate demand for our product candidates, once licensed, or put pressure on our product pricing.

In addition, on May 11, 2018, the Administration issued a plan to lower drug prices. Under this blueprint for action, the Administration indicated that HHS will: take steps to end the gaming of regulatory and patent processes by drug makers to unfairly protect monopolies; advance biosimilars and generics to boost price competition; evaluate the inclusion of prices in drug makers' ads to enhance price competition; speed access to and lower the cost of new drugs by clarifying policies for sharing information between insurers and drug makers; avoid excessive pricing by relying more on value-based pricing by expanding outcome-based payments in Medicare and Medicaid; work to give Part D plan sponsors more negotiation power with drug makers; examine which Medicare Part B drugs could be negotiated for a lower price by Part D plans, and improving the design of the Part B Competitive Acquisition Program; update Medicare's drug-pricing dashboard to increase transparency; prohibit Part D contracts that include "gag rules" that prevent pharmacists from informing patients when they could pay less out-of-pocket by not using insurance; and require that Part D plan members be provided with an annual statement of plan payments, out-of-pocket spending, and drug price increases.

At the state level, individual states are increasingly aggressive in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. In addition, regional health care authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other health care programs. These measures could reduce the ultimate demand for our product candidates, once licensed, or put pressure on our product pricing.

Review and Approval of Medicinal Products in the EU

In order to market any product outside of the United States, a company must also comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding quality, safety and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of products. Whether or not it obtains FDA licensing for a product, an applicant will need to obtain the necessary approvals by the comparable non-U.S. regulatory authorities before it can commence clinical trials or marketing of the product in those countries or jurisdictions. Specifically, the process governing approval of medicinal products in the EU generally follows the same lines as in the United States. It entails satisfactory completion of preclinical studies and adequate and well-controlled clinical trials to establish the safety and efficacy of the product for each proposed indication. It also requires the submission to the relevant competent authorities of a marketing authorization application (MAA), and granting of a marketing authorization by these authorities before the product can be marketed and sold in the EU.

Clinical Trial Approval

The Clinical Trials Directive 2001/20/EC, the Directive 2005/28/EC on GCP and the related national implementing provisions of the individual EU Member States govern the system for the approval of clinical trials in the EU. Under

this system, an applicant must obtain prior approval from the competent national authority of the EU Member States in which the clinical trial is to be conducted. Furthermore, the applicant may only start a clinical trial at a specific study site after the competent ethics committee has issued a favorable opinion. The clinical trial application must be accompanied by, among other documents, an investigational medicinal product dossier (the Common Technical Document) with supporting information prescribed by Directive 2001/20/EC, Directive 2005/28/EC, where relevant the implementing national provisions of the individual EU Member States and further detailed in applicable guidance documents.

In April 2014, the new Clinical Trials Regulation, (EU) No 536/2014 (Clinical Trials Regulation) was adopted. The Regulation was published on June 16, 2014 but is not expected to apply until 2019. The Clinical Trials Regulation will be directly applicable in all the EU Member States, repealing the current Clinical Trials Directive 2001/20/EC and replacing any national legislation that was put in place to implement the Directive. Conduct of all clinical trials performed in the EU will continue to be bound by currently applicable provisions until the new Clinical Trials Regulation becomes applicable. The extent to which on-going clinical trials will be governed by the Clinical Trials Regulation will depend on when the Clinical Trials Regulation becomes applicable and on the duration of the individual clinical trial. If a clinical trial continues for more than three years from the day on which the Clinical Trials Regulation becomes applicable the Clinical Trials Regulation will at that time begin to apply to the clinical trial.

The new Clinical Trials Regulation aims to simplify and streamline the approval of clinical trials in the EU. The main characteristics of the regulation include: a streamlined application procedure via a single entry point, the “EU Portal and Database”; a single set of documents to be prepared and submitted for the application as well as simplified reporting procedures for clinical trial sponsors; and a harmonized procedure for the assessment of applications for clinical trials, which is divided in two parts. Part I is assessed by the appointed reporting Member State, whose assessment report is submitted for review by the sponsor and all other competent authorities of all EU Member States in which an application for authorization of a clinical trial has been submitted (Concerned Member States). Part II is assessed separately by each Concerned Member State. Strict deadlines have been established for the assessment of clinical trial applications. The role of the relevant ethics committees in the assessment procedure will continue to be governed by the national law of the Concerned Member State. However, overall related timelines will be defined by the Clinical Trials Regulation.

PRIME Designation in the EU

In March 2016, the European Medicines Agency (EMA), launched an initiative to facilitate development of product candidates in indications, often rare, for which few or no therapies currently exist. The PRiority Medicines (PRIME), scheme is intended to encourage drug development in areas of unmet medical need and provides accelerated assessment of products representing substantial innovation reviewed under the centralized procedure. Products from small- and medium-sized enterprises may qualify for earlier entry into the PRIME scheme than larger companies. Many benefits accrue to sponsors of product candidates with PRIME designation, including but not limited to, early and proactive regulatory dialogue with the EMA, frequent discussions on clinical trial designs and other development program elements, and accelerated marketing authorization application assessment once a dossier has been submitted. Importantly, a dedicated Agency contact and rapporteur from the Committee for Human Medicinal Products (CHMP) or Committee for Advanced Therapies are appointed early in PRIME scheme facilitating increased understanding of the product at EMA's Committee level. A kick-off meeting initiates these relationships and includes a team of multidisciplinary experts at the EMA to provide guidance on the overall development and regulatory strategies.

Marketing Authorization

To obtain a marketing authorization for a product under EU regulatory systems, an applicant must submit an MAA, either under a centralized procedure administered by the EMA or one of the procedures administered by competent authorities in EU Member States (decentralized procedure, national procedure, or mutual recognition procedure). A marketing authorization may be granted only to an applicant established in the EU. Regulation (EC) No 1901/2006 provides that prior to obtaining a marketing authorization in the EU, applicants must demonstrate compliance with all measures included in an EMA-approved Pediatric Investigation Plan (PIP) covering all subsets of the pediatric population, unless the EMA has granted a product-specific waiver, class waiver, or a deferral for one or more of the measures included in the PIP.

The centralized procedure provides for the grant of a single marketing authorization by the European Commission that is valid across the European Economic Area. Pursuant to Regulation (EC) No. 726/2004, the centralized procedure is compulsory for specific products, including for medicines produced by certain biotechnological processes, products designated as orphan medicinal products, ATMPs and products with a new active substance indicated for the treatment of certain diseases, including products for the treatment of cancer. For products with a new active substance indicated for the treatment of other diseases and products that are highly innovative or for which a centralized process is in the interest of patients, the centralized procedure may be optional. The centralized procedure may at the request of the applicant also be used in certain other cases. We anticipate that the centralized procedure will be mandatory for the product candidates we are developing.

Under the centralized procedure, the CHMP is also responsible for several post-authorization and maintenance activities, such as the assessment of modifications or extensions to an existing marketing authorization. Under the centralized procedure in the EU, the maximum timeframe for the evaluation of an MAA is 210 days, excluding clock stops when additional information or written or oral explanation is to be provided by the applicant in response to questions of the CHMP. Accelerated evaluation may be granted by the CHMP in exceptional cases, when a medicinal product is of major interest from the point of view of public health and, in particular, from the viewpoint of therapeutic innovation. If the CHMP accepts such a request, the time limit of 210 days will be reduced to 150 days, but it is possible that the CHMP may revert to the standard time limit for the centralized procedure if it determines that it is no longer appropriate to conduct an accelerated assessment. At the end of this period, the CHMP provides a scientific opinion on whether or not a marketing authorization should be granted in relation to a medicinal product. Within 15 calendar days of receipt of a final opinion from the CHMP, the European Commission must prepare a draft decision concerning an application for marketing authorization. This draft decision must take the opinion and any relevant provisions of EU law into account. Before arriving at a final decision on an application for centralized authorization of a medicinal product the European Commission must consult the Standing Committee on Medicinal Products for Human Use. The Standing Committee is composed of representatives of the EU Member States and chaired by a non-voting European Commission representative. The European Parliament also has a related "droit de regard". The European Parliament's role is to ensure that the European Commission has not exceeded its powers in deciding to grant or refuse to grant a marketing authorization.

The European Commission may grant a so-called "marketing authorization under exceptional circumstances". Such authorization is intended for products for which the applicant can demonstrate that it is unable to provide comprehensive data on the efficacy and safety under normal conditions of use, because the indications for which the product in question is intended are encountered so rarely that the applicant cannot reasonably be expected to provide comprehensive evidence, or in the present state of scientific knowledge, comprehensive information cannot be provided, or it would be contrary to generally accepted principles of medical ethics to collect such information. Consequently, marketing authorization under exceptional circumstances may be granted subject to certain specific obligations, which may include the following:

- the applicant must complete an identified program of studies within a time period specified by the competent authority, the results of which form the basis of a reassessment of the benefit/risk profile;
- the medicinal product in question may be supplied on medical prescription only and may in certain cases be administered only under strict medical supervision, possibly in a hospital and in the case of a radiopharmaceutical, by an authorized person; and
- the package leaflet and any medical information must draw the attention of the medical practitioner to the fact that the particulars available concerning the medicinal product in question are as yet inadequate in certain specified respects.

A marketing authorization under exceptional circumstances is subject to annual review to reassess the risk-benefit balance in an annual reassessment procedure. Continuation of the authorization is linked to the annual reassessment and a negative assessment could potentially result in the marketing authorization being suspended or revoked. The renewal of a marketing authorization of a medicinal product under exceptional circumstances, however, follows the same rules as a "normal" marketing authorization. Thus, a marketing authorization under exceptional circumstances is granted for an initial five years, after which the authorization will become valid indefinitely, unless the EMA decides that safety grounds merit one additional five-year renewal.

The European Commission may also grant a so-called “conditional marketing authorization” prior to obtaining the comprehensive clinical data required for an application for a full marketing authorization. Such conditional marketing authorizations may be granted for product candidates (including medicines designated as orphan medicinal products), if (i) the risk-benefit balance of the product candidate is positive, (ii) it is likely that the applicant will be in a position to provide the required comprehensive clinical trial data, (iii) the product fulfills an unmet medical need and (iv) the benefit to public health of the immediate availability on the market of the medicinal product concerned outweighs the risk inherent in the fact that additional data are still required. A conditional marketing authorization may contain specific obligations to be fulfilled by the marketing authorization holder, including obligations with respect to the completion of ongoing or new studies, and with respect to the collection of pharmacovigilance data. Conditional marketing authorizations are valid for one year, and may be renewed annually, if the risk-benefit balance remains positive, and after an assessment of the need for additional or modified conditions and/or specific obligations. The timelines for the centralized procedure described above also apply with respect to the review by the CHMP of applications for a conditional marketing authorization.

The EU medicines rules expressly permit the EU Member States to adopt national legislation prohibiting or restricting the sale, supply or use of any medicinal product containing, consisting of or derived from a specific type of human or animal cell, such as embryonic stem cells. While the product candidates we have in development do not make use of embryonic stem cells, it is possible that the national laws in certain EU Member States may prohibit or restrict us from commercializing our product candidates, even if they have been granted an EU marketing authorization.

Unlike the centralized authorization procedure, the decentralized marketing authorization procedure requires a separate application to, and leads to separate approval by, the competent authorities of each EU Member State in which the product is to be marketed. This application is identical to the application that would be submitted to the EMA for authorization through the centralized procedure. The reference EU Member State prepares a draft assessment and drafts of the related materials within 120 days after receipt of a valid application. The resulting assessment report is submitted to the concerned EU Member States who, within 90 days of receipt, must decide whether to approve the assessment report and related materials. If a concerned EU Member State cannot approve the assessment report and related materials due to concerns relating to a potential serious risk to public health, disputed elements may be referred to the European Commission, whose decision is binding on all EU Member States.

The mutual recognition procedure similarly is based on the acceptance by the competent authorities of the EU Member States of the marketing authorization of a medicinal product by the competent authorities of other EU Member States. The holder of a national marketing authorization may submit an application to the competent authority of an EU Member State requesting that this authority recognize the marketing authorization delivered by the competent authority of another EU Member State.

Regulatory Data Protection in the EU

In the EU, innovative medicinal products approved on the basis of a complete independent data package qualify for eight years of data exclusivity upon marketing authorization and an additional two years of market exclusivity pursuant to Directive 2001/83/EC. Regulation (EC) No 726/2004 repeats the entitlement for medicinal products authorized in accordance with the centralized authorization procedure. Data exclusivity prevents applicants for authorization of generics of these innovative products from referencing the innovator's data to assess a generic (abridged) application for a period of eight years. During the additional two-year period of market exclusivity, a generic marketing authorization application can be submitted and authorized, and the innovator's data may be referenced, but no generic medicinal product can be placed on the EU market until the expiration of the market exclusivity. The overall ten-year period will be extended to a maximum of 11 years if, during the first eight years of those ten years, the marketing authorization holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are held to bring a significant clinical benefit in comparison with existing therapies. Even if a compound is considered to be a new chemical entity so that the innovator gains the prescribed period of data exclusivity, another company may market another version of the product if such company obtained marketing authorization based on an MAA with a complete independent data package of pharmaceutical tests, non-clinical tests and clinical trials.

Periods of Authorization and Renewals

A marketing authorization has an initial validity for five years in principle. The marketing authorization may be renewed after five years on the basis of a re-evaluation of the risk-benefit balance by the EMA or by the competent authority of the EU Member State. To this end, the marketing authorization holder must provide the EMA or the competent authority with a consolidated version of the file in respect of quality, safety, and efficacy, including all variations introduced since the marketing authorization was granted, at least six months before the marketing authorization ceases to be valid.

The European Commission or the competent authorities of the EU Member States may decide, on justified grounds relating to pharmacovigilance, to proceed with one further five-year period of marketing authorization. Once subsequently definitively renewed, the marketing authorization shall be valid for an unlimited period. Any authorization which is not followed by the actual placing of the medicinal product on the EU market (in case of centralized procedure) or on the market of the authorizing EU Member State within three years after authorization ceases to be valid (the so-called sunset clause).

Orphan Drug Designation and Exclusivity

Regulation (EC) No. 141/2000, as implemented by Regulation (EC) No. 847/2000 provides that a drug can be designated as an orphan drug by the European Commission if its sponsor can establish: that the product is intended for the diagnosis, prevention or treatment of (1) a life-threatening or chronically debilitating condition affecting not more than five in ten thousand persons in the EU when the application is made, or (2) a life-threatening, seriously debilitating or serious and chronic condition in the EU and that without incentives it is unlikely that the marketing of the drug in the EU would generate sufficient return to justify the necessary investment. For either of these conditions, the applicant must demonstrate that there exists no satisfactory method of diagnosis, prevention or treatment of the condition in question that has been authorized in the EU or, if such method exists, the drug will be of significant benefit to those affected by that condition.

Once authorized, orphan medicinal products are entitled to 10 years of market exclusivity in all EU Member States and in addition a range of other benefits during the development and regulatory review process including scientific assistance for study protocols, authorization through the centralized marketing authorization procedure covering all member countries and a reduction or elimination of registration and marketing authorization fees. However, marketing authorization may be granted to a similar medicinal product with the same orphan indication during the 10-year period with the consent of the marketing authorization holder for the original orphan medicinal product or if the manufacturer of the original orphan medicinal product is unable to supply sufficient quantities. Marketing authorization may also be granted to a similar medicinal product with the same orphan indication if this product is safer, more effective or otherwise clinically superior to the original orphan medicinal product. The period of market exclusivity may, in addition, be reduced to six years if it can be demonstrated on the basis of available evidence that the original orphan medicinal product is sufficiently profitable not to justify maintenance of market exclusivity

Regulatory Requirements after a Marketing Authorization has been Obtained

In case an authorization for a medicinal product in the EU is obtained, the holder of the marketing authorization is required to comply with a range of requirements applicable to the manufacturing, marketing, promotion, and sale of the products. These include:

Regulatory Requirements after a Marketing Authorization has been Obtained

In case an authorization for a medicinal product in the EU is obtained, the holder of the marketing authorization is required to comply with a range of requirements applicable to the manufacturing, marketing, promotion and sale of medicinal products. These include:

- Compliance with the European Union's stringent pharmacovigilance or safety reporting rules must be ensured. These rules can impose post-authorization studies and additional monitoring obligations.
- The manufacturing of authorized medicinal products, for which a separate manufacturer's license is mandatory, must also be conducted in strict compliance with the applicable EU laws, regulations and guidance, including Directive 2001/83/EC, Directive 2003/94/EC, Regulation (EC) No 726/2004 and the European Commission Guidelines for Good Manufacturing Practice. These requirements include compliance with EU cGMP standards when manufacturing medicinal products and active pharmaceutical ingredients,

including the manufacture of active pharmaceutical ingredients outside of the EU with the intention to import the active pharmaceutical ingredients into the EU.

- The marketing and promotion of authorized drugs, including industry-sponsored continuing medical education and advertising directed toward the prescribers of drugs and/or the general public, are strictly regulated in the EU notably under Directive 2001/83EC, as amended, and EU Member State laws. Direct-to-consumer advertising of prescription medicines is prohibited across the EU.

Brexit and the Regulatory Framework in the United Kingdom

On June 23, 2016, the electorate in the United Kingdom voted in favor of leaving the EU (commonly referred to as “Brexit”). Thereafter, on March 29, 2017, the country formally notified the EU of its intention to withdraw pursuant to Article 50 of the Lisbon Treaty. The withdrawal of the United Kingdom from the EU will take effect either on the effective date of the withdrawal agreement or, in the absence of agreement, two years after the United Kingdom provides a notice of withdrawal pursuant to the EU Treaty. Since the regulatory framework for pharmaceutical products in the United Kingdom covering quality, safety and efficacy of pharmaceutical products, clinical trials, marketing authorization, commercial sales and distribution of pharmaceutical products is derived from EU directives and regulations, Brexit could materially impact the future regulatory regime which applies to products and the approval of product candidates in the United Kingdom. It remains to be seen how, if at all, Brexit will impact regulatory requirements for product candidates and products in the United Kingdom.

Pricing Decisions for Approved Products

In the EU, pricing and reimbursement schemes vary widely from country to country. Some countries provide that products may be marketed only after a reimbursement price has been agreed. Some countries may require the completion of additional studies that compare the cost-effectiveness of a particular product candidate to currently available therapies or so-called health technology assessments, in order to obtain reimbursement or pricing approval. For example, the EU provides options for its Member States to restrict the range of products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. Member States may approve a specific price for a product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the product on the market. Other Member States allow companies to fix their own prices for products, but monitor and control prescription volumes and issue guidance to physicians to limit prescriptions. Recently, many countries in the EU have increased the amount of discounts required on pharmaceuticals and these efforts could continue as countries attempt to manage health care expenditures, especially in light of the severe fiscal and debt crises experienced by many countries in the EU. The downward pressure on health care costs in general, particularly prescription products, has become intense. As a result, increasingly high barriers are being erected to the entry of new products. Political, economic and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after reimbursement has been obtained. Reference pricing used by various Member States, and parallel trade, or arbitrage, between low-priced and high-priced Member States, can further reduce prices. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any products, if approved in those countries.

Employees

As of December 15, 2018, we had 45 full-time employees and one part-time employee. Twenty-two of our employees have Ph.D. or M.D. degrees and 37 of our employees are engaged in research and development activities. None of our employees are represented by labor unions or covered by collective bargaining agreements. We consider our relationship with our employees to be good.

Facilities

We lease a facility containing our research and development, laboratory and office space, which consists of approximately 23,000 square feet located at 100 Binney Street, Cambridge, Massachusetts 02142. Our lease expires in June of 2025.

Legal Proceedings

As of the date of this prospectus, we were not party to any material legal matters or claims. In the future, we may become party to legal matters and claims arising in the ordinary course of business, the resolution of which we do not anticipate would have a material adverse impact on our financial position, results of operations or cash flows.

MANAGEMENT

The following table sets forth information about our directors, executive officers and other key employees as of December 15, 2018.

NAME	AGE	POSITION(S)
Executive Officers		
Garry Menzel	54	President, Chief Executive Officer and Director
Robert Hofmeister	51	Chief Scientific Officer
Alfonso Quintás Cardama	48	Chief Medical Officer
Mayur (Ian) Somaiya	45	Chief Financial Officer
Non-Employee Directors		
Ansbert Gadické (2)(3)(4)	60	Chairman of the Board of Directors
Andrew Allen (2)	52	Director
Patrick Baeuerle	61	Director
Morana Jovan-Embiricos (1)(2)(4)	51	Director
Neil Gibson (1)(2)(3)	62	Director
Mitchell Finer (1)(3)	59	Director

(1) Member of our audit committee

(2) Member of our compensation committee

(3) Member of our nominating and corporate governance committee

(4) Member of our finance and strategy committee

Executive Officers

Garry Menzel, Ph.D. Dr. Menzel joined our company in 2016 as a director and Chief Executive Officer. Dr. Menzel has also served on the board of directors of the oncology company Black Diamond Therapeutics Inc. since 2014. Previously, Dr. Menzel was the Chief Strategy Officer at Axcella Health Inc. from 2015 to 2016, the Chief Financial Officer at DaVita Healthcare Partners Inc. from 2013 to 2015, and the Chief Operating Officer at Regulus Therapeutics Inc. from 2008 to 2013. Dr. Menzel also had global leadership roles in running the biotechnology practices at Goldman Sachs & Co. LLC from 1994 to 2004 and Credit Suisse Group AG from 2004 to 2008. In addition, he was a consultant with Bain & Company and was a research assistant at SmithKline Beecham PLC (now GlaxoSmithKline PLC). Dr. Menzel received his Ph.D. from the University of Cambridge, where he studied the regulation of oncogenes in immune cells, and his M.B.A. from the Stanford University Graduate School of Business. We believe Dr. Menzel is qualified to serve as a member of our board of directors because of his scientific background and corporate leadership experience.

Robert Hofmeister, Ph.D. Dr. Hofmeister joined our company in September 2015 as Senior Vice President, Research and Development and became our Chief Scientific Officer in October 2016. From 2005 to 2015, Dr. Hofmeister held positions at EMD Serono Research and Development Institute, Inc., including as the Global Head of Translational Immunotherapy, Immuno-Oncology from 2012 to 2015. Previously, Dr. Hofmeister held positions at Micromet AG (now a part of Amgen, Inc.). Dr. Hofmeister received his Ph.D. from the University of Regensburg in Germany, where he studied the signaling of the cytokine interleukin-1.

Alfonso Quintás Cardama, M.D. Dr. Quintás joined our company in 2017 as Chief Medical Officer. Dr. Quintás was the clinical development head of the Cell & Gene Therapies Unit at GlaxoSmithKline PLC in 2017. Between 2014 and 2016, he served as Global Clinical Leader, Cell & Gene Therapy, at Novartis AG and was an Assistant Professor in the Department of Leukemia at The University of Texas, MD Anderson Cancer Center from 2009 to 2014. Dr. Quintás received his M.D. from the Universidad de Santiago de Compostela School of Medicine in Spain. He completed an internship and residency in the Department of Medicine of the Albert Einstein College of Medicine—Yeshiva University and a hematology and oncology fellowship and a leukemia fellowship at The University of Texas, MD Anderson Cancer Center.

Mayur (Ian) Somaiya. Mr. Somaiya joined our company in 2018 as Chief Financial Officer. From 2015 to 2018, Mr. Somaiya was Managing Director and Head of Biotechnology Research at BMO Capital Markets Corp. Previously, he served as a Managing Director and Equity Analyst at Nomura Securities Co. Ltd. from 2013 to 2015, Piper Jaffray Companies from 2009 to 2013, Thomas Weisel Partners Group, Inc. from 2003 to 2009 and Morgan Stanley from 2000 to 2003. Mr. Somaiya received his B.A in Biology from New York University.

Non-Employee Directors

Ansbert Gadicke, M.D. Dr. Gadicke joined our board of directors in May 2015. Dr. Gadicke co-founded MPM Capital's venture investing activities in 1997 and has since served as a Managing Director. Prior to that, Dr. Gadicke led MPM Capital's Advisory and Investment Banking business from 1992 to 1996 and was in Boston Consulting Group's Health Care Group from 1989 to 1992. He is a member of the board of directors of Cullinan Oncology, LLC and ElevateBio, LLC and formerly served as a member of the board of directors of Radius Health, Inc. and Chiasma, Inc. Dr. Gadicke received his M.D. from J.W. Goethe University and has held research positions at the Whitehead Institute and Harvard University. We believe Dr. Gadicke is qualified to serve as a member of our board of directors because of his extensive experience in the life sciences industry and in investment management.

Andrew Allen, M.D., Ph.D. Dr. Allen joined our board of directors in December 2018. Dr. Allen is a co-founder of Gritstone Oncology, Inc., and has served as its President and Chief Executive Officer since August 2015. Dr. Allen previously co-founded Clovis Oncology, Inc., a public pharmaceutical development company, and served as its executive vice president of clinical and preclinical development and chief medical officer from April 2009 to July 2015. Prior to that, he was chief medical officer at Pharmion Corporation from 2006 to 2008. Previously, Dr. Allen served in clinical development leadership roles at Chiron Corporation and Abbott Laboratories, and worked at McKinsey & Company, where he advised life science companies on strategic issues. He currently serves on the board of directors of Gritstone Oncology, Inc., Epizyme, Inc., Sierra Oncology, Inc., and Revitope Oncology, Inc. Dr. Allen previously served on the board of directors of Cell Design Labs, a private biotechnology company, from November 2015 until its acquisition by Gilead Sciences, Inc. in December 2017. Dr. Allen qualified in medicine at Oxford University and received a Ph.D. in immunology from Imperial College of Science, Technology and Medicine in London. We believe Dr. Allen is qualified to serve on our board of directors due to his educational experience and his experience as a founder and senior executive of biotechnology and pharmaceutical companies.

Patrick Baeuerle, Ph.D. Dr. Baeuerle has served on our board of directors since May 2015. Since 2015, Dr. Baeuerle has been a Managing Director of MPM Capital. From 2012 to 2015 he served as Vice President, Research, and General Manager at Amgen Research (Munich) GmbH. From 1998 to 2012, Dr. Baeuerle served as Chief Scientific Officer for Micromet, Inc. Dr. Baeuerle co-founded Harpoon Therapeutics, Inc. in 2015. Dr. Baeuerle also co-founded Cullinan Oncology, LLC, of which he is Chief Scientific Officer—Biologics, Maverick Therapeutics, Inc. and iOmx AG. He currently serves on the board of directors of Harpoon Therapeutics and the advisory boards of Amphivena Therapeutics, Inc., iOmx AG and Maverick Therapeutics, Inc. He is also an Honorary Professor of Immunology of the Medical Faculty at University of Munich. Dr. Baeuerle received his Ph.D. in biology from the University of Munich and performed post-doctoral research at the Whitehead Institute. We believe Dr. Baeuerle is qualified to serve as a member of our board of directors because of his scientific background, experience in the venture capital industry, corporate leadership experience and his experience as a founder of numerous biopharmaceutical companies.

Mitchell Finer, Ph.D. Dr. Finer has served on our board of directors since October 2015. Dr. Finer has served as an Executive Partner of MPM Capital since August 2015. Dr. Finer previously served as Chief Executive Officer of Oncorus, Inc. from January 2016 to June 2018 and co-founded Adverum Biotechnologies, Inc. and CODA Biotherapeutics, Inc. Previously, he served as Chief Scientific Officer of bluebird bio, Inc., from March 2010 through July 2015. Dr. Finer serves on the boards of directors of Adverum Biotechnologies, Inc., Semma Therapeutics, Inc., Oncorus, Inc. and CODA Biotherapeutics, Inc. Dr. Finer received a Ph.D. in biochemistry and molecular biology from Harvard University and a B.A. in biochemistry and bacteriology from the University of California, Berkeley. He completed a postdoctoral fellowship at the Whitehead Institute for Biomedical Research. We believe Dr. Finer is qualified to serve as a member of our board of directors because of his operational, strategic and corporate leadership experience and his experience as a founder of numerous biopharmaceutical companies.

Morana Jovan-Embiricos, Ph.D. Dr. Jovan has served on our board of directors since October 2015. In 2003, Dr. Jovan co-founded F2 Ventures, a biotech venture capital fund and has since served as its Managing Partner. Prior to joining F2 Ventures, Dr. Jovan was a partner at MPM Capital. Dr. Jovan currently serves on the boards of directors of ElevateBio, LLC, TriNetX, Inc. and Cullinan Oncology, LLC. Dr. Jovan received her Ph.D. in biophysical chemistry from the University of Cambridge and was a post-doctoral fellow at Harvard University. We believe Dr. Jovan is qualified to serve as a member of our board of directors because of her scientific background and experience in the venture capital industry.

Neil Gibson, Ph.D. Dr. Gibson has served on our board of directors since February 2018. Since 2017, he has served as Senior Vice President to COI Pharmaceuticals, Inc. and Avalon Ventures. From 2015 to 2016, Dr. Gibson served as Senior Vice President and Chief Development Officer to BioAlta LLC. From 2011 to 2015, he served as Chief Scientific Officer of Regulus Therapeutics Inc., and from 2013 to 2016 he served as Chair of Scripps Advance LLC. Previously, Dr. Gibson held management roles at Pfizer Inc. and OSI Pharmaceuticals, Inc. Dr. Gibson received his Ph.D. from the University of Aston and his B.Sc. from the University of Strathclyde. We believe Dr. Gibson is qualified to serve on our board of directors because of his extensive experience in the life sciences industry.

Board Composition

Our board of directors currently consists of seven members, each of whom is a member pursuant to the board composition provisions of our current certificate of incorporation and agreements with our stockholders, which agreements are described in the section of this prospectus titled "Certain Relationships and Related Party Transactions." These board composition provisions will terminate upon the closing of this offering. Upon the termination of these provisions, there will be no further contractual obligations regarding the election of our directors. Our nominating and corporate governance committee and our board of directors may therefore consider a broad range of factors relating to the qualifications and background of nominees. Our nominating and corporate governance committee's and our board of directors' priority in selecting board members is identification of persons who will further the interests of our stockholders through their established record of professional accomplishment, the ability to contribute positively to the collaborative culture among board members, knowledge of our business, understanding of the competitive landscape, professional and personal experiences and expertise relevant to our growth strategy. Our directors hold office until their successors have been elected and qualified or until their earlier resignation or removal. Our amended and restated certificate of incorporation and amended and restated bylaws that will become effective upon the closing of this offering also provide that our directors may be removed only for cause by the affirmative vote of the holders of at least two-thirds of the votes that all our stockholders would be entitled to cast in an annual election of directors, and that any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by vote of a majority of our directors then in office.

Staggered Board

In accordance with the terms of our amended and restated certificate of incorporation and our amended and restated bylaws that will become effective upon the closing of this offering, our board of directors will be divided into three staggered classes of directors and each director will be assigned to one of the three classes. At each annual meeting of the stockholders, one class of directors will be elected for a three-year term to succeed the directors of the same class whose terms are then expiring. The terms of the directors will expire upon the election and qualification of successor directors at the annual meeting of stockholders to be held during the years 2019 for Class I directors, 2020 for Class II directors and 2021 for Class III directors.

- Our Class I directors will be Morana Jovan-Embiricos and Mitchell Finer;
- Our Class II directors will be Andrew Allen and Patrick Baeuerle; and
- Our Class III directors will be Garry Menzel, Ansbert Gadické and Neil Gibson.

Our amended and restated certificate of incorporation and amended and restated bylaws that will become effective upon the closing of this offering will provide that the number of our directors shall be fixed from time to time by a resolution of the majority of our board of directors.

The division of our board of directors into three classes with staggered three-year terms may delay or prevent stockholder efforts to effect a change of our management or a change in control.

Director Independence

We have applied to list our common stock on The Nasdaq Global Market. Under the Nasdaq listing rules, independent directors must comprise a majority of a listed company's board of directors within twelve months from the date of listing. In addition, the Nasdaq listing rules require that, subject to specified exceptions, each member of a listed company's audit, compensation and nominating and governance committees be independent within twelve months from the date of listing. Audit committee members must also satisfy additional independence criteria, including those set forth in Rule 10A-3 under the Securities Exchange Act of 1934, as amended (the Exchange Act), and compensation committee members must also satisfy the independence criteria set forth in Rule 10C-1 under the Exchange Act. Under Nasdaq listing rules, a director will only qualify as an "independent director" if, in the opinion of that company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. In order to be considered independent for purposes of Rule 10A-3 under the Exchange Act, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors or any other board committee: (1) accept, directly or indirectly, any consulting, advisory or other compensatory fee from the listed company or any of its subsidiaries, other than compensation for board service; or (2) be an affiliated person of the listed company or any of its subsidiaries. In order to be considered independent for purposes of Rule 10C-1, the board of directors must consider, for each member of a compensation committee of a listed company, all factors specifically relevant to determining whether a director has a relationship to such company which is material to that director's ability to be independent from management in connection with the duties of a compensation committee member, including, but not limited to: the source of compensation of the director, including any consulting advisory or other compensatory fee paid by such company to the director, and whether the director is affiliated with the company or any of its subsidiaries or affiliates.

In October, 2018, our board of directors undertook a review of the composition of our board of directors and its committees and the independence of each director. Based upon information requested from and provided by each director concerning his background, employment and affiliations, including family relationships, our board of directors has determined that all members of our board of directors, except Garry Menzel and Patrick Baeuerle, are independent directors, including for purposes of Nasdaq and SEC rules. In making that determination, our board of directors considered the relationships that each director has with us and all other facts and circumstances the board of directors deemed relevant in determining independence, including the potential deemed beneficial ownership of our capital stock by each director, including non-employee directors that are affiliated with certain of our major stockholders. Upon the completion of this offering, we expect that the composition and functioning of our board of directors and each of our committees will comply with all applicable requirements of Nasdaq and the rules and regulations of the SEC. There are no family relationships among any of our directors or executive officers.

We intend to adopt a policy, subject to and effective upon the effectiveness of the registration statement of which this prospectus forms a part, that outlines a process for our securityholders to send communications to the board of directors.

Board Committees

Our board of directors has established an audit committee, a compensation committee and a nominating and corporate governance committee, each of which will operate pursuant to a charter to be adopted by our board of directors and will be effective upon the effectiveness of the registration statement of which this prospectus forms a part. Our board of directors has also established a finance and strategy committee. We believe that the composition and functioning of all of our committees will comply with the applicable requirements of Nasdaq, the Sarbanes-Oxley Act of 2002 and SEC rules and regulations that will be applicable to us. We intend to comply with future requirements to the extent they become applicable to us.

Following the consummation of this offering, the full text of our audit committee charter, compensation committee charter, and nominating and corporate governance charter will be posted on the investor relations portion of our

website at <https://www.tcr2.com/>. We do not incorporate the information contained on, or accessible through, our corporate website into this prospectus, and you should not consider it a part of this prospectus.

Audit Committee

Upon the effectiveness of the registration statement of which this prospectus forms a part, our audit committee will consist of Morana Jovan-Embiricos, Mitchell Finer and Neil Gibson and will be chaired by Morana Jovan-Embiricos. The functions of the audit committee will include:

- appointing, approving the compensation of and assessing the independence of our independent registered public accounting firm;
- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the overall audit plan with our independent registered public accounting firm and members of management responsible for preparing our financial statements;
- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by us;
- coordinating the oversight and reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;
- recommending based upon the audit committee's review and discussions with management and our independent registered public accounting firm whether our audited financial statements shall be included in our Annual Report on Form 10-K;
- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;
- preparing the audit committee report required by SEC rules to be included in our annual proxy statement;
- reviewing all related party transactions for potential conflict of interest situations and approving all such transactions; and
- reviewing quarterly earnings releases.

All members of our audit committee will meet the requirements for financial literacy under the applicable rules and regulations of the SEC and the Nasdaq listing rules. Our board of directors has determined that Neil Gibson is "independent" for audit committee purposes as that term is defined in the rules of the SEC and the current listing standards of Nasdaq. The transition rules of the SEC require (1) one independent member at the time of listing, (2) a majority of independent members within 90 days of listing and (3) all independent members within one year of listing. Our board of directors intends to cause our audit committee to comply with the transition rules within the applicable time periods. There is not an "audit committee financial expert" (within the meaning of applicable SEC regulations) currently serving on our audit committee. Our board of directors does not believe that any of our current directors have the qualifications or experience to be considered an audit committee financial expert. However, the members of our board of directors individually and collectively have vast educational and business financial experience and training. Additionally, both our independent registered public accounting firm and management will periodically meet privately with our audit committee. At this time, no qualified candidates to serve on our audit committee as an "audit committee financial expert" have been identified, and there can be no assurance that we can attract and retain an independent director to act as our qualified financial expert.

Compensation Committee

Upon the effectiveness of the registration statement of which this prospectus forms a part, our compensation committee will consist of Ansbert Gadické, Andrew Allen and Neil Gibson, and will be chaired by Neil Gibson. The functions of the compensation committee will include:

- annually reviewing and recommending to the board of directors the corporate goals and objectives relevant to the compensation of our Chief Executive Officer;
- evaluating the performance of our Chief Executive Officer in light of such corporate goals and objectives and based on such evaluation (i) reviewing and determining the cash compensation of our Chief Executive Officer and (ii) reviewing and approving grants and awards to our Chief Executive Officer under our equity-based plans;

- reviewing and approving the compensation of our other executive officers;
- reviewing and establishing our overall management compensation, philosophy and policy;
- overseeing and administering our compensation and similar plans;
- evaluating and assessing potential and current compensation advisors in accordance with the independence standards identified in the applicable Nasdaq listing rules;
- reviewing and approving our policies and procedures for the grant of equity-based awards;
- reviewing and recommending to the board of directors the compensation of our directors;
- preparing our compensation committee report if and when required by SEC rules;
- reviewing and discussing annually with management our “Compensation Discussion and Analysis,” if and when required, to be included in our annual proxy statement; and
- reviewing and approving the retention or termination of any consulting firm or outside advisor to assist in the evaluation of compensation matters.

Each member of our compensation committee will be a non-employee director, as defined in Rule 16b-3 promulgated under the Exchange Act, and an outside director, as defined pursuant to Section 162(m) of the Internal Revenue Code of 1986, as amended (the Code).

Nominating and Corporate Governance Committee

Upon the effectiveness of the registration statement of which this prospectus forms a part, our nominating and corporate governance committee will consist of Ansbert Gadicke, Mitchell Finer and Neil Gibson and will be chaired by Ansbert Gadicke. The functions of the nominating and corporate governance committee will include:

- developing and recommending to the board of directors criteria for board and committee membership;
- establishing procedures for identifying and evaluating board of director candidates, including nominees recommended by stockholders;
- reviewing the composition of the board of directors to ensure that it is composed of members containing the appropriate skills and expertise to advise us;
- identifying individuals qualified to become members of the board of directors;
- recommending to the board of directors the persons to be nominated for election as directors and to each of the board's committees;
- developing and recommending to the board of directors a code of business conduct and ethics and a set of corporate governance guidelines; and
- overseeing the evaluation of our board of directors and management.

Finance and Strategy Committee

Our finance and strategy committee will consist of Ansbert Gadicke and Morana Jovan-Embiricos and will be chaired by Ansbert Gadicke. The purpose of the finance and strategy committee is to consider and make recommendations to our board of directors regarding issues impacting our financial structure and strategic direction, including, but not limited to, our capital structure, business development activities and financing strategy, as well as the overall scope and focus of our business and operations.

Our board of directors may from time to time establish other committees.

Compensation Committee Interlocks and Insider Participation

None of the members of our compensation committee is, or has at any time during the prior three years been, one of our officers or employees. None of our executive officers currently serve, or have in the past fiscal year served, as a member of the board of directors or compensation committee of any entity that has one or more of its executive officers serving as a member of our board of directors or our compensation committee.

Code of Business Conduct and Ethics

Our board of directors intends to adopt, subject to and effective upon the effectiveness of the registration statement of which this prospectus forms a part, a Code of Business Conduct and Ethics in connection with this offering. The Code of Business Conduct and Ethics will apply to all of our employees, officers (including our principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions), agents and representatives, including directors and consultants.

We intend to disclose future amendments to certain provisions of our Code of Business Conduct and Ethics and our Code of Ethics on our website identified below. Upon the completion of this offering, the full text of our Code of Business Conduct and Ethics and our Code of Ethics will be posted on our website at <http://www.tcr2.com>. The inclusion of our website address in this prospectus does not include or incorporate by reference the information on our website into this prospectus, and you should not consider that information a part of this prospectus.

Limitations on Liability and Indemnification Agreements

As permitted by Delaware law, provisions in our amended and restated certificate of incorporation and amended and restated bylaws, both of which will become effective upon the closing of this offering, limit or eliminate the personal liability of directors for a breach of their fiduciary duty of care as a director. The duty of care generally requires that, when acting on behalf of the corporation, a director exercise an informed business judgment based on all material information reasonably available to him or her. Consequently, a director will not be personally liable to us or our stockholders for monetary damages or breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any act related to unlawful stock repurchases, redemptions or other distributions or payments of dividends; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not limit or eliminate our rights or any stockholder's rights to seek non-monetary relief, such as injunctive relief or rescission. These provisions will not alter a director's liability under other laws, such as the federal securities laws or other state or federal laws. Our amended and restated certificate of incorporation that will become effective upon the closing of this offering also authorizes us to indemnify our officers, directors and other agents to the fullest extent permitted under Delaware law.

As permitted by Delaware law, our amended and restated bylaws to be effective upon the closing of this offering will provide that:

- we will indemnify our directors, officers, employees and other agents to the fullest extent permitted by law;
- we must advance expenses to our directors and officers, and may advance expenses to our employees and other agents, in connection with a legal proceeding to the fullest extent permitted by law; and
- the rights provided in our amended and restated bylaws are not exclusive.

If Delaware law is amended to authorize corporate action further eliminating or limiting the personal liability of a director or officer, then the liability of our directors or officers will be so eliminated or limited to the fullest extent permitted by Delaware law, as so amended. Our amended and restated bylaws will also permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in connection with their services to us, regardless of whether our bylaws permit such indemnification. We have obtained such insurance.

In addition to the indemnification that will be provided for in our amended and restated certificate of incorporation and amended and restated bylaws, we plan to enter into separate indemnification agreements with each of our directors and executive officers, which may be broader than the specific indemnification provisions contained in the Delaware General Corporation Law. These indemnification agreements may require us, among other things, to indemnify our directors and executive officers for some expenses, including attorneys' fees, expenses, judgments, fines and settlement amounts incurred by a director or executive officer in any action or proceeding arising out of his service as one of our directors or executive officers or any other company or enterprise to which the person provides services at our request. We believe that these provisions and agreements are necessary to attract and retain qualified individuals to serve as directors and executive officers.

This description of the indemnification provisions of our amended and restated certificate of incorporation, our amended and restated bylaws and our indemnification agreements is qualified in its entirety by reference to these documents, each of which is attached as an exhibit to the registration statement of which this prospectus forms a part.

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Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended (the Securities Act), may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable.

There is no pending litigation or proceeding naming any of our directors or officers as to which indemnification is being sought, nor are we aware of any pending or threatened litigation that may result in claims for indemnification by any director or officer.

EXECUTIVE COMPENSATION

Executive Compensation Overview

As an emerging growth company, we have opted to comply with the executive compensation disclosure rules applicable to “smaller reporting companies,” as such term is defined in the rules promulgated under the Securities Act. This section provides an overview of the compensation awarded to and earned by each individual who served as our principal executive officer at any time during our fiscal year ended December 31, 2017 and to our next two most highly compensated executive officers in respect of their service to our company for our fiscal year ended December 31, 2017. We refer to these individuals as our named executive officers. Our named executive officers are:

- Garry Menzel, our President and Chief Executive Officer;
- Robert Hofmeister, our Chief Scientific Officer; and
- Alfonso Quintás Cardama, our Chief Medical Officer.

Our executive compensation program is based on a pay-for-performance philosophy. Compensation for our executive officers is composed primarily of the following main components: base salary, bonus and equity incentives in the form of stock options. Our executive officers, like all full-time employees, are eligible to participate in our health and welfare benefit plans. As we transition from a private company to a publicly traded company, we intend to evaluate our compensation values and philosophy and compensation plans and arrangements as circumstances require.

2017 Summary Compensation Table

The following table sets forth information regarding compensation awarded to and earned by our named executive officers for services rendered to us in all capacities during our fiscal year ended December 31, 2017.

NAME AND PRINCIPAL POSITION	YEAR	SALARY (\$)	BONUS (\$)	OPTION AWARDS (\$) ⁽¹⁾	NON-EQUITY PLAN COMPENSATION \$ ⁽²⁾	ALL OTHER COMPENSATION (\$)	TOTAL (\$)
Garry Menzel, <i>President and Chief Executive Officer</i>	2017	423,150	—	190,129	179,204	—	792,483
Robert Hofmeister, <i>Chief Scientific Officer</i>	2017	297,000	—	55,920	89,843	—	442,763
Alfonso Quintás Cardama, <i>Chief Medical Officer</i>	2017	82,500 ⁽³⁾	60,000 ⁽⁴⁾	89,625	25,047 ⁽³⁾	—	257,172

(1) The amounts reported in the “Option Awards” column reflects the aggregate grant date fair value of share-based compensation awarded during the indicated year computed in accordance with the provisions of Financial Accounting Standards Board Accounting Standards Codification (ASC) Topic 718. See Note 9 to our audited financial statements appearing elsewhere in this prospectus regarding assumptions underlying the valuation of equity awards.

(2) Except where noted, the amounts reported reflect annual bonuses earned based upon achievement of company and individual performance metrics.

(3) Dr. Quintás Cardama commenced his employment with us in October 2017. His annual salary and annual bonus were prorated to reflect his partial year of service.

(4) Dr. Quintás Cardama received a \$120,000 sign-on bonus with 50% paid upon commencement of employment in October 2017 and the other 50% paid upon the six-month anniversary of his continued employment in April 2018.

Narrative to the 2017 Summary Compensation Table

Base Salary

We use base salaries to recognize the experience, skills, knowledge and responsibilities required of all our employees, including our named executive officers. Base salaries are reviewed annually, typically in connection with

our annual performance review process, and adjusted from time to time to realign salaries with market levels after taking into account individual responsibilities, performance and experience.

Annual Bonus

We do not have a formal performance-based bonus plan. Our employment arrangements with our named executive officers provide that the executive may be eligible to earn an annual performance bonus of up to a target percentage of the executive's base salary, as described further below under the section entitled "—Employment Arrangements and Severance Agreements with our Named Executive Officers". From time to time, our board of directors or compensation committee may approve additional annual bonuses for our named executive officers based on individual performance, company performance or as otherwise determined to be appropriate. In connection with this offering, we intend to adopt a senior executive cash bonus plan.

Equity Compensation

Although we do not have a formal policy with respect to the grant of equity incentive awards to our executive officers, or any formal equity ownership guidelines applicable to them, we believe that equity grants provide our executive officers with a strong link to our long-term performance, create an ownership culture and help to align the interests of our executive officers and our stockholders. In addition, we believe that equity grants with a time-based vesting feature promote executive retention because this feature incentivizes our executive officers to remain in our employment during the vesting period. Accordingly, our board of directors periodically reviews the equity incentive compensation of our executives, including our named executive officers, and from time to time may grant equity incentive awards to them in the form of stock options.

We typically grant stock option awards at the start of employment to each executive officer and our other employees as well as on an annual basis for retention purposes. We award our stock options on the date our board of directors approves the grant. We set the option exercise price equal to the fair market value of our common stock on the date of grant.

Employment Arrangements and Severance Agreements with our Named Executive Officers

We have entered into offer letters with each of our named executive officers. These offer letters set forth the initial terms and conditions of each executive's employment with us, including base salary, target annual bonus opportunity and standard employee benefit plan participation.

Garry Menzel

We entered into an offer letter with Dr. Garry Menzel, our President and Chief Executive Officer, on July 22, 2016, pursuant to which Dr. Menzel is entitled to receive an annual base salary of \$420,000, an annual target bonus of 35% of his annual base salary based upon our board of directors' assessment of Dr. Menzel's performance and our attainment of targeted goals approved by the board of directors. Dr. Menzel also received, pursuant to the offer letter, an equity grant equal to 4.25% of our fully-diluted capitalization as of the date Dr. Menzel commenced employment with us. The offer letter also required that Dr. Menzel sign an Employee Confidentiality and Assignment Agreement, pursuant to which Dr. Menzel agreed to refrain from disclosing our confidential information and agrees not to compete with us during the term of his employment and for two years following termination of his employment for any reason. Dr. Menzel is also eligible to participate in the employee benefit plans available to our employees, subject to the terms of those plans. Dr. Menzel's offer letter provides that, in the event that his employment is terminated by us without "cause" or by him for "good reason" (as each term is defined in the offer letter), subject to the execution and effectiveness of a release of claims, he will be entitled to receive (in addition to accrued compensation and benefits through the date of termination) (i) salary continuation based on his then-current base salary for 12 months following termination and (ii) continuation of COBRA premium payments for 12 months following termination.

In December 2018, we entered into an employment agreement with Dr. Menzel, effective upon the effectiveness of the registration statement of which this prospectus forms a part, pursuant to which Dr. Menzel is entitled to receive an annual base salary of \$500,000 and an annual target bonus equal to 50% of his annual base salary based upon our board of directors' or the compensation committee of the board of directors' assessment of Dr. Menzel's performance and our performance. This employment agreement also includes a reaffirmation of Dr. Menzel's Employee Confidentiality and Assignment Agreement, which contains continuing obligations to us, including provisions on proprietary information, assignment of inventions, non-competition and non-solicitation of customers

and employees. Dr. Menzel's employment agreement provides that, in the event that his employment is terminated by us without "cause" or by him for "good reason," then subject to the execution and effectiveness of a separation agreement and release, he will be entitled to receive (i) an amount equal to (x) 12 months of base salary payable on our normal payroll cycle if such termination is not in connection with a "change in control" or (y) 18 months of base salary if such termination is in connection with a "change in control," payable on our normal payroll cycle, provided that in either case, if Dr. Menzel commences new employment, all payments shall cease; and (ii) payment of the monthly employer COBRA premium for the same level of group health coverage as in effect for Dr. Menzel on the date of termination up to (x) 12 months if such termination is not in connection with a "change in control," and (y) 18 months if such termination is in connection with a "change in control." In addition, if within 12 months following a "change in control," Dr. Menzel's employment is terminated by us without "cause" or he resigns for "good reason," then subject to the execution of the separation agreement and release, all time-based stock options and other time-based stock-based awards held by Dr. Menzel will accelerate and vest immediately.

Robert Hofmeister

We entered into an offer letter with Dr. Robert Hofmeister, our Chief Scientific Officer, on September 16, 2015, pursuant to which Dr. Hofmeister is entitled to receive an annual base salary of \$270,000, an annual target bonus of 20% of his annual base salary based upon our board of directors' assessment of Dr. Hofmeister's performance and our attainment of targeted goals approved by the board of directors. Dr. Hofmeister also received, pursuant to the offer letter, an equity grant equal to 1.25% of our fully diluted capitalization at the conclusion of the first tranche of our Series A preferred stock financing. The offer letter also required that Dr. Hofmeister sign an Employee Confidentiality and Assignment Agreement, pursuant to which Dr. Hofmeister agreed to refrain from disclosing our confidential information and agrees not to compete with us during the term of his employment and for two years following termination of his employment for any reason. Dr. Hofmeister is also eligible to participate in the employee benefit plans available to our employees, subject to the terms of those plans. Dr. Hofmeister's offer letter provides that, in the event that his employment is terminated by us without "cause" or by him for "good reason" (as each term is defined in the offer letter), subject to the execution and effectiveness of a release of claims, he will be entitled to receive (in addition to accrued compensation and benefits through the date of termination) (i) salary continuation based on his then-current base salary for nine months following termination and (ii) continuation of COBRA premium payments for six months following termination.

In December 2018, we entered into an employment agreement with Dr. Hofmeister, effective upon the effectiveness of the registration statement of which this prospectus forms a part, pursuant to which Dr. Hofmeister is entitled to receive an annual base salary of \$380,000 and an annual target bonus equal to 35% of his annual base salary based upon our board of directors' or the compensation committee of the board of directors' assessment of Dr. Hofmeister's performance and our performance. This employment agreement also includes a reaffirmation of Dr. Hofmeister's Employee Confidentiality and Assignment Agreement, which contains continuing obligations to us, including provisions on proprietary information, assignment of inventions, non-competition and non-solicitation of customers and employees. Dr. Hofmeister's employment agreement provides that, in the event that his employment is terminated by us without "cause" or by him for "good reason," then subject to the execution and effectiveness of a separation agreement and release, he will be entitled to receive (i) an amount equal to (x) nine months of base salary payable on our normal payroll cycle if such termination is not in connection with a "change in control" or (y) 12 months of base salary if such termination is in connection with a "change in control," payable on our normal payroll cycle, provided that in either case, if Dr. Hofmeister commences new employment, all payments shall cease; and (ii) payment of the monthly employer COBRA premium for the same level of group health coverage as in effect for Dr. Hofmeister on the date of termination for up to (x) nine months if such termination is not in connection with a "change in control," and (y) 12 months if such termination is in connection with a "change in control." In addition, if within 12 months following a "change in control," Dr. Hofmeister's employment is terminated by us without "cause" or he resigns for "good reason," then subject to the execution of the separation agreement and release, all time-based stock options and other time-based stock-based awards held by Dr. Hofmeister will accelerate and vest immediately.

Alfonso Quintás Cardama

We entered into an offer letter with Dr. Alfonso Quintás Cardama, our Chief Medical Officer, on July 20, 2017, pursuant to which Dr. Quintás Cardama is entitled to receive an annual base salary of \$360,000, a one-time bonus

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of \$120,000, with 50% awarded upon commencement of employment and the other 50% awarded upon the six-month anniversary of his continued employment, an annual target bonus of 25% of his annual base salary based upon the our board of directors' assessment of Dr. Quintás Cardama's performance and our attainment of targeted goals approved by the board of directors. Dr. Quintás Cardama also received, pursuant to the offer letter, an equity grant equal to 1.25% of our fully-diluted capitalization on the date of grant. This offer letter also required that Dr. Quintás Cardama sign an Employee Confidentiality and Assignment Agreement, pursuant to which Dr. Quintás Cardama agreed to refrain from disclosing our confidential information and agrees not to compete with us during the term of his employment and for two years following termination of his employment for any reason. Dr. Quintás Cardama is also eligible to participate in the employee benefit plans available to our employees, subject to the terms of those plans.

In December 2018, we entered into an employment agreement with Dr. Quintás Cardama, effective upon the effectiveness of the registration statement of which this prospectus forms a part, pursuant to which Dr. Quintás Cardama is entitled to receive an annual base salary of \$430,000 and an annual target bonus equal to 35% of his annual base salary based upon our board of directors' or the compensation committee of the board of directors' assessment of Dr. Quintás Cardama's performance and our performance. This employment agreement also includes a reaffirmation of Dr. Quintás Cardama's Employee Confidentiality and Assignment Agreement, which contains continuing obligations to us including provisions on proprietary information, assignment of inventions, non-competition and non-solicitation of customers and employees. Dr. Quintás Cardama's employment agreement provides that, in the event that his employment is terminated by us without "cause" or by him for "good reason," then subject to the execution and effectiveness of a separation agreement and release, he will be entitled to receive (i) an amount equal to (x) nine months of base salary payable on our normal payroll cycle if such termination is not in connection with a "change in control" or (y) 12 months of base salary if such termination is in connection with a "change in control," payable on our normal payroll cycle, provided that in either case, if Dr. Quintás Cardama commences new employment, all payments shall cease; and (ii) payment of the monthly employer COBRA premium for the same level of group health coverage as in effect for Dr. Quintás Cardama on the date of termination for up to (x) nine months if such termination is not in connection with a "change in control," and (y) 12 months if such termination is in connection with a "change in control." In addition, if within 12 months following a "change in control," Dr. Quintás Cardama's employment is terminated by us without "cause" or he resigns for "good reason," then subject to the execution of the separation agreement and release, all time-based stock options and other time-based stock-based awards held by Dr. Quintás Cardama will accelerate and vest immediately.

Outstanding Equity Awards at 2017 Fiscal Year-End

The following table sets forth information concerning outstanding equity awards held by our named executive officers as of December 31, 2017.

NAME	OPTION AWARDS					STOCK AWARDS	
	VESTING COMMENCE- MENT DATE	NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS (#) EXERCISABLE	NUMBER OF SECURITIES UNDERLYING UNEXERCISED OPTIONS (#) UNEXERCISABLE	OPTION EXERCISE PRICE (\$)	OPTION EXPIRATION DATE	NUMBER OF SHARES OR UNITS OF STOCK THAT HAVE NOT VESTED (#)	MARKET VALUE OF SHARES OR UNITS OF STOCK THAT HAVE NOT VESTED (\$) ⁽⁵⁾
Garry Menzel	10/17/16	458,101 ⁽¹⁾	1,112,531 ⁽¹⁾	\$ 0.12	12/12/2026	—	—
	12/6/17	—	891,768 ⁽²⁾	\$ 0.12	12/6/2027	—	—
Robert Hofmeister	12/13/16	78,112 ⁽¹⁾	234,336 ⁽¹⁾	\$ 0.12	12/12/2026	74,752 ⁽⁴⁾	—
	12/6/17	—	262,285 ⁽²⁾	\$ 0.12	12/6/2027	—	—
Alfonso Quintás Cardama	10/10/17	—	461,950 ⁽³⁾	\$ 0.12	9/11/2027	—	—
	12/6/17	—	262,285 ⁽²⁾	\$ 0.12	12/6/2027	—	—

Unless otherwise specified, all option awards vest over four years, with 25% vesting on the first anniversary of the vesting commencement date, and the remainder vesting in 36 equal monthly installments thereafter, subject to continued employment with us.

⁽¹⁾ Represents stock option granted on December 13, 2016.

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- (2) Represents stock option granted on December 7, 2017.
- (3) Represents stock option granted on October 10, 2017.
- (4) Represents shares of restricted stock granted on October 1, 2015, with 25% vesting on the first anniversary of the grant date, and the remainder vesting in 12 equal quarterly installments through October 1, 2019.
- (5) Calculated using an assumed initial public offering price of \$, the midpoint of the price range set forth on the cover of this prospectus.

Compensation Risk Assessment

We believe that although a portion of the compensation provided to our executive officers and other employees is performance-based, our executive compensation program does not encourage excessive or unnecessary risk taking.

This is primarily due to the fact that our compensation programs are designed to encourage our executive officers and other employees to remain focused on both short-term and long-term strategic goals. As a result, we do not believe that our compensation programs are reasonably likely to have a material adverse effect on us.

Employee Benefit and Equity Compensation Plans

2015 Stock Option and Grant Plan

Our 2015 Stock Option and Grant Plan (the 2015 Plan) was approved and adopted by our board of directors and stockholders on October 16, 2015. The 2015 Plan was most recently amended in July 2018 with the approval of our board of directors. Under the 2015 Plan, we have reserved for issuance an aggregate of 15,823,454 shares of our common stock for the issuance of stock options and other equity awards under the 2015 Plan. This number of shares of common stock reserved for issuance is subject to adjustment in the event of any merger, consolidation, sale of all or substantially all of our assets, reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar transaction.

The shares of common stock underlying awards that are forfeited, canceled, reacquired prior to vesting, satisfied without the issuance of stock or otherwise terminated (other than by exercise), as well as shares that are withheld upon exercise of a stock option or settlement of an award to cover the exercise price or tax withholding will be added back to the shares of common stock available for issuance under the 2015 Plan.

Following the effectiveness of the registration statement of which this prospectus forms a part, such shares will be added to the shares of common stock available for issuance under the 2018 Stock Option and Incentive Plan (the 2018 Plan), which our board of directors intends to adopt, and we expect our stockholders will approve, prior to the effectiveness of the registration statement of which this prospectus forms a part.

Our board of directors has acted as administrator of the 2015 Plan. The board has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, and to determine the specific terms and conditions of each award, subject to the provisions of the 2015 Plan. Persons eligible to participate in the 2015 Plan are those full or part-time employees, officers and directors of, and consultants and advisors to, our company as selected from time to time by the board in its discretion. The 2015 Plan permitted us to make grants of incentive stock options to our employees and any of our subsidiary corporations' employees, and grants of non-qualified stock options, restricted stock awards, unrestricted stock awards and restricted stock units to the officers, employees, directors and consultants of the company and our subsidiary corporations.

The 2015 Plan permitted the granting of (1) options to purchase common stock intended to qualify as incentive stock options under Section 422 of the Code and (2) options that do not so qualify. The option exercise price per share of our common stock underlying each stock option was determined by our board of directors, and must have been at least equal to 100% of the fair market value of a share of our common stock on the date of grant. In the case of an incentive stock option granted to a participant who, at the time of grant of such stock option, owned stock representing more than 10% of the voting power of all classes of our capital stock, or a 10% owner, the exercise price per share of our common stock underlying each such stock option must have been at least equal to 110% of the fair market value of a share of our common stock on the date of grant. The term of each stock option may not have exceeded 10 years from the date of grant (or five years for a 10% owner). The board determines the methods of payment of the exercise price of a stock option, which may include cash, if permitted by the board, by a promissory note (subject to the terms and conditions of the 2015 Plan), if permitted by the board through a net exercise arrangement for non-qualified stock options, and, if permitted by the board of directors and an initial public offering

of the company has occurred, through either the delivery of shares of our common stock owned by the participant or a broker-assisted arrangement. After a participant's termination of service (other than a termination for cause), the participant generally may exercise his or her stock options, to the extent vested as of such date of termination, for 90 days after termination or such longer period of time as specified in the applicable stock option agreement; provided, that if the termination is due to death or disability, the stock option generally will remain exercisable, to the extent vested as of such date of termination, until the one-year anniversary of such termination. However, in no event may a stock option be exercised later than the expiration of its term.

The 2015 Plan also permitted the granting of restricted shares of common stock to participants subject to such conditions and restrictions as the board determined. These conditions and restrictions, among others, included the continued employment of the participant with us through a specified vesting period.

The 2015 Plan generally does not allow for the transfer or assignment of options, other than by will or the laws of descent and distribution, or, at the discretion of the plan administrator in the case of non-qualified stock options, by gift to an immediate family member, or to a trust or partnership of which such family members are beneficiaries or the only partners, as applicable.

The 2015 Plan provides that, upon the consummation of a "sale event," as defined in the 2015 Plan, unless provision is made in connection with the sale event for the assumption or continuation of the awards by the successor entity or substitution of the awards with new awards of the successor entity, with appropriate adjustment, the 2015 Plan and all outstanding and unexercised options issued thereunder will terminate upon the effective time of the sale event. We may make or provide for cash payment to holders of options equal to the difference between (i) the value as determined by the board of the consideration payable per share of common stock in the sale event multiplied by the number of shares subject to outstanding options being cancelled to the extent vested and exercisable, including by reason of acceleration in connection with the sale event and (ii) the aggregate exercise price to the holders of all vested and exercisable options.

Our board of directors may amend, suspend or terminate the 2015 Plan at any time, subject to stockholder approval where such approval is required by applicable law. Our board of directors may also amend, modify, or terminate any outstanding award, provided that no amendment to an award may adversely affect a participant's rights without his or her consent.

As of September 30, 2018, options to purchase 12,175,409 shares of common stock were outstanding under the 2015 Plan. Our board of directors has determined not to make any further awards under the 2015 Plan following the closing of this offering, but all outstanding awards under the 2015 Plan will continue to be governed by their existing terms.

2019 Stock Option and Incentive Plan

Prior to the effectiveness of the registration statement of which this prospectus forms a part, our board of directors intends to adopt, and we expect our stockholders will approve, our 2019 Plan. Our 2019 Plan will become effective immediately prior to the effectiveness of the registration statement of which this prospectus is a part. The 2019 Plan will allow the board of directors to make equity-based incentive awards to our officers, employees, directors and other key persons (including consultants). The 2019 Plan will replace our 2015 Plan. Our 2019 Plan will provide flexibility to our board of directors to use various equity-based incentive awards as compensation tools to motivate our workforce.

We have initially reserved _____ shares of our common stock (the Initial Limit) for the issuance of awards under the 2019 Plan. The 2019 Plan will provide that the number of shares reserved and available for issuance under the plan will automatically increase each January 1, beginning on January 1, 2020, by _____ % of the outstanding number of shares of our common stock on the immediately preceding December 31 or such lesser number of shares as determined by our board of directors (the Annual Increase). This number is subject to adjustment in the event of a stock split, stock dividend or other change in our capitalization.

The shares we issue under the 2019 Plan will be authorized but unissued shares reserved for issuance under the 2019 Plan. In addition, the shares of common stock underlying any awards that are forfeited, cancelled, held back upon exercise or settlement of an award to satisfy the exercise price or tax withholding, reacquired by us prior to

vesting, satisfied without any issuance of stock, expire or are otherwise terminated (other than by exercise) under the 2019 Plan and the 2015 Plan will be added back to the shares of common stock available for issuance under the 2019 Plan. The value of all awards issued under the 2019 Plan and all other cash compensation paid by us to any non-employee director in any calendar year cannot exceed \$1,000,000.

The maximum aggregate number of shares that may be issued in the form of incentive stock options shall not exceed the Initial Limit cumulatively increased on January 1, 2020 and on each January 1 thereafter by the lesser of the Annual Increase for such year or number of shares of common stock.

Our board of directors has delegated authority to our compensation committee to administer the 2019 Plan. Our compensation committee has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, to make any combination of awards to participants, and to determine the specific terms and conditions of each award, subject to the provisions of the 2019 Plan. Persons eligible to participate in the 2019 Plan will be those full or part-time officers, employees, non-employee directors and other key persons (including consultants) as selected from time to time by our compensation committee in its discretion.

The 2019 Plan will permit the granting of both options to purchase common stock intended to qualify as incentive stock options under Section 422 of the Code and options that do not so qualify. The option exercise price of each option will be determined by our compensation committee but may not be less than 100% of the fair market value of our common stock on the date of grant. The term of each option will be fixed by our compensation committee and may not exceed 10 years from the date of grant. Our compensation committee will determine at what time or times each option may be exercised.

Our compensation committee may award stock appreciation rights subject to such conditions and restrictions as it may determine. Stock appreciation rights entitle the recipient to shares of common stock, or cash, equal to the value of the appreciation in our stock price over the exercise price. The exercise price of each stock appreciation right may not be less than 100% of the fair market value of the common stock on the date of grant.

Our compensation committee may award shares of restricted common stock and restricted stock units to participants subject to such conditions and restrictions as it may determine. These conditions and restrictions may include the achievement of certain performance goals and continued employment with us through a specified vesting period. Our compensation committee may also grant shares of common stock that are free from any restrictions under the 2019 Plan. Unrestricted stock may be granted to participants in recognition of past services or other valid consideration and may be issued in lieu of cash compensation due to such participant.

Our compensation committee may grant cash-denominated awards under the 2019 Plan to participants, subject to the achievement of specified performance goals.

The 2019 Plan will provide that in the case of, and subject to, the consummation of a "sale event" (as defined in the 2019 Plan), all outstanding awards may be assumed, substituted or otherwise continued by the successor entity. To the extent that the successor entity does not assume, substitute or otherwise continue such awards, then (i) all stock options and stock appreciation rights with time-based vesting conditions will automatically become fully exercisable and the restrictions and conditions on all other awards with time-based vesting conditions will automatically be deemed waived, and awards with conditions and restrictions relating to the attainment of performance goals may become vested and non-forfeitable in connection with a sale event in the compensation committee's discretion and (ii) upon the effectiveness of a sale event, the 2019 Plan and all awards will automatically terminate. In the event of such termination, (i) individuals holding options and stock appreciation rights will be permitted to exercise such options and stock appreciation rights (to the extent exercisable) prior to the sale event or (ii) we may make or provide for a cash payment to participants holding options and stock appreciation rights equal to the difference between the per share cash consideration payable to stockholders in the sale event and the exercise price of the options or stock appreciation rights (to the extent exercisable).

Our board of directors will have the power to amend or discontinue the 2019 Plan and our compensation committee will have the power to amend the exercise price of options and amend or cancel outstanding awards for purposes of satisfying changes in law or any other lawful purpose, but no such action shall materially and adversely affect rights under an award without the holder's consent. Certain amendments to the 2019 Plan will require the approval of our stockholders.

No awards may be granted under the 2019 Plan after the date that is ten years from the date of stockholder approval. No awards under the 2019 Plan have been made prior to the date of this prospectus.

2019 Employee Stock Purchase Plan

Prior to the effectiveness of the registration statement of which this prospectus forms a part, our board of directors intends to adopt, and we expect our stockholders will approve, our 2019 Employee Stock Purchase Plan (the ESPP). The ESPP is intended to qualify as an “employee stock purchase plan” within the meaning of Section 423(b) of the Code. The ESPP will initially reserve and authorize the issuance of up to a total of _____ shares of common stock to participating employees. The ESPP will provide that the number of shares reserved and available for issuance will automatically increase each January 1, beginning on January 1, 2020 and each January 1 thereafter through January 1, 2029, by the least of (i) _____ % of the outstanding number of shares of our common stock on the immediately preceding December 31, (ii) _____ shares or (iii) such number of shares as determined by the ESPP administrator. The number of shares reserved under the ESPP will be subject to adjustment in the event of a stock split, stock dividend or other change in our capitalization.

All employees whose customary employment is for more than 20 hours per week and who have completed at least three months of employment will be eligible to participate in the ESPP. However, any participating employee who would own 5% or more of the total combined voting power or value of all classes of our stock after an option were granted under the ESPP will not be eligible to purchase shares under the ESPP.

We will make one or more offerings each year to our employees to purchase shares under the ESPP. The first offering, or the Initial Offering, will begin on the effective date of the registration statement of which this prospectus is part and, unless otherwise determined by the administrator of the ESPP, will end on _____, 2019. Each eligible employee as of the effective date of the registration statement for the offering will be deemed to be a participant in the ESPP at that time and must authorize payroll deductions by submitting an enrollment form by the deadline specified by the plan administrator. Thereafter, unless otherwise determined by the Administrator, offerings will usually begin on each _____ and _____ and will continue for six-month periods, referred to as offering periods. Each eligible employee may elect to participate in any subsequent offering by submitting an enrollment form at least 15 business days before the relevant offering date.

Each employee who is a participant in the ESPP will be able to purchase shares by authorizing payroll deductions of up to _____ % of his or her base compensation during an offering period. Unless the participating employee has previously withdrawn from the offering, his or her accumulated payroll deductions will be used to purchase shares on the last business day of the offering period at a price equal to _____ % of the fair market value of the shares on the first business day or the last business day of the offering period, whichever is lower. Under applicable tax rules, an employee may purchase no more than \$25,000 worth of shares of common stock, valued at the start of the purchase period, under the ESPP in any calendar year. The ESPP also includes limits on the number of shares participating employees may purchase in each offering period. It is a condition to the issuance of shares to an employee under the ESPP that the employee agrees that he or she may not sell, transfer or otherwise dispose of any of the shares acquired under the ESPP for three months, except in limited circumstances described in the ESPP.

The accumulated payroll deductions of any employee who is not a participant on the last day of an offering period will be refunded. An employee's rights under the ESPP will terminate upon voluntary withdrawal from the plan or when the employee ceases employment with us for any reason.

Senior Executive Cash Incentive Bonus Plan

Prior to the effectiveness of the registration statement of which this prospectus forms a part, our board of directors intends to adopt our Senior Executive Cash Incentive Bonus Plan (the Bonus Plan). The Bonus Plan will provide for cash bonus payments based upon the attainment of performance targets established by our compensation committee. The payment targets will be related to financial and operational measures or objectives with respect to our company corporate performance goals as well as individual performance objectives.

Our compensation committee may select corporate performance goals from among the following: cash flow (including, but not limited to, operating cash flow and free cash flow); research and development, publication, clinical and/or regulatory milestones; earnings before interest, taxes, depreciation and amortization; net income

(loss) (either before or after interest, taxes, depreciation and/or amortization); changes in the market price of our common stock; economic value-added; acquisitions or strategic transactions, including licenses, collaborations, joint ventures or promotion arrangements; operating income (loss); return on capital, assets, equity, or investment; total stockholder returns; coverage decisions; productivity; expense efficiency; margins; operating efficiency; working capital; earnings (loss) per share of our common stock; sales or market shares; number of prescriptions or prescribing physicians; revenue; corporate revenue; operating income and/or net annual recurring revenue, any of which may be (A) measured in absolute terms or compared to any incremental increase, (B) measured in terms of growth, (C) compared to another company or companies or to results of a peer group, (D) measured against the market as a whole and/or as compared to applicable market indices and/or (E) measured on a pre-tax or post-tax basis (if applicable).

Each executive officer who is selected to participate in the Bonus Plan will have a target bonus opportunity set for each performance period. The bonus formulas will be adopted in each performance period by the compensation committee and communicated to each executive. The corporate performance goals will be measured at the end of each performance period after our financial reports have been published or such other appropriate time as the compensation committee determines. If the corporate performance goals and individual performance objectives are met, payments will be made as soon as practicable following the end of each performance period. The Bonus Plan will also permits the compensation committee to approve additional bonuses to executive officers in its sole discretion. We may amend or terminate the Bonus Plan at any time in our sole discretion.

401(k) Plan

We maintain a tax-qualified retirement plan (the 401(k) Plan) that provides eligible U.S. employees with an opportunity to save for retirement on a tax advantaged basis. Eligible employees are able to defer eligible compensation subject to applicable annual Code limits. Employees' pre-tax or Roth contributions are allocated to each participant's individual account and are then invested in selected investment alternatives according to the participants' directions. Employees are immediately and fully vested in their contributions. Our 401(k) Plan is intended to be qualified under Section 401(a) of the Code with our 401(k) Plan's related trust intended to be tax exempt under Section 501(a) of the Code. As a tax-qualified retirement plan, contributions to our 401(k) Plan and earnings on those contributions are not taxable to the employees until distributed from our 401(k) Plan.

DIRECTOR COMPENSATION

The following table presents the total compensation for each person who served as a non-employee member of our board of directors and received compensation for such service during the fiscal year ended December 31, 2017. Other than as set forth in the table and described more fully below, we did not pay any compensation, make any equity awards to, or pay any other compensation to any of the non-employee members of our board of directors in 2017. Dr. Menzel, our President and Chief Executive Officer, did not receive any compensation for his service as a member of our board of directors during 2017. Dr. Menzel's compensation for service as an employee for fiscal year 2017 is presented in "Executive Compensation—2017 Summary Compensation Table." We reimburse non-employee members of our board of directors for reasonable travel and out-of-pocket expenses incurred in connection with attending board of directors and committee meetings.

Director Compensation Table—2017

NAME	FEES EARNED OR PAID IN CASH (\$)	WARRANT AWARDS (\$) ⁽¹⁾	STOCK AWARDS (\$)	OPTION AWARDS (\$)	ALL OTHER COMPENSATION (\$) ⁽³⁾	TOTAL (\$)
Ansbert Gadick (2)	—	—	—	—	—	—
Patrick Baeuerle	—	293,759	—	—	70,831	364,591
Mitchell Finer (2)	—	44,064	—	—	77,169	119,064
Morana Jovan-Embircos (2)	—	—	—	—	72,779	72,779
Neil Gibson (4)	—	—	—	—	—	—
Andrew Allen (4)	—	—	—	—	—	—

(1) The amounts reported in the "Warrant Awards" column reflects the aggregate grant date fair value of share-based compensation awarded during the indicated year computed in accordance with the provisions of Financial Accounting Standards Board Accounting Standards Codification (ASC) Topic 718. See Note 9 to our audited financial statements appearing elsewhere in this prospectus regarding assumptions underlying the valuation of equity awards.

(2) Investor-appointed directors did not receive fees or other compensation for their service on our board of directors.

(3) Each of Drs. Bauerle, Finer and Jovan provided services to us pursuant to the terms of the consulting agreements with Dr. Bauerle, Dr. Finer and Pattern Recognition Ventures, and Globeways Holdings Limited, respectively. The cash fees presented above are related to these services for the period ended December 31, 2017. For more information regarding these consulting arrangements, see "Certain Relationships and Related Person Transactions" on page 155.

(4) Dr. Gibson and Dr. Allen did not serve on our board of directors during the fiscal year ended December 31, 2017.

Non-Employee Director Compensation Policy

Our board of directors will adopt a non-employee director compensation policy, effective upon effectiveness of the registration statement of which this prospectus forms a part, that is designed to enable us to attract and retain, on a long-term basis, highly qualified non-employee directors. Under the policy, each director who is not an employee will be paid cash compensation from and after the completion of this offering, as set forth below:

	MEMBER ANNUAL FEE (\$)	CHAIRMAN ADDITIONAL ANNUAL FEE (\$)
Board of Directors	\$ 35,000	\$ 25,000
Audit Committee	\$ 7,500	\$ 7,500
Compensation Committee	\$ 5,000	\$ 5,000
Nominating and Corporate Governance Committee	\$ 4,000	\$ 3,500
Finance and Strategy Committee	—	—

In addition, each non-employee director elected or appointed to our board of directors following the closing of this offering will be granted options to purchase _____ shares of common stock on the date of such director's election

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or appointment to the board of directors, which will vest in three equal annual installments, subject to continued service through such vesting date(s). On the date of each annual meeting of stockholders of our company, each non-employee director will be granted options to purchase shares of common stock, which will vest in the following manner, subject to continued service as a director through such vesting date(s):

CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS

The following is a description of transactions or series of transactions since our inception on May 29, 2015, to which we were or will be a party, in which:

- the amount involved in the transaction exceeds, or will exceed, \$120,000; and
- in which any of our executive officers, directors or holder of five percent or more of any class of our capital stock, including their immediate family members or affiliated entities, had or will have a direct or indirect material interest.

Compensation arrangements for our named executive officers and our directors are described elsewhere in this prospectus under “Director Compensation” and “Executive Compensation.”

On October 1, 2015, we entered into a consulting agreement with Dr. Patrick Baeuerle. Pursuant to the consulting agreement, Dr. Baeuerle agreed to perform such consulting, advisory and related services to and for us as may be reasonably requested. In exchange, we agreed to pay Dr. Baeuerle a consulting fee of €15,417 per month. On November 1, 2016, we amended the consulting agreement to revise Dr. Baeuerle's consulting fee to be €3,838 per month. Dr. Baeuerle is also eligible for an annual bonus equal to 33% of the annual fees paid under the consulting agreement, subject to the discretion of our board of directors based on Dr. Baeuerle's performance and our performance. The term of the agreement is one year, and automatically extends for additional one-year periods unless terminated. During the fiscal years ended December 31, 2015, 2016 and 2017, we incurred fees and travel related expenses to Dr. Baeuerle in the amount of \$50,669, \$239,690 and \$70,831, respectively, under the consulting agreement. During the nine months ended September 30, 2018, we incurred consulting fees and travel-related expenses to Dr. Baeuerle in the amount of \$56,021. Dr. Baeuerle is a member of our board of directors and is a managing director at MPM Capital, the beneficial owner of more than 5% of our voting securities.

On March 2, 2016, we entered into a consulting agreement with Dr. Mitchell Finer (the Original Finer Agreement), which was amended and restated on May 9, 2017 to, among other things, add Pattern Recognition Ventures as a party. Pursuant to the amended and restated consulting agreement, Pattern Recognition Ventures agreed to perform scientific consulting, advisory and related services to and for us as may be reasonably requested, including making Dr. Finer available to serve as Chairman of our Scientific Advisory Board. We paid Dr. Finer an amount equal to \$37,878 for services performed and expenses incurred under the Original Finer Agreement during the six-month period from October 1, 2015 through March 31, 2016. Additionally, as compensation for services provided under the Original Finer Agreement, we granted Dr. Finer 227,509 shares of our common stock that are subject to vesting pursuant to a Founder Stock Restriction Agreement, dated as of June 1, 2015, by and between Dr. Finer and us, and granted Dr. Finer an option to purchase 49,661 shares of our common stock, which option was cancelled in connection with the execution of the amended and restated consulting agreement. Pursuant to the amended and restated consulting agreement, we agreed (i) to pay Pattern Recognition Ventures a consulting fee of \$18,750 per quarter for services provided under the agreement, commencing on July 1, 2017, (ii) to pay Pattern Recognition Ventures an amount equal to \$37,500 for services performed from January 1, 2017 through July 1, 2017, and (iii) to grant Pattern Recognition Ventures an option to purchase 49,661 shares of our common stock, which option is subject to vesting. During the fiscal years ended December 31, 2016 and 2017, we incurred fees and travel-related expenses to Pattern Recognition Ventures in the amount of \$75,378 and \$77,169, respectively. During the nine months ended September 30, 2018, we incurred consulting fees and travel-related expenses to Pattern Recognition Ventures in the amount of \$57,279. Dr. Finer has a financial interest in Pattern Recognition Ventures and is its managing member. Dr. Finer is also a member of our board of directors and is an executive partner at MPM Capital, the beneficial owner of more than 5% of our voting securities.

On October 1, 2017, we entered into a consulting agreement with Globeways Holdings Limited. Dr. Morana Jovan-Embiricos has financial interests in Globeways Holdings Limited and is its founding director. Pursuant to the consulting agreement, Globeways Holdings Limited provides consulting, advisory and related services in exchange for consulting fees of \$100,000 per year. During the fiscal year ended December 31, 2017, we incurred fees and travel-related expenses to Globeways Holdings Limited in the amount of \$72,779. During the nine months ended September 30, 2018, we incurred consulting fees and travel-related expenses to Globeways Holdings Limited in the

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amount of \$91,179. Dr. Jovan is also a member of our board of directors and Globeways Holdings Limited is the appointed manager of certain affiliates of F2 Capital that collectively beneficially own more than 5% of our voting securities.

On June 1, 2015, we entered into an investment letter agreement with MPM Asset Management LLC pursuant to which MPM Asset Management LLC agreed to continue to make available to us, prior to completing our Series A financing, at no charge, office space and certain incubation services. In consideration of the office space and incubation services, we agreed to issue MPM Asset Management LLC 1,213,383 shares of our common stock.

On May 26, 2016, in connection with our Series A preferred stock financing, we entered into a Royalty Transfer Agreement with MPM Charitable Foundation and UBS Optimus Foundation, under which we are obligated pay to each of MPM Charitable Foundation and UBS Optimus Foundation 0.5% of the global net sales of our products and income from any license arrangements. Additionally, on May 26, 2016, we entered into a Royalty Direction Letter with MPM Charitable Foundation, UBS Optimus Foundation and UBS Oncology Impact Fund L.P., pursuant to which we agreed that a portion of the consideration received from by Oncology Impact Fund L.P. in our Series A preferred stock financing was to be treated as consideration for the Royalty Transfer Agreement. Affiliates of MPM Capital and UBS Oncology Impact Fund L.P. that own shares of our preferred and common stock hold interests in MPM Charitable Foundation and UBS Optimus Foundation.

Private Placements of Securities

Option and Warrant Grants

On December 13, 2016, we granted MPM Asset Management LLC a warrant to purchase 264,859 shares of our common stock at an exercise price of \$0.12 per share for an aggregate exercise price of \$31,783.

On December 6, 2017, we granted MPM Asset Management LLC a warrant to purchase 839,311 shares of our common stock at an exercise price of \$0.12 per share for an aggregate exercise price of \$100,717.

On December 6, 2017, we granted APAK Solutions GmbH a warrant to purchase 1,049,140 shares of our common stock at an exercise price of \$0.12 per share for an aggregate exercise price of \$125,897. Dr. Baeuerle has a financial interest in APAK Solutions GmbH, and he serves as the managing director of APAK Solutions GmbH. Dr. Bauerle is a member of our board of directors and is a managing director at MPM Capital, the beneficial owner of more than 5% of our voting securities.

On December 6, 2017, we granted Pattern Recognition Ventures a warrant to purchase 157,371 shares of our common stock at an exercise price of \$0.12 per share for an aggregate exercise price of \$18,884.52. On May 9, 2017, we entered into a Non-Qualified Stock Option Agreement with Pattern Recognition Ventures pursuant to which Pattern Recognition Ventures has the option to purchase 49,661 shares of our common stock at an exercise price of \$0.12 per share for an aggregate exercise price of \$5,959. Dr. Finer has a financial interest in Pattern Recognition Ventures and is its managing member. Dr. Finer is also a member of our board of directors and is an executive partner at MPM Capital, the beneficial owner of more than 5% of our voting securities.

Series A Preferred Stock Financing

In October 2015, with subsequent closings in January 2016, October 2016, and December 2017, we sold an aggregate of 44,500,001 shares of our Series A preferred stock at a purchase price of \$1.00 per share for an aggregate amount of \$44.5 million. The following table summarizes purchases of our Series A preferred stock by related persons:

STOCKHOLDER	SHARES OF SERIES A PREFERRED STOCK	TOTAL PURCHASE PRICE
Entities affiliated with MPM Capital (1)	17,500,000	\$ 17,500,000
Entities affiliated with F2 Capital (2)	10,000,001	\$ 10,000,001
UBS Oncology Impact Fund L.P. (3)	15,000,000	\$ 15,000,000

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- (1) Represents 493,306 shares of Series A preferred stock purchased by MPM Asset Management Investors BV2014 LLC, 325,002 shares of Series A preferred stock purchased by MPM Asset Management Investors SunStates Fund LLC, 907,073 shares of Series A preferred stock purchased by MPM BioVentures 2014 (B), L.P., 13,599,621 shares of Series A preferred stock purchased by MPM BioVentures 2014, L.P., and 2,174,998 shares of Series A preferred stock purchased by MPM SunStates Fund, L.P. Each of Patrick Baeuerle, Ansbert Gadick and Mitchell Finer serves as an officer or director of the Company and is an affiliate of MPM Capital, of which MPM Asset Management Investors BV2014 LLC, MPM Asset Management Investors SunStates Fund LLC, MPM BioVentures 2014 (B), L.P., MPM BioVentures 2014, L.P., and MPM SunStates Fund, L.P. are affiliated funds. Entities affiliated with MPM Capital collectively hold more than 5% of our voting securities.
- (2) Represents 10,000,001 shares of Series A preferred stock purchased by F2 Capital I 2015 Limited. Dr. Morana Jovan-Embricos serves as a director of the company and is a Managing Partner of F2 Capital, of which F2 Capital I 2015 Limited is an affiliated fund. Entities affiliated with F2 Capital collectively hold more than 5% of our voting securities.
- (3) Represents 15,000,000 shares of Series A preferred stock purchased by UBS Oncology Impact Fund L.P. Each of Patrick Baeuerle, Ansbert Gadick and Mitchell Finer serves as an officer or director of the Company and is an affiliate of UBS Oncology Impact Fund L.P. UBS Oncology Impact Fund L.P. is a holder of more than 5% of our voting securities.

Series B Preferred Stock Financing

In February 2018, with subsequent closings in March 2018 and April 2018, we sold an aggregate of 62,500,000 shares of our Series B preferred stock at a purchase price of \$2.00 per share for an aggregate amount of \$125.0 million. The following table summarizes purchases of our Series B preferred stock by related persons:

STOCKHOLDER	SHARES OF SERIES B PREFERRED STOCK	TOTAL PURCHASE PRICE
Entities affiliated with MPM Capital (1)	2,000,000	\$ 4,000,000
Entities affiliated with F2 Capital (2)	7,990,500	\$ 15,981,000
UBS Oncology Impact Fund L.P. (3)	1,750,000	\$ 3,500,000
Entities affiliated with 6 Dimensions Capital (4)	10,000,000	\$ 20,000,000
Entities affiliated with Curative Ventures (5)	4,375,000	\$ 8,750,000

- (1) Represents 57,552 shares of Series B preferred stock purchased by MPM Asset Management Investors BV2014 LLC, 32,500 shares of Series B preferred stock purchased by MPM Asset Management Investors SunStates Fund LLC, 105,825 shares of Series B preferred stock purchased by MPM BioVentures 2014 (B), L.P., 1,586,623 shares of Series B preferred stock purchased by MPM BioVentures 2014, L.P., and 217,500 shares of Series B preferred stock purchased by MPM SunStates Fund, L.P. Each of Patrick Baeuerle, Ansbert Gadick and Mitchell Finer serves as an officer or director of the Company and is an affiliate of MPM Capital, of which MPM Asset Management Investors BV2014 LLC, MPM Asset Management Investors SunStates Fund LLC, MPM BioVentures 2014 (B), L.P., MPM BioVentures 2014, L.P., and MPM SunStates Fund, L.P. are affiliated funds. Entities affiliated with MPM Capital collectively hold more than 5% of our voting securities.
- (2) Represents 1,200,000 shares of Series B preferred stock purchased by F2 Bioscience II 2017 Limited, 2,540,500 shares of Series B preferred stock purchased by F2 Capital I 2017 Limited, 1,750,000 shares of Series B preferred stock purchased by F2 MG Limited, and 2,500,000 shares of Series B preferred stock purchased by F2-TPO Investments, LLC. Morana Jovan-Embricos serves as a director of the company and is the Managing Partner of F2 Capital, of which F2 Bioscience II 2017 Limited, F2 Capital I 2017 Limited, F2 MG Limited, and F2-TPO Investments, LLC are affiliated funds. Entities affiliated with F2 Capital collectively hold more than 5% of our voting securities.
- (3) Represents 1,750,000 shares of Series B preferred stock purchased by UBS Oncology Impact Fund L.P. Each of Patrick Baeuerle, Ansbert Gadick and Mitchell Finer serves as an officer or director of the Company and is an affiliate of UBS Oncology Impact Fund L.P. UBS Oncology Impact Fund L.P. is a holder of more than 5% of our voting securities.
- (4) Represents 500,000 shares of Series B preferred stock purchased by 6 Dimensions Affiliates Fund, L.P. and 9,500,000 shares of Series B preferred stock purchased by 6 Dimensions Capital, L.P. Wei Li was a director of the company from February 2018 to December 2018 and is a Managing Partner of 6 Dimensions Capital, of which 6 Dimensions Affiliates Fund, L.P. and 6 Dimensions Capital, L.P. are affiliated funds. Entities affiliated with 6 Dimensions Capital collectively hold more than 5% of our voting securities.
- (5) Represents 4,375,000 shares of Series B preferred stock purchased by Curative Ventures CT LLC. Neil Gibson is a director of the Company and is a partner of Curative Ventures CT LLC.

Agreements with Stockholders

In connection with our Series A preferred stock financing and our Series B preferred stock financing, we entered into investors' rights, voting and right of first refusal and co-sale agreements containing registration rights, information rights, voting rights and rights of first refusal, among other things, with certain holders of our preferred stock and certain holders of our common stock. These stockholder agreements will terminate upon the closing of this offering, except for the registration rights granted under our investors' rights agreement, as more fully described in "Description of Capital Stock—Registration Rights."

Harpoon Therapeutics, Inc. License Agreement

In June 2017, we entered into a license agreement with Harpoon Therapeutics, Inc. (Harpoon), under which Harpoon provides us with rights to use certain Harpoon intellectual property relating to antibody-based protein binders and related know-how developed by Harpoon. In return, we provide Harpoon with the right to use antibody-based protein binders developed by us. Each license granted under this Harpoon license agreement is non-exclusive. Affiliates of MPM Capital that own shares of our preferred and common stock are founding stockholders in Harpoon, and Dr. Patrick Baeuerle, one of our directors and co-founders, is a director and co-founder of Harpoon.

Indemnification Agreements

In connection with this offering, we intend to enter into new agreements to indemnify our directors and executive officers. These agreements will, among other things, require us to indemnify these individuals for certain expenses (including attorneys' fees), judgments, fines and settlement amounts reasonably incurred by such person in any action or proceeding, including any action by or in our right, on account of any services undertaken by such person on behalf of our company or that person's status as a member of our board of directors to the maximum extent allowed under Delaware law.

Policies for Approval of Related Party Transactions

Our board of directors reviews and approves transactions with directors, officers and holders of 5% or more of our voting securities and their affiliates, each a related party. Prior to this offering, the material facts as to the related party's relationship or interest in the transaction were disclosed to our board of directors prior to their consideration of such transaction, and the transaction was not considered approved by our board of directors unless a majority of the directors who are not interested in the transaction approved the transaction. Further, when stockholders are entitled to vote on a transaction with a related party, the material facts of the related party's relationship or interest in the transaction were disclosed to the stockholders, who must approve the transaction in good faith.

In connection with this offering, we expect to adopt a written related party transactions policy that will provide that such transactions must be approved by our audit committee. This policy will become effective on the date on which the registration statement of which this prospectus forms a part is declared effective by the SEC. Pursuant to this policy, the audit committee has the primary responsibility for reviewing and approving or disapproving "related party transactions," which are transactions between us and related persons in which the aggregate amount involved exceeds or may be expected to exceed \$120,000 and in which a related person has or will have a direct or indirect material interest. For purposes of this policy, a related person will be defined as a director, executive officer, nominee for director, or greater than 5% beneficial owner of our common stock, in each case since the beginning of the most recently completed year, and their immediate family members.

PRINCIPAL STOCKHOLDERS

The following table sets forth, as of September 30, 2018, information regarding the beneficial ownership of our common stock by:

- each person, or group of affiliated persons, who is known by us to be the beneficial owner of five percent or more of our outstanding common stock (on an as-converted to common stock basis);
- each of our directors;
- each of our named executive officers; and
- all of our current directors and executive officers as a group.

The information in the following table is calculated based on _____ shares of common stock deemed to be outstanding before this offering and _____ shares of common stock outstanding after this offering, assuming no exercise by the underwriters of their option to purchase additional shares of common stock. The number of shares outstanding is based on the number of shares of common stock outstanding as of September 30, 2018 as adjusted to give effect to:

- the automatic conversion of all outstanding shares of our preferred stock into _____ shares of common stock upon the completion of this offering; and
- the sale of _____ shares of common stock in this offering (assuming no exercise of the underwriters' option to purchase additional shares).

Each individual or entity shown on the table has furnished information with respect to beneficial ownership. Except as otherwise indicated below, the address of each officer, director and five percent stockholder listed below is c/o TCR2 Therapeutics Inc., 100 Binney Street, Suite 710, Cambridge, MA 02142.

We have determined beneficial ownership in accordance with the rules of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities as well as any shares of common stock that the person has the right to acquire within 60 days of September 30, 2018 through the exercise of stock options or other rights. These shares are deemed to be outstanding and beneficially owned by the person holding those options for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, the persons or entities identified in this table have sole voting and investment power with respect to all shares shown as beneficially owned by them.

	SHARES OF COMMON STOCK BENEFICIALLY OWNED	PERCENTAGE OF SHARES OUTSTANDING	
		BEFORE OFFERING	AFTER OFFERING
5% or Greater Stockholders			
Entities affiliated with MPM Capital (1)	21,817,553	19.18%	%
Entities affiliated with F2 Capital (2)	17,990,501	15.97%	%
UBS Oncology Impact Fund, L.P. (3)	16,750,000	14.87%	%
Entities affiliated with Cathay Fortune Capital (4)	12,000,000	10.65%	%
Entities affiliated with 6 Dimensions Capital (5)	10,000,000	8.88%	%
Entities affiliated with Mirae Asset (6)	6,000,000	5.33%	

	SHARES OF COMMON STOCK BENEFICIALLY OWNED	PERCENTAGE OF SHARES OUTSTANDING	
		BEFORE OFFERING	AFTER OFFERING
Directors, Named Executive Officers and Other Executive Officers			
Garry Menzel (7)	818,037	*	%
Robert Hofmeister (8)	299,216	*	%
Alfonso Quintás Cardama (9)	125,110	*	%
Ansbert Gadicke (10)	38,567,553	34.06%	%
Patrick Baeuerle (11)	2,896,942	2.57%	%
Mitchell Finer (12)	303,183	*	%
Morana Jovan-Embiricos (13)	17,990,501	15.97%	%
Wei Li (14)	—	—	%
Neil Gibson (15)	4,375,000	3.88%	%
Andrew Allen (16)	—	—	%
All executive officers and directors as a group (10 persons) (17)	65,375,542	57.86%	%

* Less than one percent.

- (1) Consists of (i) 493,306 shares of common stock issuable upon conversion of shares of Series A preferred stock and 57,552 shares of common stock issuable upon conversion of shares of Series B preferred stock, in each case held by MPM Asset Management Investors BV2014 LLC, (ii) 325,002 shares of common stock issuable upon conversion of the Series A preferred stock and 32,500 shares of common stock issuable upon conversion of the Series B preferred stock, in each case held by MPM Asset Management Investors SunStates Fund LLC, (iii) 1,213,383 shares of common stock and warrants to purchase 1,104,170 shares of common stock exercisable within 60 days of September 30, 2018, in each case held by MPM Asset Management LLC, (iv) 907,073 shares of common stock issuable upon conversion of the Series A preferred stock and 105,825 shares issuable upon conversion of the Series B preferred stock, in each case held by MPM BioVentures 2014 (B), L.P., (v) 13,599,621 shares of common stock issuable upon conversion of the Series A preferred stock and 1,586,623 shares issuable upon conversion of the Series B preferred stock, in each case held by MPM BioVentures 2014, L.P., and (vi) 2,174,998 shares of common stock issuable upon conversion of the Series A preferred stock and 217,500 shares issuable upon conversion of the Series B preferred stock, in each case held by MPM SunStates Fund, L.P. MPM BioVentures 2014 GP LLC is the general partner of MPM BioVentures 2014, L.P. and MPM BioVentures 2014 (B), L.P. MPM BioVentures 2014 LLC is the managing member of MPM BioVentures 2014 GP LLC and the manager of MPM Asset Management Investors BV2014 LLC. MPM SunStates Fund GP LLC is the general partner of MPM SunStates Fund, L.P. MPM SunStates GP Managing Member LLC is the managing member of MPM SunStates Fund GP LLC and the manager of MPM Asset Management Investors SunStates Fund LLC. MPM Asset Management LLC was retained as a manager to manage the operations of MPM BioVentures 2014, L.P., MPM BioVentures 2014 (B), L.P., MPM Asset Management Investors BV2014 LLC, MPM SunStates Fund, L.P., and MPM Asset Management SunStates Fund LLC. Dr. Ansbert Gadické is a member of MPM BioVentures 2014 LLC, MPM SunStates GP Managing Member LLC, and MPM Capital, formerly known as MPM Asset Management LLC, and collectively with the other members of such entities makes investment decisions with respect to shares held by such entities. Each of the entities and individuals listed above expressly disclaims beneficial ownership of the securities listed above except to the extent of any pecuniary interest therein. The address of these entities and individuals is 450 Kendall Street, Cambridge, MA 02142.
- (2) Consists of (i) 1,200,000 shares of common stock issuable upon conversion of the Series B preferred stock held by F2 Bioscience II 2017 Limited, (ii) 10,000,001 shares of common stock issuable upon conversion of the Series A preferred stock held by F2 Capital I 2015 Limited, (iii) 2,540,500 shares issuable upon conversion of the Series B preferred stock held by F2 Capital I 2017 Limited, (iv) 1,750,000 shares issuable upon conversion of the Series B preferred stock held by F2 MG Limited, and (v) 2,500,000 shares issuable upon conversion of the Series B preferred stock held by F2-TPO Investments, LLC. Dr. Morana Jovan-Embiricos is a member of our board of directors and is the founding director of Globeways Holdings Limited, which is the appointed manager of each of F2 Bioscience II 2017 Limited, F2 Capital I 2015 Limited, F2 Capital I 2017 Limited, F2 MG Limited, and F2-TPO Investments, LLC and makes investment decisions on behalf of such entities with respect to shares held by such entities. Dr. Morana Jovan-Embiricos expressly disclaims beneficial ownership of the securities listed above except to the extent of any pecuniary interest therein. The address of these entities and individuals for correspondence is 8, Rue Saint-Leger, 04-1205, Geneva, Switzerland.
- (3) Consists of 15,000,000 shares of common stock issuable upon conversion of the Series A preferred stock and 1,750,000 shares issuable upon conversion of the Series B preferred stock, in each case held by UBS Oncology Impact Fund, L.P. The general partner of UBS Oncology Impact Fund, L.P. is Oncology Impact Fund (Cayman) Management L.P. The general partner of Oncology Impact Fund (Cayman) Management L.P. is MPM Oncology Impact Management LP. The general partner of MPM Oncology Impact Management LP is MPM Oncology Impact Management GP LLC. Dr. Ansbert Gadické is a managing member and the managing director of MPM Oncology Impact Management GP LLC. Each of the entities and individuals listed above expressly disclaims beneficial ownership of the securities listed above except to the extent of any pecuniary interest therein. The address of these entities and individuals is Durell House, 28 New Street, St Helier, Jersey, JE1 4FS.

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- (4) Consists of (i) 2,000,000 shares of common stock issuable upon conversion of the Series A preferred stock and (ii) 10,000,000 shares issuable upon conversion of the Series B preferred stock, in each case held by an entity affiliated with Cathay Fortune Capital. The address of this entity is Vistra Corporate Services Centre, Wickham's Cay II, Road Town, Tortola, VG1110, British Virgin Islands.
- (5) Consists of (i) 500,000 shares of common stock issuable upon conversion of the Series B preferred stock held by 6 Dimensions Affiliates Fund, L.P. and (ii) 9,500,000 shares of common stock issuable upon conversion of the Series B preferred stock held by 6 Dimensions Capital, L.P. The general partner of 6 Dimensions Affiliates Fund, L.P. and 6 Dimensions Capital, L.P. is 6 Dimensions Capital GP, LLC. Wei Li was a member of our board of directors from February 2018 to December 2018 and is a Director of 6 Dimensions Capital GP, LLC. Each of the entities and individuals listed above expressly disclaims beneficial ownership of the securities listed above except to the extent of any pecuniary interest therein. The address of these entities and individuals is P.O. Box 309, Ugland House, Grand Cayman, Cayman Islands, KY 1-1104.
- (6) Consists of (i) 500,000 shares of common stock issuable upon conversion of the Series B preferred stock held by Mirae Asset Venture Investment, Co, Ltd., (ii) 1,000,000 shares of common stock issuable upon conversion of the Series B preferred stock held by Mirae Asset Young Start-up Investment Fund #2, and (iii) 4,500,000 shares of common stock issuable upon conversion of the Series B preferred stock held by Mirae Asset-Celltrion New Growth Fund I. Mirae Asset Venture Investment, Co, Ltd. is the general partner of Mirae Asset Young Start-up Investment Fund. Mr. Eung Suk Kim is the chief executive officer of Mirae Asset Venture Investment, Co, Ltd. Each of the entities and individuals listed above expressly disclaims beneficial ownership of the securities listed above except to the extent of any pecuniary interest therein. The address of each of Mirae Asset Young Start-up Investment Fund #2, Mirae Asset Venture Investment, Co, Ltd., and Mr. Eung Suk Kim is (Glass Tower) 21F, 534, Teheran-ro Gangnam-gu, Seoul, 06181, Korea. MiraeAsset Capital co., Ltd is the general partner of Mirae Asset-Celltrion New Growth Fund I. Mr. KuBeom Lee is the chief executive officer of MiraeAsset Capital co., Ltd. The address of each of MiraeAsset Capital co., Ltd, Mirae Asset-Celltrion New Growth Fund I, and Mr. KumBeom Lee is Miraeasset Venture Tower Bild, B1, 20 Pangyoyeok-ro 241beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13494, Republic of Korea. Each of the entities and individuals listed above expressly disclaims beneficial ownership of the securities listed above except to the extent of any pecuniary interest therein.
- (7) Consists of (i) options to purchase 294,493 shares of common stock exercisable within 60 days of September 30, 2018 and (ii) 523,544 shares of common stock held by Dr. Garry Menzel, as Trustee of the Garry E. Menzel and Mary E. Henshall Family Trust, under instrument of trust dated July 29, 2010. Dr. Menzel is the trustee of the Garry E. Menzel and Mary E. Henshall Family Trust and may be deemed to beneficially own these securities.
- (8) Consists of (i) 240,632 shares of common stock, of which 87,210 will remain unvested within 60 days of September 30, 2018 and subject to a right of repurchase in our favor upon Mr. Robert Hofmeister's cessation of service prior to vesting, and (ii) options to purchase 58,584 shares of common stock exercisable within 60 days of September 30, 2018.
- (9) Consists of options to purchase 125,110 shares of common stock exercisable within 60 days of September 30, 2018.
- (10) See notes (1) and (3) above.
- (11) Consists of 2,896,942 shares of common stock held by APAK Solutions GmbH, of which 1,185,392 shares will remain unvested within 60 days of September 30, 2018 and subject to a right of repurchase in our favor upon APAK Solutions GmbH's and/or Dr. Patrick Baeuerle's cessation of service prior to vesting. Dr. Baeuerle is a managing director of APAK Solutions GmbH and shares voting and investment power with respect to these shares. Each of the entities and individuals listed above expressly disclaims beneficial ownership of the securities listed above except to the extent of any pecuniary interest therein. The address of these entities and individuals is c/o MPM Capital, 450 Kendall Street, Cambridge, MA 02142.
- (12) Consists of (i) 227,509 shares of common stock held by Dr. Mitchell Finer, of which 42,658 shares will remain unvested within 60 days of September 30, 2018 and subject to a right of repurchase in our favor upon Dr. Finer's cessation of service prior to vesting, and (ii) options to purchase 27,589 shares of common stock exercisable within 60 days of September 30, 2018 and warrants to purchase 48,085 shares of common stock exercisable within 60 days of June 30, 2018, in each case held by Pattern Recognition Ventures. Dr. Finer is a managing member of Pattern Recognition Ventures and shares voting and investment power with respect to these shares. Each of the entities and individuals listed above expressly disclaims beneficial ownership of the securities listed above except to the extent of any pecuniary interest therein. The address of these entities and individuals is 450 Kendall Street, Cambridge, MA 02142.
- (13) See note (2) above.
- (14) Dr. Li resigned from our board of directors in December 2018.
- (15) Consists of 4,375,000 shares of common stock issuable upon conversion of the Series B preferred stock held by Curative Ventures CT LLC. Mr. Neil Gibson is a partner at Curative Ventures CT LLC and shares voting and investment power with respect to these shares. Each of the entities and individuals listed above expressly disclaims beneficial ownership of the securities listed above except to the extent of any pecuniary interest therein. The address of Curative Ventures CT LLC is 5949 Sherry Lane, Suite 820, Dallas, TX 75225, and the address of Mr. Neil Gibson is c/o Curative Ventures CT LLC , 5949 Sherry Lane, Suite 820, Dallas, TX 75225.
- (16) Dr. Allen was appointed to our board of directors in December 2018.
- (17) Includes options to purchase 505,776 shares of common stock exercisable within 60 days of September 30, 2018 and warrants to purchase 1,152,255 shares of common stock exercisable within 60 days of September 30, 2018, held by ten executive officers, directors and entities affiliated with such executive officers and directors, as described in notes (7) through (14) above.

DESCRIPTION OF CAPITAL STOCK

The following descriptions are summaries of the material terms of our amended and restated certificate of incorporation and amended and restated bylaws, which will be effective upon the closing of this offering. The descriptions of the common stock and preferred stock give effect to changes to our capital structure that will occur upon the closing of this offering. We refer in this section to our amended and restated certificate of incorporation as our certificate of incorporation, and we refer to our amended and restated bylaws as our bylaws.

General

Upon completion of this offering, our authorized capital stock will consist of _____ shares of common stock, par value \$0.0001 per share, and _____ shares of preferred stock, par value \$0.0001 per share, all of which shares of preferred stock will be undesignated.

As of September 30, 2018, 5,626,474 shares of our common stock (of which 1,408,399 shares are subject to a right of repurchase by us pursuant to a stock restriction agreement between us and the holders of such shares) were outstanding and held of record by 16 stockholders, 44,500,001 shares of Series A preferred stock were outstanding and held of record by 8 stockholders and 62,500,000 shares of Series B preferred stock were outstanding and held of record by 41 stockholders. This amount does not take into account the conversion of all outstanding shares of our preferred stock into common stock upon the closing of this offering.

Common Stock

The holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of the stockholders. The holders of our common stock do not have any cumulative voting rights. Holders of our common stock are entitled to receive ratably any dividends declared by our board of directors out of funds legally available for that purpose, subject to any preferential dividend rights of any outstanding preferred stock. Our common stock has no preemptive rights, conversion rights or other subscription rights or redemption or sinking fund provisions.

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in all assets remaining after payment of all debts and other liabilities and any liquidation preference of any outstanding preferred stock. The shares to be issued by us in this offering will be, when issued and paid for, validly issued, fully paid and non-assessable.

Preferred Stock

Upon the completion of this offering, all outstanding shares of our preferred stock will be converted into shares of our common stock. Upon the closing of this offering, our board of directors will have the authority, without further action by our stockholders, to issue up to _____ shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting, or the designation of, such series, any or all of which may be greater than the rights of common stock. The issuance of our preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon our liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of our company or other corporate action. Immediately after consummation of this offering, no shares of preferred stock will be outstanding, and we have no present plan to issue any shares of preferred stock.

Options

As of September 30, 2018, options to purchase 12,175,409 shares of common stock at a weighted-average exercise price of \$0.56 per share were outstanding under our 2015 Plan.

As of September 30, 2018, options to purchase 49,661 shares of common stock at an exercise price of \$0.12 per share, which options were not granted pursuant to a benefits plan, were outstanding.

Warrants

As of September 30, 2018, warrants to purchase 1,261,541 shares of common stock at a weighted exercise price of \$0.12 per share were outstanding, which warrants were not granted pursuant to a benefits plan.

Registration Rights

Upon the completion of this offering, the holders of _____ shares of our common stock, including those issuable upon the conversion of preferred stock, will be entitled to rights with respect to the registration of these securities under the Securities Act. These rights are provided under the terms of an amended and restated investors' rights agreement between us, certain holders of our common stock and holders of our preferred stock. The amended and restated investors' rights agreement includes demand registration rights, short-form registration rights and piggyback registration rights. All fees, costs and expenses of underwritten registrations under the amended and restated investors' rights agreement will be borne by us, and all selling expenses, including underwriting discounts and selling commissions, will be borne by the holders of the shares being registered.

Demand Registration Rights

Beginning 180 days after the effective date of this registration statement, the holders of _____ shares of our common stock, including those issuable upon the conversion of shares of our preferred stock upon closing of this offering, are entitled to demand registration rights. Under the terms of the amended and restated investors' rights agreement, we will be required, upon the written request of holders of at least a majority of the securities eligible for registration then outstanding, including at least a majority of the common stock issuable or issued upon conversion of our Series A preferred stock and at least a majority of the common stock issuable or issued upon conversion of the Series B preferred stock, to file a registration statement with respect to at least 40% of the securities eligible for registration then outstanding (or a lesser percent if the anticipated aggregate offering price, net of related fees and expenses, would exceed \$5 million), we will be required to file a registration statement covering all securities eligible for registration that our stockholders request to be included in such registration. We are required to effect only two registrations pursuant to this provision of the investors' rights agreement in any twelve-month period.

Short-Form Registration Rights

Pursuant to the amended and restated investors' rights agreement, if we are eligible to file a registration statement on Form S-3, upon the written request of stockholders holding at least 10% of the securities eligible for registration then outstanding with respect to outstanding securities of such stockholders having an anticipated aggregate offering, net of related fees and expenses, of at least \$1.0 million, we will be required to file a Form S-3 registration statement covering all securities eligible for registration that our stockholders request to be included in such registration. We are required to effect only two registrations in any twelve-month period pursuant to this provision of the amended and restated investors' rights agreement. The right to have such shares registered on Form S-3 is further subject to other specified conditions and limitations.

Piggyback Registration Rights

Pursuant to the amended and restated investors' rights agreement, if we register any of our securities either for our own account or for the account of other security holders, the holders of our common stock, including those issuable upon the conversion of our preferred stock, are entitled to include their shares in the registration. Subject to certain exceptions contained in the amended and restated investors' rights agreement, we and the underwriters may limit the number of shares included in the underwritten offering to the number of shares which we and the underwriters determine in our sole discretion will not jeopardize the success of the offering.

Indemnification

Our amended and restated investors' rights agreement contains customary cross-indemnification provisions, under which we are obligated to indemnify holders of registrable securities in the event of material misstatements or omissions in the registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions attributable to them.

Expiration of Registration Rights

The registration rights granted under the amended and restated investors' rights agreement will terminate the earliest to occur of: (i) on the fifth anniversary of the completion of this offering or, (ii) at such time after this offering when the holders' shares may be sold pursuant to Rule 144 without restriction within a three-month period or (iii) a merger, sale or liquidation of our company.

Anti-Takeover Effects of Delaware Law and Certain Provisions of our Certificate of Incorporation and Amended and Restated Bylaws

Our certificate of incorporation and bylaws include a number of provisions that may have the effect of delaying, deferring or preventing another party from acquiring control of us and encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our board of directors rather than pursue non-negotiated takeover attempts. These provisions include the items described below.

Board Composition and Filling Vacancies

Our certificate of incorporation provides for the division of our board of directors into three classes serving staggered three-year terms, with one class being elected each year. Our certificate of incorporation also provides that directors may be removed only for cause and then only by the affirmative vote of the holders of two-thirds or more of the shares then entitled to vote at an election of directors. Furthermore, any vacancy on our board of directors, however occurring, including a vacancy resulting from an increase in the size of our board, may only be filled by the affirmative vote of a majority of our directors then in office even if less than a quorum. The classification of directors, together with the limitations on removal of directors and treatment of vacancies, has the effect of making it more difficult for stockholders to change the composition of our board of directors.

No Written Consent of Stockholders

Our certificate of incorporation provides that all stockholder actions are required to be taken by a vote of the stockholders at an annual or special meeting, and that stockholders may not take any action by written consent in lieu of a meeting. This limit may lengthen the amount of time required to take stockholder actions and would prevent the amendment of our bylaws or removal of directors by our stockholders without holding a meeting of stockholders.

Meetings of Stockholders

Our certificate of incorporation and bylaws provide that only a majority of the members of our board of directors then in office may call special meetings of stockholders and only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of stockholders. Our bylaws limit the business that may be conducted at an annual meeting of stockholders to those matters properly brought before the meeting.

Advance Notice Requirements

Our bylaws establish advance notice procedures with regard to stockholder proposals relating to the nomination of candidates for election as directors or new business to be brought before meetings of our stockholders. These procedures provide that notice of stockholder proposals must be timely given in writing to our corporate secretary prior to the meeting at which the action is to be taken. Generally, to be timely, notice must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the annual meeting for the preceding year. Our bylaws specify the requirements as to form and content of all stockholders' notices. These requirements may preclude stockholders from bringing matters before the stockholders at an annual or special meeting.

Amendment to Certificate of Incorporation and Bylaws

Any amendment of our certificate of incorporation must first be approved by a majority of our board of directors, and if required by law or our certificate of incorporation, must thereafter be approved by a majority of the outstanding shares entitled to vote on the amendment and a majority of the outstanding shares of each class entitled to vote thereon as a class, except that the amendment of the provisions relating to stockholder action, board composition, limitation of liability and the amendment of our bylaws and certificate of incorporation must be approved by not less than two-thirds of the outstanding shares entitled to vote on the amendment, and not less than a majority of the outstanding shares of each class entitled to vote thereon as a class. Our bylaws may be amended by the affirmative vote of a majority of the directors then in office, subject to any limitations set forth in the bylaws; and may also be amended by the affirmative vote of at least two-thirds of the outstanding shares entitled to vote on the amendment, or, if our board of directors recommends that the stockholders approve the amendment, by the affirmative vote of the majority of the outstanding shares entitled to vote on the amendment, in each case voting together as a single class.

Undesignated Preferred Stock

Our certificate of incorporation provides for _____ authorized shares of preferred stock. The existence of authorized but unissued shares of preferred stock may enable our board of directors to discourage an attempt to

obtain control of us by means of a merger, tender offer, proxy contest or otherwise. For example, if in the due exercise of its fiduciary obligations, our board of directors were to determine that a takeover proposal is not in the best interests of our stockholders, our board of directors could cause shares of preferred stock to be issued without stockholder approval in one or more private offerings or other transactions that might dilute the voting or other rights of the proposed acquirer or insurgent stockholder or stockholder group. In this regard, our certificate of incorporation grants our board of directors broad power to establish the rights and preferences of authorized and unissued shares of preferred stock. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in control of us.

Delaware Anti-Takeover Statute

Upon completion of this offering, we will be subject to the provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a three-year period following the time that this stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

- before the stockholder became interested, our board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances, but not the outstanding voting stock owned by the interested stockholder; or
- at or after the time the stockholder became interested, the business combination was approved by our board of directors and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, lease, pledge, exchange, mortgage or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Choice of Forum

Our bylaws provide that the Court of Chancery of the State of Delaware will be the exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a breach of fiduciary duty by one or more of our directors, officers or employees, (iii) any action asserting a claim against us arising pursuant to the Delaware General Corporation Law or (iv) any action asserting a claim against us that is governed by the internal affairs doctrine. Our bylaws further provide that, unless we consent in writing to an alternate forum, the United States District Court for the District of Massachusetts will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. These exclusive forum provisions do not apply to any complaints asserting a cause of action arising under the Exchange Act. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and consented to the forum

provisions in our amended and restated bylaws. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation and bylaws has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable.

Stock Exchange Listing

We have applied to list our common stock on The Nasdaq Global Market under the proposed trading symbol "TCRR."

Transfer Agent and Registrar

The Transfer Agent and Registrar for our common stock will be American Stock Transfer & Trust Company, LLC.

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our shares. Future sales of our common stock in the public market, or the availability of such shares for sale in the public market, could adversely affect market prices prevailing from time to time. As described below, only a limited number of shares will be available for sale shortly after this offering due to contractual and legal restrictions on resale. Nevertheless, sales of shares of our common stock in the public market after such restrictions lapse, or the perception that those sales may occur, could adversely affect the prevailing market price at such time and our ability to raise equity capital in the future.

Based on the number of shares outstanding as of September 30, 2018, upon the completion of this offering, _____ shares of our common stock will be outstanding, assuming the issuance of _____ shares offered by us in this offering, no exercise of the underwriters' option to purchase additional shares and no exercise of outstanding options or warrants. Of the outstanding shares, all of the shares sold in this offering will be freely tradable, except that any shares held by our affiliates, as that term is defined in Rule 144 under the Securities Act, may only be sold in compliance with the limitations described below, and restricted shares of common stock are subject to time-based vesting terms. All remaining shares of common stock held by existing stockholders immediately prior to the completion of this offering will be "restricted securities" as such term is defined in Rule 144 under the Securities Act. These restricted securities were issued and sold by us in private transactions and are eligible for public sale only if registered under the Securities Act or if they qualify for an exemption from registration under the Securities Act, including the exemptions provided by Rule 144 or Rule 701, summarized below.

Rule 144

In general, a person who has beneficially owned restricted stock for at least six months would be entitled to sell their securities provided that (i) such person is not deemed to have been one of our affiliates at the time of, or at any time during the 90 days preceding, a sale and (ii) we are subject to the periodic reporting requirements of the Exchange Act for at least 90 days before the sale. Persons who have beneficially owned restricted shares for at least six months but who are our affiliates at the time of, or any time during the 90 days preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of either of the following:

- 1% of the number of shares then outstanding, which will equal approximately _____ shares immediately after this offering, assuming no exercise of the underwriters' option to purchase additional shares, based on the number of shares outstanding as of September 30, 2018; or
- the average weekly trading volume of our common stock on The Nasdaq Global Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale;

provided, in each case, that we are subject to the periodic reporting requirements of the Exchange Act for at least 90 days before the sale. Such sales both by affiliates and by non-affiliates must also comply with the manner of sale, current public information and notice provisions of Rule 144.

Rule 701

Rule 701 under the Securities Act, as in effect on the date of this prospectus, permits resales of shares in reliance upon Rule 144 but without compliance with certain restrictions of Rule 144, including the holding period requirement. Most of our employees, executive officers or directors who purchased shares under a written compensatory plan or contract may be entitled to rely on the resale provisions of Rule 701, but all holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling their shares.

However, substantially all Rule 701 shares are subject to lock-up agreements as described below and under "Underwriting" included elsewhere in this prospectus and will become eligible for sale upon the expiration of the restrictions set forth in those agreements.

Lock-Up Agreements

We, all of our directors and officers and substantially all of our stockholders have agreed not to sell or otherwise transfer or dispose of any of our securities for a period of 180 days from the date of this prospectus, subject to

certain exceptions. The representatives of the underwriters in this offering may, in their sole discretion, permit early release of shares subject to the lock-up agreements. See the section entitled “Underwriting,” appearing elsewhere in this prospectus for more information.

Registration Rights

Upon completion of this offering, certain holders of our securities will be entitled to various rights with respect to registration of their shares under the Securities Act. Registration of these shares under the Securities Act would result in these shares becoming fully tradable without restriction under the Securities Act immediately upon the effectiveness of the registration. See the section entitled “Description of Capital Stock—Registration Rights” appearing elsewhere in this prospectus for more information.

Equity Incentive Plans

We intend to file one or more registration statements on Form S-8 under the Securities Act to register our shares issued or reserved for issuance under our equity incentive plans. The first such registration statement is expected to be filed soon after the date of this prospectus and will automatically become effective upon filing with the SEC. Accordingly, shares registered under such registration statement will be available for sale in the open market, unless such shares are subject to vesting restrictions with us or the lock-up restrictions described above. As of the date of this prospectus, we estimate that such registration statement on Form S-8 will cover approximately shares.

MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS FOR NON-U.S. HOLDERS

The following discussion is a summary of the material U.S. federal income tax considerations applicable to non-U.S. holders (as defined below) with respect to their ownership and disposition of shares of our common stock issued pursuant to this offering. For purposes of this discussion, a non-U.S. holder means a beneficial owner of our common stock that is for U.S. federal income tax purposes:

- a non-resident alien individual;
- a corporation or other organization taxable as a corporation for U.S. federal income tax purposes that is created or organized in or under laws other than the laws of the United States, any state thereof, or the District of Columbia;
- an estate the income of which is not subject to U.S. federal income tax on a net income basis; or
- a trust the income of which is not subject to U.S. federal income tax on a net income basis and that (1) is not subject to the primary supervision of a court within the United States or over which no U.S. persons have authority to control all substantial decisions and (2) has not made an election to be treated as a U.S. person.

This discussion does not address the tax treatment of partnerships or other entities that are pass-through entities for U.S. federal income tax purposes or persons that hold their common stock through partnerships or other pass-through entities. A partner in a partnership or other pass-through entity that will hold our common stock should consult his, her or its tax advisor regarding the tax consequences of acquiring, holding and disposing of our common stock through a partnership or other pass-through entity, as applicable.

This discussion is based on current provisions of the U.S. Internal Revenue Code of 1986, as amended, which we refer to as the Code, existing and proposed U.S. Treasury Regulations promulgated thereunder, current administrative rulings and judicial decisions, all as in effect as of the date of this prospectus and all of which are subject to change or to differing interpretation, possibly with retroactive effect. Any such change or differing interpretation could alter the tax consequences to non-U.S. holders described in this prospectus. There can be no assurance that the Internal Revenue Service, which we refer to as the IRS, will not challenge one or more of the tax consequences described herein. We assume in this discussion that a non-U.S. holder holds shares of our common stock as a capital asset within the meaning of Section 1221 of the Code, generally property held for investment.

This discussion does not address all aspects of U.S. federal income taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances nor does it address any U.S. state, local or non-U.S. taxes, the alternative minimum tax, the Medicare tax on net investment income, the rules regarding qualified small business stock within the meaning of Section 1202 of the Code, or any other aspect of any U.S. federal tax other than the income tax. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as:

- insurance companies;
- tax-exempt or governmental organizations;
- financial institutions;
- brokers or dealers in securities;
- regulated investment companies;
- pension plans;
- "controlled foreign corporations," "passive foreign investment companies," and corporations that accumulate earnings to avoid U.S. federal income tax;
- "qualified foreign pension funds," or entities wholly owned by a "qualified foreign pension fund";
- persons deemed to sell our common stock under the constructive sale provisions of the Code;
- persons that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment; and
- certain U.S. expatriates.

This discussion is for information only and is not tax advice. Accordingly, all prospective non-U.S. holders of our common stock should consult their tax advisors with respect to the U.S. federal, state, local and non-U.S. tax consequences of the purchase, ownership and disposition of our common stock.

Distributions on Our Common Stock

Distributions, if any, on our common stock will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's tax basis in the common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below in "Gain on Sale or Other Taxable Disposition of Our Common Stock." Any such distributions will also be subject to the discussions below under the sections titled "Backup Withholding and Information Reporting" and "Withholding and Information Reporting Requirements—FATCA."

Subject to the discussion in the following two paragraphs in this section, dividends paid to a non-U.S. holder generally will be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States, are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements. However, such U.S. effectively connected income, net of specified deductions and credits, is taxed at the same U.S. federal income tax rates applicable to United States persons (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty between the United States and such holder's country of residence generally will be required to provide a properly executed IRS Form W-8BEN or W-8BEN-E (or successor form) to the applicable withholding agent and satisfy applicable certification and other requirements. Non-U.S. holders are urged to consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty. A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing a U.S. tax return with the IRS.

Gain on Sale or Other Taxable Disposition of Our Common Stock

Subject to the discussions below under "Backup Withholding and Information Reporting" and "Withholding and Information Reporting Requirements—FATCA," a non-U.S. holder generally will not be subject to any U.S. federal income tax on any gain realized upon such holder's sale or other taxable disposition of shares of our common stock unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a U.S. trade or business and, if an applicable income tax treaty so provides, is attributable to a permanent establishment or a fixed-base maintained by such non-U.S. holder in the United States, in which case the non-U.S. holder generally will be taxed on a net income basis at the same U.S. federal income tax rates applicable to United States persons (as defined in the Code) and, if the non-U.S. holder is a foreign corporation, the branch profits tax described above in "Distributions on Our Common Stock" also may apply;
- the non-U.S. holder is a nonresident alien individual who is present in the United States for 183 days or more in the taxable year of the disposition and certain other conditions are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence) on the net gain derived from the disposition, which may be offset by certain U.S. source capital losses of the non-U.S. holder, if any (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses; or

- we are, or have been, at any time during the five-year period preceding such sale or other taxable disposition (or the non-U.S. holder's holding period, if shorter) a "U.S. real property holding corporation," unless our common stock is regularly traded on an established securities market and the non-U.S. holder holds no more than 5% of our outstanding common stock, directly or indirectly, actually or constructively, during the shorter of the 5-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. Generally, a corporation is a U.S. real property holding corporation only if the fair market value of its U.S. real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we do not believe that we are, or have been, a U.S. real property holding corporation, or that we are likely to become one in the future. No assurance can be provided that our common stock will be regularly traded on an established securities market for purposes of the rules described above.

Backup Withholding and Information Reporting

We must report annually to the IRS and to each non-U.S. holder the gross amount of the distributions on our common stock paid to such holder and the tax withheld, if any, with respect to such distributions. Non-U.S. holders may have to comply with specific certification procedures to establish that the holder is not a United States person (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to dividends on our common stock. Dividends paid to non-U.S. holders subject to withholding of U.S. federal income tax, as described above in "Distributions on Our Common Stock," generally will be exempt from U.S. backup withholding.

Information reporting and backup withholding will generally apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker.

Non-U.S. holders should consult their tax advisors regarding the application of the information reporting and backup withholding rules to them. Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is incorporated under the provisions of a specific treaty or agreement. Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder can be refunded or credited against the non-U.S. holder's U.S. federal income tax liability, if any, provided that an appropriate claim is filed with the IRS in a timely manner.

Withholding and Information Reporting Requirements—FATCA

Provisions of the Code commonly referred to as the Foreign Account Tax Compliance Act (FATCA), generally impose a U.S. federal withholding tax at a rate of 30% on payments of dividends on, or gross proceeds from the sale or other disposition of, our common stock paid to a foreign entity unless (i) if the foreign entity is a "foreign financial institution," such foreign entity undertakes certain due diligence, reporting, withholding, and certification obligations, (ii) if the foreign entity is not a "foreign financial institution," such foreign entity identifies certain of its U.S. investors, if any, or (iii) the foreign entity is otherwise exempt under FATCA. Under applicable U.S. Treasury regulations, withholding under FATCA currently applies to payments of dividends on our common stock, but will only apply to payments of gross proceeds from a sale or other disposition of our common stock made after December 31, 2018. Under certain circumstances, a non-U.S. holder may be eligible for refunds or credits of this withholding tax. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this paragraph. Non-U.S. holders should consult their tax advisors regarding the possible implications of this legislation on their investment in our common stock and the entities through which they hold our common stock, including, without limitation, the process and deadlines for meeting the applicable requirements to prevent the imposition of the 30% withholding tax under FATCA.

UNDERWRITING

Subject to the terms and conditions set forth in the underwriting agreement, dated _____, _____ among us and Jefferies LLC, Leerink Partners LLC and BMO Capital Markets Corp., as the representatives of the underwriters named below and the joint book-running managers of this offering, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the respective number of shares of common stock shown opposite its name below:

<u>UNDERWRITER</u>	<u>NUMBER OF SHARES</u>
Jefferies LLC	
Leerink Partners LLC	
BMO Capital Markets Corp.	
Wedbush Securities Inc.	
China Renaissance Securities (Hong Kong) Limited	
Total	

The underwriting agreement provides that the obligations of the several underwriters are subject to certain conditions precedent such as the receipt by the underwriters of officers' certificates and legal opinions and approval of certain legal matters by their counsel. The underwriting agreement provides that the underwriters will purchase all of the shares of common stock if any of them are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated. We have agreed to indemnify the underwriters and certain of their controlling persons against certain liabilities, including liabilities under the Securities Act, and to contribute to payments that the underwriters may be required to make in respect of those liabilities.

The underwriters have advised us that, following the completion of this offering, they currently intend to make a market in the common stock as permitted by applicable laws and regulations. However, the underwriters are not obligated to do so, and the underwriters may discontinue any market-making activities at any time without notice in their sole discretion. Accordingly, no assurance can be given as to the liquidity of the trading market for the common stock, that you will be able to sell any of the common stock held by you at a particular time or that the prices that you receive when you sell will be favorable.

The underwriters are offering the shares of common stock subject to their acceptance of the shares of common stock from us and subject to prior sale. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commission and Expenses

The underwriters have advised us that they propose to offer the shares of common stock to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers, which may include the underwriters, at that price less a concession not in excess of \$ _____ per share of common stock. The underwriters may allow, and certain dealers may reallow, a discount from the concession not in excess of \$ _____ per share of common stock to certain brokers and dealers. After the offering, the initial public offering price, concession and reallowance to dealers may be reduced by the representatives. No such reduction will change the amount of proceeds to be received by us as set forth on the cover page of this prospectus.

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The following table shows the public offering price, the underwriting discounts and commissions that we are to pay the underwriters and the proceeds, before expenses, to us in connection with this offering. Such amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	PER SHARE		TOTAL	
	WITHOUT OPTION TO PURCHASE ADDITIONAL SHARES	WITH OPTION TO PURCHASE ADDITIONAL SHARES	WITHOUT OPTION TO PURCHASE ADDITIONAL SHARES	WITH OPTION TO PURCHASE ADDITIONAL SHARES
Public offering price	\$	\$	\$	\$
Underwriting discounts and commissions paid by us	\$	\$	\$	\$
Proceeds to us, before expenses	\$	\$	\$	\$

We estimate expenses payable by us in connection with this offering, other than the underwriting discounts and commissions referred to above, will be approximately \$. We have also agreed to pay the filing fees incident to, and the fees and disbursements of counsel for the underwriters in connection with the required review by the Financial Industry Regulatory Authority, Inc.

Determination of Offering Price

Prior to this offering, there has not been a public market for our common stock. Consequently, the initial public offering price for our common stock will be determined by negotiations between us and the representatives. Among the factors to be considered in these negotiations will be prevailing market conditions, our financial information, market valuations of other companies that we and the underwriters believe to be comparable to us, estimates of our business potential, the present state of our development and other factors deemed relevant.

We offer no assurances that the initial public offering price will correspond to the price at which the common stock will trade in the public market subsequent to the offering or that an active trading market for the common stock will develop and continue after the offering.

Listing

We have applied to have our common stock listed on The Nasdaq Global Market under the trading symbol "TCRR".

Stamp Taxes

If you purchase shares of common stock offered in this prospectus, you may be required to pay stamp taxes and other charges under the laws and practices of the country of purchase, in addition to the offering price listed on the cover page of this prospectus.

Option to Purchase Additional Shares

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase, from time to time, in whole or in part, up to an aggregate of shares from us at the public offering price set forth on the cover page of this prospectus, less underwriting discounts and commissions. If the underwriters exercise this option, each underwriter will be obligated, subject to specified conditions, to purchase a number of additional shares proportionate to that underwriter's initial purchase commitment as indicated in the table above. This option may be exercised only if the underwriters sell more shares than the total number set forth on the cover page of this prospectus.

No Sales of Similar Securities

We, our officers, directors and holders of all or substantially all our outstanding capital stock and other securities have agreed, subject to specified exceptions, not to directly or indirectly:

- sell, offer, contract or grant any option to sell (including any short sale), pledge, transfer, establish an open "put equivalent position" within the meaning of Rule 16a-1(h) under the Securities Exchange Act of 1934, as amended, or
- otherwise dispose of any shares of common stock, options or warrants to acquire shares of common stock, or securities exchangeable or exercisable for or convertible into shares of common stock currently or hereafter owned either of record or beneficially, or

- publicly announce an intention to do any of the foregoing for a period of 180 days after the date of this prospectus without the prior written consent of the representatives.

This restriction terminates after the close of trading of the common stock on and including the 180th day after the date of this prospectus.

The representatives may, in their sole discretion and at any time or from time to time before the termination of the 180-day period release all or any portion of the securities subject to lock-up agreements. There are no existing agreements between the underwriters and any of our shareholders who will execute a lock-up agreement, providing consent to the sale of shares prior to the expiration of the lock-up period.

Stabilization

The underwriters have advised us that they, pursuant to Regulation M under the Securities Exchange Act of 1934, as amended, and certain persons participating in the offering may engage in short sale transactions, stabilizing transactions, syndicate covering transactions or the imposition of penalty bids in connection with this offering. These activities may have the effect of stabilizing or maintaining the market price of the common stock at a level above that which might otherwise prevail in the open market. Establishing short sales positions may involve either “covered” short sales or “naked” short sales.

“Covered” short sales are sales made in an amount not greater than the underwriters’ option to purchase additional shares of our common stock in this offering. The underwriters may close out any covered short position by either exercising their option to purchase additional shares of our common stock or purchasing shares of our common stock in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option to purchase additional shares.

“Naked” short sales are sales in excess of the option to purchase additional shares of our common stock. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the shares of our common stock in the open market after pricing that could adversely affect investors who purchase in this offering.

A stabilizing bid is a bid for the purchase of shares of common stock on behalf of the underwriters for the purpose of fixing or maintaining the price of the common stock. A syndicate covering transaction is the bid for or the purchase of shares of common stock on behalf of the underwriters to reduce a short position incurred by the underwriters in connection with the offering. Similar to other purchase transactions, the underwriter’s purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. A penalty bid is an arrangement permitting the underwriters to reclaim the selling concession otherwise accruing to a syndicate member in connection with the offering if the common stock originally sold by such syndicate member are purchased in a syndicate covering transaction and therefore have not been effectively placed by such syndicate member.

Neither we nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. The underwriters are not obligated to engage in these activities and, if commenced, any of the activities may be discontinued at any time.

Electronic Distribution

A prospectus in electronic format may be made available by e-mail or on the web sites or through online services maintained by one or more of the underwriters or their affiliates. In those cases, prospective investors may view offering terms online and may be allowed to place orders online. The underwriters may agree with us to allocate a specific number of shares of common stock for sale to online brokerage account holders. Any such allocation for online distributions will be made by the underwriters on the same basis as other allocations. Other than the prospectus in electronic format, the information on the underwriters’ web sites and any information contained in any other web site maintained by any of the underwriters is not part of this prospectus, has not been approved and/or endorsed by us or the underwriters and should not be relied upon by investors.

Other Activities and Relationships

The underwriters and certain of their affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. The underwriters and certain of their affiliates have, from time to time, performed, and may in the future perform, various commercial and investment banking and financial advisory services for us and our affiliates, for which they received or will receive customary fees and expenses. In addition, affiliates of Leerink Partners LLC, one of the joint book-running managers, are beneficial owners of less than 1% of our outstanding capital stock prior to giving effect to the offering.

In the ordinary course of their various business activities, the underwriters and certain of their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments issued by us and our affiliates. If the underwriters or their respective affiliates have a lending relationship with us, they routinely hedge their credit exposure to us consistent with their customary risk management policies. The underwriters and their respective affiliates may hedge such exposure by entering into transactions which consist of either the purchase of credit default swaps or the creation of short positions in our securities or the securities of our affiliates, including potentially the common stock offered hereby. Any such short positions could adversely affect future trading prices of the common stock offered hereby. The underwriters and certain of their respective affiliates may also communicate independent investment recommendations, market color or trading ideas and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Selling Restrictions

Canada

Resale Restrictions

The distribution of our shares of common stock in Canada is being made only in the provinces of Ontario, Quebec, Alberta and British Columbia on a private placement basis exempt from the requirement that we prepare and file a prospectus with the securities regulatory authorities in each province where trades of these securities are made. Any resale of the shares of common stock in Canada must be made under applicable securities laws which may vary depending on the relevant jurisdiction, and which may require resales to be made under available statutory exemptions or under a discretionary exemption granted by the applicable Canadian securities regulatory authority. Purchasers are advised to seek legal advice prior to any resale of the securities.

Representations of Canadian Purchasers

By purchasing our shares of common stock in Canada and accepting delivery of a purchase confirmation, a purchaser is representing to us and the dealer from whom the purchase confirmation is received that:

- the purchaser is entitled under applicable provincial securities laws to purchase the shares of common stock without the benefit of a prospectus qualified under those securities laws as it is an “accredited investor” as defined under National Instrument 45-106—*Prospectus Exemptions*,
- the purchaser is a “permitted client” as defined in National Instrument 31-103—*Registration Requirements, Exemptions and Ongoing Registrant Obligations*,
- where required by law, the purchaser is purchasing as principal and not as agent, and
- the purchaser has reviewed the text above under Resale Restrictions.

Conflicts of Interest

Canadian purchasers are hereby notified that the underwriters are relying on the exemption set out in section 3A.3 or 3A.4, if applicable, of National Instrument 33-105—*Underwriting Conflicts* from having to provide certain conflict of interest disclosure in this document.

Statutory Rights of Action

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if the prospectus (including any amendment thereto) such as this document contains a

misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser of these securities in Canada should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Enforcement of Legal Rights

All of our directors and officers as well as the experts named herein may be located outside of Canada and, as a result, it may not be possible for Canadian purchasers to effect service of process within Canada upon us or those persons. All or a substantial portion of our assets and the assets of those persons may be located outside of Canada and, as a result, it may not be possible to satisfy a judgment against us or those persons in Canada or to enforce a judgment obtained in Canadian courts against us or those persons outside of Canada.

Taxation and Eligibility for Investment

Canadian purchasers of our shares of common stock should consult their own legal and tax advisors with respect to the tax consequences of an investment in the shares in their particular circumstances and about the eligibility of the shares for investment by the purchaser under relevant Canadian legislation.

Australia

This prospectus is not a disclosure document for the purposes of Australia's Corporations Act 2001 (Cth) of Australia, or Corporations Act, has not been lodged with the Australian Securities & Investments Commission and is only directed to the categories of exempt persons set out below. Accordingly, if you receive this prospectus in Australia:

You confirm and warrant that you are either:

- a "sophisticated investor" under section 708(8)(a) or (b) of the Corporations Act;
- a "sophisticated investor" under section 708(8)(c) or (d) of the Corporations Act and that you have provided an accountant's certificate to the company which complies with the requirements of section 708(8)(c)(i) or (ii) of the Corporations Act and related regulations before the offer has been made; or
- a "professional investor" within the meaning of section 708(11)(a) or (b) of the Corporations Act.

To the extent that you are unable to confirm or warrant that you are an exempt sophisticated investor or professional investor under the Corporations Act any offer made to you under this prospectus is void and incapable of acceptance.

You warrant and agree that you will not offer any of the shares issued to you pursuant to this prospectus for resale in Australia within 12 months of those securities being issued unless any such resale offer is exempt from the requirement to issue a disclosure document under section 708 of the Corporations Act.

European Economic Area

In relation to each member state of the European Economic Area which has implemented the Prospectus Directive, each referred to herein as a Relevant Member State, with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State, referred to herein as the Relevant Implementation Date, no offer of any securities which are the subject of the offering contemplated by this prospectus has been or will be made to the public in that Relevant Member State other than any offer where a prospectus has been or will be published in relation to such securities that has been approved by the competent authority in that Relevant Member State or, where appropriate, approved in another Relevant Member State and notified to the relevant competent authority in that Relevant Member State in accordance with the Prospectus

Directive, except that with effect from and including the Relevant Implementation Date, an offer of such securities may be made to the public in that Relevant Member State:

- to any legal entity which is a "qualified investor" as defined in the Prospectus Directive;
- to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of the representatives of the underwriters for any such offer; or
- in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of securities shall require the Company or any of the underwriters to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive.

For the purposes of this provision, the expression an “offer to the public” in relation to any securities in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to decide to purchase or subscribe the securities, as the same may be varied in that Relevant Member State by any measure implementing the Prospectus Directive in that Relevant Member State and the expression “Prospectus Directive” means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State and the expression “2010 PD Amending Directive” means Directive 2010/73/EU.

PRC

This prospectus has not been and will not be circulated or distributed in the PRC, and no securities may be offered or sold, or will be offered or sold, to any person for re-offering or resale, directly or indirectly, to any resident of the PRC except pursuant to applicable laws and regulations of the PRC.

Hong Kong

No securities have been offered or sold, and no securities may be offered or sold, in Hong Kong, by means of any document, other than to persons whose ordinary business is to buy or sell shares or debentures, whether as principal or agent; or to “professional investors” as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong (SFO) and any rules made under that Ordinance; or in other circumstances which do not result in the document being a “prospectus” as defined in the Companies Ordinance (Cap. 32) of Hong Kong (CO), or which do not constitute an offer to the public for the purpose of the CO or the SFO. No document, invitation or advertisement relating to the securities has been issued or may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted under the securities laws of Hong Kong) other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to “professional investors” as defined in the SFO and any rules made under that Ordinance.

This prospectus has not been registered with the Registrar of Companies in Hong Kong. Accordingly, this prospectus may not be issued, circulated or distributed in Hong Kong, and the securities may not be offered for subscription to members of the public in Hong Kong. Each person acquiring the securities will be required, and is deemed by the acquisition of the securities, to confirm that he is aware of the restriction on offers of the securities described in this prospectus and the relevant offering documents and that he is not acquiring, and has not been offered any securities in circumstances that contravene any such restrictions.

Israel

This document does not constitute a prospectus under the Israeli Securities Law, 5728-1968 (the Securities Law), and has not been filed with or approved by the Israel Securities Authority. In the State of Israel, this document is being distributed only to, and is directed only at, and any offer of the shares is directed only at, (i) a limited number of persons in accordance with section 15A of the Securities Law and (ii) investors listed in the first addendum (the Addendum), to the Israeli Securities Law, consisting primarily of joint investment in trust funds, provident funds, insurance companies, banks, portfolio managers, investment advisors, members of the Tel Aviv Stock Exchange, underwriters, venture capital funds, entities with equity in excess of NIS 50 million and “qualified individuals”, each as defined in the Addendum (as it may be amended from time to time), collectively referred to as qualified investors (in each case purchasing for their own account or, where permitted under the Addendum, for the accounts of their clients who are investors listed in the Addendum). Qualified investors will be required to submit written confirmation that they fall within the scope of the Addendum, are aware of the meaning of same and agree to it.

Japan

The offering has not been and will not be registered under the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948 of Japan, as amended) (FIEL) and the Initial Purchaser will not offer or sell any securities, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means, unless otherwise provided herein, any person resident in Japan, including any corporation or other entity organized

under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the FIEL and any other applicable laws, regulations and ministerial guidelines of Japan.

Singapore

This prospectus has not been and will not be lodged or registered with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or the invitation for subscription or purchase of the securities may not be issued, circulated or distributed, nor may the securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to the public or any member of the public in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the SFA) (ii) to a relevant person as defined under Section 275(2), or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions, specified in Section 275 of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of any other applicable provision of the SFA.

Where the securities are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- a corporation (which is not an accredited investor as defined under Section 4A of the SFA) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor,

securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares of common stock pursuant to an offer made under Section 275 of the SFA except:

- to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
- where no consideration is or will be given for the transfer;
- where the transfer is by operation of law;
- as specified in Section 276(7) of the SFA; or
- as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Switzerland

The securities may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange (SIX) or on any other stock exchange or regulated trading facility in Switzerland. This prospectus has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this prospectus nor any other offering or marketing material relating to the securities or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this prospectus nor any other offering or marketing material relating to the offering, the Company or the securities have been or will be filed with or approved by any Swiss regulatory authority. In particular, this prospectus will not be filed with, and the offer of securities will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA and the offer of securities has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes (CISA). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of securities.

United Kingdom

This prospectus is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive that are also (i) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion)

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Order 2005, as amended, referred to herein as the Order, and/or (ii) high net worth entities falling within Article 49(2)(a) to (d) of the Order and other persons to whom it may lawfully be communicated. Each such person is referred to herein as a Relevant Person.

This prospectus and its contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other persons in the United Kingdom. Any person in the United Kingdom that is not a Relevant Person should not act or rely on this document or any of its contents.

LEGAL MATTERS

The validity of the shares of common stock offered by this prospectus will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts. Certain legal matters relating to this offering will be passed upon for the underwriters by Wilmer Cutler Pickering Hale and Dorr LLP, New York, New York.

EXPERTS

The financial statements of TCR2 Therapeutics Inc. as of December 31, 2016 and 2017 and for each of the years then ended have been included herein in reliance upon the report of KPMG LLP, an independent registered public accounting firm, appearing elsewhere herein and upon the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 (File Number 333-) under the Securities Act with respect to the common stock we are offering by this prospectus. This prospectus, which constitutes part of the registration statement, does not contain all of the information included in the registration statement. For further information pertaining to us and our common stock, you should refer to the registration statement and to its exhibits. Whenever we make reference in this prospectus to any of our contracts, agreements or other documents, the references are not necessarily complete, and you should refer to the exhibits attached to the registration statement for copies of the actual contract, agreement or other document.

Upon the completion of the offering, we will be subject to the informational requirements of the Exchange Act and will file annual, quarterly and current reports, proxy statements and other information with the SEC. You can read our SEC filings, including the registration statement, at the SEC's website at www.sec.gov. We also maintain a website at www.tcr2.com and upon completion of the offering, you may access, free of charge, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to those reports, as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. The information contained in, or that can be accessed through, our website is not part of, and is not incorporated into, this prospectus.

TCR² THERAPEUTICS INC.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors
TCR2 Therapeutics Inc.:

Opinion on the Financial Statements

We have audited the accompanying balance sheets of TCR2 Therapeutics Inc. (the Company) as of December 31, 2016 and 2017, the related statements of operations and comprehensive loss, redeemable convertible preferred stock and stockholders' equity (deficit), and cash flows for each of the years then ended and the related notes (collectively, the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2016 and 2017, and the results of its operations and its cash flows for each of the years then ended, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We have served as the Company's auditor since 2017.

Cambridge, Massachusetts
September 7, 2018

TCR² THERAPEUTICS INC.
Balance Sheets

(amounts in thousands, except share and per share data)

	DECEMBER 31,	
	2016	2017
Assets		
Current assets:		
Cash and cash equivalents	\$ 7,992	\$ 19,811
Investments	8,348	—
Prepaid expenses and other current assets	975	892
Total current assets	17,315	20,703
Property and equipment, net	936	1,026
Restricted cash	—	290
Deferred offering costs	—	20
Total assets	<u>\$ 18,251</u>	<u>\$ 22,039</u>
Liabilities, redeemable convertible preferred stock and stockholders' equity (deficit)		
Current liabilities:		
Accounts payable	\$ 508	\$ 427
Accrued expenses and other current liabilities	458	804
Total current liabilities	966	1,231
Other liabilities	—	30
Total liabilities	966	1,261
Commitments (Note 7)		
Redeemable convertible preferred stock, \$0.0001 par value:		
Series A preferred stock: 45,000,000 shares authorized; 28,333,334 and 44,500,001 shares issued and outstanding at December 31, 2016 and 2017, respectively (liquidation preference of \$47,102 at December 31, 2017)	29,169	47,102
Total redeemable convertible preferred stock	<u>29,169</u>	<u>47,102</u>
Stockholders' equity (deficit):		
Common stock, \$0.0001 par value; 82,000,000 shares authorized; 3,434,389 and 3,796,606 shares issued at December 31, 2016 and 2017, respectively; 2,024,580 and 2,698,226 shares outstanding at December 31, 2016 and 2017, respectively	—	—
Additional paid-in capital	—	—
Accumulated other comprehensive income (loss)	(2)	—
Accumulated deficit	(11,882)	(26,324)
Total stockholders' equity (deficit)	<u>(11,884)</u>	<u>(26,324)</u>
Total liabilities, redeemable convertible preferred stock and stockholders' equity (deficit)	<u>\$ 18,251</u>	<u>\$ 22,039</u>

See accompanying notes to financial statements

TCR² THERAPEUTICS INC.
Statements of Operations and Comprehensive Loss
(amounts in thousands, except share and per share data)

	YEARS ENDED DECEMBER 31,	
	2016	2017
Operating expenses:		
Research and development	\$ 7,670	\$ 9,569
General and administrative	2,260	3,611
Loss from operations	(9,930)	(13,180)
Other income, net	15	110
Net loss	(9,915)	(13,070)
Accretion of redeemable convertible preferred stock to redemption value	(787)	(1,794)
Net loss attributable to common stockholders	\$ (10,702)	\$ (14,864)
Other comprehensive loss:		
Net loss	\$ (9,915)	\$ (13,070)
Unrealized (loss) gain on investments	(2)	2
Comprehensive loss	\$ (9,917)	\$ (13,068)
Per share information:		
Net loss per share of common stock, basic and diluted	\$ (6.24)	\$ (6.45)
Weighted average shares outstanding, basic and diluted	1,715,547	2,304,853
Pro forma net loss per share of common stock—basic and diluted (unaudited)		\$ (0.41)
Pro forma weighted average shares outstanding (unaudited)		31,789,785

See accompanying notes to financial statements

TCR2 THERAPEUTICS INC.

Statements of Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit)
Years Ended December 31, 2016 and 2017
(amounts in thousands, except share and per share data)

	SERIES A REDEEMABLE CONVERTIBLE PREFERRED STOCK		STOCKHOLDERS' EQUITY (DEFICIT)					
	SHARES	AMOUNT	COMMON STOCK		ADDITIONAL PAID-IN CAPITAL	ACCUMULATED DEFICIT	ACCUMULATED OTHER COMPRE- HENSIVE INCOME (LOSS)	TOTAL STOCKHOLDERS' EQUITY (DEFICIT)
			SHARES	AMOUNT				
Balance at January 1, 2016	5,823,530	\$ 5,896	1,469,331	\$ —	\$ —	\$ (1,273)	\$ —	\$ (1,273)
Sale of Series A preferred stock, net of issuance costs of \$24	22,509,804	22,486	—	—	—	—	—	—
Reclassification of shares issued and previously subject to repurchase	—	—	555,249	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	93	—	—	93
Unrealized loss on investments	—	—	—	—	—	—	(2)	(2)
Accretion of Series A preferred stock to redemption value	—	787	—	—	(93)	(694)	—	(787)
Net loss	—	—	—	—	—	(9,915)	—	(9,915)
Balance at December 31, 2016	28,333,334	29,169	2,024,580	—	—	(11,882)	(2)	(11,884)
Sale of Series A preferred stock, net of issuance costs of \$28	16,166,667	16,139	—	—	—	—	—	—
Reclassification of shares issued and previously subject to repurchase	—	—	555,248	—	—	—	—	—
Exercise of stock options	—	—	118,398	—	14	—	—	14
Stock-based compensation expense	—	—	—	—	408	—	—	408
Unrealized gain on investments	—	—	—	—	—	—	2	2
Accretion of Series A preferred stock to redemption value	—	1,794	—	—	(422)	(1,372)	—	(1,794)
Net loss	—	—	—	—	—	(13,070)	—	(13,070)
Balance at December 31, 2017	<u>44,500,001</u>	<u>\$ 47,102</u>	<u>2,698,226</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ (26,324)</u>	<u>\$ —</u>	<u>\$ (26,324)</u>

See accompanying notes to financial statements

TCR² THERAPEUTICS INC.
Statements of Cash Flows

(amounts in thousands)

	YEARS ENDED DECEMBER 31,	
	2016	2017
Operating activities:		
Net loss	\$ (9,915)	\$ (13,070)
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation and amortization	220	298
Stock-based compensation expense	93	408
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(222)	83
Accounts payable	76	(101)
Accrued expenses and other liabilities	368	347
Cash used in operating activities	(9,380)	(12,036)
Investing activities:		
Purchase of investments	(8,350)	(6,480)
Proceeds from maturity of investments	—	14,830
Change in restricted cash	—	(290)
Purchases of equipment	(869)	(388)
Cash (used in) provided by investing activities	(9,219)	7,672
Financing activities:		
Proceeds from the sale of Series A preferred stock	22,510	16,167
Proceeds from the exercise of stock options	—	14
Proceeds from the exercise of unvested stock options	—	30
Payment of issuance costs	(24)	(28)
Cash provided by financing activities	22,486	16,183
Net increase in cash and cash equivalents	3,887	11,819
Cash and cash equivalents at beginning of year	4,105	7,992
Cash and cash equivalents at end of year	\$ 7,992	\$ 19,811
Supplemental disclosure of noncash financing activities:		
Accretion of redeemable convertible preferred stock to redemption value	\$ 787	\$ 1,794
Deferred offering costs included in accounts payable	\$ —	\$ 20

See accompanying notes to financial statements

TCR² THERAPEUTICS INC.
Notes to Financial Statements
December 31, 2016 and 2017

1. Organization and Description of Business

TCR² Therapeutics Inc. (the Company), a Delaware incorporated company, is an immunotherapy company focused on developing the next generation of novel T cell treatments for patients suffering from cancer. The Company's principal operations are located in Cambridge, Massachusetts.

2. Liquidity

The Company's operations to date have focused on organization and staffing, business planning, raising capital, acquiring technology and assets, manufacturing and conducting preclinical studies. The Company does not have any product candidates approved for sale and has not generated any revenue from product sales. The Company's product candidates are subject to long development cycles and the Company may be unsuccessful in its efforts to develop, obtain regulatory approval for or market its product candidates.

The Company is subject to a number of risks including, but not limited to, the need to obtain adequate additional funding for the ongoing and planned clinical development of its product candidates. Because of the numerous risks and uncertainties associated with pharmaceutical products and development, the Company is unable to accurately predict the timing or amount of funds required to complete development of its product candidates, and costs could exceed the Company's expectations for a number of reasons, including reasons beyond the Company's control.

The Company is also subject to a number of other risks including possible failure of preclinical studies or clinical trials, the need to obtain marketing approval for its product candidates, the development of new technological innovations by competitors, the need to successfully commercialize and gain market acceptance of any of the Company's products that are approved and uncertainty around intellectual property matters. If the Company does not successfully commercialize any of its products, it will be unable to generate product revenue or achieve profitability.

The Company has incurred net losses from operations since inception and has an accumulated deficit of \$26.3 million as of December 31, 2017. The Company intends to raise additional capital through the issuance of equity securities, and potentially through strategic arrangements with third parties. If financing is not available at adequate levels, the Company may need to re-evaluate its operating plans. Management believes currently available resources, which include \$125.0 million in gross proceeds the Company received in connection with the 2018 sale of 62.5 million shares of the Company's Series B redeemable convertible preferred stock (Series B stock), will be sufficient to fund its operating expenses and capital expenditure requirements through at least twelve months from the date of issuance of these financial statements. However, if the Company's anticipated operating results are not achieved in future periods, planned expenditures may need to be reduced in order to extend the time period over which the then-available resources would be able to fund the Company's operations.

3. Basis of Presentation and Summary of Significant Accounting Policies

The accompanying financial statements have been prepared in conformity with U.S. generally accepted accounting principles (GAAP). Any reference in these notes to applicable guidance is meant to refer to GAAP as found in the Accounting Standards Codification (ASC) and Accounting Standards Updates (ASU) of the Financial Accounting Standards Board (FASB).

Use of estimates

The preparation of the accompanying financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and reported amounts of revenues and expenses during the reporting period. Significant estimates and assumptions reflected in these financial statements include, but are not limited to, impairment of long-lived assets, fair value of the royalty transfer agreement obligations and the fair value of common stock, warrants issued, and options granted under the Company's equity-based compensation plans. Actual results could differ from those estimates. Due to the uncertainty of factors surrounding the estimates

or judgments used in the preparation of the financial statements, actual results may materially vary from these estimates. Estimates and assumptions are periodically reviewed and the effects of revisions are reflected in the financial statements in the period they are determined to be necessary.

Unaudited pro forma financial information

In the accompanying statements of operations and comprehensive loss, unaudited pro forma basic and diluted net loss per share of common stock has been prepared to give effect to the automatic conversion of all outstanding shares of Series A redeemable convertible preferred stock (Series A preferred stock) as if this proposed initial public offering had occurred on the later of the beginning of the reporting period or the issuance date of the convertible preferred stock. Further, the unaudited pro forma net loss attributable to common stockholders used in the calculation of unaudited basic and diluted pro forma net loss per share of common stock excludes the effects of accretion on redeemable convertible preferred stock to redemption value.

Fair value of financial instruments

At December 31, 2016 and 2017, the Company's financial instruments included investments, accounts payable and accrued expenses. The carrying amount of accounts payable and accrued expenses approximates fair value due to the short-term maturities of these instruments. The carrying value of investments is the estimated fair value.

Cash and cash equivalents

The Company considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents. As of December 31, 2016 and 2017, cash equivalents consisted of U.S treasuries, corporate bonds and government-backed money market funds.

Restricted cash

Cash accounts that are restricted as to withdrawal or usage are presented as restricted cash. Restricted cash includes amounts held as a security deposit in the form of a letter of credit for the Company's leased facility.

Investments

The Company determines the appropriate classification of its investments in debt and equity securities at the time of purchase and re-evaluates such determination at each balance sheet date. As of December 31, 2016, all investments were classified as available for sale and carried at their estimated fair value. Unrealized gains and losses are recorded as a component of accumulated other comprehensive income (loss). The Company periodically reviews its investments in equity securities for impairment and adjusts these investments to their fair value when a decline in market value is deemed to be other than temporary. If losses on these securities are considered to be other than temporary, the loss is recognized in earnings.

Property and equipment

Property and equipment are recorded at cost. Depreciation and amortization is determined using the straight-line method over the estimated useful lives ranging from 3 to 5 years. Leasehold improvements are amortized over the life of the lease or the estimated useful life of the assets, whichever is shorter. Expenditures for maintenance and repairs are expensed as incurred while renewals and betterments are capitalized. When property and equipment is sold or otherwise disposed of, the cost and related accumulated depreciation are eliminated from the accounts and any resulting gain or loss is reflected in operations.

Impairment of long-lived assets

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to future undiscounted net cash flows expected to be generated. Impairment charges are recognized at the amount by which the carrying amount of an asset exceeds the fair value of the asset. Assets to be disposed of are reported at the lower of the carrying amount or the fair value less costs to sell. The Company has not recognized any impairment of long-lived assets for the years ended December 31, 2016 and 2017.

Deferred offering costs

The Company capitalizes costs that are directly associated with in-process equity financings until such financings are consummated at which time such costs are recorded against the gross proceeds of the offering. Should the in-process equity financing be abandoned, the deferred offering costs will be expensed immediately as a charge to operating expenses in the statements of operations and comprehensive loss.

Classification and accretion of redeemable convertible preferred stock

The Company has classified redeemable convertible preferred stock outside of stockholders' equity (deficit) because the shares contain certain redemption features that are not solely within the control of the Company. The carrying value of the Series A preferred stock is being accreted to redemption value at the end of each reporting period as if the end of the reporting period were the redemption date. Increases to the carrying value of redeemable convertible preferred stock are charged to additional paid-in capital or, in the absence of additional paid-in capital, charged to accumulated deficit.

Patent costs

All patent-related costs incurred in connection with filing and prosecuting patent applications are expensed as incurred due to the uncertainty about the recovery of future expenditure. Amounts incurred are classified as general and administrative expenses.

Stock-based compensation

The Company measures employee stock-based awards at grant-date fair value and records compensation expense on a straight-line basis over the requisite service period, which is generally the vesting period of the respective award. Generally, the Company issues awards with only service-based vesting conditions. The Company accounts for forfeitures as they occur.

The Company measures the fair value of stock-based awards granted to non-employees on the date at which the related service is complete. Compensation expense is recognized over the period during which services are rendered by such non-employee consultants until completed. At the end of each financial reporting period prior to completion of the service, the fair value of these awards is remeasured using the then-current fair value of its common stock and updated assumption inputs in the Black-Scholes option-pricing model for options or the then current fair value of its common stock for restricted stock. Exercised but unvested stock-based awards are subject to repurchase by the Company at the lesser of the initial exercise price and the fair market value of the Company's common stock at the time of repurchase. The proceeds from the shares subject to repurchase are classified as a liability and reclassified to equity as the shares vest.

Estimating the fair value of stock-based awards requires the input of subjective assumptions, including the fair value of the Company's common stock, and, for stock options, the expected life of the options and stock price volatility. The Company uses the Black-Scholes option pricing model to value its stock option awards. The assumptions used in calculating the fair value of stock-based awards represent management's estimates and involve inherent uncertainties and the application of management's judgment. As a result, if factors change and management uses different assumptions, stock-based compensation expense could be materially different for future awards.

The Company classifies stock-based compensation expense in its statements of operations and comprehensive loss in the same manner in which the award recipient's payroll costs are classified or in which the award recipient's service payments are classified.

Research and development expenses

Research and development costs are expensed as incurred and consist primarily of funds paid to third parties for the provision of services for product candidate development, clinical and preclinical development and related supply and manufacturing costs, and regulatory compliance costs. At the end of the reporting period, the Company compares payments made to third party service providers to the estimated progress toward completion of the research or development objectives. Such estimates are subject to change as additional information becomes available. Depending on the timing of payments to the service providers and the progress that the Company estimates has been made as a result of the service provided, the Company may record net prepaid or accrued expense relating to these costs.

Upfront milestone payments made to third parties who perform research and development services on the Company's behalf are expensed as services are rendered.

Income taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the

enactment date. A reduction in the carrying value of the net deferred tax assets is required when it is not more likely than not that such deferred tax assets are realizable.

Net loss per share

Basic and diluted net loss per common share is determined by dividing net loss attributable to common stockholders by the weighted-average shares of common stock outstanding during the period. The Company's outstanding redeemable convertible preferred stock contractually entitles the holders of such shares to participate in distributions but contractually does not require the holders of such shares to participate in losses of the Company. Similarly, restricted stock awards granted by the Company entitle the holder of such awards to dividends declared or paid by the board of directors, regardless of whether such awards are unvested, as if such shares were outstanding shares of common stock at the time of the dividend. However, the unvested restricted stock awards are not entitled to share in the residual net assets (deficit) of the Company. Accordingly, in periods in which the Company reports a net loss attributable to common stockholders, diluted net loss per share attributable to common stockholders is the same as basic net loss per share attributable to common stockholders, since dilutive shares of common stock are not assumed to have been issued if their effect is anti-dilutive. Therefore, the weighted-average shares used to calculate both basic and diluted loss per share are the same.

The following potentially dilutive securities have been excluded from the computation of diluted weighted-average shares outstanding as of December 31, 2016 and 2017, as they would be antidilutive:

	YEARS ENDED DECEMBER 31,	
	2016	2017
Series A redeemable convertible preferred stock	28,333,334	44,500,001
Stock options	3,692,499	7,579,849
Unvested shares of restricted stock	1,409,809	850,071
Common stock warrants	264,859	2,310,681
Total	33,700,501	55,240,602

Unaudited pro forma net loss per share of common stock is computed using the weighted-average number of shares of common stock outstanding and assumes the conversion of 44,500,001 shares of Series A preferred stock as though the conversion had occurred on January 1, 2017 or the original issuance date, if later.

Comprehensive loss

Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources (which excludes investments from owners). The Company's only element of other comprehensive loss is unrealized gains and losses on investments.

Segment information

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company views its operations and manages its business in one segment.

Recently adopted accounting pronouncements

In March 2018, the FASB issued ASU 2018-05, which amends Income Taxes (Topic 740) by incorporating the Securities and Exchange Commission's (SEC) Staff Accounting Bulletin 118 (SAB 118) issued on December 22, 2017. SAB 118 provide guidance on accounting for the effects of the Tax Cuts and Jobs Act (Tax Act). The Company recognized the income tax effects of the Tax Act in the 2017 financial statements in accordance with SAB 118. See Note 11 of the financial statements for additional information.

In March 2016, the FASB issued ASU 2016-09, Compensation-Stock Compensation: Improvements to Employee Share-Based Payment Accounting. This standard will require entities to recognize all excess tax benefits and tax deficiencies in the statement of operations as a discrete item in the reporting period in which they occur. The standard also allows an employer to withhold up to the maximum statutory tax rate and still qualify for equity

classification. Classification of excess tax benefits on the statement of cash flows should be classified as an operating activity, and employee taxes paid when an employer withholds shares for tax-withholding purposes should be classified as a financing activity. The provisions that affect the statement of operations will be effective prospectively in the year of adoption and the provisions that affect the statement of cash flows will be effective retrospectively. The Company adopted this standard effective January 1, 2017 and it had no impact on the Company's financial statements and related disclosures.

In August 2014, the FASB issued ASU 2014-15, Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern. The amendments in this update explicitly require a company's management to assess an entity's ability to continue as a going concern, and to provide related footnote disclosures in certain circumstances. The standard was effective in the first annual period ending after December 15, 2016. The Company adopted this standard effective January 1, 2017 and it had no impact on the Company's financial statements and related disclosures.

Recently issued accounting pronouncements

JOBS Act Accounting Election

The Company is an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012 (the JOBS Act). Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. The Company has elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that it is (i) no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, these financial statements may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates.

In June 2018, the FASB issued ASU 2018-07, Compensation — Stock Compensation (Topic 718) Improvements to Non-employee Share-Based Payment Accounting. The amendments in this update expand the scope of Topic 718 to include share-based payment transactions for acquiring goods and services from non-employees. Under this ASU, an entity should apply the requirements of Topic 718 to non-employee awards except for specific guidance on inputs to an option pricing model and the attribution of costs (that is, the period of time over which share-based payment awards vest and the pattern of cost recognition over that period). The guidance is applicable to public business entities for fiscal years beginning after December 15, 2018 including interim periods within that fiscal year. For all other entities, the amendments are effective for fiscal years beginning after December 15, 2019, and interim periods within fiscal years beginning after December 15, 2020. The Company is currently evaluating the effect that this guidance will have on its financial statements and related disclosures.

In November 2016, the FASB issued ASU 2016-18, Statement of Cash Flows (Topic 230) Restricted Cash, which requires entities to show the changes in the total of cash, cash equivalents, restricted cash and restricted cash equivalents in the statement of cash flows. Entities will no longer present transfers between cash and cash equivalents and restricted cash and restricted cash equivalents in the statement of cash flows. The guidance is applicable to public business entities for fiscal years beginning after December 15, 2017 and interim periods within those fiscal years. For all other entities, the amendments are effective for fiscal years beginning after December 15, 2018, and interim periods within fiscal years beginning after December 15, 2019 with early adoption permitted. The Company is currently evaluating the effect that this guidance will have on its financial statements and related disclosures.

In August 2016, the FASB issued ASU 2016-15, Statement of Cash Flows (Topic 230) Classification of Certain Cash Receipts and Cash Payments, which will make eight targeted changes to how cash receipts and cash payments are presented and classified in the statement of cash flows. This standard is effective for public business entities for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years. For all other entities, the amendments are effective for fiscal years beginning after December 15, 2018, and interim periods within fiscal years beginning after December 15, 2019 and will require adoption on a retrospective basis unless it is impracticable to apply, in which case the Company would be required to apply the amendments prospectively as of the earliest date practicable. The Company is currently evaluating the potential impact of the adoption of this standard on its financial statements and related disclosures.

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In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842). The FASB issued the update to require the recognition of lease assets and liabilities on the balance sheet of lessees. The standard will be effective for public business entities for fiscal years beginning after December 15, 2018 and interim periods within those fiscal years. For all other entities, the amendments are effective for fiscal years beginning after December 15, 2019, and interim periods within fiscal years beginning after December 15, 2020. This ASU requires a modified retrospective transition method with the option to elect a package of practical expedients. Early adoption is permitted. The Company is currently evaluating the potential impact of the adoption of this standard on its financial statements and related disclosures.

4. Investments and Fair Value Measurements

As of December 31, 2017, there were no investments outstanding. As of December 31, 2016, investments were comprised of the following (in thousands):

	AMORTIZED COST	UNREALIZED GAINS	UNREALIZED LOSSES	FAIR VALUE
Corporate bonds	\$ 3,867	\$ —	\$ (1)	\$3,866
Commercial paper	3,733	—	(1)	3,732
Asset backed securities	750	—	—	750
	<u>\$ 8,350</u>	<u>\$ —</u>	<u>\$ (2)</u>	<u>\$8,348</u>

The Company follows FASB's accounting guidance on fair value measurements for financial assets and liabilities measured on a recurring basis. The guidance requires fair value measurements to be classified and disclosed in one of the following three categories:

Level 1—Quoted prices (unadjusted in active markets for identical assets or liabilities)

Level 2—Inputs other than quoted prices in active markets that are observable either directly or indirectly

Level 3—Unobservable inputs in which there is little or no market data, which require the Company to develop its own assumptions.

This hierarchy requires the use of observable market data when available and to minimize the use of unobservable inputs when determining fair value.

The Company has classified assets and liabilities measured at fair value on a recurring basis as follows (in thousands):

	DECEMBER 31, 2016				
	CARRYING AMOUNT	FAIR VALUE	FAIR VALUE MEASUREMENT BASED ON		
			QUOTED PRICES IN ACTIVE MARKETS (LEVEL 1)	SIGNIFICANT OTHER OBSERVABLE INPUTS (LEVEL 2)	SIGNIFICANT UNOBSERVABLE INPUTS (LEVEL 3)
Assets					
Cash equivalents (1)	\$ 7,611	\$ 7,611	\$ 4,075	\$ 3,536	\$ —
Corporate bonds	3,866	3,866	—	3,866	—
Commercial paper	3,732	3,732	—	3,732	—
Asset backed securities	750	750	—	750	—
	<u>\$ 15,959</u>	<u>\$ 15,959</u>	<u>\$ 4,075</u>	<u>\$ 11,884</u>	<u>\$ —</u>

(1) Includes cash sweep accounts, U.S. Treasury money market mutual fund, bank certificates of deposit, U.S. Treasury bills and corporate bonds that have a maturity of three months or less from the original acquisition date.

	CARRYING AMOUNT	FAIR VALUE	DECEMBER 31, 2017		
			FAIR VALUE MEASUREMENT BASED ON		
			QUOTED PRICES IN ACTIVE MARKETS (LEVEL 1)	SIGNIFICANT OTHER OBSERVABLE INPUTS (LEVEL 2)	SIGNIFICANT UNOBSERVABLE INPUTS (LEVEL 3)
Assets					
Cash equivalents (2)	\$ 19,107	\$ 19,107	\$ 18,107	\$ 1,000	\$ —
	<u>\$ 19,107</u>	<u>\$ 19,107</u>	<u>\$ 18,107</u>	<u>\$ 1,000</u>	<u>\$ —</u>

(2) Includes cash sweep accounts, U.S. Treasury money market mutual fund, bank certificates of deposit, U.S. Treasury bills and corporate bonds that have a maturity of three months or less from the original acquisition date.

5. Property and Equipment

Property and equipment, net, consisted of (in thousands):

	DECEMBER 31,	
	2016	2017
Laboratory equipment	\$1,086	\$1,312
Computer hardware and equipment	79	105
Construction in-process	—	136
	1,165	1,553
Less: accumulated depreciation	(229)	(527)
	<u>\$ 936</u>	<u>\$1,026</u>

Depreciation expense was \$0.2 million and \$0.3 million for the years ended December 31, 2016 and 2017, respectively.

6. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consisted of (in thousands):

	DECEMBER 31,	
	2016	2017
Employee compensation and related benefits	\$ 364	\$ 686
Professional fees	15	37
Other	79	81
	<u>\$ 458</u>	<u>\$ 804</u>

7. Commitments and Contingencies

Leases

The Company recognizes rent expense on a straight-line basis over the lease period and has accrued for rent expense incurred but not yet paid. Landlord allowances for tenant improvements are deferred and recognized as a reduction to rent expense on a straight-line basis and over the remaining lease term. The Company leases its office and laboratory facilities in Cambridge, Massachusetts under a non-cancelable operating lease agreement that expired in April 2018. Rent expense was \$1.1 million and \$1.2 million for the years ended December 31, 2016 and 2017, respectively. The Company entered into a new lease agreement in March 2018 as discussed further in Note 12.

Employee benefit plan

The Company maintains a defined contribution 401(k) plan (the 401(k) Plan) in which employees may contribute a portion of their compensation, subject to statutory maximum contribution amounts. The Company assumes all administrative costs of the 401(k) Plan. For the years ended December 31, 2016 and 2017, the expense relating to the matching contribution was \$41,000 and \$61,000, respectively.

Litigation

The Company is not currently party to any material legal proceedings. At each reporting date, the Company evaluates whether or not a potential loss amount or a potential range of loss is probable and reasonably estimable under the provisions of the authoritative guidance that addresses accounting for contingencies. The Company expenses as incurred the costs related to such legal proceedings.

Royalty transfer agreement

In connection with the sale of Series A preferred stock (see Note 8), certain investors are entitled to receive, in the aggregate, a royalty from the Company equal to one percent of (i) all global net sales of any Company products and (ii) any license income on intellectual property that was in existence at the time of the Series A preferred stock financing. The Company has elected to account for this liability at fair value with changes recognized in earnings. Given the early stage nature of the underlying technology and inherent risks associated with obtaining regulatory approval and achieving commercialization, the Company ascribed no value to the royalty agreement at inception and at December 31, 2016 and 2017. The Company currently does not have any net sales or license income and as a result has paid no royalties under this obligation as of December 31, 2017 nor has the Company accrued any liability as of December 31, 2017.

8. Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit)

Common stock

Each share of common stock entitles the holder to one vote on all matters submitted to a vote of the Company's stockholders. Subject to the rights of holders of redeemable convertible preferred stock, common stockholders are entitled to receive dividends, as may be declared by the board of directors, if any. No dividends had been declared through December 31, 2017.

During the years ended December 31, 2016 and 2017, the Company reclassified to equity 555,249 and 555,248 shares of restricted common stock held at par that were issued upon the exercise of stock options and previously subject to repurchase, respectively. During the year ended December 31, 2017, the Company issued 118,398 shares of common stock in connection with the exercise of stock options. As of December 31, 2016 and 2017, there were 1,409,809 and 1,098,376 shares of common stock purchased but not presented as outstanding, respectively, as they remain subject to repurchase until they vest.

Redeemable convertible preferred stock

In 2015, the Company entered into a Series A preferred stock purchase agreement and initially sold 5,823,530 shares. During the years ended December 31, 2016 and 2017, the Company sold 22,509,804 and 16,166,667 shares, respectively, of its Series A preferred stock at a price of \$1.00 per share in exchange for gross cash proceeds of \$22.5 million and \$16.2 million, respectively. Included in the Series A preferred stock purchase agreement, the investor is required to purchase additional shares upon the achievement of certain Company milestones. The Company evaluated the future commitment obligations at original issuance and determined they were not freestanding instruments as they were not legally detachable. The future commitment obligations were also evaluated as embedded derivatives and determined they did not meet the definition of a derivative instrument for which bifurcation would be required.

Conversion

Each share of Series A preferred stock is convertible, at the option of the holder, into shares of common stock, on a one-to-one basis, subject to adjustment for certain dilutive events. The conversion price may be adjusted to prevent dilution of the Series A preferred stock.

The preferred stock is also mandatorily convertible upon the closing of an initial public offering and proceeds exceeding \$50.0 million or by a written election by the majority of the Series A stockholders.

Redemption

At the election of a majority of the Series A stockholders, the Series A preferred stock is redeemable at any time on or after October 16, 2020. The Series A preferred stock may be redeemed at a price equal to the greater of (a) the original issuance price, plus any cumulative dividends accrued but unpaid thereon, whether or not declared, or (b) the fair market value as of the date of the redemption.

Dividends

The holders of shares of Series A preferred stock are entitled to receive cumulative dividends of 6% from the date of issuance. Accumulated dividends are payable only when and if declared by the Board of Directors, in preference to dividends paid to holders of common stock. The dividend preference for Series A preferred stock is \$0.06 per share, as adjusted for recapitalizations. No dividends have been declared through December 31, 2017.

Liquidation

In the event of a liquidation, dissolution or winding up of the Company, either voluntary or involuntary, or in the event of a deemed liquidation event, which includes a sale of the Company as defined in the Company's certificate of incorporation, holders of Series A preferred stock are entitled to receive, in preference to all other stockholders, an amount equal to their original investment amount plus any declared and unpaid dividends. If upon the occurrence of such event, the assets and funds available for distribution are insufficient to pay such holders the full amount to which they are entitled, then the entire assets and funds legally available for distribution shall be distributed ratably among the holders of the Series A preferred stock in proportion to the full amounts to which they would otherwise be entitled.

After payment of the liquidation preference on shares of Series A preferred stock has been made, any remaining assets would be distributed ratably to common and Series A stockholders, on an as-converted basis.

9. Stock-based Compensation

The Company issues stock-based awards pursuant to its 2015 Stock Option and Grant Plan, as amended (the "Plan"). The maximum number of authorized shares to be issued under the Plan was 7,823,454. As of December 31, 2017, there were 174,868 shares of common stock available for future issuance. The amount, terms of grants, and exercisability provisions are determined and set by the Company's board of directors. The term of the options may be up to 10 years, and options are exercisable in cash or as otherwise determined by the board of directors. Generally, options and restricted stock awards vest over a four-year period.

The Company recorded stock-based compensation expense in the following expense categories of its accompanying statements of operations and comprehensive loss for the years ended December 31, 2016 and 2017 (in thousands):

	DECEMBER 31,	
	2016	2017
Research and development	\$ 7	\$ 43
General and administrative	86	365
	<u>\$ 93</u>	<u>\$ 408</u>

Stock options

The following table summarizes the activity related to stock option grants to employees and non-employees for the years ended December 31, 2016 and 2017:

	SHARES	WEIGHTED AVERAGE EXERCISE PRICE PER SHARE	WEIGHTED AVERAGE REMAINING CONTRACTUAL LIFE (IN YEARS)
Balance at January 1, 2016	—	\$ —	
Granted	3,814,454	0.12	
Forfeited	(121,955)	0.12	
Outstanding at December 31, 2016	3,692,499	0.12	9.9
Granted	4,278,322	0.12	
Exercised	(118,398)	0.12	
Forfeited	(272,574)	0.12	
Outstanding at December 31, 2017	7,579,849	\$ 0.12	9.5
Exercisable at December 31, 2017	937,497	\$ 0.12	8.9
Vested and expected to vest at December 31, 2017	7,579,849	\$ 0.12	9.5

The 7,579,849 shares of common stock issuable upon the exercise of options outstanding as of December 31, 2017 in the table above includes 248,305 shares of common stock that have been issued upon exercise prior to vesting and are subject to repurchase by the Company and 49,661 options that were granted outside of the Plan.

The weighted average grant date fair value of options granted to employees, directors and non-employee consultants during the years ended December 31, 2016 and 2017 was \$0.08 and \$0.18, respectively. As of December 31, 2017, there was \$0.9 million in unrecognized compensation cost that is expected to be recognized over an estimated weighted-average amortization period of 3.6 years. The aggregate intrinsic value of options outstanding and options exercisable as of December 31, 2017 was \$1.2 million and \$0.2 million, respectively.

The fair value of options is estimated using the Black-Scholes option pricing model, which takes into account inputs such as the exercise price, the value of the underlying common stock at the grant date, expected term, expected volatility, risk-free interest rate and dividend yield. The fair value of each grant of options during the year ended December 31, 2016 and 2017 was determined using the methods and assumptions discussed below:

- The expected term of employee options is determined using the “simplified” method, as prescribed in the SEC Staff Accounting Bulletin (SAB) No. 107, whereby the expected life equals the arithmetic average of the vesting term and the original contractual term of the option due to the Company’s lack of sufficient historical data. The expected term of non-employee options is equal to the contractual term.
- The expected volatility is based on historical volatilities of similar entities within the Company’s industry which were commensurate with the expected term assumption as described in SAB No. 107.
- The estimated annual dividend yield is 0% because the Company has not historically paid, and does not expect for the foreseeable future to pay, a dividend on its common stock.
- The Company considered numerous objective and subjective factors in estimating the fair value of its common stock, including the estimated fair value of the Company’s Series A preferred stock.

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For the years ended December 31, 2016 and 2017, the grant date fair value of all option grants was estimated at the time of grant using the Black-Scholes option-pricing model using the following weighted average assumptions:

	DECEMBER 31,	
	2016	2017
Risk free interest rate	2.1%	2.1%
Expected term (in years)	7.1	6.6
Expected volatility	69.3%	65.7%
Annual dividend yield	0.00%	0.00%
Fair value of common stock	\$ 0.12	\$ 0.24

Restricted stock

For restricted stock awards granted to employees, the fair value of the award is the current fair value of the Company's common stock on the grant date, while for non-employees, the fair value of the award is re-measured each reporting period using the then-current fair value of the Company's common stock until performance is complete. All restricted stock grants were outside of the plan.

In the event of a termination of employment or consulting services arrangement, the unvested restricted stock awards are subject to repurchase by the Company at the lower of the purchase price paid by the holder and the then current fair value.

The following table summarizes the activity related to restricted stock grants to employees and non-employees for the years ended December 31, 2016 and 2017:

	SHARES
Balance at January 1, 2016	1,965,054
Granted	—
Vested	(555,249)
Outstanding at December 31, 2016	1,409,805
Granted	—
Vested	(555,248)
Forfeited	(4,486)
Outstanding at December 31, 2017	850,071

As of December 31, 2017, there was \$0.2 million in unrecognized compensation cost that is expected to be recognized over an estimated weighted-average amortization period of 1.5 years.

Warrants

Warrants issued to non-employees in connection with providing consulting services are issued outside of the Plan and are accounted for as stock-based compensation. The fair value of warrants is estimated using the Black-Scholes option pricing model.

During the year ended December 31, 2016 and 2017, the Company issued 264,859 and 2,045,822 common stock warrants, respectively. The warrants have an initial exercise price of \$0.12 per share and will expire at the earlier of ten years from the date of issuance or a change in control event as defined in the warrant agreements.

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For the years ended December 31, 2016 and 2017, the grant date fair value of all warrant grants was estimated at the time of grant using the Black-Scholes option-pricing model using the following weighted average assumptions:

	DECEMBER 31,	
	2016	2017
Risk free interest rate	2.5%	2.4%
Expected term (in years)	10.0	10.0
Expected volatility	71.8%	68.3%
Annual dividend yield	0.00%	0.00%
Fair value of common stock	\$ 0.12	\$ 0.28

As of December 31, 2017, there was \$0.3 million in unrecognized compensation cost that is expected to be recognized over an estimated weighted-average amortization period of 2.9 years.

10. Income taxes

Subject to the limitations described below, at December 31, 2017, we have cumulative net operating loss carryforwards of approximately \$1.8 million and \$1.4 million available to reduce federal and state taxable income, which expire through 2037. In addition, we have cumulative federal and state tax credit carryforwards of \$0.4 million and \$0.4 million, respectively, available to reduce federal and state income taxes which expire through 2037 and 2032, respectively.

Section 382 of the Internal Revenue Code of 1986, as amended (the Code) provides for limitation on the use of net operating loss and research and development tax credit carryforwards following certain ownership changes (as defined in Code) that could limit the Company's ability to utilize these carryforwards. Pursuant to Section 382 of the Code, an ownership change occurs when the stock ownership of a 5% stockholder increases by more than 50% over a three-year testing period. The Company may have experienced various ownership changes, as defined by the Code, as a result of past financings and may in the future experience an ownership change. Accordingly, the Company's ability to utilize the aforementioned carryforwards may be limited. Additionally, U.S. tax laws limit the time during which these carryforwards may be applied against future taxes. The Company has not performed an Internal Revenue Code Section 383 study in connection with changes in control.

The components of net deferred income tax assets as of December 31, 2016 and 2017 are as follows (in thousands):

	DECEMBER 31,	
	2016	2017
Deferred tax assets:		
Accrued expenses and other	\$ 143	\$ 187
Capitalized costs	4,077	5,879
Research and development credits	175	732
Net operating loss carryforwards	139	471
Total deferred tax assets	\$ 4,534	\$ 7,269
Deferred tax liabilities:		
Depreciation	(16)	(15)
Other temporary differences	(34)	(74)
Total deferred tax liabilities	(50)	(90)
Less: valuation allowance	(4,484)	(7,180)
Total net deferred tax assets (liabilities)	\$ —	\$ —

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In assessing the realizability of the net deferred tax assets, the Company considers all relevant positive and negative evidence in determining whether it is more likely than not that some portion or all of the deferred income tax assets will not be realized. The realization of the gross deferred tax assets is dependent on several factors, including the generation of sufficient taxable income prior to the expiration of the net operating loss carryforwards. Management believes that it is more likely than not that the Company's deferred income tax assets will not be realized. As such, there is a full valuation allowance against the net deferred tax assets as of December 31, 2016 and 2017. The valuation allowance increased by approximately \$4.0 million during the year ended December 31, 2016 due primarily to the increase in our capitalized costs for start-up and research and development expenditures and increased by approximately \$2.7 million during the year ended December 31, 2017 due primarily to the increase in the Company's capitalized costs for start-up and research and development expenditures partially offset by the re-measurement of our deferred tax balance following the decrease in the federal income tax rate from 34% to 21%.

In December 2017, the Tax Act was enacted. The Tax Act includes a number of changes to existing United States tax laws that impact the Company, most notably a reduction of the United States corporate income tax rate from 35% (34% for the Company) to 21% for tax years beginning after December 31, 2017. The Tax Act also provides for a one-time transition tax on certain foreign earnings and the acceleration of depreciation for certain assets placed into service after September 27, 2017, as well as prospective changes beginning in 2018, including repeal of the domestic manufacturing deduction, acceleration of tax revenue recognition, capitalization of research and development expenditures, additional limitations on executive compensation and limitations on the deductibility of interest. Due to the enactment of the Tax Act, the Company reduced both its gross deferred tax assets and the related valuation allowance by \$2.8 million as of December 31, 2017, resulting in no net effect on the Company's statement of operations for the year ended December 31, 2017.

The Company did not have unrecognized tax benefits as of December 31, 2016 or December 31, 2017. The Company recognizes interest and penalties accrued on any unrecognized tax benefits as a component of income tax expense.

A reconciliation of income tax expense (benefit) at the statutory federal income tax rate and income taxes as reflected in the financial statements is as follows:

	DECEMBER 31,	
	2016	2017
Federal income tax benefit at statutory rate	34.00%	34.00%
State income tax, net of federal benefit	6.02%	6.12%
Permanent differences	(0.30)%	(0.93)%
Research and development credit benefit	0.41%	2.79%
Federal rate change – Tax Act	(0.0)%	(21.36)%
Change in valuation allowance	(40.13)%	(20.62)%
Effective income tax rate	—%	—%

The Company's income tax returns remain open and subject to examination for all tax years after 2015.

Management believes that the Company does not have any uncertain tax positions that would result in a material impact on the Company's financial statements. The Company files income tax returns in the above jurisdictions as well as the applicable state jurisdictions in the United States. There are currently no income tax examinations ongoing. If and when applicable, the Company will recognize interest and penalties on uncertain tax positions as income tax expense.

11. Related party transactions

Consulting arrangements

The majority investor in the Company is MPM Capital (MPM). In September 2015, the Company began receiving consulting and management services pursuant to agreements with three Managing Directors at MPM. For the years ended December 31, 2016 and 2017, the Company incurred approximately \$0.6 million and \$0.5 million, respectively, for management and advisory services in connection with those agreements. These amounts were recorded in general and administrative expenses in the statement of operations and comprehensive loss. As of

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December 31, 2016 and 2017, the Company had amounts due to related parties of approximately \$0.1 million and \$19,000, respectively, for management and advisory services in connection with those agreements, which are included within accounts payable on the balance sheet.

Leasing arrangements

Following its inception, the Company began leasing office space pursuant to an unwritten shared facilities and services agreement with MPM. For the years ended December 31, 2016 and 2017, the Company incurred approximately \$90,000 and \$7,000, respectively, for facilities costs in connection with that agreement, which were recorded in general and administrative and research and development expense in the statement of operations and comprehensive loss. As of December 31, 2016 and 2017, the Company had no outstanding obligations for facilities and other pass-through costs related to that agreement. The Company ended its lease with MPM in January 2017.

12. Subsequent Events

The Company has evaluated subsequent events from the balance sheet date through September 7, 2018, the date at which the financial statements were available to be issued, and determined there are no other items requiring disclosure except for the following:

Sale of Series B redeemable convertible preferred stock

In 2018, the Company issued an aggregate of 62.5 million shares of Series B preferred stock in exchange for gross cash proceeds of \$125.0 million.

Series A preferred stock and Series B preferred stock may be redeemed at a price equal to the greater of (a) the original issuance price, plus any cumulative dividends accrued but unpaid thereon, whether or not declared, or (b) the fair market value as of the date of the redemption, in three annual installments commencing not more than 60 days after receipt of notice by holders of the Series A preferred stock and Series B preferred stock after February 2023.

In February 2018, in conjunction with the Series B preferred stock financing, the Company amended its certificate of incorporation to authorize the issuance of 107,000,001 shares of redeemable convertible preferred stock with a par value of \$0.0001 per share, 44,500,001 of which are designated Series A preferred stock and 65,000,000 of which are designated Series B preferred stock. In addition, the certificate of incorporation was amended to authorize the issuance of up to 130,000,000 shares of common stock at a par value of \$0.0001 per share.

Lease Agreement

In March 2018, the Company began occupying office and laboratory facilities under a new lease that expires in July 2025. Under the terms of the lease, the Company was required to place \$0.3 million into a restricted cash account as security for the facility, which occurred during 2017.

Future minimum rental payments under the noncancelable operating lease are as follows (in thousands):

2018	\$ 1,143
2019	1,779
2020	1,832
2021	1,887
2022	1,944
Thereafter	5,118
	<u>\$13,703</u>

2015 Stock Option and Grant Plan

In February 2018 and July 2018, the 2015 Stock Option and Grant Plan was amended to increase the number of shares reserved for issuance under the Plan by 5,000,000 shares and 3,000,000 shares, respectively.

TCR² THERAPEUTICS INC.
Balance Sheets

(amounts in thousands, except share and per share data)

	DECEMBER 31, 2017	SEPTEMBER 30, 2018 (unaudited)	PRO FORMA SEPTEMBER 30, 2018 (unaudited)
Assets			
Current assets:			
Cash and cash equivalents	\$ 19,811	\$ 107,769	\$ 107,769
Investments	—	23,229	23,229
Prepaid expenses and other current assets	892	392	392
Total current assets	20,703	131,390	131,390
Property and equipment, net	1,026	1,791	1,791
Restricted cash	290	293	293
Deferred offering costs	20	1,194	1,194
Total assets	<u>\$ 22,039</u>	<u>\$ 134,668</u>	<u>\$ 134,668</u>
Liabilities, redeemable convertible preferred stock and stockholders' (deficit) equity			
Current liabilities:			
Accounts payable	\$ 427	\$ 1,509	\$ 1,509
Accrued expenses and other current liabilities	804	2,283	2,283
Total current liabilities	1,231	3,792	3,792
Other liabilities	30	412	412
Total liabilities	1,261	4,204	4,204
Commitments (Note 7)			
Redeemable convertible preferred stock, \$0.0001 par value:			
Series A preferred stock: 45,000,000 and 44,500,001 shares authorized at December 31, 2017 and September 30, 2018, respectively; 44,500,001 shares issued and outstanding at December 31, 2017 and September 30, 2018 respectively (liquidation value of \$66,750 at September 30, 2018)	47,102	66,750	—
Series B preferred stock: No shares and 62,500,000 shares authorized at December 31, 2017 and September 30, 2018, respectively; No shares and 62,500,000 shares issued and outstanding at December 31, 2017 and September 30, 2018, respectively (liquidation value of \$138,750 at September 30, 2018)	—	138,750	—
Total redeemable convertible preferred stock	47,102	205,500	—
Stockholders' (deficit) equity:			
Common stock, \$0.0001 par value; 82,000,000 and 130,000,000 shares authorized at December 31, 2017 and September 30, 2018, respectively; 3,796,606 and 5,626,474 shares issued at December 31, 2017 and September 30, 2018, respectively; 2,698,226 and 4,218,071 shares outstanding at December 31, 2017 and September 30, 2018, respectively	—	—	11
Additional paid-in capital	—	—	205,489
Accumulated other comprehensive income (loss)	—	(3)	(3)
Accumulated deficit	(26,324)	(75,033)	(75,033)
Total stockholders' (deficit) equity	(26,324)	(75,036)	130,464
Total liabilities, redeemable convertible preferred stock and stockholders' (deficit) equity	<u>\$ 22,039</u>	<u>\$ 134,668</u>	<u>134,668</u>

See accompanying notes to unaudited interim financial statements

TCR² THERAPEUTICS INC.
Statements of Operations and Comprehensive Loss

(amounts in thousands, except share and per share data)
(unaudited)

	NINE MONTHS ENDED SEPTEMBER 30,	
	2017	2018
Operating expenses:		
Research and development	\$ 6,822	\$ 13,454
General and administrative	2,321	4,558
Loss from operations	(9,143)	(18,012)
Other income, net	85	1,451
Net loss	(9,058)	(16,561)
Accretion of redeemable convertible preferred stock to redemption value	(1,272)	(33,568)
Net loss attributable to common stockholders	\$ (10,330)	\$ (50,129)
Other comprehensive (income) loss:		
Net loss	\$ (9,058)	\$ (16,561)
Unrealized gain (loss) on investments	2	(3)
Comprehensive loss	\$ (9,056)	\$ (16,564)
Per share information:		
Net loss per share of common stock, basic and diluted	\$ (4.65)	\$ (13.53)
Weighted average shares outstanding, basic and diluted	2,223,081	3,703,728
Pro forma net loss per share of common stock—basic and diluted		\$ (0.18)
Pro forma weighted average shares outstanding		92,996,769

See accompanying notes to unaudited interim financial statements

TCR² THERAPEUTICS INC.

Statements of Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit)

Period ended September 30, 2018

(amounts in thousands, except share and per share data)
(unaudited)

Description	Redeemable Convertible Preferred Stock				Common Stock	Additional Paid-In Capital	Accumulated Deficit	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity (Deficit)	
	Series A		Series B							
	Shares	Amount	Shares	Amount						
Balance at December 31, 2017	44,500,001	\$ 47,102	—	\$ —	2,698,226	\$ —	\$ —	\$ (26,324)	\$ —	\$ (26,324)
Sale of Series B preferred stock, net of issuance costs of \$170	—	—	62,500,000	124,830	—	—	—	—	—	—
Reclassification of shares issued and previously subject to repurchase	—	—	—	—	414,757	—	—	—	—	—
Exercise of stock options and warrants	—	—	—	—	1,105,088	—	132	—	—	132
Stock-based compensation expense	—	—	—	—	—	—	1,288	—	—	1,288
Unrealized gain (loss) on investments	—	—	—	—	—	—	—	—	(3)	(3)
Accretion of redeemable preferred stock to redemption value	—	19,648	—	13,920	—	—	(1,420)	(32,148)	—	(33,568)
Net loss	—	—	—	—	—	—	—	(16,561)	—	(16,561)
Balance at September 30, 2018	44,500,001	\$ 66,750	62,500,000	\$138,750	4,218,071	\$ —	\$ —	\$ (75,033)	\$ (3)	\$ (75,036)

See accompanying notes to unaudited interim financial statements

TCR² THERAPEUTICS INC.
Statements of Cash Flows

(amounts in thousands)

(unaudited)

	NINE MONTHS ENDED SEPTEMBER 30,	
	2017	2018
Operating activities:		
Net loss	\$ (9,058)	\$ (16,561)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	222	303
Loss on disposal of asset	—	2
Stock-based compensation expense	130	1,288
Accretion of investment	28	(183)
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	863	500
Accounts payable	25	568
Accrued expenses and other liabilities	(5)	1,774
Cash used in operating activities	(7,795)	(12,309)
Investing activities:		
Purchase of investments	(6,535)	(36,039)
Proceeds from maturity of investments	12,110	12,990
Change in restricted cash	(291)	(3)
Purchases of property and equipment	(239)	(938)
Cash provided by (used in) investing activities	5,045	(23,990)
Financing activities:		
Proceeds from the sale of Series B preferred stock	—	125,000
Proceeds from the exercise of stock options and warrants	3	125
Proceeds from the exercise of unvested stock options and warrants	—	94
Payment of deferred offering costs	—	(792)
Payment of Series B financing costs	—	(170)
Cash provided by financing activities	3	124,257
Net (decrease) increase in cash and cash equivalents	(2,747)	87,958
Cash and cash equivalents at beginning of year	7,992	19,811
Cash and cash equivalents at end of year	\$ 5,245	\$ 107,769
Supplemental disclosure of noncash investing and financing activities:		
Property and equipment additions in accounts payable	\$ —	\$ 132
Accretion of redeemable convertible preferred stock to redemption value	\$ 1,272	\$ 33,568
Deferred offering costs included in accounts payable	\$ —	\$ 382
Reclassification of early exercise liability upon vesting of options	\$ —	\$ (7)

See accompanying notes to unaudited interim financial statements

TCR² THERAPEUTICS INC.

Notes to Unaudited Interim Financial Statements

1. Organization and Description of Business

TCR² Therapeutics Inc. (the Company), a Delaware incorporated company, is an immuno-oncology company focused on T-cell engineering. The Company's principal operations are located in Boston, Massachusetts.

2. Liquidity

The Company's operations to date have focused on organization and staffing, business planning, raising capital, acquiring technology and assets, and conducting preclinical studies and clinical trials. The Company does not have any product candidates approved for sale and has not generated any revenue from product sales. The Company's product candidates are subject to long development cycles and the Company may be unsuccessful in its efforts to develop, obtain regulatory approval for or market its product candidates.

The Company is subject to a number of risks including, but not limited to, the need to obtain adequate additional funding for the ongoing and planned clinical development of its product candidates. Because of the numerous risks and uncertainties associated with pharmaceutical products and development, the Company is unable to accurately predict the timing or amount of funds required to complete development of its product candidates, and costs could exceed the Company's expectations for a number of reasons, including reasons beyond the Company's control.

The Company is also subject to a number of other risks including possible failure of preclinical studies or clinical trials, the need to obtain marketing approval for its product candidates, the development of new technological innovations by competitors, the need to successfully commercialize and gain market acceptance of any of the Company's products that are approved and uncertainty around intellectual property matters. If the Company does not successfully commercialize any of its products, it will be unable to generate product revenue or achieve profitability.

The Company has incurred net losses from operations since inception and has an accumulated deficit of \$75.0 million as of September 30, 2018. The Company intends to raise additional capital through the issuance of additional equity, and potentially through strategic alliances with third parties. If financing is not available at adequate levels, the Company may need to re-evaluate its operating plans. Management believes currently available resources, which include \$125.0 million in gross proceeds the Company received in connection with the March 2018 sale of 62.5 million shares of the Company's Series B redeemable convertible preferred stock (Series B preferred stock), will provide sufficient funds to enable the Company to meet its operating plans through 2020. However, if the Company's anticipated operating results are not achieved in future periods, planned expenditures may need to be reduced in order to extend the time period over which the then-available resources would be able to fund the Company's operations.

3. Basis of Presentation and Summary of Significant Accounting Policies

The accompanying unaudited interim financial statements have been prepared in conformity with U.S. generally accepted accounting principles (GAAP). Any reference in these notes to applicable guidance is meant to refer to GAAP as found in the Accounting Standards Codification (ASC) and Accounting Standards Updates (ASU) of the Financial Accounting Standards Board (FASB).

In the opinion of management, the accompanying unaudited interim financial statements include all normal and recurring adjustments (which consist primarily of accruals and estimates that impact the financial statements) which are considered necessary to present fairly the Company's financial position as of September 30, 2018 and its results of operations and cash flows for the nine months ended September 30, 2017 and 2018. Operating results for the nine months ended September 30, 2018 are not necessarily indicative of the results that may be expected for the year ending December 31, 2018. The unaudited interim financial statements, presented herein, do not contain the required disclosures under GAAP for annual financial statements. The accompanying unaudited interim financial statements should be read in conjunction with the annual audited financial statements and related notes as of and for the year ended December 31, 2017 found elsewhere in this prospectus.

Use of Estimates

The preparation of the accompanying financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. Due to the uncertainty of factors surrounding the estimates or judgments used in the preparation of the financial statements, actual results may materially vary from these estimates. Estimates and assumptions are periodically reviewed and the effects of revisions are reflected in the financial statements in the period they are determined to be necessary.

Unaudited pro forma financial information

The accompanying unaudited pro forma balance sheet as of September 30, 2018 has been prepared to give effect to the automatic conversion of all outstanding shares of redeemable convertible preferred stock into 107,000,001 shares of common stock as if the Company's proposed initial public offering had occurred on September 30, 2018.

In the accompanying statements of operations and comprehensive loss, unaudited pro forma basic and diluted net loss per share of common stock has been prepared to give effect to the automatic conversion of all outstanding shares of Series A redeemable convertible preferred stock (Series A preferred stock) and Series B preferred stock as if this proposed initial public offering had occurred on the later of the beginning of the reporting period or the issuance date of the convertible preferred stock. Further, the unaudited pro forma net loss attributable to common stockholders used in the calculation of unaudited basic and diluted pro forma net loss per share of common stock excludes the effects of accretion on redeemable convertible preferred stock to redemption value.

Fair value of financial instruments

At December 31, 2017 and September 30, 2018, the Company's financial instruments included investments, accounts payable and accrued expenses. The carrying amount of accounts payable and accrued expenses approximates fair value due to the short-term maturities of these instruments. The carrying value of investments is the estimated fair value.

Deferred offering costs

The Company capitalizes costs that are directly associated with in-process equity financings until such financings are consummated at which time such costs are recorded against the gross proceeds of the offering. Should the in-process equity financing be abandoned, the deferred offering costs will be expensed immediately as a charge to operating expenses in the statements of operations and comprehensive loss.

Net loss per share

Basic and diluted net loss per common share is determined by dividing net loss attributable to common stockholders by the weighted-average common shares outstanding during the period. For all periods presented, the outstanding shares of Series A preferred stock and Series B preferred stock have been excluded from the calculation because their effects would be anti-dilutive. Therefore, the weighted-average shares used to calculate both basic and diluted loss per share are the same.

The following potentially dilutive securities have been excluded from the computation of diluted weighted-average shares outstanding as of September 30, 2017 and 2018, as they would be antidilutive:

	NINE MONTHS ENDED SEPTEMBER 30,	
	2017	2018
Series A redeemable convertible preferred stock	28,333,334	44,500,001
Series B redeemable convertible preferred stock	—	62,500,000
Stock options	4,583,329	12,411,299
Unvested shares of restricted stock	988,889	435,314
Common stock warrants	264,859	2,048,396
Total	<u>34,170,411</u>	<u>121,895,010</u>

Unaudited pro forma net loss per share of common stock is computed using the weighted-average number of shares of common stock outstanding and assumes the conversion of 44,500,001 shares of Series A preferred stock and 62,500,000 shares of Series B redeemable convertible preferred stock as though the conversion had occurred on January 1, 2017 or the original issuance date, if later.

4. Investments and Fair Value Measurements

As of December 31, 2017, there were no investments outstanding. As of September 30, 2018, investments consisted of the following (in thousands):

	AMORTIZED COST	UNREALIZED GAINS	UNREALIZED LOSSES	FAIR VALUE
Corporate bonds	\$ 8,694	\$ —	\$ (2)	\$ 8,692
Commercial paper	14,149	1	(2)	14,148
Asset backed securities	389	—	—	389
	<u>\$ 23,232</u>	<u>\$ 1</u>	<u>\$ (4)</u>	<u>\$23,229</u>

The Company follows FASB's accounting guidance on fair value measurements for financial assets and liabilities measured on a recurring basis. The guidance requires fair value measurements to be classified and disclosed in one of the following three categories:

Level 1—Quoted prices (unadjusted in active markets for identical assets or liabilities)

Level 2—Inputs other than quoted prices in active markets that are observable either directly or indirectly

Level 3—Unobservable inputs in which there is little or no market data, which require the Company to develop its own assumptions.

This hierarchy requires the use of observable market data when available and to minimize the use of unobservable inputs when determining fair value.

The Company has classified assets and liabilities measured at fair value on a recurring basis as follows (in thousands):

	DECEMBER 31, 2017				
	FAIR VALUE MEASUREMENT BASED ON				
	CARRYING AMOUNT	FAIR VALUE	QUOTED PRICES IN ACTIVE MARKETS (LEVEL 1)	SIGNIFICANT OTHER OBSERVABLE INPUTS (LEVEL 2)	SIGNIFICANT UNOBSERVABLE INPUTS (LEVEL 3)
Assets					
Cash equivalents(1)	\$ 19,107	\$19,107	\$ 18,107	\$ 1,000	\$ —
	<u>\$ 19,107</u>	<u>\$19,107</u>	<u>\$ 18,107</u>	<u>\$ 1,000</u>	<u>\$ —</u>

(1) Includes cash sweep accounts, U.S. Treasury money market mutual fund, and bank certificates of deposit and U.S. Treasury bills and corporate bonds that have a maturity of three months or less from the original acquisition date.

	SEPTEMBER 30, 2018				
	FAIR VALUE MEASUREMENT BASED ON				
	CARRYING AMOUNT	FAIR VALUE	QUOTED PRICES IN ACTIVE MARKETS (LEVEL 1)	SIGNIFICANT OTHER OBSERVABLE INPUTS (LEVEL 2)	SIGNIFICANT UNOBSERVABLE INPUTS (LEVEL 3)
Assets					
Cash equivalents(2)	\$ 104,954	\$104,954	\$102,460	\$ 2,494	—
Corporate bonds	8,692	8,692	—	8,692	—
Commercial paper	14,148	14,148	—	14,148	—
Asset backed securities	389	389	—	389	—
	<u>\$ 128,183</u>	<u>\$128,183</u>	<u>\$102,460</u>	<u>\$ 25,723</u>	<u>—</u>

(2) Includes cash sweep accounts, U.S. Treasury money market mutual fund, and bank certificates of deposit and U.S. Treasury bills and corporate bonds that have a maturity of three months or less from the original acquisition date.

5. Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities consisted of (in thousands):

	DECEMBER 31, 2017	SEPTEMBER 30, 2018
Employee compensation and related benefits	\$ 686	\$ 905
Professional fees	37	374
Contract manufacturing organization fees	—	331
Contract research organization fees	—	278
University partnerships	—	97
Other	81	298
	<u>\$ 804</u>	<u>\$ 2,283</u>

6. Commitments and Contingencies

Leases

In March 2018, the Company began occupying a new lease for larger office and laboratory facilities that expires in July 2025. Under the terms of the lease, the Company placed \$0.3 million letter into a restricted cash account as security for the facility.

Future minimum rental payments under noncancelable operating leases are as follows (in thousands):

2018	\$ 435
2019	1,779
2020	1,832
2021	1,887
2022	1,944
Thereafter	5,118
	<u>\$12,995</u>

Royalty transfer agreement

In connection with the sale of Series A preferred stock (see Note 8), certain investors are entitled to receive, in the aggregate, a royalty from the Company equal to one percent of (i) all global net sales of any Company products and (ii) any license income on intellectual property that was in existence at the time of the Series A preferred stock financing. The Company has elected to account for this liability at fair value with changes recognized in earnings. Given the early stage nature of the underlying technology and inherent risks associated with obtaining regulatory approval and achieving commercialization, the Company ascribed no value to the royalty agreement at inception and at December 31, 2017 and September 30, 2018. The Company currently does not have any net sales of license income and as a result has paid no royalties under this obligation as of September 30, 2018 nor has the Company accrued any liability as of September 30, 2018.

7. Redeemable Convertible Preferred Stock and Stockholders' Equity (Deficit)

In February 2018, in conjunction with the Series B preferred financing, the Company amended its Certificate of Incorporation to authorize the issuance of 107,000,001 shares of redeemable convertible preferred stock with a par value of \$0.0001 per share, 44,500,001 of which are designated Series A preferred stock and 62,500,000 of which are designated Series B preferred stock. In addition, the Certificate of Incorporation was amended to authorize the issuance of up to 130,000,000 shares of common stock at a par value of \$0.0001 per share.

The Company has elected to accrete the carrying value of the Series A and B preferred stock to redemption value at the end of each reporting period as if the end of the reporting period were the redemption date, increases to the

carrying value of redeemable convertible preferred stock are charged to additional paid-in capital or, in the absence of additional paid-in capital, charged to accumulated deficit.

Series A preferred stock and Series B preferred stock may be redeemed at a price equal to the greater of (a) the original issuance price, plus any cumulative dividends accrued but unpaid thereon, whether or not declared, or (b) the fair market value as of the date of the redemption, in three annual installments commencing not more than 60 days after receipt of notice by holders of the Series A stock and B stock after February 2023.

The fair value of the Series A preferred stock was determined to be \$1.50 per share and the fair value of the Series B preferred stock was determined to be \$2.22 per share as of September 30, 2018.

Series B Redeemable Convertible Preferred Stock

In 2018, the Company issued an aggregate of 62.5 million shares of Series B preferred stock in exchange for gross cash proceeds of \$125.0 million.

The Series B preferred stock is classified outside of stockholders' equity (deficit) as the preferred holders may, at their option, elect to have their shares redeemed upon written notice by a majority of the preferred shareholders and at any time after February 2023.

Certain provisions of the outstanding Series B preferred stock are as follows:

Conversion

Each share of Series B preferred stock is convertible, at the option of the holder, into shares of common stock, on a one-to-one basis, subject to adjustment for certain dilutive events. The conversion price may be adjusted to prevent dilution of the Series B preferred stock.

The Series B preferred stock is also mandatorily convertible upon the closing of an initial public offering and proceeds exceeding \$50.0 million or by a written election by the majority of the Series B stockholders.

Redemption

At the election of a majority of the Series B stockholders, the Series B preferred stock is redeemable at any time on or after February 2023. The Series B preferred stock may be redeemed at a price equal to the greater of (a) the original issuance price, plus any cumulative dividends accrued but unpaid thereon, whether or not declared, or (b) the fair market value as of the date of the redemption.

Dividends

The holders of shares of Series B preferred stock are entitled to receive cumulative dividends of 6% from the date of issuance. Accumulated dividends are payable only when and if declared by the Board of Directors, in preference to dividends paid to holders of Series A preferred stock and common stock. The dividend preference for Series B preferred stock is \$0.12 per share, as adjusted for recapitalizations. No dividends have been declared through September 30, 2018.

Liquidation

In the event of a liquidation, dissolution or winding up of the Company, either voluntary or involuntary, or in the event of a deemed liquidation event, which includes a sale of the Company as defined in the Company's articles of incorporation, holders of Series B preferred stock are entitled to receive, in preference to the holders of Series A preferred stock or Common Stock, an amount equal to their original investment amount plus any declared and unpaid dividends. If upon the occurrence of such event, the assets and funds available for distribution are insufficient to pay such holders the full amount to which they are entitled, then the entire assets and funds legally available for distribution shall be distributed ratably among the holders of the Series B preferred stock in proportion to the full amounts to which they would otherwise be entitled.

After payment of the liquidation preference on shares of Series B preferred stock has been made, any remaining assets shall be distributed ratably to Series A stockholders an amount equal to their original investment amount plus any accrued dividends, whether or not declared, together with any other dividends declared but unpaid thereon.

8. Stock-based Compensation

The Company issues stock-based awards pursuant to its 2015 Stock Option and Grant Plan, as amended (the "Plan"). The maximum number of authorized shares to be issued under the Plan was 15,823,454. As of September 30, 2018, there were 2,500,614 shares of common stock available for future issuance. The amount, terms of grants, and exercisability provisions are determined and set by the Company's board of directors. The term of the options may be up to 10 years, and options are exercisable in cash or as otherwise determined by the board of directors. Generally, options and restricted stock awards vest over a four-year period.

The Company measures employee and non-employee stock-based awards at grant-date fair value and records compensation expense on a straight-line basis over the vesting period of the award. Stock-based awards issued to non-employees are revalued until the award vests. The Company recorded stock-based compensation expense in the following expense categories of its accompanying statements of operations and comprehensive loss for the nine months ended September 30, 2017 and 2018 (amounts in thousands):

	SEPTEMBER 30,	
	2017	2018
Research and development	\$ 23	\$ 310
General and administrative	107	978
	<u>\$130</u>	<u>\$ 1,288</u>

Stock options

The following table summarizes the activity related to stock option grants to employees and non-employees for the nine months ended September 30, 2018:

	SHARES	WEIGHTED AVERAGE EXERCISE PRICE PER SHARE	WEIGHTED AVERAGE REMAINING CONTRACTUAL LIFE (IN YEARS)
Balance at January 1, 2018	7,579,849	\$ 0.12	
Granted	6,462,852	\$ 0.95	
Exercised	(842,804)	\$ 0.12	
Forfeited	(788,598)	\$ 0.12	
Outstanding at September 30, 2018	<u>12,411,299</u>	<u>\$ 0.56</u>	<u>9.3</u>
Exercisable at September 30, 2018	<u>838,245</u>	<u>\$ 0.12</u>	<u>8.3</u>
Vested and expected to vest at September 30, 2018	<u>12,411,299</u>	<u>\$ 0.56</u>	<u>9.3</u>

The 12,411,299 shares of common stock issuable upon the exercise of options outstanding as of September 30, 2018 in the table above includes 186,229 shares of common stock that have been issued upon exercise prior to vesting and are subject to repurchase by the Company.

The weighted average fair value of options granted to employees, directors and non-employee consultants during the nine months ended September 30, 2017 and 2018 was \$0.11 and \$0.58, respectively. As of September 30, 2018, there was \$4.8 million in unrecognized compensation cost that is expected to be recognized over an estimated weighted-average amortization period of 3.4 years. The aggregate intrinsic value of options outstanding and options exercisable as of September 30, 2018 was \$9.1 million and \$1.0 million, respectively.

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The fair value of options is estimated using the Black-Scholes option pricing model, which takes into account inputs such as the exercise price, the value of the underlying common stock at the grant date, expected term, expected volatility, risk-free interest rate and dividend yield. The fair value of each grant of options during the nine months ended September 30, 2017 and 2018 was determined using the methods and assumptions discussed below

- The expected term of employee options is determined using the "simplified" method, as prescribed in the Securities and Exchange Commission's (SEC) Staff Accounting Bulletin (SAB) No. 107, whereby the expected life equals the arithmetic average of the vesting term and the original contractual term of the option due to the Company's lack of sufficient historical data. The expected term of non-employee options is equal to the contractual term.
- The expected volatility is based on historical volatilities of similar entities within the Company's industry which were commensurate with the expected term assumption as described in SAB No. 107.
- The estimated annual dividend yield is 0% because the Company has not historically paid, and does not expect for the foreseeable future to pay, a dividend on its common stock.
- The Company considered numerous objective and subjective factors in estimating the fair value of its common stock, including the estimated fair value of the Company's Series A redeemable convertible preferred stock.

For the nine months ended September 30, 2017 and 2018, the grant date fair value of all option grants was estimated at the time of grant using the Black-Scholes option-pricing model using the following weighted average assumptions:

	SEPTEMBER 30,	
	2017	2018
Risk free interest rate	1.9%	2.9%
Expected term (in years)	6.2	6.1
Expected volatility	66.3%	64.7%
Annual dividend yield	0.00%	0.00%
Fair value of common stock	\$0.11	\$0.58

Restricted stock

For restricted stock awards granted to employees, the fair value of the award is the current fair value of the Company's common stock on the grant date, while for non-employees, the fair value of the award is re-measured each reporting period using the then-current fair value of the Company's common stock until performance is complete. All restricted stock grants were outside of the plan.

In the event of a termination of employment or consulting services arrangement, the unvested restricted stock awards are subject to repurchase by the Company at the lower of the purchase price paid by the holder and the then current fair value. As of September 30, 2018, there was \$0.5 million of unrecognized compensation related to the unvested restricted stock awards that will be recognized over a period of less than one year.

The following table summarizes the activity related to restricted stock grants to employees and non-employees for the nine months ended September 30, 2018:

	SHARES
Balance at January 1, 2018	850,071
Granted	—
Vested	(414,757)
Forfeited	—
Outstanding at September 30, 2018	435,314

Warrants

Warrants issued to non-employees in connection with providing consulting services are issued outside of the Plan and are accounted for as stock-based compensation. The fair value of warrants are estimated using the Black-Scholes option pricing model and the Company records compensation expense associated with the warrants on a straight-line basis over the vesting period of the warrant.

As of September 30, 2018, there was \$1.1 million in unrecognized compensation cost that is expected to be recognized over an estimated weighted-average amortization period of 2.2 years.

As of September 30, 2018, the Company had the following warrants outstanding to acquire shares of its common stock:

	<u>SHARES</u>	<u>EXERCISE PRICE</u>	<u>EXPIRATION DATES</u>
Balance at January 1, 2018	2,310,681	\$ 0.12	2026 through 2027
Exercised	(1,049,140)	\$ 0.12	
Outstanding at September 30, 2018	<u>1,261,541</u>	<u>\$ 0.12</u>	

The 1,049,140 shares of common stock issuable upon the exercise of warrants outstanding as of September 30, 2018 in the table above includes 786,856 shares of common stock that have been issued upon exercise prior to vesting and are subject to repurchase by the Company.

11. Related party transactions**Consulting agreements**

The majority investor in the Company is MPM Capital (MPM). In September 2015, the Company began receiving consulting and management services pursuant to agreements with three Managing Directors at MPM. For the nine months ended September 30, 2017 and 2018, the Company incurred approximately \$0.4 million and \$0.3 million, respectively, for management and advisory services in connection with those agreements. These amounts were recorded in general and administrative expenses in the statement of operations and comprehensive loss. As of September 30, 2017, the Company had amounts due to related parties of approximately \$5,000, for management and advisory services in connection with those agreements, which are included within accounts payable on the balance sheet.

In October 2017, the Company entered into a consulting agreement with Globeways Holdings Limited. Dr. Morana Jovan-Embiricos is a member of our Board of Directors and has financial interests in Globeways Holdings Limited and is its founding director. Pursuant to the consulting agreement, Globeways Holdings Limited provides consulting, advisory and related services in exchange for consulting fees of \$100,000 per year and reimbursement of travel-related expenses. During the nine months ended September 30, 2017 and 2018, the Company incurred travel-related expenses of \$32,000 and incurred consulting fees and travel-related expenses of \$91,000, respectively. As of September 30, 2018, the Company owed \$31,000 to Globeways Holdings Limited for management and advisory services, and travel-related expenses.

9. Subsequent Events

The Company has evaluated subsequent events from the balance sheet date through December 28, 2018, the date on which these financial statements were issued, and determined there are no other items requiring disclosure except for the following:

Collaboration Agreement with Cell Therapy Catapult Limited

In December 2018, the Company signed a collaboration agreement (the Collaboration Agreement) with Cell Therapy Catapult Limited (Catapult) to establish their manufacturing process in Catapult's GMP manufacturing facility in the United Kingdom. The Company paid a £200,000 non-refundable contribution to Catapult to reserve a GMP manufacturing cleanroom in October 2018. The non-refundable contribution will be applied against the Company's input contributions (or fees) once Catapult and the Company have determined the various inputs that Catapult will

contribute to the collaboration in order to support the Company's manufacturing process under the Collaboration Agreement. The initial term of the Collaboration Agreement is three years and assumes an occupancy date of March 1, 2019. The Company can terminate the Collaboration Agreement earlier with twelve months' notice and continued payment for contributions during the twelve-month termination period. The only fee fixed over the three-year term is a specified facility input contribution. The total financial contribution from the Company under the Collaboration Agreement comprises the Company's portion of the shared costs for the infrastructure of the center and its operation as a licensed GMP facility. The Company's exact costs under the Collaboration Agreement are based on collaboration input-related contributions and will change year to year, and are partially dependent on the inputs the Company requires from Catapult to meet the collaboration aim of establishing the Company's manufacturing of autologous cell therapies.

In December 2018, the Company formed TRUC Securities Corporation, a wholly-owned Massachusetts corporation for the sole purpose of buying, selling, and holding securities on the Company's behalf.

Shares

Common Stock

PROSPECTUS

Jefferies

Leerink Partners

BMO Capital Markets

Wedbush PacGrow

China Renaissance

Until _____, _____ all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

_____, 2019

PART II**INFORMATION NOT REQUIRED IN PROSPECTUS****Item 13. Other Expenses of Issuance and Distribution**

The following table sets forth the costs and expenses, other than underwriting discounts and commissions, to be paid by us in connection with the sale of the shares of common stock being registered hereby. All amounts shown are estimates except for the SEC registration fee, the FINRA filing fee and The Nasdaq Global Market initial listing fee.

SEC registration fee	\$12,120
FINRA filing fee	\$13,500
Nasdaq listing fee	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Blue Sky fees and expenses (including legal fees)	*
Transfer agent and registrar fees and expenses	*
Miscellaneous	*
Total	*

* To be provided by amendment.

Item 14. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law (the DGCL) authorizes a corporation to indemnify its directors and officers against liabilities arising out of actions, suits and proceedings to which they are made or threatened to be made a party by reason of the fact that they have served or are currently serving as a director or officer to a corporation. The indemnity may cover expenses (including attorneys' fees) judgments, fines and amounts paid in settlement actually and reasonably incurred by the director or officer in connection with any such action, suit or proceeding. Section 145 permits corporations to pay expenses (including attorneys' fees) incurred by directors and officers in advance of the final disposition of such action, suit or proceeding. In addition, Section 145 provides that a corporation has the power to purchase and maintain insurance on behalf of its directors and officers against any liability asserted against them and incurred by them in their capacity as a director or officer, or arising out of their status as such, whether or not the corporation would have the power to indemnify the director or officer against such liability under Section 145.

We have adopted provisions in our certificate of incorporation and bylaws to be in effect upon the closing of this offering that limit or eliminate the personal liability of our directors to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended. Consequently, a director will not be personally liable to us or our stockholders for monetary damages or breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any unlawful payments related to dividends or unlawful stock purchases, redemptions or other distributions; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not alter director liability under the federal securities laws and do not affect the availability of equitable remedies such as an injunction or rescission.

In addition, our bylaws provide that:

- we will indemnify our directors, officers and, in the discretion of our board of directors, certain employees to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended; and
- we will advance reasonable expenses, including attorneys' fees, to our directors and, in the discretion of our board of directors, to our officers and certain employees, in connection with legal proceedings relating to their service for or on behalf of us, subject to limited exceptions.

We intend to enter into indemnification agreements with each of our directors and executive officers. These agreements provide that we will indemnify each of our directors, certain of our executive officers and, at times, their affiliates to the fullest extent permitted by Delaware law. We will advance expenses, including attorneys' fees (but excluding judgments, fines and settlement amounts), to each indemnified director or executive officer in connection with any proceeding in which indemnification is available and we will indemnify our directors and officers for any action or proceeding arising out of that person's services as a director or officer brought on behalf of us or in furtherance of our rights. Additionally, certain of our directors or officers may have certain rights to indemnification, advancement of expenses or insurance provided by their affiliates or other third parties, which indemnification relates to and might apply to the same proceedings arising out of such director's or officer's services as a director referenced herein. Nonetheless, we have agreed in the indemnification agreements that our obligations to those same directors or officers are primary and any obligation of such affiliates or other third parties to advance expenses or to provide indemnification for the expenses or liabilities incurred by those directors are secondary.

We also maintain general liability insurance which covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers, including liabilities under the Securities Act of 1933, as amended (the Securities Act).

The underwriting agreement filed as Exhibit 1.1 to this registration statement provides for indemnification of us and our directors and officers by the underwriters against certain liabilities under the Securities Act and the Securities Exchange Act of 1934.

Item 15. Recent Sales of Unregistered Securities

In the three years preceding the filing of this registration statement, we have issued the following securities that were not registered under the Securities Act:

(a) Founder Capital Stock

In June 2015 and October 2015, founders, employees and advisors purchased an aggregate of 3,434,389 shares of our common stock for approximately \$343.44 at \$0.0001 per share.

No underwriters were involved in the foregoing sales of securities. The sales of securities described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering. All of the purchasers in these transactions represented to us in connection with their purchase that they were acquiring the securities for investment and not distribution, that they could bear the risks of the investment and could hold the securities for an indefinite period of time. Such purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration or an available exemption from such registration. All of the foregoing securities are deemed restricted securities for the purposes of the Securities Act.

(b) Issuances of Capital Stock

In October 2015, with subsequent offerings in January 2016, October 2016, and December 2017, investors purchased an aggregate of 44,500,001 shares of our Series A preferred stock for approximately \$44,500,001 at \$1.00 per share.

In February 2018, with subsequent offerings in March 2018 and April 2018, investors purchased an aggregate of 62,500,000 shares of Series B preferred stock for approximately \$125,000,000 at \$2.00 per share.

No underwriters were involved in the foregoing sales of securities. The sales of securities described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering. All of the purchasers in these transactions represented to us in connection with their purchase that they were acquiring the securities for investment and not distribution, that they could bear the risks of the investment and could hold the securities for an indefinite period of time. Such purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration or an available exemption from such registration. All of the foregoing securities are deemed restricted securities for the purposes of the Securities Act.

(c) Grants and Exercises of Stock Options Under Equity Plans

We have granted stock options to purchase an aggregate of 15,383,666 shares of our common stock, with exercise prices ranging from \$0.12 to \$1.30 per share, to employees, directors and consultants pursuant to the 2015 Stock Option and Grant Plan, as amended (the 2015 Plan). Through the date of filing, 1,185,147 shares of common stock have been issued upon the exercise of stock options pursuant to the 2015 Plan.

The issuances of the securities described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act or Rule 701 promulgated under the Securities Act as transactions pursuant to compensatory benefit plans. The shares of common stock issued upon the exercise of options are deemed to be restricted securities for purposes of the Securities Act.

(d) Issuances of Warrants and Non-Plan Stock Options

In May 2017, we granted a stock option to purchase 49,661 shares of our common stock, with an exercise price of \$0.12 per share to a consultant, which grant was not made pursuant to a benefits plan.

In December 2016 and December 2017, we granted warrants to purchase an aggregate of 2,310,681 shares of our common stock, with an exercise price of \$0.12 per share, to consultants, which grants were not made pursuant to a benefits plan.

No underwriters were involved in the foregoing sales of securities. The sales of securities described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering. All of the purchasers in these transactions represented to us in connection with their purchase that they were acquiring the securities for investment and not distribution, that they could bear the risks of the investment and could hold the securities for an indefinite period of time. Such purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration or an available exemption from such registration. All of the foregoing securities are deemed restricted securities for the purposes of the Securities Act.

Item 16. Exhibits and Financial Statement Schedules

(a) Exhibits.

EXHIBIT NUMBER	EXHIBIT TABLE
1.1*	Form of Underwriting Agreement
3.1	Second Amended and Restated Certificate of Incorporation of the Registrant, as currently in effect
3.2	Form of Amended and Restated Certificate of Incorporation of the Registrant (to be effective upon the closing of this offering)
3.3	By-laws of the Registrant, as currently in effect
3.4	Form of Amended and Restated By-laws (to be effective upon the closing of this offering)
4.1	Amended and Restated Investors' Rights Agreement among the Registrant and certain of its stockholders, dated February 28, 2018
4.2*	Form of Specimen Common Stock Certificate
4.3	Form of Common Stock Warrant
5.1*	Opinion of Goodwin Procter LLP
10.1#	2015 Stock Option and Grant Plan and forms of award agreements thereunder
10.2##	2019 Stock Option and Incentive Plan and forms of award agreements thereunder
10.3#	Senior Executive Cash Incentive Bonus Plan
10.4##	2019 Employee Stock Purchase Plan
10.5#	Form of Director Indemnification Agreement
10.6#	Form of Officer Indemnification Agreement
10.7	Lease Agreement, dated as of June 30, 2017, by and between ARE-MA Region No. 45, LLC and the Registrant
10.8#	Form of Amended and Restated Employment Agreement
10.9†	License Agreement, dated as of June 21, 2017, by and between Harpoon Therapeutics, Inc. and the Registrant
10.10#	Consulting Agreement, dated as of October 1, 2015, by and between the Registrant and Patrick Bauerle, as amended
10.11#	Amended and Restated Consulting Agreement, dated as of May 9, 2017, by and between the Registrant, Mitchell Finer and Pattern Recognition Ventures
10.12#	Consulting Agreement, dated as of October 1, 2017, by and between the Registrant and Globeways Holdings Limited
10.13	Royalty Transfer Agreement, dated as of May 26, 2016, by and among the Registrant, MPM Oncology Charitable Foundation, Inc. and the UBS Optimus Foundation
10.14	Letter Agreement, dated as of May 26, 2016, by and among the Registrant, MPM Oncology Charitable Foundation, the UBS Optimus Foundation and UBS Oncology Impact Fund L.P.
10.15†	Collaboration Agreement, dated as of December 18, 2018, by and between the Registrant and Cell Therapy Catapult Limited
21.1	Subsidiaries of the Registrant
23.1	Consent of KPMG LLP, Independent Registered Public Accounting Firm
23.2*	Consent of Goodwin Procter LLP (included in Exhibit 5.1)
24.1	Power of Attorney (included on signature page to this registration statement)
*	To be filed by amendment.
#	Indicates a management contract or any compensatory plan, contract or arrangement
†	Application has been made to the Securities and Exchange Commission for confidential treatment of certain provisions. Omitted material for which confidential treatment has been requested has been filed separately with the Securities and Exchange Commission.

(b) Financial Statement Schedules.

None.

Item 17. Undertakings

The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the Underwriting Agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, TCR2 Therapeutics Inc. has duly caused this registration statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Cambridge, Commonwealth of Massachusetts, on the 28th day of December, 2018.

TCR2 Therapeutics Inc.

By: /s/ Garry Menzel
Garry Menzel
President and Chief Executive Officer

SIGNATURES AND POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Garry Menzel and Mayur (Ian) Somaiya, and each of them, either of whom may act without the joinder of the other, as his true and lawful attorneys-in-fact and agents with full power of substitution and re-substitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and to sign any registration statement for the same offering covered by the registration statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act, and all post-effective amendments thereto, and to file the same, with all exhibits thereto and all documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or his or their substitute or substitutes, may lawfully do or cause to be done or by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended this registration statement has been signed by the following persons in the capacities indicated on the 28th day of December, 2018.

<u>SIGNATURE</u>	<u>TITLE</u>
<u>/s/ Garry Menzel</u> Garry Menzel	President, Chief Executive Officer and Director (Principal Executive Officer)
<u>/s/ Mayur Somaiya</u> Mayur (Ian) Somaiya	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)
<u>/s/ Ansbert Gadicke</u> Ansbert Gadicke	Director
<u>/s/ Patrick Baeuerle</u> Patrick Baeuerle	Director
<u>/s/ Andrew Allen</u> Andrew Allen	Director
<u>/s/ Morana Jovan-Embiricos</u> Morana Jovan-Embiricos	Director
<u>/s/ Neil Gibson</u> Neil Gibson	Director
<u>/s/ Mitchell Finer</u> Mitchell Finer	Director

SECOND AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
TCR² THERAPEUTICS INC.

(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)

TCR² Therapeutics Inc., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the “**General Corporation Law**”),

DOES HEREBY CERTIFY:

1. That the name of this corporation is TCR² Therapeutics Inc., and that this corporation was originally incorporated pursuant to the General Corporation Law on May 29, 2015 under the name TCR², Inc. This corporation filed with the Secretary of State of the State of Delaware an Amended and Restated Certificate of Incorporation on October 16, 2015, which was amended on January 28, 2016, and further amended on November 4, 2016.

2. That the Board of Directors duly adopted resolutions proposing to amend and restate the Certificate of Incorporation of this corporation, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows:

RESOLVED, that the Certificate of Incorporation of this corporation be amended and restated in its entirety to read as follows:

FIRST: The name of this corporation is TCR² Therapeutics Inc. (the “**Corporation**”).

SECOND: The address of the registered office of the Corporation in the State of Delaware is 1209 Orange Street, in the City of Wilmington, County of New Castle, 19801. The name of its registered agent at such address is The Corporation Trust Company.

THIRD: The nature of the business or purposes to be conducted or promoted is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law.

FOURTH: The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) 130,000,000 shares of Common Stock, \$0.0001 par value per share (“**Common Stock**”) and (ii) 107,000,001 shares of Preferred Stock, \$0.0001 par value per share (“**Preferred Stock**”).

The following is a statement of the designations and the powers, privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation.

A. COMMON STOCK

1. General. The voting, dividend and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth herein.

2. Voting. The holders of the Common Stock are entitled to one vote for each share of Common Stock held at all meetings of stockholders (and written actions in lieu of meetings); provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to the Certificate of Incorporation that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to the Certificate of Incorporation or pursuant to the General Corporation Law. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of the Certificate of Incorporation) the affirmative vote of the holders of shares of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law.

B. PREFERRED STOCK

44,500,001 shares of the authorized Preferred Stock of the Corporation have been designated “**Series A Preferred Stock**” and 62,500,000 shares of the authorized and unissued Preferred Stock of the Corporation are hereby designated “**Series B Preferred Stock**”, in each case, with the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. Unless otherwise indicated, references to “sections” or “subsections” in this Part B of this Article Fourth refer to sections and subsections of Part B of this Article Fourth.

1. Dividends.

From and after the date of the issuance of any shares of Preferred Stock, dividends at the rate per annum of six percent (6%) on the Applicable Original Issue Price (as defined below) per share shall accrue on such shares of Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such series of Preferred Stock) (the “**Accruing Dividends**”). For the avoidance of doubt and for purposes of this Section 1, Accruing Dividends shall accrue on each share of Preferred Stock from and after the date of such share’s original issuance. Accruing Dividends shall accrue from day to day, whether or not declared, and shall be cumulative; provided, however, that except as set forth in the following sentence of this Section 1 or in Subsection 2.1 and Section 6, such Accruing Dividends shall be payable only when, as, and if declared by the Board of Directors and the Corporation shall be under no obligation to pay such Accruing Dividends. The Corporation shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Corporation (other than dividends on shares of Common Stock payable in shares of Common Stock) unless (in addition to the obtaining of any consents required elsewhere in the Certificate of Incorporation) the holders of the Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of Preferred Stock in an amount at least equal to the greater of (i) the amount of the aggregate Accruing Dividends then accrued on such share of Preferred Stock and not previously paid and (ii) (A) in the case of a dividend on Common Stock or any class or series that is convertible into Common Stock, that dividend per share of such series of Preferred Stock as would equal the product of (1) the dividend payable on each share of such class or series determined, if applicable, as if all shares of such class or series had been converted into Common Stock and (2) the number of shares of Common Stock issuable upon conversion of a share of such series of Preferred Stock, in each case calculated on the record date for determination of holders entitled to receive such dividend or (B) in the case of a dividend on any class or series that is not convertible into Common Stock, at a rate per share of such series of Preferred Stock determined by (1) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such class or series) and (2) multiplying such fraction by an amount equal to the Applicable Original Issue Price (as defined below) for such series of Preferred Stock; provided that if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one class or series of capital stock of the Corporation, the dividend payable to the holders of Preferred Stock pursuant to this Section 1 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest Preferred Stock dividend, for each of the Series A Preferred Stock and the Series B Preferred Stock, respectively. The “**Series A Original Issue Price**” shall mean \$1.00 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A Preferred Stock. The “**Series B Original Issue Price**” shall mean \$2.00 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B Preferred Stock. The Series A Original Issue Price, in the case of the Series A Preferred Stock, and the Series B Original Issue Price, in the case of the Series B Preferred Stock, may each be referred to individually or collectively, as applicable, herein as the “**Applicable Original Issue Price.**”

2. Liquidation, Dissolution or Winding Up; Certain Mergers, Consolidations and Asset Sales.

2.1 Preferential Payments to Holders of Preferred Stock.

2.1.1 In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the holders of shares of Series B Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders before any payment shall be made to the holders of Series A Preferred Stock or Common Stock by reason of their ownership thereof, an amount per share equal to the Series B Original Issue Price, plus any Accruing Dividends accrued but unpaid thereon, whether or not declared, together with any other dividends declared but unpaid thereon. If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1.1, the holders of shares of Series B Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.1.2 In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after payment in full of all amounts owing to the holders of Series B Preferred Stock pursuant to Subsection 2.1.1, the holders of shares of Series A Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders before any payment shall be made to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to the Series A Original Issue Price, plus any Accruing Dividends accrued but unpaid thereon, whether or not declared, together with any other dividends declared but unpaid thereon. If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1.2, the holders of shares of Series A Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.2 Distribution of Remaining Assets. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of all preferential amounts required to be paid to the holders of shares of Preferred Stock under Subsection 2.1, the remaining assets of the Corporation available for distribution to its stockholders shall be distributed among the holders of the shares of Preferred Stock and Common Stock, pro rata based on the number of shares held by each such holder, treating for this purpose all such securities as if they had been converted to Common Stock pursuant to the terms of the Certificate of Incorporation immediately prior to such liquidation, dissolution or winding up of the Corporation. The aggregate amount which a holder of a share of Preferred Stock is entitled to receive under Subsections 2.1 and 2.2 is hereinafter referred to as the “**Applicable Liquidation Amount.**”

2.3 Deemed Liquidation Events.

2.3.1 Definition. Each of the following events shall be considered a “**Deemed Liquidation Event**” unless the holders of at least a majority of the outstanding shares of Preferred Stock, including at least a majority of the outstanding shares of Series A Preferred Stock and at least a majority of the outstanding shares of Series B Preferred Stock (the “**Requisite Preferred**”) elect otherwise by written notice sent to the Corporation at least 10 days prior to the effective date of any such event:

- (a) a merger or consolidation in which
 - (i) the Corporation is a constituent party or

- (ii) a subsidiary of the Corporation is a constituent party and the Corporation issues shares of its capital stock pursuant to such merger or consolidation,

except any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation, at least a majority, by voting power, of the capital stock of (1) the surviving or resulting corporation; or (2) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; or

(b) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all the assets of the Corporation and its subsidiaries taken as a whole (including, without limitation, all or substantially all of the intellectual property assets of the Corporation), or the sale or disposition (whether by merger, consolidation or otherwise) of one or more subsidiaries of the Corporation if substantially all of the assets of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned subsidiary of the Corporation.

2.3.2 Effecting a Deemed Liquidation Event.

(a) The Corporation shall not have the power to effect a Deemed Liquidation Event referred to in Subsection 2.3.1(a) (i) unless the agreement or plan of merger or consolidation for such transaction (the “**Merger Agreement**”) provides that the consideration payable to the stockholders of the Corporation shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2.

(b) In the event of a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(ii) or 2.3.1(b), if the Corporation does not effect a dissolution of the Corporation under the General Corporation Law within ninety (90) days after such Deemed Liquidation Event, then (i) the Corporation shall send a written notice to each holder of Preferred Stock no later than the ninetieth (90th) day after the Deemed Liquidation Event advising such holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause; (ii) to require the redemption of such shares of Preferred Stock, and (iii) if the Requisite Preferred so request in a written instrument delivered to the Corporation not later than one hundred twenty (120) days after such Deemed Liquidation Event, the Corporation shall use the consideration received by the Corporation for such Deemed Liquidation Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of Directors of the Corporation (the “**Board of Directors**”)), together with any other assets of the Corporation available for distribution to its stockholders, all to the extent permitted by Delaware law governing distributions to stockholders (the “**Available Proceeds**”), on the one hundred fiftieth (150th) day after such Deemed Liquidation Event, to redeem all outstanding shares of Preferred Stock at a price per share equal to the Applicable Liquidation Amount. Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding sentence, if the Available Proceeds are not sufficient to redeem all outstanding shares of Preferred Stock, the Corporation shall ratably redeem each holder’s shares of Preferred Stock to the fullest extent of such Available Proceeds, and shall redeem the remaining shares as soon as it may lawfully do so under Delaware law governing distributions to stockholders. The provisions of Section 6 shall apply, with such necessary changes in the details thereof as are necessitated by the context, to the redemption of the Preferred Stock pursuant to this Subsection 2.3.2(b). Prior to the distribution or redemption provided for in this Subsection 2.3.2(b), the Corporation shall not expend or dissipate the consideration received for such Deemed Liquidation Event, except to discharge expenses incurred in connection with such Deemed Liquidation Event or in the ordinary course of business.

2.3.3 Amount Deemed Paid or Distributed. The amount deemed paid or distributed to the holders of capital stock of the Corporation upon any such merger, consolidation, sale, transfer, exclusive license, other disposition or redemption shall be the cash or the value of the property, rights or securities paid or distributed to such holders by the Corporation or the acquiring person, firm or other entity. The value of such property, rights or securities shall be determined in good faith by the Board of Directors, including a majority of the Preferred Directors; provided, however, that the Board in its sole discretion may designate a third-party appraiser agreed to by the Corporation and the Requisite Preferred to make such determination.

2.3.4 Allocation of Escrow and Contingent Consideration. In the event of a Deemed Liquidation Event, if any portion of the consideration payable to the stockholders of the Corporation is payable only upon satisfaction of contingencies (the “**Additional Consideration**”), the Merger Agreement shall provide that (a) the portion of such consideration that is not Additional Consideration (such portion, the “**Initial Consideration**”) shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event; and (b) any Additional Consideration which becomes payable to the stockholders of the Corporation upon satisfaction of such contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 after taking into account the previous payment of the Initial Consideration as part of the same transaction. For the purposes of this Subsection 2.3.4, consideration placed into escrow or retained as holdback to be available for satisfaction of indemnification or similar obligations in connection with such Deemed Liquidation Event shall be deemed to be Additional Consideration.

3. Voting.

3.1 General. On any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation (or by written consent of stockholders in lieu of meeting), each holder of outstanding shares of Preferred Stock shall be entitled to cast the number of votes equal to the number of whole shares of Common Stock into which the shares of Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter. Except as provided by law or by the other provisions of the Certificate of Incorporation, holders of Preferred Stock shall vote together with the holders of Common Stock as a single class.

3.2 Election of Directors. The holders of record of the shares of Series A Preferred Stock, exclusively and as a separate class, shall be entitled to elect three directors of the Corporation (the “**Series A Directors**”), and the holders of record of the shares of Series B Preferred Stock, exclusively and as a separate class, shall be entitled to elect two directors of the Corporation (the “**Series B Directors**” and, collectively with the Series A Directors, the “**Preferred Directors**”). Any director elected as provided in the preceding sentence may be removed without cause by, and only by, the affirmative vote of the holders of the shares of the class or series of capital stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders. If the holders of shares of Series A Preferred Stock or Series B Preferred Stock, as the case may be, fail to elect a sufficient number of directors to fill all directorships for which they are entitled to elect directors, voting exclusively and as a separate class, pursuant to the first sentence of this Subsection 3.2, then any directorship not so filled shall remain vacant until such time as the holders of the Series A Preferred Stock or Series B Preferred Stock, as the case may be, elect a person to fill such directorship by vote or written consent in lieu of a meeting; and no such directorship may be filled by stockholders of the Corporation other than by the stockholders of the Corporation that are entitled to elect a person to fill such directorship, voting exclusively and as a separate class. The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Preferred Stock), exclusively and voting together as a single class, shall be entitled to elect the balance of the total number of directors of the Corporation. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director. Except as otherwise provided in this Subsection 3.2, a vacancy in any directorship filled by the holders of any class or series shall be filled only by vote or written consent in lieu of a meeting of the holders of such class or series or by any remaining director or directors elected by the holders of such class or series pursuant to this Subsection 3.2. The rights of the holders of the Series A Preferred Stock under the first sentence of this Subsection 3.2 shall terminate on the first date following the Series B Original Issue Date (as defined below) on which there are no issued and outstanding shares of Series A Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination, or other similar recapitalization with respect to the Series A Preferred Stock), and the rights of the holders of the Series B Preferred Stock under the first sentence of this Subsection 3.2 shall terminate on the first date following the Series B Original Issue Date (as defined below) on which there are no issued and outstanding shares of Series B Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination, or other similar recapitalization with respect to the Series B Preferred Stock).

3.3 **Preferred Stock Protective Provisions.** At any time when shares of Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or the Certificate of Incorporation) the written consent or affirmative vote of the Requisite Preferred, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

3.3.1 liquidate, dissolve or wind-up the business and affairs of the Corporation, effect any merger or consolidation or any other Deemed Liquidation Event, or consent to any of the foregoing;

3.3.2 amend, alter or repeal any provision of the Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Preferred Stock;

3.3.3 (i) create, or authorize the creation of, or issue or obligate itself to issue shares of, any additional class or series of capital stock unless the same ranks junior to each series of Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends and rights of redemption, (ii) increase or decrease the authorized number of shares of any series of Preferred Stock or (iii) increase or decrease the authorized number of shares of any other class or series of capital stock;

3.3.4 (i) reclassify, alter or amend any existing security of the Corporation that is pari passu with any series of Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to any series of Preferred Stock in respect of any such right, preference, or privilege or (ii) reclassify, alter or amend any existing security of the Corporation that is junior to any series of Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to or pari passu with any series of Preferred Stock in respect of any such right, preference or privilege;

3.3.5 purchase or redeem (or permit any subsidiary to purchase or redeem) or pay or declare any dividend or make any distribution on, any shares of capital stock of the Corporation other than repurchases of stock from former employees, officers, directors, consultants or other persons who performed services for the Corporation or any subsidiary in connection with the cessation of such employment or service at the lower of the original purchase price or the then-current fair market value thereof, as determined in good faith by the Board of Directors;

3.3.6 approve or consummate any merger or consolidation (whether or not the Company or a subsidiary is the surviving corporation);

3.3.7 create, or authorize the creation of, or issue, or authorize the issuance of any debt security convertible into capital stock of the Corporation, or permit any subsidiary to take any such action with respect to any debt security;

3.3.8 make any acquisition of or investment in (whether by merger, consolidation or otherwise) any other person or entity, or create or maintain any subsidiary other than acquisitions of, investments in or maintenance of wholly-owned subsidiaries of the Corporation; or

3.3.9 increase or decrease the authorized number of directors constituting the Board of Directors.

3.4 Series B Preferred Stock Protective Provisions. At any time shares of Series B Preferred Stock are outstanding, the Corporation shall not, without the written consent or affirmative vote of the holders of a majority of the Series B Preferred Stock then outstanding, either directly or indirectly by amendment, merger, consolidation or otherwise, amend or waive any provision of the Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Series B Preferred Stock (provided that, for the avoidance of doubt, the creation or issuance of securities that are senior to or pari passu with the Series B Preferred Stock shall not be deemed to adversely affect the rights, preferences or privileges of the Series B Preferred Stock).

3.5 Series A Preferred Stock Protective Provisions. At any time shares of Series A Preferred Stock are outstanding, the Corporation shall not, without the written consent or affirmative vote of the holders of a majority of the Series A Preferred Stock then outstanding, either directly or indirectly by amendment, merger, consolidation or otherwise, amend or waive any provision of the Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of the Series A Preferred Stock (provided that, for the avoidance of doubt, the creation or issuance of securities that are senior to or pari passu with the Series A Preferred Stock shall not be deemed to adversely affect the rights, preferences or privileges of the Series A Preferred Stock).

4. Optional Conversion.

The holders of the Preferred Stock shall have conversion rights as follows (the “**Conversion Rights**”):

4.1 Right to Convert.

4.1.1 Conversion Ratio. Each share of Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the Applicable Original Issue Price by the Applicable Conversion Price (as defined below) in effect at the time of conversion. The “**Series A Conversion Price**” shall initially be equal to \$1.00. The “**Series B Conversion Price**” shall initially be equal to \$2.00. The Series A Conversion Price, in the case of the Series A Preferred Stock, and the Series B Conversion Price, in the case of the Series B Preferred Stock, may each be referred to individually or collectively, as applicable, herein as the “**Applicable Conversion Price**”. Such initial Applicable Conversion Price, and the rate at which shares of each series of Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below.

4.1.2 Termination of Conversion Rights. In the event of a notice of redemption of any shares of Preferred Stock pursuant to Section 6, the Conversion Rights of the shares designated for redemption shall terminate at the close of business on the last full day preceding the date fixed for redemption, unless the redemption price is not fully paid on such redemption date, in which case the Conversion Rights for such shares shall continue until such price is paid in full. In the event of a liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event, the Conversion Rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of Preferred Stock.

4.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock as determined in good faith by the Board of Directors. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion.

4.3 Mechanics of Conversion.

4.3.1 Notice of Conversion. In order for a holder of Preferred Stock to voluntarily convert shares of Preferred Stock into shares of Common Stock, such holder shall (a) provide written notice to the Corporation's transfer agent at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent) that such holder elects to convert all or any number of such holder's shares of Preferred Stock and, if applicable, any event on which such conversion is contingent and (b), if such holder's shares are certificated, surrender the certificate or certificates for such shares of Preferred Stock (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent). Such notice shall state such holder's name or the names of the nominees in which such holder wishes the shares of Common Stock to be issued. If required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The close of business on the date of receipt by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) of such notice and, if applicable, certificates (or lost certificate affidavit and agreement) shall be the time of conversion (the "**Conversion Time**"), and the shares of Common Stock issuable upon conversion of the specified shares shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Time (i) issue and deliver to such holder of Preferred Stock, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable upon such conversion in accordance with the provisions hereof and a certificate for the number (if any) of the shares of Preferred Stock represented by the surrendered certificate that were not converted into Common Stock, (ii) pay in cash such amount as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and (iii) pay all declared but unpaid dividends on the shares of Preferred Stock converted.

4.3.2 Reservation of Shares. The Corporation shall at all times when the Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of the Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to the Certificate of Incorporation. Before taking any action which would cause an adjustment reducing the Applicable Conversion Price for any series of Preferred Stock below the then par value of the shares of Common Stock issuable upon conversion of the Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and non-assessable shares of Common Stock at such adjusted Applicable Conversion Price.

4.3.3 Effect of Conversion. All shares of Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the Conversion Time, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor, to receive payment in lieu of any fraction of a share otherwise issuable upon such conversion as provided in Subsection 4.2 and to receive payment of any dividends declared but unpaid thereon. Any shares of Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the Applicable Conversion Price shall be made for any declared but unpaid dividends on the Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

4.3.5 Taxes. The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Preferred Stock pursuant to this Section 4. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

4.4 Adjustments to Applicable Conversion Price for Diluting Issues.

4.4.1 Special Definitions. For purposes of this Article Fourth, the following definitions shall apply:

(a) **“Option”** shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(b) **“Series B Original Issue Date”** shall mean the date on which the first share of Series B Preferred Stock was issued.

(c) **“Convertible Securities”** shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.

(d) **“Additional Shares of Common Stock”** shall mean all shares of Common Stock issued (or, pursuant to Subsection 4.4.3 below, deemed to be issued) by the Corporation after the Series B Original Issue Date, other than (1) the following shares of Common Stock and (2) shares of Common Stock deemed issued pursuant to the following Options and Convertible Securities (clauses (1) and (2), collectively, **“Exempted Securities”**):

- (i) shares of Common Stock, Options or Convertible Securities issued as a dividend or distribution on any series of Preferred Stock;

- (ii) shares of Common Stock, Options or Convertible Securities issued by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Subsection 4.5, 4.6, 4.7 or 4.8;
- (iii) shares of Common Stock or Options issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board of Directors, including a majority of the Preferred Directors;
- (iv) shares of Common Stock or Convertible Securities actually issued upon the exercise of Options or shares of Common Stock actually issued upon the conversion or exchange of Convertible Securities, in each case provided (A) such issuance is pursuant to the terms of such Option or Convertible Security and (B) such Option or Convertible Security was outstanding as of the Series B Original Issue Date, and/or such Option or Convertible Security was issued by the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board of Directors, including a majority of the Preferred Directors;
- (v) shares of Common Stock, Options or Convertible Securities issued to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by the Board of Directors, including a majority of the Preferred Directors;

- (vi) shares of Common Stock, Options or Convertible Securities issued to suppliers or third party service providers in connection with the provision of goods or services pursuant to transactions approved by the Board of Directors, including a majority of the Preferred Directors;
- (vii) shares of Common Stock, Options or Convertible Securities issued pursuant to the acquisition of another corporation by the Corporation by merger, purchase of substantially all of the assets or other reorganization or to a joint venture agreement, provided that such issuances are approved by the Board of Directors, including a majority of the Preferred Directors;
- (viii) shares of Common Stock, Options or Convertible Securities issued in connection with sponsored research, collaboration, technology license, development, OEM, marketing or other similar agreements or strategic partnerships approved by the Board of Directors, including a majority of the Preferred Directors; or
- (ix) shares of Series B Preferred Stock issued pursuant to the Corporation's Series B Preferred Stock Purchase Agreement, dated on or about the Series B Original Issue Date, by and among the Corporation and the purchasers named therein, as it may be amended and/or restated from time to time (the "**Series B Purchase Agreement**").

4.4.2 No Adjustment of Applicable Conversion Price. No adjustment in the Applicable Conversion Price for any series of Preferred Stock shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the Requisite Preferred agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock.

4.4.3 Deemed Issue of Additional Shares of Common Stock.

(a) If the Corporation at any time or from time to time after the Series B Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability but without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(b) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to the Applicable Conversion Price pursuant to the terms of Subsection 4.4.4, are revised as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion and/or exchange, then, effective upon such increase or decrease becoming effective, the Applicable Conversion Price computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such Applicable Conversion Price as would have obtained had such revised terms been in effect upon the original date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no readjustment pursuant to this clause (b) shall have the effect of increasing the Applicable Conversion Price to an amount which exceeds the lower of (i) the Applicable Conversion Price in effect immediately prior to the original adjustment made as a result of the issuance of such Option or Convertible Security, or (ii) the Applicable Conversion Price that would have resulted from any issuances of Additional Shares of Common Stock (other than deemed issuances of Additional Shares of Common Stock as a result of the issuance of such Option or Convertible Security) between the original adjustment date and such readjustment date.

(c) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities which are themselves Exempted Securities), the issuance of which did not result in an adjustment to the Applicable Conversion Price pursuant to the terms of Subsection 4.4.4 (either because the consideration per share (determined pursuant to Subsection 4.4.5) of the Additional Shares of Common Stock subject thereto was equal to or greater than such Applicable Conversion Price then in effect, or because such Option or Convertible Security was issued before the Series B Original Issue Date), are revised after the Series B Original Issue Date as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then such Option or Convertible Security, as so amended or adjusted, and the Additional Shares of Common Stock subject thereto (determined in the manner provided in Subsection 4.4.3(a)) shall be deemed to have been issued effective upon such increase or decrease becoming effective.

(d) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security (or portion thereof) which resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to the Applicable Conversion Price pursuant to the terms of Subsection 4.4.4, such Applicable Conversion Price shall be readjusted to such Applicable Conversion Price as would have obtained had such Option or Convertible Security (or portion thereof) never been issued.

(e) If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, is calculable at the time such Option or Convertible Security is issued or amended but is subject to adjustment based upon subsequent events, any adjustment to the Applicable Conversion Price provided for in this Subsection 4.4.3 shall be effected at the time of such issuance or amendment based on such number of shares or amount of consideration without regard to any provisions for subsequent adjustments (and any subsequent adjustments shall be treated as provided in clauses (b) and (c) of this Subsection 4.4.3). If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, cannot be calculated at all at the time such Option or Convertible Security is issued or amended, any adjustment to the Applicable Conversion Price that would result under the terms of this Subsection 4.4.3 at the time of such issuance or amendment shall instead be effected at the time such number of shares and/or amount of consideration is first calculable (even if subject to subsequent adjustments), assuming for purposes of calculating such adjustment to the Applicable Conversion Price that such issuance or amendment took place at the time such calculation can first be made.

4.4.4 Adjustment of Applicable Conversion Price Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time after the Series B Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 4.4.3), without consideration or for a consideration per share less than the Applicable Conversion Price in effect immediately prior to such issue, then the Applicable Conversion Price shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in accordance with the following formula:

$$CP_2 = (CP_1 * (A + B)) \div (A + C).$$

For purposes of the foregoing formula, the following definitions shall apply:

- Common Stock
- (a) “CP₂” shall mean such Applicable Conversion Price in effect immediately after such issue of Additional Shares of
- (b) “CP₁” shall mean such Applicable Conversion Price in effect immediately prior to such issue of Additional Shares
- of Common Stock;

(c) “A” shall mean the number of shares of Common Stock outstanding immediately prior to such issue of Additional Shares of Common Stock (treating for this purpose as outstanding all shares of Common Stock issuable upon exercise of Options outstanding immediately prior to such issue or upon conversion or exchange of Convertible Securities (including the Preferred Stock) outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such issue);

(d) “B” shall mean the number of shares of Common Stock that would have been issued if such Additional Shares of Common Stock had been issued at a price per share equal to CP₁ (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP₁); and

(e) “C” shall mean the number of such Additional Shares of Common Stock issued in such transaction.

4.4.5 Determination of Consideration. For purposes of this Subsection 4.4, the consideration received by the Corporation for the issue of any Additional Shares of Common Stock shall be computed as follows:

(a) Cash and Property: Such consideration shall:

- (i) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;
- (ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors, including a majority of the Preferred Directors; provided, however, that the Board of Directors in its sole discretion may designate a third-party appraiser agreed to by the Corporation and the Requisite Preferred to make such determination; and
- (iii) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board of Directors.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 4.4.3, relating to Options and Convertible Securities, shall be determined by dividing:

- (i) The total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by
- (ii) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

4.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Applicable Conversion Price pursuant to the terms of Subsection 4.4.4, and such issuance dates occur within a period of no more than ninety (90) days from the first such issuance to the final such issuance, then, upon the final such issuance, such Applicable Conversion Price shall be readjusted to give effect to all such issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

4.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the Series B Original Issue Date effect a subdivision of the outstanding Common Stock, the Applicable Conversion Price in effect immediately before that subdivision shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the Series B Original Issue Date combine the outstanding shares of Common Stock, the Applicable Conversion Price in effect immediately before the combination shall be proportionately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this subsection shall become effective at the close of business on the date the subdivision or combination becomes effective.

4.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series B Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such event the Applicable Conversion Price in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Applicable Conversion Price then in effect by a fraction:

(1) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(2) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution.

Notwithstanding the foregoing (a) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, such Applicable Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter such Applicable Conversion Price shall be adjusted pursuant to this subsection as of the time of actual payment of such dividends or distributions; and (b) that no such adjustment shall be made if the holders of Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event.

4.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series B Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property and the provisions of Section 1 do not apply to such dividend or distribution, then and in each such event the holders of Preferred Stock shall receive, simultaneously with the distribution to the holders of Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event.

4.8 Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 2.3, if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.4, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock issuable upon conversion of one share of such Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors) shall be made in the application of the provisions in this Section 4 with respect to the rights and interests thereafter of the holders of Preferred Stock, to the end that the provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the Applicable Conversion Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of the Series A Preferred Stock. For the avoidance of doubt, nothing in this Subsection 4.8 shall be construed as preventing the holders of Preferred Stock from seeking any appraisal rights to which they are otherwise entitled under the DGCL in connection with a merger triggering an adjustment hereunder, nor shall this Subsection 4.8 be deemed conclusive evidence of the fair value of the shares of Preferred Stock in any such appraisal proceeding.

4.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Applicable Conversion Price pursuant to this Section 4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than ten (10) days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of such Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which such Preferred Stock is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of Preferred Stock (but in any event not later than ten (10) days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Applicable Conversion Price then in effect, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of such holder's Preferred Stock.

4.10 Notice of Record Date. In the event:

(a) the Corporation shall take a record of the holders of its Common Stock (or other capital stock or securities at the time issuable upon conversion of the Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of capital stock of any class or any other securities, or to receive any other security; or

(b) of any capital reorganization of the Corporation, any reclassification of the Common Stock, or any Deemed Liquidation Event; or

then, and in each such case, the Corporation will send or cause to be sent to the holders of the Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other capital stock or securities at the time issuable upon the conversion of the Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other capital stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to the Preferred Stock and the Common Stock. Such notice shall be sent at least ten (10) days prior to the record date or effective date for the event specified in such notice.

5. Mandatory Conversion.

5.1 Trigger Events. Upon either (a) the closing of the sale of shares of Common Stock to the public at a price of at least \$3.00 per share (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock) in a firm-commitment underwritten public offering resulting in at least \$50 million of gross proceeds to the Corporation and the listing of the Common Stock on a national exchange (a “**Qualified Public Offering**”) or (b) the date and time, or the occurrence of an event, specified by vote or written consent of the Requisite Preferred (the time of such closing or the date and time specified or the time of the event specified in such vote or written consent is referred to herein as the “**Mandatory Conversion Time**”), then (i) all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate as calculated pursuant to Subsection 4.1.1 and (ii) such shares may not be reissued by the Corporation.

5.2 Procedural Requirements. All holders of record of shares of Preferred Stock shall be sent written notice of the Mandatory Conversion Time and the place designated for mandatory conversion of all such shares of Preferred Stock pursuant to this Section 5. Such notice need not be sent in advance of the occurrence of the Mandatory Conversion Time. Upon receipt of such notice, each holder of shares of Preferred Stock in certificated form shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to the Preferred Stock converted pursuant to Subsection 5.1, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate at the Mandatory Conversion Time (notwithstanding the failure of the holder or holders thereof to surrender any certificates at or prior to such time), except only the rights of the holders thereof, upon surrender of any certificate or certificates of such holders (or lost certificate affidavit and agreement) therefor, to receive the items provided for in the next sentence of this Subsection 5.2. As soon as practicable after the Mandatory Conversion Time and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for Preferred Stock, the Corporation shall (a) issue and deliver to such holder, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof and (b) pay cash as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of Preferred Stock converted. Such converted Preferred Stock shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

6. Redemption.

6.1 General. Unless prohibited by Delaware law governing distributions to stockholders, shares of Preferred Stock shall be redeemed by the Corporation at a price equal to the greater of (A) the Applicable Original Issue Price per share, plus any Accruing Dividends accrued but unpaid thereon, whether or not declared, together with any other dividends declared but unpaid thereon and (B) the fair market value (determined in the manner set forth below) per share of such series of Preferred Stock as of the date of the Corporation's receipt of the Redemption Request (as defined below) (the "**Redemption Price**"), in three (3) annual installments commencing not more than sixty (60) days after receipt by the Corporation at any time on or after the fifth anniversary of the Series B Original Issue Date, from the holders of the Requisite Preferred, of written notice requesting redemption of all shares of Preferred Stock (the "**Redemption Request**"). Upon receipt of a Redemption Request, the Corporation shall apply all of its assets to any such redemption, and to no other corporate purpose, except to the extent prohibited by Delaware law governing distributions to stockholders. For purposes of this Subsection 6.1, the fair market value per share of a series of Preferred Stock shall be the fair market value of a single share of such series of Preferred Stock, based on enterprise value without discount for illiquidity or lack of marketability, minority position or transfer restrictions and as compared to comparable public and private companies, as determined in good faith by the Board, including a majority of the Preferred Directors; provided, however, that the Board of Directors in its sole discretion may designate a third-party appraiser agreed to by the Corporation and the Requisite Preferred to make such determination. The date of each such installment shall be referred to as a "**Redemption Date.**" On each Redemption Date, the Corporation shall redeem, on a pro rata basis in accordance with the number of shares of Preferred Stock owned by each holder, that number of outstanding shares of Preferred Stock determined by dividing (i) the total number of shares of Preferred Stock outstanding immediately prior to such Redemption Date by (ii) the number of remaining Redemption Dates (including the Redemption Date to which such calculation applies); provided, however, that Excluded Shares (as such term is defined in Subsection 6.2) shall not be redeemed and shall be excluded from the calculations set forth in this sentence. If, on any Redemption Date, Delaware law governing distributions to stockholders prevents the Corporation from redeeming all shares of Preferred Stock to be redeemed or the Corporation does not have sufficient assets available to redeem all shares of Preferred Stock to be redeemed, (i) the Corporation shall ratably redeem the maximum number of shares of Series B Preferred Stock that it is able to redeem on such Redemption Date and shall redeem the remaining shares of Series B Preferred Stock to be redeemed on such Redemption Date as soon as it is able to lawfully do so thereafter, before the Corporation shall redeem any shares of Series A Preferred Stock, and (ii) after the redemption of all of the shares of Series B Preferred Stock to be redeemed on such Redemption Date, the Corporation shall ratably redeem the maximum number of shares of Series A Preferred Stock that it is able to redeem on such Redemption Date and shall redeem the remaining shares of Series A Preferred Stock to be redeemed on such Redemption Date as soon as it is able to lawfully do so thereafter.

6.2 Redemption Notice. The Corporation shall send written notice of the mandatory redemption (the “**Redemption Notice**”) to each holder of record of Preferred Stock not less than forty (40) days prior to each Redemption Date. Each Redemption Notice shall state:

(a) the number and series of shares of Preferred Stock held by the holder that the Corporation shall redeem on the Redemption Date specified in the Redemption Notice;

(b) the Redemption Date and the Redemption Price;

(c) the date upon which the holder’s right to convert such shares terminates (as determined in accordance with Subsection 4.1); and

(d) for holders of shares in certificated form, that the holder is to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the shares of Preferred Stock to be redeemed.

If the Corporation receives, on or prior to the twentieth (20th) day after the date of delivery of the Redemption Notice to a holder of Preferred Stock, written notice from such holder that such holder elects to be excluded from the redemption provided in this Section 6, then the shares of Preferred Stock registered on the books of the Corporation in the name of such holder at the time of the Corporation’s receipt of such notice shall thereafter be “**Excluded Shares**.” Excluded Shares shall not be redeemed or redeemable pursuant to this Section 6, whether on such Redemption Date or thereafter.

6.3 Surrender of Certificates; Payment. On or before the applicable Redemption Date, each holder of shares of Preferred Stock to be redeemed on such Redemption Date, unless such holder has exercised his, her or its right to convert such shares as provided in Section 4, shall, if a holder of shares in certificated form, surrender the certificate or certificates representing such shares (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation, in the manner and at the place designated in the Redemption Notice, and thereupon the Redemption Price for such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof. In the event less than all of the shares of Preferred Stock represented by a certificate are redeemed, a new certificate, instrument, or book entry representing the unredeemed shares of Preferred Stock shall promptly be issued to such holder.

6.4 Rights Subsequent to Redemption. If the Redemption Notice shall have been duly given, and if on the applicable Redemption Date the Redemption Price payable upon redemption of the shares of Preferred Stock to be redeemed on such Redemption Date is paid or tendered for payment or deposited with an independent payment agent so as to be available therefor in a timely manner, then notwithstanding that any certificates evidencing any of the shares of Preferred Stock so called for redemption shall not have been surrendered, dividends with respect to such shares of Preferred Stock shall cease to accrue after such Redemption Date and all rights with respect to such shares shall forthwith after the Redemption Date terminate, except only the right of the holders to receive the Redemption Price without interest upon surrender of any such certificate or certificates therefor.

7. Redeemed or Otherwise Acquired Shares. Any shares of Preferred Stock that are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately cancelled and retired and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Preferred Stock following redemption.

8. Waiver. Subject to Subsections 3.4 and 3.5, any of the rights, powers, preferences and other terms of the Preferred Stock set forth herein may be waived on behalf of all holders of Preferred Stock by the affirmative written consent or vote of the Requisite Preferred.

9. Notices. Any notice required or permitted by the provisions of this Article Fourth to be given to a holder of shares of Preferred Stock shall be mailed, postage prepaid, to the post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, and shall be deemed sent upon such mailing or electronic transmission.

FIFTH: Subject to any additional vote required by the Certificate of Incorporation or Bylaws, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to make, repeal, alter, amend and rescind any or all of the Bylaws of the Corporation.

SIXTH: Subject to any additional vote required by the Certificate of Incorporation, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws of the Corporation.

SEVENTH: Elections of directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

EIGHTH: Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws of the Corporation may provide. The books of the Corporation may be kept outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of the Corporation.

NINTH: To the fullest extent permitted by law, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. If the General Corporation Law or any other law of the State of Delaware is amended after approval by the stockholders of this Article Ninth to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law as so amended.

Any repeal or modification of the foregoing provisions of this Article Ninth by the stockholders of the Corporation shall not adversely affect any right or protection of a director of the Corporation existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director occurring prior to, such repeal or modification.

TENTH: The following indemnification provisions shall apply to the persons enumerated below.

1. Right to Indemnification of Directors and Officers. The Corporation shall indemnify and hold harmless, to the fullest extent permitted by applicable law as it presently exists or may hereafter be amended, any person (an “**Indemnified Person**”) who was or is made or is threatened to be made a party or is otherwise involved in any action, suit or proceeding, whether civil, criminal, administrative or investigative (a “**Proceeding**”), by reason of the fact that such person, or a person for whom such person is the legal representative, is or was a director or officer of the Corporation or, while a director or officer of the Corporation, is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation or of a partnership, joint venture, limited liability company, trust, enterprise or nonprofit entity, including service with respect to employee benefit plans, against all liability and loss suffered and expenses (including attorneys’ fees) reasonably incurred by such Indemnified Person in such Proceeding. Notwithstanding the preceding sentence, except as otherwise provided in Section 3 of this Article Tenth, the Corporation shall be required to indemnify an Indemnified Person in connection with a Proceeding (or part thereof) commenced by such Indemnified Person only if the commencement of such Proceeding (or part thereof) by the Indemnified Person was authorized in advance by the Board of Directors.

2. Prepayment of Expenses of Directors and Officers. The Corporation shall pay the expenses (including attorneys’ fees) incurred by an Indemnified Person in defending any Proceeding in advance of its final disposition, provided, however, that, to the extent required by law, such payment of expenses in advance of the final disposition of the Proceeding shall be made only upon receipt of an undertaking by the Indemnified Person to repay all amounts advanced if it should be ultimately determined that the Indemnified Person is not entitled to be indemnified under this Article Tenth or otherwise.

3. Claims by Directors and Officers. If a claim for indemnification or advancement of expenses under this Article Tenth is not paid in full within thirty (30) days after a written claim therefor by the Indemnified Person has been received by the Corporation, the Indemnified Person may file suit to recover the unpaid amount of such claim and, if successful in whole or in part, shall be entitled to be paid the expense of prosecuting such claim. In any such action the Corporation shall have the burden of proving that the Indemnified Person is not entitled to the requested indemnification or advancement of expenses under applicable law.

4. Indemnification of Employees and Agents. The Corporation may indemnify and advance expenses to any person who was or is made or is threatened to be made or is otherwise involved in any Proceeding by reason of the fact that such person, or a person for whom such person is the legal representative, is or was an employee or agent of the Corporation or, while an employee or agent of the Corporation, is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation or of a partnership, joint venture, limited liability company, trust, enterprise or nonprofit entity, including service with respect to employee benefit plans, against all liability and loss suffered and expenses (including attorneys’ fees) reasonably incurred by such person in connection with such Proceeding. The ultimate determination of entitlement to indemnification of persons who are non-director or officer employees or agents shall be made in such manner as is determined by the Board of Directors in its sole discretion. Notwithstanding the foregoing sentence, the Corporation shall not be required to indemnify a person in connection with a Proceeding initiated by such person if the Proceeding was not authorized in advance by the Board of Directors.

5. Advancement of Expenses of Employees and Agents. The Corporation may pay the expenses (including attorneys' fees) incurred by an employee or agent in defending any Proceeding in advance of its final disposition on such terms and conditions as may be determined by the Board of Directors.

6. Non-Exclusivity of Rights. The rights conferred on any person by this Article Tenth shall not be exclusive of any other rights which such person may have or hereafter acquire under any statute, provision of the certificate of incorporation, these by-laws, agreement, vote of stockholders or disinterested directors or otherwise.

7. Other Indemnification. The Corporation's obligation, if any, to indemnify any person who was or is serving at its request as a director, officer or employee of another Corporation, partnership, limited liability company, joint venture, trust, organization or other enterprise shall be reduced by any amount such person may collect as indemnification from such other Corporation, partnership, limited liability company, joint venture, trust, organization or other enterprise.

8. Insurance. The Board of Directors may, to the full extent permitted by applicable law as it presently exists, or may hereafter be amended from time to time, authorize an appropriate officer or officers to purchase and maintain at the Corporation's expense insurance: (a) to indemnify the Corporation for any obligation which it incurs as a result of the indemnification of directors, officers and employees under the provisions of this Article Tenth; and (b) to indemnify or insure directors, officers and employees against liability in instances in which they may not otherwise be indemnified by the Corporation under the provisions of this Article Tenth.

9. Amendment or Repeal. Any repeal or modification of the foregoing provisions of this Article Tenth shall not adversely affect any right or protection hereunder of any person in respect of any act or omission occurring prior to the time of such repeal or modification. The rights provided hereunder shall inure to the benefit of any Indemnified Person and such person's heirs, executors and administrators.

ELEVENTH: The Corporation renounces, to the fullest extent permitted by law, any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An **"Excluded Opportunity"** is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries, (collectively, **"Covered Persons"**), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation.

TWELFTH: Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery in the State of Delaware shall be the sole and exclusive forum for any stockholder (including a beneficial owner) to bring (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of fiduciary duty owed by any director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders, (iii) any action asserting a claim against the Corporation, its directors, officers or employees arising pursuant to any provision of the Delaware General Corporation Law or the Corporation's certificate of incorporation or bylaws or (iv) any action asserting a claim against the Corporation, its directors, officers or employees governed by the internal affairs doctrine, except for, as to each of (i) through (iv) above, any claim as to which the Court of Chancery determines that there is an indispensable party not subject to the jurisdiction of the Court of Chancery (and the indispensable party does not consent to the personal jurisdiction of the Court of Chancery within ten days following such determination), which is vested in the exclusive jurisdiction of a court or forum other than the Court of Chancery, or for which the Court of Chancery does not have subject matter jurisdiction. If any provision or provisions of this Article Twelfth shall be held to be invalid, illegal or unenforceable as applied to any person or entity or circumstance for any reason whatsoever, then, to the fullest extent permitted by law, the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Article Twelfth (including, without limitation, each portion of any sentence of this Article Twelfth containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) and the application of such provision to other persons or entities and circumstances shall not in any way be affected or impaired thereby.

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the General Corporation Law.

4. That this Second Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this Corporation's Certificate of Incorporation, has been duly adopted in accordance with Sections 242 and 245 of the General Corporation Law.

* * *

IN WITNESS WHEREOF, this Second Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 28th day of February, 2018.

By: /s/ Garry Menzel

Name: Garry Menzel

Title: President

**THIRD AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
TCR² THERAPEUTICS INC.**

TCR² Therapeutics Inc., a corporation organized and existing under the laws of the State of Delaware (the “Corporation”), hereby certifies as follows:

1. The name of the Corporation is TCR² Therapeutics Inc. The date of the filing of its original Certificate of Incorporation with the Secretary of State of the State of Delaware was May 29, 2015 (the “Original Certificate”) under the name TCR², Inc.
2. This Third Amended and Restated Certificate of Incorporation (the “Certificate”) amends, restates and integrates the provisions of the Second Amended and Restated Certificate of Incorporation that was filed with the Secretary of State of the State of Delaware on February 28, 2018, duly adopted in accordance with the provisions of Sections 228, 242 and 245 of the General Corporation Law of the State of Delaware (the “DGCL”).
3. The text of the Second Amended and Restated Certificate is hereby amended and restated in its entirety to provide as herein set forth in full.

ARTICLE I

The name of the Corporation is TCR² Therapeutics Inc.

ARTICLE II

The address of the Corporation’s registered office in the State of Delaware is c/o The Corporation Trust Company, 1209 Orange Street in the City of Wilmington, County of New Castle, 19801. The name of its registered agent at such address is The Corporation Trust Company.

ARTICLE III

The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be organized under the DGCL.

ARTICLE IV

CAPITAL STOCK

The total number of shares of capital stock which the Corporation shall have authority to issue is one hundred and sixty million (160,000,000), of which (i) one hundred and fifty million (150,000,000) shares shall be a class designated as common stock, par value \$0.0001 per share (the “Common Stock”), and (ii) ten million (10,000,000) shares shall be a class designated as undesignated preferred stock, par value \$0.0001 per share (the “Undesignated Preferred Stock”).

Except as otherwise provided in any certificate of designations of any series of Undesignated Preferred Stock, the number of authorized shares of the class of Common Stock or Undesignated Preferred Stock may from time to time be increased or decreased (but not below the number of shares of such class outstanding) by the affirmative vote of the holders of a majority in voting power of the outstanding shares of capital stock of the Corporation irrespective of the provisions of Section 242(b)(2) of the DGCL.

The powers, preferences and rights of, and the qualifications, limitations and restrictions upon, each class or series of stock shall be determined in accordance with, or as set forth below in, this Article IV.

A. COMMON STOCK

Subject to all the rights, powers and preferences of the Undesignated Preferred Stock and except as provided by law or in this Certificate (or in any certificate of designations of any series of Undesignated Preferred Stock):

(a) the holders of the Common Stock shall have the exclusive right to vote for the election of directors of the Corporation (the “Directors”) and on all other matters requiring stockholder action, each outstanding share entitling the holder thereof to one vote on each matter properly submitted to the stockholders of the Corporation for their vote; provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to this Certificate (or on any amendment to a certificate of designations of any series of Undesignated Preferred Stock) that alters or changes the powers, preferences, rights or other terms of one or more outstanding series of Undesignated Preferred Stock if the holders of such affected series of Undesignated Preferred Stock are entitled to vote, either separately or together with the holders of one or more other such series, on such amendment pursuant to this Certificate (or pursuant to a certificate of designations of any series of Undesignated Preferred Stock) or pursuant to the DGCL;

(b) dividends may be declared and paid or set apart for payment upon the Common Stock out of any assets or funds of the Corporation legally available for the payment of dividends, but only when and as declared by the Board of Directors or any authorized committee thereof; and

(c) upon the voluntary or involuntary liquidation, dissolution or winding up of the Corporation, the net assets of the Corporation shall be distributed pro rata to the holders of the Common Stock.

B. UNDESIGNATED PREFERRED STOCK

The Board of Directors or any authorized committee thereof is expressly authorized, to the fullest extent permitted by law, to provide by resolution or resolutions for, out of the unissued shares of Undesignated Preferred Stock, the issuance of the shares of Undesignated Preferred Stock in one or more series of such stock, and by filing a certificate of designations pursuant to applicable law of the State of Delaware, to establish or change from time to time the number of shares of each such series, and to fix the designations, powers, including voting powers, full or limited, or no voting powers, preferences and the relative, participating, optional or other special rights of the shares of each series and any qualifications, limitations and restrictions thereof.

ARTICLE V

STOCKHOLDER ACTION

1. Action without Meeting. Any action required or permitted to be taken by the stockholders of the Corporation at any annual or special meeting of stockholders of the Corporation must be effected at a duly called annual or special meeting of stockholders and may not be taken or effected by a written consent of stockholders in lieu thereof.

2. Special Meetings. Except as otherwise required by statute and subject to the rights, if any, of the holders of any series of Undesignated Preferred Stock, special meetings of the stockholders of the Corporation may be called only by the Board of Directors acting pursuant to a resolution approved by the affirmative vote of a majority of the Directors then in office, and special meetings of stockholders may not be called by any other person or persons. Only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of stockholders of the Corporation.

ARTICLE VI

DIRECTORS

1. General. The business and affairs of the Corporation shall be managed by or under the direction of the Board of Directors except as otherwise provided herein or required by law.

2. Election of Directors. Election of Directors need not be by written ballot unless the By-laws of the Corporation (the “By-laws”) shall so provide.

3. Number of Directors; Term of Office. The number of Directors of the Corporation shall be fixed solely and exclusively by resolution duly adopted from time to time by the Board of Directors. The Directors, other than those who may be elected by the holders of any series of Undesignated Preferred Stock, shall be classified, with respect to the term for which they severally hold office, into three classes. The initial Class I Directors of the Corporation shall be Morana Jovan and Mitchell Finer; the initial Class II Directors of the Corporation shall be Andrew Allen and Patrick Baeuerle; and the initial Class III Directors of the Corporation shall be Garry E. Menzel, Ansbert Gadick and Neil Gibson. The initial Class I Directors shall serve for a term expiring at the annual meeting of stockholders to be held in 2019, the initial Class II Directors shall serve for a term expiring at the annual meeting of stockholders to be held in 2020, and the initial Class III Directors shall serve for a term expiring at the annual meeting of stockholders to be held in 2021. At each annual meeting of stockholders, Directors elected to succeed those Directors whose terms expire shall be elected for a term of office to expire at the third succeeding annual meeting of stockholders after their election. Notwithstanding the foregoing, the Directors elected to each class shall hold office until their successors are duly elected and qualified or until their earlier resignation, death or removal.

Notwithstanding the foregoing, whenever, pursuant to the provisions of Article IV of this Certificate, the holders of any one or more series of Undesignated Preferred Stock shall have the right, voting separately as a series or together with holders of other such series, to elect Directors at an annual or special meeting of stockholders, the election, term of office, filling of vacancies and other features of such directorships shall be governed by the terms of this Certificate and any certificate of designations applicable to such series.

4. Vacancies. Subject to the rights, if any, of the holders of any series of Undesignated Preferred Stock to elect Directors and to fill vacancies in the Board of Directors relating thereto, any and all vacancies in the Board of Directors, however occurring, including, without limitation, by reason of an increase in the size of the Board of Directors, or the death, resignation, disqualification or removal of a Director, shall be filled solely and exclusively by the affirmative vote of a majority of the remaining Directors then in office, even if less than a quorum of the Board of Directors, and not by the stockholders. Any Director appointed in accordance with the preceding sentence shall hold office for the remainder of the full term of the class of Directors in which the new directorship was created or the vacancy occurred and until such Director's successor shall have been duly elected and qualified or until his or her earlier resignation, death or removal. Subject to the rights, if any, of the holders of any series of Undesignated Preferred Stock to elect Directors, when the number of Directors is increased or decreased, the Board of Directors shall, subject to Article VI.3 hereof, determine the class or classes to which the increased or decreased number of Directors shall be apportioned; provided, however, that no decrease in the number of Directors shall shorten the term of any incumbent Director. In the event of a vacancy in the Board of Directors, the remaining Directors, except as otherwise provided by law, shall exercise the powers of the full Board of Directors until the vacancy is filled.

5. Removal. Subject to the rights, if any, of any series of Undesignated Preferred Stock to elect Directors and to remove any Director whom the holders of any such series have the right to elect, any Director (including persons elected by Directors to fill vacancies in the Board of Directors) may be removed from office (i) only with cause and (ii) only by the affirmative vote of the holders of two-thirds (2/3) of the outstanding shares of capital stock then entitled to vote at an election of Directors. At least forty-five (45) days prior to any annual or special meeting of stockholders at which it is proposed that any Director be removed from office, written notice of such proposed removal and the alleged grounds thereof shall be sent to the Director whose removal will be considered at the meeting.

ARTICLE VII

LIMITATION OF LIABILITY

A Director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a Director, except for liability (a) for any breach of the Director's duty of loyalty to the Corporation or its stockholders, (b) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (c) under Section 174 of the DGCL or (d) for any transaction from which the Director derived an improper personal benefit. If the DGCL is amended after the effective date of this Certificate to authorize corporate action further eliminating or limiting the personal liability of Directors, then the liability of a Director of the Corporation shall be eliminated or limited to the fullest extent permitted by the DGCL, as so amended.

Any amendment, repeal or modification of this Article VII by either of (i) the stockholders of the Corporation or (ii) an amendment to the DGCL, shall not adversely affect any right or protection existing at the time of such amendment, repeal or modification with respect to any acts or omissions occurring before such amendment, repeal or modification of a person serving as a Director at the time of such amendment, repeal or modification.

ARTICLE VIII

AMENDMENT OF BY-LAWS

1. Amendment by Directors. Except as otherwise provided by law, the By-laws of the Corporation may be amended or repealed by the Board of Directors by the affirmative vote of a majority of the Directors then in office.

2. Amendment by Stockholders. Except as otherwise provided therein, the By-laws of the Corporation may be amended or repealed at any annual meeting of stockholders, or special meeting of stockholders called for such purpose, by the affirmative vote of at least two-thirds (2/3) of the outstanding shares of capital stock entitled to vote on such amendment or repeal, voting together as a single class; provided, however, that if the Board of Directors recommends that stockholders approve such amendment or repeal at such meeting of stockholders, such amendment or repeal shall only require the affirmative vote of the majority of the outstanding shares of capital stock entitled to vote on such amendment or repeal, voting together as a single class.

ARTICLE IX

AMENDMENT OF CERTIFICATE OF INCORPORATION

The Corporation reserves the right to amend or repeal this Certificate in the manner now or hereafter prescribed by statute and this Certificate, and all rights conferred upon stockholders herein are granted subject to this reservation. Except as otherwise required by this Certificate or by law, whenever any vote of the holders of capital stock of the Corporation is required to amend or repeal any provision of this Certificate, such amendment or repeal shall require the affirmative vote of the majority of the outstanding shares of capital stock entitled to vote on such amendment or repeal, and the affirmative vote of the majority of the outstanding shares of each class entitled to vote thereon as a class, at a duly constituted meeting of stockholders called expressly for such purpose.

Notwithstanding anything herein to the contrary, the affirmative vote of not less than two-thirds (2/3) of the outstanding shares of capital stock entitled to vote thereon, and the affirmative vote of not less than two-thirds (2/3) of the outstanding shares of each class entitled to vote thereon as a class, shall be required to amend or repeal any provision of Articles V, VI, VII, VIII and IX.

[End of Text]

THIS AMENDED AND RESTATED CERTIFICATE OF INCORPORATION is executed as of this day of , 2019.

TCR² THERAPEUTICS INC.

By: _____
Name: Garry E. Menzel
Title: President and Chief Executive Officer

BY-LAWS
of
TCR² THERAPEUTICS INC.
(the “Corporation”)

1. Stockholders

(a) Annual Meeting. The annual meeting of stockholders shall be held for the election of directors each year at such place, date and time as shall be designated by the Board of Directors. Any other proper business may be transacted at the annual meeting. If no date for the annual meeting is established or said meeting is not held on the date established as provided above, a special meeting in lieu thereof may be held or there may be action by written consent of the stockholders on matters to be voted on at the annual meeting, and such special meeting or written consent shall have for the purposes of these By-laws or otherwise all the force and effect of an annual meeting.

(b) Special Meetings. Special meetings of stockholders may be called by the Chief Executive Officer, if one is elected, or, if there is no Chief Executive Officer, a President, or by the Board of Directors, but such special meetings may not be called by any other person or persons. The call for the meeting shall state the place, date, hour and purposes of the meeting. Only the purposes specified in the notice of special meeting shall be considered or dealt with at such special meeting.

(c) Notice of Meetings. Whenever stockholders are required or permitted to take any action at a meeting, a notice stating the place, if any, date and hour of the meeting, the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present and vote at such meeting, and, in the case of a special meeting, the purpose or purposes of the meeting, shall be given by the Secretary (or other person authorized by these By-laws or by law) not less than ten (10) nor more than sixty (60) days before the meeting to each stockholder entitled to vote thereat and to each stockholder who, under the Certificate of Incorporation or under these By-laws is entitled to such notice. If mailed, notice is given when deposited in the mail, postage prepaid, directed to such stockholder at such stockholder's address as it appears in the records of the Corporation. Without limiting the manner by which notice otherwise may be effectively given to stockholders, any notice to stockholders may be given by electronic transmission in the manner provided in Section 232 of the Delaware General Corporation Law (the “DGCL”).

If a meeting is adjourned to another time or place, notice need not be given of the adjourned meeting if the time and place, if any, and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting are announced at the meeting at which the adjournment is taken, except that if the adjournment is for more than thirty (30) days, or if after the adjournment a new record date is fixed for the adjourned meeting, notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.

(d) Quorum. The holders of a majority in interest of all stock issued, outstanding and entitled to vote at a meeting, present in person or represented by proxy, shall constitute a quorum. Any meeting may be adjourned from time to time by a majority of the votes properly cast upon the question, whether or not a quorum is present. The stockholders present at a duly constituted meeting may continue to transact business until adjournment notwithstanding the withdrawal of enough stockholders to reduce the voting shares below a quorum.

(e) Voting and Proxies. Except as otherwise provided by the Certificate of Incorporation or by law, each stockholder entitled to vote at any meeting of stockholders shall be entitled to one vote for each share of stock held by such stockholder which has voting power upon the matter in question. Each stockholder entitled to vote at a meeting of stockholders or to express consent or dissent to corporate action in writing without a meeting may authorize another person or persons to act for such stockholder by either written proxy or by a transmission permitted by Section 212(c) of the DGCL, but no proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period or is irrevocable and coupled with an interest. Proxies shall be filed with the Secretary of the meeting, or of any adjournment thereof. Except as otherwise limited therein, proxies shall entitle the persons authorized thereby to vote at any adjournment of such meeting.

(f) Action at Meeting. When a quorum is present, any matter before the meeting shall be decided by vote of the holders of a majority of the shares of stock voting on such matter except where a larger vote is required by law, by the Certificate of Incorporation or by these By-laws. Any election of directors by stockholders shall be determined by a plurality of the votes cast, except where a larger vote is required by law, by the Certificate of Incorporation or by these By-laws. The Corporation shall not directly or indirectly vote any share of its own stock; provided, however, that the Corporation may vote shares which it holds in a fiduciary capacity to the extent permitted by law.

(g) Presiding Officer. Meetings of stockholders shall be presided over by the Chairman of the Board, if one is elected, or in his or her absence, the Vice Chairman of the Board, if one is elected, or if neither is elected or in their absence, a President. The Board of Directors shall have the authority to appoint a temporary presiding officer to serve at any meeting of the stockholders if the Chairman of the Board, the Vice Chairman of the Board or a President is unable to do so for any reason.

(h) Conduct of Meetings. The Board of Directors may adopt by resolution such rules and regulations for the conduct of the meeting of stockholders as it shall deem appropriate. Except to the extent inconsistent with such rules and regulations as adopted by the Board of Directors, the presiding officer of any meeting of stockholders shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are appropriate for the proper conduct of the meeting. Such rules, regulations or procedures, whether adopted by the Board of Directors or prescribed by the presiding officer of the meeting, may include, without limitation, the following: (i) the establishment of an agenda or order of business for the meeting; (ii) rules and procedures for

maintaining order at the meeting and the safety of those present; (iii) limitations on attendance at or participation in the meeting to stockholders of record of the Corporation, their duly authorized and constituted proxies or such other persons as the chairman of the meeting shall determine; (iv) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (v) limitations on the time allotted to questions or comments by participants. Unless and to the extent determined by the Board of Directors or the presiding officer of the meeting, meetings of stockholders shall not be required to be held in accordance with the rules of parliamentary procedure.

(i) Action without a Meeting. Unless otherwise provided in the Certificate of Incorporation, any action required or permitted by law to be taken at any annual or special meeting of stockholders, may be taken without a meeting, without prior notice and without a vote, if a consent or consents in writing, setting forth the action so taken, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted and shall be delivered to the Corporation by delivery to its registered office, by hand or by certified mail, return receipt requested, or to the Corporation's principal place of business or to the officer of the Corporation having custody of the minute book. Every written consent shall bear the date of signature and no written consent shall be effective unless, within sixty (60) days of the earliest dated consent delivered pursuant to these By-laws, written consents signed by a sufficient number of stockholders entitled to take action are delivered to the Corporation in the manner set forth in these By-laws. Prompt notice of the taking of the corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing.

(j) Stockholder Lists. The officer who has charge of the stock ledger of the Corporation shall prepare and make, at least ten (10) days before every meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Nothing contained in this Section 1(j) shall require the Corporation to include electronic mail addresses or other electronic contact information on such list. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, for a period of at least ten (10) days prior to the meeting in the manner provided by law. The list shall also be open to the examination of any stockholder during the whole time of the meeting as provided by law.

2. Directors

(a) Powers. The business of the Corporation shall be managed by or under the direction of a Board of Directors who may exercise all the powers of the Corporation except as otherwise provided by law, by the Certificate of Incorporation or by these By-laws. In the event of a vacancy in the Board of Directors, the remaining directors, except as otherwise provided by law, may exercise the powers of the full Board until the vacancy is filled.

(b) Number and Qualification. Unless otherwise provided in the Certificate of Incorporation or in these By-laws, the number of directors which shall constitute the whole board shall be determined from time to time by resolution of the Board of Directors. Directors need not be stockholders.

(c) Vacancies; Reduction of Board. A majority of the directors then in office, although less than a quorum, or a sole remaining Director, may fill vacancies in the Board of Directors occurring for any reason and newly created directorships resulting from any increase in the authorized number of directors. In lieu of filling any vacancy, the Board of Directors may reduce the number of directors.

(d) Tenure. Except as otherwise provided by law, by the Certificate of Incorporation or by these By-laws, directors shall hold office until their successors are elected and qualified or until their earlier resignation or removal. Any director may resign at any time upon notice given in writing or by electronic transmission to the Corporation. Such resignation shall be effective upon receipt unless it is specified to be effective at some other time or upon the happening of some other event.

(e) Removal. To the extent permitted by law, a director may be removed from office with or without cause by vote of the holders of a majority of the shares of stock entitled to vote in the election of directors.

(f) Meetings. Regular meetings of the Board of Directors may be held without notice at such time, date and place as the Board of Directors may from time to time determine. Special meetings of the Board of Directors may be called, orally or in writing, by the Chief Executive Officer, if one is elected, or, if there is no Chief Executive Officer, the President, or by two or more Directors, designating the time, date and place thereof. Directors may participate in meetings of the Board of Directors by means of conference telephone or other communications equipment by means of which all directors participating in the meeting can hear each other, and participation in a meeting in accordance herewith shall constitute presence in person at such meeting.

(g) Notice of Meetings. Notice of the time, date and place of all special meetings of the Board of Directors shall be given to each director by the Secretary, or Assistant Secretary, or in case of the death, absence, incapacity or refusal of such persons, by the officer or one of the directors calling the meeting. Notice shall be given to each director in person, by telephone, or by facsimile, electronic mail or other form of electronic communications, sent to such director's business or home address at least twenty-four (24) hours in advance of the meeting, or by written notice mailed to such director's business or home address at least forty-eight (48) hours in advance of the meeting.

(h) Quorum. At any meeting of the Board of Directors, a majority of the total number of directors shall constitute a quorum for the transaction of business. Less than a quorum may adjourn any meeting from time to time and the meeting may be held as adjourned without further notice.

(i) Action at Meeting. At any meeting of the Board of Directors at which a quorum is present, unless otherwise provided in the following sentence, a majority of the directors present may take any action on behalf of the Board of Directors, unless a larger number is required by law, by the Certificate of Incorporation or by these By-laws. So long as there are two (2) or fewer Directors, any action to be taken by the Board of Directors shall require the approval of all Directors.

(j) Action by Consent. Any action required or permitted to be taken at any meeting of the Board of Directors may be taken without a meeting if all members of the Board of Directors consent thereto in writing or by electronic transmission, and the writing or writings or electronic transmission or transmissions are filed with the records of the meetings of the Board of Directors. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

(k) Committees. The Board of Directors may, by resolution passed by a majority of the whole Board of Directors, establish one or more committees, each committee to consist of one or more directors. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of a member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member.

Any such committee, to the extent permitted by law and to the extent provided in the resolution of the Board of Directors, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the Corporation, and may authorize the seal of the Corporation to be affixed to all papers which may require it; but no such committee shall have the power or authority in reference to the following: (i) approving or adopting, or recommending to the stockholders, any action or matter expressly required by the DGCL to be submitted to stockholders for approval or (ii) adopting, amending or repealing any provision of these By-laws.

Except as the Board of Directors may otherwise determine, any such committee may make rules for the conduct of its business, but in the absence of such rules its business shall be conducted so far as possible in the same manner as is provided in these By-laws for the Board of Directors. All members of such committees shall hold their committee offices at the pleasure of the Board of Directors, and the Board may abolish any committee at any time.

3. Officers

(a) Enumeration. The officers of the Corporation shall consist of one or more Presidents (who, if there is more than one, shall be referred to as Co-Presidents), a Treasurer, a Secretary, and such other officers, including, without limitation, a Chief Executive Officer and one or more Vice Presidents (including Executive Vice Presidents or Senior Vice Presidents), Assistant Vice Presidents, Assistant Treasurers and Assistant Secretaries, as the Board of Directors may determine. The Board of Directors may elect from among its members a Chairman of the Board and a Vice Chairman of the Board.

(b) Election. The Presidents, Treasurer and Secretary shall be elected annually by the Board of Directors at their first meeting following the annual meeting of stockholders. Other officers may be chosen by the Board of Directors at such meeting or at any other meeting.

(c) Qualification. No officer need be a stockholder or Director. Any two or more offices may be held by the same person. Any officer may be required by the Board of Directors to give bond for the faithful performance of such officer's duties in such amount and with such sureties as the Board of Directors may determine.

(d) Tenure. Except as otherwise provided by the Certificate of Incorporation or by these By-laws, each of the officers of the Corporation shall hold office until the first meeting of the Board of Directors following the next annual meeting of stockholders and until such officer's successor is elected and qualified or until such officer's earlier resignation or removal. Any officer may resign by delivering his or her written resignation to the Corporation, and such resignation shall be effective upon receipt unless it is specified to be effective at some other time or upon the happening of some other event.

(e) Removal. The Board of Directors may remove any officer with or without cause by a vote of a majority of the directors then in office.

(f) Vacancies. Any vacancy in any office may be filled for the unexpired portion of the term by the Board of Directors.

(g) Chairman of the Board and Vice Chairman. Unless otherwise provided by the Board of Directors, the Chairman of the Board of Directors, if one is elected, shall preside, when present, at all meetings of the stockholders and the Board of Directors. The Chairman of the Board shall have such other powers and shall perform such duties as the Board of Directors may from time to time designate.

Unless otherwise provided by the Board of Directors, in the absence of the Chairman of the Board, the Vice Chairman of the Board, if one is elected, shall preside, when present, at all meetings of the stockholders and the Board of Directors. The Vice Chairman of the Board shall have such other powers and shall perform such duties as the Board of Directors may from time to time designate.

(h) Chief Executive Officer. The Chief Executive Officer, if one is elected, shall have such powers and shall perform such duties as the Board of Directors may from time to time designate.

(i) Presidents. The Presidents shall, subject to the direction of the Board of Directors, each have general supervision and control of the Corporation's business and any action that would typically be taken by a President may be taken by any Co-President. If there is no Chairman of the Board or Vice Chairman of the Board, a President shall preside, when present, at all meetings of stockholders and the Board of Directors. The Presidents shall have such other powers and shall perform such duties as the Board of Directors may from time to time designate.

(j) Vice Presidents and Assistant Vice Presidents. Any Vice President (including any Executive Vice President or Senior Vice President) and any Assistant Vice President shall have such powers and shall perform such duties as the Board of Directors may from time to time designate.

(k) Treasurer and Assistant Treasurers. The Treasurer shall, subject to the direction of the Board of Directors, have general charge of the financial affairs of the Corporation and shall cause to be kept accurate books of account. The Treasurer shall have custody of all funds, securities, and valuable documents of the Corporation, except as the Board of Directors may otherwise provide. The Treasurer shall have such other powers and shall perform such duties as the Board of Directors may from time to time designate.

Any Assistant Treasurer shall have such powers and perform such duties as the Board of Directors may from time to time designate.

(l) Secretary and Assistant Secretaries. The Secretary shall record the proceedings of all meetings of the stockholders and the Board of Directors (including committees of the Board) in books kept for that purpose. In the absence of the Secretary from any such meeting an Assistant Secretary, or if such person is absent, a temporary secretary chosen at the meeting, shall record the proceedings thereof. The Secretary shall have charge of the stock ledger (which may, however, be kept by any transfer or other agent of the Corporation) and shall have such other duties and powers as may be designated from time to time by the Board of Directors.

Any Assistant Secretary shall have such powers and perform such duties as the Board of Directors may from time to time designate.

(m) Other Powers and Duties. Subject to these By-laws, each officer of the Corporation shall have in addition to the duties and powers specifically set forth in these By-laws, such duties and powers as are customarily incident to such officer's office, and such duties and powers as may be designated from time to time by the Board of Directors.

4. Capital Stock

(a) Certificates of Stock. Each stockholder shall be entitled to a certificate of the capital stock of the Corporation in such form as may from time to time be prescribed by the Board of Directors. Such certificate shall be signed by a President or a Vice President, and by the Treasurer or an Assistant Treasurer, or the Secretary or an Assistant Secretary. Such signatures may be a facsimile. In case any officer, transfer agent or registrar who has signed or whose facsimile signature has been placed on such certificate shall have ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the Corporation with the same effect as if such person were such officer, transfer agent or registrar at the time of its issue. Every certificate for shares of stock which are subject to any restriction on transfer and every certificate issued when the Corporation is authorized to issue more than one class or series of stock shall contain such legend with respect thereto as is required by law. The Corporation shall be permitted to issue fractional shares.

(b) Transfers. Subject to any restrictions on transfer, shares of stock may be transferred on the books of the Corporation by the surrender to the Corporation or its transfer agent of the certificate therefor properly endorsed or accompanied by a written assignment or power of attorney properly executed, with transfer stamps (if necessary) affixed, and with such proof of the authenticity of signature as the Corporation or its transfer agent may reasonably require.

(c) Record Holders. Except as may otherwise be required by law, by the Certificate of Incorporation or by these By-laws, the Corporation shall be entitled to treat the record holder of stock as shown on its books as the owner of such stock for all purposes, including the payment of dividends and the right to vote with respect thereto, regardless of any transfer, pledge or other disposition of such stock, until the shares have been transferred on the books of the Corporation in accordance with the requirements of these By-laws.

It shall be the duty of each stockholder to notify the Corporation of such stockholder's post office address.

(d) Record Date. In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, or to consent to corporate action in writing without a meeting, or entitled to receive payment of any dividend or other distribution or allotment of any rights, or entitled to exercise any rights in respect of any change, conversion or exchange of stock or for the purpose of any other lawful action, the Board of Directors may fix, in advance, a record date, which shall not precede the date on which it is established, and which shall not be more than sixty (60) nor less than ten (10) days before the date of such meeting, more than ten (10) days after the date on which the record date for stockholder consent without a meeting is established, nor more than sixty (60) days prior to any other action. In such case only stockholders of record on such record date shall be so entitled notwithstanding any transfer of stock on the books of the Corporation after the record date.

If no record date is fixed, (i) the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held, (ii) the record date for determining stockholders entitled to consent to corporate action in writing without a meeting, when no prior action by the Board of Directors is necessary, shall be the first date on which a signed written consent setting forth the action taken or proposed to be taken is delivered to the Corporation by delivery to its registered office in this state, to its principal place of business, or to an officer or agent of the Corporation having custody of the book in which proceedings of meetings of stockholders are recorded, and (iii) the record date for determining stockholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

(e) Lost Certificates. The Corporation may issue a new certificate of stock in the place of any certificate theretofore issued by it, alleged to have been lost, stolen or destroyed, and the Corporation may require the owner of the lost, stolen or destroyed certificate, or his legal representative, to give the Corporation a bond sufficient to indemnify it against any claim that may be made against it on account of the alleged loss, theft or destruction of any such certificate or the issuance of such new certificate.

5. Indemnification

(a) Definitions. For purposes of this Section 5:

(i) “Corporate Status” describes the status of a person who is serving or has served (A) as a Director of the Corporation, (B) as an Officer of the Corporation, (C) as a Non-Officer Employee of the Corporation, or (D) as a director, partner, trustee, officer, employee or agent of any other corporation, partnership, limited liability company, joint venture, trust, employee benefit plan, foundation, association, organization or other legal entity for which such person is or was serving at the request of the Corporation. For purposes of this Section 5(a)(i), a Director, Officer or Non-Officer Employee of the Corporation who is serving or has served as a director, partner, trustee, officer, employee or agent of a Subsidiary shall be deemed to be serving at the request of the Corporation. Notwithstanding the foregoing, “Corporate Status” shall not include the status of a person who is serving or has served as a director, officer, employee or agent of a constituent corporation absorbed in a merger or consolidation transaction with the Corporation with respect to such person’s activities prior to said transaction, unless specifically authorized by the Board of Directors or the stockholders of the Corporation;

(ii) “Director” means any person who serves or has served the Corporation as a director on the Board of Directors of the Corporation;

(iii) “Disinterested Director” means, with respect to each Proceeding in respect of which indemnification is sought hereunder, a Director of the Corporation who is not and was not a party to such Proceeding;

(iv) “Expenses” means all reasonable attorneys fees, retainers, court costs, transcript costs, fees of expert witnesses, private investigators and professional advisors (including, without limitation, accountants and investment bankers), travel expenses, duplicating costs, printing and binding costs, costs of preparation of demonstrative evidence and other courtroom presentation aids and devices, costs incurred in connection with document review, organization, imaging and computerization, telephone charges, postage, delivery service fees, and all other disbursements, costs or expenses of the type customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, being or preparing to be a witness in, settling or otherwise participating in, a Proceeding;

(v) “Liabilities” means judgments, damages, liabilities, losses, penalties, excise taxes, fines and amounts paid in settlement;

(vi) “Non-Officer Employee” means any person who serves or has served as an employee or agent of the Corporation, but who is not or was not a Director or Officer;

(vii) “Officer” means any person who serves or has served the Corporation as an officer of the Corporation appointed by the Board of Directors of the Corporation;

(viii) “Proceeding” means any threatened, pending or completed action, suit, arbitration, alternate dispute resolution mechanism, inquiry, investigation, administrative hearing or other proceeding, whether civil, criminal, administrative, arbitral or investigative; and

(ix) “Subsidiary” shall mean any corporation, partnership, limited liability company, joint venture, trust or other entity of which the Corporation owns (either directly or through or together with another Subsidiary of the Corporation) either (i) a general partner, managing member or other similar interest or (ii) (A) 50% or more of the voting power of the voting capital equity interests of such corporation, partnership, limited liability company, joint venture or other entity, or (B) 50% or more of the outstanding voting capital stock or other voting equity interests of such corporation, partnership, limited liability company, joint venture or other entity.

(b) Indemnification of Directors and Officers. Subject to the operation of Section 5(d) of these By-laws, each Director and Officer shall be indemnified and held harmless by the Corporation to the fullest extent authorized by the DGCL, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the Corporation to provide broader indemnification rights than such law permitted the Corporation to provide prior to such amendment), and to the extent authorized in subsections (i) through (iv) of this Section 5(b).

(i) Actions, Suits and Proceedings Other than By or In the Right of the Corporation. Each Director and Officer shall be indemnified and held harmless by the Corporation against any and all Expenses and Liabilities that are incurred or paid by such Director or Officer or on such Director’s or Officer’s behalf in connection with any Proceeding or any claim, issue or matter therein (other than an action by or in the right of the Corporation), which such Director or Officer is, or is threatened to be made, a party to or participant in by reason of such Director’s or Officer’s Corporate Status, if such Director or Officer acted in good faith and in a manner such Director or Officer reasonably believed to be in or not opposed to the best interests of the Corporation and, with respect to any criminal proceeding, had no reasonable cause to believe his or her conduct was unlawful.

(ii) Actions, Suits and Proceedings By or In the Right of the Corporation. Each Director and Officer shall be indemnified and held harmless by the Corporation against any and all Expenses that are incurred by such Director or Officer or on such Director’s or Officer’s behalf in connection with any Proceeding or any claim, issue or matter therein by or in the right of the Corporation, which such Director or Officer is, or is threatened to be made, a party to or participant in by reason of such Director’s or Officer’s Corporate Status, if such Director or Officer acted in good faith and in a manner such Director or Officer reasonably believed to be in or not opposed to the best interests of the Corporation; provided, however, that no indemnification shall be

made under this Section 5(b)(ii) in respect of any claim, issue or matter as to which such Director or Officer shall have been finally adjudged by a court of competent jurisdiction to be liable to the Corporation, unless, and only to the extent that, the Court of Chancery or another court in which such Proceeding was brought shall determine upon application that, despite adjudication of liability, but in view of all the circumstances of the case, such Director or Officer is fairly and reasonably entitled to indemnification for such Expenses that such court deems proper.

(iii) Survival of Rights. The rights of indemnification provided by this Section 5(b) shall continue as to a Director or Officer after he or she has ceased to be a Director or Officer and shall inure to the benefit of his or her heirs, executors, administrators and personal representatives.

(iv) Actions by Directors or Officers. Notwithstanding the foregoing, the Corporation shall indemnify any Director or Officer seeking indemnification in connection with a Proceeding initiated by such Director or Officer only if such Proceeding (including any parts of such Proceeding not initiated by such Director or Officer) was authorized in advance by the Board of Directors of the Corporation, unless such Proceeding was brought to enforce such Officer's or Director's rights to indemnification or, in the case of Directors, advancement of Expenses under these By-laws in accordance with the provisions set forth herein.

(c) Indemnification of Non-Officer Employees. Subject to the operation of Section 5(d) of these By-laws, each Non-Officer Employee may, in the discretion of the Board of Directors of the Corporation, be indemnified by the Corporation to the fullest extent authorized by the DGCL, as the same exists or may hereafter be amended, against any or all Expenses and Liabilities that are incurred by such Non-Officer Employee or on such Non-Officer Employee's behalf in connection with any threatened, pending or completed Proceeding, or any claim, issue or matter therein, which such Non-Officer Employee is, or is threatened to be made, a party to or participant in by reason of such Non-Officer Employee's Corporate Status, if such Non-Officer Employee acted in good faith and in a manner such Non-Officer Employee reasonably believed to be in or not opposed to the best interests of the Corporation and, with respect to any criminal proceeding, had no reasonable cause to believe his or her conduct was unlawful. The rights of indemnification provided by this Section 5(c) shall exist as to a Non-Officer Employee after he or she has ceased to be a Non-Officer Employee and shall inure to the benefit of his or her heirs, personal representatives, executors and administrators. Notwithstanding the foregoing, the Corporation may indemnify any Non-Officer Employee seeking indemnification in connection with a Proceeding initiated by such Non-Officer Employee only if such Proceeding was authorized in advance by the Board of Directors of the Corporation.

(d) Determination. Unless ordered by a court, no indemnification shall be provided pursuant to this Section 5 to a Director, to an Officer or to a Non-Officer Employee unless a determination shall have been made that such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the Corporation and, with respect to any criminal Proceeding, such person had no reasonable cause to believe his or her conduct was unlawful. Such determination shall be made by (i) a majority vote of the Disinterested Directors, even though less than a quorum of the Board of Directors, (ii) a committee comprised of Disinterested Directors, such committee having been designated by a majority vote of the Disinterested Directors (even though less than a quorum), (iii) if there are no such Disinterested Directors, or if a majority of Disinterested Directors so directs, by independent legal counsel in a written opinion, or (iv) by the stockholders of the Corporation.

(e) Advancement of Expenses to Directors Prior to Final Disposition.

(i) The Corporation shall advance all Expenses incurred by or on behalf of any Director in connection with any Proceeding in which such Director is involved by reason of such Director's Corporate Status within thirty (30) days after the receipt by the Corporation of a written statement from such Director requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by such Director and shall be preceded or accompanied by an undertaking by or on behalf of such Director to repay any Expenses so advanced if it shall ultimately be determined that such Director is not entitled to be indemnified against such Expenses. Notwithstanding the foregoing, the Corporation shall advance all Expenses incurred by or on behalf of any Director seeking advancement of expenses hereunder in connection with a Proceeding initiated by such Director only if such Proceeding (including any parts of such Proceeding not initiated by such Director) was (A) authorized by the Board of Directors of the Corporation, or (B) brought to enforce such Director's rights to indemnification or advancement of Expenses under these By-laws.

(ii) If a claim for advancement of Expenses hereunder by a Director is not paid in full by the Corporation within thirty (30) days after receipt by the Corporation of documentation of Expenses and the required undertaking, such Director may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim and if successful in whole or in part, such Director shall also be entitled to be paid the expenses of prosecuting such claim. The failure of the Corporation (including its Board of Directors or any committee thereof, independent legal counsel, or stockholders) to make a determination concerning the permissibility of such advancement of Expenses under this Section 5 shall not be a defense to an action brought by a Director for recovery of the unpaid amount of an advancement claim and shall not create a presumption that such advancement is not permissible. The burden of proving that a Director is not entitled to an advancement of expenses shall be on the Corporation.

(iii) In any suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the Corporation shall be entitled to recover such expenses upon a final adjudication that the Director has not met any applicable standard for indemnification set forth in the DGCL.

(f) Advancement of Expenses to Officers and Non-Officer Employees Prior to Final Disposition.

(i) The Corporation may, at the discretion of the Board of Directors of the Corporation, advance any or all Expenses incurred by or on behalf of any Officer or any Non-Officer Employee in connection with any Proceeding in which such person is involved by reason of his or her Corporate Status as an Officer or Non-Officer Employee upon the receipt by the Corporation of a statement or statements from such Officer or Non-Officer Employee requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by such Officer or Non-Officer Employee and shall be preceded or accompanied by an undertaking by or on behalf of such person to repay any Expenses so advanced if it shall ultimately be determined that such Officer or Non-Officer Employee is not entitled to be indemnified against such Expenses.

(ii) In any suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the Corporation shall be entitled to recover such expenses upon a final adjudication that the Officer or Non-Officer Employee has not met any applicable standard for indemnification set forth in the DGCL.

(g) Contractual Nature of Rights.

(i) The provisions of this Section 5 shall be deemed to be a contract between the Corporation and each Director and Officer entitled to the benefits hereof at any time while this Section 5 is in effect, in consideration of such person's past or current and any future performance of services for the Corporation. Neither amendment, repeal or modification of any provision of this Section 5 nor the adoption of any provision of the Certificate of Incorporation inconsistent with this Section 5 shall eliminate or reduce any right conferred by this Section 5 in respect of any act or omission occurring, or any cause of action or claim that accrues or arises or any state of facts existing, at the time of or before such amendment, repeal, modification or adoption of an inconsistent provision (even in the case of a proceeding based on such a state of facts that is commenced after such time), and all rights to indemnification and advancement of Expenses granted herein or arising out of any act or omission shall vest at the time of the act or omission in question, regardless of when or if any proceeding with respect to such act or omission is commenced. The rights to indemnification and to advancement of expenses provided by, or granted pursuant to, this Section 5 shall continue notwithstanding that the person has ceased to be a director or officer of the Corporation and shall inure to the benefit of the estate, heirs, executors, administrators, legatees and distributees of such person.

(ii) If a claim for indemnification hereunder by a Director or Officer is not paid in full by the Corporation within sixty (60) days after receipt by the Corporation of a written claim for indemnification, such Director or Officer may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim, and if successful in whole or in part, such Director or Officer shall also be entitled to be paid the expenses of prosecuting such claim. The failure of the Corporation (including its Board of Directors or any committee thereof, independent legal counsel, or stockholders) to make a determination concerning the permissibility of such indemnification under this Section 5 shall not be a defense to an action brought by a Director or Officer for recovery of the unpaid amount of an indemnification claim and shall not create a presumption that such indemnification is not permissible. The burden of proving that a Director or Officer is not entitled to indemnification shall be on the Corporation.

(iii) In any suit brought by a Director or Officer to enforce a right to indemnification hereunder, it shall be a defense that such Director or Officer has not met any applicable standard for indemnification set forth in the DGCL.

(h) Non-Exclusivity of Rights. The rights to indemnification and advancement of Expenses set forth in this Section 5 shall not be exclusive of any other right which any Director, Officer, or Non-Officer Employee may have or hereafter acquire under any statute, provision of the Certificate or these By-laws, agreement, vote of stockholders or Disinterested Directors or otherwise.

(i) Insurance. The Corporation may maintain insurance, at its expense, to protect itself and any Director, Officer or Non-Officer Employee against any liability of any character asserted against or incurred by the Corporation or any such Director, Officer or Non-Officer Employee, or arising out of any such person's Corporate Status, whether or not the Corporation would have the power to indemnify such person against such liability under the DGCL or the provisions of this Section 5.

(j) Other Indemnification. The Corporation's obligation, if any, to indemnify or provide advancement of Expenses to any person under this Section 5 as a result of such person serving, at the request of the Corporation, as a director, partner, trustee, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise shall be reduced by any amount such person may collect as indemnification or advancement of Expenses from such other corporation, partnership, joint venture, trust, employee benefit plan or enterprise (the "Primary Indemnitor"). Any indemnification or advancement of Expenses under this Section 5 owed by the Corporation as a result of a person serving, at the request of the Corporation, as a director, partner, trustee, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise shall only be in excess of, and shall be secondary to, the indemnification or advancement of Expenses available from the applicable Primary Indemnitor(s) and any applicable insurance policies.

6. Miscellaneous Provisions

(a) Fiscal Year. Except as otherwise determined by the Board of Directors, the fiscal year of the Corporation shall end on December 31 of each year.

(b) Seal. The Board of Directors shall have power to adopt and alter the seal of the Corporation.

(c) Execution of Instruments. Subject to any limitations which may be set forth in a resolution of the Board of Directors, all deeds, leases, transfers, contracts, bonds, notes and other obligations to be entered into by the Corporation in the ordinary course of its business without director action may be executed on behalf of the Corporation by, a President, or by any other officer, employee or agent of the Corporation as the Board of Directors may authorize.

(d) Voting of Securities. Unless the Board of Directors otherwise provides, a President, any Vice President or the Treasurer may waive notice of and act on behalf of this Corporation, or appoint another person or persons to act as proxy or attorney in fact for this Corporation with or without discretionary power and/or power of substitution, at any meeting of stockholders or shareholders of any other corporation or organization, any of whose securities are held by this Corporation.

(e) Resident Agent. The Board of Directors may appoint a resident agent upon whom legal process may be served in any action or proceeding against the Corporation.

(f) Corporate Records. The original or attested copies of the Certificate of Incorporation, By-laws and records of all meetings of the incorporators, stockholders and the Board of Directors and the stock and transfer records, which shall contain the names of all stockholders, their record addresses and the amount of stock held by each, shall be kept at the principal office of the Corporation, at the office of its counsel, or at an office of its transfer agent.

(g) Certificate of Incorporation. All references in these By-laws to the Certificate of Incorporation shall be deemed to refer to the Certificate of Incorporation of the Corporation, as amended and in effect from time to time.

(h) Amendments. These By-laws may be altered, amended or repealed, and new By-laws may be adopted, by the stockholders or by the Board of Directors; provided, that (a) the Board of Directors may not alter, amend or repeal any provision of these By-laws which by law, by the Certificate of Incorporation or by these By-laws requires action by the stockholders and (b) any alteration, amendment or repeal of these By-laws by the Board of Directors and any new By-law adopted by the Board of Directors may be altered, amended or repealed by the stockholders.

(i) Waiver of Notice. Whenever notice is required to be given under any provision of these By-laws, a written waiver, signed by the person entitled to notice, or a waiver by electronic transmission by the person entitled to notice, whether before or after the time of the event for which notice is to be given, shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting at the beginning of the meeting to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any meeting needs to be specified in any written waiver or any waiver by electronic transmission.

Adopted: May 29, 2015

Amended: November 14, 2016

AMENDED AND RESTATED

BY-LAWS

OF

TCR² THERAPEUTICS INC.

(the "Corporation")

ARTICLE IStockholders

SECTION 1. Annual Meeting. The annual meeting of stockholders (any such meeting being referred to in these By-laws as an "Annual Meeting") shall be held at the hour, date and place within or without the United States which is fixed by the Board of Directors, which time, date and place may subsequently be changed at any time by vote of the Board of Directors. If no Annual Meeting has been held for a period of thirteen (13) months after the Corporation's last Annual Meeting, a special meeting in lieu thereof may be held, and such special meeting shall have, for the purposes of these By-laws or otherwise, all the force and effect of an Annual Meeting. Any and all references hereafter in these By-laws to an Annual Meeting or Annual Meetings also shall be deemed to refer to any special meeting(s) in lieu thereof.

SECTION 2. Notice of Stockholder Business and Nominations.(a) Annual Meetings of Stockholders.

(1) Nominations of persons for election to the Board of Directors of the Corporation and the proposal of other business to be considered by the stockholders may be brought before an Annual Meeting (i) by or at the direction of the Board of Directors or (ii) by any stockholder of the Corporation who was a stockholder of record at the time of giving of notice provided for in this By-law, who is entitled to vote at the meeting, who is present (in person or by proxy) at the meeting and who complies with the notice procedures set forth in this By-law as to such nomination or business. For the avoidance of doubt, the foregoing clause (ii) shall be the exclusive means for a stockholder to bring nominations or business properly before an Annual Meeting (other than matters properly brought under Rule 14a-8 (or any successor rule) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")), and such stockholder must comply with the notice and other procedures set forth in Article I, Section 2(a)(2) and (3) of this By-law to bring such nominations or business properly before an Annual Meeting. In addition to the other requirements set forth in this By-law, for any proposal of business to be considered at an Annual Meeting, it must be a proper subject for action by stockholders of the Corporation under Delaware law.

(2) For nominations or other business to be properly brought before an Annual Meeting by a stockholder pursuant to clause (ii) of Article I, Section 2(a)(1) of this By-law, the stockholder must (i) have given Timely Notice (as defined below)

thereof in writing to the Secretary of the Corporation, (ii) have provided any updates or supplements to such notice at the times and in the forms required by this By-law and (iii) together with the beneficial owner(s), if any, on whose behalf the nomination or business proposal is made, have acted in accordance with the representations set forth in the Solicitation Statement (as defined below) required by this By-law. To be timely, a stockholder's written notice shall be received by the Secretary at the principal executive offices of the Corporation not later than the close of business on the ninetieth (90th) day nor earlier than the close of business on the one hundred twentieth (120th) day prior to the one-year anniversary of the preceding year's Annual Meeting; provided, however, that in the event the Annual Meeting is first convened more than thirty (30) days before or more than sixty (60) days after such anniversary date, or if no Annual Meeting were held in the preceding year, notice by the stockholder to be timely must be received by the Secretary of the Corporation not later than the close of business on the later of the ninetieth (90th) day prior to the scheduled date of such Annual Meeting or the tenth (10th) day following the day on which public announcement of the date of such meeting is first made (such notice within such time periods shall be referred to as "Timely Notice"). Notwithstanding anything to the contrary provided herein, for the first Annual Meeting following the initial public offering of common stock of the Corporation, a stockholder's notice shall be timely if received by the Secretary at the principal executive offices of the Corporation not later than the close of business on the later of the ninetieth (90th) day prior to the scheduled date of such Annual Meeting or the tenth (10th) day following the day on which public announcement of the date of such Annual Meeting is first made or sent by the Corporation. Such stockholder's Timely Notice shall set forth:

(A) as to each person whom the stockholder proposes to nominate for election or reelection as a director, (i) the name, age, business address and residence address of the nominee, (ii) the principal occupation or employment of the nominee, (iii) the class and number of shares of the corporation that are held of record or are beneficially owned by the nominee and any derivative positions held or beneficially held by the nominee, (iv) whether and the extent to which any hedging or other transaction or series of transactions has been entered into by or on behalf of the nominee with respect to any securities of the corporation, and a description of any other agreement, arrangement or understanding (including any short position or any borrowing or lending of shares), the effect or intent of which is to mitigate loss to, or to manage the risk or benefit of share price changes for, or to increase or decrease the voting power of the nominee, (v) a description of all arrangements or understandings between or among the stockholder and each nominee and any other person or persons (naming such person or persons) pursuant to which the nominations are to be made by the stockholder or concerning the nominee's potential service on the Board of Directors, (vi) a written statement executed by the nominee acknowledging that as a director of the corporation, the nominee will owe fiduciary duties under Delaware law with respect to the corporation and its stockholders, and (vii) all information relating to such person that is required to be disclosed in solicitations of proxies for election of directors in an election contest, or is otherwise required, in each case pursuant to Regulation 14A under the Exchange Act (including such person's written consent to being named in the proxy statement as a nominee and to serving as a director if elected);

(B) as to any other business that the stockholder proposes to bring before the meeting, a brief description of the business desired to be brought before the meeting, the reasons for conducting such business at the meeting, the text, if any, of any resolutions or By-law amendment proposed for adoption, and any material interest in such business of each Proposing Person (as defined below);

(C) (i) the name and address of the stockholder giving the notice, as they appear on the Corporation's books, and the names and addresses of the other Proposing Persons (if any) and (ii) as to each Proposing Person, the following information: (a) the class or series and number of all shares of capital stock of the Corporation which are, directly or indirectly, owned beneficially or of record by such Proposing Person or any of its affiliates or associates (as such terms are defined in Rule 12b-2 promulgated under the Exchange Act), including any shares of any class or series of capital stock of the Corporation as to which such Proposing Person or any of its affiliates or associates has a right to acquire beneficial ownership at any time in the future, (b) all Synthetic Equity Interests (as defined below) in which such Proposing Person or any of its affiliates or associates, directly or indirectly, holds an interest including a description of the material terms of each such Synthetic Equity Interest, including without limitation, identification of the counterparty to each such Synthetic Equity Interest and disclosure, for each such Synthetic Equity Interest, as to (x) whether or not such Synthetic Equity Interest conveys any voting rights, directly or indirectly, in such shares to such Proposing Person, (y) whether or not such Synthetic Equity Interest is required to be, or is capable of being, settled through delivery of such shares and (z) whether or not such Proposing Person and/or, to the extent known, the counterparty to such Synthetic Equity Interest has entered into other transactions that hedge or mitigate the economic effect of such Synthetic Equity Interest, (c) any proxy (other than a revocable proxy given in response to a public proxy solicitation made pursuant to, and in accordance with, the Exchange Act), agreement, arrangement, understanding or relationship pursuant to which such Proposing Person has or shares a right to, directly or indirectly, vote any shares of any class or series of capital stock of the Corporation, (d) any rights to dividends or other distributions on the shares of any class or series of capital stock of the Corporation, directly or indirectly, owned beneficially by such Proposing Person that are separated or separable from the underlying shares of the Corporation, and (e) any performance-related fees (other than an asset based fee) that such Proposing Person, directly or indirectly, is entitled to based on any increase or decrease in the value of shares of any class or series of capital stock of the Corporation or any Synthetic Equity Interests (the disclosures to be made pursuant to the foregoing clauses (a) through (e) are referred to, collectively, as "Material Ownership Interests") and (iii) a description of the material terms of all agreements, arrangements or understandings (whether or not in writing) entered into by any Proposing Person or any of its affiliates or associates with any other person for the purpose of acquiring, holding, disposing or voting of any shares of any class or series of capital stock of the Corporation;

(D) (i) a description of all agreements, arrangements or understandings by and among any of the Proposing Persons, or by and among any Proposing Persons and any other person (including with any proposed nominee(s)), pertaining to the nomination(s), or other business proposed to be brought before the meeting of stockholders (which description shall identify the name of each other person who is party to such an agreement, arrangement or understanding), and (ii) identification of the names and addresses of other stockholders (including beneficial owners) known by any of the Proposing Persons to support such nominations or other business proposal(s), and to the extent known the class and number of all shares of the Corporation's capital stock owned beneficially or of record by such other stockholder(s) or other beneficial owner(s); and

(E) a statement whether or not the stockholder giving the notice and/or the other Proposing Person(s), if any, will deliver a proxy statement and form of proxy to holders of, in the case of a business proposal, at least the percentage of voting power of all of the shares of capital stock of the Corporation required under applicable law to approve the proposal or, in the case of a nomination or nominations, at least the percentage of voting power of all of the shares of capital stock of the Corporation reasonably believed by such Proposing Person to be sufficient to elect the nominee or nominees proposed to be nominated by such stockholder (such statement, the "Solicitation Statement").

For purposes of this Article I of these By-laws, the term "Proposing Person" shall mean the following persons: (i) the stockholder of record providing the notice of nominations or business proposed to be brought before a stockholders' meeting, and (ii) the beneficial owner(s), if different, on whose behalf the nominations or business proposed to be brought before a stockholders' meeting is made. For purposes of this Section 2 of Article I of these By-laws, the term "Synthetic Equity Interest" shall mean any transaction, agreement or arrangement (or series of transactions, agreements or arrangements), including, without limitation, any derivative, swap, hedge, repurchase or so-called "stock borrowing" agreement or arrangement, the purpose or effect of which is to, directly or indirectly: (a) give a person or entity economic benefit and/or risk similar to ownership of shares of any class or series of capital stock of the Corporation, in whole or in part, including due to the fact that such transaction, agreement or arrangement provides, directly or indirectly, the opportunity to profit or avoid a loss from any increase or decrease in the value of any shares of any class or series of capital stock of the Corporation, (b) mitigate loss to, reduce the economic risk of or manage the risk of share price changes for, any person or entity with respect to any shares of any class or series of capital stock of the Corporation, (c) otherwise provide in any manner the opportunity to profit or avoid a loss from any decrease in the value of any shares of any class or series of capital stock of the Corporation, or (d) increase or decrease the voting power of any person or entity with respect to any shares of any class or series of capital stock of the Corporation.

(3) A stockholder providing Timely Notice of nominations or business proposed to be brought before an Annual Meeting shall further update and supplement such notice, if necessary, so that the information (including, without limitation, the Material Ownership Interests information) provided or required to be provided in such notice pursuant to this By-law shall be true and correct as of the record date for the meeting and as of the date that is ten (10) business days prior to such Annual Meeting, and such update and supplement shall be received by the Secretary at the principal executive offices of the Corporation not later than the close of business on the fifth (5th) business day after the record date for the Annual Meeting (in the case of the update and supplement required to be made as of the record date), and not later than the close of business on the eighth (8th) business day prior to the date of the Annual Meeting (in the case of the update and supplement required to be made as of ten (10) business days prior to the meeting).

(4) Notwithstanding anything in the second sentence of Article I, Section 2(a)(2) of this By-law to the contrary, in the event that the number of directors to be elected to the Board of Directors of the Corporation is increased and there is no public announcement naming all of the nominees for director or specifying the size of the increased Board of Directors made by the Corporation at least ten (10) days before the last day a stockholder may deliver a notice of nomination in accordance with the second sentence of Article I, Section 2(a)(2), a stockholder's notice required by this By-law shall also be considered timely, but only with respect to nominees for any new positions created by such increase, if it shall be received by the Secretary of the Corporation not later than the close of business on the tenth (10th) day following the day on which such public announcement is first made by the Corporation.

(b) General.

(1) Only such persons who are nominated in accordance with the provisions of this By-law shall be eligible for election and to serve as directors and only such business shall be conducted at an Annual Meeting as shall have been brought before the meeting in accordance with the provisions of this By-law or in accordance with Rule 14a-8 under the Exchange Act. The Board of Directors or a designated committee thereof shall have the power to determine whether a nomination or any business proposed to be brought before the meeting was made in accordance with the provisions of this By-law. If neither the Board of Directors nor such designated committee makes a determination as to whether any stockholder proposal or nomination was made in accordance with the provisions of this By-law, the presiding officer of the Annual Meeting shall have the power and duty to determine whether the stockholder proposal or nomination was made in accordance with the provisions of this By-law. If the Board of Directors or a designated committee thereof or the presiding officer, as applicable, determines that any stockholder proposal or nomination was not made in accordance with the provisions of this By-law, such proposal or nomination shall be disregarded and shall not be presented for action at the Annual Meeting.

(2) Except as otherwise required by law, nothing in this Article I, Section 2 shall obligate the Corporation or the Board of Directors to include in any proxy statement

or other stockholder communication distributed on behalf of the Corporation or the Board of Directors information with respect to any nominee for director or any other matter of business submitted by a stockholder.

(3) Notwithstanding the foregoing provisions of this Article I, Section 2, if the nominating or proposing stockholder (or a qualified representative of the stockholder) does not appear at the Annual Meeting to present a nomination or any business, such nomination or business shall be disregarded, notwithstanding that proxies in respect of such vote may have been received by the Corporation. For purposes of this Article I, Section 2, to be considered a qualified representative of the proposing stockholder, a person must be authorized by a written instrument executed by such stockholder or an electronic transmission delivered by such stockholder to act for such stockholder as proxy at the meeting of stockholders and such person must produce such written instrument or electronic transmission, or a reliable reproduction of the written instrument or electronic transmission, to the presiding officer at the meeting of stockholders.

(4) For purposes of this By-law, "public announcement" shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press or comparable national news service or in a document publicly filed by the Corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the Exchange Act.

(5) Notwithstanding the foregoing provisions of this By-law, a stockholder shall also comply with all applicable requirements of the Exchange Act and the rules and regulations thereunder with respect to the matters set forth in this By-law. Nothing in this By-law shall be deemed to affect any rights of (i) stockholders to have proposals included in the Corporation's proxy statement pursuant to Rule 14a-8 (or any successor rule), as applicable, under the Exchange Act and, to the extent required by such rule, have such proposals considered and voted on at an Annual Meeting or (ii) the holders of any series of Undesignated Preferred Stock to elect directors under specified circumstances.

SECTION 3. Special Meetings. Except as otherwise required by statute and subject to the rights, if any, of the holders of any series of Undesignated Preferred Stock, special meetings of the stockholders of the Corporation may be called only by the Board of Directors acting pursuant to a resolution approved by the affirmative vote of a majority of the Directors then in office. The Board of Directors may postpone or reschedule any previously scheduled special meeting of stockholders. Only those matters set forth in the notice of the special meeting may be considered or acted upon at a special meeting of stockholders of the Corporation. Nominations of persons for election to the Board of Directors of the Corporation and stockholder proposals of other business shall not be brought before a special meeting of stockholders to be considered by the stockholders unless such special meeting is held in lieu of an annual meeting of stockholders in accordance with Article I, Section 1 of these By-laws, in which case such special meeting in lieu thereof shall be deemed an Annual Meeting for purposes of these By-laws and the provisions of Article I, Section 2 of these By-laws shall govern such special meeting.

SECTION 4. Notice of Meetings; Adjournments.

(a) A notice of each Annual Meeting stating the hour, date and place, if any, of such Annual Meeting and the means of remote communication, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such meeting, shall be given not less than ten (10) days nor more than sixty (60) days before the Annual Meeting, to each stockholder entitled to vote thereat by delivering such notice to such stockholder or by mailing it, postage prepaid, addressed to such stockholder at the address of such stockholder as it appears on the Corporation's stock transfer books. Without limiting the manner by which notice may otherwise be given to stockholders, any notice to stockholders may be given by electronic transmission in the manner provided in Section 232 of the Delaware General Corporation Law ("DGCL").

(b) Unless otherwise required by the DGCL, notice of all special meetings of stockholders shall be given in the same manner as provided for Annual Meetings, except that the notice of all special meetings shall state the purpose or purposes for which the meeting has been called.

(c) Notice of an Annual Meeting or special meeting of stockholders need not be given to a stockholder if a waiver of notice is executed, or waiver of notice by electronic transmission is provided, before or after such meeting by such stockholder or if such stockholder attends such meeting, unless such attendance is for the express purpose of objecting at the beginning of the meeting to the transaction of any business because the meeting was not lawfully called or convened.

(d) The Board of Directors may postpone and reschedule any previously scheduled Annual Meeting or special meeting of stockholders and any record date with respect thereto, regardless of whether any notice or public disclosure with respect to any such meeting has been sent or made pursuant to Section 2 of this Article I of these By-laws or otherwise. In no event shall the public announcement of an adjournment, postponement or rescheduling of any previously scheduled meeting of stockholders commence a new time period for the giving of a stockholder's notice under this Article I of these By-laws.

(e) When any meeting is convened, the presiding officer may adjourn the meeting if (i) no quorum is present for the transaction of business, (ii) the Board of Directors determines that adjournment is necessary or appropriate to enable the stockholders to consider fully information which the Board of Directors determines has not been made sufficiently or timely available to stockholders, or (iii) the Board of Directors determines that adjournment is otherwise in the best interests of the Corporation. When any Annual Meeting or special meeting of stockholders is adjourned to another hour, date or place, notice need not be given of the adjourned meeting other than an announcement at the meeting at which the adjournment is taken of the hour, date and place, if any, to which the meeting is adjourned and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting; provided, however, that if the adjournment is for more than thirty (30) days from the meeting date, or if after the adjournment a new record date is fixed for the adjourned meeting, notice of the adjourned meeting and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting shall be given to each stockholder of record entitled to vote thereat and each stockholder who, by law or under the Certificate of Incorporation of the Corporation (as the same may hereafter be amended and/or restated, the "Certificate") or these By-laws, is entitled to such notice.

SECTION 5. Quorum. A majority of the outstanding shares entitled to vote, present in person or represented by proxy, shall constitute a quorum at any meeting of stockholders. If less than a quorum is present at a meeting, the holders of voting stock representing a majority of the voting power present at the meeting or the presiding officer may adjourn the meeting from time to time, and the meeting may be held as adjourned without further notice, except as provided in Section 4 of this Article I. At such adjourned meeting at which a quorum is present, any business may be transacted which might have been transacted at the original meeting. The stockholders present at a duly constituted meeting may continue to transact business until adjournment, notwithstanding the withdrawal of enough stockholders to leave less than a quorum.

SECTION 6. Voting and Proxies. Stockholders shall have one vote for each share of stock entitled to vote owned by them of record according to the stock ledger of the Corporation as of the record date, unless otherwise provided by law or by the Certificate. Stockholders may vote either (i) in person, (ii) by written proxy or (iii) by a transmission permitted by Section 212(c) of the DGCL. Any copy, facsimile telecommunication or other reliable reproduction of the writing or transmission permitted by Section 212(c) of the DGCL may be substituted for or used in lieu of the original writing or transmission for any and all purposes for which the original writing or transmission could be used, provided that such copy, facsimile telecommunication or other reproduction shall be a complete reproduction of the entire original writing or transmission. Proxies shall be filed in accordance with the procedures established for the meeting of stockholders. Except as otherwise limited therein or as otherwise provided by law, proxies authorizing a person to vote at a specific meeting shall entitle the persons authorized thereby to vote at any adjournment of such meeting, but they shall not be valid after final adjournment of such meeting. A proxy with respect to stock held in the name of two or more persons shall be valid if executed by or on behalf of any one of them unless at or prior to the exercise of the proxy the Corporation receives a specific written notice to the contrary from any one of them.

SECTION 7. Action at Meeting. When a quorum is present at any meeting of stockholders, any matter before any such meeting (other than an election of a director or directors) shall be decided by a majority of the votes properly cast for and against such matter, except where a larger vote is required by law, by the Certificate or by these By-laws. Any election of directors by stockholders shall be determined by a plurality of the votes properly cast on the election of directors.

SECTION 8. Stockholder Lists. The Secretary or an Assistant Secretary (or the Corporation's transfer agent or other person authorized by these By-laws or by law) shall prepare and make, at least ten (10) days before every Annual Meeting or special meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for a period of at least ten (10) days prior to the meeting as provided in the manner, and subject to the terms, set forth in Section 219 of the DGCL (or any successor provision). The list shall also be open to the examination of any stockholder during the whole time of the meeting as provided by law.

SECTION 9. Presiding Officer. The Board of Directors shall designate a representative to preside over all Annual Meetings or special meetings of stockholders, provided that if the Board of Directors does not so designate such a presiding officer, then the Chairman of the Board, if one is elected, shall preside over such meetings. If the Board of Directors does not so designate such a presiding officer and there is no Chairman of the Board or the Chairman of the Board is unable to so preside or is absent, then the Chief Executive Officer, if one is elected, shall preside over such meetings, provided further that if there is no Chief Executive Officer or the Chief Executive Officer is unable to so preside or is absent, then the President shall preside over such meetings. The presiding officer at any Annual Meeting or special meeting of stockholders shall have the power, among other things, to adjourn such meeting at any time and from time to time, subject to Sections 4 and 5 of this Article I. The order of business and all other matters of procedure at any meeting of the stockholders shall be determined by the presiding officer.

SECTION 10. Inspectors of Elections. The Corporation shall, in advance of any meeting of stockholders, appoint one or more inspectors to act at the meeting and make a written report thereof. The Corporation may designate one or more persons as alternate inspectors to replace any inspector who fails to act. If no inspector or alternate is able to act at a meeting of stockholders, the presiding officer shall appoint one or more inspectors to act at the meeting. Any inspector may, but need not, be an officer, employee or agent of the Corporation. Each inspector, before entering upon the discharge of his or her duties, shall take and sign an oath faithfully to execute the duties of inspector with strict impartiality and according to the best of his or her ability. The inspectors shall perform such duties as are required by the DGCL, including the counting of all votes and ballots. The inspectors may appoint or retain other persons or entities to assist the inspectors in the performance of the duties of the inspectors. The presiding officer may review all determinations made by the inspectors, and in so doing the presiding officer shall be entitled to exercise his or her sole judgment and discretion and he or she shall not be bound by any determinations made by the inspectors. All determinations by the inspectors and, if applicable, the presiding officer, shall be subject to further review by any court of competent jurisdiction.

ARTICLE II

Directors

SECTION 1. Powers. The business and affairs of the Corporation shall be managed by or under the direction of the Board of Directors except as otherwise provided by the Certificate or required by law.

SECTION 2. Number and Terms. The number of directors of the Corporation shall be fixed solely and exclusively by resolution duly adopted from time to time by the Board of Directors. The directors shall hold office in the manner provided in the Certificate.

SECTION 3. Qualification. No director need be a stockholder of the Corporation.

SECTION 4. Vacancies. Vacancies in the Board of Directors shall be filled in the manner provided in the Certificate.

SECTION 5. Removal. Directors may be removed from office only in the manner provided in the Certificate.

SECTION 6. Resignation. A director may resign at any time by electronic transmission or by giving written notice to the Chairman of the Board, if one is elected, the President or the Secretary. A resignation shall be effective upon receipt, unless the resignation otherwise provides.

SECTION 7. Regular Meetings. The regular annual meeting of the Board of Directors shall be held, without notice other than this Section 7, on the same date and at the same place as the Annual Meeting following the close of such meeting of stockholders. Other regular meetings of the Board of Directors may be held at such hour, date and place as the Board of Directors may by resolution from time to time determine and publicize by means of reasonable notice given to any director who is not present at the meeting at which such resolution is adopted.

SECTION 8. Special Meetings. Special meetings of the Board of Directors may be called, orally or in writing, by or at the request of a majority of the directors, the Chairman of the Board, if one is elected, or the President. The person calling any such special meeting of the Board of Directors may fix the hour, date and place thereof.

SECTION 9. Notice of Meetings. Notice of the hour, date and place of all special meetings of the Board of Directors shall be given to each director by the Secretary or an Assistant Secretary, or in case of the death, absence, incapacity or refusal of such persons, by the Chairman of the Board, if one is elected, or the President or such other officer designated by the Chairman of the Board, if one is elected, or the President. Notice of any special meeting of the Board of Directors shall be given to each director in person, by telephone, or by facsimile, electronic mail or other form of electronic communication, sent to his or her business or home address, at least twenty-four (24) hours in advance of the meeting, or by written notice mailed to his or her business or home address, at least forty-eight (48) hours in advance of the meeting. Such notice shall be deemed to be delivered when hand-delivered to such address, read to such director by telephone, deposited in the mail so addressed, with postage thereon prepaid if mailed, dispatched or transmitted if sent by facsimile transmission or by electronic mail or other form of electronic communications. A written waiver of notice signed or electronically transmitted before or after a meeting by a director and filed with the records of the meeting shall be deemed to be equivalent to notice of the meeting. The attendance of a director at a meeting shall constitute a waiver of notice of such meeting, except where a director attends a meeting for the express purpose of objecting at the beginning of the meeting to the transaction of any business because such meeting is not lawfully called or convened. Except as otherwise required by law, by the Certificate or by these By-laws, neither the business to be transacted at, nor the purpose of, any meeting of the Board of Directors need be specified in the notice or waiver of notice of such meeting.

SECTION 10. Quorum. At any meeting of the Board of Directors, a majority of the total number of directors shall constitute a quorum for the transaction of business, but if less than a

quorum is present at a meeting, a majority of the directors present may adjourn the meeting from time to time, and the meeting may be held as adjourned without further notice. Any business which might have been transacted at the meeting as originally noticed may be transacted at such adjourned meeting at which a quorum is present. For purposes of this section, the total number of directors includes any unfilled vacancies on the Board of Directors.

SECTION 11. Action at Meeting. At any meeting of the Board of Directors at which a quorum is present, the vote of a majority of the directors present shall constitute action by the Board of Directors, unless otherwise required by law, by the Certificate or by these By-laws.

SECTION 12. Action by Consent. Any action required or permitted to be taken at any meeting of the Board of Directors may be taken without a meeting if all members of the Board of Directors consent thereto in writing or by electronic transmission and the writing or writings or electronic transmission or transmissions are filed with the records of the meetings of the Board of Directors. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form. Such consent shall be treated as a resolution of the Board of Directors for all purposes.

SECTION 13. Manner of Participation. Directors may participate in meetings of the Board of Directors by means of conference telephone or other communications equipment by means of which all directors participating in the meeting can hear each other, and participation in a meeting in accordance herewith shall constitute presence in person at such meeting for purposes of these By-laws.

SECTION 14. Presiding Director. The Board of Directors shall designate a representative to preside over all meetings of the Board of Directors, provided that if the Board of Directors does not so designate such a presiding director or such designated presiding director is unable to so preside or is absent, then the Chairman of the Board, if one is elected, shall preside over all meetings of the Board of Directors. If both the designated presiding director, if one is so designated, and the Chairman of the Board, if one is elected, are unable to preside or are absent, the Board of Directors shall designate an alternate representative to preside over a meeting of the Board of Directors.

SECTION 15. Committees. The Board of Directors, by vote of a majority of the directors then in office, may elect one or more committees, including, without limitation, a Compensation Committee, a Nominating & Corporate Governance Committee and an Audit Committee, and may delegate thereto some or all of its powers except those which by law, by the Certificate or by these By-laws may not be delegated. Except as the Board of Directors may otherwise determine, any such committee may make rules for the conduct of its business, but unless otherwise provided by the Board of Directors or in such rules, its business shall be conducted so far as possible in the same manner as is provided by these By-laws for the Board of Directors. All members of such committees shall hold such offices at the pleasure of the Board of Directors. The Board of Directors may abolish any such committee at any time. Any committee to which the Board of Directors delegates any of its powers or duties shall keep records of its meetings and shall report its action to the Board of Directors.

SECTION 16. Compensation of Directors. Directors shall receive such compensation for their services as shall be determined by a majority of the Board of Directors, or a designated committee thereof, provided that directors who are serving the Corporation as employees and who receive compensation for their services as such, shall not receive any salary or other compensation for their services as directors of the Corporation.

ARTICLE III

Officers

SECTION 1. Enumeration. The officers of the Corporation shall consist of a President, a Treasurer, a Secretary and such other officers, including, without limitation, a Chairman of the Board of Directors, a Chief Executive Officer and one or more Vice Presidents (including Executive Vice Presidents or Senior Vice Presidents), Assistant Vice Presidents, Assistant Treasurers and Assistant Secretaries, as the Board of Directors may determine.

SECTION 2. Election. At the regular annual meeting of the Board of Directors following the Annual Meeting, the Board of Directors shall elect the President, the Treasurer and the Secretary. Other officers may be elected by the Board of Directors at such regular annual meeting of the Board of Directors or at any other regular or special meeting.

SECTION 3. Qualification. No officer need be a stockholder or a director. Any person may occupy more than one office of the Corporation at any time.

SECTION 4. Tenure. Except as otherwise provided by the Certificate or by these By-laws, each of the officers of the Corporation shall hold office until the regular annual meeting of the Board of Directors following the next Annual Meeting and until his or her successor is elected and qualified or until his or her earlier resignation or removal.

SECTION 5. Resignation. Any officer may resign by delivering his or her written or electronically transmitted resignation to the Corporation addressed to the President or the Secretary, and such resignation shall be effective upon receipt, unless the resignation otherwise provides.

SECTION 6. Removal. Except as otherwise provided by law or by resolution of the Board of Directors, the Board of Directors may remove any officer with or without cause by the affirmative vote of a majority of the directors then in office.

SECTION 7. Absence or Disability. In the event of the absence or disability of any officer, the Board of Directors may designate another officer to act temporarily in place of such absent or disabled officer.

SECTION 8. Vacancies. Any vacancy in any office may be filled for the unexpired portion of the term by the Board of Directors.

SECTION 9. President. The President shall, subject to the direction of the Board of Directors, have such powers and shall perform such duties as the Board of Directors may from time to time designate.

SECTION 10. Chairman of the Board. The Chairman of the Board, if one is elected, shall have such powers and shall perform such duties as the Board of Directors may from time to time designate.

SECTION 11. Chief Executive Officer. The Chief Executive Officer, if one is elected, shall have such powers and shall perform such duties as the Board of Directors may from time to time designate.

SECTION 12. Vice Presidents and Assistant Vice Presidents. Any Vice President (including any Executive Vice President or Senior Vice President) and any Assistant Vice President shall have such powers and shall perform such duties as the Board of Directors or the Chief Executive Officer may from time to time designate.

SECTION 13. Treasurer and Assistant Treasurers. The Treasurer shall, subject to the direction of the Board of Directors and except as the Board of Directors or the Chief Executive Officer may otherwise provide, have general charge of the financial affairs of the Corporation and shall cause to be kept accurate books of account. The Treasurer shall have custody of all funds, securities, and valuable documents of the Corporation. He or she shall have such other duties and powers as may be designated from time to time by the Board of Directors or the Chief Executive Officer. Any Assistant Treasurer shall have such powers and perform such duties as the Board of Directors or the Chief Executive Officer may from time to time designate.

SECTION 14. Secretary and Assistant Secretaries. The Secretary shall record all the proceedings of the meetings of the stockholders and the Board of Directors (including committees of the Board of Directors) in books kept for that purpose. In his or her absence from any such meeting, a temporary secretary chosen at the meeting shall record the proceedings thereof. The Secretary shall have charge of the stock ledger (which may, however, be kept by any transfer or other agent of the Corporation). The Secretary shall have custody of the seal of the Corporation, and the Secretary, or an Assistant Secretary shall have authority to affix it to any instrument requiring it, and, when so affixed, the seal may be attested by his or her signature or that of an Assistant Secretary. The Secretary shall have such other duties and powers as may be designated from time to time by the Board of Directors or the Chief Executive Officer. In the absence of the Secretary, any Assistant Secretary may perform his or her duties and responsibilities. Any Assistant Secretary shall have such powers and perform such duties as the Board of Directors or the Chief Executive Officer may from time to time designate.

SECTION 15. Other Powers and Duties. Subject to these By-laws and to such limitations as the Board of Directors may from time to time prescribe, the officers of the Corporation shall each have such powers and duties as generally pertain to their respective offices, as well as such powers and duties as from time to time may be conferred by the Board of Directors or the Chief Executive Officer.

ARTICLE IV

Capital Stock

SECTION 1. Certificates of Stock. Each stockholder shall be entitled to a certificate of the capital stock of the Corporation in such form as may from time to time be prescribed by the

Board of Directors. Such certificate shall be signed by any two authorized officers of the Corporation. The Corporation seal and the signatures by the Corporation's officers, the transfer agent or the registrar may be facsimiles. In case any officer, transfer agent or registrar who has signed or whose facsimile signature has been placed on such certificate shall have ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the Corporation with the same effect as if he or she were such officer, transfer agent or registrar at the time of its issue. Every certificate for shares of stock which are subject to any restriction on transfer and every certificate issued when the Corporation is authorized to issue more than one class or series of stock shall contain such legend with respect thereto as is required by law. Notwithstanding anything to the contrary provided in these Bylaws, the Board of Directors of the Corporation may provide by resolution or resolutions that some or all of any or all classes or series of its stock shall be uncertificated shares (except that the foregoing shall not apply to shares represented by a certificate until such certificate is surrendered to the Corporation), and by the approval and adoption of these Bylaws the Board of Directors has determined that all classes or series of the Corporation's stock may be uncertificated, whether upon original issuance, re-issuance, or subsequent transfer.

SECTION 2. Transfers. Subject to any restrictions on transfer and unless otherwise provided by the Board of Directors, shares of stock that are represented by a certificate may be transferred on the books of the Corporation by the surrender to the Corporation or its transfer agent of the certificate theretofore properly endorsed or accompanied by a written assignment or power of attorney properly executed, with transfer stamps (if necessary) affixed, and with such proof of the authenticity of signature as the Corporation or its transfer agent may reasonably require. Shares of stock that are not represented by a certificate may be transferred on the books of the Corporation by submitting to the Corporation or its transfer agent such evidence of transfer and following such other procedures as the Corporation or its transfer agent may require.

SECTION 3. Record Holders. Except as may otherwise be required by law, by the Certificate or by these By-laws, the Corporation shall be entitled to treat the record holder of stock as shown on its books as the owner of such stock for all purposes, including the payment of dividends and the right to vote with respect thereto, regardless of any transfer, pledge or other disposition of such stock, until the shares have been transferred on the books of the Corporation in accordance with the requirements of these By-laws.

SECTION 4. Record Date. In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof or entitled to receive payment of any dividend or other distribution or allotment of any rights, or entitled to exercise any rights in respect of any change, conversion or exchange of stock or for the purpose of any other lawful action, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date: (a) in the case of determination of stockholders entitled to vote at any meeting of stockholders, shall, unless otherwise required by law, not be more than sixty (60) nor less than ten (10) days before the date of such meeting and (b) in the case of any other action, shall not be more than sixty (60) days prior to such other action. If no record date is fixed: (i) the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the

day next preceding the day on which the meeting is held; and (ii) the record date for determining stockholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

SECTION 5. Replacement of Certificates. In case of the alleged loss, destruction or mutilation of a certificate of stock of the Corporation, a duplicate certificate may be issued in place thereof, upon such terms as the Board of Directors may prescribe.

ARTICLE V

Indemnification

SECTION 1. Definitions. For purposes of this Article:

(a) "Corporate Status" describes the status of a person who is serving or has served (i) as a Director of the Corporation, (ii) as an Officer of the Corporation, (iii) as a Non-Officer Employee of the Corporation, or (iv) as a director, partner, trustee, officer, employee or agent of any other corporation, partnership, limited liability company, joint venture, trust, employee benefit plan, foundation, association, organization or other legal entity which such person is or was serving at the request of the Corporation. For purposes of this Section 1(a), a Director, Officer or Non-Officer Employee of the Corporation who is serving or has served as a director, partner, trustee, officer, employee or agent of a Subsidiary shall be deemed to be serving at the request of the Corporation. Notwithstanding the foregoing, "Corporate Status" shall not include the status of a person who is serving or has served as a director, officer, employee or agent of a constituent corporation absorbed in a merger or consolidation transaction with the Corporation with respect to such person's activities prior to said transaction, unless specifically authorized by the Board of Directors or the stockholders of the Corporation;

(b) "Director" means any person who serves or has served the Corporation as a director on the Board of Directors of the Corporation;

(c) "Disinterested Director" means, with respect to each Proceeding in respect of which indemnification is sought hereunder, a Director of the Corporation who is not and was not a party to such Proceeding;

(d) "Expenses" means all attorneys' fees, retainers, court costs, transcript costs, fees of expert witnesses, private investigators and professional advisors (including, without limitation, accountants and investment bankers), travel expenses, duplicating costs, printing and binding costs, costs of preparation of demonstrative evidence and other courtroom presentation aids and devices, costs incurred in connection with document review, organization, imaging and computerization, telephone charges, postage, delivery service fees, and all other disbursements, costs or expenses of the type customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, being or preparing to be a witness in, settling or otherwise participating in, a Proceeding;

(e) "Liabilities" means judgments, damages, liabilities, losses, penalties, excise taxes, fines and amounts paid in settlement;

(f) “Non-Officer Employee” means any person who serves or has served as an employee or agent of the Corporation, but who is not or was not a Director or Officer;

(g) “Officer” means any person who serves or has served the Corporation as an officer of the Corporation appointed by the Board of Directors of the Corporation;

(h) “Proceeding” means any threatened, pending or completed action, suit, arbitration, alternate dispute resolution mechanism, inquiry, investigation, administrative hearing or other proceeding, whether civil, criminal, administrative, arbitrative or investigative; and

(i) “Subsidiary” shall mean any corporation, partnership, limited liability company, joint venture, trust or other entity of which the Corporation owns (either directly or through or together with another Subsidiary of the Corporation) either (i) a general partner, managing member or other similar interest or (ii) (A) fifty percent (50%) or more of the voting power of the voting capital equity interests of such corporation, partnership, limited liability company, joint venture or other entity, or (B) fifty percent (50%) or more of the outstanding voting capital stock or other voting equity interests of such corporation, partnership, limited liability company, joint venture or other entity.

SECTION 2. Indemnification of Directors and Officers.

(a) Subject to the operation of Section 4 of this Article V of these By-laws, each Director and Officer shall be indemnified and held harmless by the Corporation to the fullest extent authorized by the DGCL, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the Corporation to provide broader indemnification rights than such law permitted the Corporation to provide prior to such amendment), and to the extent authorized in this Section 2.

(1) Actions, Suits and Proceedings Other than By or In the Right of the Corporation. Each Director and Officer shall be indemnified and held harmless by the Corporation against any and all Expenses and Liabilities that are incurred or paid by such Director or Officer or on such Director’s or Officer’s behalf in connection with any Proceeding or any claim, issue or matter therein (other than an action by or in the right of the Corporation), which such Director or Officer is, or is threatened to be made, a party to or participant in by reason of such Director’s or Officer’s Corporate Status, if such Director or Officer acted in good faith and in a manner such Director or Officer reasonably believed to be in or not opposed to the best interests of the Corporation and, with respect to any criminal proceeding, had no reasonable cause to believe his or her conduct was unlawful.

(2) Actions, Suits and Proceedings By or In the Right of the Corporation. Each Director and Officer shall be indemnified and held harmless by the Corporation against any and all Expenses that are incurred by such Director or Officer or on such Director’s or Officer’s behalf in connection with any Proceeding or any claim, issue or matter therein by or in the right of the Corporation, which such Director or Officer is, or is threatened to be made, a party to or participant in by reason of such Director’s or Officer’s Corporate Status, if such Director or Officer acted in good faith and in a manner

such Director or Officer reasonably believed to be in or not opposed to the best interests of the Corporation; provided, however, that no indemnification shall be made under this Section 2(a)(2) in respect of any claim, issue or matter as to which such Director or Officer shall have been finally adjudged by a court of competent jurisdiction to be liable to the Corporation, unless, and only to the extent that, the Court of Chancery or another court in which such Proceeding was brought shall determine upon application that, despite adjudication of liability, but in view of all the circumstances of the case, such Director or Officer is fairly and reasonably entitled to indemnification for such Expenses that such court deems proper.

(3) Survival of Rights. The rights of indemnification provided by this Section 2 shall continue as to a Director or Officer after he or she has ceased to be a Director or Officer and shall inure to the benefit of his or her heirs, executors, administrators and personal representatives.

(4) Actions by Directors or Officers. Notwithstanding the foregoing, the Corporation shall indemnify any Director or Officer seeking indemnification in connection with a Proceeding initiated by such Director or Officer only if such Proceeding (including any parts of such Proceeding not initiated by such Director or Officer) was authorized in advance by the Board of Directors of the Corporation, unless such Proceeding was brought to enforce such Officer's or Director's rights to indemnification or, in the case of Directors, advancement of Expenses under these By-laws in accordance with the provisions set forth herein.

SECTION 3. Indemnification of Non-Officer Employees. Subject to the operation of Section 4 of this Article V of these By-laws, each Non-Officer Employee may, in the discretion of the Board of Directors of the Corporation, be indemnified by the Corporation to the fullest extent authorized by the DGCL, as the same exists or may hereafter be amended, against any or all Expenses and Liabilities that are incurred by such Non-Officer Employee or on such Non-Officer Employee's behalf in connection with any threatened, pending or completed Proceeding, or any claim, issue or matter therein, which such Non-Officer Employee is, or is threatened to be made, a party to or participant in by reason of such Non-Officer Employee's Corporate Status, if such Non-Officer Employee acted in good faith and in a manner such Non-Officer Employee reasonably believed to be in or not opposed to the best interests of the Corporation and, with respect to any criminal proceeding, had no reasonable cause to believe his or her conduct was unlawful. The rights of indemnification provided by this Section 3 shall exist as to a Non-Officer Employee after he or she has ceased to be a Non-Officer Employee and shall inure to the benefit of his or her heirs, personal representatives, executors and administrators. Notwithstanding the foregoing, the Corporation may indemnify any Non-Officer Employee seeking indemnification in connection with a Proceeding initiated by such Non-Officer Employee only if such Proceeding was authorized in advance by the Board of Directors of the Corporation.

SECTION 4. Determination. Unless ordered by a court, no indemnification shall be provided pursuant to this Article V to a Director, to an Officer or to a Non-Officer Employee unless a determination shall have been made that such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the Corporation

and, with respect to any criminal Proceeding, such person had no reasonable cause to believe his or her conduct was unlawful. Such determination shall be made by (a) a majority vote of the Disinterested Directors, even though less than a quorum of the Board of Directors, (b) a committee comprised of Disinterested Directors, such committee having been designated by a majority vote of the Disinterested Directors (even though less than a quorum), (c) if there are no such Disinterested Directors, or if a majority of Disinterested Directors so directs, by independent legal counsel in a written opinion, or (d) by the stockholders of the Corporation.

SECTION 5. Advancement of Expenses to Directors Prior to Final Disposition.

(a) The Corporation shall advance all Expenses incurred by or on behalf of any Director in connection with any Proceeding in which such Director is involved by reason of such Director's Corporate Status within thirty (30) days after the receipt by the Corporation of a written statement from such Director requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by such Director and shall be preceded or accompanied by an undertaking by or on behalf of such Director to repay any Expenses so advanced if it shall ultimately be determined that such Director is not entitled to be indemnified against such Expenses. Notwithstanding the foregoing, the Corporation shall advance all Expenses incurred by or on behalf of any Director seeking advancement of expenses hereunder in connection with a Proceeding initiated by such Director only if such Proceeding (including any parts of such Proceeding not initiated by such Director) was (i) authorized by the Board of Directors of the Corporation, or (ii) brought to enforce such Director's rights to indemnification or advancement of Expenses under these By-laws.

(b) If a claim for advancement of Expenses hereunder by a Director is not paid in full by the Corporation within thirty (30) days after receipt by the Corporation of documentation of Expenses and the required undertaking, such Director may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim and if successful in whole or in part, such Director shall also be entitled to be paid the expenses of prosecuting such claim. The failure of the Corporation (including its Board of Directors or any committee thereof, independent legal counsel, or stockholders) to make a determination concerning the permissibility of such advancement of Expenses under this Article V shall not be a defense to an action brought by a Director for recovery of the unpaid amount of an advancement claim and shall not create a presumption that such advancement is not permissible. The burden of proving that a Director is not entitled to an advancement of expenses shall be on the Corporation.

(c) In any suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the Corporation shall be entitled to recover such expenses upon a final adjudication that the Director has not met any applicable standard for indemnification set forth in the DGCL.

SECTION 6. Advancement of Expenses to Officers and Non-Officer Employees Prior to Final Disposition.

(a) The Corporation may, at the discretion of the Board of Directors of the Corporation, advance any or all Expenses incurred by or on behalf of any Officer or any Non-

Officer Employee in connection with any Proceeding in which such person is involved by reason of his or her Corporate Status as an Officer or Non-Officer Employee upon the receipt by the Corporation of a statement or statements from such Officer or Non-Officer Employee requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by such Officer or Non-Officer Employee and shall be preceded or accompanied by an undertaking by or on behalf of such person to repay any Expenses so advanced if it shall ultimately be determined that such Officer or Non-Officer Employee is not entitled to be indemnified against such Expenses.

(b) In any suit brought by the Corporation to recover an advancement of expenses pursuant to the terms of an undertaking, the Corporation shall be entitled to recover such expenses upon a final adjudication that the Officer or Non-Officer Employee has not met any applicable standard for indemnification set forth in the DGCL.

SECTION 7. Contractual Nature of Rights.

(a) The provisions of this Article V shall be deemed to be a contract between the Corporation and each Director and Officer entitled to the benefits hereof at any time while this Article V is in effect, in consideration of such person's past or current and any future performance of services for the Corporation. Neither amendment, repeal or modification of any provision of this Article V nor the adoption of any provision of the Certificate of Incorporation inconsistent with this Article V shall eliminate or reduce any right conferred by this Article V in respect of any act or omission occurring, or any cause of action or claim that accrues or arises or any state of facts existing, at the time of or before such amendment, repeal, modification or adoption of an inconsistent provision (even in the case of a proceeding based on such a state of facts that is commenced after such time), and all rights to indemnification and advancement of Expenses granted herein or arising out of any act or omission shall vest at the time of the act or omission in question, regardless of when or if any proceeding with respect to such act or omission is commenced. The rights to indemnification and to advancement of expenses provided by, or granted pursuant to, this Article V shall continue notwithstanding that the person has ceased to be a director or officer of the Corporation and shall inure to the benefit of the estate, heirs, executors, administrators, legatees and distributees of such person.

(b) If a claim for indemnification hereunder by a Director or Officer is not paid in full by the Corporation within sixty (60) days after receipt by the Corporation of a written claim for indemnification, such Director or Officer may at any time thereafter bring suit against the Corporation to recover the unpaid amount of the claim, and if successful in whole or in part, such Director or Officer shall also be entitled to be paid the expenses of prosecuting such claim. The failure of the Corporation (including its Board of Directors or any committee thereof, independent legal counsel, or stockholders) to make a determination concerning the permissibility of such indemnification under this Article V shall not be a defense to an action brought by a Director or Officer for recovery of the unpaid amount of an indemnification claim and shall not create a presumption that such indemnification is not permissible. The burden of proving that a Director or Officer is not entitled to indemnification shall be on the Corporation.

(c) In any suit brought by a Director or Officer to enforce a right to indemnification hereunder, it shall be a defense that such Director or Officer has not met any applicable standard for indemnification set forth in the DGCL.

SECTION 8. Non-Exclusivity of Rights. The rights to indemnification and to advancement of Expenses set forth in this Article V shall not be exclusive of any other right which any Director, Officer, or Non-Officer Employee may have or hereafter acquire under any statute, provision of the Certificate or these By-laws, agreement, vote of stockholders or Disinterested Directors or otherwise.

SECTION 9. Insurance. The Corporation may maintain insurance, at its expense, to protect itself and any Director, Officer or Non-Officer Employee against any liability of any character asserted against or incurred by the Corporation or any such Director, Officer or Non-Officer Employee, or arising out of any such person's Corporate Status, whether or not the Corporation would have the power to indemnify such person against such liability under the DGCL or the provisions of this Article V.

SECTION 10. Other Indemnification. The Corporation's obligation, if any, to indemnify or provide advancement of Expenses to any person under this Article V as a result of such person serving, at the request of the Corporation, as a director, partner, trustee, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise shall be reduced by any amount such person may collect as indemnification or advancement of Expenses from such other corporation, partnership, joint venture, trust, employee benefit plan or enterprise (the "Primary Indemnitor"). Any indemnification or advancement of Expenses under this Article V owed by the Corporation as a result of a person serving, at the request of the Corporation, as a director, partner, trustee, officer, employee or agent of another corporation, partnership, joint venture, trust, employee benefit plan or other enterprise shall only be in excess of, and shall be secondary to, the indemnification or advancement of Expenses available from the applicable Primary Indemnitor(s) and any applicable insurance policies.

ARTICLE VI

Miscellaneous Provisions

SECTION 1. Fiscal Year. The fiscal year of the Corporation shall be determined by the Board of Directors.

SECTION 2. Seal. The Board of Directors shall have power to adopt and alter the seal of the Corporation.

SECTION 3. Execution of Instruments. All deeds, leases, transfers, contracts, bonds, notes and other obligations to be entered into by the Corporation in the ordinary course of its business without director action may be executed on behalf of the Corporation by the Chairman of the Board, if one is elected, the President or the Treasurer or any other officer, employee or agent of the Corporation as the Board of Directors or the executive committee of the Board may authorize.

SECTION 4. Voting of Securities. Unless the Board of Directors otherwise provides, the Chairman of the Board, if one is elected, the President or the Treasurer may waive notice of and act on behalf of the Corporation (including with regard to voting and actions by written consent), or appoint another person or persons to act as proxy or attorney in fact for the Corporation with or without discretionary power and/or power of substitution, at any meeting of stockholders or shareholders of any other corporation or organization, any of whose securities are held by the Corporation.

SECTION 5. Resident Agent. The Board of Directors may appoint a resident agent upon whom legal process may be served in any action or proceeding against the Corporation.

SECTION 6. Corporate Records. The original or attested copies of the Certificate, By-laws and records of all meetings of the incorporators, stockholders and the Board of Directors and the stock transfer books, which shall contain the names of all stockholders, their record addresses and the amount of stock held by each, may be kept outside the State of Delaware and shall be kept at the principal office of the Corporation, at an office of its counsel, at an office of its transfer agent or at such other place or places as may be designated from time to time by the Board of Directors.

SECTION 7. Certificate. All references in these By-laws to the Certificate shall be deemed to refer to the Amended and Restated Certificate of Incorporation of the Corporation, as amended and/or restated and in effect from time to time.

SECTION 8. Exclusive Jurisdiction of Delaware Courts or the United States District Court for the District of Massachusetts. Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for state law claims for (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of or based on a fiduciary duty owed by any current or former director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders, (iii) any action asserting a claim against the Corporation or any current or former director, officer, or other employee or stockholder of the Corporation arising pursuant to any provision of the Delaware General Corporation Law or the Certificate or By-laws, or (iv) any action asserting a claim against the Corporation governed by the internal affairs doctrine. Unless the Corporation consents in writing to the selection of an alternative forum, the United States District Court for the District of Massachusetts shall be the sole and exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act of 1933, as amended. Any person or entity purchasing or otherwise acquiring any interest in shares of capital stock of the Corporation shall be deemed to have notice of and consented to the provisions of this Section 8.

SECTION 9. Amendment of By-laws.

(a) Amendment by Directors. Except as provided otherwise by law, these By-laws may be amended or repealed by the Board of Directors by the affirmative vote of a majority of the directors then in office.

(b) Amendment by Stockholders. Except as otherwise required by these By-laws or by law, these By-Laws, by the affirmative vote of at least two-thirds of the outstanding shares entitled to vote on such amendment or repeal, voting together as a single class; provided, however, that if the Board of Directors recommends that stockholders approve such amendment or repeal at such meeting of stockholders, such amendment or repeal shall only require the affirmative vote of the majority of the outstanding shares entitled to vote on such amendment or repeal, voting together as a single class. Notwithstanding the foregoing, stockholder approval shall not be required unless mandated by the Certificate, these By-laws, or other applicable law.

SECTION 10. Notices. If mailed, notice to stockholders shall be deemed given when deposited in the mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the Corporation. Without limiting the manner by which notice otherwise may be given to stockholders, any notice to stockholders may be given by electronic transmission in the manner provided in Section 232 of the DGCL.

SECTION 11. Waivers. A written waiver of any notice, signed by a stockholder or director, or waiver by electronic transmission by such person, whether given before or after the time of the event for which notice is to be given, shall be deemed equivalent to the notice required to be given to such person. Neither the business to be transacted at, nor the purpose of, any meeting need be specified in such a waiver.

Adopted [●], 2018, subject to and effective upon the closing of the Corporation's initial public offering on its Registration Statement on Form S-1.

TCR² THERAPEUTICS INC.

AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

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AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

THIS AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT (this "**Agreement**"), is made as of the 28th day of February, 2018, by and among TCR² Therapeutics Inc., a Delaware corporation (the "**Company**"), each of the investors listed on Schedule A hereto, each of which is referred to in this Agreement as an "**Investor**" and any Additional Purchaser (as defined in the Series B Preferred Stock Purchase Agreement, dated as of the date hereof, by and among the Company and certain of the Investors (the "**Purchase Agreement**")) that becomes a party to this Agreement in accordance with Section 6.9 hereof.

RECITALS

WHEREAS, certain of the Investors (the "**Existing Investors**") hold shares of the Company's Series A Preferred Stock, par value \$0.0001 per shares ("**Series A Preferred Stock**") and/or shares of the Company's common stock, par value \$0.0001 per share ("**Common Stock**") issued upon conversion thereof and possess registration rights, information rights, rights of first offer, and other rights pursuant to an Investors' Rights Agreement, dated as of October 16, 2015, by and among the Company and such Investors (the "**Prior Agreement**");

WHEREAS, the Existing Investors are holders of a majority of the Registrable Securities (as defined in the Prior Agreement) then outstanding (the "**Prior Requisite Holders**"), and desire to amend and restate the Prior Agreement in its entirety and to accept the rights created pursuant to this Agreement and the other Transaction Agreements (as such term is defined in the Purchase Agreement) in lieu of the rights granted to them under the Prior Agreement; and

WHEREAS, certain of the Investors are parties to the Purchase Agreement, under which certain of the Company's and such Investors' obligations are conditioned upon the execution and delivery of this Agreement by such Investors, the Prior Requisite Holders, and the Company.

NOW, THEREFORE, the Existing Investors and the Company hereby agree that the Prior Agreement shall be amended and restated, and the parties to this Agreement further agree as follows:

1. Definitions. For purposes of this Agreement:

1.1 "**Affiliate**" means, with respect to any specified Person, any other Person who, directly or indirectly, controls, is controlled by, or is under common control with such Person, including without limitation any general partner, limited partner, member, manager, managing member, employee, officer or director of such Person or any venture capital fund now or hereafter existing that is controlled by one or more general partners or managing members of, or shares the same management company with, such Person. As used herein, "control," as used with respect to any Person, shall mean the possession, directly or indirectly, of the power to direct the management or policies of such Person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise, and the terms "controlling" and "controlled" shall have meanings correlative to the foregoing.

1.2 “**Competitor**” means a Person engaged, directly or indirectly (including through any partnership, limited liability company, corporation, joint venture or similar arrangement (whether now existing or formed hereafter)), in the research and development of adoptive T-cell therapies, but shall not include any financial investment firm or collective investment vehicle that, together with its Affiliates, holds less than twenty percent (20%) of the outstanding equity of any Competitor and does not, nor do any of its Affiliates, have a right to designate any members of the Board of Directors of any Competitor.

1.3 “**Damages**” means any loss, damage, claim or liability (joint or several) to which a party hereto may become subject under the Securities Act, the Exchange Act, or other federal or state law, insofar as such loss, damage, claim or liability (or any action in respect thereof) arises out of or is based upon: (i) any untrue statement or alleged untrue statement of a material fact contained in any registration statement of the Company, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto; (ii) an omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading; or (iii) any violation or alleged violation by the indemnifying party (or any of its agents or Affiliates) of the Securities Act, the Exchange Act, any state securities law, or any rule or regulation promulgated under the Securities Act, the Exchange Act, or any state securities law.

1.4 “**Derivative Securities**” means any securities or rights convertible into, or exercisable or exchangeable for (in each case, directly or indirectly), Common Stock, including options and warrants.

1.5 “**Exchange Act**” means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

1.6 “**Excluded Registration**” means (i) a registration relating to the sale of securities to employees of the Company or a subsidiary pursuant to a stock option, stock purchase, or similar plan; (ii) a registration relating to an SEC Rule 145 transaction; (iii) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or (iv) a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

1.7 “**Form S-1**” means such form under the Securities Act as in effect on the date hereof or any successor registration form under the Securities Act subsequently adopted by the SEC.

1.8 “**Form S-3**” means such form under the Securities Act as in effect on the date hereof or any registration form under the Securities Act subsequently adopted by the SEC that permits incorporation of substantial information by reference to other documents filed by the Company with the SEC.

1.9 “**GAAP**” means generally accepted accounting principles in the United States.

1.10 “**Holder**” means any holder of Registrable Securities who is a party to this Agreement.

1.11 “**Immediate Family Member**” means a child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including, adoptive relationships of a natural person referred to herein.

1.12 “**Initiating Holders**” means, collectively, Holders who properly initiate a registration request under this Agreement.

1.13 “**IPO**” means the Company’s first underwritten public offering of its Common Stock under the Securities Act.

1.14 “**New Securities**” means, collectively, equity securities of the Company, whether or not currently authorized, as well as rights, options, or warrants to purchase such equity securities, or securities of any type whatsoever that are, or may become, convertible or exchangeable into or exercisable for such equity securities.

1.15 “**Person**” means any individual, corporation, partnership, trust, limited liability company, association or other entity.

1.16 “**Preferred Director**” has the meaning set forth in the Company’s Certificate of Incorporation.

1.17 “**Preferred Stock**” means, collectively, shares of Series A Preferred Stock and Series B Preferred Stock.

1.18 “**Registrable Securities**” means (i) the Common Stock issuable or issued upon conversion of the Preferred Stock; (ii) any Common Stock, or any Common Stock issued or issuable (directly or indirectly) upon conversion and/or exercise of any other securities of the Company, acquired by the Investors after the date hereof; and (iii) any Common Stock issued as (or issuable upon the conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, the shares referenced in clauses (i) and (ii) above; excluding in all cases, however, any Registrable Securities sold by a Person in a transaction in which the applicable rights under this Agreement are not assigned pursuant to Subsection 6.1, and excluding for purposes of Section 2 any shares for which registration rights have terminated pursuant to Subsection 2.13 of this Agreement.

1.19 “**Registrable Securities then outstanding**” means the number of shares determined by adding the number of shares of outstanding Common Stock that are Registrable Securities and the number of shares of Common Stock issuable (directly or indirectly) pursuant to then exercisable and/or convertible securities that are Registrable Securities.

1.20 “**Restricted Securities**” means the securities of the Company required to be notated with the legend set forth in Subsection 2.12(b) hereof.

1.21 “**SEC**” means the Securities and Exchange Commission.

1.22 “**SEC Rule 144**” means Rule 144 promulgated by the SEC under the Securities Act.

1.23 “**SEC Rule 145**” means Rule 145 promulgated by the SEC under the Securities Act.

1.24 “**Securities Act**” means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

1.25 “**Selling Expenses**” means all underwriting discounts, selling commissions, and stock transfer taxes applicable to the sale of Registrable Securities, and fees and disbursements of counsel for any Holder, except for the fees and disbursements of the Selling Holder Counsel borne and paid by the Company as provided in Subsection 2.6.

1.26 “**Series B Preferred Stock**” means shares of the Company’s Series B Preferred Stock, par value \$0.0001 per share.

2. Registration Rights. The Company covenants and agrees as follows:

2.1 Demand Registration.

(a) Form S-1 Demand. If at any time after the earlier of (i) five (5) years after the date of this Agreement or (ii) one hundred eighty (180) days after the effective date of the registration statement for the IPO, the Company receives a request from Holders of a majority of the Registrable Securities then outstanding, including at least a majority of the Common Stock issuable or issued upon conversion of the Series A Preferred Stock and at least a majority of the Common Stock issuable or issued upon conversion of the Series B Preferred Stock (the “**Requisite Holders**”), that the Company file a Form S-1 registration statement with respect to at least forty percent (40%) of the Registrable Securities then outstanding (or a lesser percent if the anticipated aggregate offering price, net of Selling Expenses, would exceed \$5 million), then the Company shall (x) within ten (10) days after the date such request is given, give notice thereof (the “**Demand Notice**”) to all Holders other than the Initiating Holders; and (y) as soon as practicable, and in any event within sixty (60) days after the date such request is given by the Initiating Holders, file a Form S-1 registration statement under the Securities Act covering all Registrable Securities that the Initiating Holders requested to be registered and any additional Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(b) Form S-3 Demand. If at any time when it is eligible to use a Form S-3 registration statement, the Company receives a request from Holders of at least ten percent (10%) of the Registrable Securities then outstanding that the Company file a Form S-3 registration statement with respect to outstanding Registrable Securities of such Holders having an anticipated aggregate offering price, net of Selling Expenses, of at least \$1 million, then the Company shall (i) within ten (10) days after the date such request is given, give a Demand Notice to all Holders other than the Initiating Holders; and (ii) as soon as practicable, and in any event within forty-five (45) days after the date such request is given by the Initiating Holders,

file a Form S-3 registration statement under the Securities Act covering all Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(c) Notwithstanding the foregoing obligations, if the Company furnishes to Holders requesting a registration pursuant to this Subsection 2.1 a certificate signed by the Company's chief executive officer stating that in the good faith judgment of the Company's Board of Directors it would be materially detrimental to the Company and its stockholders for such registration statement to either become effective or remain effective for as long as such registration statement otherwise would be required to remain effective, because such action would (i) materially interfere with a significant acquisition, corporate reorganization, or other similar transaction involving the Company; (ii) require premature disclosure of material information that the Company has a bona fide business purpose for preserving as confidential; or (iii) render the Company unable to comply with requirements under the Securities Act or Exchange Act, then the Company shall have the right to defer taking action with respect to such filing, for a period of not more than sixty (60) days after the request of the Initiating Holders is given; *provided, however*, that the Company may not invoke this right more than twice in any twelve (12) month period; and *provided further* that the Company shall not register any securities for its own account or that of any other stockholder during such sixty (60) day period other than an Excluded Registration.

(d) The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(a) (i) during the period that is sixty (60) days before the Company's good faith estimate of the date of filing of, and ending on a date that is one hundred eighty (180) days after the effective date of, a Company-initiated registration; *provided* that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; (ii) after the Company has effected two registrations pursuant to Subsection 2.1(a); or (iii) if the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to Subsection 2.1(b). The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(b) (i) during the period that is thirty (30) days before the Company's good faith estimate of the date of filing of, and ending on a date that is ninety (90) days after the effective date of, a Company-initiated registration; *provided* that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; or (ii) if the Company has effected two registrations pursuant to Subsection 2.1(b) within the twelve (12) month period immediately preceding the date of such request. A registration shall not be counted as "effected" for purposes of this Subsection 2.1(d) until such time as the applicable registration statement has been declared effective by the SEC, unless the Initiating Holders withdraw their request for such registration, elect not to pay the registration expenses therefor, and forfeit their right to one demand registration statement pursuant to Subsection 2.6, in which case such withdrawn registration statement shall be counted as "effected" for purposes of this Subsection 2.1(d).

2.2 Company Registration. If the Company proposes to register (including, for this purpose, a registration effected by the Company for stockholders other than the Holders) any of its Common Stock under the Securities Act in connection with the public offering of such

securities solely for cash (other than in an Excluded Registration), the Company shall, at such time, promptly give each Holder notice of such registration. Upon the request of each Holder given within twenty (20) days after such notice is given by the Company, the Company shall, subject to the provisions of Subsection 2.3, cause to be registered all of the Registrable Securities that each such Holder has requested to be included in such registration. The Company shall have the right to terminate or withdraw any registration initiated by it under this Subsection 2.2 before the effective date of such registration, whether or not any Holder has elected to include Registrable Securities in such registration. The expenses (other than Selling Expenses) of such withdrawn registration shall be borne by the Company in accordance with Subsection 2.6.

2.3 Underwriting Requirements.

(a) If, pursuant to Subsection 2.1, the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to Subsection 2.1, and the Company shall include such information in the Demand Notice. The underwriter(s) will be selected by the Company and shall be reasonably acceptable to a majority in interest of the Initiating Holders. In such event, the right of any Holder to include such Holder's Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall (together with the Company as provided in Subsection 2.4(e)) enter into an underwriting agreement in customary form with the underwriter(s) selected for such underwriting. Notwithstanding any other provision of this Subsection 2.3, if the managing underwriter(s) advise(s) the Initiating Holders in writing that marketing factors require a limitation on the number of shares to be underwritten, then the Initiating Holders shall so advise all Holders of Registrable Securities that otherwise would be underwritten pursuant hereto, and the number of Registrable Securities that may be included in the underwriting shall be allocated among such Holders of Registrable Securities, including the Initiating Holders, in proportion (as nearly as practicable) to the number of Registrable Securities owned by each Holder or in such other proportion as shall mutually be agreed to by all such selling Holders; *provided, however*, that the number of Registrable Securities held by the Holders to be included in such underwriting shall not be reduced unless all other securities are first entirely excluded from the underwriting.

(b) In connection with any offering involving an underwriting of shares of the Company's capital stock pursuant to Subsection 2.2, the Company shall not be required to include any of the Holders' Registrable Securities in such underwriting unless the Holders accept the terms of the underwriting as agreed upon between the Company and its underwriters, and then only in such quantity as the underwriters in their sole discretion determine will not jeopardize the success of the offering by the Company. If the total number of securities, including Registrable Securities, requested by stockholders to be included in such offering exceeds the number of securities to be sold (other than by the Company) that the underwriters in their reasonable discretion determine is compatible with the success of the offering, then the Company shall be required to include in the offering only that number of such securities, including Registrable Securities, which the underwriters and the Company in their sole discretion determine will not jeopardize the success of the offering. If the underwriters determine that less than all of the Registrable Securities requested to be registered can be included in such offering,

then the Registrable Securities that are included in such offering shall be allocated among the selling Holders in proportion (as nearly as practicable to) the number of Registrable Securities owned by each selling Holder or in such other proportions as shall mutually be agreed to by all such selling Holders. Notwithstanding the foregoing, in no event shall (i) the number of Registrable Securities included in the offering be reduced unless all other securities (other than securities to be sold by the Company) are first entirely excluded from the offering, or (ii) the number of Registrable Securities included in the offering be reduced below twenty percent (20%) of the total number of securities included in such offering, unless such offering is the IPO, in which case the selling Holders may be excluded further if the underwriters make the determination described above and no other stockholder's securities are included in such offering. For purposes of the provision in this Subsection 2.3(b) concerning apportionment, for any selling Holder that is a partnership, limited liability company, or corporation, the partners, members, retired partners, retired members, stockholders, and Affiliates of such Holder, or the estates and Immediate Family Members of any such partners, retired partners, members, and retired members and any trusts for the benefit of any of the foregoing Persons, shall be deemed to be a single "selling Holder," and any pro rata reduction with respect to such "selling Holder" shall be based upon the aggregate number of Registrable Securities owned by all Persons included in such "selling Holder," as defined in this sentence.

(c) For purposes of Subsection 2.1, a registration shall not be counted as "effected" if, as a result of an exercise of the underwriter's cutback provisions in Subsection 2.3(a), fewer than thirty percent (30%) of the total number of Registrable Securities that Holders have requested to be included in such registration statement are actually included.

2.4 Obligations of the Company. Whenever required under this Section 2 to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible:

(a) prepare and file with the SEC a registration statement with respect to such Registrable Securities and use its commercially reasonable efforts to cause such registration statement to become effective and, upon the request of the Holders of a majority of the Registrable Securities, including at least a majority of the Common Stock issuable or issued upon conversion of the Series A Preferred Stock and at least a majority of the Common Stock issuable or issued upon conversion of the Series B Preferred Stock, registered thereunder, keep such registration statement effective for a period of up to one hundred twenty (120) days or, if earlier, until the distribution contemplated in the registration statement has been completed; *provided, however*, that (i) such one hundred twenty (120) day period shall be extended for a period of time equal to the period the Holder refrains, at the request of an underwriter of Common Stock (or other securities) of the Company, from selling any securities included in such registration, and (ii) in the case of any registration of Registrable Securities on Form S-3 that are intended to be offered on a continuous or delayed basis, subject to compliance with applicable SEC rules, such one hundred twenty (120) day period shall be extended for up to sixty (60) days, if necessary, to keep the registration statement effective until all such Registrable Securities are sold;

(b) prepare and file with the SEC such amendments and supplements to such registration statement, and the prospectus used in connection with such registration statement, as may be necessary to comply with the Securities Act in order to enable the disposition of all securities covered by such registration statement;

(c) furnish to the selling Holders such numbers of copies of a prospectus, including a preliminary prospectus, as required by the Securities Act, and such other documents as the Holders may reasonably request in order to facilitate their disposition of their Registrable Securities;

(d) use its commercially reasonable efforts to register and qualify the securities covered by such registration statement under such other securities or blue-sky laws of such jurisdictions as shall be reasonably requested by the selling Holders; *provided* that the Company shall not be required to qualify to do business or to file a general consent to service of process in any such states or jurisdictions, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(e) in the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the underwriter(s) of such offering;

(f) use its commercially reasonable efforts to cause all such Registrable Securities covered by such registration statement to be listed on a national securities exchange or trading system and each securities exchange and trading system (if any) on which similar securities issued by the Company are then listed;

(g) provide a transfer agent and registrar for all Registrable Securities registered pursuant to this Agreement and provide a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration;

(h) promptly make available for inspection by the selling Holders, any managing underwriter(s) participating in any disposition pursuant to such registration statement, and any attorney or accountant or other agent retained by any such underwriter or selected by the selling Holders, all financial and other records, pertinent corporate documents, and properties of the Company, and cause the Company's officers, directors, employees, and independent accountants to supply all information reasonably requested by any such seller, underwriter, attorney, accountant, or agent, in each case, as necessary or advisable to verify the accuracy of the information in such registration statement and to conduct appropriate due diligence in connection therewith;

(i) notify each selling Holder, promptly after the Company receives notice thereof, of the time when such registration statement has been declared effective or a supplement to any prospectus forming a part of such registration statement has been filed; and

(j) after such registration statement becomes effective, notify each selling Holder of any request by the SEC that the Company amend or supplement such registration statement or prospectus.

In addition, the Company shall ensure that, at all times after any registration statement covering a public offering of securities of the Company under the Securities Act shall have become effective, its insider trading policy shall provide that the Company's directors may implement a trading program under Rule 10b5-1 of the Exchange Act.

2.5 Furnish Information. It shall be a condition precedent to the obligations of the Company to take any action pursuant to this Section 2 with respect to the Registrable Securities of any selling Holder that such Holder shall furnish to the Company such information regarding itself, the Registrable Securities held by it, and the intended method of disposition of such securities as is reasonably required to effect the registration of such Holder's Registrable Securities.

2.6 Expenses of Registration. All expenses (other than Selling Expenses) incurred in connection with registrations, filings, or qualifications pursuant to Section 2, including all registration, filing, and qualification fees; printers' and accounting fees; fees and disbursements of counsel for the Company; and the reasonable fees and disbursements, not to exceed \$50,000, of one counsel for the selling Holders ("**Selling Holder Counsel**"), shall be borne and paid by the Company; *provided, however*, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to Subsection 2.1 if the registration request is subsequently withdrawn at the request of the Holders of a majority of the Registrable Securities, including at least a majority of the Common Stock issuable or issued upon conversion of the Series A Preferred Stock and at least a majority of the Common Stock issuable or issued upon conversion of the Series B Preferred Stock, to be registered (in which case all selling Holders shall bear such expenses pro rata based upon the number of Registrable Securities that were to be included in the withdrawn registration), unless the Holders of a majority of the Registrable Securities, including at least a majority of the Common Stock issuable or issued upon conversion of the Series A Preferred Stock and at least a majority of the Common Stock issuable or issued upon conversion of the Series B Preferred Stock, agree to forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b), as the case may be. All Selling Expenses relating to Registrable Securities registered pursuant to this Section 2 shall be borne and paid by the Holders pro rata on the basis of the number of Registrable Securities registered on their behalf.

2.7 Delay of Registration. No Holder shall have any right to obtain or seek an injunction restraining or otherwise delaying any registration pursuant to this Agreement as the result of any controversy that might arise with respect to the interpretation or implementation of this Section 2.

2.8 Indemnification. If any Registrable Securities are included in a registration statement under this Section 2:

(a) To the extent permitted by law, the Company will indemnify and hold harmless each selling Holder, and the partners, members, officers, directors, and stockholders of each such Holder; legal counsel and accountants for each such Holder; any underwriter (as defined in the Securities Act) for each such Holder; and each Person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any Damages, and the Company will pay to each such Holder, underwriter, controlling Person, or other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from

which Damages may result, as such expenses are incurred; *provided, however*, that the indemnity agreement contained in this Subsection 2.8(a) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Company, which consent shall not be unreasonably withheld, nor shall the Company be liable for any Damages to the extent that they arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of any such Holder, underwriter, controlling Person, or other aforementioned Person expressly for use in connection with such registration.

(b) To the extent permitted by law, each selling Holder, severally and not jointly, will indemnify and hold harmless the Company, and each of its directors, each of its officers who has signed the registration statement, each Person (if any), who controls the Company within the meaning of the Securities Act, legal counsel and accountants for the Company, any underwriter (as defined in the Securities Act), any other Holder selling securities in such registration statement, and any controlling Person of any such underwriter or other Holder, against any Damages, in each case only to the extent that such Damages arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of such selling Holder expressly for use in connection with such registration; and each such selling Holder will pay to the Company and each other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; *provided, however*, that the indemnity agreement contained in this Subsection 2.8(b) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Holder, which consent shall not be unreasonably withheld; and *provided further* that in no event shall the aggregate amounts payable by any Holder by way of indemnity or contribution under Subsections 2.8(b) and 2.8(d) exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of fraud or willful misconduct by such Holder.

(c) Promptly after receipt by an indemnified party under this Subsection 2.8 of notice of the commencement of any action (including any governmental action) for which a party may be entitled to indemnification hereunder, such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Subsection 2.8, give the indemnifying party notice of the commencement thereof. The indemnifying party shall have the right to participate in such action and, to the extent the indemnifying party so desires, participate jointly with any other indemnifying party to which notice has been given, and to assume the defense thereof with counsel mutually satisfactory to the parties; *provided, however*, that an indemnified party (together with all other indemnified parties that may be represented without conflict by one counsel) shall have the right to retain one separate counsel, with the fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such action. The failure to give notice to the indemnifying party within a reasonable time of the commencement of any such action shall relieve such indemnifying party of any liability to the indemnified party under this Subsection 2.8, to the extent that such failure materially prejudices the indemnifying party's ability to defend such action. The failure to give notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Subsection 2.8.

(d) To provide for just and equitable contribution to joint liability under the Securities Act in any case in which either: (i) any party otherwise entitled to indemnification hereunder makes a claim for indemnification pursuant to this Subsection 2.8 but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case, notwithstanding the fact that this Subsection 2.8 provides for indemnification in such case, or (ii) contribution under the Securities Act may be required on the part of any party hereto for which indemnification is provided under this Subsection 2.8, then, and in each such case, such parties will contribute to the aggregate losses, claims, damages, liabilities, or expenses to which they may be subject (after contribution from others) in such proportion as is appropriate to reflect the relative fault of each of the indemnifying party and the indemnified party in connection with the statements, omissions, or other actions that resulted in such loss, claim, damage, liability, or expense, as well as to reflect any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party shall be determined by reference to, among other things, whether the untrue or allegedly untrue statement of a material fact, or the omission or alleged omission of a material fact, relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission; *provided, however*, that, in any such case (x) no Holder will be required to contribute any amount in excess of the public offering price of all such Registrable Securities offered and sold by such Holder pursuant to such registration statement, and (y) no Person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation; and *provided further* that in no event shall a Holder's liability pursuant to this Subsection 2.8(d), when combined with the amounts paid or payable by such Holder pursuant to Subsection 2.8(b), exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of willful misconduct or fraud by such Holder.

(e) Notwithstanding the foregoing, to the extent that the provisions on indemnification and contribution contained in the underwriting agreement entered into in connection with the underwritten public offering are in conflict with the foregoing provisions, the provisions in the underwriting agreement shall control.

(f) Unless otherwise superseded by an underwriting agreement entered into in connection with the underwritten public offering, the obligations of the Company and Holders under this Subsection 2.8 shall survive the completion of any offering of Registrable Securities in a registration under this Section 2, and otherwise shall survive the termination of this Agreement.

2.9 Reports Under Exchange Act. With a view to making available to the Holders the benefits of SEC Rule 144 and any other rule or regulation of the SEC that may at any time permit a Holder to sell securities of the Company to the public without registration or pursuant to a registration on Form S-3, the Company shall:

(a) make and keep available adequate current public information, as those terms are understood and defined in SEC Rule 144, at all times after the effective date of the registration statement filed by the Company for the IPO;

(b) use commercially reasonable efforts to file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act (at any time after the Company has become subject to such reporting requirements); and

(c) furnish to any Holder, so long as the Holder owns any Registrable Securities, forthwith upon request (i) to the extent accurate, a written statement by the Company that it has complied with the reporting requirements of SEC Rule 144 (at any time after ninety (90) days after the effective date of the registration statement filed by the Company for the IPO), the Securities Act, and the Exchange Act (at any time after the Company has become subject to such reporting requirements), or that it qualifies as a registrant whose securities may be resold pursuant to Form S-3 (at any time after the Company so qualifies); and (ii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC that permits the selling of any such securities without registration (at any time after the Company has become subject to the reporting requirements under the Exchange Act) or pursuant to Form S-3 (at any time after the Company so qualifies to use such form).

2.10 Limitations on Subsequent Registration Rights. From and after the date of this Agreement, the Company shall not, without the prior written consent of the Requisite Holders, enter into any agreement with any holder or prospective holder of any securities of the Company that would provide to such holder the right to include securities in any registration on other than either a pro rata basis with respect to the Registrable Securities or on a subordinate basis after all Holders have had the opportunity to include in the registration and offering all shares of Registrable Securities that they wish to so include; *provided* that this limitation shall not apply to any additional Investor who becomes a party to this Agreement in accordance with Subsection 6.9.

2.11 "Market Stand-off" Agreement. Each Holder hereby agrees that it will not, without the prior written consent of the managing underwriter, during the period commencing on the date of the final prospectus relating to the registration by the Company for its own behalf of shares of its Common Stock or any other equity securities under the Securities Act on a registration statement on Form S-1 or Form S-3, and ending on the date specified by the Company and the managing underwriter (such period not to exceed one hundred eighty (180) days in the case of the IPO, or such other period as may be requested by the Company or an underwriter to accommodate regulatory restrictions on (1) the publication or other distribution of research reports, and (2) analyst recommendations and opinions, including, but not limited to, the restrictions contained in FINRA Rule 2711(f)(4) or NYSE Rule 472(f)(4), or any successor provisions or amendments thereto), (i) lend; offer; pledge; sell; contract to sell; sell any option or contract to purchase; purchase any option or contract to sell; grant any option, right, or warrant to purchase; or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock held immediately before the effective date of the registration statement or such offering, or (ii) enter into any swap or other arrangement that transfers to another, in whole or in

part, any of the economic consequences of ownership of such securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash, or otherwise. The foregoing provisions of this Subsection 2.11 shall not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement, or the transfer of any shares to any trust for the direct or indirect benefit of the Holder or the immediate family of the Holder; *provided* that the trustee of the trust agrees to be bound in writing by the restrictions set forth herein; and *provided further* that any such transfer shall not involve a disposition for value, and shall be applicable to the Holders only if all officers and directors are subject to the same restrictions and the Company obtains a similar agreement from all stockholders individually owning more than one percent (1%) of the Company's outstanding Common Stock (after giving effect to conversion into Common Stock of all outstanding Preferred Stock). The underwriters in connection with such registration are intended third party beneficiaries of this Subsection 2.11 and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in connection with such registration that are consistent with this Subsection 2.11 or that are necessary to give further effect thereto. Any discretionary waiver or termination of the restrictions of any or all of such agreements by the Company or the underwriters shall apply pro rata to all Holders subject to such agreements, based on the number of shares subject to such agreements.

2.12 Restrictions on Transfer.

(a) The Preferred Stock and the Registrable Securities shall not be sold, pledged, or otherwise transferred, and the Company shall not recognize and shall issue stop-transfer instructions to its transfer agent with respect to any such sale, pledge, or transfer, except upon the conditions specified in this Agreement, which conditions are intended to ensure compliance with the provisions of the Securities Act. A transferring Holder will cause any proposed purchaser, pledgee, or transferee of the Preferred Stock and the Registrable Securities held by such Holder to agree to take and hold such securities subject to the provisions and upon the conditions specified in this Agreement.

(b) Each certificate, instrument, or book entry representing (i) the Preferred Stock, (ii) the Registrable Securities, and (iii) any other securities issued in respect of the securities referenced in clauses (i) and (ii), upon any stock split, stock dividend, recapitalization, merger, consolidation, or similar event, shall (unless otherwise permitted by the provisions of Subsection 2.12(c)) be notated with a legend substantially in the following form:

THE SECURITIES REPRESENTED HEREBY HAVE BEEN ACQUIRED FOR INVESTMENT AND HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933. SUCH SHARES MAY NOT BE SOLD, PLEDGED, OR TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR A VALID EXEMPTION FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SAID ACT.

THE SECURITIES REPRESENTED HEREBY MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH THE TERMS OF AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY.

The Holders consent to the Company making a notation in its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer set forth in this Subsection 2.12.

(c) The holder of such Restricted Securities, by acceptance of ownership thereof, agrees to comply in all respects with the provisions of this Section 2. Before any proposed sale, pledge, or transfer of any Restricted Securities, unless there is in effect a registration statement under the Securities Act covering the proposed transaction, the Holder thereof shall give notice to the Company of such Holder's intention to effect such sale, pledge, or transfer. Each such notice shall describe the manner and circumstances of the proposed sale, pledge, or transfer in sufficient detail and, if reasonably requested by the Company, shall be accompanied at such Holder's expense by either (i) a written opinion of legal counsel who shall, and whose legal opinion shall, be reasonably satisfactory to the Company, addressed to the Company, to the effect that the proposed transaction may be effected without registration under the Securities Act; (ii) a "no action" letter from the SEC to the effect that the proposed sale, pledge, or transfer of such Restricted Securities without registration will not result in a recommendation by the staff of the SEC that action be taken with respect thereto; or (iii) any other evidence reasonably satisfactory to counsel to the Company to the effect that the proposed sale, pledge, or transfer of the Restricted Securities may be effected without registration under the Securities Act, whereupon the Holder of such Restricted Securities shall be entitled to sell, pledge, or transfer such Restricted Securities in accordance with the terms of the notice given by the Holder to the Company. The Company will not require such a legal opinion or "no action" letter (x) in any transaction in compliance with SEC Rule 144; or (y) in any transaction in which such Holder distributes Restricted Securities to an Affiliate of such Holder for no consideration; *provided* that each transferee agrees in writing to be subject to the terms of this Subsection 2.12. Each certificate, instrument, or book entry representing the Restricted Securities transferred as above provided shall be notated with, except if such transfer is made pursuant to SEC Rule 144, the appropriate restrictive legend set forth in Subsection 2.12(b), except that such certificate instrument, or book entry shall not be notated with such restrictive legend if, in the opinion of counsel for such Holder and the Company, such legend is not required in order to establish compliance with any provisions of the Securities Act.

2.13 Termination of Registration Rights. The right of any Holder to request registration or inclusion of Registrable Securities in any registration pursuant to Subsections 2.1 or 2.2 shall terminate upon the earliest to occur of:

(a) the closing of a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation;

(b) such time as Rule 144 or another similar exemption under the Securities Act is available for the sale of all of such Holder's shares without limitation during a three-month period without registration; and

(c) the fifth anniversary of a Qualified Public Offering, as such term is defined in the Company's Certificate of Incorporation.

3. Information and Observer Rights.

3.1 Delivery of Financial Statements. The Company shall deliver to each Investor, provided that the Board of Directors has not reasonably determined that such Investor is a Competitor:

(a) as soon as practicable, but in any event within ninety (90) days after the end of each fiscal year of the Company (i) a balance sheet as of the end of such year, (ii) statements of income and of cash flows for such year, and (iii) a statement of stockholders' equity as of the end of such year;

(b) as soon as practicable, but in any event within forty five (45) days after the end of each of the first three (3) quarters of each fiscal year of the Company, unaudited statements of income and cash flows for such fiscal quarter, and an unaudited balance sheet as of the end of such fiscal quarter, all prepared in accordance with GAAP (except that such financial statements may (i) be subject to normal year-end audit adjustments; and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(c) as soon as practicable, but in any event within forty-five (45) days after the end of each of the first three (3) quarters of each fiscal year of the Company, a statement showing the number of shares of each class and series of capital stock and securities convertible into or exercisable for shares of capital stock outstanding at the end of the period, the Common Stock issuable upon conversion or exercise of any outstanding securities convertible or exercisable for Common Stock and the exchange ratio or exercise price applicable thereto, and the number of shares of issued stock options and stock options not yet issued but reserved for issuance, if any, all in sufficient detail as to permit the Investors to calculate their respective percentage equity ownership in the Company, and certified by the chief financial officer or chief executive officer of the Company as being true, complete, and correct;

(d) as soon as practicable, but in any event thirty (30) days before the end of each fiscal year, a budget and business plan for the next fiscal year, prepared on a monthly basis, including balance sheets, income statements, and statements of cash flow for such months and, promptly after prepared, any other budgets or revised budgets prepared by the Company;

(e) as soon as practicable, but in any event within thirty (30) days of the Company's receipt of a written appraisal of the Common Stock from an independent valuation firm for purposes of compliance with Section 409A of the Internal Revenue Code, a copy of such valuation; and

(f) such other information relating to the financial condition, business, prospects, or corporate affairs of the Company as any Investor may from time to time reasonably request; *provided, however*, that the Company shall not be obligated under this Subsection 3.1 to provide information (i) that the Company reasonably determines in good faith to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in a form acceptable to the Company); or (ii) the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

If, for any period, the Company has any subsidiary whose accounts are consolidated with those of the Company, then in respect of such period the financial statements delivered pursuant to the foregoing sections shall be the consolidated and consolidating financial statements of the Company and all such consolidated subsidiaries.

Notwithstanding anything else in this Subsection 3.1 to the contrary, the Company may cease providing the information set forth in this Subsection 3.1 during the period starting with the date sixty (60) days before the Company's good-faith estimate of the date of filing of a registration statement if it reasonably concludes it must do so to comply with the SEC rules applicable to such registration statement and related offering; *provided* that the Company's covenants under this Subsection 3.1 shall be reinstated at such time as the Company is no longer actively employing its commercially reasonable efforts to cause such registration statement to become effective.

3.2 Inspection. The Company shall permit each Investor (*provided* that the Board of Directors has not reasonably determined that such Investor is a Competitor), at such Investor's expense, to visit and inspect the Company's properties; examine its books of account and records; and discuss the Company's affairs, finances, and accounts with its officers, during normal business hours of the Company as may be reasonably requested by the Investor; *provided, however*, that the Company shall not be obligated pursuant to this Subsection 3.2 to provide access to any information that it reasonably and in good faith considers to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in form acceptable to the Company) or the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

3.3 Termination of Information Rights. The covenants set forth in Subsections 3.1 and 3.2 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, or (iii) upon a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation, whichever event occurs first.

3.4 Confidentiality. Each Investor agrees that such Investor will keep confidential and will not disclose, divulge, or use for any purpose (other than to monitor its investment in the Company) any confidential information obtained from the Company pursuant to the terms of this Agreement (including notice of the Company's intention to file a registration statement), unless such confidential information (a) is known or becomes known to the public in general (other than as a result of a breach of this Subsection 3.4 by such Investor), (b) is or has been independently developed or conceived by the Investor without use of the Company's confidential information, or (c) is or has been made known or disclosed to the Investor by a third party without a breach of any obligation of confidentiality such third party may have to the Company; *provided, however*, that an Investor may disclose confidential information (i) to its attorneys, accountants, consultants, and other professionals to the extent necessary to obtain their services in connection with monitoring its investment in the Company; (ii) to any prospective

purchaser of any Registrable Securities from such Investor, if such prospective purchaser agrees to be bound by the provisions of this Subsection 3.4; (iii) to any Affiliate, partner, member, stockholder, or wholly owned subsidiary of such Investor in the ordinary course of business; *provided* that such Investor informs such Person that such information is confidential and directs such Person to maintain the confidentiality of such information; or (iv) as may otherwise be required by law; *provided* that the Investor promptly notifies the Company of such disclosure and takes reasonable steps to minimize the extent of any such required disclosure.

4. Rights to Future Stock Issuances.

4.1 Right of First Offer. Subject to the terms and conditions of this Subsection 4.1 and applicable securities laws, if the Company proposes to offer or sell any New Securities, the Company shall first offer such New Securities to each Investor. An Investor shall be entitled to apportion the right of first offer hereby granted to it in such proportions as it deems appropriate, among (i) itself and (ii) its Affiliates; *provided* that each such Affiliate (x) is not a Competitor, unless such party's purchase of New Securities is otherwise consented to by the Board of Directors, and (y) agrees to enter into this Agreement and each of the Amended and Restated Voting Agreement and Amended and Restated Right of First Refusal and Co-Sale Agreement of even date herewith among the Company, the Investors and the other parties named therein, as an **"Investor"** under each such agreement.

(a) The Company shall give notice (the **"Offer Notice"**) to each Investor, stating (i) its bona fide intention to offer such New Securities, (ii) the number of such New Securities to be offered, and (iii) the price and terms, if any, upon which it proposes to offer such New Securities.

(b) By notification to the Company within twenty (20) days after the Offer Notice is given, each Investor may elect to purchase or otherwise acquire, at the price and on the terms specified in the Offer Notice, up to that portion of such New Securities which equals the proportion that the Common Stock then held by such Investor (including all shares of Common Stock then issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held by such Investor) bears to the total Common Stock of the Company then outstanding (assuming full conversion and/or exercise, as applicable, of all Preferred Stock and other Derivative Securities). At the expiration of such twenty (20) day period, the Company shall promptly notify each Investor that elects to purchase or acquire all the shares available to it (each, a **"Fully Exercising Investor"**) of any other Investor's failure to do likewise. During the ten (10) day period commencing after the Company has given such notice, each Fully Exercising Investor may, by giving notice to the Company, elect to purchase or acquire, in addition to the number of shares specified above, up to that portion of the New Securities for which Investors were entitled to subscribe but that were not subscribed for by the Investors which is equal to the proportion that the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of Preferred Stock and any other Derivative Securities then held, by such Fully Exercising Investor bears to the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held, by all Fully Exercising Investors who wish to purchase such unsubscribed shares. The closing of any sale pursuant to this Subsection 4.1(b) shall occur within the later of one hundred and twenty (120) days of the date that the Offer Notice is given and the date of initial sale of New Securities pursuant to Subsection 4.1(c).

(c) If all New Securities referred to in the Offer Notice are not elected to be purchased or acquired as provided in Subsection 4.1(b), the Company may, during the ninety (90) day period following the expiration of the periods provided in Subsection 4.1(b), offer and sell the remaining unsubscribed portion of such New Securities to any Person or Persons at a price not less than, and upon terms no more favorable to the offeree than, those specified in the Offer Notice. If the Company does not enter into an agreement for the sale of the New Securities within such period, or if such agreement is not consummated within thirty (30) days of the execution thereof, the right provided hereunder shall be deemed to be revived and such New Securities shall not be offered unless first reoffered to the Investors in accordance with this Subsection 4.1.

(d) The right of first offer in this Subsection 4.1 shall not be applicable to (i) Exempted Securities (as defined in the Company's Certificate of Incorporation); (ii) shares of Common Stock issued in the IPO; and (iii) the issuance of shares of Series B Preferred Stock to Additional Purchasers.

4.2 Termination. The covenants set forth in Subsection 4.1 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, or (iii) upon a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation, whichever event occurs first.

5. Additional Covenants.

5.1 Insurance. The Company shall use its commercially reasonable efforts to obtain, within ninety (90) days of the date hereof, from financially sound and reputable insurers Directors and Officers liability insurance and term "key person" insurance on Patrick Baeuerle, each in an amount and on terms and conditions satisfactory to the Board of Directors, and will use commercially reasonable efforts to cause such insurance policies to be maintained until such time as the Board of Directors determines that such insurance should be discontinued. The key person policy shall name the Company as loss payee, and neither policy shall be cancelable by the Company without prior approval by the Board of Directors, including all of the Series A Directors.

5.2 Employee Agreements. The Company will cause each person now or hereafter employed by it or by any subsidiary (or engaged by the Company or any subsidiary as a consultant/independent contractor) with access to confidential information and/or trade secrets to enter into a nondisclosure and proprietary rights assignment agreement and a one (1) year noncompetition and nonsolicitation agreement, substantially in (i) the form previously approved by the Board of Director and made available to the Investors or (ii) a form approved after the date hereof by the Board of Directors, including a majority of the Preferred Directors. In addition, the Company shall not amend, modify, terminate, waive, or otherwise alter, in whole or in part, any of the above-referenced agreements or any restricted stock agreement between the Company and any employee, without the consent of the Board of Directors, including a majority of the Preferred Directors.

5.3 Employee Stock. Unless otherwise approved by the Board of Directors, including a majority of the Preferred Directors, all future employees and consultants of the Company who purchase, receive options to purchase, or receive awards of shares of the Company's capital stock after the date hereof shall be required to execute restricted stock or option agreements, as applicable, providing for (i) vesting of shares over a four (4) year period, with the first twenty-five percent (25%) of such shares vesting following twelve (12) months of continued employment or service, and the remaining shares vesting in equal monthly installments over the following thirty-six (36) months, and (ii) a market stand-off provision substantially similar to that in Subsection 2.11. In addition, unless otherwise approved by the Board of Directors, including a majority of the Preferred Directors, the Company shall retain a "right of first refusal" on employee transfers until the Company's IPO and shall have the right to repurchase unvested shares at cost upon termination of employment of a holder of restricted stock.

5.4 Matters Requiring Preferred Director Approval. So long as the holders of Series A Preferred Stock and/or Series B Preferred Stock are entitled to elect one or more Preferred Directors, the Company hereby covenants and agrees with each of the Investors that it shall not, without approval of the Board of Directors, which approval must include the affirmative vote of a majority of the Preferred Directors:

(a) make, or permit any subsidiary to make, any loan or advance to, or own any stock or other securities of, any subsidiary or other corporation, partnership, or other entity unless it is wholly owned by the Company;

(b) make, or permit any subsidiary to make, any loan or advance to any Person, including, without limitation, any employee or director of the Company or any subsidiary, except advances and similar expenditures in the ordinary course of business or under the terms of an employee stock or option plan approved by the Board of Directors;

(c) guarantee, directly or indirectly, or permit any subsidiary to guarantee, directly or indirectly, any indebtedness except for trade accounts of the Company or any subsidiary arising in the ordinary course of business;

(d) implement or change a cash investment policy, and make any investment inconsistent with any investment policy approved by the Board of Directors;

(e) incur any aggregate indebtedness or make any aggregate expenditures in excess of 2% of the aggregate expenditure amount set forth in the budget for a given fiscal year approved by the Board of Directors, other than trade credit incurred in the ordinary course of business;

(f) hire, terminate, or change the compensation of the executive officers, or approve or amend any stock option or equity incentive plans;

(g) change the principal business of the Company, enter new lines of business, or exit the current line of business; or

(h) sell, assign, license, pledge, or encumber material technology or intellectual property, other than licenses granted in the ordinary course of business.

5.5 Board Matters. The Company shall reimburse the nonemployee directors for all reasonable out-of-pocket travel expenses incurred (consistent with the Company's travel policy) in connection with attending meetings of the Board of Directors and other meetings or events attended on behalf of the Company or at the Company's request. The Company shall cause to be established, as soon as practicable after such request, and will maintain, an audit and compensation committee, each of which shall consist solely of non-management directors. Each non-employee director shall be entitled in such person's discretion to be a member of any Board committee; for clarity, each Preferred Director will have the right to serve on any such committee.

5.6 Successor Indemnification. If the Company or any of its successors or assignees consolidates with or merges into any other Person and is not the continuing or surviving corporation or entity of such consolidation or merger, then to the extent necessary, proper provision shall be made so that the successors and assignees of the Company assume the obligations of the Company with respect to indemnification of members of the Board of Directors as in effect immediately before such transaction, whether such obligations are contained in the Company's Bylaws, its Certificate of Incorporation, or elsewhere, as the case may be.

5.7 Termination of Covenants. The covenants set forth in this Section 5, except for Subsection 5.6, shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Section 12(g) or 15(d) of the Exchange Act, or (iii) upon a Deemed Liquidation Event, as such term is defined in the Company's Certificate of Incorporation, whichever event occurs first.

6. Miscellaneous.

6.1 Successors and Assigns. The rights under this Agreement may be assigned (but only with all related obligations) by a Holder to a transferee of Registrable Securities that (i) is an Affiliate of a Holder; (ii) is a Holder's Immediate Family Member or trust for the benefit of an individual Holder or one or more of such Holder's Immediate Family Members; or (iii) after such transfer, holds at least 200,000 shares of Registrable Securities (subject to appropriate adjustment for stock splits, stock dividends, combinations, and other recapitalizations); *provided, however*, that (x) the Company is, within a reasonable time after such transfer, furnished with written notice of the name and address of such transferee and the Registrable Securities with respect to which such rights are being transferred; and (y) such transferee agrees in a written instrument delivered to the Company to be bound by and subject to the terms and conditions of this Agreement, including the provisions of Subsection 2.11. For the purposes of determining the number of shares of Registrable Securities held by a transferee, the holdings of a transferee (1) that is an Affiliate or stockholder of a Holder; (2) who is a Holder's

Immediate Family Member; or (3) that is a trust for the benefit of an individual Holder or such Holder's Immediate Family Member shall be aggregated together and with those of the transferring Holder; *provided further* that all transferees who would not qualify individually for assignment of rights shall have a single attorney-in-fact for the purpose of exercising any rights, receiving notices, or taking any action under this Agreement. The terms and conditions of this Agreement inure to the benefit of and are binding upon the respective successors and permitted assignees of the parties. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assignees any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided herein.

6.2 Governing Law. This Agreement shall be governed by the internal law of the State of Delaware.

6.3 Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, *e.g.*, www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

6.4 Titles and Subtitles. The titles and subtitles used in this Agreement are for convenience only and are not to be considered in construing or interpreting this Agreement.

6.5 Notices. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given upon the earlier of actual receipt or (i) personal delivery to the party to be notified; (ii) when sent, if sent by electronic mail or facsimile during the recipient's normal business hours, and if not sent during normal business hours, then on the recipient's next business day; (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (iv) one (1) business day after the business day of deposit with a nationally recognized overnight courier, freight prepaid, specifying next-day delivery, with written verification of receipt. All communications shall be sent to the respective parties at their addresses as set forth on Schedule A hereto, or to the principal office of the Company and to the attention of the Chief Executive Officer, in the case of the Company, or to such email address, facsimile number, or address as subsequently modified by written notice given in accordance with this Subsection 6.5. If notice is given to the Company, a copy (which shall not constitute notice) shall also be sent to Goodwin Procter LLP, 100 Northern Avenue, Boston, MA 02210, Attention: Mitchell S. Bloom, Esq. and William D. Collins, Esq.

6.6 Amendments and Waivers. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance, and either retroactively or prospectively) only with the written consent of the Company and the Requisite Holders; *provided* that the Company may in its sole discretion waive compliance with Subsection 2.12(c) (and the Company's failure to object promptly in writing after notification of a proposed assignment allegedly in violation of Subsection 2.12(c) shall be deemed to be a waiver); and *provided further* that any provision hereof may be waived by any

waiving party on such party's own behalf, without the consent of any other party. Notwithstanding the foregoing, this Agreement may not be amended or terminated and the observance of any term hereof may not be waived with respect to any Investor without the written consent of such Investor, unless such amendment, termination, or waiver applies to all Investors in the same fashion (it being agreed that a waiver of the provisions of Section 4 with respect to a particular transaction shall be deemed to apply to all Investors in the same fashion if such waiver does so by its terms, notwithstanding the fact that certain Investors may nonetheless, by agreement with the Company, purchase securities in such transaction). The Company shall give prompt notice of any amendment or termination hereof or waiver hereunder to any party hereto that did not consent in writing to such amendment, termination, or waiver. Any amendment, termination, or waiver effected in accordance with this Subsection 6.6 shall be binding on all parties hereto, regardless of whether any such party has consented thereto. No waivers of or exceptions to any term, condition, or provision of this Agreement, in any one or more instances, shall be deemed to be or construed as a further or continuing waiver of any such term, condition, or provision. Notwithstanding the foregoing, Schedule A hereto may be amended by the Company from time to time in accordance with Sections 6.9 to add information regarding additional Investors without the consent of the other parties hereto.

6.7 Severability. In case any one or more of the provisions contained in this Agreement is for any reason held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision of this Agreement, and such invalid, illegal, or unenforceable provision shall be reformed and construed so that it will be valid, legal, and enforceable to the maximum extent permitted by law.

6.8 Aggregation of Stock. All shares of Registrable Securities held or acquired by Affiliates shall be aggregated together for the purpose of determining the availability of any rights under this Agreement and such Affiliated persons may apportion such rights as among themselves in any manner they deem appropriate.

6.9 Additional Investors. Notwithstanding anything to the contrary contained herein, if the Company issues additional shares of the Company's Preferred Stock after the date hereof, any purchaser of such shares of Preferred Stock may become a party to this Agreement by executing and delivering an additional counterpart signature page to this Agreement, and thereafter shall be deemed an "Investor" for all purposes hereunder. No action or consent by the Investors shall be required for such joinder to this Agreement by such additional Investor, so long as such additional Investor has agreed in writing to be bound by all of the obligations as an "Investor" hereunder.

6.10 Entire Agreement. This Agreement (including any Schedules hereto) constitutes the full and entire understanding and agreement among the parties with respect to the subject matter hereof, and any other written or oral agreement relating to the subject matter hereof existing between the parties is expressly canceled. Upon the effectiveness of this Agreement, the Prior Agreement shall be deemed amended and restated and superseded and replaced in its entirety by this Agreement, and shall be of no further force or effect.

6.11 Dispute Resolution. The parties (a) hereby irrevocably and unconditionally submit to the jurisdiction of the state courts of Massachusetts and to the jurisdiction of the United States District Court for the District of Massachusetts for the purpose of any suit, action or other proceeding arising out of or based upon this Agreement, (b) agree not to commence any suit, action or other proceeding arising out of or based upon this Agreement except in the state courts of Massachusetts or the United States District Court for the District of Massachusetts, and (c) hereby waive, and agree not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt or immune from attachment or execution, that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court.

Any unresolved controversy or claim arising out of or relating to this Agreement, except as (i) otherwise provided in this Agreement, or (ii) any such controversies or claims arising out of either party's intellectual property rights for which a provisional remedy or equitable relief is sought, shall be submitted to arbitration by one arbitrator mutually agreed upon by the parties, and if no agreement can be reached within thirty (30) days after names of potential arbitrators have been proposed by the American Arbitration Association (the "AAA"), then by one arbitrator having reasonable experience in corporate finance transactions of the type provided for in this Agreement and who is chosen by the AAA. The arbitration shall take place in Massachusetts, in accordance with the AAA rules then in effect, and judgment upon any award rendered in such arbitration will be binding and may be entered in any court having jurisdiction thereof. There shall be limited discovery prior to the arbitration hearing as follows: (a) exchange of witness lists and copies of documentary evidence and documents relating to or arising out of the issues to be arbitrated, (b) depositions of all party witnesses and (c) such other depositions as may be allowed by the arbitrators upon a showing of good cause. Depositions shall be conducted in accordance with the Massachusetts Code of Civil Procedure, the arbitrator shall be required to provide in writing to the parties the basis for the award or order of such arbitrator, and a court reporter shall record all hearings, with such record constituting the official transcript of such proceedings.

Each party will bear its own costs in respect of any disputes arising under this Agreement. The prevailing party shall be entitled to reasonable attorney's fees, costs, and necessary disbursements in addition to any other relief to which such party may be entitled. Each of the parties to this Agreement consents to personal jurisdiction for any equitable action sought in the U.S. District Court for the District of Massachusetts or any court of the Commonwealth of Massachusetts having subject matter jurisdiction.

WAIVER OF JURY TRIAL: EACH PARTY HEREBY WAIVES ITS RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF THIS AGREEMENT, THE OTHER TRANSACTION DOCUMENTS, THE SECURITIES OR THE SUBJECT MATTER HEREOF OR THEREOF. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL-ENCOMPASSING OF ANY AND ALL DISPUTES THAT MAY BE FILED IN ANY COURT AND THAT RELATE TO THE SUBJECT MATTER OF THIS TRANSACTION, INCLUDING, WITHOUT LIMITATION, CONTRACT CLAIMS, TORT CLAIMS (INCLUDING NEGLIGENCE), BREACH OF DUTY CLAIMS, AND ALL OTHER COMMON LAW AND STATUTORY CLAIMS. THIS SECTION HAS BEEN FULLY DISCUSSED BY EACH OF THE PARTIES HERETO AND THESE PROVISIONS WILL

NOT BE SUBJECT TO ANY EXCEPTIONS. EACH PARTY HERETO HEREBY FURTHER WARRANTS AND REPRESENTS THAT SUCH PARTY HAS REVIEWED THIS WAIVER WITH ITS LEGAL COUNSEL, AND THAT SUCH PARTY KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL.

6.12 Delays or Omissions. No delay or omission to exercise any right, power, or remedy accruing to any party under this Agreement, upon any breach or default of any other party under this Agreement, shall impair any such right, power, or remedy of such nonbreaching or nondefaulting party, nor shall it be construed to be a waiver of or acquiescence to any such breach or default, or to any similar breach or default thereafter occurring, nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. All remedies, whether under this Agreement or by law or otherwise afforded to any party, shall be cumulative and not alternative.

6.13 Acknowledgment. The Company acknowledges that the Investors are in the business of venture capital investing and therefore review the business plans and related proprietary information of many enterprises, including enterprises which may have products or services which compete directly or indirectly with those of the Company. Nothing in this Agreement shall preclude or in any way restrict the Investors from investing or participating in any particular enterprise whether or not such enterprise has products or services which compete with those of the Company. In addition, the Company hereby agrees and acknowledges that each of the Investors and certain of their Affiliates are professional venture capital investment funds (collectively, the “**Funds**”), and as such invest in numerous portfolio companies, some of which may be deemed competitive with the Company’s business (as currently conducted or as may be conducted in the future). The parties agree that no Fund or any Affiliate of a Fund that is an investment fund, or any of their Affiliates or any of their or their Affiliates’ partners, officers or representatives which manage or advise any such investment funds shall be considered a Competitor of the Company as a result of such investment, management or advisory activities for purposes of this Agreement (including for purposes of Sections 1.3, 3.1, 3.2 and 4.1 hereof) and the Company agrees that, to the extent permitted under applicable law, neither the Funds nor their Affiliates shall be liable to the Company for any claim arising out of, or based upon, (i) the investment by a Fund or any of its Affiliates in any entity competitive with the Company, or (ii) actions taken by any partner, officer or other representative of a Fund or its Affiliates to assist any such competitive company, whether or not such action was taken as a member of the board of directors of such competitive company or otherwise, and whether or not such action has a detrimental effect on the Company; provided, however, that the foregoing shall not relieve (x) any of the Funds from liability associated with the unauthorized disclosure of the Company’s confidential information obtained pursuant to this Agreement, or (y) any director or officer of the Company from any liability associated with his or her fiduciary duties to the Company.

[Signature Pages Follow]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

COMPANY:

TCR² THERAPEUTICS INC.

By: /s/ Garry Menzel
Name: Garry Menzel
Title: President and Chief Executive Officer

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTOR:

CURATIVE VENTURES

By: /s/ Bronson Crouch
Name: Bronson Crouch
Title: Managing Member

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTOR:

6 DIMENSIONS CAPITAL, L.P.

By: 6 Dimensions GP, LLC, its General Partner

By: /s/ Wei Li
Name: Wei Li
Title: Director

Date: March 5, 2018

6 DIMENSIONS AFFILIATES FUND, L.P.

By: 6 Dimensions Capital GP, LLC, its General Partner

By: /s/ Wei Li
Name: Wei Li
Title: Director

Date: March 5, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date set forth below.

INVESTORS:

MPM BIOVENTURES 2014, L.P.

By: MPM BIOVENTURES 2014 GP LLC, its general partner

By: MPM BIOVENTURES 2014 LLC, its managing member

By: /s/ Ansbert Gadicke

Name: Ansbert Gadicke

Title: Managing Director

Date: February 28, 2018

MPM BIOVENTURES 2014 (B), L.P.

By: MPM BIOVENTURES 2014 GP LLC, its general partner

By: MPM BIOVENTURES 2014 LLC, its managing member

By: /s/ Ansbert Gadicke

Name: Ansbert Gadicke

Title: Managing Director

Date: February 28, 2018

MPM ASSET MANAGEMENT INVESTORS BV2014 LLC

By: MPM BIOVENTURES 2014 LLC, its manager

By: /s/ Ansbert Gadicke

Name: Ansbert Gadicke

Title: Managing Director

Date: February 28, 2018

[Signature Page to Amended and Restated Investors' Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTORS:

MPM SUNSTATES FUND, L.P.

By: MPM SUNSTATES FUND GP LLC, its general partner

By: MPM SUNSTATES GP MANAGING MEMBER LLC,
its managing member

By: /s/ Ansbert Gadicke
Name: Ansbert Gadicke
Title: Member

Date: February 28, 2018

**MPM ASSET MANAGEMENT INVESTORS
SUNSTATES FUND LLC**

By: MPM SUNSTATES GP MANAGING MEMBER LLC,
its Manager

By: /s/ Ansbert Gadicke
Name: Ansbert Gadicke
Title: Member

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date set forth below.

INVESTOR:

UBS ONCOLOGY IMPACT FUND, L.P.

By: ONCOLOGY IMPACT FUND (CAYMAN)
MANAGEMENT L.P., its general partner

By: MPM ONCOLOGY IMPACT MANAGEMENT LP, its
general partner

By: MPM ONCOLOGY IMPACT MANAGEMENT GP
LLC, its general partner

By: /s/ Ansbert Gadicke

Name: Ansbert Gadicke

Title: Managing Director

Date: February 28, 2018

[Signature Page to Amended and Restated Investors' Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTOR:

F2 CAPITAL I 2015 LIMITED

By: /s/ Vanessa Briceno
Name: Vanessa Briceno
Title: Director, Cellar Limited

Date: February 28, 2018

By: /s/ Ross Belhomme
Name: Ross Belhomme
Title: Director, Clambake Limited

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTORS:

F2 CAPITAL I 2017 LIMITED

By: /s/ Vanessa Briceno
Name: Vanessa Briceno
Title: Director, Cellar Limited

Date: February 28, 2018

By: /s/ Ross Belhomme
Name: Ross Belhomme
Title: Director, Clambake Limited

Date: February 28, 2018

F2-TPO INVESTMENTS, LLC

By: /s/ Vanessa Briceno
Name: Vanessa Briceno
Title: Director, Cellar Limited

Date: February 28, 2018

By: /s/ Ross Belhomme
Name: Ross Belhomme
Title: Director, Clambake Limited

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTORS:

F2 BIOSCIENCE II 2017 LIMITED

By: /s/ Vanessa Briceno
Name: Vanessa Briceno
Title: Director, Cellar Limited

Date: February 28, 2018

By: /s/ Ross Belhomme
Name: Ross Belhomme
Title: Director, Clambake Limited

Date: February 28, 2018

F2 MG LIMITED

By: /s/ Vanessa Briceno
Name: Vanessa Briceno
Title: Director, Cellar Limited

Date: February 28, 2018

By: /s/ Ross Belhomme
Name: Ross Belhomme
Title: Director, Clambake Limited

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTOR:

UPNORTH INVESTMENT LIMITED

By: /s/ Li Chaochun
Name: Li Chaochun
Title: Director

Date: March 5, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTOR:

MIRAE ASSET-CELLTRION NEW GROWTH FUND I
By: MiraeAsset Capital co., Ltd, its general partner

By: /s/ KuBeom LEE
Name: KuBeom LEE
Title: CEO of MiraeAsset Capital co., Ltd.

Date: March 19, 2018

MIRAE ASSET YOUNG START-UP
INVESTMENT FUND #2
By: MIRAE ASSET Venture Investment,
Co, Ltd., its general partner

By: /s/ Eung Suk KIM
Name: Eung Suk KIM
Title: CEO of MIRAE ASSET Venture
Investment, Co, Ltd

Date: March 15, 2018

MIRAE ASSET VENTURE INVESTMENT, CO, LTD.

By: /s/ Eung Suk KIM
Name: Eung Suk KIM
Title: CEO of MIRAE ASSET Venture
Investment, Co, Ltd

Date: March 15, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTORS:

LEERINK HOLDINGS LLC

By: /s/ Joseph R. Gentile
Name: Joseph R. Gentile
Title: CAO

Date: February 28, 2018

LEERINK SWANN CO-INVESTMENT FUND, LLC

By: /s/ Joseph R. Gentile
Name: Joseph R. Gentile
Title: Manager

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTOR:

THE SANGREAL TRUST, DATED
DECEMBER 1, 2009

By: /s/ Brian Sheth
Name: Brian Sheth
Title: Trustee

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTOR:

By: /s/ Stephen Turkowiak
Stephen Turkowiak

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date set forth below.

INVESTOR:

ALEXANDRIA VENTURE INVESTMENTS, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, INC., a
Maryland corporation, managing member

By: /s/ Aaron Jacobson

Name: Aaron Jacobson

Title: VP – Corporate Counsel

Date: February 28, 2018

[Signature Page to Amended and Restated Investors' Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTORS:

SYNO VENTURES MASTER FUND, LP

By: /s/ Justin Xiang
Name: Justin Xiang
Title: General Partner

Date: March 14, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

SYNO HAITONG INTERNATIONAL TCR, LLC

By: /s/ Justin Xiang
Name: Justin Xiang
Title: Managing Member

Date: March 14, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors' Rights Agreement as of the date set forth below.

INVESTORS:

MERIDIAN SMALL CAP GROWTH FUND

By: its Investment Adviser
ArrowMark Colorado Holdings, LLC

By: /s/ David Corkins

Name: David Corkins
Title: Managing Member

Date: February 28, 2018

**ARROWMARK FUNDAMENTAL
OPPORTUNITY FUND, L.P.**

By: its General Partner
ArrowMark Partners GP, LLC

By: /s/ David Corkins

Name: David Corkins
Title: Managing Member

Date: February 28, 2018

LOOKFAR INVESTMENTS LLC

By: /s/ David Corkins

Name: David Corkins
Title: Managing Member

Date: February 28, 2018

[Signature Page to Amended and Restated Investors' Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTORS:

CF ASCENT LLC

By: /s/ David Corkins
Name: David Corkins
Title: Managing Member

Date: February 28, 2018

THB IRON ROSE LLC

By: its Investment Adviser
ArrowMark Colorado Holdings, LLC

By: /s/ David Corkins
Name: David Corkins
Title: Managing Member

Date: February 28, 2018

THB IRON ROSE LLC, LIFE SCIENCE
PORTFOLIO

By: its Investment Adviser
ArrowMark Colorado Holdings, LLC

By: /s/ David Corkins
Name: David Corkins
Title: Managing Member

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTORS:

Tony Yao

By: /s/ Tony Yao
Name: Tony Yao

Date: February 28, 2018

IRON HORSE INVESTMENTS LLC

By: its Investment Adviser
ArrowMark Colorado Holdings, LLC

By: /s/ David Corkins
Name: David Corkins
Title: Managing Member

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTORS:

REDMILE CAPITAL FUND, LP

By: /s/ Jeremy Green
Name: Jeremy Green
Title: Managing Member of the General Partner and the
 Investment Manager

Date: March 5, 2018

REDMILE CAPITAL OFFSHORE FUND, LTD.

By: /s/ Jeremy Green
Name: Jeremy Green
Title: Managing Member of the Investment Manager

Date: March 5, 2018

REDMILE CAPITAL OFFSHORE FUND II, LTD.

By: /s/ Jeremy Green
Name: Jeremy Green
Title: Managing Member of the Investment Manager

Date: March 5, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

INVESTORS:

REDMILE BIOPHARMA INVESTMENTS I, L.P.

By: /s/ Jeremy Green
Name: Jeremy Green
Title: Managing Member of the Management Company /
General Partner

Date: March 5, 2018

RAF, L.P.

By: /s/ Jeremy Green
Name: Jeremy Green
Title: Managing Member of the General Partner and the
Management Company

Date: March 5, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

PRECISION ONCO LIMITED

By: /s/ Yuan Sun
Name: Yuan Sun
Title: Director

Date: March 21, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

HH TCRII HOLDINGS LIMITED

By: /s/ Colm O’Connell
Name: Colm O’Connell
Title: Director

Date: March 9, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

IN WITNESS WHEREOF, the parties have executed this Amended and Restated Investors’ Rights Agreement as of the date set forth below.

DRAGON RIDER LIMITED

By: /s/ Biao Wang
Name: Biao Wang
Title: President, Lucion Venture Capital Group Co., Ltd.

Date: February 28, 2018

[Signature Page to Amended and Restated Investors’ Rights Agreement]

SCHEDULE A**INVESTORS****Name and Address**

Curative Ventures
5949 Sherry Lane
Suite 820
Dallas, TX 75225
Attn: Bronson Crouch

The Sangreal Trust, Dated December 1, 2009
3502 Sacred Moon Cove
Austin, TX 78746
Attn: Andy Geller
ageller@westernpeakia.com

MPM BioVentures 2014, L.P.
MPM BioVentures 2014 (B), L.P.
MPM Asset Management Investors BV2014 LLC
c/o MPM Capital LLC
450 Kendall Street
Cambridge, MA 02142
Attn: Sarah Reed
Phone: 617-425-9205
Fax: 617-425-9201
Email: sreed@MPMCapital.com

MPM Sunstates Fund, L.P.
MPM Asset Management Investors Sunstates Fund LLC
c/o MPM Capital LLC
450 Kendall Street
Cambridge, MA 02142
Attn: Sarah Reed
Phone: 617-425-9205
Fax: 617-425-9201
Email: sreed@MPMCapital.com

F2 Capital I 2015 Limited
Attn: c/o Charles Mia
Phone: +44 2075295848
Fax: +442075295849
Email: edward.cain@charlesmia.com
Mailing address:
c/o LJ Skye
Rue du Seyon 2
CP 2048
2001 Neuchatel
Switzerland
Attention: Vanessa Briceno

F2 Capital I 2017 Limited
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Fax: +442075295849
Email: edward.cain@charlesmia.com
Mailing address:
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Attention: Vanessa Briceno

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Fax: +442075295849
Email: edward.cain@charlesmia.com
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Attention: Vanessa Briceno

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F2 MG Limited
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Attention: Vanessa Briceno

UBS Oncology Impact Fund L.P.
MUFG Alternative Fund Services (Jersey) Limited
Durell House
28 New Street
St Helier
Jersey
JE1 4FS

Meridian Small Cap Growth Fund
ArrowMark Partners
100 Fillmore Street, Suite 325
Denver, CO 80206
Telephone: 303-398-2950
Email: rgrove@arrowmarkpartners.com
Attn: Rick Grove

ArrowMark Fundamental Opportunity Fund, L.P.
ArrowMark Partners
100 Fillmore Street, Suite 325
Denver, CO 80206
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Attn: Rick Grove

Lookfar Investments LLC
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Attn: Rick Grove

CF Ascent LLC
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Email: rgrove@arrowmarkpartners.com
Attn: Rick Grove

THB Iron Rose LLC
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Denver, CO 80206
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Email: rgrove@arrowmarkpartners.com
Attn: Rick Grove

THB Iron Rose LLC, Life Science Portfolio
ArrowMark Partners
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Attn: Rick Grove

Tony Yao
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Email: rgrove@arrowmarkpartners.com
Attn: Rick Grove

Iron Horse Investments LLC
ArrowMark Partners
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Telephone: 303-398-2950
Email: rgrove@arrowmarkpartners.com
Attn: Rick Grove

Leerink Holdings LLC
One Federal Street, 37th Floor
Boston, MA 02110
Attention: General Counsel

Leerink Swann Co-Investment Fund, LLC
One Federal Street, 37th Floor
Boston, MA 02110
Attention: General Counsel

Alexandria Venture Investments, LLC
385 E. Colorado Blvd., Suite 299
Pasadena, CA 91101

Stephen Turkowiak
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6 Dimensions Capital, L.P.
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wei.li@6dimensionscapital.com

UpNorth Investment Limited
52F, International Financial Centre (IFC) II, 8 Century Avenue, Pudong District
Shanghai, 200120, China
Recipient: Chen Li
Direct: (+86) 21 6086 2163

Redmile Capital Fund, LP
c/o Redmile Group, LLC
One Letterman Drive
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San Francisco, CA 94129
Telephone: 415-489-9980
Email: operations@redmilegrp.com
Attn: Josh Garcia

Redmile Capital Offshore Fund, Ltd.
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Attn: Josh Garcia

Syno Ventures Master Fund, LP
275 Madison Ave, 39th Floor
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Telephone: 646-723-1915
Attn: Justin Xiang

Syno Haitong International TCR, LLC
275 Madison Ave, 39th Floor
New York, NY 10016
Telephone: 646-723-1915
Attn: Justin Xiang

HH TCR II Holdings Limited
Suite 1608
One Exchange Square
8 Connaught Place
Central, Hong Kong
Attn: Adam Hornung (General Counsel)
Email: legal@hillhousecap.com

Dragon Rider Limited
4F Block C, Times Plaza, No. 9999
Jingshi Road, Jinan, Shandong, 250101, China
Attention: Biao Wang

Precision Onco Limited
3rd floor, J & C Building, P.O. Box 933
Road Town, Tortola, British Virgin Islands
Attn: Yuan Sun

Mirae Asset Young Start-up Investment Fund #2
(Glass Tower) 21F, 534,
Teheran-ro Gangnam-gu,
Seoul, 06181, Korea
Attn: Gil Tae, Wie
Email: gtwie@miraeasset.com
Phone: +82-2-6205-2651
Fax: +82-2-6205-2680

Mirae Asset Venture Investment, Co, Ltd.
(Glass Tower) 21F, 534,
Teheran-ro Gangnam-gu,
Seoul, 06181, Korea
Attn: Gil Tae, Wie
Email: gtwie@miraeasset.com
Phone: +82-2-6205-2651
Fax: +82-2-6205-2680

Mirae Asset-Celltrion New Growth Fund I
MiraeAsset Capital Co., Ltd
(MiraeAsset CENTER1 Bldg) 36F, East-Tower, 26, Eulji-ro 5-gil, Jung-gu, Seoul, Korea. 04539
Attn: SungWon Song
Email: sungwon.song@miraeasset.com
Phone: +82-10-9583-9728
Fax: +82-203774-5949

COMMON STOCK WARRANT

THIS WARRANT AND THE SHARES OF COMMON STOCK WHICH MAY BE PURCHASED PURSUANT TO THE EXERCISE OF THIS WARRANT HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE “ACT”), AND NEITHER SUCH SECURITIES NOR ANY INTEREST THEREIN MAY BE SOLD, TRANSFERRED, PLEDGED OR OTHERWISE DISPOSED OF IN THE ABSENCE OF SUCH REGISTRATION OR AN EXEMPTION UNDER THE ACT AND THE RULES AND REGULATIONS THEREUNDER.

No. [__]

Void After Expiration Date
(as defined below)

WARRANT

TO PURCHASE [] SHARES OF COMMON STOCK OF TCR² THERAPEUTICS INC.

Dated: [] (the “Warrant Date”)

THIS WARRANT CERTIFIES THAT, for value received, [] (the “Holder”) is entitled to purchase from TCR² Therapeutics Inc., a Delaware corporation (the “Company”), up to [] fully paid and nonassessable shares (the “Shares”) (as adjusted pursuant to Section 2 below) of Common Stock, \$0.0001 par value (“Common Stock”), of the Company, at the price of \$[] per share (the “Exercise Price”) (as adjusted pursuant to Section 2 below), subject to the provisions and upon the terms and conditions set forth below. This Warrant shall expire on [] (the “Expiration Date”).

1. Exercise and Payment.

(a) Exercise. This Warrant shall not be exercisable by Holder at any time except pursuant to Section 1(c). Subject to Section 1(c), on or after the date of this Warrant, the purchase rights represented by this Warrant may be exercised by the Holder, in whole or in part, by the surrender of this Warrant (together with a duly executed exercise notice (the “Notice of Exercise”) in the form attached hereto as Exhibit A) at the principal office of the Company, and by the payment to the Company, by wire transfer, of an amount equal to the aggregate Exercise Price of the Shares being purchased.

(b) Stock Certificates. In the event of the exercise of all or any portion of this Warrant, certificates for the shares of Common Stock so purchased shall be delivered to the Holder by the Company at its own expense (including the payment by the Company of any applicable issue taxes or governmental charges imposed in connection with the issuance or delivery of the Common Stock) within a reasonable time, which shall in no event be later than ten (10) days thereafter and, unless this Warrant has been fully exercised or has expired, a new Warrant representing the Shares with respect to which this Warrant shall not have been exercised shall also be issued to the Holder within such time.

(c) Vesting.

(i) This Warrant shall be immediately exercisable, regardless of whether the Shares are vested.

(ii) All of the Shares shall be deemed to be unvested as of the Warrant Date. Except as otherwise set forth herein, and subject to the determination of the Board of Directors of the Company in its sole discretion to accelerate the vesting schedule hereunder, the Shares shall vest in 36 equal monthly installments following [____], until [____], on which date, subject to the vesting conditions herein, all remaining Shares shall vest. Notwithstanding anything in the Warrant to the contrary, in the case of a Change of Control, the Warrant and the Shares shall be treated as provided in Section 3 herein.

(iii) To the extent this Warrant is only partially exercised, such exercise shall first be with respect to the Shares, if any, that have previously vested, and then with respect to the Shares that will next vest, with the Shares that vest at the latest date being exercised last.

(iv) In the event that the Holder exercises a portion of this Warrant with respect to Shares that have not vested, the Holder shall also deliver a Restricted Stock Agreement covering such unvested Shares in the form of Exhibit B hereto (the “Restricted Stock Agreement”) with the same vesting schedule for such Shares as set forth for such Shares herein.

2. Adjustment of Exercise Price and Number of Shares. The number and kind of securities purchasable upon the exercise of this Warrant and the Exercise Price therefor shall be subject to adjustment from time to time upon the occurrence of certain events, as follows:

(a) Adjustments for Subdivisions of Common Stock. If the number of shares of Common Stock outstanding at any time is increased by a stock dividend payable in shares of Common Stock or by a subdivision or split up of stock, then concurrently with the effectiveness of such dividend, subdivision or split up, (i) the Exercise Price then in effect shall be proportionately decreased and (ii) the number of shares of Common Stock issuable upon exercise of this Warrant shall be increased in proportion to such increase of outstanding shares of Common Stock.

(b) Adjustments for Combinations of Common Stock. If the number of shares of Common Stock outstanding at any time is decreased by a combination of the outstanding shares of Common Stock, then concurrently with the effectiveness of such combination, (i) the Exercise Price then in effect shall be proportionately increased and (ii) the number of shares of Common Stock issuable upon exercise of this Warrant shall be decreased in proportion to such decrease in outstanding shares of Common Stock.

(c) Notification. Upon any increase or decrease in the number of Shares purchasable upon the exercise of this Warrant or the Exercise Price, the Company shall, within a reasonable period thereafter, deliver written notice thereof to the Holder, which notice shall state the increased or decreased number of Shares purchasable upon the exercise of this Warrant and the adjusted Exercise Price, setting forth in reasonable detail the method of calculation and the facts upon which such calculations are based.

3. Merger, Consolidation, or Liquidation. If, prior to the exercise in full or expiration of this Warrant, (A) a Change of Control occurs, and (B) in connection therewith, shares of stock, other securities, property, or cash (collectively, "Acquisition Consideration") are issuable or deliverable in exchange for the Company's capital stock, then (C) the Company shall give the Holder at least 10 days prior written notice of the consummation of such Change of Control and (D) the Holder shall thereafter, at its option, either (i) exercise the Warrant with respect to the Shares that are vested or (ii) acquire in lieu of the shares of Common Stock issuable upon exercise of this Warrant, upon the consummation of such Change of Control, the Acquisition Consideration which the Holder would have received had the Holder exercised this Warrant with respect to the Shares that are vested immediately prior to such Change of Control (for clarity, such Acquisition Consideration to be reduced by the aggregate Exercise Price for the then-unexercised portion of the Warrant). For purposes of this Section 3, "Change of Control" shall mean each of (1) the sale or other disposition of all or substantially all of the assets of the Company, (2) the sale or other disposition of all of the issued and outstanding stock of the Company, (3) the merger or consolidation of the Company with or into another entity in which all of the issued and outstanding stock of the Company is converted into or exchanged for cash, securities of another entity, or other property, or (4) other reorganization of the Company (or a subsidiary) in which beneficial ownership (as such term is used in Rule 13d-3 under the Securities Exchange Act of 1934, as amended) of a majority of the outstanding equity of the Company (or a subsidiary) is transferred to a third party; provided, in each case, that the stockholders of the Company immediately before such transaction do not, immediately thereafter, beneficially own (as such term is used in Rule 13d-3 under the Securities Exchange Act of 1934, as amended) a majority of the outstanding equity of the entity that acquires the Company's assets or stock or of the surviving or resulting entity in such a merger or consolidation; provided further that none of the following shall constitute a Change of Control for purposes of this Warrant: (x) a bona fide capital raise by the Company or (y) a reorganization, spin-out, merger, consolidation or recapitalization undertaken solely for tax planning purposes not involving a party that is not a stockholder of the Company prior to such corporate action.

4. Miscellaneous.

(a) No Rights of Stockholders. This Warrant does not entitle the Holder to any voting rights as a stockholder of the Company prior to the exercise of the Warrant.

(b) Loss, Theft, Destruction or Mutilation of Warrant. Upon receipt by the Company of evidence reasonably satisfactory to it of the loss, theft, destruction or mutilation of this Warrant, and in case of loss, theft or destruction, of indemnity or security reasonably satisfactory to it, and upon surrender and cancellation of this Warrant, if mutilated, the Company will make and deliver a new Warrant of like tenor and dated as of such cancellation, in lieu of this Warrant.

(c) Expiration of Warrant. Notwithstanding any other provision of this Warrant, this Warrant shall expire and shall no longer be exercisable upon the sooner of (i) 12:00 a.m., New York time, on the Expiration Date or (ii) a Change of Control.

(d) Governing Law. This Warrant shall be governed by and construed in all respects in accordance with the laws of the State of Delaware without giving effect to the conflicts of laws provisions thereof.

(e) Entire Agreement; Amendment. This Warrant constitutes the full and entire understanding and agreement between the parties with regard to the subjects hereof. Neither this Warrant nor any term hereof may be amended, waived, discharged, or terminated other than by a written instrument signed by the party against whom enforcement of any such amendment, waiver, discharge or termination is sought.

(f) Successors and Assigns. The provisions hereof shall inure to the benefit of, and be binding upon, the successors and assigns, heirs, executors, and administrators of the Company and the Holder.

(g) Notices, etc. All notices and other communications required or permitted hereunder shall be in writing and shall be mailed by registered or certified mail, postage prepaid, by overnight courier, or otherwise delivered by hand or by messenger or sent by facsimile or e-mail and confirmed by mail, addressed (a) if to the Company, at its principal executive office, and (b) if to the Holder, at the address of the Holder set forth on the signature page of this Warrant. Each such notice or other communication shall for all purposes of this Warrant be treated as effective or having been given when delivered if delivered personally, or, if sent by e-mail, facsimile, mail or by Federal Express or other reputable overnight carrier, upon receipt.

[The remainder of this page has been intentionally left blank.]

Issued this [] day of [], []

TCR2 THERAPEUTICS INC.

By: _____
Name:
Title:

Address:

WARRANT HOLDER:

[]

By: _____
Name:
Title:

Address:

[Signature Page to Common Stock Warrant]

EXHIBIT A

NOTICE OF EXERCISE

TO: TCR² THERAPEUTICS INC.

Attention: _____

The undersigned hereby elects to purchase _____ shares of Common Stock of TCR² Therapeutics Inc. pursuant to the terms of this Warrant, and tenders herewith payment of the purchase price of such shares in full as follows:

- ☐ check in the amount of \$_____ payable to order of the Company enclosed herewith
☐ Wire transfer of immediately available funds to the Company's account
☐ Other [Describe] _____ .

Please issue a certificate or certificates representing said shares of Common Stock in the name of the undersigned or in such other name as is specified below:

(Name)

(Address)

The undersigned hereby represents and warrants that the aforesaid shares of Common Stock are being acquired for the account of the undersigned for investment and not with a view to, or for resale, in connection with the distribution thereof, and that the undersigned has no present intention of distributing or reselling such shares.

(Signature)

Title: _____

(Date)

EXHIBIT B

RESTRICTED STOCK AGREEMENT

For the avoidance of doubt, the Shares (as defined below) are not issued under TCR² Therapeutics Inc.'s (the "Company") 2015 Stock Option and Grant Plan, as amended (the "Plan"); however, for the purposes of interpreting the applicable provisions of this Restricted Stock Agreement (the "RSA"), the terms and conditions of the Plan (other than those applicable to the share reserve) shall govern and apply to this RSA as if the Shares had been issued under the Plan. All capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Warrant or the Plan.

1. Purchase and Sale of Shares; Vesting.

(a) Purchase and Sale. The Company hereby sells to the Holder, and the Holder hereby purchases from the Company, on _____, 20____, the number of Shares set forth in the Notice of Exercise (_____ Shares) dated _____, pursuant to the Warrant, for the aggregate Exercise Price for the Shares so purchased.

(b) Vesting. The risk of forfeiture shall lapse with respect to the Shares, and such Shares shall become vested, on the respective dates indicated on the vesting schedule set forth in the Warrant.

2. Repurchase Right. Upon a Termination Event, the Company shall have the right to repurchase Shares of Restricted Stock that are unvested as of the date of such Termination Event as set forth in Section 9(c) of the Plan.

3. Restrictions on Transfer of Shares. The Shares (whether or not vested) shall be subject to certain transfer restrictions and other limitations including, without limitation, the provisions contained in Section 9 of the Plan and the Warrant.

4. Miscellaneous Provisions.

(a) Record Owner; Dividends. The Holder and any Permitted Transferees, during the duration of this RSA, shall be considered the record owners of and shall be entitled to vote the Shares if and to the extent the Shares are entitled to voting rights. The Holder and any Permitted Transferees shall be entitled to receive all dividends and any other distributions declared on the Shares; provided, however, that the Company is under no duty to declare any such dividends or to make any such distribution.

(b) Section 83(b) Election. The Holder shall consult with the Holder's tax advisor to determine whether it would be appropriate for the Holder to make an election under Section 83(b) of the Code with respect to the Shares. Any such election must be filed with the Internal Revenue Service within 30 days of the date of exercise. If the Holder makes an election under Section 83(b) of the Code, the Holder shall give prompt notice to the Company (and provide a copy of such election to the Company).

(c) Equitable Relief. The parties hereto agree and declare that legal remedies may be inadequate to enforce the provisions of this RSA and that equitable relief, including specific performance and injunctive relief, may be used to enforce the provisions of this RSA.

(d) Change and Modifications. This RSA may not be orally changed, modified or terminated, nor shall any oral waiver of any of its terms be effective. This RSA may be changed, modified or terminated only by an agreement in writing signed by the Company and the Holder.

(e) Governing Law. This RSA shall be governed by and construed in accordance with the law of the State of Delaware without giving effect to the conflicts of laws provisions thereof.

(f) Headings. The headings are intended only for convenience in finding the subject matter and do not constitute part of the text of this RSA and shall not be considered in the interpretation of this RSA.

(g) Saving Clause. If any provision(s) of this RSA shall be determined to be illegal or unenforceable, such determination shall in no manner affect the legality or enforceability of any other provision hereof.

(h) Notices. All notices, requests, consents and other communications shall be in writing and be deemed given when delivered personally, by telex or facsimile transmission or when received if mailed by first class registered or certified mail, postage prepaid. Notices to the Company or the RSA shall be addressed as set forth underneath their signatures below, or to such other address or addresses as may have been furnished by such party in writing to the other.

(i) Benefit and Binding Effect. This RSA shall be binding upon and shall inure to the benefit of the parties hereto, their respective successors, assigns, and legal representatives. The Company has the right to assign this RSA, and such assignee shall become entitled to all the rights of the Company hereunder to the extent of such assignment.

(j) Counterparts. For the convenience of the parties and to facilitate execution, this RSA may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same document.

5. Dispute Resolution.

(a) Except as provided below, any dispute arising out of or relating to the Warrant or the Shares, this RSA, or the breach, termination or validity of the Shares, the Warrant or this RSA, shall be finally settled by binding arbitration conducted expeditiously in accordance with the J.A.M.S./Endispute Comprehensive Arbitration Rules and Procedures (the "J.A.M.S. Rules"). The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. Sections 1—16, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. The place of arbitration shall be Boston, Massachusetts.

(b) The arbitration shall commence within 60 days of the date on which a written demand for arbitration is filed by any party hereto. In connection with the arbitration proceeding, the arbitrator shall have the power to order the production of documents by each party and any third-party witnesses. In addition, each party may take up to three depositions as of right, and the arbitrator may in his or her discretion allow additional depositions upon good cause shown by the moving party. However, the arbitrator shall not have the power to order the answering of interrogatories or the response to requests for admission. In connection with any arbitration, each party to the arbitration shall provide to the other, no later than seven business days before the date of the arbitration, the identity of all persons that may testify at the arbitration and a copy of all documents that may be introduced at the arbitration or considered or used by a party's witness or expert. The arbitrator's decision and award shall be made and delivered within six months of the selection of the arbitrator. The arbitrator's decision shall set forth a reasoned basis for any award of damages or finding of liability. The arbitrator shall not have power to award damages in excess of actual compensatory damages and shall not multiply actual damages or award punitive damages, and each party hereby irrevocably waives any claim to such damages.

(c) The Company, the Holder, each party to the RSA and any other holder of Shares issued pursuant to this RSA (each, a "Party") covenants and agrees that such party will participate in the arbitration in good faith. This Section 5 applies equally to requests for temporary, preliminary or permanent injunctive relief, except that in the case of temporary or preliminary injunctive relief any party may proceed in court without prior arbitration for the limited purpose of avoiding immediate and irreparable harm.

(d) Each Party (i) hereby irrevocably submits to the jurisdiction of any United States District Court of competent jurisdiction for the purpose of enforcing the award or decision in any such proceeding, (ii) hereby waives, and agrees not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above named courts, that its property is exempt or immune from attachment or execution (except as protected by applicable law), that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this RSA or the subject matter hereof may not be enforced in or by such court, and (iii) hereby waives and agrees not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such court. Each Party hereby consents to service of process by registered mail at the address to which notices are to be given. Each Party agrees that its, his or her submission to jurisdiction and its, his or her consent to service of process by mail is made for the express benefit of each other Party. Final judgment against any Party in any such action, suit or proceeding may be enforced in other jurisdictions by suit, action or proceeding on the judgment, or in any other manner provided by or pursuant to the laws of such other jurisdiction.

6. Waiver of Statutory Information Rights. The Holder understands and agrees that, but for the waiver made herein, the Holder would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the General Corporation Law of Delaware (any and all such rights, and any and all such other rights of the Holder as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act, the Holder hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver shall not affect any rights of a director, in his or her capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of the Holder under any other written agreement between the Holder and the Company.

[SIGNATURE PAGE FOLLOWS]

The foregoing Restricted Stock Agreement is hereby accepted and the terms and conditions thereof are hereby agreed to by the undersigned as of the date written in Section 1(a) above.

TCR² THERAPEUTICS INC.

By: _____
Name:
Title:

Address:

The undersigned hereby acknowledges and understands that the Shares purchased hereby are subject to the terms of the Warrant and this RSA. This RSA is hereby accepted, and the terms and conditions of the Warrant and the RSA, SPECIFICALLY INCLUDING THE ARBITRATION PROVISIONS SET FORTH IN SECTION 5 AND THE WAIVER OF STATUTORY INFORMATION RIGHTS SET FORTH IN SECTION 6 OF THIS RSA, are hereby agreed to, by the undersigned as of the date first above written.

HOLDER:

[]

By: _____
Name:
Title:

Address:

TCR², INC.

2015 STOCK OPTION AND GRANT PLAN

SECTION 1. GENERAL PURPOSE OF THE PLAN; DEFINITIONS

The name of the plan is the TCR², Inc. 2015 Stock Option and Grant Plan (the “Plan”). The purpose of the Plan is to encourage and enable the officers, employees, directors, Consultants and other key persons of TCR², Inc., a Delaware corporation (including any successor entity, the “Company”) and its Subsidiaries, upon whose judgment, initiative and efforts the Company largely depends for the successful conduct of its business, to acquire a proprietary interest in the Company.

The following terms shall be defined as set forth below:

“*Affiliate*” of any Person means a Person that directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with the first mentioned Person. A Person shall be deemed to control another Person if such first Person possesses directly or indirectly the power to direct, or cause the direction of, the management and policies of the second Person, whether through the ownership of voting securities, by contract or otherwise.

“*Award*” or “*Awards*,” except where referring to a particular category of grant under the Plan, shall include Incentive Stock Options, Non-Qualified Stock Options, Restricted Stock Awards, Unrestricted Stock Awards, Restricted Stock Units or any combination of the foregoing.

“*Award Agreement*” means a written or electronic agreement setting forth the terms and provisions applicable to an Award granted under the Plan. Each Award Agreement may contain terms and conditions in addition to those set forth in the Plan; *provided, however*, in the event of any conflict in the terms of the Plan and the Award Agreement, the terms of the Plan shall govern.

“*Board*” means the Board of Directors of the Company.

“*Cause*” shall have the meaning as set forth in the Award Agreement(s). In the case that any Award Agreement does not contain a definition of “*Cause*,” it shall mean (i) the grantee’s dishonest statements or acts with respect to the Company or any Affiliate of the Company, or any current or prospective customers, suppliers vendors or other third parties with which such entity does business; (ii) the grantee’s commission of (A) a felony or (B) any misdemeanor involving moral turpitude, deceit, dishonesty or fraud; (iii) the grantee’s failure to perform his assigned duties and responsibilities to the reasonable satisfaction of the Company which failure continues, in the reasonable judgment of the Company, after written notice given to the grantee by the Company; (iv) the grantee’s gross negligence, willful misconduct or insubordination with respect to the Company or any Affiliate of the Company; or (v) the grantee’s material violation of any provision of any agreement(s) between the grantee and the Company relating to noncompetition, nonsolicitation, nondisclosure and/or assignment of inventions.

“*Chief Executive Officer*” means the Chief Executive Officer of the Company or, if there is no Chief Executive Officer, then the President of the Company.

“*Code*” means the Internal Revenue Code of 1986, as amended, and any successor Code, and related rules, regulations and interpretations.

“*Committee*” means the Committee of the Board referred to in Section 2.

“*Consultant*” means any natural person that provides bona fide services to the Company (including a Subsidiary), and such services are not in connection with the offer or sale of securities in a capital-raising transaction and do not directly or indirectly promote or maintain a market for the Company’s securities.

“*Disability*” means “disability” as defined in Section 422(c) of the Code.

“*Effective Date*” means the date on which the Plan is adopted as set forth on the final page of the Plan.

“*Exchange Act*” means the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder.

“*Fair Market Value*” of the Stock on any given date means the fair market value of the Stock determined in good faith by the Committee based on the reasonable application of a reasonable valuation method not inconsistent with Section 409A of the Code. If the Stock is admitted to trade on a national securities exchange, the determination shall be made by reference to the closing price reported on such exchange. If there is no closing price for such date, the determination shall be made by reference to the last date preceding such date for which there is a closing price. If the date for which Fair Market Value is determined is the first day when trading prices for the Stock are reported on a national securities exchange, the Fair Market Value shall be the “Price to the Public” (or equivalent) set forth on the cover page for the final prospectus relating to the Company’s Initial Public Offering.

“*Good Reason*” shall have the meaning as set forth in the Award Agreement(s). In the case that any Award Agreement does not contain a definition of “Good Reason,” it shall mean (i) a material diminution in the grantee’s base salary except for across-the-board salary reductions similarly affecting all or substantially all similarly situated employees of the Company or (ii) a change of more than 50 miles in the geographic location at which the grantee provides services to the Company, so long as the grantee provides at least 90 days notice to the Company following the initial occurrence of any such event and the Company fails to cure such event within 30 days thereafter.

“*Grant Date*” means the date that the Committee designates in its approval of an Award in accordance with applicable law as the date on which the Award is granted, which date may not precede the date of such Committee approval.

“*Holder*” means, with respect to an Award or any Shares, the Person holding such Award or Shares, including the initial recipient of the Award or any Permitted Transferee.

“Incentive Stock Option” means any Stock Option designated and qualified as an “incentive stock option” as defined in Section 422 of the Code.

“Initial Public Offering” means the consummation of the first firm commitment underwritten public offering pursuant to an effective registration statement under the Securities Act covering the offer and sale by the Company of its equity securities, as a result of or following which the Stock shall be publicly held.

“Non-Qualified Stock Option” means any Stock Option that is not an Incentive Stock Option.

“Option” or *“Stock Option”* means any option to purchase shares of Stock granted pursuant to Section 5.

“Permitted Transferees” shall mean any of the following to whom a Holder may transfer Shares hereunder (as set forth in Section 9(a)(ii)(A)): the Holder’s child, stepchild, grandchild, parent, stepparent, grandparent, spouse, former spouse, sibling, niece, nephew, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including adoptive relationships, any person sharing the Holder’s household (other than a tenant or employee), a trust in which these persons have more than fifty percent of the beneficial interest, a foundation in which these persons control the management of assets, and any other entity in which these persons own more than fifty percent of the voting interests; *provided, however*, that any such trust does not require or permit distribution of any Shares during the term of the Award Agreement unless subject to its terms. Upon the death of the Holder, the term Permitted Transferees shall also include such deceased Holder’s estate, executors, administrators, personal representatives, heirs, legatees and distributees, as the case may be.

“Person” shall mean any individual, corporation, partnership (limited or general), limited liability company, limited liability partnership, association, trust, joint venture, unincorporated organization or any similar entity.

“Restricted Stock Award” means Awards granted pursuant to Section 6 and *“Restricted Stock”* means Shares issued pursuant to such Awards.

“Restricted Stock Unit” means an Award of phantom stock units to a grantee, which may be settled in cash or Shares as determined by the Committee, pursuant to Section 8.

“Sale Event” means the consummation of (i) the dissolution or liquidation of the Company, (ii) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (iii) a merger, reorganization or consolidation pursuant to which the holders of the Company’s outstanding voting power immediately prior to such transaction do not own a majority of the outstanding voting power of the surviving or resulting entity (or its ultimate parent, if applicable), (iv) the acquisition of all or a majority of the outstanding voting stock of the Company in a single transaction or a series of related transactions by a Person or group of Persons, or (v) any other acquisition of the business of the Company, as determined by the Board; *provided, however*, that the Company’s Initial Public Offering, any subsequent public offering or another capital raising event, or a merger effected solely to change the Company’s domicile shall not constitute a “Sale Event.”

“Section 409A” means Section 409A of the Code and the regulations and other guidance promulgated thereunder.

“Securities Act” means the Securities Act of 1933, as amended, and the rules and regulations thereunder.

“Service Relationship” means any relationship as a full-time employee, part-time employee, director or other key person (including Consultants) of the Company or any Subsidiary or any successor entity (e.g., a Service Relationship shall be deemed to continue without interruption in the event an individual’s status changes from full-time employee to part-time employee or Consultant).

“Shares” means shares of Stock.

“Stock” means the Common Stock, par value \$0.0001 per share, of the Company.

“Subsidiary” means any corporation or other entity (other than the Company) in which the Company has more than a 50 percent interest, either directly or indirectly.

“Ten Percent Owner” means an employee who owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10 percent of the combined voting power of all classes of stock of the Company or any parent of the Company or any Subsidiary.

“Termination Event” means the termination of the Award recipient’s Service Relationship with the Company and its Subsidiaries for any reason whatsoever, regardless of the circumstances thereof, and including, without limitation, upon death, disability, retirement, discharge or resignation for any reason, whether voluntarily or involuntarily. The following shall not constitute a Termination Event: (i) a transfer to the service of the Company from a Subsidiary or from the Company to a Subsidiary, or from one Subsidiary to another Subsidiary or (ii) an approved leave of absence for military service or sickness, or for any other purpose approved by the Committee, if the individual’s right to re-employment is guaranteed either by a statute or by contract or under the policy pursuant to which the leave of absence was granted or if the Committee otherwise so provides in writing.

“Unrestricted Stock Award” means any Award granted pursuant to Section 7 and “Unrestricted Stock” means Shares issued pursuant to such Awards.

SECTION 2. ADMINISTRATION OF PLAN; COMMITTEE AUTHORITY TO SELECT GRANTEES AND DETERMINE AWARDS

(a) Administration of Plan. The Plan shall be administered by the Board, or at the discretion of the Board, by a committee of the Board, comprised of not less than two directors. All references herein to the “Committee” shall be deemed to refer to the group then responsible for administration of the Plan at the relevant time (i.e., either the Board of Directors or a committee or committees of the Board, as applicable).

(b) Powers of Committee. The Committee shall have the power and authority to grant Awards consistent with the terms of the Plan, including the power and authority:

(i) to select the individuals to whom Awards may from time to time be granted;

(ii) to determine the time or times of grant, and the amount, if any, of Incentive Stock Options, Non-Qualified Stock Options, Restricted Stock Awards, Unrestricted Stock Awards, Restricted Stock Units, or any combination of the foregoing, granted to any one or more grantees;

(iii) to determine the number of Shares to be covered by any Award and, subject to the provisions of the Plan, the price, exercise price, conversion ratio or other price relating thereto;

(iv) to determine and, subject to Section 12, to modify from time to time the terms and conditions, including restrictions, not inconsistent with the terms of the Plan, of any Award, which terms and conditions may differ among individual Awards and grantees, and to approve the form of Award Agreements;

(v) to accelerate at any time the exercisability or vesting of all or any portion of any Award;

(vi) to impose any limitations on Awards, including limitations on transfers, repurchase provisions and the like, and to exercise repurchase rights or obligations;

(vii) subject to Section 5(a)(ii) and any restrictions imposed by Section 409A, to extend at any time the period in which Stock Options may be exercised; and

(viii) at any time to adopt, alter and repeal such rules, guidelines and practices for administration of the Plan and for its own acts and proceedings as it shall deem advisable; to interpret the terms and provisions of the Plan and any Award (including Award Agreements); to make all determinations it deems advisable for the administration of the Plan; to decide all disputes arising in connection with the Plan; and to otherwise supervise the administration of the Plan.

All decisions and interpretations of the Committee shall be binding on all persons, including the Company and all Holders.

(c) Award Agreement. Awards under the Plan shall be evidenced by Award Agreements that set forth the terms, conditions and limitations for each Award.

(d) Indemnification. Neither the Board nor the Committee, nor any member of either or any delegate thereof, shall be liable for any act, omission, interpretation, construction or determination made in good faith in connection with the Plan, and the members of the Board and the Committee (and any delegate thereof) shall be entitled in all cases to indemnification and reimbursement by the Company in respect of any claim, loss, damage or expense (including, without limitation, reasonable attorneys' fees) arising or resulting therefrom to the fullest extent permitted by law and/or under the Company's governing documents, including its certificate of incorporation or Bylaws, or any directors' and officers' liability insurance coverage which may be in effect from time to time and/or any indemnification agreement between such individual and the Company.

(e) Foreign Award Recipients. Notwithstanding any provision of the Plan to the contrary, in order to comply with the laws in other countries in which the Company and any Subsidiary operate or have employees or other individuals eligible for Awards, the Committee, in its sole discretion, shall have the power and authority to: (i) determine which Subsidiaries, if any, shall be covered by the Plan; (ii) determine which individuals, if any, outside the United States are eligible to participate in the Plan; (iii) modify the terms and conditions of any Award granted to individuals outside the United States to comply with applicable foreign laws; (iv) establish subplans and modify exercise procedures and other terms and procedures, to the extent the Committee determines such actions to be necessary or advisable (and such subplans and/or modifications shall be attached to the Plan as appendices); provided, however, that no such subplans and/or modifications shall increase the share limitation contained in Section 3(a) hereof; and (v) take any action, before or after an Award is made, that the Committee determines to be necessary or advisable to obtain approval or comply with any local governmental regulatory exemptions or approvals.

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS AND OTHER TRANSACTIONS; SUBSTITUTION

(a) Stock Issuable. The maximum number of Shares reserved and available for issuance under the Plan shall be 7,088,040 Shares, subject to adjustment as provided in Section 3(b). For purposes of this limitation, the Shares underlying any Awards that are forfeited, canceled, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) and Shares that are withheld upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding shall be added back to the Shares available for issuance under the Plan. Subject to such overall limitations, Shares may be issued up to such maximum number pursuant to any type or types of Award, and no more than 30,000,000 Shares may be issued pursuant to Incentive Stock Options. The Shares available for issuance under the Plan may be authorized but unissued Shares or Shares reacquired by the Company. Beginning on the date that the Company becomes subject to Section 162(m) of the Code, Options with respect to no more than 7,088,040 Shares shall be granted to any one individual in any calendar year period.

(b) Changes in Stock. Subject to Section 3(c) hereof, if, as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Company's capital stock, the outstanding Shares are increased or decreased or are exchanged for a different number or kind of shares or other securities of the Company, or additional Shares or new or different shares or other securities of the Company or other non-cash assets are distributed with respect to such Shares or other securities, in each case, without the receipt of consideration by the Company, or, if, as a result of any merger or consolidation, or sale of all or substantially all of the assets of the Company, the outstanding Shares are converted into or exchanged for other securities of the Company or any successor entity (or a parent or subsidiary thereof), the Committee shall make an appropriate and proportionate adjustment in (i) the maximum number of Shares reserved for issuance under the Plan, (ii) the number and kind of Shares or other securities subject to any then outstanding

Awards under the Plan, (iii) the repurchase price, if any, per Share subject to each outstanding Award, and (iv) the exercise price for each Share subject to any then outstanding Stock Options under the Plan, without changing the aggregate exercise price (i.e., the exercise price multiplied by the number of Stock Options) as to which such Stock Options remain exercisable. The adjustment by the Committee shall be final, binding and conclusive. No fractional Shares shall be issued under the Plan resulting from any such adjustment, but the Committee in its discretion may make a cash payment in lieu of fractional shares.

(c) Sale Events.

(i) Options.

(A) In the case of and subject to the consummation of a Sale Event, the Plan and all outstanding Options issued hereunder shall terminate upon the effective time of any such Sale Event unless assumed or continued by the successor entity, or new stock options or other awards of the successor entity or parent thereof are substituted therefor, with an equitable or proportionate adjustment as to the number and kind of shares and, if appropriate, the per share exercise prices, as such parties shall agree (after taking into account any acceleration hereunder and/or pursuant to the terms of any Award Agreement).

(B) In the event of the termination of the Plan and all outstanding Options issued hereunder pursuant to Section 3(c), each Holder of Options shall be permitted, within a period of time prior to the consummation of the Sale Event as specified by the Committee, to exercise all such Options which are then exercisable or will become exercisable as of the effective time of the Sale Event; *provided, however*, that the exercise of Options not exercisable prior to the Sale Event shall be subject to the consummation of the Sale Event.

(C) Notwithstanding anything to the contrary in Section 3(c)(i)(A), in the event of a Sale Event, the Company shall have the right, but not the obligation, to make or provide for a cash payment to the Holders of Options, without any consent of the Holders, in exchange for the cancellation thereof, in an amount equal to the difference between (A) the value as determined by the Committee of the consideration payable per share of Stock pursuant to the Sale Event (the "Sale Price") times the number of Shares subject to outstanding Options being cancelled (to the extent then vested and exercisable, including by reason of acceleration in connection with such Sale Event, at prices not in excess of the Sale Price) and (B) the aggregate exercise price of all such outstanding vested and exercisable Options.

(ii) Restricted Stock and Restricted Stock Unit Awards.

(A) In the case of and subject to the consummation of a Sale Event, all unvested Restricted Stock and unvested Restricted Stock Unit Awards (other than those becoming vested as a result of the Sale Event) issued hereunder shall be forfeited immediately prior to the effective time of any such Sale Event unless assumed or continued by the successor entity, or awards of the successor entity or parent thereof are substituted therefor, with an equitable or proportionate adjustment as to the number and kind of shares subject to such awards as such parties shall agree (after taking into account any acceleration hereunder and/or pursuant to the terms of any Award Agreement).

(B) In the event of the forfeiture of Restricted Stock pursuant to Section 3(c)(ii)(A), such Restricted Stock shall be repurchased from the Holder thereof at a price per share equal to the original per share purchase price paid by the Holder (subject to adjustment as provided in Section 3(b)) for such Shares.

(C) Notwithstanding anything to the contrary in Section 3(c)(ii)(A), in the event of a Sale Event, the Company shall have the right, but not the obligation, to make or provide for a cash payment to the Holders of Restricted Stock or Restricted Stock Unit Awards, without consent of the Holders, in exchange for the cancellation thereof, in an amount equal to the Sale Price times the number of Shares subject to such Awards, to be paid at the time of such Sale Event or upon the later vesting of such Awards.

SECTION 4. ELIGIBILITY

Grantees under the Plan will be such full or part-time officers and other employees, directors, Consultants and key persons of the Company and any Subsidiary who are selected from time to time by the Committee in its sole discretion; provided, however, that Awards shall be granted only to those individuals described in Rule 701(c) of the Securities Act.

SECTION 5. STOCK OPTIONS

Upon the grant of a Stock Option, the Company and the grantee shall enter into an Award Agreement. The terms and conditions of each such Award Agreement shall be determined by the Committee, and such terms and conditions may differ among individual Awards and grantees.

Stock Options granted under the Plan may be either Incentive Stock Options or Non-Qualified Stock Options. Incentive Stock Options may be granted only to employees of the Company or any Subsidiary that is a “subsidiary corporation” within the meaning of Section 424(f) of the Code. To the extent that any Option does not qualify as an Incentive Stock Option, it shall be deemed a Non-Qualified Stock Option.

(a) Terms of Stock Options. The Committee in its discretion may grant Stock Options to those individuals who meet the eligibility requirements of Section 4. Stock Options shall be subject to the following terms and conditions and shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as the Committee shall deem desirable.

(i) Exercise Price. The exercise price per share for the Shares covered by a Stock Option shall be determined by the Committee at the time of grant but shall not be less than 100 percent of the Fair Market Value on the Grant Date. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the exercise price per share for the Shares covered by such Incentive Stock Option shall not be less than 110 percent of the Fair Market Value on the Grant Date.

(ii) Option Term. The term of each Stock Option shall be fixed by the Committee, but no Stock Option shall be exercisable more than ten years from the Grant Date. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the term of such Stock Option shall be no more than five years from the Grant Date.

(iii) Exercisability; Rights of a Stockholder. Stock Options shall become exercisable and/or vested at such time or times, whether or not in installments, as shall be determined by the Committee at or after the Grant Date. The Award Agreement may permit a grantee to exercise all or a portion of a Stock Option immediately at grant; provided that the Shares issued upon such exercise shall be subject to restrictions and a vesting schedule identical to the vesting schedule of the related Stock Option, such Shares shall be deemed to be Restricted Stock for purposes of the Plan, and the optionee may be required to enter into an additional or new Award Agreement as a condition to exercise of such Stock Option. An optionee shall have the rights of a stockholder only as to Shares acquired upon the exercise of a Stock Option and not as to unexercised Stock Options. An optionee shall not be deemed to have acquired any Shares unless and until a Stock Option shall have been exercised pursuant to the terms of the Award Agreement and this Plan and the optionee's name has been entered on the books of the Company as a stockholder.

(iv) Method of Exercise. Stock Options may be exercised by an optionee in whole or in part, by the optionee giving written or electronic notice of exercise to the Company, specifying the number of Shares to be purchased. Payment of the purchase price may be made by one or more of the following methods (or any combination thereof) to the extent provided in the Award Agreement:

(A) In cash, by certified or bank check, by wire transfer of immediately available funds, or other instrument acceptable to the Committee;

(B) If permitted by the Committee, by the optionee delivering to the Company a promissory note, if the Board has expressly authorized the loan of funds to the optionee for the purpose of enabling or assisting the optionee to effect the exercise of his or her Stock Option; provided, that at least so much of the exercise price as represents the par value of the Stock shall be paid in cash if required by state law;

(C) If permitted by the Committee and the Initial Public Offering has occurred (or the Stock otherwise becomes publicly-traded), through the delivery (or attestation to the ownership) of Shares that have been purchased by the optionee on the open market or that are beneficially owned by the optionee and are not then subject to restrictions under any Company plan. To the extent required to avoid variable accounting treatment under ASC 718 or other applicable accounting rules, such surrendered Shares if originally purchased from the Company shall have been owned by the optionee for at least six months. Such surrendered Shares shall be valued at Fair Market Value on the exercise date;

(D) If permitted by the Committee and the Initial Public Offering has occurred (or the Stock otherwise becomes publicly-traded), by the optionee delivering to the Company a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company cash or a check payable and acceptable to the Company for the purchase price; provided that in the event the optionee chooses to pay the purchase price as so provided, the optionee and the broker shall comply with such procedures and enter into such agreements of indemnity and other agreements as the Committee shall prescribe as a condition of such payment procedure; or

(E) If permitted by the Committee, and only with respect to Stock Options that are not Incentive Stock Options, by a “net exercise” arrangement pursuant to which the Company will reduce the number of Shares issuable upon exercise by the largest whole number of Shares with a Fair Market Value that does not exceed the aggregate exercise price.

Payment instruments will be received subject to collection. No certificates for Shares so purchased will be issued to the optionee or, with respect to uncertificated Stock, no transfer to the optionee on the records of the Company will take place, until the Company has completed all steps it has deemed necessary to satisfy legal requirements relating to the issuance and sale of the Shares, which steps may include, without limitation, (i) receipt of a representation from the optionee at the time of exercise of the Option that the optionee is purchasing the Shares for the optionee’s own account and not with a view to any sale or distribution of the Shares or other representations relating to compliance with applicable law governing the issuance of securities, (ii) the legending of the certificate (or notation on any book entry) representing the Shares to evidence the foregoing restrictions, and (iii) obtaining from optionee payment or provision for all withholding taxes due as a result of the exercise of the Option. The delivery of certificates representing the shares of Stock (or the transfer to the optionee on the records of the Company with respect to uncertificated Stock) to be purchased pursuant to the exercise of a Stock Option will be contingent upon (A) receipt from the optionee (or a purchaser acting in his or her stead in accordance with the provisions of the Stock Option) by the Company of the full purchase price for such Shares and the fulfillment of any other requirements contained in the Award Agreement or applicable provisions of laws and (B) if required by the Company, the optionee shall have entered into any stockholders agreements or other agreements with the Company and/or certain other of the Company’s stockholders relating to the Stock. In the event an optionee chooses to pay the purchase price by previously-owned Shares through the attestation method, the number of Shares transferred to the optionee upon the exercise of the Stock Option shall be net of the number of Shares attested to.

(b) Annual Limit on Incentive Stock Options. To the extent required for “incentive stock option” treatment under Section 422 of the Code, the aggregate Fair Market Value (determined as of the Grant Date) of the Shares with respect to which Incentive Stock Options granted under the Plan and any other plan of the Company or its parent and any Subsidiary that become exercisable for the first time by an optionee during any calendar year shall not exceed \$100,000 or such other limit as may be in effect from time to time under Section 422 of the Code. To the extent that any Stock Option exceeds this limit, it shall constitute a Non-Qualified Stock Option.

(c) Termination. Any portion of a Stock Option that is not vested and exercisable on the date of termination of an optionee's Service Relationship shall immediately expire and be null and void. Once any portion of the Stock Option becomes vested and exercisable, the optionee's right to exercise such portion of the Stock Option (or the optionee's representatives and legatees as applicable) in the event of a termination of the optionee's Service Relationship shall continue until the earliest of: (i) the date which is: (A) 12 months following the date on which the optionee's Service Relationship terminates due to death or Disability (or such longer period of time as determined by the Committee and set forth in the applicable Award Agreement), or (B) three months following the date on which the optionee's Service Relationship terminates if the termination is due to any reason other than death or Disability (or such longer period of time as determined by the Committee and set forth in the applicable Award Agreement), or (ii) the Expiration Date set forth in the Award Agreement; provided that notwithstanding the foregoing, an Award Agreement may provide that if the optionee's Service Relationship is terminated for Cause, the Stock Option shall terminate immediately and be null and void upon the date of the optionee's termination and shall not thereafter be exercisable.

SECTION 6. RESTRICTED STOCK AWARDS

(a) Nature of Restricted Stock Awards. The Committee may, in its sole discretion, grant (or sell at par value or such other purchase price determined by the Committee) to an eligible individual under Section 4 hereof a Restricted Stock Award under the Plan. The Committee shall determine the restrictions and conditions applicable to each Restricted Stock Award at the time of grant. Conditions may be based on continuing employment (or other Service Relationship), achievement of pre-established performance goals and objectives and/or such other criteria as the Committee may determine. Upon the grant of a Restricted Stock Award, the Company and the grantee shall enter into an Award Agreement. The terms and conditions of each such Award Agreement shall be determined by the Committee, and such terms and conditions may differ among individual Awards and grantees.

(b) Rights as a Stockholder. Upon the grant of the Restricted Stock Award and payment of any applicable purchase price, a grantee of Restricted Stock shall be considered the record owner of and shall be entitled to vote the Restricted Stock if, and to the extent, such Shares are entitled to voting rights, subject to such conditions contained in the Award Agreement. The grantee shall be entitled to receive all dividends and any other distributions declared on the Shares; provided, however, that the Company is under no duty to declare any such dividends or to make any such distribution. Unless the Committee shall otherwise determine, certificates evidencing the Restricted Stock shall remain in the possession of the Company until such Restricted Stock is vested as provided in subsection (d) below of this Section, and the grantee shall be required, as a condition of the grant, to deliver to the Company a stock power endorsed in blank and such other instruments of transfer as the Committee may prescribe.

(c) Restrictions. Restricted Stock may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of except as specifically provided herein or in the Award Agreement. Except as may otherwise be provided by the Committee either in the Award Agreement or, subject to Section 12 below, in writing after the Award Agreement is issued, if a grantee's Service Relationship with the Company and any Subsidiary terminates, the Company or its assigns shall have the right, as may be specified in the relevant instrument, to repurchase some or all of the Shares subject to the Award at such purchase price as is set forth in the Award Agreement.

(d) Vesting of Restricted Stock. The Committee at the time of grant shall specify in the Award Agreement the date or dates and/or the attainment of pre-established performance goals, objectives and other conditions on which the substantial risk of forfeiture imposed shall lapse and the Restricted Stock shall become vested, subject to such further rights of the Company or its assigns as may be specified in the Award Agreement.

SECTION 7. UNRESTRICTED STOCK AWARDS

The Committee may, in its sole discretion, grant (or sell at par value or such other purchase price determined by the Committee) to an eligible person under Section 4 hereof an Unrestricted Stock Award under the Plan. Unrestricted Stock Awards may be granted in respect of past services or other valid consideration, or in lieu of cash compensation due to such grantee.

SECTION 8. RESTRICTED STOCK UNITS

(a) Nature of Restricted Stock Units. The Committee may, in its sole discretion, grant to an eligible person under Section 4 hereof Restricted Stock Units under the Plan. The Committee shall determine the restrictions and conditions applicable to each Restricted Stock Unit at the time of grant. Vesting conditions may be based on continuing employment (or other Service Relationship), achievement of pre-established performance goals and objectives and/or other such criteria as the Committee may determine. Upon the grant of Restricted Stock Units, the grantee and the Company shall enter into an Award Agreement. The terms and conditions of each such Award Agreement shall be determined by the Committee and may differ among individual Awards and grantees. On or promptly following the vesting date or dates applicable to any Restricted Stock Unit, but in no event later than March 15 of the year following the year in which such vesting occurs, such Restricted Stock Unit(s) shall be settled in the form of cash or shares of Stock, as specified in the Award Agreement. Restricted Stock Units may not be sold, assigned, transferred, pledged, or otherwise encumbered or disposed of.

(b) Rights as a Stockholder. A grantee shall have the rights of a stockholder only as to Shares, if any, acquired upon settlement of Restricted Stock Units. A grantee shall not be deemed to have acquired any such Shares unless and until the Restricted Stock Units shall have been settled in Shares pursuant to the terms of the Plan and the Award Agreement, the Company shall have issued and delivered a certificate representing the Shares to the grantee (or transferred on the records of the Company with respect to uncertificated stock), and the grantee's name has been entered in the books of the Company as a stockholder.

(c) Termination. Except as may otherwise be provided by the Committee either in the Award Agreement or in writing after the Award Agreement is issued, a grantee's right in all Restricted Stock Units that have not vested shall automatically terminate upon the grantee's cessation of Service Relationship with the Company and any Subsidiary for any reason.

(a) Restrictions on Transfer.

(i) Non-Transferability of Stock Options. Stock Options and, prior to exercise, the Shares issuable upon exercise of such Stock Option, shall not be transferable by the optionee otherwise than by will, or by the laws of descent and distribution, and all Stock Options shall be exercisable, during the optionee's lifetime, only by the optionee, or by the optionee's legal representative or guardian in the event of the optionee's incapacity. Notwithstanding the foregoing, the Committee, in its sole discretion, may provide in the Award Agreement regarding a given Stock Option that the optionee may transfer by gift, without consideration for the transfer, his or her Non-Qualified Stock Options to his or her family members (as defined in Rule 701 of the Securities Act), to trusts for the benefit of such family members, or to partnerships in which such family members are the only partners (to the extent such trusts or partnerships are considered "family members" for purposes of Rule 701 of the Securities Act), provided that the transferee agrees in writing with the Company to be bound by all of the terms and conditions of this Plan and the applicable Award Agreement, including the execution of a stock power upon the issuance of Shares. Stock Options, and the Shares issuable upon exercise of such Stock Options, shall be restricted as to any pledge, hypothecation, or other transfer, including any short position, any "put equivalent position" (as defined in the Exchange Act) or any "call equivalent position" (as defined in the Exchange Act) prior to exercise.

(ii) Shares. No Shares shall be sold, assigned, transferred, pledged, hypothecated, given away or in any other manner disposed of or encumbered, whether voluntarily or by operation of law, unless (i) the transfer is in compliance with the terms of the applicable Award Agreement, all applicable securities laws (including, without limitation, the Securities Act), and with the terms and conditions of this Section 9, (ii) the transfer does not cause the Company to become subject to the reporting requirements of the Exchange Act, and (iii) the transferee consents in writing to be bound by the provisions of the Plan and the Award Agreement, including this Section 9. In connection with any proposed transfer, the Committee may require the transferor to provide at the transferor's own expense an opinion of counsel to the transferor, satisfactory to the Committee, that such transfer is in compliance with all foreign, federal and state securities laws (including, without limitation, the Securities Act). Any attempted transfer of Shares not in accordance with the terms and conditions of this Section 9 shall be null and void, and the Company shall not reflect on its records any change in record ownership of any Shares as a result of any such transfer, shall otherwise refuse to recognize any such transfer and shall not in any way give effect to any such transfer of Shares. The Company shall be entitled to seek protective orders, injunctive relief and other remedies available at law or in equity including, without limitation, seeking specific performance or the rescission of any transfer not made in strict compliance with the provisions of this Section 9. Subject to the foregoing general provisions, and unless otherwise provided in the applicable Award Agreement, Shares may be transferred pursuant to the following specific terms and conditions (provided that with respect to any transfer of Restricted Stock, all vesting and forfeiture provisions shall continue to apply with respect to the original recipient):

(A) Transfers to Permitted Transferees. The Holder may transfer any or all of the Shares to one or more Permitted Transferees; *provided, however*, that following such transfer, such Shares shall continue to be subject to the terms of this Plan (including this Section 9) and such Permitted Transferee(s) shall, as a condition to any such transfer, deliver a written acknowledgment to that effect to the Company and shall deliver a stock power to the Company with respect to the Shares. Notwithstanding the foregoing, the Holder may not transfer any of the Shares to a Person whom the Company reasonably determines is a direct competitor or a potential competitor of the Company or any of its Subsidiaries.

(B) Transfers Upon Death. Upon the death of the Holder, any Shares then held by the Holder at the time of such death and any Shares acquired after the Holder's death by the Holder's legal representative shall be subject to the provisions of this Plan, and the Holder's estate, executors, administrators, personal representatives, heirs, legatees and distributees shall be obligated to convey such Shares to the Company or its assigns under the terms contemplated by the Plan and the Award Agreement.

(b) Right of First Refusal. In the event that a Holder desires at any time to sell or otherwise transfer all or any part of his or her Shares (other than shares of Restricted Stock which by their terms are not transferrable), the Holder first shall give written notice to the Company of the Holder's intention to make such transfer. Such notice shall state the number of Shares that the Holder proposes to sell (the "Offered Shares"), the price and the terms at which the proposed sale is to be made and the name and address of the proposed transferee. At any time within 30 days after the receipt of such notice by the Company, the Company or its assigns may elect to purchase all or any portion of the Offered Shares at the price and on the terms offered by the proposed transferee and specified in the notice. The Company or its assigns shall exercise this right by mailing or delivering written notice to the Holder within the foregoing 30-day period. If the Company or its assigns elect to exercise its purchase rights under this Section 9(b), the closing for such purchase shall, in any event, take place within 45 days after the receipt by the Company of the initial notice from the Holder. In the event that the Company or its assigns do not elect to exercise such purchase right, or in the event that the Company or its assigns do not pay the full purchase price within such 45-day period, the Holder shall be required to pay a transaction processing fee of \$10,000 to the Company (unless waived by the Committee) and then may, within 60 days thereafter, sell the Offered Shares to the proposed transferee and at the same price and on the same terms as specified in the Holder's notice. Any Shares not sold to the proposed transferee shall remain subject to the Plan. If the Holder is a party to any stockholders agreements or other agreements with the Company and/or certain other of the Company's stockholders relating to the Shares, (i) the transferring Holder shall comply with the requirements of such stockholders agreements or other agreements relating to any proposed transfer of the Offered Shares, and (ii) any proposed transferee that purchases Offered Shares shall enter into such stockholders agreements or other agreements with the Company and/or certain of the Company's stockholders relating to the Offered Shares on the same terms and in the same capacity as the transferring Holder.

(c) Company's Right of Repurchase.

(i) Right of Repurchase for Unvested Shares Issued Upon the Exercise of an Option. Upon a Termination Event, the Company or its assigns shall have the right and option to repurchase from a Holder of Shares acquired upon exercise of a Stock Option which are still subject to a risk of forfeiture as of the Termination Event. Such repurchase rights may be exercised by the Company within the later of (A) six months following the date of such Termination Event or (B) seven months after the acquisition of Shares upon exercise of a Stock Option. The repurchase price shall be equal to the lower of the original per share price paid by the Holder, subject to adjustment as provided in Section 3(b) of the Plan, or the current Fair Market Value of such Shares as of the date the Company elects to exercise its repurchase rights.

(ii) Right of Repurchase With Respect to Restricted Stock. Upon a Termination Event, the Company or its assigns shall have the right and option to repurchase from a Holder of Shares received pursuant to a Restricted Stock Award any Shares that are still subject to a risk of forfeiture as of the Termination Event. Such repurchase right may be exercised by the Company within six months following the date of such Termination Event. The repurchase price shall be the lower of the original per share purchase price paid by the Holder, subject to adjustment as provided in Section 3(b) of the Plan, or the current Fair Market Value of such Shares as of the date the Company elects to exercise its repurchase rights.

(iii) Procedure. Any repurchase right of the Company shall be exercised by the Company or its assigns by giving the Holder written notice on or before the last day of the repurchase period of its intention to exercise such repurchase right. Upon such notification, the Holder shall promptly surrender to the Company, free and clear of any liens or encumbrances, any certificates representing the Shares being purchased, together with a duly executed stock power for the transfer of such Shares to the Company or the Company's assignee or assignees. Upon the Company's or its assignee's receipt of the certificates from the Holder, the Company or its assignee or assignees shall deliver to him, her or them a check for the applicable repurchase price; *provided, however*, that the Company may pay the repurchase price by offsetting and canceling any indebtedness then owed by the Holder to the Company.

(d) Drag Along Right. In the event the holders of a majority of the Company's equity securities then outstanding (the "Majority Shareholders") determine to enter into a Sale Event in a bona fide negotiated transaction (a "Sale"), with any non-Affiliate of the Company or any majority shareholder (in each case, the "Buyer"), a Holder of Shares, including any Permitted Transferee, shall be obligated to and shall upon the written request of the Majority Shareholders: (a) sell, transfer and deliver, or cause to be sold, transferred and delivered, to the Buyer, his or her Shares (including for this purpose all of such Holder's Shares that presently or as a result of any such transaction may be acquired upon the exercise of an Option (following the payment of the exercise price therefor)) on substantially the same terms applicable to the Majority Shareholders (with appropriate adjustments to reflect the conversion of convertible securities, the redemption of redeemable securities and the exercise of exercisable securities as well as the relative preferences and priorities of preferred stock); and (b) execute and deliver such instruments of conveyance and transfer and take such other action, including voting such Shares in favor of any Sale proposed by the Majority Shareholders and executing any purchase agreements, merger agreements, indemnity agreements, escrow agreements or related documents as the Majority Shareholders or the Buyer may reasonably require in order to carry out the terms and provisions of this Section 9(d).

(e) Escrow Arrangement.

(i) Escrow. In order to carry out the provisions of this Section 9 of this Plan more effectively, the Company shall hold any Shares issued pursuant to Awards granted under the Plan in escrow together with separate stock powers executed by the Holder in blank for transfer. The Company shall not dispose of the Shares except as otherwise provided in this Plan. In the event of any repurchase by the Company (or any of its assigns), the Company is hereby authorized by the Holder, as the Holder's attorney-in-fact, to date and complete the stock powers necessary for the transfer of the Shares being purchased and to transfer such Shares in accordance with the terms hereof. At such time as any Shares are no longer subject to the Company's repurchase and first refusal rights, the Company shall, at the written request of the Holder, deliver to the Holder a certificate representing such Shares with the balance of the Shares to be held in escrow pursuant to this Section.

(ii) Remedy. Without limitation of any other provision of this Plan or other rights, in the event that a Holder or any other Person is required to sell a Holder's Shares pursuant to the provisions of Sections 9(b) or (c) hereof and in the further event that he or she refuses or for any reason fails to deliver to the Company or its designated purchaser of such Shares the certificate or certificates evidencing such Shares together with a related stock power, the Company or such designated purchaser may deposit the applicable purchase price for such Shares with a bank designated by the Company, or with the Company's independent public accounting firm, as agent or trustee, or in escrow, for such Holder or other Person, to be held by such bank or accounting firm for the benefit of and for delivery to him, her, them or it, and/or, in its discretion, pay such purchase price by offsetting any indebtedness then owed by such Holder as provided above. Upon any such deposit and/or offset by the Company or its designated purchaser of such amount and upon notice to the Person who was required to sell the Shares to be sold pursuant to the provisions of Sections 9(b) or (c), such Shares shall at such time be deemed to have been sold, assigned, transferred and conveyed to such purchaser, such Holder shall have no further rights thereto (other than the right to withdraw the payment thereof held in escrow, if applicable), and the Company shall record such transfer in its stock transfer book or in any appropriate manner.

(f) Lockup Provision. If requested by the Company, a Holder shall not sell or otherwise transfer or dispose of any Shares (including, without limitation, pursuant to Rule 144 under the Securities Act) held by him or her for such period following the effective date of a public offering by the Company of Shares as the Company shall specify reasonably and in good faith. If requested by the underwriter engaged by the Company, each Holder shall execute a separate letter confirming his or her agreement to comply with this Section.

(g) Adjustments for Changes in Capital Structure. If, as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Common Stock, the outstanding Shares are increased or decreased or are exchanged for a different number or kind of securities of the Company, the restrictions contained in this Section 9 shall apply with equal force to additional and/or substitute securities, if any, received by Holder in exchange for, or by virtue of his or her ownership of, Shares.

(h) Termination. The terms and provisions of Section 9(b) and Section 9(c) (except for the Company's right to repurchase Shares still subject to a risk of forfeiture upon a Termination Event) shall terminate upon the closing of the Company's Initial Public Offering or upon consummation of any Sale Event, in either case as a result of which Shares are registered under Section 12 of the Exchange Act and publicly-traded on any national security exchange.

SECTION 10. TAX WITHHOLDING

(a) Payment by Grantee. Each grantee shall, no later than the date as of which the value of an Award or of any Shares or other amounts received thereunder first becomes includable in the gross income of the grantee for income tax purposes, pay to the Company, or make arrangements satisfactory to the Committee regarding payment of, any Federal, state, or local taxes of any kind required by law to be withheld by the Company with respect to such income. The Company and any Subsidiary shall, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to the grantee. The Company's obligation to deliver stock certificates (or evidence of book entry) to any grantee is subject to and conditioned on any such tax withholding obligations being satisfied by the grantee.

(b) Payment in Stock. The Company's minimum required tax withholding obligation may be satisfied, in whole or in part, by the Company withholding from Shares to be issued pursuant to an Award a number of Shares having an aggregate Fair Market Value (as of the date the withholding is effected) that would satisfy the minimum withholding amount due.

SECTION 11. SECTION 409A AWARDS

To the extent that any Award is determined to constitute "nonqualified deferred compensation" within the meaning of Section 409A (a "409A Award"), the Award shall be subject to such additional rules and requirements as may be specified by the Committee from time to time. In this regard, if any amount under a 409A Award is payable upon a "separation from service" (within the meaning of Section 409A) to a grantee who is considered a "specified employee" (within the meaning of Section 409A), then no such payment shall be made prior to the date that is the earlier of (i) six months and one day after the grantee's separation from service, or (ii) the grantee's death, but only to the extent such delay is necessary to prevent such payment from being subject to interest, penalties and/or additional tax imposed pursuant to Section 409A. The Company makes no representation or warranty and shall have no liability to any grantee under the Plan or any other Person with respect to any penalties or taxes under Section 409A that are, or may be, imposed with respect to any Award.

SECTION 12. AMENDMENTS AND TERMINATION

The Board may, at any time, amend or discontinue the Plan and the Committee may, at any time, amend or cancel any outstanding Award for the purpose of satisfying changes in law or for any other lawful purpose, but no such action shall adversely affect rights under any outstanding Award without the consent of the holder of the Award. The Committee may

exercise its discretion to reduce the exercise price of outstanding Stock Options or effect repricing through cancellation of outstanding Stock Options and by granting such holders new Awards in replacement of the cancelled Stock Options. To the extent determined by the Committee to be required either by the Code to ensure that Incentive Stock Options granted under the Plan are qualified under Section 422 of the Code or otherwise, Plan amendments shall be subject to approval by the Company stockholders entitled to vote at a meeting of stockholders. Nothing in this Section 12 shall limit the Board's or Committee's authority to take any action permitted pursuant to Section 3(c). The Board reserves the right to amend the Plan and/or the terms of any outstanding Stock Options to the extent reasonably necessary to comply with the requirements of the exemption pursuant to paragraph (f)(4) of Rule 12h-1 of the Exchange Act.

SECTION 13. STATUS OF PLAN

With respect to the portion of any Award that has not been exercised and any payments in cash, Stock or other consideration not received by a grantee, a grantee shall have no rights greater than those of a general creditor of the Company unless the Committee shall otherwise expressly so determine in connection with any Award.

SECTION 14. GENERAL PROVISIONS

(a) No Distribution; Compliance with Legal Requirements. The Committee may require each person acquiring Shares pursuant to an Award to represent to and agree with the Company in writing that such person is acquiring the Shares without a view to distribution thereof. No Shares shall be issued pursuant to an Award until all applicable securities law and other legal and stock exchange or similar requirements have been satisfied. The Committee may require the placing of such stop-orders and restrictive legends on certificates for Stock and Awards as it deems appropriate.

(b) Delivery of Stock Certificates. Stock certificates to grantees under the Plan shall be deemed delivered for all purposes when the Company or a stock transfer agent of the Company shall have mailed such certificates in the United States mail, addressed to the grantee, at the grantee's last known address on file with the Company; provided that stock certificates to be held in escrow pursuant to Section 9 of the Plan shall be deemed delivered when the Company shall have recorded the issuance in its records. Uncertificated Stock shall be deemed delivered for all purposes when the Company or a stock transfer agent of the Company shall have given to the grantee by electronic mail (with proof of receipt) or by United States mail, addressed to the grantee, at the grantee's last known address on file with the Company, notice of issuance and recorded the issuance in its records (which may include electronic "book entry" records).

(c) No Employment Rights. The adoption of the Plan and the grant of Awards do not confer upon any Person any right to continued employment or Service Relationship with the Company or any Subsidiary.

(d) Trading Policy Restrictions. Option exercises and other Awards under the Plan shall be subject to the Company's insider trading policy-related restrictions, terms and conditions as may be established by the Committee, or in accordance with policies set by the Committee, from time to time.

(e) Designation of Beneficiary. Each grantee to whom an Award has been made under the Plan may designate a beneficiary or beneficiaries to exercise any Award on or after the grantee's death or receive any payment under any Award payable on or after the grantee's death. Any such designation shall be on a form provided for that purpose by the Committee and shall not be effective until received by the Committee. If no beneficiary has been designated by a deceased grantee, or if the designated beneficiaries have predeceased the grantee, the beneficiary shall be the grantee's estate.

(f) Legend. Any certificate(s) representing the Shares shall carry substantially the following legend (and with respect to uncertificated Stock, the book entries evidencing such shares shall contain the following notation):

The transferability of this certificate and the shares of stock represented hereby are subject to the restrictions, terms and conditions (including repurchase and restrictions against transfers) contained in the TCR², Inc. 2015 Stock Option and Grant Plan and any agreements entered into thereunder by and between the company and the holder of this certificate (a copy of which is available at the offices of the company for examination).

(g) Information to Holders of Options. In the event the Company is relying on the exemption from the registration requirements of Section 12(g) of the Exchange Act contained in paragraph (f)(1) of Rule 12h-1 of the Exchange Act, the Company shall provide the information described in Rule 701(e)(3), (4) and (5) of the Securities Act to all holders of Options in accordance with the requirements thereunder. The foregoing notwithstanding, the Company shall not be required to provide such information unless the optionholder has agreed in writing, on a form prescribed by the Company, to keep such information confidential.

SECTION 15. EFFECTIVE DATE OF PLAN

The Plan shall become effective upon adoption by the Board and shall be approved by stockholders in accordance with applicable state law and the Company's certificate of incorporation and Bylaws within 12 months thereafter. If the stockholders fail to approve the Plan within 12 months after its adoption by the Board of Directors, then any Awards granted or sold under the Plan shall be rescinded and no additional grants or sales shall thereafter be made under the Plan. Subject to such approval by stockholders and to the requirement that no Shares may be issued hereunder prior to such approval, Stock Options and other Awards may be granted hereunder on and after adoption of the Plan by the Board. No grants of Stock Options and other Awards may be made hereunder after the tenth anniversary of the date the Plan is adopted by the Board or the date the Plan is approved by the Company's stockholders, whichever is earlier.

SECTION 16. GOVERNING LAW

This Plan, all Awards and any controversy arising out of or relating to this Plan and all Awards shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the Commonwealth of Massachusetts, without regard to conflict of law principles that would result in the application of any law other than the law of the Commonwealth of Massachusetts.

DATE ADOPTED BY THE BOARD OF DIRECTORS: October 16, 2015

DATE APPROVED BY THE STOCKHOLDERS: October 16, 2015

TCR2, INC.
AMENDMENT NO. 1 TO
2015 STOCK OPTION AND GRANT PLAN

The TCR2, Inc. 2015 Stock Option and Grant Plan (the "Plan") is hereby amended by the Board of Directors as follows:

Section 3(a) of the Plan is hereby amended to decrease the total number of shares of Common Stock reserved and available for issuance under the Plan by 6,731,308 such that Section 3(a) of the Plan, as so amended, shall read in its entirety as follows:

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION

(a) Stock Issuable. The maximum number of Shares reserved and available for issuance under the Plan shall be 356,732 Shares, subject to adjustment as provided in Section 3(b). For purposes of this limitation, the Shares underlying any Awards that are forfeited, canceled, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) and Shares that are withheld upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding shall be added back to the Shares available for issuance under the Plan. Subject to such overall limitations, Shares may be issued up to such maximum number pursuant to any type or types of Award, and no more than 5,000,000 Shares may be issued pursuant to Incentive Stock Options. The Shares available for issuance under the Plan may be authorized but unissued Shares or Shares reacquired by the Company. Beginning on the date that the Company becomes subject to Section 162(m) of the Code, Options with respect to no more than 356,732 Shares shall be granted to any one individual in any calendar year period.

ADOPTED BY BOARD OF DIRECTORS:

May 26, 2016

TCR² THERAPEUTICS INC.
AMENDMENT NO. 2 TO
2015 STOCK OPTION AND GRANT PLAN

The TCR² Therapeutics Inc. 2015 Stock Option and Grant Plan, as amended (the “Plan”) is hereby amended by the Board of Directors as follows:

Section 3(a) of the Plan is hereby amended to increase the total number of Shares (as defined in the Plan) reserved and available for issuance under the Plan by 4,557,580 shares such that Section 3(a) of the Plan, as so amended, shall read in its entirety as follows:

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION

(a) Stock Issuable. The maximum number of Shares reserved and available for issuance under the Plan shall be 4,923,454 Shares, subject to adjustment as provided in Section 3(b). For purposes of this limitation, the Shares underlying any Awards that are forfeited, canceled, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) and Shares that are withheld upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding shall be added back to the Shares available for issuance under the Plan. Subject to such overall limitations, Shares may be issued up to such maximum number pursuant to any type or types of Award, and no more than 5,000,000 Shares may be issued pursuant to Incentive Stock Options. The Shares available for issuance under the Plan may be authorized but unissued Shares or Shares reacquired by the Company. Beginning on the date that the Company becomes subject to Section 162(m) of the Code, Options with respect to no more than 4,923,454 Shares shall be granted to any one individual in any calendar year period.

ADOPTED BY BOARD OF DIRECTORS: December 13 2016

ADOPTED BY STOCKHOLDERS: December 19, 2016

TCR² THERAPEUTICS INC.
AMENDMENT NO. 3 TO
2015 STOCK OPTION AND GRANT PLAN

The TCR² Therapeutics Inc. 2015 Stock Option and Grant Plan, as amended (the “Plan”) is hereby amended by the Board of Directors as follows:

Section 3(a) of the Plan is hereby amended to increase the total number of Shares (as defined in the Plan) reserved and available for issuance under the Plan by 4,557,580 shares such that Section 3(a) of the Plan, as so amended, shall read in its entirety as follows:

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION

(a) Stock Issuable. The maximum number of Shares reserved and available for issuance under the Plan shall be 7,823,454 Shares, subject to adjustment as provided in Section 3(b). For purposes of this limitation, the Shares underlying any Awards that are forfeited, canceled, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) and Shares that are withheld upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding shall be added back to the Shares available for issuance under the Plan. Subject to such overall limitations, Shares may be issued up to such maximum number pursuant to any type or types of Award, and no more than 7,823,454 Shares may be issued pursuant to Incentive Stock Options. The Shares available for issuance under the Plan may be authorized but unissued Shares or Shares reacquired by the Company. Beginning on the date that the Company becomes subject to Section 162(m) of the Code, Options with respect to no more than 7,823,454 Shares shall be granted to any one individual in any calendar year period.

ADOPTED BY BOARD OF DIRECTORS: December 6, 2017

ADOPTED BY STOCKHOLDERS: December 6, 2017

TCR² THERAPEUTICS INC.
AMENDMENT NO. 4 TO
2015 STOCK OPTION AND GRANT PLAN

The TCR² Therapeutics Inc. 2015 Stock Option and Grant Plan, as amended (the “Plan”) is hereby amended by the Board of Directors as follows:

Section 3(a) of the Plan is hereby amended to increase the total number of Shares (as defined in the Plan) reserved and available for issuance under the Plan by 5,000,000 shares such that Section 3(a) of the Plan, as so amended, shall read in its entirety as follows:

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION

(a) Stock Issuable. The maximum number of Shares reserved and available for issuance under the Plan shall be 12,823,454 Shares, subject to adjustment as provided in Section 3(b). For purposes of this limitation, the Shares underlying any Awards that are forfeited, canceled, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) and Shares that are withheld upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding shall be added back to the Shares available for issuance under the Plan. Subject to such overall limitations, Shares may be issued up to such maximum number pursuant to any type or types of Award, and no more than 12,823,454 Shares may be issued pursuant to Incentive Stock Options. The Shares available for issuance under the Plan may be authorized but unissued Shares or Shares reacquired by the Company. Beginning on the date that the Company becomes subject to Section 162(m) of the Code, Options with respect to no more than 12,823,454 Shares shall be granted to any one individual in any calendar year period.

ADOPTED BY BOARD OF DIRECTORS: February 28, 2018

ADOPTED BY STOCKHOLDERS: February 28, 2018

TCR² THERAPEUTICS INC.
AMENDMENT NO. 5 TO
2015 STOCK OPTION AND GRANT PLAN

The TCR² Therapeutics Inc. 2015 Stock Option and Grant Plan, as amended (the “Plan”) is hereby amended by the Board of Directors as follows:

Section 3(a) of the Plan is hereby amended to increase the total number of Shares (as defined in the Plan) reserved and available for issuance under the Plan by 3,000,000 shares such that Section 3(a) of the Plan, as so amended, shall read in its entirety as follows:

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION

(a) Stock Issuable. The maximum number of Shares reserved and available for issuance under the Plan shall be 15,823,454 Shares, subject to adjustment as provided in Section 3(b). For purposes of this limitation, the Shares underlying any Awards that are forfeited, canceled, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) and Shares that are withheld upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding shall be added back to the Shares available for issuance under the Plan. Subject to such overall limitations, Shares may be issued up to such maximum number pursuant to any type or types of Award, and no more than 15,823,454 Shares may be issued pursuant to Incentive Stock Options. The Shares available for issuance under the Plan may be authorized but unissued Shares or Shares reacquired by the Company. Beginning on the date that the Company becomes subject to Section 162(m) of the Code, Options with respect to no more than 15,823,454 Shares shall be granted to any one individual in any calendar year period.

ADOPTED BY BOARD OF DIRECTORS: July 26, 2018

**INCENTIVE STOCK OPTION GRANT NOTICE
UNDER THE TCR² THERAPEUTICS INC.
2015 STOCK OPTION AND GRANT PLAN**

Pursuant to the TCR² Therapeutics Inc. 2015 Stock Option and Grant Plan (the “Plan”), TCR² Therapeutics Inc., a Delaware corporation (together with any successor, the “Company”), has granted to the individual named below, an option (the “Stock Option”) to purchase on or prior to the Expiration Date, or such earlier date as is specified herein, all or any part of the number of shares of Common Stock, par value \$0.0001 per share (“Common Stock”), of the Company indicated below (the “Shares”), at the Option Exercise Price per share, subject to the terms and conditions set forth in this Incentive Stock Option Grant Notice (the “Grant Notice”), the attached Incentive Stock Option Agreement (the “Agreement”) and the Plan. This Stock Option is intended to qualify as an “incentive stock option” as defined in Section 422(b) of the Internal Revenue Code of 1986, as amended from time to time (the “Code”). To the extent that any portion of the Stock Option does not so qualify, it shall be deemed a non-qualified stock option.

Name of Optionee: _____ (the “Optionee”)

No. of Shares: _____ Shares of Common Stock

Grant Date: _____

Vesting Commencement Date: _____ (the “Vesting Commencement Date”)

Expiration Date: _____ (the “Expiration Date”)

Option Exercise Price/Share: \$_____ (the “Option Exercise Price”)

Vesting Schedule: 25 percent of the Shares shall vest and become exercisable on the first anniversary of the Vesting Commencement Date; provided that the Optionee continues to have a Service Relationship with the Company at such time. Thereafter, the remaining 75 percent of the Shares shall vest and become exercisable in 36 equal monthly installments following the first anniversary of the Vesting Commencement Date until [_____], on which date, subject to the vesting conditions herein, all remaining Shares shall vest, provided the Optionee continues to have a Service Relationship with the Company on each vesting date. Notwithstanding anything in the Agreement to the contrary, in the case of a Sale Event, this Stock Option and the Shares shall be treated as provided in Section 3(c) of the Plan.

Attachments: Incentive Stock Option Agreement, 2015 Stock Option and Grant Plan

**INCENTIVE STOCK OPTION AGREEMENT
UNDER THE TCR² THERAPEUTICS INC.
2015 STOCK OPTION AND GRANT PLAN**

All capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Grant Notice and the Plan.

1. VESTING, EXERCISABILITY AND TERMINATION.

(a) No portion of this Stock Option may be exercised until such portion shall have vested and become exercisable.

(b) Except as set forth below, and subject to the determination of the Committee in its sole discretion to accelerate the vesting schedule hereunder, this Stock Option shall be vested and exercisable on the respective dates indicated below:

(i) This Stock Option shall initially be unvested and unexercisable.

(ii) This Stock Option shall vest and become exercisable in accordance with the Vesting Schedule set forth in the Grant Notice.

(c) Termination. Except as may otherwise be provided by the Committee, if the Optionee's Service Relationship is terminated, the period within which to exercise this Stock Option will be subject to earlier termination as set forth below (and if not exercised within such period, shall thereafter terminate subject, in each case, to Section 3(c) of the Plan):

(i) Termination Due to Death or Disability. If the Optionee's Service Relationship terminates by reason of such Optionee's death or Disability, this Stock Option may be exercised, to the extent exercisable on the date of such termination, by the Optionee, the Optionee's legal representative or legatee for a period of 12 months from the date of death or Disability or until the Expiration Date, if earlier.

(ii) Other Termination. If the Optionee's Service Relationship terminates for any reason other than death or Disability, and unless otherwise determined by the Committee, this Stock Option may be exercised, to the extent exercisable on the date of termination, for a period of 90 days from the date of termination or until the Expiration Date, if earlier; provided however, if the Optionee's Service Relationship is terminated for Cause, this Stock Option shall terminate immediately upon the date of such termination.

For purposes hereof, the Committee's determination of the reason for termination of the Optionee's Service Relationship shall be conclusive and binding on the Optionee and his or her representatives or legatees. Any portion of this Stock Option that is not vested and exercisable on the date of termination of the Service Relationship shall terminate immediately and be null and void.

(d) It is understood and intended that this Stock Option is intended to qualify as an “incentive stock option” as defined in Section 422 of the Code to the extent permitted under applicable law. Accordingly, the Optionee understands that in order to obtain the benefits of an incentive stock option under Section 422 of the Code, no sale or other disposition may be made of Shares for which incentive stock option treatment is desired within the one-year period beginning on the day after the day of the transfer of such Shares to him or her, nor within the two-year period beginning on the day after Grant Date of this Stock Option and further that this Stock Option must be exercised within three months after termination of employment as an employee (or 12 months in the case of death or disability) to qualify as an incentive stock option. If the Optionee disposes (whether by sale, gift, transfer or otherwise) of any such Shares within either of these periods, he or she will notify the Company within 30 days after such disposition. The Optionee also agrees to provide the Company with any information concerning any such dispositions required by the Company for tax purposes. Further, to the extent this Stock Option and any other incentive stock options of the Optionee having an aggregate Fair Market Value in excess of \$100,000 (determined as of the Grant Date) first become exercisable in any year, such options will not qualify as incentive stock options.

2. EXERCISE OF STOCK OPTION.

(a) The Optionee may exercise this Stock Option only in the following manner: Prior to the Expiration Date, the Optionee may deliver a Stock Option exercise notice (an “Exercise Notice”) in the form of Appendix A hereto indicating his or her election to purchase some or all of the Shares with respect to which this Stock Option is then exercisable. Such notice shall specify the number of Shares to be purchased. Payment of the purchase price may be made by one or more of the methods described in Section 5 of the Plan, subject to the limitations contained in such Section of the Plan, including the requirement that the Committee specifically approve in advance certain payment methods.

(b) Notwithstanding any other provision hereof or of the Plan, no portion of this Stock Option shall be exercisable after the Expiration Date.

3. INCORPORATION OF PLAN. Notwithstanding anything herein to the contrary, this stock option shall be subject to and governed by all the terms and conditions of the plan.

4. TRANSFERABILITY OF STOCK OPTION. This stock option is personal to the optionee and is not transferable by the optionee in any manner other than by will or by the laws of descent and distribution. The stock option may be exercised during the optionee’s lifetime only by the optionee (or by the optionee’s guardian or personal representative in the event of the optionee’s incapacity). The optionee may elect to designate a beneficiary by providing written notice of the name of such beneficiary to the company, and may revoke or change such designation at any time by filing written notice of revocation or change with the company; such beneficiary may exercise the optionee’s stock option in the event of the optionee’s death to the extent provided herein. If the optionee does not designate a beneficiary, or if the designated beneficiary predeceases the optionee, the legal representative of the optionee may exercise this stock option to the extent provided herein in the event of the optionee’s death.

5. RESTRICTIONS ON TRANSFER OF SHARES. The shares acquired upon exercise of the stock option shall be subject to certain transfer restrictions and other limitations including, without limitation, the provisions contained in section 9 of the plan.

6. MISCELLANEOUS PROVISIONS.

(a) Equitable Relief. The parties hereto agree and declare that legal remedies may be inadequate to enforce the provisions of this Agreement and that equitable relief, including specific performance and injunctive relief, may be used to enforce the provisions of this Agreement.

(b) Adjustments for Changes in Capital Structure. If, as a result of any reorganization, recapitalization, reincorporation, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Common Stock, the outstanding shares of Common Stock are increased or decreased or are exchanged for a different number or kind of securities of the Company, the restrictions contained in this Agreement shall apply with equal force to additional and/or substitute securities, if any, received by the Optionee in exchange for, or by virtue of his or her ownership of, this Stock Option or Shares acquired pursuant thereto.

(c) Change and Modifications. This Agreement may not be orally changed, modified or terminated, nor shall any oral waiver of any of its terms be effective. This Agreement may be changed, modified or terminated only by an agreement in writing signed by the Company and the Optionee.

(d) Governing Law. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the Commonwealth of Massachusetts, without regard to conflict of law principles that would result in the application of any law other than the law of the Commonwealth of Massachusetts.

(e) Headings. The headings are intended only for convenience in finding the subject matter and do not constitute part of the text of this Agreement and shall not be considered in the interpretation of this Agreement.

(f) Saving Clause. If any provision(s) of this Agreement shall be determined to be illegal or unenforceable, such determination shall in no manner affect the legality or enforceability of any other provision hereof.

(g) Notices. All notices, requests, consents and other communications shall be in writing and be deemed given when delivered personally, by telex or facsimile transmission or when received if mailed by first class registered or certified mail, postage prepaid. Notices to the Company or the Optionee shall be addressed as set forth underneath their signatures below, or to such other address or addresses as may have been furnished by such party in writing to the other.

(h) Benefit and Binding Effect. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto, their respective successors, assigns, and legal representatives. The Company has the right to assign this Agreement, and such assignee shall become entitled to all the rights of the Company hereunder to the extent of such assignment.

(i) Counterparts. For the convenience of the parties and to facilitate execution, this Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same document.

(j) Integration. This Agreement constitutes the entire agreement between the parties with respect to this Stock Option and supersedes all prior agreements and discussions between the parties concerning such subject matter.

7. DISPUTE RESOLUTION.

(a) Except as provided below, any dispute arising out of or relating to the Plan or this Stock Option, this Agreement, or the breach, termination or validity of the Plan, this Stock Option or this Agreement, shall be finally settled by binding arbitration conducted expeditiously in accordance with the J.A.M.S./Endispute Comprehensive Arbitration Rules and Procedures (the "J.A.M.S. Rules"). The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. Sections 1, 6, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. The place of arbitration shall be Boston, Massachusetts.

(b) The arbitration shall commence within 60 days of the date on which a written demand for arbitration is filed by any party hereto. In connection with the arbitration proceeding, the arbitrator shall have the power to order the production of documents by each party and any third-party witnesses. In addition, each party may take up to three depositions as of right, and the arbitrator may in his or her discretion allow additional depositions upon good cause shown by the moving party. However, the arbitrator shall not have the power to order the answering of interrogatories or the response to requests for admission. In connection with any arbitration, each party to the arbitration shall provide to the other, no later than seven business days before the date of the arbitration, the identity of all persons that may testify at the arbitration and a copy of all documents that may be introduced at the arbitration or considered or used by a party's witness or expert. The arbitrator's decision and award shall be made and delivered within six months of the selection of the arbitrator. The arbitrator's decision shall set forth a reasoned basis for any award of damages or finding of liability. The arbitrator shall not have power to award damages in excess of actual compensatory damages and shall not multiply actual damages or award punitive damages, and each party hereby irrevocably waives any claim to such damages.

(c) The Company, the Optionee, each party to the Agreement and any other holder of Shares issued pursuant to this Agreement (each, a "Party") covenants and agrees that such party will participate in the arbitration in good faith. This Section 7 applies equally to requests for temporary, preliminary or permanent injunctive relief, except that in the case of temporary or preliminary injunctive relief any party may proceed in court without prior arbitration for the limited purpose of avoiding immediate and irreparable harm.

(d) Each Party (i) hereby irrevocably submits to the jurisdiction of any United States District Court of competent jurisdiction for the purpose of enforcing the award or decision in any such proceeding, (ii) hereby waives, and agrees not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above named courts, that its property is exempt or immune from attachment or execution (except as protected by applicable law), that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court, and (iii) hereby waives and agrees not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such court. Each Party hereby consents to service of process by registered mail at the address to which notices are to be given. Each Party agrees that its, his or her submission to jurisdiction and its, his or her consent to service of process by mail is made for the express benefit of each other Party. Final judgment against any Party in any such action, suit or proceeding may be enforced in other jurisdictions by suit, action or proceeding on the judgment, or in any other manner provided by or pursuant to the laws of such other jurisdiction.

8. **WAIVER OF STATUTORY INFORMATION RIGHTS.** The optionee understands and agrees that, but for the waiver made herein, the optionee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the company, if any, under the circumstances and in the manner provided in section 220 of the general corporation law of delaware (any and all such rights, and any and all such other rights of the optionee as may be provided for in section 220, the "inspection rights"). In light of the foregoing, until the first sale of stock of the company to the general public pursuant to a registration statement filed with and declared effective by the securities and exchange commission under the securities act, the optionee hereby unconditionally and irrevocably waives the inspection rights, whether such inspection rights would be exercised or pursued directly or indirectly pursuant to section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the inspection rights. The foregoing waiver shall not affect any rights of a director, in his or her capacity as such, under section 220. The foregoing waiver shall not apply to any contractual inspection rights of the optionee under any other written agreement between the optionee and the company.

[SIGNATURE PAGE FOLLOWS]

The foregoing Agreement is hereby accepted and the terms and conditions thereof hereby agreed to by the undersigned as of the date first above written.

TCR² Therapeutics Inc.

By: _____

 Name: _____

 Title: _____

Address: _____

The undersigned hereby acknowledges receiving and reviewing a copy of the Plan, including, without limitation, Section 9 thereof, and understands that this Stock Option is subject to the terms of the Plan and of this Agreement. This Agreement is hereby accepted, and the terms and conditions of the Plan, the Grant Notice and this Agreement, SPECIFICALLY INCLUDING THE ARBITRATION PROVISIONS SET FORTH IN SECTION 7 AND THE WAIVER OF STATUTORY INFORMATION RIGHTS SET FORTH IN SECTION 8 OF THIS AGREEMENT, are hereby agreed to, by the undersigned as of the date first above written.

OPTIONEE:

Name: _____

Address: _____

[SPOUSE’S CONSENT¹

I acknowledge that I have read the
foregoing Incentive Stock Option Agreement
and understand the contents thereof.

_____]

¹ A spouse’s consent is recommended only if the Optionee’s state of residence is one of the following community property states: Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, Washington and Wisconsin.

DESIGNATED BENEFICIARY:

Beneficiary's Address:

STOCK OPTION EXERCISE NOTICE

TCR2 Therapeutics Inc.
Attention: Treasurer

Pursuant to the terms of the grant notice and stock option agreement between the undersigned and TCR2 Therapeutics Inc. (the “Company”) dated _____ (the “Agreement”) under the TCR2 Therapeutics Inc. 2015 Stock Option and Grant Plan, I, [Insert Name] _____, hereby [Circle One] partially/fully exercise such option by including herein payment in the amount of \$_____ representing the purchase price for [Fill in number of Shares] _____ Shares. I have chosen the following form(s) of payment:

- ☐ 1. Cash
- ☐ 2. Certified or bank check payable to TCR2 Therapeutics Inc.
- ☐ 3. Other (as referenced in the Agreement and described in the Plan (please describe))
_____.

In connection with my exercise of the option as set forth above, I hereby represent and warrant to the Company as follows:

- (i) I am purchasing the Shares for my own account for investment only, and not for resale or with a view to the distribution thereof.
- (ii) I have had such an opportunity as I have deemed adequate to obtain from the Company such information as is necessary to permit me to evaluate the merits and risks of my investment in the Company and have consulted with my own advisers with respect to my investment in the Company.
- (iii) I have sufficient experience in business, financial and investment matters to be able to evaluate the risks involved in the purchase of the Shares and to make an informed investment decision with respect to such purchase.
- (iv) I can afford a complete loss of the value of the Shares and am able to bear the economic risk of holding such Shares for an indefinite period of time.
- (v) I understand that the Shares may not be registered under the Securities Act of 1933 (it being understood that the Shares are being issued and sold in reliance on the exemption provided in Rule 701 thereunder) or any applicable state securities or “blue sky” laws and may not be sold or otherwise transferred or disposed of in the absence of an effective registration statement under the Securities Act of 1933 and under any applicable state securities or “blue sky” laws (or exemptions from the registration requirement thereof). I further acknowledge that certificates representing Shares will bear restrictive legends reflecting the foregoing and/or that book entries for uncertificated Shares will include similar restrictive notations.

(vi) I have read and understand the Plan and acknowledge and agree that the Shares are subject to all of the relevant terms of the Plan, including without limitation, the transfer restrictions set forth in Section 9 of the Plan.

(vii) I understand and agree that the Company has a right of first refusal with respect to the Shares pursuant to Section 9(b) of the Plan.

(viii) I understand and agree that the Company has certain repurchase rights with respect to the Shares pursuant to Section 9(c) of the Plan.

(ix) I understand and agree that I may not sell or otherwise transfer or dispose of the Shares for a period of time following the effective date of a public offering by the Company as described in Section 9(f) of the Plan.

(x) I waive any and all rights that I or my proxy may or do have under Section 220 of the General Corporation Law of Delaware (“Section 220”) to inspect, make copies of, extract from, or obtain any information in any format regarding the Company’s or a subsidiary’s stock ledger, financial information, statements or audits, or other books and records, whether or not for a legitimate financial planning or other proper purpose. I have had sufficient opportunity to consult with my own advisers with respect to the aforementioned waiver and understand and agree that the Company will not be obligated to provide information requested pursuant to Section 220 unless it voluntarily chooses to do so or following the effective date of a public offering by the Company.

(xi) I understand and agree that, if requested by the Company at its sole discretion, as a condition to the issuance of the Shares hereunder, I will become a party to:

(A) that certain Right of First Refusal and Co-Sale Agreement between the Company and certain of its stockholders dated as of October 16, 2015, for so long as such agreement is in effect and as the same may be amended or amended and restated from time to time (the “Right of First Refusal and Co-Sale Agreement”), and I shall thereby be bound by, and subject to, all the terms and provisions of the Right of First Refusal and Co-Sale Agreement applicable to a Key Holder thereunder, and that I will execute a counterpart signature page thereto promptly upon such request; and

(B) that certain Voting Agreement between the Company and certain of its stockholders dated as of October 16, 2015, for so long as such agreement is in effect and as the same may be amended or amended and restated from time to time (the “Voting Agreement”), and I shall thereby be bound by, and subject to, all the terms and provisions of the Voting Agreement applicable to a Key Holder thereunder, and that I will execute an Adoption Agreement thereto promptly upon such request.

Sincerely yours,

Name:

Address:

Date: _____

**NON-QUALIFIED STOCK OPTION GRANT NOTICE
UNDER THE TCR² THERAPEUTICS INC.
2015 STOCK OPTION AND GRANT PLAN**

Pursuant to the TCR² Therapeutics Inc. 2015 Stock Option and Grant Plan (the “Plan”), TCR² Therapeutics Inc., a Delaware corporation (together with any successor, the “Company”), has granted to the individual named below, an option (the “Stock Option”) to purchase on or prior to the Expiration Date, or such earlier date as is specified herein, all or any part of the number of shares of Common Stock, par value \$0.0001 per share (“Common Stock”), of the Company indicated below (the “Shares”), at the Option Exercise Price per share, subject to the terms and conditions set forth in this Non-Qualified Stock Option Grant Notice (the “Grant Notice”), the attached Non-Qualified Stock Option Agreement (the “Agreement”) and the Plan. This Stock Option is not intended to qualify as an “incentive stock option” as defined in Section 422(b) of the Internal Revenue Code of 1986, as amended from time to time (the “Code”).

Name of Optionee: _____ (the “Optionee”)

No. of Shares: _____ Shares of Common Stock

Grant Date: _____

Vesting Commencement Date: _____ (the “Vesting Commencement Date”)

Expiration Date: _____ (the “Expiration Date”)

Option Exercise Price/Share: \$_____ (the “Option Exercise Price”)

Vesting Schedule: 25 percent of the Shares shall vest and become exercisable on the first anniversary of the Vesting Commencement Date; provided that the Optionee continues to have a Service Relationship with the Company at such time. Thereafter, the remaining 75 percent of the Shares shall vest and become exercisable in 36 equal monthly installments following the first anniversary of the Vesting Commencement Date until [_____], on which date, subject to the vesting conditions herein, all remaining Shares shall vest and become exercisable, provided the Optionee continues to have a Service Relationship with the Company on each vesting date. Notwithstanding anything in the Agreement to the contrary, in the case of a Sale Event, this Stock Option and the Shares shall be treated as provided in Section 3(c) of the Plan.

Attachments: Non-Qualified Stock Option Agreement, 2015 Stock Option and Grant Plan

**NON-QUALIFIED STOCK OPTION AGREEMENT
UNDER THE TCR² THERAPEUTICS INC.
2015 STOCK OPTION AND GRANT PLAN**

All capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Grant Notice and the Plan.

SECTION 1. VESTING, EXERCISABILITY AND TERMINATION.

(a) No portion of this Stock Option may be exercised until such portion shall have vested and become exercisable.

(b) Except as set forth below, and subject to the determination of the Committee in its sole discretion to accelerate the vesting schedule hereunder, this Stock Option shall be vested and exercisable on the respective dates indicated below:

(i) This Stock Option shall initially be unvested and unexercisable.

(ii) This Stock Option shall vest and become exercisable in accordance with the Vesting Schedule set forth in the Grant Notice.

(c) Termination. Except as may otherwise be provided by the Committee, if the Optionee's Service Relationship is terminated, the period within which to exercise this Stock Option will be subject to earlier termination as set forth below (and if not exercised within such period, shall thereafter terminate subject, in each case, to Section 3(c) of the Plan):

(i) Termination Due to Death or Disability. If the Optionee's Service Relationship terminates by reason of such Optionee's death or Disability, this Stock Option may be exercised, to the extent exercisable on the date of such termination, by the Optionee, the Optionee's legal representative or legatee for a period of 12 months from the date of death or Disability or until the Expiration Date, if earlier.

(ii) Other Termination. If the Optionee's Service Relationship terminates for any reason other than death or Disability, and unless otherwise determined by the Committee, this Stock Option may be exercised, to the extent exercisable on the date of termination, for a period of 90 days from the date of termination or until the Expiration Date, if earlier; provided however, if the Optionee's Service Relationship is terminated for Cause, this Stock Option shall terminate immediately upon the date of such termination.

For purposes hereof, the Committee's determination of the reason for termination of the Optionee's Service Relationship shall be conclusive and binding on the Optionee and his or her representatives or legatees and any Permitted Transferee. Any portion of this Stock Option that is not vested and exercisable on the date of termination of the Service Relationship shall terminate immediately and be null and void.

SECTION 2. EXERCISE OF STOCK OPTION.

(a) The Optionee may exercise this Stock Option only in the following manner: Prior to the Expiration Date, the Optionee may deliver a Stock Option exercise notice (an "Exercise Notice") in the form of Appendix A hereto indicating his or her election to purchase some or all of the Shares with respect to which this Stock Option is then exercisable. Such notice shall specify the number of Shares to be purchased. Payment of the purchase price may be made by one or more of the methods described in Section 5 of the Plan, subject to the limitations contained in such Section of the Plan, including the requirement that the Committee specifically approve in advance certain payment methods.

(b) Notwithstanding any other provision hereof or of the Plan, no portion of this Stock Option shall be exercisable after the Expiration Date.

SECTION 3. INCORPORATION OF PLAN. Notwithstanding anything herein to the contrary, this stock option shall be subject to and governed by all the terms and conditions of the plan.

SECTION 4. TRANSFERABILITY OF STOCK OPTION. This stock option is personal to the optionee and is not transferable by the optionee in any manner other than by will or by the laws of descent and distribution. The stock option may be exercised during the optionee's lifetime only by the optionee (or by the optionee's guardian or personal representative in the event of the optionee's incapacity). The optionee may elect to designate a beneficiary by providing written notice of the name of such beneficiary to the company, and may revoke or change such designation at any time by filing written notice of revocation or change with the company; such beneficiary may exercise the optionee's stock option in the event of the optionee's death to the extent provided herein. If the optionee does not designate a beneficiary, or if the designated beneficiary predeceases the optionee, the legal representative of the optionee may exercise this stock option to the extent provided herein in the event of the optionee's death.

SECTION 5. RESTRICTIONS ON TRANSFER OF SHARES. The shares acquired upon exercise of the stock option shall be subject to certain transfer restrictions and other limitations including, without limitation, the provisions contained in section 9 of the plan.

SECTION 6. MISCELLANEOUS PROVISIONS.

(a) Equitable Relief. The parties hereto agree and declare that legal remedies may be inadequate to enforce the provisions of this Agreement and that equitable relief, including specific performance and injunctive relief, may be used to enforce the provisions of this Agreement.

(b) Adjustments for Changes in Capital Structure. If, as a result of any reorganization, recapitalization, reincorporation, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Common Stock, the outstanding shares of Common Stock are increased or decreased or are exchanged for a different number or kind of securities of the Company, the restrictions contained in this Agreement shall apply with equal force to additional and/or substitute securities, if any, received by the Optionee in exchange for, or by virtue of his or her ownership of, this Stock Option or Shares acquired pursuant thereto.

(c) Change and Modifications. This Agreement may not be orally changed, modified or terminated, nor shall any oral waiver of any of its terms be effective. This Agreement may be changed, modified or terminated only by an agreement in writing signed by the Company and the Optionee.

(d) Governing Law. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the Commonwealth of Massachusetts, without regard to conflict of law principles that would result in the application of any law other than the law of the Commonwealth of Massachusetts.

(e) Headings. The headings are intended only for convenience in finding the subject matter and do not constitute part of the text of this Agreement and shall not be considered in the interpretation of this Agreement.

(f) Saving Clause. If any provision(s) of this Agreement shall be determined to be illegal or unenforceable, such determination shall in no manner affect the legality or enforceability of any other provision hereof.

(g) Notices. All notices, requests, consents and other communications shall be in writing and be deemed given when delivered personally, by telex or facsimile transmission or when received if mailed by first class registered or certified mail, postage prepaid. Notices to the Company or the Optionee shall be addressed as set forth underneath their signatures below, or to such other address or addresses as may have been furnished by such party in writing to the other.

(h) Benefit and Binding Effect. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto, their respective successors, assigns, and legal representatives. The Company has the right to assign this Agreement, and such assignee shall become entitled to all the rights of the Company hereunder to the extent of such assignment.

(i) Counterparts. For the convenience of the parties and to facilitate execution, this Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same document.

(j) Integration. This Agreement constitutes the entire agreement between the parties with respect to this Stock Option and supersedes all prior agreements and discussions between the parties concerning such subject matter.

SECTION 7. DISPUTE RESOLUTION.

(a) Except as provided below, any dispute arising out of or relating to the Plan or this Stock Option, this Agreement, or the breach, termination or validity of the Plan, this Stock Option or this Agreement, shall be finally settled by binding arbitration conducted expeditiously in accordance with the J.A.M.S./Endispute Comprehensive Arbitration Rules and Procedures (the "J.A.M.S. Rules"). The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. Sections 1-16, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. The place of arbitration shall be Boston, Massachusetts.

(b) The arbitration shall commence within 60 days of the date on which a written demand for arbitration is filed by any party hereto. In connection with the arbitration proceeding, the arbitrator shall have the power to order the production of documents by each party and any third-party witnesses. In addition, each party may take up to three depositions as of right, and the arbitrator may in his or her discretion allow additional depositions upon good cause shown by the moving party. However, the arbitrator shall not have the power to order the answering of interrogatories or the response to requests for admission. In connection with any arbitration, each party to the arbitration shall provide to the other, no later than seven business days before the date of the arbitration, the identity of all persons that may testify at the arbitration and a copy of all documents that may be introduced at the arbitration or considered or used by a party's witness or expert. The arbitrator's decision and award shall be made and delivered within six months of the selection of the arbitrator. The arbitrator's decision shall set forth a reasoned basis for any award of damages or finding of liability. The arbitrator shall not have power to award damages in excess of actual compensatory damages and shall not multiply actual damages or award punitive damages, and each party hereby irrevocably waives any claim to such damages.

(c) The Company, the Optionee, each party to the Agreement and any other holder of Shares issued pursuant to this Agreement (each, a "Party") covenants and agrees that such party will participate in the arbitration in good faith. This Section 7 applies equally to requests for temporary, preliminary or permanent injunctive relief, except that in the case of temporary or preliminary injunctive relief any party may proceed in court without prior arbitration for the limited purpose of avoiding immediate and irreparable harm.

(d) Each Party (i) hereby irrevocably submits to the jurisdiction of any United States District Court of competent jurisdiction for the purpose of enforcing the award or decision in any such proceeding, (ii) hereby waives, and agrees not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above named courts, that its property is exempt or immune from attachment or execution (except as protected by applicable law), that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court, and (iii) hereby waives and agrees not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such court. Each Party hereby consents to service of process by registered mail at the address to which notices are to be given. Each Party agrees that its, his or her submission to jurisdiction and its, his or her consent to service of process by mail is made for the express benefit of each other Party. Final judgment against any Party in any such action, suit or proceeding may be enforced in other jurisdictions by suit, action or proceeding on the judgment, or in any other manner provided by or pursuant to the laws of such other jurisdiction.

SECTION 8. WAIVER OF STATUTORY INFORMATION RIGHTS. The optionee understands and agrees that, but for the waiver made herein, the optionee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the company, if any, under the circumstances and in the manner provided in section 220 of the general corporation law of

delaware (any and all such rights, and any and all such other rights of the optionee as may be provided for in section 220, the “inspection rights”). In light of the foregoing, until the first sale of stock of the company to the general public pursuant to a registration statement filed with and declared effective by the securities and exchange commission under the securities act, the optionee hereby unconditionally and irrevocably waives the inspection rights, whether such inspection rights would be exercised or pursued directly or indirectly pursuant to section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the inspection rights. The foregoing waiver shall not affect any rights of a director, in his or her capacity as such, under section 220. The foregoing waiver shall not apply to any contractual inspection rights of the optionee under any other written agreement between the optionee and the company.

[SIGNATURE PAGE FOLLOWS]

The foregoing Agreement is hereby accepted and the terms and conditions thereof hereby agreed to by the undersigned as of the date first above written.

TCR² Therapeutics Inc.

By: _____

 Name: _____

 Title: _____

Address: _____

The undersigned hereby acknowledges receiving and reviewing a copy of the Plan, including, without limitation, Section 9 thereof, and understands that this Stock Option is subject to the terms of the Plan and of this Agreement. This Agreement is hereby accepted, and the terms and conditions of the Plan, the Grant Notice and this Agreement, SPECIFICALLY INCLUDING THE ARBITRATION PROVISIONS SET FORTH IN SECTION 7 AND THE WAIVER OF STATUTORY INFORMATION RIGHTS SET FORTH IN SECTION 8 OF THIS AGREEMENT, are hereby agreed to, by the undersigned as of the date first above written.

OPTIONEE:

Name: _____

Address: _____

[SPOUSE’S CONSENT²

I acknowledge that I have read the
foregoing Non-Qualified Stock Option Agreement
and understand the contents thereof.

_____]

² A spouse’s consent is recommended only if the Optionee’s state of residence is one of the following community property states: Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, Washington and Wisconsin.

DESIGNATED BENEFICIARY:

Beneficiary's Address:

STOCK OPTION EXERCISE NOTICE

TCR2 Therapeutics Inc.
Attention: Treasurer

Pursuant to the terms of the grant notice and stock option agreement between the undersigned and TCR2 Therapeutics Inc. (the “Company”) dated (the “Agreement”) under the TCR2 Therapeutics Inc. 2015 Stock Option and Grant Plan, I, [Insert Name] , hereby [Circle One] partially/fully exercise such option by including herein payment in the amount of \$ _____ representing the purchase price for [Fill in number of Shares] Shares. I have chosen the following form(s) of payment:

- ☐ 1. Cash
- ☐ 2. Certified or bank check payable to TCR2 Therapeutics Inc.
- ☐ 3. Other (as referenced in the Agreement and described in the Plan (please describe))
_____.

In connection with my exercise of the option as set forth above, I hereby represent and warrant to the Company as follows:

(i) I am purchasing the Shares for my own account for investment only, and not for resale or with a view to the distribution thereof.

(ii) I have had such an opportunity as I have deemed adequate to obtain from the Company such information as is necessary to permit me to evaluate the merits and risks of my investment in the Company and have consulted with my own advisers with respect to my investment in the Company.

(iii) I have sufficient experience in business, financial and investment matters to be able to evaluate the risks involved in the purchase of the Shares and to make an informed investment decision with respect to such purchase.

(iv) I can afford a complete loss of the value of the Shares and am able to bear the economic risk of holding such Shares for an indefinite period of time.

(v) I understand that the Shares may not be registered under the Securities Act of 1933 (it being understood that the Shares are being issued and sold in reliance on the exemption provided in Rule 701 thereunder) or any applicable state securities or “blue sky” laws and may not be sold or otherwise transferred or disposed of in the absence of an effective registration statement under the Securities Act of 1933 and under any applicable state securities or “blue sky” laws (or exemptions from the registration requirement thereof). I further acknowledge that certificates representing Shares will bear restrictive legends reflecting the foregoing and/or that book entries for uncertificated Shares will include similar restrictive notations.

(vi) I have read and understand the Plan and acknowledge and agree that the Shares are subject to all of the relevant terms of the Plan, including without limitation, the transfer restrictions set forth in Section 9 of the Plan.

(vii) I understand and agree that the Company has a right of first refusal with respect to the Shares pursuant to Section 9(b) of the Plan.

(viii) I understand and agree that the Company has certain repurchase rights with respect to the Shares pursuant to Section 9(c) of the Plan.

(ix) I understand and agree that I may not sell or otherwise transfer or dispose of the Shares for a period of time following the effective date of a public offering by the Company as described in Section 9(f) of the Plan.

(x) I waive any and all rights that I or my proxy may or do have under Section 220 of the General Corporation Law of Delaware (“Section 220”) to inspect, make copies of, extract from, or obtain any information in any format regarding the Company’s or a subsidiary’s stock ledger, financial information, statements or audits, or other books and records, whether or not for a legitimate financial planning or other proper purpose. I have had sufficient opportunity to consult with my own advisers with respect to the aforementioned waiver and understand and agree that the Company will not be obligated to provide information requested pursuant to Section 220 unless it voluntarily chooses to do so or following the effective date of a public offering by the Company.

(xi) I understand and agree that, if requested by the Company at its sole discretion, as a condition to the issuance of the Shares hereunder, I will become a party to:

(A) that certain Right of First Refusal and Co-Sale Agreement between the Company and certain of its stockholders dated as of October 16, 2015, for so long as such agreement is in effect and as the same may be amended or amended and restated from time to time (the “Right of First Refusal and Co-Sale Agreement”), and I shall thereby be bound by, and subject to, all the terms and provisions of the Right of First Refusal and Co-Sale Agreement applicable to a Key Holder thereunder, and that I will execute a counterpart signature page thereto promptly upon such request; and

(B) that certain Voting Agreement between the Company and certain of its stockholders dated as of October 16, 2015, for so long as such agreement is in effect and as the same may be amended or amended and restated from time to time (the “Voting Agreement”), and I shall thereby be bound by, and subject to, all the terms and provisions of the Voting Agreement applicable to a Key Holder thereunder, and that I will execute an Adoption Agreement thereto promptly upon such request.

Sincerely yours,

Name: _____

Address:

Date: _____

**RESTRICTED STOCK AWARD NOTICE
UNDER THE TCR² THERAPEUTICS INC.
2015 STOCK OPTION AND GRANT PLAN**

Pursuant to the TCR² Therapeutics Inc. 2015 Stock Option and Grant Plan (the “Plan”), TCR² Therapeutics Inc., a Delaware corporation (together with any successor, the “Company”), hereby grants, sells and issues to the individual named below, the Shares at the Per Share Purchase Price, subject to the terms and conditions set forth in this Restricted Stock Award Notice (the “Award Notice”), the attached Restricted Stock Agreement (the “Agreement”) and the Plan. The Grantee agrees to the provisions set forth herein and acknowledges that each such provision is a material condition of the Company’s agreement to issue and sell the Shares to him or her. The Company hereby acknowledges receipt of \$[] in full payment for the Shares. All references to share prices and amounts herein shall be equitably adjusted to reflect stock splits, stock dividends, recapitalizations, mergers, reorganizations and similar changes affecting the capital stock of the Company, and any shares of capital stock of the Company received on or in respect of Shares in connection with any such event (including any shares of capital stock or any right, option or warrant to receive the same or any security convertible into or exchangeable for any such shares or received upon conversion of any such shares) shall be subject to this Agreement on the same basis and extent at the relevant time as the Shares in respect of which they were issued, and shall be deemed Shares as if and to the same extent they were issued at the date hereof.

Name of Grantee: _____ (the “Grantee”)

No. of Shares: _____ Shares of Common Stock (the “Shares”)

Grant Date: _____, ____³

Date of Purchase of Shares: _____, ____

Vesting Commencement Date: _____, ____ (the “Vesting Commencement Date”)

Per Share Purchase Price: \$_____ (the “Per Share Purchase Price”)

Vesting Schedule: 25 percent of the Shares shall vest on the first anniversary of the Vesting Commencement Date; provided that the Grantee continues to have a Service Relationship with the Company at such time. Thereafter, the remaining 75 percent of the Shares shall vest in 36 equal monthly installments following the first anniversary of the Vesting Commencement Date until [], on which date, subject to the vesting conditions herein, all remaining Shares shall vest, provided the Grantee continues to have a Service Relationship with the Company at such time. Notwithstanding anything in the Agreement to the contrary in the case of a Sale Event, the Shares of Restricted Stock shall be treated as provided in Section 3(c) of the Plan.

³ 83(b) Election must be made within 30 days of the date of sale or grant.

**RESTRICTED STOCK AGREEMENT
UNDER THE TCR² THERAPEUTICS INC.
2015 STOCK OPTION AND GRANT PLAN**

All capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Award Notice and the Plan.

SECTION 1. PURCHASE AND SALE OF SHARES; VESTING; INVESTMENT REPRESENTATIONS.

(a) Purchase and Sale. The Company hereby sells to the Grantee, and the Grantee hereby purchases from the Company, the number of Shares set forth in the Award Notice for the Per Share Purchase Price.

(b) Vesting. Initially, all of the Shares are non-transferable and subject to a substantial risk of forfeiture and are Shares of Restricted Stock. The risk of forfeiture shall lapse with respect to the Shares on the respective dates indicated on the Vesting Schedule set forth in the Award Notice.

(c) Investment Representations. In connection with the purchase and sale of the Shares contemplated by Section 1(a) above, the Grantee hereby represents and warrants to the Company as follows:

(i) The Grantee is purchasing the Shares for the Grantee's own account for investment only, and not for resale or with a view to the distribution thereof.

(ii) The Grantee has had such an opportunity as he or she has deemed adequate to obtain from the Company such information as is necessary to permit him or her to evaluate the merits and risks of the Grantee's investment in the Company and has consulted with the Grantee's own advisers with respect to the Grantee's investment in the Company.

(iii) The Grantee has sufficient experience in business, financial and investment matters to be able to evaluate the risks involved in the purchase of the Shares and to make an informed investment decision with respect to such purchase.

(iv) The Grantee can afford a complete loss of the value of the Shares and is able to bear the economic risk of holding such Shares for an indefinite period.

(v) The Grantee understands that the Shares are not registered under the Act (it being understood that the Shares are being issued and sold in reliance on the exemption provided in Rule 701 thereunder) or any applicable state securities or "blue sky" laws and may not be sold or otherwise transferred or disposed of in the absence of an effective registration statement under the Act and under any applicable state securities or "blue sky" laws (or exemptions from the registration requirements thereof). The Grantee further acknowledges that certificates representing the Shares will bear restrictive legends reflecting the foregoing and/or that book entries for uncertificated Shares will include similar restrictive notations.

(vi) The Grantee has read and understands the Plan and acknowledges and agrees that the Shares are subject to all of the relevant terms of the Plan, including without limitation, the transfer restrictions set forth in Section 9 of the Plan.

(vii) The Grantee understands and agrees that the Company has a right of first refusal with respect to the Shares pursuant to Section 9(b) of the Plan.

(viii) The Grantee understands and agree that the Company has certain repurchase rights with respect to the Shares pursuant to Section 9(c) of the Plan.

(ix) The Grantee understands and agrees that the Grantee may not sell or otherwise transfer or dispose of the Shares for a period of time following the effective date of a public offering by the Company as described in Section 9(f) of the Plan.

SECTION 2. REPURCHASE RIGHT. Upon a termination event, the company shall have the right to repurchase shares of restricted stock that are unvested as of the date of such termination event as set forth in section 9(c) of the plan.

SECTION 3. RESTRICTIONS ON TRANSFER OF SHARES. The shares (whether or not vested) shall be subject to certain transfer restrictions and other limitations including, without limitation, the provisions contained in section 9 of the plan.

SECTION 4. INCORPORATION OF PLAN. Notwithstanding anything herein to the contrary, this restricted stock award shall be subject to and governed by all the terms and conditions of the plan.

SECTION 5. MISCELLANEOUS PROVISIONS.

(a) Record Owner; Dividends. The Grantee and any Permitted Transferees, during the duration of this Agreement, shall be considered the record owners of and shall be entitled to vote the Shares if and to the extent the Shares are entitled to voting rights. The Grantee and any Permitted Transferees shall be entitled to receive all dividends and any other distributions declared on the Shares; provided, however, that the Company is under no duty to declare any such dividends or to make any such distribution.

(b) Section 83(b) Election. The Grantee shall consult with the Grantee's tax advisor to determine whether it would be appropriate for the Grantee to make an election under Section 83(b) of the Code with respect to this Award. Any such election must be filed with the Internal Revenue Service within 30 days of the date of this Award. If the Grantee makes an election under Section 83(b) of the Code, the Grantee shall give prompt notice to the Company (and provide a copy of such election to the Company).

(c) Equitable Relief. The parties hereto agree and declare that legal remedies may be inadequate to enforce the provisions of this Agreement and that equitable relief, including specific performance and injunctive relief, may be used to enforce the provisions of this Agreement.

(d) Change and Modifications. This Agreement may not be orally changed, modified or terminated, nor shall any oral waiver of any of its terms be effective. This Agreement may be changed, modified or terminated only by an agreement in writing signed by the Company and the Grantee.

(e) Governing Law. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the Commonwealth of Massachusetts, without regard to conflict of law principles that would result in the application of any law other than the law of the Commonwealth of Massachusetts.

(f) Headings. The headings are intended only for convenience in finding the subject matter and do not constitute part of the text of this Agreement and shall not be considered in the interpretation of this Agreement.

(g) Saving Clause. If any provision(s) of this Agreement shall be determined to be illegal or unenforceable, such determination shall in no manner affect the legality or enforceability of any other provision hereof.

(h) Notices. All notices, requests, consents and other communications shall be in writing and be deemed given when delivered personally, by telex or facsimile transmission or when received if mailed by first class registered or certified mail, postage prepaid. Notices to the Company or the Grantee shall be addressed as set forth underneath their signatures below, or to such other address or addresses as may have been furnished by such party in writing to the other.

(i) Benefit and Binding Effect. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto, their respective successors, assigns, and legal representatives. The Company has the right to assign this Agreement, and such assignee shall become entitled to all the rights of the Company hereunder to the extent of such assignment.

(j) Counterparts. For the convenience of the parties and to facilitate execution, this Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same document.

(k) Integration. This Agreement constitutes the entire agreement between the parties with respect to this Award and supersedes all prior agreements and discussions between the parties concerning such subject matter.

SECTION 6. DISPUTE RESOLUTION.

(a) Except as provided below, any dispute arising out of or relating to the Plan or the Shares, this Agreement, or the breach, termination or validity of the Plan, the Shares or this Agreement, shall be finally settled by binding arbitration conducted expeditiously in accordance with the J.A.M.S./Endispute Comprehensive Arbitration Rules and Procedures (the "J.A.M.S. Rules"). The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. Sections 1—16, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. The place of arbitration shall be Boston, Massachusetts.

(b) The arbitration shall commence within 60 days of the date on which a written demand for arbitration is filed by any party hereto. In connection with the arbitration proceeding, the arbitrator shall have the power to order the production of documents by each party and any third-party witnesses. In addition, each party may take up to three depositions as of right, and the arbitrator may in his or her discretion allow additional depositions upon good cause shown by the moving party. However, the arbitrator shall not have the power to order the answering of interrogatories or the response to requests for admission. In connection with any arbitration, each party to the arbitration shall provide to the other, no later than seven business days before the date of the arbitration, the identity of all persons that may testify at the arbitration and a copy of all documents that may be introduced at the arbitration or considered or used by a party's witness or expert. The arbitrator's decision and award shall be made and delivered within six months of the selection of the arbitrator. The arbitrator's decision shall set forth a reasoned basis for any award of damages or finding of liability. The arbitrator shall not have power to award damages in excess of actual compensatory damages and shall not multiply actual damages or award punitive damages, and each party hereby irrevocably waives any claim to such damages.

(c) The Company, the Grantee, each party to the Agreement and any other holder of Shares issued pursuant to this Agreement (each, a "Party") covenants and agrees that such party will participate in the arbitration in good faith. This Section 6 applies equally to requests for temporary, preliminary or permanent injunctive relief, except that in the case of temporary or preliminary injunctive relief any party may proceed in court without prior arbitration for the limited purpose of avoiding immediate and irreparable harm.

(d) Each Party (i) hereby irrevocably submits to the jurisdiction of any United States District Court of competent jurisdiction for the purpose of enforcing the award or decision in any such proceeding, (ii) hereby waives, and agrees not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above named courts, that its property is exempt or immune from attachment or execution (except as protected by applicable law), that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court, and (iii) hereby waives and agrees not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such court. Each Party hereby consents to service of process by registered mail at the address to which notices are to be given. Each Party agrees that its, his or her submission to jurisdiction and its, his or her consent to service of process by mail is made for the express benefit of each other Party. Final judgment against any Party in any such action, suit or proceeding may be enforced in other jurisdictions by suit, action or proceeding on the judgment, or in any other manner provided by or pursuant to the laws of such other jurisdiction.

SECTION 7. WAIVER OF STATUTORY INFORMATION RIGHTS. The grantee understands and agrees that, but for the waiver made herein, the grantee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the company, if any, under the circumstances and in the manner provided in section 220 of the general corporation law of

delaware (any and all such rights, and any and all such other rights of the grantee as may be provided for in section 220, the “inspection rights”). In light of the foregoing, until the first sale of stock of the company to the general public pursuant to a registration statement filed with and declared effective by the securities and exchange commission under the securities act, the grantee hereby unconditionally and irrevocably waives the inspection rights, whether such inspection rights would be exercised or pursued directly or indirectly pursuant to section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the inspection rights. The foregoing waiver shall not affect any rights of a director, in his or her capacity as such, under section 220. The foregoing waiver shall not apply to any contractual inspection rights of the grantee under any other written agreement between the grantee and the company.

[SIGNATURE PAGE FOLLOWS]

The foregoing Restricted Stock Agreement is hereby accepted and the terms and conditions thereof are hereby agreed to by the undersigned as of the date of purchase of Shares above written.

TCR2 Therapeutics Inc.

By: _____

 Name: _____

 Title: _____

Address: _____

The undersigned hereby acknowledges receiving and reviewing a copy of the Plan, including, without limitation, Section 9 thereof and understands that the Shares granted hereby are subject to the terms of the Plan and of this Agreement. This Agreement is hereby accepted, and the terms and conditions of the Plan, the Award Notice and this Agreement, SPECIFICALLY INCLUDING THE ARBITRATION PROVISIONS SET FORTH IN SECTION 6 AND THE WAIVER OF STATUTORY INFORMATION RIGHTS SET FORTH IN SECTION 7 OF THIS AGREEMENT, are hereby agreed to, by the undersigned as of the date first above written.

GRANTEE:

Name: _____

Address: _____

[SPOUSE’S CONSENT⁴

I acknowledge that I have read the
foregoing Restricted Stock Agreement
and understand the contents thereof.

_____]

⁴ A spouse’s consent is required only if the Grantee’s state of residence is one of the following community property states: Arizona, California, Idaho, Louisiana, New Mexico, Nevada, Texas, Washington and Wisconsin.

TCR² THERAPEUTICS INC.
SENIOR EXECUTIVE CASH INCENTIVE BONUS PLAN

1. Purpose

This Senior Executive Cash Incentive Bonus Plan (the “**Incentive Plan**”) is intended to provide an incentive for superior work and to motivate eligible executives of TCR² Therapeutics Inc. (the “**Company**”) and its subsidiaries toward even higher achievement and business results, to tie their goals and interests to those of the Company and its stockholders and to enable the Company to attract and retain highly qualified executives. The Incentive Plan is for the benefit of Covered Executives (as defined below).

2. Covered Executives

From time to time, the Compensation Committee of the Board of Directors of the Company (the “**Compensation Committee**”) may select certain key executives (the “**Covered Executives**”) to be eligible to receive bonuses hereunder. Participation in this Plan does not change the “at will” nature of a Covered Executive’s employment with the Company.

3. Administration

The Compensation Committee shall have the sole discretion and authority to administer and interpret the Incentive Plan.

4. Bonus Determinations

(a) Corporate Performance Goals. A Covered Executive may receive a bonus payment under the Incentive Plan based upon the attainment of one or more performance objectives that are established by the Compensation Committee and relate to financial and operational metrics with respect to the Company or any of its subsidiaries (the “**Corporate Performance Goals**”), including, but not limited to, the following: cash flow (including, but not limited to, operating cash flow and free cash flow); research and development, publication, clinical and/or regulatory milestones; earnings before interest, taxes, depreciation and amortization; net income (loss) (either before or after interest, taxes, depreciation and/or amortization); changes in the market price of the Company’s common stock; economic value-added; acquisitions or strategic transactions, including licenses, collaborations, joint ventures or promotion arrangements; operating income (loss); return on capital, assets, equity, or investment; total stockholder returns; coverage decisions; productivity; expense efficiency; margins; operating efficiency; working capital; earnings (loss) per share of the Company’s common stock; sales or market shares; number of prescriptions or prescribing physicians; revenue; corporate revenue; operating income and/or net annual recurring revenue, any of which may be (A) measured in absolute terms or compared to any incremental increase, (B) measured in terms of growth, (C) compared to another company or companies or to results of a peer group, (D) measured against the market as a whole and/or as compared to applicable market indices and/or (E) measured on a pre-tax or post-tax basis (if applicable). Further, any Corporate Performance Goals may be used to measure the performance of the Company as a whole or a business unit or other segment of the Company, or one or more product lines or specific markets. The Corporate Performance Goals may differ from Covered Executive to Covered Executive.

(b) Calculation of Corporate Performance Goals. At the beginning of each applicable performance period, the Compensation Committee will determine whether any significant element(s) will be included in or excluded from the calculation of any Corporate Performance Goal with respect to any Covered Executive. In all other respects, Corporate Performance Goals will be calculated in accordance with the Company's financial statements, generally accepted accounting principles, or under a methodology established by the Compensation Committee at the beginning of the performance period and which is consistently applied with respect to a Corporate Performance Goal in the relevant performance period.

(c) Target; Minimum; Maximum. Each Corporate Performance Goal shall have a "target" (100 percent attainment of the Corporate Performance Goal) and may also have a "minimum" hurdle and/or a "maximum" amount.

(d) Bonus Requirements; Individual Goals. Except as otherwise set forth in this Section 4(d): (i) any bonuses paid to Covered Executives under the Incentive Plan shall be based upon objectively determinable bonus formulas that tie such bonuses to one or more performance targets relating to the Corporate Performance Goals, (ii) bonus formulas for Covered Executives shall be adopted in each performance period by the Compensation Committee and communicated to each Covered Executive at the beginning of each performance period and (iii) no bonuses shall be paid to Covered Executives unless and until the Compensation Committee makes a determination with respect to the attainment of the performance targets relating to the Corporate Performance Goals. Notwithstanding the foregoing, the Compensation Committee may adjust bonuses payable under the Incentive Plan based on achievement of one or more individual performance objectives or pay bonuses (including, without limitation, discretionary bonuses) to Covered Executives under the Incentive Plan based on individual performance goals and/or upon such other terms and conditions as the Compensation Committee may in its discretion determine.

(e) Individual Target Bonuses. The Compensation Committee shall establish a target bonus opportunity for each Covered Executive for each performance period. For each Covered Executive, the Compensation Committee shall have the authority to apportion the target award so that a portion of the target award shall be tied to attainment of Corporate Performance Goals and a portion of the target award shall be tied to attainment of individual performance objectives.

(f) Employment Requirement. Subject to any additional terms contained in a written agreement between the Covered Executive and the Company, the payment of a bonus to a Covered Executive with respect to a performance period shall be conditioned upon the Covered Executive's employment by the Company on the bonus payment date. If a Covered Executive was not employed for an entire performance period, the Compensation Committee may pro rate the bonus based on the number of days employed during such period.

5. Timing of Payment

(a) With respect to Corporate Performance Goals established and measured on a basis more frequently than annually (e.g., quarterly or semi-annually), the Corporate Performance

Goals will be measured at the end of each performance period after the Company's financial reports with respect to such period(s) have been published. If the Corporate Performance Goals and/or individual goals for such period are met, payments will be made as soon as practicable following the end of such period, but not later than 74 days after the end of the fiscal year in which such performance period ends.

(b) With respect to Corporate Performance Goals established and measured on an annual or multi-year basis, Corporate Performance Goals will be measured as of the end of each such performance period (e.g., the end of each fiscal year) after the Company's financial reports with respect to such period(s) have been published. If the Corporate Performance Goals and/or individual goals for any such period are met, bonus payments will be made as soon as practicable, but not later than 74 days after the end of the relevant fiscal year.

(c) For the avoidance of doubt, bonuses earned at any time in a fiscal year must be paid no later than 74 days after the last day of such fiscal year.

6. Amendment and Termination

The Company reserves the right to amend or terminate the Incentive Plan at any time in its sole discretion.

TCR² THERAPEUTICS INC.**[FORM OF] DIRECTOR INDEMNIFICATION AGREEMENT**

This Indemnification Agreement ("Agreement") is made as of _____ by and between TCR² Therapeutics Inc., a Delaware corporation (the "Company"), and _____ ("Indemnitee").

RECITALS

WHEREAS, the Company desires to attract and retain the services of highly qualified individuals, such as Indemnitee, to serve the Company;

WHEREAS, in order to induce Indemnitee to [provide or continue to provide] services to the Company, the Company wishes to provide for the indemnification of, and advancement of expenses to, Indemnitee to the maximum extent permitted by law;

WHEREAS, the Amended and Restated Certificate of Incorporation (as amended and in effect from time to time, the "Charter") and the Amended and Restated Bylaws (as amended and in effect from time to time, the "Bylaws") of the Company require indemnification of the officers and directors of the Company, and Indemnitee may also be entitled to indemnification pursuant to the General Corporation Law of the State of Delaware (the "DGCL");

WHEREAS, the Charter, the Bylaws and the DGCL expressly provide that the indemnification provisions set forth therein are not exclusive, and thereby contemplate that contracts may be entered into between the Company and members of the board of directors, officers and other persons with respect to indemnification;

WHEREAS, the Board of Directors of the Company (the "Board") has determined that the increased difficulty in attracting and retaining highly qualified persons such as Indemnitee is detrimental to the best interests of the Company's stockholders;

WHEREAS, it is reasonable and prudent for the Company contractually to obligate itself to indemnify, and to advance expenses on behalf of, such persons to the fullest extent permitted by applicable law, regardless of any amendment or revocation of the Charter or the Bylaws, so that they will serve or continue to serve the Company free from undue concern that they will not be so indemnified;

WHEREAS, this Agreement is a supplement to and in furtherance of the indemnification provided in the Charter, the Bylaws and any resolutions adopted pursuant thereto, and shall not be deemed a substitute therefor, nor to diminish or abrogate any rights of Indemnitee thereunder; and

[WHEREAS, Indemnitee has certain rights to indemnification and/or insurance provided by [] ("[]") which Indemnitee and [] intend to be secondary to the primary obligation of the Company to indemnify Indemnitee as provided in this Agreement, with the Company's acknowledgment and agreement to the foregoing being a material condition to Indemnitee's willingness to serve or continue to serve on the Board.]

NOW, THEREFORE, in consideration of the premises and the covenants contained herein, the Company and Indemnitee do hereby covenant and agree as follows:

Section 1. Services to the Company. Indemnitee agrees to [continue to] serve as a director of the Company. Indemnitee may at any time and for any reason resign from such position (subject to any other contractual obligation or any obligation imposed by law), in which event the Company shall have no obligation under this Agreement to continue Indemnitee in such position. This Agreement shall not be deemed an employment contract between the Company (or any of its subsidiaries or any Enterprise) and Indemnitee.

Section 2. Definitions.

As used in this Agreement:

(a) "Change in Control" shall mean (i) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (ii) a merger, reorganization or consolidation pursuant to which the holders of the Company's outstanding voting power and outstanding stock immediately prior to such transaction do not own a majority of the outstanding voting power and outstanding stock or other equity interests of the resulting or successor entity (or its ultimate parent, if applicable) immediately upon completion of such transaction, (iii) the sale of all of the Stock of the Company to an unrelated person, entity or group thereof acting in concert, or (iv) any other transaction in which the owners of the Company's outstanding voting power immediately prior to such transaction do not own at least a majority of the outstanding voting power of the Company or any successor entity immediately upon completion of the transaction other than as a result of the acquisition of securities directly from the Company.

(b) "Corporate Status" describes the status of a person as a current or former director of the Company or current or former director, manager, partner, officer, employee, agent or trustee of any other Enterprise which such person is or was serving at the request of the Company.

(c) "Enforcement Expenses" shall include all reasonable attorneys' fees, court costs, transcript costs, fees of experts, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees, and all other out-of-pocket disbursements or expenses of the types customarily incurred in connection with an action to enforce indemnification or advancement rights, or an appeal from such action. Expenses, however, shall not include fees, salaries, wages or benefits owed to Indemnitee.

(d) "Enterprise" shall mean any corporation (other than the Company), partnership, joint venture, trust, employee benefit plan, limited liability company, or other legal entity of which Indemnitee is or was serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee.

(e) “Expenses” shall include all reasonable attorneys’ fees, court costs, transcript costs, fees of experts, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees, and all other out-of-pocket disbursements or expenses of the types customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, being or preparing to be a witness in, or otherwise participating in, a Proceeding or an appeal resulting from a Proceeding. Expenses, however, shall not include amounts paid in settlement by Indemnatee, the amount of judgments or fines against Indemnatee or fees, salaries, wages or benefits owed to Indemnatee.

(f) “Independent Counsel” means a law firm, or a partner (or, if applicable, member or shareholder) of such a law firm, that is experienced in matters of Delaware corporation law and neither presently is, nor in the past five (5) years has been, retained to represent: (i) the Company, any subsidiary of the Company, any Enterprise or Indemnatee in any matter material to any such party; or (ii) any other party to the Proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the foregoing, the term “Independent Counsel” shall not include any person who, under the applicable standards of professional conduct then prevailing, would have a conflict of interest in representing either the Company or Indemnatee in an action to determine Indemnatee’s rights under this Agreement. The Company agrees to pay the reasonable fees and expenses of the Independent Counsel referred to above and to fully indemnify such counsel against any and all expenses, claims, liabilities and damages arising out of or relating to this Agreement or its engagement pursuant hereto.

(g) The term “Proceeding” shall include any threatened, pending or completed action, suit, arbitration, alternate dispute resolution mechanism, investigation, inquiry, administrative hearing or any other actual, threatened or completed proceeding, whether brought in the right of the Company or otherwise and whether of a civil, criminal, administrative, regulatory or investigative nature, and whether formal or informal, in which Indemnatee was, is or will be involved as a party or otherwise by reason of the fact that Indemnatee is or was a director of the Company or is or was serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee of any Enterprise or by reason of any action taken by Indemnatee or of any action taken on his or her part while acting as a director of the Company or while serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee of any Enterprise, in each case whether or not serving in such capacity at the time any liability or expense is incurred for which indemnification, reimbursement or advancement of expenses can be provided under this Agreement; provided, however, that the term “Proceeding” shall not include any action, suit or arbitration, or part thereof, initiated by Indemnatee to enforce Indemnatee’s rights under this Agreement as provided for in Section 12(a) of this Agreement.

Section 3. Indemnity in Third-Party Proceedings. The Company shall indemnify Indemnatee to the extent set forth in this Section 3 if Indemnatee is, or is threatened to be made, a party to or a participant in any Proceeding, other than a Proceeding by or in the right of the Company to procure a judgment in its favor. Pursuant to this Section 3, Indemnatee shall be indemnified against all Expenses, judgments, fines, penalties, excise taxes, and amounts paid in settlement actually and reasonably incurred by Indemnatee or on his or her behalf in connection

with such Proceeding or any claim, issue or matter therein, if Indemnitee acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Company and, in the case of a criminal proceeding, had no reasonable cause to believe that his or her conduct was unlawful.

Section 4. Indemnity in Proceedings by or in the Right of the Company. The Company shall indemnify Indemnitee to the extent set forth in this Section 4 if Indemnitee is, or is threatened to be made, a party to or a participant in any Proceeding by or in the right of the Company to procure a judgment in its favor. Pursuant to this Section 4, Indemnitee shall be indemnified against all Expenses actually and reasonably incurred by Indemnitee or on his or her behalf in connection with such Proceeding or any claim, issue or matter therein, if Indemnitee acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Company. No indemnification for Expenses shall be made under this Section 4 in respect of any claim, issue or matter as to which Indemnitee shall have been finally adjudged by a court to be liable to the Company, unless and only to the extent that the Delaware Court of Chancery (the "Delaware Court") shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, Indemnitee is fairly and reasonably entitled to indemnification for such expenses as the Delaware Court shall deem proper.

Section 5. Indemnification for Expenses of a Party Who is Wholly or Partly Successful. Notwithstanding any other provisions of this Agreement and except as provided in Section 7, to the extent that Indemnitee is a party to or a participant in any Proceeding and is successful in such Proceeding or in defense of any claim, issue or matter therein, the Company shall indemnify Indemnitee against all Expenses actually and reasonably incurred by him or her in connection therewith. If Indemnitee is not wholly successful in such Proceeding but is successful as to one or more but less than all claims, issues or matters in such Proceeding, the Company shall indemnify Indemnitee against all Expenses actually and reasonably incurred by Indemnitee or on his or her behalf in connection with each successfully resolved claim, issue or matter. For purposes of this Section and without limitation, the termination of any claim, issue or matter in such a Proceeding by dismissal, with or without prejudice, shall be deemed to be a successful result as to such claim, issue or matter.

Section 6. Reimbursement for Expenses of a Witness or in Response to a Subpoena. Notwithstanding any other provision of this Agreement, to the extent that Indemnitee, by reason of his or her Corporate Status, (i) is a witness in any Proceeding to which Indemnitee is not a party and is not threatened to be made a party or (ii) receives a subpoena with respect to any Proceeding to which Indemnitee is not a party and is not threatened to be made a party, the Company shall reimburse Indemnitee for all Expenses actually and reasonably incurred by him or her or on his or her behalf in connection therewith.

Section 7. Exclusions. Notwithstanding any provision in this Agreement to the contrary, the Company shall not be obligated under this Agreement:

(a) to indemnify for amounts otherwise indemnifiable hereunder (or for which advancement is provided hereunder) if and to the extent that Indemnitee has otherwise actually received such amounts under any insurance policy, contract, agreement or otherwise; provided that the foregoing shall not affect the rights of Indemnitee or the Secondary Indemnitors as set forth in Section 13(c);

(b) to indemnify for an accounting of profits made from the purchase and sale (or sale and purchase) by Indemnitee of securities of the Company within the meaning of Section 16(b) of the Securities Exchange Act of 1934, as amended, or similar provisions of state statutory law or common law, or from the purchase or sale by Indemnitee of such securities in violation of Section 306 of the Sarbanes Oxley Act of 2002 ("SOX");

(c) to indemnify with respect to any Proceeding, or part thereof, brought by Indemnitee against the Company, any legal entity which it controls, any director or officer thereof or any third party, unless (i) the Board has consented to the initiation of such Proceeding or part thereof and (ii) the Company provides the indemnification, in its sole discretion, pursuant to the powers vested in the Company under applicable law; provided, however, that this Section 7(c) shall not apply to (A) counterclaims or affirmative defenses asserted by Indemnitee in an action brought against Indemnitee or (B) any action brought by Indemnitee for indemnification or advancement from the Company under this Agreement or under any directors' and officers' liability insurance policies maintained by the Company in the suit for which indemnification or advancement is being sought as described in Section 12; or

(d) to provide any indemnification or advancement of expenses that is prohibited by applicable law (as such law exists at the time payment would otherwise be required pursuant to this Agreement).

Section 8. Advancement of Expenses. Subject to Section 9(b), the Company shall advance, to the extent not prohibited by law, the Expenses incurred by Indemnitee in connection with any Proceeding[, and such advancement shall be made as incurred,] and such advancement shall be made within thirty (30) days after the receipt by the Company of a statement or statements requesting such advances (including any invoices received by Indemnitee, which such invoices may be redacted as necessary to avoid the waiver of any privilege accorded by applicable law) from time to time, whether prior to or after final disposition of any Proceeding. Advances shall be unsecured and interest free. Advances shall be made without regard to Indemnitee's (i) ability to repay the expenses, (ii) ultimate entitlement to indemnification under the other provisions of this Agreement, and (iii) entitlement to and availability of insurance coverage, including advancement, payment or reimbursement of defense costs, expenses of covered loss under the provisions of any applicable insurance policy (including , without limitation, whether such advancement, payment or reimbursement is withheld, conditioned or delayed by the insurer(s)). Indemnitee shall qualify for advances upon the execution and delivery to the Company of this Agreement which shall constitute an undertaking providing that Indemnitee undertakes to the fullest extent required by law to repay the advance if and to the extent that it is ultimately determined by a court of competent jurisdiction in a final judgment, not subject to appeal, that Indemnitee is not entitled to be indemnified by the Company. The right to advances under this paragraph shall in all events continue until final disposition of any Proceeding, including any appeal therein. Nothing in this Section 8 shall limit Indemnitee's right to advancement pursuant to Section 12(e) of this Agreement.

Section 9. Procedure for Notification and Defense of Claim.

(a) To obtain indemnification under this Agreement, Indemnitee shall submit to the Company a written request therefor specifying the basis for the claim, the amounts for which Indemnitee is seeking payment under this Agreement, and all documentation related thereto as reasonably requested by the Company.

(b) In the event that the Company shall be obligated hereunder to provide indemnification for or make any advancement of Expenses with respect to any Proceeding, the Company shall be entitled to assume the defense of such Proceeding, or any claim, issue or matter therein, with counsel approved by Indemnitee (which approval shall not be unreasonably withheld or delayed) upon the delivery to Indemnitee of written notice of the Company's election to do so. After delivery of such notice, approval of such counsel by Indemnitee and the retention of such counsel by the Company, the Company will not be liable to Indemnitee under this Agreement for any fees or expenses of separate counsel subsequently employed by or on behalf of Indemnitee with respect to the same Proceeding; provided that (i) Indemnitee shall have the right to employ separate counsel in any such Proceeding at Indemnitee's expense and (ii) if (A) the employment of separate counsel by Indemnitee has been previously authorized by the Company, (B) Indemnitee shall have reasonably concluded that there may be a conflict of interest between the Company and Indemnitee in the conduct of such defense, or (C) the Company shall not continue to retain such counsel to defend such Proceeding, then the fees and expenses actually and reasonably incurred by Indemnitee with respect to his or her separate counsel shall be Expenses hereunder.

(c) In the event that the Company does not assume the defense in a Proceeding pursuant to paragraph (b) above, then the Company will be entitled to participate in the Proceeding at its own expense.

(d) The Company shall not be liable to indemnify Indemnitee under this Agreement for any amounts paid in settlement of any Proceeding effected without its prior written consent (which consent shall not be unreasonably withheld or delayed). The Company shall not, without the prior written consent of Indemnitee (which consent shall not be unreasonably withheld or delayed), enter into any settlement which (i) includes an admission of fault of Indemnitee, any non-monetary remedy imposed on Indemnitee or any monetary damages for which Indemnitee is not wholly and actually indemnified hereunder or (ii) with respect to any Proceeding with respect to which Indemnitee may be or is made a party or may be otherwise entitled to seek indemnification hereunder, does not include the full release of Indemnitee from all liability in respect of such Proceeding.

Section 10. Procedure Upon Application for Indemnification.

(a) Upon written request by Indemnitee for indemnification pursuant to Section 9(a), a determination, if such determination is required by applicable law, with respect to Indemnitee's entitlement to indemnification hereunder shall be made in the specific case by one of the following methods: (x) if a Change in Control shall have occurred, by Independent Counsel in a written opinion to the Board; or (y) if a Change in Control shall not have occurred: (i) by a majority vote of the disinterested directors, even though less than a quorum; (ii) by a

committee of disinterested directors designated by a majority vote of the disinterested directors, even though less than a quorum; or (iii) if there are no disinterested directors or if the disinterested directors so direct, by Independent Counsel in a written opinion to the Board. For purposes hereof, disinterested directors are those members of the Board who are not parties to the action, suit or proceeding in respect of which indemnification is sought. In the case that such determination is made by Independent Counsel, a copy of Independent Counsel's written opinion shall be delivered to Indemnitee and, if it is so determined that Indemnitee is entitled to indemnification, payment to Indemnitee shall be made within thirty (30) days after such determination. Indemnitee shall cooperate with the Independent Counsel or the Company, as applicable, in making such determination with respect to Indemnitee's entitlement to indemnification, including providing to such counsel or the Company, upon reasonable advance request, any documentation or information which is not privileged or otherwise protected from disclosure and which is reasonably available to Indemnitee and reasonably necessary to such determination. Any out-of-pocket costs or expenses (including reasonable attorneys' fees and disbursements) actually and reasonably incurred by Indemnitee in so cooperating with the Independent Counsel or the Company shall be borne by the Company (irrespective of the determination as to Indemnitee's entitlement to indemnification) and the Company hereby indemnifies and agrees to hold Indemnitee harmless therefrom.

(b) If the determination of entitlement to indemnification is to be made by Independent Counsel pursuant to Section 10(a), the Independent Counsel shall be selected by the Board if a Change in Control shall not have occurred or, if a Change in Control shall have occurred, by Indemnitee, Indemnitee or the Company, as the case may be, may, within ten (10) days after written notice of such selection, deliver to the Company or Indemnitee, as the case may be, a written objection to such selection; provided, however, that such objection may be asserted only on the ground that the Independent Counsel so selected does not meet the requirements of "Independent Counsel" as defined in Section 2 of this Agreement, and the objection shall set forth with particularity the factual basis of such assertion. Absent a proper and timely objection, the person so selected shall act as Independent Counsel. If such written objection is so made and substantiated, the Independent Counsel so selected may not serve as Independent Counsel unless and until such objection is withdrawn or the Delaware Court has determined that such objection is without merit. If, within twenty (20) days after the later of (i) submission by Indemnitee of a written request for indemnification pursuant to Section 9(a), and (ii) the final disposition of the Proceeding, including any appeal therein, no Independent Counsel shall have been selected without objection, either Indemnitee or the Company may petition the Delaware Court for resolution of any objection which shall have been made by Indemnitee or the Company to the selection of Independent Counsel and/or for the appointment as Independent Counsel of a person selected by the court or by such other person as the court shall designate. The person with respect to whom all objections are so resolved or the person so appointed shall act as Independent Counsel under Section 10(a) hereof. Upon the due commencement of any judicial proceeding or arbitration pursuant to Section 12(a) of this Agreement, Independent Counsel shall be discharged and relieved of any further responsibility in such capacity (subject to the applicable standards of professional conduct then prevailing).

Section 11. Presumptions and Effect of Certain Proceedings.

(a) To the extent permitted by applicable law, in making a determination with respect to entitlement to indemnification hereunder, it shall be presumed that Indemnatee is entitled to indemnification under this Agreement if Indemnatee has submitted a request for indemnification in accordance with Section 9(a) of this Agreement, and the Company shall have the burden of proof to overcome that presumption in connection with the making of any determination contrary to that presumption. Neither (i) the failure of the Company or of Independent Counsel to have made a determination prior to the commencement of any action pursuant to this Agreement that indemnification is proper in the circumstances because Indemnatee has met the applicable standard of conduct, nor (ii) an actual determination by the Company or by Independent Counsel that Indemnatee has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that Indemnatee has not met the applicable standard of conduct.

(b) The termination of any Proceeding or of any claim, issue or matter therein, by judgment, order, settlement or conviction, or upon a plea of guilty, nolo contendere or its equivalent, shall not (except as otherwise expressly provided in this Agreement) of itself adversely affect the right of Indemnatee to indemnification or create a presumption that Indemnatee did not act in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the Company or, with respect to any criminal Proceeding, that Indemnatee had reasonable cause to believe that his or her conduct was unlawful.

(c) The knowledge and/or actions, or failure to act, of any director, manager, partner, officer, employee, agent or trustee of the Company, any subsidiary of the Company, or any Enterprise shall not be imputed to Indemnatee for purposes of determining the right to indemnification under this Agreement.

Section 12. Remedies of Indemnatee.

(a) Subject to Section 12(f), in the event that (i) a determination is made pursuant to Section 10 of this Agreement that Indemnatee is not entitled to indemnification under this Agreement, (ii) advancement of Expenses is not timely made pursuant to Section 8 of this Agreement, (iii) no determination of entitlement to indemnification shall have been made pursuant to Section 10(a) of this Agreement within sixty (60) days after receipt by the Company of the request for indemnification for which a determination is to be made other than by Independent Counsel, (iv) payment of indemnification or reimbursement of expenses is not made pursuant to Section 5 or 6 or the last sentence of Section 10(a) of this Agreement within thirty (30) days after receipt by the Company of a written request therefor (including any invoices received by Indemnatee, which such invoices may be redacted as necessary to avoid the waiver of any privilege accorded by applicable law) or (v) payment of indemnification pursuant to Section 3 or 4 of this Agreement is not made within thirty (30) days after a determination has been made that Indemnatee is entitled to indemnification, Indemnatee shall be entitled to an adjudication by the Delaware Court of his or her entitlement to such indemnification or advancement. Alternatively, Indemnatee, at his or her option, may seek an award in arbitration to be conducted by a single arbitrator pursuant to the Commercial Arbitration Rules of the

American Arbitration Association. Indemnatee shall commence such proceeding seeking an adjudication or an award in arbitration within 180 days following the date on which Indemnatee first has the right to commence such proceeding pursuant to this Section 12(a); provided, however, that the foregoing time limitation shall not apply in respect of a proceeding brought by Indemnatee to enforce his or her rights under Section 5 of this Agreement. The Company shall not oppose Indemnatee's right to seek any such adjudication or award in arbitration.

(b) In the event that a determination shall have been made pursuant to Section 10(a) of this Agreement that Indemnatee is not entitled to indemnification, any judicial proceeding or arbitration commenced pursuant to this Section 12 shall be conducted in all respects as a de novo trial, or arbitration, on the merits and Indemnatee shall not be prejudiced by reason of that adverse determination. In any judicial proceeding or arbitration commenced pursuant to this Section 12, the Company shall have the burden of proving Indemnatee is not entitled to indemnification or advancement, as the case may be.

(c) If a determination shall have been made pursuant to Section 10(a) of this Agreement that Indemnatee is entitled to indemnification, the Company shall be bound by such determination in any judicial proceeding or arbitration commenced pursuant to this Section 12, absent (i) a misstatement by Indemnatee of a material fact, or an omission of a material fact necessary to make Indemnatee's statement not materially misleading, in connection with the request for indemnification, or (ii) a prohibition of such indemnification under applicable law.

(d) The Company shall be precluded from asserting in any judicial proceeding or arbitration commenced pursuant to this Section 12 that the procedures and presumptions of this Agreement are not valid, binding and enforceable and shall stipulate in any such court or before any such arbitrator that the Company is bound by all the provisions of this Agreement.

(e) The Company shall indemnify Indemnatee to the fullest extent permitted by law against any and all Enforcement Expenses and, if requested by Indemnatee, shall (within thirty (30) days after receipt by the Company of a written request therefor) advance, to the extent not prohibited by law, such Enforcement Expenses to Indemnatee, which are incurred by Indemnatee in connection with any action brought by Indemnatee for indemnification or advancement from the Company under this Agreement or under any directors' and officers' liability insurance policies maintained by the Company in the suit for which indemnification or advancement is being sought. Such written request for advancement shall include invoices received by Indemnatee in connection with such Enforcement Expenses but, in the case of invoices in connection with legal services, any references to legal work performed or to expenditures made that would cause Indemnatee to waive any privilege accorded by applicable law need not be included with the invoice.

(f) Notwithstanding anything in this Agreement to the contrary, no determination as to entitlement to indemnification under this Agreement shall be required to be made prior to the final disposition of the Proceeding, including any appeal therein.

Section 13. Non-exclusivity; Survival of Rights; Insurance; Primacy of Indemnification; Subrogation.

(a) The rights of indemnification and to receive advancement as provided by this Agreement shall not be deemed exclusive of any other rights to which Indemnitee may at any time be entitled under applicable law, the Charter, the Bylaws, any agreement, a vote of stockholders or a resolution of directors, or otherwise. No amendment, alteration or repeal of this Agreement or of any provision hereof shall limit or restrict any right of Indemnitee under this Agreement in respect of any action taken or omitted by such Indemnitee in his or her Corporate Status prior to such amendment, alteration or repeal. To the extent that a change in Delaware law, whether by statute or judicial decision, permits greater indemnification or advancement than would be afforded currently under the Charter, Bylaws and this Agreement, it is the intent of the parties hereto that Indemnitee shall enjoy by this Agreement the greater benefits so afforded by such change. No right or remedy herein conferred is intended to be exclusive of any other right or remedy, and every other right and remedy shall be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other right or remedy.

(b) To the extent that the Company maintains an insurance policy or policies providing liability insurance for directors, managers, partners, officers, employees, agents or trustees of the Company or of any other Enterprise, Indemnitee shall be covered by such policy or policies in accordance with its or their terms to the maximum extent of the coverage available for any such director, manager, partner, officer, employee, agent or trustee under such policy or policies. If, at the time of the receipt of a notice of a claim pursuant to the terms hereof, the Company has director and officer liability insurance in effect, the Company shall give prompt notice of the commencement of such proceeding to the insurers in accordance with the procedures set forth in the respective policies. The Company shall thereafter take all necessary or desirable action to cause such insurers to pay, on behalf of Indemnitee, all amounts payable as a result of such proceeding in accordance with the terms of such policies.

(c) [The Company hereby acknowledges that Indemnitee has certain rights to indemnification, advancement of expenses and/or insurance provided by [] and certain of its affiliates (collectively, the “Secondary Indemnitors”). The Company hereby agrees (i) that it is the indemnitor of first resort (*i.e.*, its obligations to Indemnitee are primary and any obligation of the Secondary Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by Indemnitee are secondary), (ii) that it shall be required to advance the full amount of expenses incurred by Indemnitee and shall be liable for the full amount of all Expenses, judgments, penalties, fines and amounts paid in settlement to the extent legally permitted and as required by the terms of this Agreement and the Charter and/or Bylaws (or any other agreement between the Company and Indemnitee), without regard to any rights Indemnitee may have against the Secondary Indemnitors, and (iii) that it irrevocably waives, relinquishes and releases the Secondary Indemnitors from any and all claims against the Secondary Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Secondary Indemnitors on behalf of Indemnitee with respect to any claim for which Indemnitee has sought indemnification from the Company shall affect the foregoing and the Secondary Indemnitors

shall have a right of contribution and/or be subrogated to the extent of such advancement or payment to all of the rights of recovery of Indemnatee against the Company. The Company and Indemnatee agree that the Secondary Indemnitors are express third party beneficiaries of the terms of this Section 13(c).]

(d) [Except as provided in paragraph (c) above,] in the event of any payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnatee [(other than against the Secondary Indemnitors)], who shall execute all papers required and take all action necessary to secure such rights, including execution of such documents as are necessary to enable the Company to bring suit to enforce such rights.

(e) [Except as provided in paragraph (c) above,] the Company's obligation to provide indemnification or advancement hereunder to Indemnatee who is or was serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee of any other Enterprise shall be reduced by any amount Indemnatee has actually received as indemnification or advancement from such other Enterprise.

Section 14. Duration of Agreement. This Agreement shall continue until and terminate upon the later of: (a) ten (10) years after the date that Indemnatee shall have ceased to serve as a director of the Company or (b) one (1) year after the final termination of any Proceeding, including any appeal, then pending in respect of which Indemnatee is granted rights of indemnification or advancement hereunder and of any proceeding commenced by Indemnatee pursuant to Section 12 of this Agreement relating thereto. This Agreement shall be binding upon the Company and its successors and assigns and shall inure to the benefit of Indemnatee and his or her heirs, executors and administrators. The Company shall require and cause any successor (whether direct or indirect by purchase, merger, consolidation or otherwise) to all, substantially all or a substantial part, of the business and/or assets of the Company, by written agreement in form and substance satisfactory to Indemnatee, expressly to assume and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform if no such succession had taken place.

Section 15. Severability. If any provision or provisions of this Agreement shall be held to be invalid, illegal or unenforceable for any reason whatsoever: (a) the validity, legality and enforceability of the remaining provisions of this Agreement (including, without limitation, each portion of any section of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and shall remain enforceable to the fullest extent permitted by law; (b) such provision or provisions shall be deemed reformed to the extent necessary to conform to applicable law and to give the maximum effect to the intent of the parties hereto; and (c) to the fullest extent possible, the provisions of this Agreement (including, without limitation, each portion of any section of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall be construed so as to give effect to the intent manifested thereby.

Section 16. Enforcement.

(a) The Company expressly confirms and agrees that it has entered into this Agreement and assumed the obligations imposed on it hereby in order to induce Indemnitee to serve or continue to serve as a director of the Company, and the Company acknowledges that Indemnitee is relying upon this Agreement in serving as a director of the Company.

(b) This Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral, written and implied, between the parties hereto with respect to the subject matter hereof; provided, however, that this Agreement is a supplement to and in furtherance of the Charter, the Bylaws and applicable law, and shall not be deemed a substitute therefor, nor to diminish or abrogate any rights of Indemnitee thereunder.

Section 17. Modification and Waiver. No supplement, modification or amendment, or waiver of any provision, of this Agreement shall be binding unless executed in writing by the parties thereto. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provisions of this Agreement nor shall any waiver constitute a continuing waiver. No supplement, modification or amendment of this Agreement or of any provision hereof shall limit or restrict any right of Indemnitee under this Agreement in respect of any action taken or omitted by such Indemnitee prior to such supplement, modification or amendment.

Section 18. Notice by Indemnitee. Indemnitee agrees promptly to notify the Company in writing upon being served with any summons, citation, subpoena, complaint, indictment, information or other document relating to any Proceeding or matter which may be subject to indemnification, reimbursement or advancement as provided hereunder. The failure of Indemnitee to so notify the Company shall not relieve the Company of any obligation which it may have to Indemnitee under this Agreement or otherwise.

Section 19. Notices. All notices, requests, demands and other communications under this Agreement shall be in writing and shall be deemed to have been duly given if (i) delivered by hand and receipted for by the party to whom said notice or other communication shall have been directed, (ii) mailed by certified or registered mail with postage prepaid, on the third business day after the date on which it is so mailed, (iii) mailed by reputable overnight courier and receipted for by the party to whom said notice or other communication shall have been directed or (iv) sent by facsimile transmission, with receipt of oral confirmation that such transmission has been received:

(a) If to Indemnitee, at such address as Indemnitee shall provide to the Company.

(b) If to the Company to:

TCR² Therapeutics Inc.
100 Binney Street, Suite 710
Cambridge, Massachusetts 02142
Attention: President

or to any other address as may have been furnished to Indemnitee by the Company.

Section 20. Contribution. To the fullest extent permissible under applicable law, if the indemnification provided for in this Agreement is unavailable to Indemnitee for any reason whatsoever, the Company, in lieu of indemnifying Indemnitee, shall contribute to the amount incurred by Indemnitee, whether for judgments, fines, penalties, excise taxes, amounts paid or to be paid in settlement and/or for Expenses, in connection with any Proceeding in such proportion as is deemed fair and reasonable in light of all of the circumstances in order to reflect (i) the relative benefits received by the Company and Indemnitee in connection with the event(s) and/or transaction(s) giving rise to such Proceeding; and/or (ii) the relative fault of the Company (and its directors, officers, employees and agents) and Indemnitee in connection with such event(s) and/or transactions.

Section 21. Internal Revenue Code Section 409A. The Company intends for this Agreement to comply with the Indemnification exception under Section 1.409A-1(b)(10) of the regulations promulgated under the Internal Revenue Code of 1986, as amended (the "Code"), which provides that indemnification of, or the purchase of an insurance policy providing for payments of, all or part of the expenses incurred or damages paid or payable by Indemnitee with respect to a bona fide claim against Indemnitee or the Company do not provide for a deferral of compensation, subject to Section 409A of the Code, where such claim is based on actions or failures to act by Indemnitee in his or her capacity as a service provider of the Company. The parties intend that this Agreement be interpreted and construed with such intent.

Section 22. Applicable Law and Consent to Jurisdiction. This Agreement and the legal relations among the parties shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware, without regard to its conflict of laws rules. Except with respect to any arbitration commenced by Indemnitee pursuant to Section 12(a) of this Agreement, the Company and Indemnitee hereby irrevocably and unconditionally (i) agree that any action or proceeding arising out of or in connection with this Agreement shall be brought only in the Delaware Court, and not in any other state or federal court in the United States of America or any court in any other country, (ii) consent to submit to the exclusive jurisdiction of the Delaware Court for purposes of any action or proceeding arising out of or in connection with this Agreement, (iii) consent to service of process at the address set forth in Section 19 of this Agreement with the same legal force and validity as if served upon such party personally within the State of Delaware, (iv) waive any objection to the laying of venue of any such action or proceeding in the Delaware Court, and (v) waive, and agree not to plead or to make, any claim that any such action or proceeding brought in the Delaware Court has been brought in an improper or inconvenient forum.

Section 23. Headings. The headings of the paragraphs of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction thereof.

Section 24. Identical Counterparts. This Agreement may be executed in one or more counterparts, each of which shall for all purposes be deemed to be an original but all of which together shall constitute one and the same Agreement. Only one such counterpart signed by the party against whom enforceability is sought needs to be produced to evidence the existence of this Agreement.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties have caused this Agreement to be signed as of the day and year first above written.

TCR² THERAPEUTICS INC.

By: _____
Name:
Title:

[Name of Indemnatee]

TCR² THERAPEUTICS INC.**[FORM OF] OFFICER INDEMNIFICATION AGREEMENT**

This Indemnification Agreement (“Agreement”) is made as of _____ by and between TCR² Therapeutics Inc., a Delaware corporation (the “Company”), and _____ (“Indemnatee”).¹

RECITALS

WHEREAS, the Company desires to attract and retain the services of highly qualified individuals, such as Indemnatee, to serve the Company;

WHEREAS, in order to induce Indemnatee to provide or continue to provide services to the Company, the Company wishes to provide for the indemnification of, and advancement of expenses to, Indemnatee to the maximum extent permitted by law;

WHEREAS, the Amended and Restated Certificate of Incorporation (as amended and in effect from time to time, the “Charter”) and the Amended and Restated Bylaws (as amended and in effect from time to time, the “Bylaws”) of the Company require indemnification of the officers and directors of the Company, and Indemnatee may also be entitled to indemnification pursuant to the General Corporation Law of the State of Delaware (the “DGCL”);

WHEREAS, the Charter, the Bylaws and the DGCL expressly provide that the indemnification provisions set forth therein are not exclusive, and thereby contemplate that contracts may be entered into between the Company and members of the board of directors, officers and other persons with respect to indemnification;

WHEREAS, the Board of Directors of the Company (the “Board”) has determined that the increased difficulty in attracting and retaining highly qualified persons such as Indemnatee is detrimental to the best interests of the Company’s stockholders;

WHEREAS, it is reasonable and prudent for the Company contractually to obligate itself to indemnify, and to advance expenses on behalf of, such persons to the fullest extent permitted by applicable law, regardless of any amendment or revocation of the Charter or the Bylaws, so that they will serve or continue to serve the Company free from undue concern that they will not be so indemnified; and

WHEREAS, this Agreement is a supplement to and in furtherance of the indemnification provided in the Charter, the Bylaws and any resolutions adopted pursuant thereto, and shall not be deemed a substitute therefor, nor to diminish or abrogate any rights of Indemnatee thereunder.

¹ NTD: To be entered into with all C-level officers and Section 16 officers.

NOW, THEREFORE, in consideration of the premises and the covenants contained herein, the Company and Indemnitee do hereby covenant and agree as follows:

Section 1. Services to the Company. Indemnitee agrees to [continue to] serve as [a director and] an officer of the Company. Indemnitee may at any time and for any reason resign from [any] such position (subject to any other contractual obligation or any obligation imposed by law), in which event the Company shall have no obligation under this Agreement to continue Indemnitee in such position. This Agreement shall not be deemed an employment contract between the Company (or any of its subsidiaries or any Enterprise) and Indemnitee.

Section 2. Definitions.

As used in this Agreement:

(a) "Change in Control" shall mean (i) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (ii) a merger, reorganization or consolidation pursuant to which the holders of the Company's outstanding voting power and outstanding stock immediately prior to such transaction do not own a majority of the outstanding voting power and outstanding stock or other equity interests of the resulting or successor entity (or its ultimate parent, if applicable) immediately upon completion of such transaction, (iii) the sale of all of the Stock of the Company to an unrelated person, entity or group thereof acting in concert, or (iv) any other transaction in which the owners of the Company's outstanding voting power immediately prior to such transaction do not own at least a majority of the outstanding voting power of the Company or any successor entity immediately upon completion of the transaction other than as a result of the acquisition of securities directly from the Company.

(b) "Corporate Status" describes the status of a person as a current or former [director or] officer of the Company or current or former director, manager, partner, officer, employee, agent or trustee of any other Enterprise which such person is or was serving at the request of the Company.

(c) "Enforcement Expenses" shall include all reasonable attorneys' fees, court costs, transcript costs, fees of experts, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees, and all other out-of-pocket disbursements or expenses of the types customarily incurred in connection with an action to enforce indemnification or advancement rights, or an appeal from such action. Expenses, however, shall not include fees, salaries, wages or benefits owed to Indemnitee.

(d) "Enterprise" shall mean any corporation (other than the Company), partnership, joint venture, trust, employee benefit plan, limited liability company, or other legal entity of which Indemnitee is or was serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee.

(e) "Expenses" shall include all reasonable attorneys' fees, court costs, transcript costs, fees of experts, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees, and all other out-of-pocket disbursements or expenses of the types customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, being or preparing to be a witness in, or otherwise

participating in, a Proceeding or an appeal resulting from a Proceeding. Expenses, however, shall not include amounts paid in settlement by Indemnitee, the amount of judgments or fines against Indemnitee or fees, salaries, wages or benefits owed to Indemnitee.

(f) “Independent Counsel” means a law firm, or a partner (or, if applicable, member or shareholder) of such a law firm, that is experienced in matters of Delaware corporation law and neither presently is, nor in the past five (5) years has been, retained to represent: (i) the Company, any subsidiary of the Company, any Enterprise or Indemnitee in any matter material to any such party; or (ii) any other party to the Proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the foregoing, the term “Independent Counsel” shall not include any person who, under the applicable standards of professional conduct then prevailing, would have a conflict of interest in representing either the Company or Indemnitee in an action to determine Indemnitee’s rights under this Agreement. The Company agrees to pay the reasonable fees and expenses of the Independent Counsel referred to above and to fully indemnify such counsel against any and all expenses, claims, liabilities and damages arising out of or relating to this Agreement or its engagement pursuant hereto.

(g) The term “Proceeding” shall include any threatened, pending or completed action, suit, arbitration, alternate dispute resolution mechanism, investigation, inquiry, administrative hearing or any other actual, threatened or completed proceeding, whether brought in the right of the Company or otherwise and whether of a civil, criminal, administrative, regulatory or investigative nature, and whether formal or informal, in which Indemnitee was, is or will be involved as a party or otherwise by reason of the fact that Indemnitee is or was [a director or] an officer of the Company or is or was serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee of any Enterprise or by reason of any action taken by Indemnitee or of any action taken on his or her part while acting as [a director or] an officer of the Company or while serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee of any Enterprise, in each case whether or not serving in such capacity at the time any liability or expense is incurred for which indemnification, reimbursement or advancement of expenses can be provided under this Agreement; provided, however, that the term “Proceeding” shall not include any action, suit or arbitration, or part thereof, initiated by Indemnitee to enforce Indemnitee’s rights under this Agreement as provided for in Section 12(a) of this Agreement.

Section 3. Indemnity in Third-Party Proceedings. The Company shall indemnify Indemnitee to the extent set forth in this Section 3 if Indemnitee is, or is threatened to be made, a party to or a participant in any Proceeding, other than a Proceeding by or in the right of the Company to procure a judgment in its favor. Pursuant to this Section 3, Indemnitee shall be indemnified against all Expenses, judgments, fines, penalties, excise taxes, and amounts paid in settlement actually and reasonably incurred by Indemnitee or on his or her behalf in connection with such Proceeding or any claim, issue or matter therein, if Indemnitee acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Company and, in the case of a criminal proceeding, had no reasonable cause to believe that his or her conduct was unlawful.

Section 4. Indemnity in Proceedings by or in the Right of the Company. The Company shall indemnify Indemnitee to the extent set forth in this Section 4 if Indemnitee is, or is threatened to be made, a party to or a participant in any Proceeding by or in the right of the Company to procure a judgment in its favor. Pursuant to this Section 4, Indemnitee shall be indemnified against all Expenses actually and reasonably incurred by Indemnitee or on his or her behalf in connection with such Proceeding or any claim, issue or matter therein, if Indemnitee acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Company. No indemnification for Expenses shall be made under this Section 4 in respect of any claim, issue or matter as to which Indemnitee shall have been finally adjudged by a court to be liable to the Company, unless and only to the extent that the Delaware Court of Chancery (the "Delaware Court") shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, Indemnitee is fairly and reasonably entitled to indemnification for such expenses as the Delaware Court shall deem proper.

Section 5. Indemnification for Expenses of a Party Who is Wholly or Partly Successful. Notwithstanding any other provisions of this Agreement and except as provided in Section 7, to the extent that Indemnitee is a party to or a participant in any Proceeding and is successful in such Proceeding or in defense of any claim, issue or matter therein, the Company shall indemnify Indemnitee against all Expenses actually and reasonably incurred by him or her in connection therewith. If Indemnitee is not wholly successful in such Proceeding but is successful as to one or more but less than all claims, issues or matters in such Proceeding, the Company shall indemnify Indemnitee against all Expenses actually and reasonably incurred by Indemnitee or on his or her behalf in connection with each successfully resolved claim, issue or matter. For purposes of this Section and without limitation, the termination of any claim, issue or matter in such a Proceeding by dismissal, with or without prejudice, shall be deemed to be a successful result as to such claim, issue or matter.

Section 6. Reimbursement for Expenses of a Witness or in Response to a Subpoena. Notwithstanding any other provision of this Agreement, to the extent that Indemnitee, by reason of his or her Corporate Status, (i) is a witness in any Proceeding to which Indemnitee is not a party and is not threatened to be made a party or (ii) receives a subpoena with respect to any Proceeding to which Indemnitee is not a party and is not threatened to be made a party, the Company shall reimburse Indemnitee for all Expenses actually and reasonably incurred by him or her or on his or her behalf in connection therewith.

Section 7. Exclusions. Notwithstanding any provision in this Agreement to the contrary, the Company shall not be obligated under this Agreement:

(a) to indemnify for amounts otherwise indemnifiable hereunder (or for which advancement is provided hereunder) if and to the extent that Indemnitee has otherwise actually received such amounts under any insurance policy, contract, agreement or otherwise;

(b) to indemnify for an accounting of profits made from the purchase and sale (or sale and purchase) by Indemnitee of securities of the Company within the meaning of Section 16(b) of the Securities Exchange Act of 1934, as amended, or similar provisions of state statutory law or common law, or from the purchase or sale by Indemnitee of such securities in violation of Section 306 of the Sarbanes-Oxley Act of 2002 ("SOX");

(c) to indemnify for any reimbursement of, or payment to, the Company by Indemnitee of any bonus or other incentive-based or equity-based compensation or of any profits realized by Indemnitee from the sale of securities of the Company pursuant to Section 304 of SOX or any formal policy of the Company adopted by the Board (or a committee thereof), or any other remuneration paid to Indemnitee if it shall be determined by a final judgment or other final adjudication that such remuneration was in violation of law;

(d) to indemnify with respect to any Proceeding, or part thereof, brought by Indemnitee against the Company, any legal entity which it controls, any director or officer thereof or any third party, unless (i) the Board has consented to the initiation of such Proceeding or part thereof and (ii) the Company provides the indemnification, in its sole discretion, pursuant to the powers vested in the Company under applicable law; provided, however, that this Section 7(d) shall not apply to (A) counterclaims or affirmative defenses asserted by Indemnitee in an action brought against Indemnitee or (B) any action brought by Indemnitee for indemnification or advancement from the Company under this Agreement or under any directors' and officers' liability insurance policies maintained by the Company in the suit for which indemnification or advancement is being sought as described in Section 12; or

(e) to provide any indemnification or advancement of expenses that is prohibited by applicable law (as such law exists at the time payment would otherwise be required pursuant to this Agreement).

Section 8. Advancement of Expenses. Subject to Section 9(b), the Company shall advance, to the extent not prohibited by law, the Expenses incurred by Indemnitee in connection with any Proceeding, [and such advancement shall be made as incurred,] and such advancement shall be made within thirty (30) days after the receipt by the Company of a statement or statements requesting such advances (including any invoices received by Indemnitee, which such invoices may be redacted as necessary to avoid the waiver of any privilege accorded by applicable law) from time to time, whether prior to or after final disposition of any Proceeding. Advances shall be unsecured and interest free. Advances shall be made without regard to Indemnitee's (i) ability to repay the expenses, (ii) ultimate entitlement to indemnification under the other provisions of this Agreement, and (iii) entitlement to and availability of insurance coverage, including advancement, payment or reimbursement of defense costs, expenses of covered loss under the provisions of any applicable insurance policy (including, without limitation, whether such advancement, payment or reimbursement is withheld, conditioned or delayed by the insurer(s)). Indemnitee shall qualify for advances upon the execution and delivery to the Company of this Agreement which shall constitute an undertaking providing that Indemnitee undertakes to the fullest extent required by law to repay the advance if and to the extent that it is ultimately determined by a court of competent jurisdiction in a final judgment, not subject to appeal, that Indemnitee is not entitled to be indemnified by the Company. The right to advances under this paragraph shall in all events continue until final disposition of any Proceeding, including any appeal therein. Nothing in this Section 8 shall limit Indemnitee's right to advancement pursuant to Section 12(e) of this Agreement.

Section 9. Procedure for Notification and Defense of Claim.

(a) To obtain indemnification under this Agreement, Indemnatee shall submit to the Company a written request therefor specifying the basis for the claim, the amounts for which Indemnatee is seeking payment under this Agreement, and all documentation related thereto as reasonably requested by the Company.

(b) In the event that the Company shall be obligated hereunder to provide indemnification for or make any advancement of Expenses with respect to any Proceeding, the Company shall be entitled to assume the defense of such Proceeding, or any claim, issue or matter therein, with counsel approved by Indemnatee (which approval shall not be unreasonably withheld or delayed) upon the delivery to Indemnatee of written notice of the Company's election to do so. After delivery of such notice, approval of such counsel by Indemnatee and the retention of such counsel by the Company, the Company will not be liable to Indemnatee under this Agreement for any fees or expenses of separate counsel subsequently employed by or on behalf of Indemnatee with respect to the same Proceeding; provided that (i) Indemnatee shall have the right to employ separate counsel in any such Proceeding at Indemnatee's expense and (ii) if (A) the employment of separate counsel by Indemnatee has been previously authorized by the Company, (B) Indemnatee shall have reasonably concluded that there may be a conflict of interest between the Company and Indemnatee in the conduct of such defense, or (C) the Company shall not continue to retain such counsel to defend such Proceeding, then the fees and expenses actually and reasonably incurred by Indemnatee with respect to his or her separate counsel shall be Expenses hereunder.

(c) In the event that the Company does not assume the defense in a Proceeding pursuant to paragraph (b) above, then the Company will be entitled to participate in the Proceeding at its own expense.

(d) The Company shall not be liable to indemnify Indemnatee under this Agreement for any amounts paid in settlement of any Proceeding effected without its prior written consent (which consent shall not be unreasonably withheld or delayed). The Company shall not, without the prior written consent of Indemnatee (which consent shall not be unreasonably withheld or delayed), enter into any settlement which (i) includes an admission of fault of Indemnatee, any non-monetary remedy imposed on Indemnatee or any monetary damages for which Indemnatee is not wholly and actually indemnified hereunder or (ii) with respect to any Proceeding with respect to which Indemnatee may be or is made a party or may be otherwise entitled to seek indemnification hereunder, does not include the full release of Indemnatee from all liability in respect of such Proceeding.

Section 10. Procedure Upon Application for Indemnification.²

(a) Upon written request by Indemnatee for indemnification pursuant to Section 9(a), a determination, if such determination is required by applicable law, with respect to Indemnatee's entitlement to indemnification hereunder shall be made in the specific case by one of the following methods: [(x) if a Change in Control shall have occurred and indemnification is

² Bracketed portions for CEO Director version only

being requested by Indemnatee hereunder in his or her capacity as a director of the Company, by Independent Counsel in a written opinion to the Board; or (y) in any other case,] (i) by a majority vote of the disinterested directors, even though less than a quorum; (ii) by a committee of disinterested directors designated by a majority vote of the disinterested directors, even though less than a quorum; or (iii) if there are no disinterested directors or if the disinterested directors so direct, by Independent Counsel in a written opinion to the Board. For purposes hereof, disinterested directors are those members of the Board who are not parties to the action, suit or proceeding in respect of which indemnification is sought. In the case that such determination is made by Independent Counsel, a copy of Independent Counsel's written opinion shall be delivered to Indemnatee and, if it is so determined that Indemnatee is entitled to indemnification, payment to Indemnatee shall be made within thirty (30) days after such determination. Indemnatee shall cooperate with the Independent Counsel or the Company, as applicable, in making such determination with respect to Indemnatee's entitlement to indemnification, including providing to such counsel or the Company, upon reasonable advance request, any documentation or information which is not privileged or otherwise protected from disclosure and which is reasonably available to Indemnatee and reasonably necessary to such determination. Any out-of-pocket costs or expenses (including reasonable attorneys' fees and disbursements) actually and reasonably incurred by Indemnatee in so cooperating with the Independent Counsel or the Company shall be borne by the Company (irrespective of the determination as to Indemnatee's entitlement to indemnification) and the Company hereby indemnifies and agrees to hold Indemnatee harmless therefrom.

(b) If the determination of entitlement to indemnification is to be made by Independent Counsel pursuant to Section 10(a), the Independent Counsel shall be selected by the Board[; provided that, if a Change in Control shall have occurred and indemnification is being requested by Indemnatee hereunder in his or her capacity as a director of the Company, the Independent Counsel shall be selected by Indemnatee]. Indemnatee [or the Company, as the case may be,] may, within ten (10) days after written notice of such selection, deliver to the Company [or Indemnatee, as the case may be,] a written objection to such selection; provided, however, that such objection may be asserted only on the ground that the Independent Counsel so selected does not meet the requirements of "Independent Counsel" as defined in Section 2 of this Agreement, and the objection shall set forth with particularity the factual basis of such assertion. Absent a proper and timely objection, the person so selected shall act as Independent Counsel. If such written objection is so made and substantiated, the Independent Counsel so selected may not serve as Independent Counsel unless and until such objection is withdrawn or the Delaware Court has determined that such objection is without merit. If, within twenty (20) days after the later of (i) submission by Indemnatee of a written request for indemnification pursuant to Section 9(a), and (ii) the final disposition of the Proceeding, including any appeal therein, no Independent Counsel shall have been selected without objection, either Indemnatee or the Company may petition the Delaware Court for resolution of any objection which shall have been made by Indemnatee or the Company to the selection of Independent Counsel and/or for the appointment as Independent Counsel of a person selected by the court or by such other person as the court shall designate. The person with respect to whom all objections are so resolved or the person so appointed shall act as Independent Counsel under Section 10(a) hereof. Upon the due commencement of any judicial proceeding or arbitration pursuant to Section 12(a) of this Agreement, Independent Counsel shall be discharged and relieved of any further responsibility in such capacity (subject to the applicable standards of professional conduct then prevailing).

Section 11. Presumptions and Effect of Certain Proceedings.

(a) To the extent permitted by applicable law, in making a determination with respect to entitlement to indemnification hereunder, it shall be presumed that Indemnatee is entitled to indemnification under this Agreement if Indemnatee has submitted a request for indemnification in accordance with Section 9(a) of this Agreement, and the Company shall have the burden of proof to overcome that presumption in connection with the making of any determination contrary to that presumption. Neither (i) the failure of the Company or of Independent Counsel to have made a determination prior to the commencement of any action pursuant to this Agreement that indemnification is proper in the circumstances because Indemnatee has met the applicable standard of conduct, nor (ii) an actual determination by the Company or by Independent Counsel that Indemnatee has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that Indemnatee has not met the applicable standard of conduct.

(b) The termination of any Proceeding or of any claim, issue or matter therein, by judgment, order, settlement or conviction, or upon a plea of guilty, nolo contendere or its equivalent, shall not (except as otherwise expressly provided in this Agreement) of itself adversely affect the right of Indemnatee to indemnification or create a presumption that Indemnatee did not act in good faith and in a manner which he or she reasonably believed to be in or not opposed to the best interests of the Company or, with respect to any criminal Proceeding, that Indemnatee had reasonable cause to believe that his or her conduct was unlawful.

(c) The knowledge and/or actions, or failure to act, of any director, manager, partner, officer, employee, agent or trustee of the Company, any subsidiary of the Company, or any Enterprise shall not be imputed to Indemnatee for purposes of determining the right to indemnification under this Agreement.

Section 12. Remedies of Indemnatee.

(a) Subject to Section 12(f), in the event that (i) a determination is made pursuant to Section 10 of this Agreement that Indemnatee is not entitled to indemnification under this Agreement, (ii) advancement of Expenses is not timely made pursuant to Section 8 of this Agreement, (iii) no determination of entitlement to indemnification shall have been made pursuant to Section 10(a) of this Agreement within sixty (60) days after receipt by the Company of the request for indemnification for which a determination is to be made other than by Independent Counsel, (iv) payment of indemnification or reimbursement of expenses is not made pursuant to Section 5 or 6 or the last sentence of Section 10(a) of this Agreement within thirty (30) days after receipt by the Company of a written request therefor (including any invoices received by Indemnatee, which such invoices may be redacted as necessary to avoid the waiver of any privilege accorded by applicable law) or (v) payment of indemnification pursuant to Section 3 or 4 of this Agreement is not made within thirty (30) days after a determination has been made that Indemnatee is entitled to indemnification, Indemnatee shall be entitled to an adjudication by the Delaware Court of his or her entitlement to such indemnification or advancement. Alternatively, Indemnatee, at his or her option, may seek an award in arbitration to

be conducted by a single arbitrator pursuant to the Commercial Arbitration Rules of the American Arbitration Association. Indemnatee shall commence such proceeding seeking an adjudication or an award in arbitration within 180 days following the date on which Indemnatee first has the right to commence such proceeding pursuant to this Section 12(a); provided, however, that the foregoing time limitation shall not apply in respect of a proceeding brought by Indemnatee to enforce his or her rights under Section 5 of this Agreement. The Company shall not oppose Indemnatee's right to seek any such adjudication or award in arbitration.

(b) In the event that a determination shall have been made pursuant to Section 10(a) of this Agreement that Indemnatee is not entitled to indemnification, any judicial proceeding or arbitration commenced pursuant to this Section 12 shall be conducted in all respects as a de novo trial, or arbitration, on the merits and Indemnatee shall not be prejudiced by reason of that adverse determination. In any judicial proceeding or arbitration commenced pursuant to this Section 12, the Company shall have the burden of proving Indemnatee is not entitled to indemnification or advancement, as the case may be.

(c) If a determination shall have been made pursuant to Section 10(a) of this Agreement that Indemnatee is entitled to indemnification, the Company shall be bound by such determination in any judicial proceeding or arbitration commenced pursuant to this Section 12, absent (i) a misstatement by Indemnatee of a material fact, or an omission of a material fact necessary to make Indemnatee's statement not materially misleading, in connection with the request for indemnification, or (ii) a prohibition of such indemnification under applicable law.

(d) The Company shall be precluded from asserting in any judicial proceeding or arbitration commenced pursuant to this Section 12 that the procedures and presumptions of this Agreement are not valid, binding and enforceable and shall stipulate in any such court or before any such arbitrator that the Company is bound by all the provisions of this Agreement.

(e) The Company shall indemnify Indemnatee to the fullest extent permitted by law against any and all Enforcement Expenses and, if requested by Indemnatee, shall (within thirty (30) days after receipt by the Company of a written request therefor) advance, to the extent not prohibited by law, such Enforcement Expenses to Indemnatee, which are incurred by Indemnatee in connection with any action brought by Indemnatee for indemnification or advancement from the Company under this Agreement or under any directors' and officers' liability insurance policies maintained by the Company in the suit for which indemnification or advancement is being sought. Such written request for advancement shall include invoices received by Indemnatee in connection with such Enforcement Expenses but, in the case of invoices in connection with legal services, any references to legal work performed or to expenditures made that would cause Indemnatee to waive any privilege accorded by applicable law need not be included with the invoice.

(f) Notwithstanding anything in this Agreement to the contrary, no determination as to entitlement to indemnification under this Agreement shall be required to be made prior to the final disposition of the Proceeding, including any appeal therein.

Section 13. Non-exclusivity; Survival of Rights; Insurance; Subrogation.

(a) The rights of indemnification and to receive advancement as provided by this Agreement shall not be deemed exclusive of any other rights to which Indemnitee may at any time be entitled under applicable law, the Charter, the Bylaws, any agreement, a vote of stockholders or a resolution of directors, or otherwise. No amendment, alteration or repeal of this Agreement or of any provision hereof shall limit or restrict any right of Indemnitee under this Agreement in respect of any action taken or omitted by such Indemnitee in his or her Corporate Status prior to such amendment, alteration or repeal. To the extent that a change in Delaware law, whether by statute or judicial decision, permits greater indemnification or advancement than would be afforded currently under the Charter, Bylaws and this Agreement, it is the intent of the parties hereto that Indemnitee shall enjoy by this Agreement the greater benefits so afforded by such change. No right or remedy herein conferred is intended to be exclusive of any other right or remedy, and every other right and remedy shall be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other right or remedy.

(b) To the extent that the Company maintains an insurance policy or policies providing liability insurance for directors, managers, partners, officers, employees, agents or trustees of the Company or of any other Enterprise, Indemnitee shall be covered by such policy or policies in accordance with its or their terms to the maximum extent of the coverage available for any such director, manager, partner, officer, employee, agent or trustee under such policy or policies. If, at the time of the receipt of a notice of a claim pursuant to the terms hereof, the Company has director and officer liability insurance in effect, the Company shall give prompt notice of the commencement of such proceeding to the insurers in accordance with the procedures set forth in the respective policies. The Company shall thereafter take all necessary or desirable action to cause such insurers to pay, on behalf of Indemnitee, all amounts payable as a result of such proceeding in accordance with the terms of such policies.

(c) In the event of any payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnitee, who shall execute all papers required and take all action necessary to secure such rights, including execution of such documents as are necessary to enable the Company to bring suit to enforce such rights.

(d) The Company's obligation to provide indemnification or advancement hereunder to Indemnitee who is or was serving at the request of the Company as a director, manager, partner, officer, employee, agent or trustee of any other Enterprise shall be reduced by any amount Indemnitee has actually received as indemnification or advancement from such other Enterprise.

Section 14. Duration of Agreement. This Agreement shall continue until and terminate upon the later of: (a) ten (10) years after the date that Indemnitee shall have ceased to serve as [both a director and] an officer of the Company or (b) one (1) year after the final termination of any Proceeding, including any appeal, then pending in respect of which Indemnitee is granted rights of indemnification or advancement hereunder and of any proceeding

commenced by Indemnatee pursuant to Section 12 of this Agreement relating thereto. This Agreement shall be binding upon the Company and its successors and assigns and shall inure to the benefit of Indemnatee and his or her heirs, executors and administrators. The Company shall require and cause any successor (whether direct or indirect by purchase, merger, consolidation or otherwise) to all, substantially all or a substantial part, of the business and/or assets of the Company, by written agreement in form and substance satisfactory to Indemnatee, expressly to assume and agree to perform this Agreement in the same manner and to the same extent that the Company would be required to perform if no such succession had taken place.

Section 15. Severability. If any provision or provisions of this Agreement shall be held to be invalid, illegal or unenforceable for any reason whatsoever: (a) the validity, legality and enforceability of the remaining provisions of this Agreement (including, without limitation, each portion of any section of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and shall remain enforceable to the fullest extent permitted by law; (b) such provision or provisions shall be deemed reformed to the extent necessary to conform to applicable law and to give the maximum effect to the intent of the parties hereto; and (c) to the fullest extent possible, the provisions of this Agreement (including, without limitation, each portion of any section of this Agreement containing any such provision held to be invalid, illegal or unenforceable, that is not itself invalid, illegal or unenforceable) shall be construed so as to give effect to the intent manifested thereby.

Section 16. Enforcement.

(a) The Company expressly confirms and agrees that it has entered into this Agreement and assumed the obligations imposed on it hereby in order to induce Indemnatee to serve or continue to serve as [a director and] an officer of the Company, and the Company acknowledges that Indemnatee is relying upon this Agreement in serving as [a director and] an officer of the Company.

(b) This Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral, written and implied, between the parties hereto with respect to the subject matter hereof; provided, however, that this Agreement is a supplement to and in furtherance of the Charter, the Bylaws and applicable law, and shall not be deemed a substitute therefor, nor to diminish or abrogate any rights of Indemnatee thereunder.

Section 17. Modification and Waiver. No supplement, modification or amendment, or waiver of any provision, of this Agreement shall be binding unless executed in writing by the parties thereto. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provisions of this Agreement nor shall any waiver constitute a continuing waiver. No supplement, modification or amendment of this Agreement or of any provision hereof shall limit or restrict any right of Indemnatee under this Agreement in respect of any action taken or omitted by such Indemnatee prior to such supplement, modification or amendment.

Section 18. Notice by Indemnatee. Indemnatee agrees promptly to notify the Company in writing upon being served with any summons, citation, subpoena, complaint, indictment, information or other document relating to any Proceeding or matter which may be subject to indemnification, reimbursement or advancement as provided hereunder. The failure of Indemnatee to so notify the Company shall not relieve the Company of any obligation which it may have to Indemnatee under this Agreement or otherwise.

Section 19. Notices. All notices, requests, demands and other communications under this Agreement shall be in writing and shall be deemed to have been duly given if (i) delivered by hand and receipted for by the party to whom said notice or other communication shall have been directed, (ii) mailed by certified or registered mail with postage prepaid, on the third business day after the date on which it is so mailed, (iii) mailed by reputable overnight courier and receipted for by the party to whom said notice or other communication shall have been directed or (iv) sent by facsimile transmission, with receipt of oral confirmation that such transmission has been received:

(a) If to Indemnatee, at such address as Indemnatee shall provide to the Company.

(b) If to the Company to:

TCR² Therapeutics Inc.
100 Binney Street, Suite 710
Cambridge, Massachusetts 02142
Attention: President

or to any other address as may have been furnished to Indemnatee by the Company.

Section 20. Contribution. To the fullest extent permissible under applicable law, if the indemnification provided for in this Agreement is unavailable to Indemnatee for any reason whatsoever, the Company, in lieu of indemnifying Indemnatee, shall contribute to the amount incurred by Indemnatee, whether for judgments, fines, penalties, excise taxes, amounts paid or to be paid in settlement and/or for Expenses, in connection with any Proceeding in such proportion as is deemed fair and reasonable in light of all of the circumstances in order to reflect (i) the relative benefits received by the Company and Indemnatee in connection with the event(s) and/or transaction(s) giving rise to such Proceeding; and/or (ii) the relative fault of the Company (and its directors, officers, employees and agents) and Indemnatee in connection with such event(s) and/or transactions.

Section 21. Internal Revenue Code Section 409A. The Company intends for this Agreement to comply with the Indemnification exception under Section 1.409A-1(b)(10) of the regulations promulgated under the Internal Revenue Code of 1986, as amended (the "Code"), which provides that indemnification of, or the purchase of an insurance policy providing for payments of, all or part of the expenses incurred or damages paid or payable by Indemnatee with respect to a bona fide claim against Indemnatee or the Company do not provide for a deferral of compensation, subject to Section 409A of the Code, where such claim is based on actions or failures to act by Indemnatee in his or her capacity as a service provider of the Company. The parties intend that this Agreement be interpreted and construed with such intent.

Section 22. Applicable Law and Consent to Jurisdiction. This Agreement and the legal relations among the parties shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware, without regard to its conflict of laws rules. Except with respect to any arbitration commenced by Indemnatee pursuant to Section 12(a) of this Agreement, the Company and Indemnatee hereby irrevocably and unconditionally (i) agree that any action or proceeding arising out of or in connection with this Agreement shall be brought only in the Delaware Court, and not in any other state or federal court in the United States of America or any court in any other country, (ii) consent to submit to the exclusive jurisdiction of the Delaware Court for purposes of any action or proceeding arising out of or in connection with this Agreement, (iii) consent to service of process at the address set forth in Section 19 of this Agreement with the same legal force and validity as if served upon such party personally within the State of Delaware, (iv) waive any objection to the laying of venue of any such action or proceeding in the Delaware Court, and (v) waive, and agree not to plead or to make, any claim that any such action or proceeding brought in the Delaware Court has been brought in an improper or inconvenient forum.

Section 23. Headings. The headings of the paragraphs of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction thereof.

Section 24. Identical Counterparts. This Agreement may be executed in one or more counterparts, each of which shall for all purposes be deemed to be an original but all of which together shall constitute one and the same Agreement. Only one such counterpart signed by the party against whom enforceability is sought needs to be produced to evidence the existence of this Agreement.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties have caused this Agreement to be signed as of the day and year first above written.

TCR² THERAPEUTICS INC.

By: _____
Name:
Title:

[Name of Indemnatee]

LEASE AGREEMENT

THIS LEASE AGREEMENT is made as of this 30th day of June, 2017, between **ARE-MA REGION NO. 45, LLC**, a Delaware limited liability company ("**Landlord**"), and **TCR² THERAPEUTICS INC.**, a Delaware corporation ("**Tenant**").

BASIC LEASE PROVISIONS

Address:	100 Binney Street, Cambridge, Massachusetts.
Premises:	That portion of the Project, containing approximately 22,890 rentable square feet, located on the 7 th floor and in designated portions of the 1 st floor and levels B-1 and B-2 of the Building (as defined below), as shown on Exhibit A .
Project:	The land (" Land ") with the building known and numbered as 100 Binney Street (the " Building ") and the parking garage under the Building (the " Garage "), which are under construction thereon, in the City of Cambridge, Middlesex County, Commonwealth of Massachusetts, together with all improvements thereon and appurtenances thereto, as described in Exhibit B .
Campus:	The Alexandria Center at Kendall Square, comprised of the real property depicted on Exhibit B-1 .
Base Rent:	\$76.00 per rentable square foot of the Premises per year, adjusted as provided in <u>Section 4</u> below.
Rentable Area of Premises:	22,890 square feet.
Rentable Area of Building:	432,932 square feet.
Tenant's Share of Operating Expenses:	5.29%.
Tenant's Share of 50-60 Garage Operating Expenses:	0.7786%.
Building Share of Campus Expenses:	30.26% (i.e., 364,942 square feet of Building "gross floor area" per the Cambridge Zoning Ordinance /1,206,202 square feet of total Campus "gross floor area" per the Cambridge Zoning Ordinance).
Security Deposit:	\$289,940.00.
Target Commencement Date:	April 1, 2018.

Rent Commencement Date:	The earlier of (a) or (b), where (a) is the later of (i) May 1, 2018, or (ii) the date that is one month after the Commencement Date (as defined in <u>Section 2</u> below); and (b) is the date that Tenant conducts any business in the Premises or any part thereof.
Rent Adjustment Percentage:	3%.
Base Term:	Beginning on the Commencement Date and ending 7 years and 3 months from the first day of the first full month following the Rent Commencement Date.
Permitted Use:	Technical Office Use (which includes, as permitted uses and not accessory uses, research and development use, laboratory use and Tenant's office use), in accordance with Section 4.34(f) of the Cambridge Zoning Ordinance, and accessory uses customarily incidental to such Technical Office Use in accordance with Section 4.21 of the Cambridge Zoning Ordinance, and otherwise in compliance with <u>Section 7</u> hereof.
Work Letter:	As set forth in Exhibit C .

Address for Rent Payment:

P.O. Box 975383
Dallas, TX 75397-5383

Landlord's Notice Address:

385 East Colorado Blvd, Suite 299
Pasadena, CA 91101
Attention: Corporate Secretary
Re: 100 Binney, Cambridge, MA

Tenant's Notice Address:

Prior to the Commencement Date:

TCR2 Therapeutics Inc.
675 West Kendall Street, Suite I
Cambridge, MA 02142
Attn: John Pallies, CFO

From and after the Commencement Date:

TCR2 Therapeutics Inc.
100 Binney Street
Cambridge, MA 02142
Attn: John Pallies, CFO

The following Exhibits and Addenda are attached hereto and incorporated herein by this reference:

- [] **EXHIBIT A** - DRAWING SHOWING PREMISES
- [] **EXHIBIT B** - DESCRIPTION OF PROJECT
- [] **EXHIBIT B-1** - DESCRIPTION OF CAMPUS
- [] **EXHIBIT C** - WORK LETTER
- [] **EXHIBIT D** - ACKNOWLEDGMENT OF COMMENCEMENT DATE
- [] **EXHIBIT E** - INTENTIONALLY OMITTED
- [] **EXHIBIT F** - LANDLORD-TENANT OPERATIONS MATRIX
- [] **EXHIBIT F-1** - FORM OF LICENSE AGREEMENT FOR SHARED EQUIPMENT
- [] **EXHIBIT G** - TENANTS PERSONAL PROPERTY
- [] **EXHIBIT H** - ESTOPPEL CERTIFICATE FORM
- [] **EXHIBIT I** - RULES AND REGULATIONS
- [] **EXHIBIT J** - SNDA FORM

1. Lease of Premises. Upon and subject to all of the terms and conditions hereof, Landlord hereby leases the Premises to Tenant and Tenant hereby leases the Premises from Landlord. The portions of the Project which are for the non-exclusive use of tenants of the Project are collectively referred to herein as the “**Common Areas**.” The Common Areas shall include, without limitation, all common lobbies, entrances, stairs, elevators, restrooms, walkways, sidewalks, and loading areas located at the Project. Tenant shall have the non-exclusive appurtenant right to use the Common Areas subject to the terms of this Lease. In addition to other rights reserved herein or by law, Landlord reserves the right from time to time, so long as Landlord does not materially adversely affect Tenant’s use of the Premises for the Permitted Use or Tenant’s access to the Premises (except in an emergency): (i) to make additions to or reconstruction of the Building and Project and to install, use, maintain, repair, replace and relocate for service to the Premises or other parts of the Building or Project, pipes, ducts, conduits, wires and appurtenant fixtures, wherever located in the Premises, Building or elsewhere in the Project, including, without limitation, the installation of such facilities in the plenums of the ceilings of the Premises (or, if there is no drop ceiling, within the space above 10 feet of any floor of the Premises), and coring therefor between the ceiling or top surface of the any portion of the Premises and the space above the Premises in the plenum or below the top of the Premises as aforesaid; and (ii) to modify, relocate or make additions to or reductions from any Common Area or facility.

2. Delivery; Acceptance of Premises; Commencement Date.

(a) **Delivery.** Landlord shall use reasonable efforts to deliver the Premises to Tenant on or before the Target Commencement Date, with Landlord’s Work T1 Substantially Completed and the Shell and Core Improvements Substantially Completed (“**Delivery**” or “**Deliver**”). If Landlord fails to timely Deliver the Premises, Landlord shall not be liable to Tenant for any loss or damage resulting therefrom, and this Lease shall not be void or voidable except as provided in Section 2(b) below. As used herein, the terms “**Landlord’s Work**,” “**Tenant Delays**,” “**T1 Substantially Completed**” and “**Substantially Completed**” shall have the meanings set forth for such terms in the Work Letter. “**Force Majeure**” shall have the meaning set forth in Section 34.

(b) Remedies for Late Delivery.

(i) **Rent Abatement.** In the event that Landlord has not Delivered the Premises by the date that is 30 days after the Target Commencement Date (which date shall be extended for each day of Tenant Delay pursuant to the Work Letter or each day of Force Majeure pursuant to this Lease), then subject to Section 2(b)(iii) below, Tenant shall be entitled to 1 day of abatement of Base Rent (calculated at the rate of the Base Rent for the first year of the Term) for each day of such delay after such 30th day, up to a maximum of 60 days (the “**Initial Abatement Period**”) (i.e., through June 29, 2018, as such date shall be extended for each day of Tenant Delay pursuant to the Work Letter or each day of Force Majeure pursuant to this Lease). Tenant Delay shall be determined as provided in the Work Letter.

In the event that Landlord has not Delivered the Premises by the day immediately following the last day of the Initial Abatement Period (as such day shall be extended for each day of Tenant Delay pursuant to the Work Letter or each day of Force Majeure pursuant to this Lease), then Tenant shall be entitled to 2 days of abatement of Base Rent (calculated at the rate of the Base Rent for the first year of the Term) for each day of such delay for the period following the Initial Abatement Period, up to a maximum of 30 days (the “**Second Abatement Period**”) (i.e., through July 28, 2018, as such date shall be extended for each, day of Tenant Delay pursuant to the Work Letter or each day of Force Majeure pursuant to this Lease). Notwithstanding anything to the contrary set forth herein, there shall be no additional abatement of Rent following the Second Abatement Period.

(ii) **Termination.** In the event that Landlord has not Delivered the Premises in the Delivery Condition on or before the last day of the Second Abatement Period (as such day shall be extended for each day of Tenant Delay pursuant to the Work Letter or each day of Force Majeure pursuant to this Lease), then subject to Section 2(b)(iii) below, this Lease may be terminated by Tenant without recourse to Landlord or Tenant effective upon 30 days’ written notice delivered to Landlord, which notice shall be delivered by Tenant within 30 days after the occurrence of the last day of the Second Abatement Period; and, if so terminated by Tenant, neither Landlord nor Tenant shall have any further rights, duties or obligations under this Lease, except any provisions which expressly survive termination of this Lease. If Landlord fails to so Deliver the Premises on or before the last day of the Second Abatement Period and Tenant does not so terminate this Lease within 30 days after the last day of the Second Abatement Period, such right to terminate this Lease shall be deemed waived and this Lease shall remain in full force and effect, subject to and in accordance with its terms. Notwithstanding the foregoing, if Landlord Delivers the Premises in the Delivery Condition before a notice of such termination is delivered by Tenant, or prior to the expiration of the 30-day period after such notice of termination is delivered by Tenant, then Tenant’s election to terminate this Lease shall be null and void and of no further force or effect and this Lease shall continue in full force and effect, subject to and in accordance with its terms, and Landlord shall continue to use commercially reasonable efforts to Deliver the Premises in the Delivery Condition. If Tenant sends written notice of its election to terminate this Lease as and when required under this paragraph, Landlord does not Deliver the Premises in the Delivery Condition prior to the expiration of the 30-day period after the delivery of such notice of termination and this Lease is so terminated, then (a) the Security Deposit, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of this Lease), shall be returned to Tenant, and (b) neither Landlord nor Tenant shall have any further rights, duties or obligations under this Lease, except with respect to provisions which expressly survive termination of this Lease.

(iii) **Sole and Exclusive Remedies.** Tenant's abatement remedies in accordance with the terms of Section 2(b)(i) and Tenant's termination remedy in accordance with the terms of Section 2(b)(ii) shall be Tenant's sole and exclusive remedies on account of the failure of Landlord to Deliver the Premises on or before the Target Commencement Date, and Tenant shall not otherwise be entitled to any direct, indirect, special, consequential or other damages from Landlord on account of such failure.

(c) The "**Commencement Date**" shall be the earlier of: (i) the date Landlord Delivers the Premises to Tenant; or (ii) the date Landlord could have Delivered the Premises but for Tenant Delays. The Rent Commencement Date shall be as set forth in the Basic Lease Provisions. Upon request of Landlord, Tenant shall execute and deliver a written acknowledgment of the Commencement Date, the "Rent Commencement Date" and the expiration date of the Term when such are established in the form of the "Acknowledgement of Commencement Date" attached to this Lease as **Exhibit D**; provided, however, Tenant's failure to execute and deliver such acknowledgment shall not affect Landlord's rights hereunder. The "**Term**" of this Lease shall be the Base Term, as defined above in the Basic Lease Provisions, and any Extension Term which Tenant may elect pursuant to Section 39 hereof.

Landlord covenants to construct the Shell and Core Improvements in compliance with applicable Legal Requirements as in effect on the Commencement Date. Tenant shall accept the Premises in their condition as of the Commencement Date, subject to all applicable Legal Requirements (as defined in Section 7 hereof). Landlord shall have no obligation for any defects in the Premises, except as expressly provided in the Work Letter. Tenant's taking possession of the Premises shall be conclusive evidence that Tenant accepts the Premises and that the Premises were in good condition at the time possession was taken. Subject to the terms of the Work Letter, any occupancy of the Premises by Tenant before the Commencement Date for the conduct of its business shall be subject to all of the terms and conditions of this Lease, including the obligation to pay Rent.

Tenant agrees and acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the condition of all or any portion of the Premises, Building or Project, and/or the suitability of the Premises, Building or Project for the conduct of Tenant's business, and Tenant waives any implied warranty that the Premises, Building or Project is suitable for the Permitted Use. This Lease constitutes the complete agreement of Landlord and Tenant with respect to the subject matter hereof and supersedes any and all prior representations, inducements, promises, agreements, understandings and negotiations which are not contained herein. Landlord in executing this Lease does so in reliance upon Tenant's representations, warranties, acknowledgments and agreements contained herein.

3. Rent.

(a) **Base Rent.** The Security Deposit shall be due and payable on delivery of an executed copy of this Lease to Landlord. The first full calendar month's Base Rent shall be due and payable on October 1, 2017. Commencing on the Rent Commencement Date, Tenant shall pay to Landlord in advance, without demand, abatement (except as expressly provided in Section 4(a) below), deduction or set-off, monthly installments of Base Rent on or before the first day of each calendar month during the Term hereof, in lawful money of the United States of America, at the office of Landlord for payment of Rent set forth above, or to such other person or at such other place as Landlord may from time to time designate in writing. Payments of Base Rent for any fractional calendar month shall be prorated. If the Rent Commencement Date is

other than the first day of a calendar month, the difference between the first full calendar month's Base Rent paid on October 1, 2017 by Tenant to Landlord as required above, and the prorated Base Rent for the fractional month in which the Rent Commencement Date occurs, shall be applied by Landlord to such first full calendar month after the Rent Commencement Date. The obligation of Tenant to pay Base Rent and other sums to Landlord and the obligations of Landlord under this Lease are independent obligations. Tenant shall have no right at any time to abate, reduce, or set-off any Rent (as defined in Section 5) due hereunder except for any abatement as may be expressly provided in this Lease.

(b) **Additional Rent** In addition to Base Rent, Tenant agrees to pay to Landlord' as additional rent ("**Additional Rent**"): (i) Tenant's Share of Operating Expenses (as defined in Section 5), and (ii) any and all other amounts Tenant assumes or agrees to pay under the provisions of this Lease, including, without limitation, any and all other sums that may become due by reason of any default of Tenant or failure to comply with the agreements, terms, covenants and conditions of this Lease to be performed by Tenant, after any applicable notice and cure period.

4. Base Rent Adjustments.

(a) **Abatement.** Notwithstanding anything to the contrary contained in this Lease, but provided Tenant is not in Default (as defined in Section 20 below) hereunder, Landlord agrees that 50% of the Base Rent payable during the period beginning on the Rent Commencement Date and ending 3 months after the Rent Commencement Date shall be abated during such period ("**Base Rent Abatement**"). For the avoidance of doubt, if the Rent Commencement Date occurs on the first day of a month, the 3-month period of the Base Rent Abatement will be measured from that date, if the Rent Commencement Date occurs on a day other than the first day of a month, the 3-month period of the Base Rent Abatement will be measured from the first day of the following month. Except as provided in the preceding sentences, Tenant shall pay the full amount of Base Rent due in accordance with the provisions of this Lease. Amounts payable under Section 5 below and calculated based on Base Rent shall not be abated and shall be based on the amount of Base Rent that would have been payable but for the Base Rent Abatement Notwithstanding anything to the contrary in this Section 4(a), the adjustment in the Base Rent as set forth in Section 4(b) shall be based on the full and unabated amount of Base Rent payable for the first 12-month period from and after the Commencement Date.

(b) **Adjustment.** Base Rent shall be increased on each annual anniversary of the Rent Commencement Date (each an "**Adjustment Date**") by multiplying the Base Rent payable immediately before such Adjustment Date by the Rent Adjustment Percentage and adding the resulting amount to the Base Rent payable immediately before such Adjustment Date. Base Rent, as so adjusted, shall thereafter be due as provided herein. Base Rent adjustments for any fractional calendar month shall be prorated.

5. **Operating Expense Payments.** Landlord shall, at least 30 days prior to the year in question, deliver to Tenant a written estimate of Operating Expenses for each calendar year during the' Term (the "**Annual Estimate**"). Together with the Annual Estimate, Landlord shall deliver Landlord's estimate of the 50-60 Garage Operating Expenses (as such term is defined below) for each such calendar year (the "**50-60 Garage Annual Estimate**"). The Annual Estimate and 50-60 Garage Annual Estimate may be revised by Landlord from time to time during such calendar year. During each month of the Term, on the same date that Base Rent is or would be due, Tenant shall pay Landlord an amount equal to 1/12th of Tenant's Share of Operating Expenses as set forth in the Annual Estimate and 1/12th of Tenant's Share of the 50-60 Garage Annual Estimate. Payments for any fractional calendar month shall be prorated.

The term “**Operating Expenses**” means: (i) the Building Share of Campus Expenses; and (ii) all costs and expenses of any kind or description whatsoever incurred or accrued each calendar year by Landlord with respect to the Project, including, without duplication, Taxes (as defined in Section 9), capital repairs, replacements and improvements amortized over the lesser of 10 years or the useful life of such capital items (except for capital repairs, replacements and improvements to the roof, which shall be amortized over 15 years), adjusted to reflect Building operations 24 hours per day, 7 days per week and 365 days per year (provided that Operating Expenses in the first 2 years after the Commencement Date shall not include the amortized costs for such years of any capital repairs, replacements or improvements), and a property management fee to Landlord or an affiliate of Landlord of 2.0% of annual Base Rent (including Base Rent that would have been due with respect to any rent abatement) or the costs of Landlord’s third-party property manager or administration rent in the amount of 2.0% of annual Base Rent if there is no third-party property manager, excluding only:

- (a) the original construction costs of the Project and costs of correcting defects in such original construction;
- (b) capital expenditures for expansion of the Project, or in the first 2 years after the Commencement Date, the amortized costs for such years of any capital repairs, replacements or improvements;
- (c) interest, principal payments of Mortgage (as defined in Section 27) debts of Landlord, financing costs and amortization of funds borrowed by Landlord, whether secured or unsecured and all payments of base rent (but not taxes or operating expenses) under any ground lease or other underlying lease of all or any portion of the Project;
- (d) depreciation of the Project (except for capital repairs, replacements and improvements, the cost of which are includable in Operating Expenses);
- (e) advertising, legal and space planning expenses and leasing commissions and other costs and expenses incurred in procuring and leasing space to tenants for the Project, including any leasing office maintained in the Project, free rent and construction allowances for tenants;
- (f) legal and other expenses incurred in the negotiation or enforcement of leases;
- (g) completing, fixturing, improving, renovating, painting, redecorating or other work, which Landlord pays for or performs for other tenants within their premises, and costs of correcting defects in such work;
- (h) costs of utilities outside normal business hours sold to tenants of the Project;
- (i) costs to be reimbursed by other tenants of the Project or Taxes to be paid directly by Tenant or other tenants of the Project, whether or not actually paid;
- (j) salaries, wages, benefits and other compensation paid to officers and employees of Landlord who do not have day to day responsibility for the operating, managing or servicing of the Building or Project, provided that the expense of any personnel not dedicated exclusively to the Building or Project shall be equitably prorated based on time spent on operating, managing or otherwise servicing the Building or Project and time spent on matters unrelated to operating, managing or servicing the Building or Project;

(k) general organizational, administrative and overhead costs relating to maintaining Landlord's existence, either as a corporation, partnership, or other entity, including general corporate, legal and accounting expenses;

(l) costs (including attorneys' fees and costs of settlement, judgments and payments in lieu thereof) incurred in connection with disputes with tenants, other occupants, or prospective tenants, and costs and expenses, including legal fees, incurred in connection with negotiations or disputes with employees, consultants, management agents, leasing agents, purchasers or mortgagees of the Building;

(m) costs incurred by Landlord due to the violation by Landlord, its employees, agents or contractors or any tenant of the terms and conditions of any lease of space in the Project or any Legal Requirement (as defined in Section 7);

(n) penalties, fines or interest incurred as a result of Landlord's inability or failure to make payment of Taxes and/or to file any tax or informational returns when due, or from Landlord's failure to make any payment of Taxes required to be made by Landlord hereunder before delinquency;

(o) overhead and profit increment paid to Landlord or to subsidiaries or affiliates of Landlord for goods and/or services in or to the Project to the extent the same exceeds the costs of such goods and/or services rendered by unaffiliated third parties on a competitive basis;

(p) costs of Landlord's charitable or political contributions, or of fine art maintained at the Project;

(q) costs in connection with services (including electricity), items or other benefits of a type which are not standard for the Project and which are not available to Tenant without specific charges therefor, but which are provided to another tenant or occupant of the Project, whether or not such other tenant or occupant is specifically charged therefor by Landlord;

(r) costs incurred in the sale or refinancing of the Project;

(s) net income taxes of Landlord or the owner of any interest in the Project, franchise, capital stock, gift, estate or inheritance taxes or any federal, state or local documentary taxes imposed against the Project or any portion thereof or interest therein; and

(t) any expenses otherwise includable within Operating Expenses to the extent actually reimbursed by persons other than tenants of the Project under leases for space in the Project.

In addition, notwithstanding anything to the contrary contained in this Lease, Operating Expenses incurred or accrued by Landlord with respect to any capital repairs, replacements and improvements which are for the purpose of reducing the amount of Operating Expenses (for example, without limitation, by reducing energy usage at the Project) (a "**Cost Saving Capital Expenditure**") shall be amortized over a period of years equal to the lesser of: (A) 10 years; (B) the useful life of the particular item in accordance with GAAP, adjusted to reflect 24/7/365 operation, together with interest of 7.5% on the unamortized amount; or (C) the quotient of (i) the Cost Saving Capital Expenditure, divided by (ii) the annual amount of Operating Expenses reasonably expected by Landlord to be saved as a result of such capital repair, replacement or improvement.

Within 90 days after the end of each calendar year (or such longer period as may be reasonably required), Landlord shall furnish to Tenant a statement (an “**Annual Statement**”) showing in reasonable detail: (a) the total and Tenant’s Share of actual Operating Expenses and Tenant’s Share of 50-60 Garage Operating Expenses, each for the previous calendar year, and (b) the total of Tenant’s payments in respect of Operating Expenses and 50-60 Garage Operating Expenses, each for such year. If Tenant’s Share of actual Operating Expenses and Tenant’s Share of 50-60 Garage Operating Expenses for such year exceed Tenant’s payments of Operating Expenses and 50-60 Garage Operating Expenses for such year, the excess shall be due and payable by Tenant as Rent within 30 days after delivery of such Annual Statement to Tenant. If Tenant’s payments of Operating Expenses and 50-60 Garage Operating Expenses for such year exceed Tenant’s Share of actual Operating Expenses and Tenant’s Share of 50-60 Garage Operating Expenses for such year, Landlord shall pay the excess to Tenant within 30 days after delivery of such Annual Statement or credit the excess amount to the next succeeding installments of estimated Operating Expenses and/or 50-60 Garage Operating Expenses, except that after the expiration or earlier termination of the Term, or if Tenant is delinquent in its obligation to pay Rent, Landlord shall pay or credit the excess to Tenant after deducting all other amounts due Landlord. Landlord’s and Tenant’s obligations to pay for any overpayments or deficiencies due pursuant to this paragraph shall survive the expiration or earlier termination of this Lease.

The Annual Statement shall be final and binding upon Tenant unless Tenant, within 180 days after Tenant’s receipt thereof, shall contest any item therein by giving written notice to Landlord, specifying each item contested and the reason therefor. If during such 180-day period, Tenant reasonably and in good faith questions or contests the accuracy of Landlord’s statement of Tenant’s Share of Operating Expenses, Landlord will provide Tenant with access to Landlord’s books and records relating to the operation of the Project (including the Garage) and such information as Landlord reasonably determines to be responsive to Tenant’s questions (the “**Expense Information**”). If after Tenant’s review of such Expense Information, Landlord and Tenant cannot agree upon the amount of Tenant’s Share of Operating Expenses, then Tenant shall have the right to have an independent public accounting firm selected by Tenant from among the 5 largest in the United States, working pursuant to a fee arrangement other than a contingent fee (at Tenant’s sole cost and expense) and approved by Landlord (which approval shall not be unreasonably withheld or delayed), audit and/or review the Expense Information for the year in question (the “**Independent Review**”). The results of any such Independent Review shall be binding on Landlord and Tenant. If the Independent Review shows that the payments actually made by Tenant with respect to Operating Expenses for the calendar year in question exceeded Tenant’s Share of Operating Expenses for such calendar year, Landlord shall at Landlord’s option either (i) credit the excess amount to the next succeeding installments of estimated Operating Expenses or (ii) pay the excess to Tenant within 30 days after delivery of such statement, except that after the expiration or earlier termination of this Lease or if Tenant is delinquent in its obligation to pay Rent, Landlord shall pay the excess to Tenant after deducting all other amounts due Landlord. If the Independent Review shows that Tenant’s payments with respect to Operating Expenses for such calendar year were less than Tenant’s Share of Operating Expenses for the calendar year, Tenant shall pay the deficiency to Landlord within 30 days after delivery of such statement. If the Independent Review shows that Tenant has overpaid with respect to Operating Expenses by more than 5%, then Landlord shall reimburse Tenant for the reasonable out-of-pocket costs incurred by Tenant for the Independent Review.

Operating Expenses and 50-60 Garage Operating Expenses for the calendar years in which Tenant's obligation to share therein begins and ends shall be prorated. Notwithstanding anything set forth herein to the contrary, if the Building is not at least 95% occupied on average during any year of the Term, Tenant's Share of Operating Expenses for such year shall be computed as though the Building had been 95% occupied on average during such year.

"Campus Expenses" shall mean the actual costs and expenses of operating the campus-wide community activities required under the special permit for the Campus issued by the Cambridge Planning Board on June 1, 2010 for the Alexandria Center at Kendall Square (**"Special Permit"**), or otherwise provided to the Campus, including, without limitation, the following: (i) compliance with the PTDM (defined in Section 10 below), including without limitation costs of causing the EZ Ride Shuttle Service of CRTMA (defined in Section 10) to service the Building (and/or the actual costs and expenses of a dedicated shuttle service for the Campus and other properties controlled by Landlord or its affiliates) or a separate shuttle bus service operated for the benefit of the Campus (**"PTDM and Shuttle Expenses"**); (ii) after its construction, the cost of the mixed mode transportation center to be located at 41 Linskey Way pursuant to the Special Permit, including without limitation, operating expenses, utilities, repairs, cleaning, insurance and Taxes; provided that the exclusions from Operating Expenses listed above in this Section shall apply in similar fashion to the operating expenses and repairs of such mixed mode transportation center; and (iii) preparation and implementation of marketing and merchandising plans to generate street activation for the Campus.

"50-60 Garage Operating Expenses" shall mean the Operating Expenses and Taxes (as defined in this Lease) but as the same apply to the 50-60 Garage.

"Tenant's Share" shall be the percentage set forth in the Basic Lease Provisions as Tenant's Share as reasonably adjusted by Landlord following a measurement of the rentable square footage of the Building and Premises to be done by Landlord within 120 days of the Commencement Date, or as soon as reasonably possible thereafter, and shall be subject to further adjustment for changes in the physical size of the Premises or the Project occurring thereafter. Any such measurement shall be performed in accordance with the Standard Method of Measuring Floor Area in Office Buildings as adopted by the Building Owners and Managers Association International (ANSI/BOMA Z65.1-1996), as customarily modified for laboratory properties in the Cambridge, Massachusetts market, based upon the Shell, Core and Site Construction Documents. Landlord may equitably increase Tenant's Share or charge Tenant directly for any item of expense or cost reimbursable by Tenant that relates to a repair, replacement, or service that benefits only the Premises or only a portion of the Project that includes the Premises or that varies with Tenant's particular occupancy or use (it being agreed that 100% of the property management fee or administration rent for property management, which is calculated based on Base Rent, is for a service related only to the Premises), and Tenant shall pay all such charges as Additional Rent within 30 days of invoice. Base Rent, Tenant's Share of Operating Expenses, Tenant's Share of 50-60 Garage Operating Expenses and all other amounts payable by Tenant to Landlord hereunder are collectively, referred to herein as **"Rent"**.

Landlord and Tenant agree that the rentable square footage of the Premises and Building, and the gross floor area of the Premises, Building and Campus, as of the date of this Lease are as set forth in the Basic Lease Provisions for the purposes of this Lease.

6. Security Deposit. Tenant shall deposit with Landlord, upon delivery of an executed copy of this Lease to Landlord, a security deposit (the “**Security Deposit**”) for the performance of all of Tenant’s obligations hereunder in the amount set forth in the Basic Lease Provisions, which Security Deposit shall be in the form of an unconditional, irrevocable and transferable letter of credit (the “**Letter of Credit**”): (i) in form and substance reasonably satisfactory to Landlord, (ii) naming Landlord as beneficiary, (iii) expressly allowing Landlord to draw upon it at any time from time to time by delivering to the issuer notice that Landlord is entitled to draw thereunder, (iv) issued by Boston Private Bank or another FDIC-insured financial institution satisfactory to Landlord, and (v) redeemable by presentation of a sight draft in California or Massachusetts. If Tenant does not provide Landlord with a substitute Letter of Credit complying with all of the requirements hereof at least 10 days before the stated expiration date of any then current Letter of Credit, Landlord shall have the right to draw the full amount of the current Letter of Credit and hold the funds drawn in cash without obligation for interest thereon as the Security Deposit, until such time as Tenant provides a substitute Letter of Credit, whereupon Landlord shall forthwith refund such funds to Tenant. The Security Deposit shall be held by Landlord as security for the performance of Tenant’s obligations under this Lease. The Security Deposit is not an advance rental deposit or a measure of Landlord’s damages in case of Tenant’s default. Upon each occurrence of a Default (as defined in Section 20), Landlord may use all or any part of the Security Deposit to pay delinquent payments due under this Lease, and the cost of any damage, injury, expense or liability caused by such Default, without prejudice to any other remedy provided herein or provided by law. Upon any such use of all or any portion of the Security Deposit, Tenant shall pay Landlord on demand the amount that will restore the Security Deposit to the amount set forth in the Basic Lease Provisions. Tenant hereby waives the provisions of any law, now or hereafter in force, which provide that Landlord may claim from a security deposit only those sums reasonably necessary to remedy defaults in the payment of Rent, to repair damage caused by Tenant or to clean the Premises, it being agreed that Landlord may, in addition, claim those sums reasonably necessary to compensate Landlord for any other loss or damage, foreseeable or unforeseeable, caused by the act or omission of Tenant or any officer, employee, agent or invitee of Tenant. Upon bankruptcy or other debtor-creditor proceedings against Tenant, the Security Deposit shall be deemed to be applied first to the payment of Rent and other charges due Landlord for periods prior to the filing of such proceedings. Upon any such use of all or any portion of the Security Deposit, Tenant shall, within 10 days after demand from Landlord, restore the Security Deposit to its original amount. If Tenant is not in Default at the end of the Term, the Security Deposit, or any balance thereof (i.e., after deducting therefrom all amounts to which Landlord is entitled under the provisions of this Lease), shall be returned to Tenant (or, at Landlord’s option, to the last assignee of Tenant’s interest hereunder) within 60 days after the expiration or earlier termination of this Lease.

If Landlord transfers its interest in the Project or this Lease, Landlord shall either (a) transfer any Security Deposit then held by Landlord to a person or entity assuming Landlord’s obligations under this Section 6, or (b) return to Tenant any Security Deposit then held by Landlord and remaining after the deductions permitted herein. Upon such transfer to such transferee or the return of the Security Deposit to Tenant, Landlord shall have no further obligation with respect to the Security Deposit, and Tenant’s right to the return of the Security Deposit shall apply solely against Landlord’s transferee. The Security Deposit is not an advance rental deposit or a measure of Landlord’s damages in case of Tenant’s default. Landlord’s obligation respecting the Security Deposit is that of a debtor, not a trustee, and no interest shall accrue thereon.

7. Use; Energy Use Reporting.

(a) **Use.** The Premises shall be used solely for the Permitted Use set forth in the Basic Lease Provisions, and in compliance with all laws, orders, judgments, ordinances, regulations, codes, directives, permits, licenses, covenants and restrictions now or hereafter applicable to the Premises, and to the use and occupancy thereof, including, without limitation, the Americans With

Disabilities Act, 42 U.S.C. § 12101, et seq. (together with the regulations promulgated pursuant thereto, “**ADA**”) (collectively, “**Legal Requirements**” and each, a “**Legal Requirement**”). The number of control areas in the Premises shall comply with all applicable Legal Requirements. Tenant shall, upon 5 days’ written notice from Landlord, discontinue any use of the Premises which is declared by any Governmental Authority (as defined in Section 9) having jurisdiction to be a violation of a Legal Requirement. Tenant will not use or permit the Premises to be used for any purpose or in any manner that would void Tenant’s or Landlord’s insurance, increase the insurance risk, or cause the disallowance of any sprinkler or other credits. Tenant shall not permit any part of the Premises to be used as a “place of public accommodation”, as defined in the ADA or any similar legal requirement. Tenant shall reimburse Landlord promptly upon demand for any additional premium charged for any such insurance policy by reason of Tenant’s failure to comply with the provisions of this Section or otherwise caused by Tenant’s use and/or occupancy of the Premises. Tenant shall use the Premises in a careful, safe and proper manner and shall not commit or permit waste, overload the floor or structure of the Premises, or subject the Premises to use that would damage the Premises. Tenant shall not obstruct or interfere with the rights of Landlord or other tenants or occupants of the Project, including but not limited to, not conducting or giving notice of any auction, liquidation, or going out of business sale on the Premises. Tenant shall not use or allow the Premises to be used for any unlawful purpose. Tenant shall cause any equipment or machinery to be installed in the Premises so as to reasonably prevent sounds or vibrations from the Premises from extending into Common Areas, or other space in the Project, Tenant shall not place any machinery or equipment weighing 500 pounds or more in or upon the Premises or transport or move such items through the Common Areas of the Project or in the Project or Building elevators without the prior written consent of Landlord. Except as may be provided under the Work Letter, Tenant shall not, without the prior written consent of Landlord, use the Premises in any manner which will require ventilation, air exchange, heating, gas, steam, electricity or water beyond the existing capacity of the Project as proportionately allocated to the Premises based upon Tenant’s Share as usually furnished for the Permitted Use.

Tenant shall have access to the Premises, 24 hours per day, 7 days per week, 365 days per year, subject to the terms of this Lease and to compliance with such reasonable security or monitoring systems and procedures as Landlord may reasonably impose.

Landlord shall, as an Operating Expense (to the extent such Legal Requirement is generally applicable to similar buildings in the area in which the Project is located) or at Tenant’s expense (to the extent such Legal Requirement is applicable solely by reason of Tenant’s, as compared to other tenants of the Project, particular use of the Premises) make any alterations or modifications to the Common Areas or the exterior of the Building that are required by Legal Requirements, including the ADA. Tenant, at its sole expense, shall make any alterations or modifications to the interior of the Premises that are required by Legal Requirements (including, without limitation, compliance of the Premises with the ADA. Notwithstanding any other provision herein to the contrary, Tenant shall be responsible for any and all demands, claims, liabilities, losses, costs, expenses, actions, causes of action, damages or judgments, and all reasonable expenses incurred in investigating or resisting the same (including, without limitation, reasonable attorneys’ fees, charges and disbursements and costs of suit) (collectively, “**Claims**”) arising out of or in connection with Legal Requirements for which Tenant is responsible hereunder or related to Tenant’s particular use of the Premises or its Alterations (as defined in Section 12 below), and Tenant shall indemnify, defend, hold and save Landlord harmless from and against any and all Claims arising out of or in connection with any failure of the Premises to comply with any Legal Requirement.

(b) **Intentionally omitted.**

(c) **Energy Use Reporting.** Tenant agrees to provide, within 30 days of request by Landlord, such information and documentation as may be needed for compliance with the City of Cambridge Building Energy Use Disclosure Ordinance, Section 8.67.010 et seq. of the Municipal Code of the City of Cambridge (as the same may be amended, the “**Cambridge Building Energy Use Disclosure Ordinance**”), and other such energy or sustainability requirements as may be adopted from time to time by the City of Cambridge or any other governmental authority with jurisdiction over the Building; which information shall include without limitation usage at or by the Premises of electricity, natural gas, steam, hot or chilled water or other energy. Landlord shall report to the applicable governmental authority such energy usage for the Building and other Building information as required by the Cambridge Building Energy Use Disclosure Ordinance.

8. Holding Over. If, with Landlord’s express written consent, Tenant retains possession of the Premises after the termination of the Term, (i) unless otherwise agreed in such written consent, such possession shall be subject to immediate termination by Landlord at any time, (ii) all of the other terms and provisions of this Lease (including, without limitation, the adjustment of Base Rent pursuant to Section 4 hereof) shall remain in full force and effect (excluding any expansion or renewal option or other similar right or option) during such holdover period, (iii) Tenant shall continue to pay Base Rent in the amount payable upon the date of the expiration or earlier termination of this Lease or such other amount as Landlord may indicate, in Landlord’s sole and absolute discretion, in such written consent, and (iv) all other payments shall continue under the terms of this Lease. If Tenant remains in possession of the Premises after the expiration or earlier termination of the term without the express written consent of Landlord, (A) Tenant shall become a tenant at sufferance upon the terms of this Lease except that the monthly rental shall be equal to 150% of Rent in effect during the last 30 days of the Term, and (B) following the first 30 days of any such holdover, Tenant shall be responsible for all damages suffered by Landlord resulting from or occasioned by Tenant’s holding over, including consequential damages: No holding over by Tenant, whether with or without consent of Landlord, shall operate to extend this Lease except as otherwise expressly provided, and this Section 8 shall not be construed as consent for Tenant to retain possession of the Premises. Acceptance by Landlord of Rent after the expiration of the Term or earlier termination of this Lease shall not result in a renewal or reinstatement of this Lease.

9. Taxes. Landlord shall pay, as part of Operating Expenses, all taxes, levies, fees, assessments and governmental charges of any kind applicable to the Building or Project, existing as of the Commencement Date or thereafter enacted (collectively referred to as “**Taxes**”), imposed by any federal, state, regional, municipal, local or other governmental authority or agency, including, without limitation, quasi-public agencies (collectively, “**Governmental Authority**”) during the Term, including, without limitation, all Taxes: (i) imposed on or measured by or based, in whole or in part, on rent payable to (or gross receipts received by) Landlord under this Lease and/or from the rental by Landlord of the Project or any portion thereof, or (ii) based on the square footage, assessed value or other measure or evaluation of any kind of the Premises or the Project, or (iii) assessed or imposed by or on the operation or maintenance of any portion of the Premises or the Project, including parking, or (iv) assessed or imposed by, or at the direction of, or resulting from Legal Requirements, or interpretations thereof, promulgated by any Governmental Authority, or (v) imposed as a license or other fee, charge, tax, or assessment on Landlord’s business or occupation of leasing space in the Project. Landlord may contest by appropriate legal proceedings the amount, validity, or application of any Taxes or liens securing Taxes. Taxes shall not include any net income taxes imposed on Landlord (except to the extent such net income taxes are in substitution for any Taxes payable hereunder), or any franchise, capital stock, gift, estate or inheritance taxes or any federal, state, or local documentary taxes imposed against the Project or any portion thereof. If any such Tax is levied or assessed directly

against Tenant, then Tenant shall be responsible for and shall pay the same at such times and in such manner as the taxing authority shall require. Operating Expenses hereunder shall also include the cost of tax monitoring services provided to Landlord with respect to the Project. Tenant shall pay, prior to delinquency, any and all Taxes levied or assessed against any personal property or trade fixtures placed by Tenant in the Premises, whether levied or assessed against Landlord or Tenant. If any Taxes on Tenant's personal property or trade fixtures are levied against Landlord or Landlord's property, or if the assessed valuation of the Project is increased by a value attributable by the taxing authority to improvements in or alterations to the Premises, whether owned by Landlord or Tenant and whether or not affixed to the real property so as to become a part thereof, higher than the base valuation on which Landlord from time-to-time allocates Taxes to all tenants in the Project, Landlord shall have the right, but not the obligation, to pay such Taxes. Landlord's determination of any excess assessed valuation shall be binding and conclusive, absent manifest error. The amount of any such payment by Landlord shall constitute Additional Rent due from Tenant to Landlord immediately upon demand.

10. Parking.

(a) Subject to all matters of record, Force Majeure, a Taking (as defined in Section 19 below) and the exercise by Landlord of its rights hereunder, and provided that Tenant pays the parking charge therefor as required hereunder, Tenant shall have, commencing on the Commencement Date and during the Term, the right, in common with other permitted users, to park vehicles in 17 unreserved vehicle parking spaces, of which 10 parking spaces shall be located in the Garage and 7 parking spaces shall be located in the garage located at 50-60 Binney Street (the "**50-60 Garage**"). Such total number of parking spaces is based upon a ratio of 0.9 spaces per 1,000 square feet of "gross floor area" in the Premises, as defined in the Cambridge Zoning Ordinance ("**Tenant's Pro Rata Share of Parking Spaces**") (i.e., 17 spaces, based upon a "gross floor area" of 19,187 square feet in the Premises as defined in the Cambridge Zoning Ordinance). Tenant's rights to park vehicles in the 50-60 Garage is subject to the reservation by Landlord of the right to make available up to 50% of Tenant's Pro Rata Share of Parking Spaces in the 50-60 Garage for use by other parties outside of Business Parking Hours (as hereinafter defined). For the purposes of this Section, "**Business Parking Hours**" shall mean 7:00 a.m. to 6:00 p.m. Monday through Friday (except for state and national holidays). The rights to park vehicles under this Lease are subject to Landlord's rules and regulations for the Garage and the rules and regulations of the 50-60 Garage, as applicable (which rules and regulations shall not be enforced in a discriminatory manner with respect to Tenant). Landlord shall not be responsible for enforcing Tenant's parking rights against any third parties, including other tenants of the Project. Landlord may allocate parking spaces among Tenant and other tenants in the Project pro rata as described above if Landlord determines that such parking facilities are becoming crowded. Landlord shall not be responsible for enforcing Tenant's parking rights against any third parties, including other tenants of the Project.

(b) **Monthly Parking Charge.** Commencing on the Commencement Date, Tenant shall pay, on or before the first day of the month during the Term, in respect of Tenant's Pro Rata Share of Parking Spaces in the Garage and the 50-60 Garage, the market rate monthly charge therefor designated by Landlord, as such monthly charge may be adjusted annually during the Term, based upon the rates charged by comparable parking facilities in the vicinity of the Project.

(c) **PTDM Matters.** Tenant shall, at Tenant's sole expense, for so long as the Parking and Traffic Demand Management Plan dated February 9, 2010 (revised April 15 2010), as approved by the City of Cambridge on April 22, 2010 including the conditions set forth in such approval (as may be amended in accordance with this Lease, the "**PTDM**") remains applicable to

the Project, comply with the PTDM as applicable to the Project, including without limitation, (i) offer to subsidize mass transit monthly passes, up to the federal limit, for all of its employees who work in the Premises in accordance with the terms set forth in the PTDM; (ii) implement a Commuter Choice Program and the MBTA's Corporate Pass Plan; (iii) discourage single-occupant vehicle ("SOV") use by its employees; (iv) promote alternative modes of transportation and use of alternative work hours; (v) at Landlord's request, meet with Landlord and/or its representatives no more frequently than quarterly to discuss transportation programs and initiatives; (vi) participate in annual surveys, monitoring transportation programs and initiatives at the Campus, and, without limitation, achieve a response rate for patron surveys at least equal to sixty percent (60%) of the projected number of daily patrons; (vii) cooperate with Landlord in connection with transportation programs and initiatives promulgated pursuant to the PTDM; (viii) provide alternative work programs (such as telecommuting, flex-time and compressed work weeks) to its employees in order to reduce traffic impacts in Cambridge during peak commuter hours; (ix) offer an emergency ride home ("ERH") through the Charles River Transportation Management Association ("CRTMA"), or have its own ERH program, for all employees who commute by non-SOV mode at least 3 days a week and who are eligible to park in Tenant's Pro Rata Share of Parking Spaces; (x) cooperate with the Cambridge Office of Workforce Development to expand employment opportunities for Cambridge residents; (xi) in the event that the single occupancy vehicle and traffic generation modal split limits of the PTDM are exceeded, charge each user of a parking space the market rate for parking in Kendall Square/East Cambridge therefor; (xii) comply with the requirements of any other Parking and Traffic Demand Management Plan to which Tenant may be a party from time to time; (xiii) designate an employee transportation coordinator for the Building; and (xiv) otherwise cooperate with Landlord in encouraging employees to seek alternate modes of transportation.

11. Utilities, Services; Life Safety Back-Up Power.

(a) **Utilities, Services.** Landlord shall provide, or cause to be provided, subject to the terms of this Section 11, water, electricity, heat, ventilation and air conditioning, light, power, telephone, sewer, and other utilities (including gas and fire sprinklers to the extent the Project is plumbed for such services), (collectively, "**Utilities**") for the Premises in the allocations set forth in the Landlord/Tenant Utility Allocation Matrix as provided below. Tenant shall be responsible for its own janitorial services within the Premises. Landlord shall arrange for collection of office trash and refuse from the loading dock of the Building, and Tenant shall arrange for its janitorial services provider to deliver such trash and refuse from the Premises to the loading dock of the Building. The allocation of Utilities to be made available to the Premises, subject to the terms and conditions of this Lease, shall be as set forth in the Landlord/Tenant Utility Allocation Matrix attached to the Work Letter as **Schedule 2(c)-2** (the "**Landlord/Tenant Utility Allocation Matrix**"). Landlord and Tenant shall provide and maintain the systems and equipment and services and utilities pursuant to the matrix attached hereto as **Exhibit F**, which **Exhibit F** is subject to the reasonable modification by Landlord from time to time to reflect actual operating practices, provided that no such modification shall materially expand the obligations of Tenant.

Landlord shall pay, as Operating Expenses or subject to Tenant's reimbursement obligation, for all Utilities used on the Premises, all maintenance charges for Utilities, and any storm sewer charges or other similar charges for Utilities imposed by any Governmental Authority or Utility provider, and any taxes, penalties, surcharges or similar charges thereon. Landlord may cause, at Landlord's expense, any Utilities to be separately metered or charged directly to Tenant by the provider. Tenant shall pay directly to the Utility provider, prior to delinquency, any separately metered Utilities and services which may be furnished to Tenant or the Premises during the Term. Tenant shall pay, as part of Operating Expenses, its share of all charges for

jointly metered Utilities based upon consumption, as reasonably determined by Landlord and without markup. No interruption or failure of Utilities, from any cause whatsoever other than Landlord's willful misconduct, shall result in eviction or constructive eviction of Tenant, termination of this Lease or the abatement of Rent. Tenant agrees to limit use of water and sewer with respect to Common Areas to normal restroom use.

Tenant agrees to provide Landlord with access to Tenant's water and/or energy usage data on a monthly basis, either by providing Tenant's applicable utility login credentials to Landlord's designated online portal, or by another delivery method reasonably agreed to by Landlord and Tenant. The costs and expenses incurred by Landlord in connection with receiving and analyzing such water and/or energy usage data {including, without limitation, as may be required pursuant to applicable Legal Requirements) shall be included as part of Operating Expenses.

(b) **Life Safety Back-Up Power.** Landlord's sole obligation for either providing a life safety generator or providing emergency or life safety back-up power to Tenant shall be: (i) to provide a life safety back-up generator with not less than the stated capacity of the life safety back-up generator serving the Building as of the Commencement Date and with the allocation to the Premises as set forth in the Landlord/Tenant Utility Allocation Matrix, and (ii) to contract with a third party to maintain the life safety back-up generator as per the manufacturer's standard maintenance guidelines. Landlord shall have no obligation to provide Tenant with operational emergency or life safety back-up generators or back-up power or to supervise, oversee or confirm that the third party maintaining the life safety back-up generator is maintaining the generator as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the life safety back-up generator when the life safety back-up generator is not operational, including any delays thereto due to the inability to obtain parts or replacement equipment, Landlord shall have no obligation to provide Tenant with an alternative life safety back-up or emergency generator or generators or alternative sources of back-up power. Tenant expressly acknowledges and agrees that Landlord does not guaranty that such life safety back-up or emergency generators will be operational at all times or that life safety back-up or emergency power will be available to the Premises when needed. In no event shall Landlord be liable to Tenant or any other person for any damages of any type, whether actual or consequential, suffered by Tenant or any such other person in the event that any life safety back-up or emergency generator or life safety back-up power or any replacement thereof fails or does not provide sufficient power.

(c) **Compressed Air, Vacuum and Reverse Osmosis Water Systems.** Landlord shall provide Tenant with access, pursuant to the terms and conditions of this Lease, to the compressed air, vacuum and reverse osmosis water systems that serve the floor on which the Premises are located. Tenant acknowledges and agrees that such compressed air, vacuum and reverse osmosis water systems shall be shared with other tenants of the Project. Tenant's obligation to pay its share of ongoing operation costs shall be allocated among Tenant and other user tenants on a pro rata basis, with Tenant's share based on the ratio of the rentable square footage of the Premises to the sum of the rentable square footages of the Premises and the premises of all other user tenant, provided that Tenant shall not pay any costs to repair damage that Landlord determines was caused by other tenants. Landlord's sole obligation for providing either compressed air, vacuum or reverse osmosis water systems to Tenant shall be to contract with one or more third parties to maintain the compressed air, vacuum and reverse osmosis water systems as per the manufacturer's standard maintenance guidelines. Landlord shall have no obligation to supervise, oversee or confirm that the third party or parties maintaining the compressed air, vacuum and reverse osmosis water systems are maintaining the compressed

air, vacuum and reverse osmosis water systems as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the compressed air, vacuum and reverse osmosis water systems when the compressed air, vacuum and reverse osmosis water systems are not operational, including any delays thereto due to the inability to obtain parts or replacement equipment, Landlord shall have no obligation to provide Tenant with any alternative compressed air, vacuum or reverse osmosis water systems. Tenant expressly acknowledges and agrees that Landlord does not guaranty that such compressed air, vacuum and reverse osmosis water systems will be operational at all times or that compressed air, vacuum and reverse osmosis water systems will be available to the Premises when needed.

(d) **Acid Neutralization System.** Landlord shall provide Tenant with access to the acid neutralization system existing as of the date of this Lease (**"Acid Neutralization System"**) pursuant to the terms and conditions of this Lease. Tenant acknowledges and agrees that the Acid Neutralization System shall be shared with other tenants of the Project. Tenant's obligation to pay its share of ongoing operation costs shall be allocated among Tenant and other user tenants on a pro rata basis, with Tenant's share based on the ratio of the rentable square footage of the Premises to the sum of the rentable square footages of the Premises and the premises of all other user tenants, provided, however, that, (i) at any time and from time to time, Landlord may equitably adjust such allocation based on use by Tenant and other tenant users of the Acid Neutralization System, and (ii) Tenant shall not pay any costs to repair damage that Landlord determines was caused by other tenants. Landlord's sole obligations for providing the Acid Neutralization System, or any acid neutralization system facilities, to Tenant shall be (the **"Acid Neutralization Obligations"**) to (i) use reasonable efforts to obtain and maintain the permit required from the Massachusetts Water Resources Authority for discharge through the Acid Neutralization System (the **"Discharge Permit"**), provided that Tenant cooperates with Landlord and provides all information and documents in Tenant's control that are necessary in connection with the Discharge Permit, and (ii) contract with a third party to maintain the Acid Neutralization System as operating as per the manufacturer's standard maintenance guidelines. Notwithstanding anything herein to the contrary, if the Acid Neutralization System must be replaced and the cost thereof is not included in such third party maintenance contract, then, Landlord shall replace the Acid Neutralization System, it being acknowledged, however, that Tenant shall be responsible for its share of all costs incurred in connection therewith as an Operating Expense.

Tenant shall be solely responsible for the use of the Acid Neutralization System by Tenant, its employees, any contractors, sub lessees, invitees or any party other than Landlord or Landlord's contractors, and Tenant shall be jointly and severally responsible for the use of the Acid Neutralization System with the other user tenants. Tenant shall use, and cause other parties under its control or for which it is responsible to use, the Acid Neutralization System in accordance with this Lease and in accordance with all applicable Legal Requirements, the Discharge Permit and any permits and approvals from Governmental Authorities for or applicable to Tenant's use of the Acid Neutralization System. Neither Landlord nor Tenant shall take any action or make any omission that would result in a violation of the Discharge Permit or any other permit or Legal Requirements applicable to the Acid Neutralization System. Neither Landlord nor Tenant's compliance with applicable permits and Legal Requirements shall include but not be limited to posting signs at all sinks located in the Premises containing applicable notices regarding the use of sink drains for the disposal of chemicals and other Hazardous Materials. Tenant shall maintain a chemical management plan prohibiting the improper discharge or disposal of chemicals. Tenant shall train all laboratory personnel in the Premises on the proper disposal of chemicals and other Hazardous Materials. Landlord reserves the right, at any time and from time to time, to require limitations and restrictions on discharges by Tenant to the Acid Neutralization System as Landlord

may determine to be necessary for the operation of the Acid Neutralization System. Landlord and its contractors and consultants shall be permitted to perform periodic sampling of all substances regulated under permits applicable to the Acid Neutralization System, including without limitation the discharge permit issued by the Massachusetts Water Resources Authority (“MWRA”), or as otherwise deemed appropriate by Landlord in its sole discretion. Landlord and its contractors and consultants shall be permitted to perform periodic inspections of the Acid Neutralization System and the discharge points and connections thereto located in the Premises. If requested by Landlord based on conditions pertaining to the Acid Neutralization System, Tenant shall promptly provide updates to its Hazardous Materials List (as defined in Section 30(b) below) to Landlord. Tenant shall promptly notify Landlord of any changes in the flow volume or properties that could impact the operation of the Acid Neutralization System or compliance with applicable permits or Legal Requirements, including without limitation a discharge known or reasonably believed to be non-compliant, changes in Tenant’s operations in the Premises and addition of new equipment such as cage washers, glass washers or autoclaves.

The scope of the Surrender Plan (as defined in Section 28 of this Lease) shall include all actions for the proper cleaning, decommissioning and cessation of Tenant’s use of the Acid Neutralization System, and all requirements under this Lease for the surrender of the Premises shall also apply to Tenant’s cessation of use of the Acid Neutralization System, in each case whether at Lease expiration, termination or prior thereto (but Tenant shall not be required to complete the decommissioning of the Acid Neutralization System if other tenants or occupants will continue to use the same after the expiration or earlier termination of the Lease, nor shall Tenant be responsible for or bear any costs of decommissioning arising from the use of the Acid Neutralization System by any party other than Tenant; it being agreed that if multiple tenants use the Acid Neutralization System, then Landlord shall be responsible for completing the decommissioning thereof, and Tenant shall pay to Landlord within thirty (30) days after invoice therefor Tenant’s share of the reasonable, actual costs of decommissioning based on the ratio of the rentable square footage of the Premises to the rentable square footage of the Premises and the premises of all other user tenants). The obligations of Tenant under this Lease with respect to the Acid Neutralization System shall be joint and several with such other tenants as aforesaid, except to the extent that Tenant can provide evidence to Landlord’s reasonable satisfaction that neither Tenant nor any Tenant Party caused, contributed to or exacerbated the matter for which Tenant would otherwise be responsible but for this exception. Without in any way limiting the Acid Neutralization Obligations, Landlord shall have no obligation to provide Tenant with operational emergency or back-up acid neutralization facilities or to supervise, oversee or confirm that the third party maintaining the Acid Neutralization System is maintaining such system as per the manufacturer’s standard guidelines or otherwise. During any period of replacement, repair or maintenance¹ of the Acid Neutralization System when such system is not operational, including any delays thereto due to the inability to obtain parts or replacement equipment, Landlord shall have no obligation to provide Tenant with an alternative back-up system or facilities. Tenant expressly acknowledges and agrees that Landlord does not guaranty that such Acid Neutralization System will be operational at all times or that such system will be available to the Premises when needed. Without in any way limiting the Acid Neutralization Obligations, in no event shall Landlord be liable to Tenant or any other party for any damages of any type, whether actual or consequential, suffered by Tenant or any such other person in the event that the Acid Neutralization System or back-up system, if any, or any replacement thereof fails or does not operate in a manner that meets Tenant’s requirements.

(e) **Glasswash and Autoclave.** Simultaneously with the execution of this Lease, Landlord and Tenant shall execute a License Agreement for the use by Tenant of a common glasswash machine and autoclave, which License Agreement shall be in the form of **Exhibit F-1** attached hereto.

12. Alterations and Tenant's Property. Any alterations, additions, or improvements made to the Premises by or on behalf of Tenant, including additional locks or bolts of any kind or nature upon any doors or windows in the Premises, but excluding installation, removal or realignment of furniture systems (other than removal of furniture systems owned or paid for by Landlord) not involving any modifications to the structure or connections (other than by ordinary plugs or jacks) to Building Systems (as defined in Section 13) ("**Alterations**") shall be subject to Landlord's prior written consent, which may be given or withheld in Landlord's sole discretion if any such Alteration affects the structure or Building Systems, but which shall otherwise not be unreasonably withheld, conditioned or delayed. Tenant may construct nonstructural Alterations in the Premises without Landlord's prior approval if the aggregate cost of all such work in any 12 month period does not exceed \$50,000 (a "**Notice-Only Alteration**"), provided Tenant notifies Landlord in writing of such intended Notice-Only Alteration, and such notice shall be accompanied by plans, specifications, work contracts and such other information concerning the nature and cost of the Notice-Only Alteration as may be reasonably requested by Landlord, which notice and accompanying materials shall be delivered to Landlord not less than 15 business days in advance of any proposed construction. If Landlord approves any Alterations, Landlord may impose such conditions on Tenant in connection with the commencement, performance and completion of such Alterations as Landlord may deem appropriate in Landlord's reasonable discretion. Any request for approval shall be in writing, delivered not less than 15 business days in advance of any proposed construction, and accompanied by plans, specifications, bid proposals, work contracts and such other information concerning the nature and cost of the alterations as may be reasonably requested by Landlord, including the identities and mailing addresses of all persons performing work or supplying materials. All architects, consultants, contractors and other persons performing work or supplying materials shall be subject to Landlord's prior written approval, which shall not be unreasonably withheld conditioned or delayed. Landlord's right to review plans and specifications and to monitor construction shall be solely for its own benefit, and Landlord shall have no duty to ensure that such plans and specifications or construction comply with applicable Legal Requirements. Tenant shall cause, at its sole cost and expense, all Alterations to comply with insurance requirements and with Legal Requirements and shall implement at its sole cost and expense any alteration or modification required by Legal Requirements as a result of any Alterations. Tenant shall pay to Landlord, as Additional Rent, on demand an amount equal to Landlord's actual out-of-pocket expenses in connection with any Alteration to cover Landlord's expenses for plan review, coordination, scheduling and supervision. Before Tenant begins any Alteration, Landlord may post on and about the Premises notices of non-responsibility pursuant to applicable law. Tenant shall reimburse Landlord for, and indemnify and hold Landlord harmless from, any expense incurred by Landlord by reason of faulty work done by Tenant or its contractors, delays caused by such work, or inadequate cleanup.

With respect to Alterations that cost in excess of \$100,000, Tenant shall furnish security or make other arrangements satisfactory to Landlord to assure payment for the completion of all Alterations work free and clear of liens. Prior to the commencement of any Alterations, Tenant shall provide (and cause each contractor or subcontractor to provide) certificates of insurance for workers' compensation and other coverage in amounts and from an insurance company satisfactory to Landlord protecting Landlord against liability for personal injury or property damage during construction. Upon completion of any Alterations, Tenant shall deliver to Landlord: (i) sworn statements setting forth the names of all contractors and subcontractors who did the work and final lien waivers from all such contractors and subcontractors; and (ii) "as built" plans for any such Alteration if the nature of such Alterations is such that plans are typically prepared.

Other than (i) the items, if any, listed on **Exhibit G** attached hereto, (ii) any items agreed by Landlord in writing to be included on **Exhibit G** in the future, and (iii) any trade fixtures, machinery, equipment and other personal property not paid for out of the TI Fund (as defined in the Work Letter) which may be removed without material damage to the Premises, which damage shall be repaired (including capping or terminating utility hook-ups behind walls) by Tenant during the Term (collectively, “**Tenant’s Property**”), all property of any kind paid for with the TI Fund, all Alterations, real property fixtures, built-in machinery and equipment, built-in casework and cabinets and other similar additions and improvements built into the Premises so as to become an integral part of the Premises, such as fume hoods which penetrate the roof or plenum area, built-in cold rooms, built-in warm rooms, walk-in cold rooms, walk-in warm rooms, deionized water systems, glass washing equipment, autoclaves, chillers, built-in plumbing, electrical and mechanical equipment and systems, and any power generator and transfer switch (collectively, “**Installations**”) shall be and shall remain the property of Landlord during the Term and following the expiration or earlier termination of the Term, shall not be removed by Tenant at any time during the Term and shall remain upon and be surrendered with the Premises as a part thereof in accordance with Section 28 following the expiration or earlier termination of this Lease; provided, however, that Landlord shall, at the time its approval of such Installation is requested, notify Tenant if it has elected to cause Tenant to remove such Installation upon the expiration or earlier termination of this Lease, except that Landlord shall not require removal of customary office cabling. If Landlord so elects, Tenant shall remove such Installation upon the expiration or earlier termination of this Lease and restore any damage caused by or occasioned as a result of such removal, including, when removing any of Tenant’s Property which was plumbed, wired or otherwise connected to any of the Building Systems, capping off all such connections behind the walls of the Premises and repairing any holes. During any such restoration period, Tenant shall pay Rent to Landlord as provided herein as if said space were otherwise occupied by Tenant.

13. Landlord’s Repairs. Landlord, as an Operating Expense, shall maintain and repair, or cause to be maintained and repaired, all of the structural, exterior, parking and other Common Areas of the Building and Project, including HVAC, plumbing, fire sprinklers, elevators and all other building systems serving the Premises and other portions of the Project (“**Building Systems**”), in good repair, reasonable wear and tear and uninsured losses and damages caused by Tenant, or by any of Tenant’s agents, servants, employees, officers, directors, managers, invitees, contractors, subcontractors, subtenants, assignees or licensees (each, a “**Tenant Party**”, or collectively, “**Tenant Parties**”) excluded. Losses and damages caused by Tenant or any Tenant Party shall be repaired by Landlord, to the extent not covered by insurance, at Tenant’s sole cost and expense. Landlord reserves the right to stop Building Systems services when necessary (i) by reason of accident or emergency, or (ii) for planned repairs, alterations or improvements, which are, in the judgment of Landlord, desirable or necessary to be made, until said repairs, alterations or improvements shall have been completed. Landlord shall have no responsibility or liability for failure to supply Building Systems services during any such period of interruption; provided, however, that Landlord shall, except in case of emergency, make a commercially reasonable effort to give Tenant 48 hours’ advance notice of any planned stoppage of Building Systems services for routine maintenance, repairs, alterations or improvements. Tenant shall promptly give Landlord written notice of any repair required by Landlord pursuant to this Section, after which Landlord shall have a reasonable opportunity to effect such repair within a reasonable timeframe. Landlord shall use reasonable efforts to minimize interference with Tenant’s operations in the Premises during such planned stoppages of Building Systems. Landlord shall not be liable for any failure to make any repairs or to perform any maintenance unless such failure shall persist for an unreasonable time, after Tenant’s written notice of the need for such repairs or maintenance. Tenant waives its rights under any state or local law to terminate this Lease or to make such repairs at Landlord’s expense and agrees that the parties’ respective rights with respect to such matters shall be solely as set forth herein. Repairs required as the result of fire, earthquake, flood, vandalism, war, or similar cause of damage or destruction shall be controlled by Section 18.

14. Tenant's Maintenance and Repairs. Tenant shall be responsible for its own janitorial services within the Premises, and Tenant shall arrange for its janitorial services provider to deliver office trash and refuse from the Premises to the common trash facility at the loading dock of the Building. In no event shall Tenant or its contractors, agents or service providers dispose of any laboratory refuse or waste or Hazardous Materials (as defined in Section 30) to the common trash facility or any other area in the Project. Subject to Section 13 hereof and except for damage by fire or other casualty, to which Section 18 applies, Tenant, at its expense, shall repair, replace and maintain in good condition all portions of the Premises, including, without limitation, entries, doors, ceilings, interior windows, interior walls, and the interior side of demising walls (but, subject to Tenant's, obligations with respect to damage caused by Tenant or any Tenant Party, excluding structural components of the Building within the Premises and Building Systems serving the Premises and any other portion of the Building). Such repair and replacement may include capital expenditures and repairs whose benefit may extend beyond the Term: Should Tenant fail to make any such repair or replacement or fail to maintain the Premises, Landlord shall give Tenant notice of such failure. If Tenant fails to commence cure of such failure within 10 days of Landlord's notice, and thereafter diligently prosecute such cure to completion, Landlord may perform such work and shall be reimbursed by Tenant within 10 days after demand therefor; provided, however, that if such failure by Tenant creates or could create an emergency, Landlord may immediately commence cure of such failure and shall thereafter be entitled to recover the costs of such cure from Tenant. Subject to Sections 17 and 18, Tenant shall bear the full uninsured cost of any repair or replacement to any part of the Project that results from damage caused by Tenant or any Tenant Party and any repair that benefits only the Premises.

15. Mechanic's Liens. Tenant shall discharge, by bond or otherwise, any mechanic's lien filed against the Premises or against the Project for work claimed to have been done for, or materials claimed to have been furnished to, Tenant within 10 business days after the delivery to Tenant of written notice of the filing thereof, at Tenant's sole cost and shall otherwise keep the Premises and the Project free from any liens arising out of work performed, materials furnished or obligations incurred by Tenant. Should Tenant fail to discharge any lien described herein, Landlord shall have the right, but not the obligation, to pay such claim or post a bond or otherwise provide security to eliminate the lien as a claim against title to the Project and the cost thereof shall be immediately due from Tenant as Additional Rent. If Tenant shall lease or finance the acquisition of office equipment, furnishings, or other personal property of a removable nature utilized by Tenant in the operation of Tenant's business, Tenant warrants that any Uniform Commercial Code Financing Statement filed as a matter of public record by any lessor or creditor of Tenant will upon its face or by exhibit thereto indicate that such Financing Statement is applicable only to removable personal property of Tenant located within the Premises. In no event shall the address of the Project be furnished on the statement without qualifying language as to applicability of the lien only to removable personal property, located in an identified suite held by Tenant.

16. Indemnification. Tenant hereby indemnifies, and agrees to defend, save and hold Landlord and Landlord's members, shareholders, partners, officers,, directors, managers, employees, agents, contractors, successors and assigns harmless from and against any and all Claims for injury or death to persons or damage to property occurring within or about the Premises, Building or Project, arising directly or indirectly out of: (a) the conduct of Tenant's business or the use or occupancy of the Premises, Building or Project by Tenant or any Tenant

Party (including without limitation any act, omission or neglect by Tenant or any Tenant Party), except to the extent caused by the willful misconduct or negligence of Landlord, or (b) a breach or default by Tenant in the performance of any of its obligations hereunder. In the event that any provision of this Lease expressly conflicts with the requirements of M.G.L. Chapter 186, Section 15, the provisions of said statute shall govern to the extent of such conflict. Landlord shall not be liable to Tenant for, and Tenant assumes all risk of damage to, personal property (including, without limitation, loss of records kept within the Premises). Tenant further hereby irrevocably waives any and all Claims for injury to Tenant's business or loss of income relating to any such damage or destruction of personal property (including, without limitation, any loss of records). Landlord shall not be liable for any damages arising from any act, omission or neglect of any tenant in the Project or of any other third party.

17. **Insurance.** Landlord shall maintain all risk property and, if applicable, sprinkler damage insurance covering the full replacement cost of the Building or such lesser coverage amount as Landlord may elect, provided such coverage amount is not less than 90% of such full replacement cost. Landlord shall further procure and maintain commercial general liability insurance with a single loss limit of not less than \$2,000,000 for bodily injury and property damage with respect to the Project. Landlord may, but is not obligated to, maintain, such other insurance and additional coverages as it may deem necessary, including, but not limited to, flood, environmental hazard and earthquake, loss or failure of building equipment, errors and omissions, rental loss during the period of repair or rebuilding, workers' compensation insurance and fidelity bonds for employees employed to perform services and insurance for any improvements installed by Tenant or which are in addition to the standard improvements customarily furnished by Landlord without regard to whether or not such are made a part of the Project. All such insurance shall be included as part of the Operating Expenses. The Project may be included in a blanket policy (in which case the cost of such insurance allocable to the Project will be determined by Landlord based upon the insurer's cost calculations). Tenant shall also reimburse Landlord for any increased premiums or additional insurance which Landlord reasonably deems necessary as a result of Tenant's use of the Premises.

Tenant, at its sole cost and expense, shall maintain during the Term: all risk property insurance with business interruption and extra expense coverage, covering the full replacement cost of all property and improvements installed or placed in the Premises by Tenant at Tenant's expense up to a limit of \$1,000,000; workers' compensation insurance with no less than the minimum limits required by law; employer's liability insurance with such limits as required by law; commercial general liability insurance, with a minimum limit of not less than \$2,000,000 per occurrence for bodily injury and property damage with respect to the Premises. The commercial general liability insurance policy shall name Landlord, its officers, directors, employees, managers, agents, invitees and contractors (collectively, "**Landlord Parties**") and Alexandria Real Estate Equities, Inc., as additional insureds. The commercial general liability insurance policy shall insure on an occurrence and not a claims-made basis; shall be issued by insurance companies which have a rating of not less than policyholder rating of A and financial category rating of at least Class X in "Best's Insurance Guide"; shall not be cancelable for nonpayment of premium unless 30 days prior written notice shall have been given to Landlord from the insurer; contain a hostile fire endorsement and a contractual liability endorsement (if not included in such policy without endorsement); and provide primary coverage to Landlord (any policy issued to Landlord providing duplicate or similar coverage shall be deemed excess over Tenant's policies). Certificates of insurance showing the limits of coverage required hereunder and showing each of Landlord, Alexandria Real Estate Equities, Inc. and the Landlord Parties designated by Landlord as an additional insured shall be delivered to Landlord by Tenant upon commencement of the Term and upon each renewal of said insurance. Tenant's policy may be a "blanket policy" with an aggregate per location endorsement which specifically provides that the amount of insurance shall not be prejudiced by other losses covered by the policy. Tenant shall, at least 5 days prior to the expiration of such policies, furnish Landlord with renewal certificates.

In each instance where insurance is to name Landlord as an additional insured, Tenant shall upon written request of Landlord also designate and furnish certificates so evidencing Landlord as additional insured to: (i) any lender of Landlord holding a security interest in the Project or any portion thereof and any servicer in connection therewith, (ii) the landlord under any lease wherein Landlord is tenant of the real property on which the Project is located, if the interest of Landlord is or shall become that of a tenant under a ground or other underlying lease rather than that of a fee owner, and/or (iii) any management company retained by Landlord to manage the Project.

The property insurance obtained by Landlord and Tenant shall include a waiver of subrogation by the insurers and all rights based upon an assignment from its insured, against Landlord or Tenant, and their respective officers, directors, employees, managers, agents, invitees and contractors (“**Related Parties**”), in connection with any loss or damage thereby insured against. Neither party nor its respective Related Parties shall be liable to the other for loss or damage caused by any risk insured against under property insurance required to be maintained hereunder, and each party waives any claims against the other party, and its respective Related Parties, for such loss or damage. The failure of a party to insure its property shall not void this waiver. Landlord and its respective Related Parties shall not be liable for, and Tenant hereby waives all claims against such parties for, business interruption and losses occasioned thereby sustained by Tenant or any person claiming through Tenant resulting from any accident or occurrence in or upon the Premises or the Project from any cause whatsoever. If the foregoing waivers shall contravene any law with respect to exculpatory agreements, the liability of Landlord or Tenant shall be deemed not released but shall be secondary to the other’s insurer.

Landlord may require insurance policy limits to be raised to conform with requirements of Landlord’s lender and/or to bring coverage limits to levels then being generally required of new tenants within the Project.

18. Restoration. If, at any time during the Term, the Project or the Premises are damaged or destroyed by a fire or other insured casualty, Landlord shall notify Tenant within 60 days after discovery of such damage as to the amount of time Landlord reasonably estimates it will take to restore the Project or the Premises, as applicable (the “**Restoration Period**”). If the Restoration Period is estimated to exceed 12 months (the “**Maximum Restoration Period**”), Landlord may, in such notice, elect to terminate this Lease as of the date that is 75 days after the date of discovery of such damage or destruction; provided, however, that notwithstanding Landlord’s election to restore, Tenant may elect to terminate this Lease by written notice to Landlord delivered within 5 business days of Landlord’s delivery of a notice estimating a Restoration Period longer than the Maximum Restoration Period. Unless either Landlord or Tenant so elects to terminate this Lease, Landlord shall, subject to receipt of sufficient insurance proceeds (with any deductible to be treated as a current Operating Expense), promptly restore the Premises (excluding the improvements installed by Tenant or by Landlord and paid for by Tenant), subject to delays arising from the collection of insurance proceeds, from Force Majeure events or as needed to obtain any license, clearance or other authorization of any kind required to enter into and restore the Premises issued by any Governmental Authority having jurisdiction over the use, storage, handling, treatment, generation, release, disposal, removal or remediation of Hazardous Materials (as defined in Section 30) in, on or about the Premises (collectively

referred to herein as “**Hazardous Materials Clearances**”); provided, however, that if repair or restoration of the Premises is not substantially complete as of the end of the Maximum Restoration Period or, if longer, the Restoration Period, Landlord may, in its sole and absolute discretion, elect not to proceed with such repair and restoration, or Tenant may, by written notice to Landlord delivered within 5 business days of the expiration of the Maximum Restoration Period, or if longer, the Restoration Period, elect to terminate this Lease, in which event Landlord shall be relieved of its obligation to make such repairs or restoration and this Lease shall terminate as of the date that is 75 days after the later of: (i) discovery of such damage or destruction, or (ii) the date all required Hazardous Materials Clearances are obtained, but Landlord shall retain any Rent paid and the right to any Rent payable by Tenant prior to such election by Landlord or Tenant.

Tenant, at its expense, shall promptly perform, subject to delays arising from the collection of insurance proceeds, from Force Majeure (as defined in Section 34) events or to obtain Hazardous Material Clearances, all repairs or restoration not required to be done by Landlord and shall promptly reenter the Premises and commence doing business in accordance with this Lease. Notwithstanding the foregoing, Landlord may terminate this Lease if the Premises are damaged during the last 1 year of the Term and Landlord reasonably estimates that it will take more than 2 months to repair such damage, or if insurance proceeds are not available for such restoration. Rent shall be abated from the date all required Hazardous Material Clearances are obtained until the Premises are repaired and restored, in the proportion which the area of the Premises, if any, which is not usable by Tenant bears to the total area of the Premises, unless Landlord provides Tenant with other space during the period of repair that is suitable for the temporary conduct of Tenant’s business. In the event that no Hazardous Materials Clearances are required to be obtained by Tenant with respect to the Premises, such rent abatement shall commence as of the date of discovery of the damage or destruction. Such abatement shall be the sole remedy of Tenant, and except as provided in this Section 18. Tenant waives any right to terminate the Lease by reason of damage or casualty loss.

The provisions of this Lease, including this Section 18, constitute an express agreement between Landlord and Tenant with respect to any and all damage to, or destruction of, all or any part of the Premises, or any other portion of the Project, and any statute or regulation which is now or may hereafter be in effect shall have no application to this Lease or any damage or destruction to all or any part of the Premises or any other portion of the Project, the parties hereto expressly agreeing that this Section 18 sets forth their entire understanding and agreement with respect to such matters.

19. Condemnation. If the whole or any material part of the Premises or the Project is taken for any public or quasi-public use under governmental law, ordinance, or regulation, or by right of eminent domain, or by private purchase in lieu thereof (a “**Taking**” or “**Taken**”), and the Taking would in Landlord’s reasonable judgment either prevent or materially interfere with Tenant’s use of the Premises or materially interfere with or impair Landlord’s ownership or operation of the Project, then’ upon written notice by Landlord this Lease shall terminate and Rent shall be apportioned as of said date. If part of the Premises shall be Taken, and this Lease is not terminated as provided above, Landlord shall promptly restore the Premises and the Project as nearly as is commercially reasonable under the circumstances to their condition prior to such partial Taking and the rentable square footage of the Building, the rentable square footage of the Premises, Tenant’s Share of Operating Expenses and the Rent payable hereunder during the unexpired Term shall be reduced to such extent as may be fair and reasonable under the circumstances. Upon any such Taking, Landlord shall be entitled to receive the entire price or award from any such Taking without any payment to Tenant, and Tenant hereby assigns to Landlord Tenant’s interest, if any, in such award. Tenant shall have the right, to the extent that

same shall not diminish Landlord's award, to make a separate claim against the condemning authority (but not Landlord) for such compensation as may be separately awarded or recoverable by Tenant for moving expenses and damage to Tenant's trade fixtures, if a separate award for such items is made to Tenant. Tenant hereby waives any and all rights it might otherwise have pursuant to any provision of state law to terminate this Lease upon a partial Taking of the Premises or the Project.

20. Events of Default. Each of the following events shall be a material default ("**Default**") by Tenant under this Lease:

(a) **Payment Defaults.** Tenant shall fail to pay any installment of Rent or any other payment hereunder when due; provided, however, that Landlord will give Tenant notice and an opportunity to cure any failure to pay Rent within 5 days of any such notice not more than once in any 12 month period and Tenant agrees that such notice shall be in lieu of and not in addition to, or shall be deemed to be, any notice required by law.

(b) **Insurance.** Any insurance required to be maintained by Tenant pursuant to this Lease shall be canceled or terminated or shall expire or shall be reduced or materially changed, or Landlord shall receive a notice of nonrenewal of any such insurance and Tenant shall fail to obtain replacement insurance at least 20 days before the expiration of the current coverage.

(c) **Abandonment.** Tenant shall abandon the Premises, provided, however, Tenant shall be deemed not to have abandoned the Premises if (i) Tenant provides Landlord with reasonable advance notice prior to vacating and, at the time of vacating the Premises, Tenant completes Tenant's obligations with respect to the Surrender Plan in compliance with Section 28, (ii) Tenant has made reasonable arrangements with Landlord for the security of the Premises for the balance of the Term, and (iii) Tenant continues during the balance of the Term to satisfy all of its obligations under the Lease as they come due.

(d) **Improper Transfer.** Tenant shall assign, sublease or otherwise transfer or attempt to transfer all or any portion of Tenant's interest in this Lease or the Premises except as expressly permitted herein, or Tenant's interest in this Lease shall be attached, executed upon, or otherwise judicially seized and such action is not released within 90 days of the action.

(e) **Liens.** Tenant shall fail to discharge or otherwise obtain the release of any lien placed upon the Premises in violation of this Lease within 10 business days after delivery of written notice to Tenant that any such lien is filed against the Premises.

(f) **Insolvency Events.** Tenant or any guarantor or surety of Tenant's obligations hereunder shall: (A) make a general assignment for the benefit of creditors; (B) commence any case, proceeding or other action seeking to have an order for relief entered on its behalf as a debtor or to adjudicate it a bankrupt or insolvent, or seeking reorganization, arrangement, adjustment, liquidation, dissolution or composition of it or its debts or seeking appointment of a receiver, trustee, custodian or other similar official for it or for all or of any substantial part of its property (collectively a "**Proceeding for Relief**"); (C) become the subject of any Proceeding for Relief which is not dismissed within 90 days of its filing or entry; or (D) die or suffer a legal disability (if Tenant, guarantor, or surety is an individual) or be dissolved or otherwise fail to maintain its legal existence (if Tenant, guarantor or surety is a corporation, partnership or other entity).

(g) **Estoppel Certificate or Subordination Agreement.** Tenant fails to execute any document required from Tenant under Sections 23 or 27 within 5 days after a second notice requesting such document.

(h) **Default Under License Agreement** Tenant is in Default (as defined in the License Agreement) beyond any applicable notice and cure period under that certain License Agreement between Landlord and Tenant dated on or about the date of this Lease (the "**License Agreement**"), and in such event there shall be no further requirement to give further notice under this Lease.

(i) **Other Defaults.** Tenant shall fail to comply with any provision of this Lease other than those specifically referred to in this Section 20, and, except as otherwise expressly provided herein, such failure shall continue for a period of 30 days after written notice thereof from Landlord to Tenant.

Any notice given under Section 20(i) hereof shall: (i) specify the alleged default, (ii) demand that Tenant cure such default, (iii) be in lieu of, and not in addition to, or shall be deemed to be, any notice required under any provision of applicable law, and (iv) not be deemed a forfeiture or a termination of this Lease unless Landlord elects otherwise in such notice; provided that if the nature of Tenant's default pursuant to Section 20(i) is such that it cannot be cured by the payment of money and reasonably requires more than 30 days to cure, then Tenant shall not be deemed to be in default if Tenant commences such cure within said 30 day period and thereafter diligently prosecutes the same to completion; provided, however, that such cure shall be completed no later than 60 days from the date of Landlord's notice.

21. Landlord's Remedies.

(a) **Payment by Landlord; Interest.** Upon a Default by Tenant hereunder, Landlord may, without waiving or releasing any obligation of Tenant hereunder, make such payment or perform such act to cure such Default. All sums so paid or incurred by Landlord, together with interest thereon, from the date such sums were paid or incurred, at the annual rate equal to 12% per annum or the highest rate permitted by law (the "**Default Rate**"), whichever is less, shall be payable to Landlord on demand as additional Rent. Nothing herein shall be construed to create or impose a duty on Landlord to mitigate any damages resulting from Tenant's Default hereunder.

(b) **Late Payment Rent.** Late payment by Tenant to Landlord of Rent and other sums due will cause Landlord to incur costs not contemplated by this Lease, the exact amount of which will be extremely difficult and impracticable to ascertain. Such costs include, but are not limited to, processing and accounting charges and late charges which may be imposed on Landlord under any Mortgage covering the Premises. Therefore, if any installment of Rent due from Tenant is not received by Landlord within 5 days after the date such payment is due, Tenant shall pay to Landlord an additional sum of 6% of the overdue Rent as a late charge. The parties agree that this late charge represents a fair and reasonable estimate of the costs Landlord will incur by reason of late payment by Tenant. In addition to the late charge, Rent not paid when due shall bear interest at the Default Rate from the 5th day after the date due until paid.

(c) **Remedies.** Upon the occurrence of a Default, Landlord, at its option, without further notice or demand to Tenant, shall have in addition to all other rights and remedies provided in this Lease, at law or in equity, the option to pursue any one or more of the following remedies, each and all of which shall be cumulative and nonexclusive, without any notice or demand whatsoever (except as otherwise expressly provided in Section 21(c)(v)) with respect to

Landlord's Lump Sum Election). No cure in whole or in part of such Default by Tenant after Landlord has taken any action beyond giving Tenant notice of such Default to pursue any remedy provided for herein (including retaining counsel to file an action or otherwise pursue any remedies) shall in any way affect Landlord's right to pursue such remedy or any other remedy provided Landlord herein or under law or in equity, unless Landlord, in its sole discretion, elects to waive such Default.

(i) This Lease and the Term and estate hereby granted are subject to the , limitation that whenever a Default shall have happened and be continuing, Landlord shall have the right, at its election, then or thereafter while any such Default shall continue and notwithstanding the fact that Landlord may have some other, remedy hereunder or at law or in equity, to give Tenant written notice of Landlord's intention to terminate this Lease on a date specified in such notice, which date shall be not less than 5 days after the giving of such notice, and upon the date so specified, this Lease and the estate hereby granted shall expire and terminate with the same force and effect as if the date specified in such notice were the date hereinbefore fixed for the expiration of this Lease, and all rights of Tenant hereunder shall expire and terminate, and Tenant shall be liable as hereinafter in this Section 21(c) provided. If any such notice is given, Landlord shall have, on such date so specified, the right of re-entry and possession of the Premises and the right to remove all persons and property therefrom and to store such property in a warehouse or elsewhere at the risk and expense, and for the account, of Tenant. Should Landlord elect to re-enter as herein provided or should Landlord take possession pursuant to legal proceedings or pursuant to any notice provided for by law, Landlord may, subject to Section 21(c)(i) from time to time relet the Premises or any part thereof for such term or terms and at such rental or rentals and upon such terms and conditions as Landlord may deem advisable, with the right to make commercially reasonable alterations in and repairs to the Premises.

(ii) Landlord shall be deemed to have satisfied any obligation to mitigate its damages by hiring an experienced commercial real estate broker to market the Premises and directing such broker to advertise and show the Premises to prospective tenants.

(iii) In the event of any termination of this Lease as in this Section 21 provided or as required or permitted by law or in equity, Tenant shall forthwith quit and surrender the Premises to Landlord, and Landlord may, without further notice, enter upon, re-enter, possess and repossess the same by summary proceedings, ejectment or otherwise, and again have, repossess and enjoy the same free of any rights of Tenant, and in any such event Tenant and no person claiming through or under Tenant by virtue of any law or an order of any court shall be entitled to possession or to remain in possession of the Premises.

(iv) If this Lease is terminated or if Landlord shall re-enter the Premises as aforesaid, or in the event of the termination of this Lease, or of re-entry, by or under any proceeding or action or any provision of law by reason of a Default by Tenant, Tenant covenants and agrees forthwith to pay and be liable for, on the days originally fixed in this Lease for the payment thereof, amounts equal to the installments of Base Rent and all Additional Rent as they would, under the terms of this Lease become due if this Lease had not been terminated or if Landlord had not entered or re-entered, as aforesaid, and whether the Premises be relet or remain vacant, in whole or in part, or for a period less than the remainder of the Term, or for the whole thereof, but in the event that the Premises be relet by Landlord, Tenant shall be entitled to a credit in the net amount of rent and other charges received by Landlord in reletting, after deduction of all of Landlord's expenses

incurred in reletting the Premises (including, without limitation, tenant improvement, demising and remodeling costs, brokerage fees and the like), and in collecting the rent in connection therewith, in the following manner: Amounts received by Landlord after reletting, if any, shall first be applied against such Landlord's expenses, until the same are recovered, and until such recovery, Tenant shall pay, as of each day when a payment would fall due under this Lease, the amount which Tenant is obligated to pay under the terms of this Lease (Tenant's liability prior to any such reletting and such recovery by Landlord no in any way to be diminished as a result of the fact that such reletting might be for a rent higher than the rent provided for in this Lease); when and if such expenses have been completely recovered by Landlord, the amounts received from reletting by Landlord as have not previously been applied shall be credited against Tenants obligations as of each day when a payment would fall due under this Lease, and only the net amount thereof shall be payable by Tenant. Further, Tenant shall not be entitled to any credit of any kind for any period after the date when the Term of this Lease is scheduled to expire according to its terms.

Actions, proceedings or suits for the recovery of damages, whether liquidated or other damages, under this Lease, or any installments thereof, may be brought by Landlord from time to time at its election, and nothing contained herein shall be deemed to require Landlord to postpone suit until the date when the Term of this Lease would have expired if it had not been terminated hereunder. In addition to other rights, remedies and damages provided in this Lease or at law or in equity, at any time and from time to time following the occurrence of a Default, whether or not this Lease is terminated as aforesaid, Landlord shall be entitled to recover all Base Rent, Additional Rent and other amounts payable by Tenant under this Lease then due or accrued and unpaid.

(v) In addition, Landlord, at its election, notwithstanding any other provision of this Lease, by written notice to Tenant (the "**Lump Sum Election**"), shall be entitled to recover from Tenant, as and for liquidated damages, at any time following any termination of this Lease, a lump sum payment representing, at the time of Landlord's written notice Of its Lump Sum Election, the sum of:

(A) the then present value (calculated in accordance with accepted financial practice using as the discount rate the yield to maturity on United States Treasury Notes as set forth below) of the amount of unpaid Base Rent and Additional Rent that' would have been payable pursuant to this Lease for the remainder of the Term following Landlord's Lump Sum Election if this Lease had not been terminated, and

(B) all other damages and expenses (including attorneys' fees and expenses), if any, which Landlord shall have sustained by reason of the breach of any provision of this Lease; less

(C) the then present value (calculated in accordance with accepted financial practice using as the discount rate the yield to maturity on United States Treasury Notes as set forth below) of the aggregate net fair market rent plus additional charges payable for the Premises for the remainder of the Term following Landlord's Lump Sum Election, calculated as of the date of Landlord's Lump Sum Election, and taking into account reasonable estimates of the future costs to relet any then vacant portions of the Premises (except to the extent that Tenant has actually paid such costs pursuant to this Section 21) in order to

calculate the net rental revenue that Landlord may expect to obtain for the Premises for the balance of the Term (it being understood that the subtraction of the amounts determined in this paragraph (C) from the then present value of Base Rent and Additional Rent that would have been payable pursuant to this Lease for the remainder of the Term as determined in paragraph (A) shall not be deemed to result in an amount less than zero).

Landlord's recovery under its Lump Sum Election shall be in addition to Tenant's obligations to pay, and Landlord's right to recover from Tenant, all Base Rent and Additional Rent due and costs incurred prior to the date of Landlord's Lump Sum Election, and shall be in lieu of any Base Rent and Additional Rent which would otherwise have been due under this Section from and after the date of Landlord's Lump Sum Election. The yield to maturity on United States Treasury Notes having a maturity date that is nearest the date that would have been the last day of the Term of the Lease, as reported in The Wall Street Journal or a comparable publication if it ceases to publish such yields, shall be used in calculating present values for purposes of Landlord's Lump Sum Election. For the purposes of this Section, if Landlord makes the Lump Sum Election to recover liquidated damages in accordance with this Section, the total Additional Rent shall be computed based upon Landlord's reasonable estimate of Tenant's Share of Operating Expenses and other Additional Rent for each 12-month period in what would have been the remainder of the Term of the Lease and any part thereof at the end of such remainder of the Term, but in no event less than the amounts therefor payable for the twelve (12) calendar months (or if less than twelve (12) calendar months have elapsed since the date hereof, the partial year) immediately preceding the date of Landlord's Lump Sum Election. Amounts of Tenant's Share of Operating Expenses and any other Additional Rent for any partial year at the beginning of the Term or at the end of what would have been the remainder of the Term shall be prorated.

(vi) Nothing herein contained shall limit or prejudice the right of Landlord, in any bankruptcy or insolvency proceeding, to prove for and obtain as liquidated damages by reason of such termination an amount equal to the maximum allowed by any bankruptcy or insolvency proceedings, or to prove for and obtain as liquidated damages by reason of such termination, an amount equal to the maximum allowed by any statute or rule of law, whether such amount shall be greater or less than the excess referred to above.

(vii) Nothing in this Section 21 shall be deemed to affect the right of either party to indemnifications pursuant to this Lease.

(viii) If Landlord terminates this Lease upon the occurrence of a Default, Tenant will quit and surrender the Premises to Landlord or its agents, and Landlord may, without further notice, enter upon, re-enter and repossess the Premises by summary proceedings, ejectment or otherwise. The words "enter", "re-enter", and "re-entry" are not restricted to their technical legal meanings.

(ix) If either party shall be in Default in the observance or performance of any provision of this Lease, and an action shall be brought for the enforcement thereof in which it shall be determined that such party was in Default, the party determined to be in Default shall pay to Landlord all reasonable, out of pocket fees, costs and other expenses which may become payable as a result thereof or in connection therewith, including reasonable attorneys' fees and expenses.

(x) If default by Tenant shall occur in the keeping, observance or performance of any covenant, agreement, term, provision or condition herein contained, Landlord, without thereby waiving such default, may perform the same for the account and at the expense of Tenant (a) immediately or at any time thereafter and with only such notice, if any, as may be practicable under the circumstances in the case of an emergency or in case such default will result in a violation of any legal or insurance requirements, or in the imposition of any lien against all or any portion of the Premises or the Project not discharged, released or bonded over to Landlord's satisfaction by Tenant within the time period required pursuant to Section 15 of this Lease, and (b) in any other case if such default continues after any applicable notice and cure period provided in Section 20. All reasonable costs and expenses incurred by Landlord in connection with any such performance by it for the account of Tenant and also all reasonable costs and expenses, including reasonable attorneys' fees and disbursements incurred by Landlord in any action or proceeding (including any summary dispossess proceeding) brought by Landlord to enforce any obligation of Tenant under this Lease and/or right of Landlord in or to the Premises, shall be paid by Tenant to Landlord within 10 days after demand.

(xi) Independent of the exercise of any other remedy of Landlord hereunder or under applicable law, Landlord may conduct an environmental test of the Premises as generally described in Section 30(d).

(xii) In addition to any other right or remedy hereunder, upon the occurrence of a Default, Landlord shall have the right to suspend funding of any T1 Allowance or the performance of Landlord's Work (and such suspension shall constitute a Tenant Delay).

(xiii) In the event that Tenant is in breach or Default under this Lease, whether or not Landlord exercises its right to terminate or any other remedy, Tenant shall reimburse Landlord within 10 days after demand for any out of pocket costs and expenses that Landlord may incur in connection with any such breach or Default, as provided in this Section 21(c). Such costs shall include reasonable legal fees and costs incurred for the negotiation of a settlement, enforcement of rights or otherwise. Tenant shall also indemnify Landlord against and hold Landlord harmless from all costs, expenses, demands and liability, including without limitation, legal fees and costs Landlord shall incur if Landlord shall become or be made a party to any claim or action instituted by Tenant against any third party, by any third party against Tenant or by or against any person holding any interest under or using the Premises by license of or agreement with Tenant

(xiv) Except as otherwise provided in this Section 21, no right or remedy herein conferred upon or reserved to Landlord is intended to be exclusive of any other right or remedy, and every right and remedy shall be cumulative and in addition to any other legal or equitable right or remedy given hereunder, or now or hereafter existing. No waiver by Landlord of any provision of this Lease shall be deemed to have been made unless expressly so made in writing by Landlord expressly waiving such provision. Landlord shall be entitled, to the extent permitted by law, to seek injunctive relief in case of the violation, or attempted or threatened violation, of any provision of this Lease, or to seek a decree compelling observance or performance of any provision of this Lease, or to seek any other legal or equitable remedy.

22. Assignment and Subletting.

(a) **General Prohibition.** Subject to the terms of Section 22(b) below, Tenant shall not, without Landlord's prior written consent, which shall not be unreasonably withheld, directly or indirectly, voluntarily or by operation of law, assign this Lease or sublease the Premises or any part thereof or mortgage, pledge, or hypothecate its leasehold interest or grant any concession or license within the Premises, and any attempt to do any of the foregoing shall be void and of no effect. If Tenant is a corporation, partnership or limited liability company, the shares or other ownership interests thereof which are not actively traded upon a stock exchange or in the over-the-counter market, a transfer or series of transfers whereby 50% or more of the issued and outstanding shares or other ownership interests of such corporation are, or voting control is, transferred (but excepting transfers upon deaths of individual owners) from a person or persons or entity or entities which were owners thereof at time of execution of this Lease to persons or entities who were not owners of shares or other ownership interests of the corporation, partnership or limited liability company at time of execution of this Lease, shall be deemed an assignment of this Lease requiring the consent of Landlord as provided in this Section 22. Notwithstanding the foregoing, any public offering of shares or other ownership interest in Tenant shall not be deemed an assignment.

The reasons for Landlord's reasonable withholding of consent shall include but not be limited to: (A) the business or financial reputation of the proposed assignee or sublessee, or the business or financial reputation of any of the respective principals or officers thereof, is objectionable in Landlord's judgment, (B) the proposed assignee or sublessee is engaged in areas of scientific research or other business concerns that are controversial, in Landlord's judgment, or its proposed use of the Premises will violate any applicable Legal Requirement, (C) the proposed assignee or sublessee is at that time an occupant of the Project or negotiating with Landlord or an affiliate thereof for the lease of other space in the Project (provided, however, that the foregoing limitation set forth in this clause (C) shall apply only if space having a similar size and utility as the Premises is available in the Project), (D) if the proposed transaction is not a sublease, the proposed assignee does not have a net worth, as of the date of the Transfer, at least equal to the greater of (x) the net worth of Tenant as of the date of the Lease, and (y) the net worth of Tenant immediately prior to the Transfer Date, or otherwise lacks the creditworthiness to support the financial obligations it would incur under the proposed assignment in Landlord's reasonable judgment, (E) if the proposed transaction is a sublease, the proposed sublessee does not have a creditworthiness, as of the date of transfer, sufficient to support the financial obligations it would incur under the proposed sublease in Landlord's judgment, (F) the proposed assignee or sublessee is a governmental agency, (G) in Landlord's judgment the use of the Premises by the proposed assignee or sublessee would entail any alterations that would lessen the value of the leasehold improvements in the Premises, or would require increased services by Landlord, (H) Landlord has experienced previous defaults by or is in litigation with the proposed assignee or sublessee, (I) the proposed assignment or sublease will create a vacancy elsewhere in the Project, or (J) the assignment or sublease is prohibited by the Holder of a Mortgage on the Premises or Project.

(b) **Permitted Transfers.** If Tenant desires to assign, sublease, hypothecate or otherwise transfer this Lease or sublet the Premises other than pursuant to a Permitted Assignment (as defined below), then at least 15 business days, but not more than 45 business days, before the date Tenant desires the assignment or sublease to be effective (the "**Assignment Date**"), Tenant shall give Landlord a notice (the "**Assignment Notice**") containing such information about the proposed assignee or sublessee, including the proposed use of the Premises and any Hazardous Materials proposed to be used, stored handled, treated, generated in or released or disposed of from the Premises, the Assignment Date, any relationship between Tenant and the proposed assignee or sublessee, and all material terms and conditions of the

proposed assignment or sublease, including a copy of any proposed assignment or sublease in its final form, and such other information as Landlord may deem reasonably necessary or appropriate to its consideration whether to grant its consent. Landlord may, by giving written notice to Tenant within 15 business days after receipt of the Assignment Notice: (i) grant such consent, (ii) refuse such consent, in its reasonable discretion, subject to the terms and conditions of this Section 22 (provided that Landlord shall further have the right to review and approve or disapprove the proposed form of sublease prior to the effective date of any such subletting), or (iii) if the proposed transaction is a sublease and the subletting concerns (together with all other then effective subleases) 50% or more of the Premises, terminate this Lease with respect to the space described in the Assignment Notice as of the Assignment Date (an “**Assignment Termination**”), if Landlord delivers notice of its election to exercise an Assignment Termination, Tenant shall have the right to withdraw such Assignment Notice by written notice to Landlord of such election within 5 business days after Landlord’s notice electing to exercise the Assignment Termination. If Tenant withdraws such Assignment Notice, this Lease shall continue in full force and effect. If Tenant does not withdraw such Assignment Notice, this Lease, and the term and estate herein granted, shall terminate as of the Assignment Date with respect to the space described in such Assignment Notice. No failure of Landlord to exercise any such option to terminate this Lease, or to deliver a timely notice in response to the Assignment Notice, shall be deemed to be Landlord’s consent to the proposed assignment, sublease or other transfer. Tenant shall pay Landlord for its actual, out-of-pocket expenses, up to a maximum of Three Thousand Five Hundred Dollars (\$3,500), in connection with its consideration of any Assignment Notice and/or its preparation or review of any consent documents.

Notwithstanding the foregoing, Landlord’s consent to an assignment of this Lease or a subletting of any portion of the Premises to any entity controlling, controlled by or under common control with Tenant (a “**Permitted Affiliate Assignment**”) shall not be required, provided that (x) such assignment or subletting is for a bona fide business purpose and not principally for the purpose of transferring the lease, (y) Tenant shall give Landlord 30 days’ prior written notice of such sublease or assignment, and (z) Landlord shall have the right to approve the form of any such sublease or assignment prior to its execution. In addition, Tenant shall have the right to assign this Lease, upon 30 days prior written notice to Landlord but without obtaining Landlord’s prior written consent, to a corporation or other entity which is a successor-in-interest to Tenant, by way of merger, consolidation or corporate reorganization, or by the purchase of all or substantially all of the assets or the ownership interests of Tenant provided that (i) such merger or consolidation, or such acquisition or assumption, as the case may be, is for a bona fide business purpose and not principally for the purpose of transferring the Lease, and (ii) the net worth (as determined in accordance with GAAP) of the assignee is not less than the net worth (as determined in accordance with GAAP) of Tenant as of the date of Tenant’s most current quarterly or annual financial statements, and (iii) such assignee shall agree in writing to assume all of the terms, covenants and conditions of this Lease arising after the effective date of the assignment (a “**Permitted Successor Assignment**”). A Permitted Affiliate Assignment and Permitted Successor Assignment may each be referred to herein as a “**Permitted Assignment**”. Notwithstanding the foregoing, a Permitted Affiliate Assignment, Permitted Successor Assignment or Permitted assignment shall not include any assignment or subletting covered by that certain letter agreement between Landlord and Tenant dated on or about the date of this Lease.

(c) **Additional Conditions.** As a condition to any such assignment or subletting, whether or not Landlord's consent is required, Landlord may require:

(i) that any assignee or subtenant agree, in writing at the time of such assignment or subletting, that if Landlord gives such party notice that Tenant is in default under this Lease, such party shall thereafter make all payments otherwise due Tenant directly to Landlord, which payments will be received by Landlord without any liability except to credit such payment against those due under the Lease, and any such third party shall agree to attorn to Landlord or its successors and assigns should this Lease be terminated for any reason; provided, however, in no event shall Landlord or its successors or assigns be obligated to accept such attornment; and

(ii) A list of Hazardous Materials, certified by the proposed assignee or sublessee to be true and correct, which the proposed assignee or sublessee intends to use, store, handle, treat, generate in or release or dispose of from the Premises, together with copies of all documents relating to such use, storage, handling, treatment, generation, release or disposal of Hazardous Materials by the proposed assignee or subtenant in the Premises or on the Project, prior to the proposed assignment or subletting, including, without limitation: permits; approvals; reports and correspondence; storage and management plans; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given its written consent to do so, which consent may be withheld in Landlord's sole and absolute discretion); and all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks. Neither Tenant nor any such proposed assignee or subtenant is required, however, to provide Landlord with any portion(s) of the such documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities.

(d) **No Release of Tenant, Sharing of Excess Rents.** Notwithstanding any assignment or subletting, Tenant and any guarantor or surety of Tenant's obligations under this Lease shall at all times remain fully and primarily responsible and liable for the payment of Rent and for compliance with all of Tenant's other obligations under this Lease. If the Rent due and payable by a sublessee or assignee (or a combination of the rental payable under such sublease or assignment plus any bonus or other consideration therefor or incident thereto in any form) exceeds the sum of the rental payable under this Lease, (excluding however, any Rent payable under this Section) and actual and reasonable brokerage fees, legal costs and any design or construction fees directly related to and required pursuant to the terms of any such sublease) ("**Excess Rent**"), then Tenant shall be bound and obligated to pay Landlord as Additional Rent hereunder 50% of such Excess Rent within 10 days following receipt thereof by Tenant. If Tenant shall sublet the Premises or any part thereof, Tenant hereby immediately and irrevocably assigns, to Landlord, as security for Tenant's obligations under this Lease, all rent from any such subletting, and Landlord as assignee and as attorney-in-fact for Tenant, or a receiver for Tenant appointed on Landlord's application, may collect such rent and apply it toward Tenant's obligations under this Lease; except that, until the occurrence of a Default, Tenant shall have the right to collect such rent.

(e) **No Waiver.** The consent by Landlord to an assignment or subletting shall not relieve Tenant or any assignees of this Lease or any sublessees of the Premises from obtaining the consent of Landlord to any further assignment or subletting nor shall it release Tenant or any assignee or sublessee of Tenant from full and primary liability under the Lease. The acceptance of Rent hereunder, or the acceptance of performance of any other term, covenant, or condition thereof, from any other person or entity shall not be deemed to be a waiver of any of the provisions of this Lease or a consent to any subletting, assignment or other transfer of the Premises.

(f) **Prior Conduct of Proposed Transferee.** Notwithstanding any other provision of this Section 22, if (i) the proposed assignee or sublessee of Tenant has been required by any prior landlord, lender or Governmental Authority to take remedial action in connection with Hazardous Materials contaminating a property, where the contamination resulted from such party's action or use of the property in question, (ii) the proposed assignee or sublessee is subject to an enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority), or (iii) because of the existence of a preexisting environmental condition in the vicinity of or underlying the Project, the risk that Landlord would be targeted as a responsible party in connection with the remediation of such pre-existing environmental condition would be materially increased or exacerbated by the proposed use of Hazardous Materials by such proposed assignee or sublessee, Landlord shall have the absolute right to refuse to consent to any assignment or subletting to any such party.

23. **Estoppel Certificate.** Tenant shall, within 10 business days of written notice from Landlord, execute, acknowledge and deliver a statement in writing in the form of **Exhibit H** or in any other form reasonably requested by a proposed lender or purchaser, (i) certifying that this Lease is unmodified and in full force and effect (or, if modified, stating the nature of such modification and certifying that this Lease as so modified is in full force and effect) and the dates to which the rental and other charges are paid in advance, if any, (ii) acknowledging that there are not any uncured defaults on the part of Landlord hereunder, or specifying such defaults if any are claimed, and (iii) setting forth such further information with respect to the status of this Lease or the Premises as may be reasonably requested thereon. Any such statement may be relied upon by any prospective purchaser or encumbrancer of all or any portion of the real property of which the Premises are a part. Tenant's failure to deliver such statement within such time shall, at the option of Landlord, be conclusive upon Tenant that the Lease is in full force and effect and without modification except as may be represented by Landlord in any certificate prepared by Landlord and delivered to Tenant for execution.

24. **Quiet Enjoyment.** So long as Tenant shall perform all of the covenants and agreements herein required to be performed by Tenant, Tenant shall, subject to the terms of this Lease, at all times during the Term, have peaceful and quiet enjoyment of the Premises against any person claiming by, through or under Landlord.

25. **Prorations.** All prorations required or permitted to be made hereunder shall be made on the basis of a 360 day year and 30 day months.

26. **Rules and Regulations.** Tenant shall, at all times during the Term and any extension thereof, comply with all reasonable rules and regulations at any time or from time to time established by Landlord covering use of the Premises and the Project. The current rules and regulations are attached hereto as **Exhibit I**. If there is any conflict between said rules and regulations and other provisions of this Lease, the terms and provisions of this Lease shall control. Landlord shall not have any liability or obligation for the breach of any rules or regulations by other tenants in the Project and shall not enforce such rules and regulations in a discriminatory manner.

27. Subordination.

(a) **Subordination, Non-Disturbance and Attornment.** This Lease and Tenant's interest and rights hereunder are hereby made and shall be subject and subordinate at all times to the lien of any Mortgage now existing or hereafter created on or against the Project or the Premises, and all amendments, restatements, renewals, modifications, consolidations, refinancing, assignments and extensions thereof, without the necessity of any further instrument or act on the part of Tenant; provided, however that so long as there is no Default hereunder, Tenant's right to possession of the Premises shall not be disturbed by the Holder of any such Mortgage. Tenant agrees, at the election of the Holder of any such Mortgage, to attorn to any such Holder. Landlord agrees to use commercially reasonable efforts to deliver to Tenant a subordination, non-disturbance and attornment agreement either in the form of **Exhibit J** hereto or in any other form reasonably requested by a proposed lender or the Holder of a Mortgage on or against the Project or Premises ("**SNDA**"). Tenant agrees within 10 business days after demand to execute, acknowledge and deliver such SNDA and such other instruments confirming such subordination, and such instruments of attornment as shall be requested by any such Holder, provided any such instruments contain appropriate non-disturbance provisions assuring Tenant's quiet enjoyment of the Premises as set forth in Section 24 hereof. Notwithstanding the foregoing, any such Holder may at any time subordinate its Mortgage to this Lease, without Tenant's consent, by notice in writing to Tenant, and thereupon this Lease shall be deemed prior to such Mortgage without regard to their respective dates of execution, delivery or recording and in that event such Holder shall have the same rights with respect to this Lease as though this Lease had been executed prior to the execution, delivery and recording of such Mortgage and had been assigned to such Holder. The term "**Mortgage**" whenever used in this Lease shall be deemed to include deeds of trust, security assignments, ground leases or other superior leases and any other encumbrances, and any reference to the "**Holder**" of a Mortgage shall be deemed to include the beneficiary under a deed of trust.

(b) **Other Matters.** Notwithstanding anything to the contrary herein contained, subject to the provisions of this Section 27: (i) nothing in this Section 27 shall affect Tenant's rights under Section 18, Section 19 of this Lease, including any termination, abatement or offset rights under such Sections (whether accruing prior to or after any attornment to such mortgagee), and (ii) no holder shall be relieved of its obligations as party-Landlord arising under the Lease from or after the date ("**Succession Date**") that such Holder first acquires title or possession to the Premises. Tenant agrees that this Lease shall survive the merger of estates of ground (or improvements) lessor and lessee. Until a Holder (either superior or subordinate to this Lease) forecloses Landlord's equity of redemption (or terminates or succeeds to a new lease in the case of a ground or improvements lease), no Holder shall be liable for failure to perform any of Landlord's obligations (and such Holder shall thereafter be liable only after it succeeds to and holds Landlord's interest and then only as limited herein). In the event Tenant alleges that Landlord is in default under any of Landlord's obligations under this Lease, Tenant agrees to give the Holder of any mortgage of which Tenant has notice from Landlord or such Holder, by registered mail, a copy of any notice of default that is served upon the Landlord, provided that prior to such notice, Tenant has been notified, in writing of the address of any such holder.

(c) **Rent Assignment** If, at any time and from time to time, Landlord assigns this Lease or the Rent payable hereunder to the Holder of any mortgage on the Premises or the Project, or to any other party for the purpose of securing financing (the holder of any such mortgage and any other such financing party are referred to herein as the "**Financing Party**"), whether such assignment is conditional in nature or otherwise, the following provisions shall apply:

(i) Except as set forth in clause (ii) below, such assignment to the Financing Party shall not be deemed an assumption by the Financing Party of any obligations of Landlord hereunder unless such Financing Party shall, by written notice to Tenant, specifically otherwise elect;

(ii) The Financing Party shall be treated as having assumed Landlord's obligations hereunder (subject to this Section 27) only upon foreclosure of its mortgage (or voluntary conveyance by deed in lieu thereof) or the taking of possession of the Premises from and after foreclosure; and

(iii) The Financing Party shall be responsible for only such breaches under the Lease by Landlord that occur during the period of ownership by the Financing Party after such foreclosure (or voluntary conveyance by deed in lieu thereof) and taking of possession, as aforesaid.

Tenant hereby agrees to enter into such reasonable agreements or instruments as may, from time to time, be requested by Landlord in confirmation of the foregoing, subject to the requirements of this Section 27.

(d) **Other instruments.** The provisions of this Article shall be self-operative; nevertheless, Tenant agrees to execute, acknowledge and deliver any SNDA (being in the form of **Exhibit J** or such other form as provided in Section 27(a) or priority agreements or other instruments conforming to the provisions of this Lease, with such commercially reasonable changes as may be reasonably requested by Landlord or any Holder which are consistent, in all material respects, with the provisions of this Section 27 and are reasonably acceptable to Tenant (it being understood that Tenant will not request changes to an SNDA in the form of **Exhibit J**, which is acceptable to Tenant). Tenant confirms that the SNDA form attached hereto as **Exhibit J** satisfies the requirements of this Section 27. Without limitation, where Tenant in this Lease indemnifies or otherwise covenants for the benefit of mortgagees, such agreements are for the benefit of mortgagees as third party beneficiaries; and at the request of Landlord, Tenant from time to time will confirm such matters directly with such Holder.

28. **Surrender.** Upon the expiration of the Term or earlier termination of Tenant's right of possession, Tenant shall surrender the Premises to Landlord in the same condition as received, subject to any Alterations or Installations permitted by Landlord to remain in the Premises, free of Hazardous Materials brought upon, kept, used, stored, handled, treated, generated in, or released or disposed of from, the Premises by any person other than Landlord or its officers, directors, employees, managers, agents and contractors (collectively, "**Tenant HazMat Operations**") and released of all Hazardous Materials Clearances, broom clean, ordinary wear and tear and casualty loss and condemnation covered by Sections 18 and 19 excepted. At least 3 months prior to the surrender of the Premises, Tenant shall deliver to Landlord a narrative description of the actions proposed (or required by any Governmental Authority) to be taken by Tenant in order to surrender the Premises (including any Installations permitted by Landlord to remain in the Premises) at the expiration or earlier termination of the Term, free from any residual impact from the Tenant HazMat Operations and otherwise released for unrestricted use and occupancy (the "**Surrender Plan**"). Such Surrender Plan shall be accompanied by a current listing of (i) all Hazardous Materials licenses and permits held by or on behalf of any Tenant Party with respect to the Premises, and (ii) all Hazardous Materials used, stored, handled, treated, generated, released or disposed of from the Premises, and shall be subject to the review and approval of Landlord's environmental consultant. In connection with the review and approval of the Surrender Plan, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such

additional non-proprietary information concerning Tenant HazMat Operations as Landlord shall request. On or before such surrender, Tenant shall deliver to Landlord evidence that the approved Surrender Plan shall have been satisfactorily completed and Landlord shall have the right, subject to reimbursement at Tenant's expense as set forth below, to cause Landlord's environmental consultant to inspect the Premises and perform such additional procedures as may be deemed reasonably necessary to confirm that the Premises are, as of the effective date of such surrender or early termination of the Lease, free from any residual impact from Tenant HazMat Operations. Tenant shall reimburse Landlord, as Additional Rent, for the actual out-of-pocket expense incurred by Landlord for Landlord's environmental consultant to review and approve the Surrender Plan and to visit the Premises and verify satisfactory completion of the same, which cost shall not exceed \$5,000; Landlord shall have the unrestricted right to deliver such Surrender Plan and any report by Landlord's environmental consultant with respect to the surrender of the Premises to third parties.

If Tenant shall fail to prepare or submit a Surrender Plan approved by Landlord, or if Tenant shall fail to complete the approved Surrender Plan, or if such Surrender Plan, whether or not approved by Landlord, shall fail to adequately address any residual effect of Tenant HazMat Operations in, on or about the Premises, Landlord shall have the right to take such actions as Landlord may deem reasonable or appropriate to assure that the Premises and the Project are surrendered free from any residual impact from Tenant HazMat Operations, the cost of which actions shall be reimbursed by Tenant as Additional Rent, without regard to the limitation set forth in the first paragraph of this Section 28.

Tenant shall immediately return to Landlord all keys and/or access cards to parking, the Project, restrooms or all or any portion of the Premises furnished to or otherwise procured by Tenant. If any such access card or key is lost, Tenant shall pay to Landlord, at Landlord's election, either the cost of replacing such lost access card or key or the cost of reprogramming the access security system in which such access card was used or changing the lock or locks opened by such lost key. Tenant shall remove its office furniture and its other personal property on or before the last day of the Term. Any of Tenant's personal property, Tenant's Property listed on **Exhibit G**, Alterations and other property of Tenant not so removed by Tenant as permitted or required herein shall be deemed abandoned and may be stored, removed, and disposed of by Landlord at Tenant's expense, and Tenant waives all claims against Landlord for any damages resulting from Landlord's retention and/or disposition of such property. All obligations of Tenant hereunder not fully performed as of the termination of the Term, including the obligations of Tenant under Section 30 hereof, shall survive the expiration or earlier termination of the Term, including, without limitation, indemnity obligations, payment obligations with respect to Rent and obligations concerning the condition and repair of the Premises.

29. Waiver of Jury Trial. TENANT AND LANDLORD WAIVE ANY RIGHT TO TRIAL BY JURY OR TO HAVE A JURY PARTICIPATE IN RESOLVING ANY DISPUTE, WHETHER SOUNDING IN CONTRACT, TORT, OR OTHERWISE, BETWEEN LANDLORD AND TENANT ARISING OUT OF THIS LEASE OR ANY OTHER INSTRUMENT, DOCUMENT, OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HERewith OR THE TRANSACTIONS RELATED HERETO.

30. Environmental Requirements.

(a) **Prohibition/Compliance/Indemnity.** Tenant shall not cause or permit any Hazardous Materials (as hereinafter defined) to be brought upon, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises or the Project in violation of applicable Environmental Requirements (as hereinafter defined) by Tenant or any Tenant Party. If Tenant breaches the obligation stated in the preceding sentence, or if the presence of Hazardous Materials in the Premises during the Term or any holding over results in contamination of the Premises, the Project or any adjacent property or if contamination of the Premises, the Project or any adjacent property by Hazardous Materials brought into, kept, used, stored, handled, treated, generated in or about, or released or disposed of from, the Premises by anyone other than Landlord and Landlord's employees, agents and contractors otherwise occurs during the Term or any holding over, Tenant hereby indemnifies and shall defend and hold Landlord, its officers, directors, employees, agents and contractors harmless from any and all actions (including, without limitation, remedial or enforcement actions of any kind, administrative or judicial proceedings, and orders or judgments arising out of or resulting therefrom), costs, claims, damages (including, without limitation, punitive damages and damages based upon diminution in value of the Premises or the Project, or the loss of, or restriction on, use of the Premises or any portion of the Project), expenses (including, without limitation, attorneys', consultants' and experts' fees, court costs and amounts paid in settlement of any claims or actions), fines, forfeitures or other civil, administrative or criminal penalties, injunctive or other relief (whether or not based upon personal injury, property damage, or contamination of, or adverse effects upon, the environment, water tables or natural resources), liabilities or losses (collectively, "**Environmental Claims**") which arise during or after the Term as a result of such breach of Tenant's obligation stated in the preceding sentence or as a result of such contamination. This indemnification of Landlord by Tenant includes, without limitation, costs incurred in connection with any investigation of site conditions or any cleanup, treatment, remedial, removal, or restoration work required by any federal, state or local Governmental Authority because of Hazardous Materials present in the air, soil or ground water above, on, or under the Premises. Without limiting the foregoing, if the presence of any Hazardous Materials on the Premises, the Building, the Project or any adjacent property caused or permitted by Tenant or any Tenant Party results in any contamination of the Premises, the Building, the Project or any adjacent property, Tenant shall promptly take all actions at its sole expense and in accordance with applicable Environmental Requirements as are necessary to return the Premises, the Building, the Project or any adjacent property to the condition existing prior to the time of such contamination, provided that Landlord's approval of such action shall first be obtained, which approval shall not unreasonably be withheld so long as such actions would not potentially have any material adverse long-term or short-term effect on the Premises, the Building or the Project. Notwithstanding anything to the contrary contained in Section 28 or this Section 30, Tenant shall not be responsible for, and the indemnification and hold harmless obligation set forth in this paragraph shall not apply to (i) contamination in the Premises which Tenant can prove existed in the Premises immediately prior to the Commencement Date, (ii) the presence of any Hazardous Materials in the Premises which Tenant can prove to Landlord's reasonable satisfaction migrated from outside the Premises into the Premises, or (iii) contamination caused by Landlord or any Landlord's employees, agents and contractors, unless in any case, the presence of such Hazardous Materials (x) is the result of a breach by Tenant of any of its obligations under this Lease, or (y) was caused, contributed to or exacerbated by Tenant or any Tenant Party.

(b) **Business.** Landlord acknowledges that it is not the intent of this Section 30 to prohibit Tenant from using the Premises for the Permitted Use. Tenant may operate its business according to prudent industry practices so long as the use or presence of Hazardous Materials is strictly and properly monitored according to all then applicable Environmental Requirements. As a material inducement to Landlord to allow Tenant to use Hazardous Materials in connection with its business, Tenant agrees to deliver to Landlord prior to the Commencement Date a list identifying each type of Hazardous Materials to be brought upon, kept, used, stored, handled, treated, generated on, or released or disposed of from, the Premises and setting forth any and all

governmental approvals or permits required in connection with the presence, use, storage, handling, treatment, generation, release or disposal of such Hazardous Materials on or from the Premises (“**Hazardous Materials List**”). Tenant shall deliver to Landlord an updated Hazardous Materials List at least once a year and shall also deliver an updated list before any new Hazardous Material is brought onto, kept, used, stored, handled, treated, generated on, or released or disposed of from, the Premises. Tenant shall deliver to Landlord true and correct copies of the following documents (the “**Haz Mat Documents**”) relating to the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials prior to the Commencement Date, or if unavailable at that time, concurrent with the receipt from or submission to a Governmental Authority: permits; approvals; reports and correspondence; storage and management plans, notice of violations of any Legal Requirements; plans relating to the installation of any storage tanks to be installed in or under the Project (provided, said installation of tanks shall only be permitted after Landlord has given Tenant its written consent to do so, which consent may be withheld in Landlord’s sole and absolute discretion); all closure plans or any other documents required by any and all federal, state and local Governmental Authorities for any storage tanks installed in, on or under the Project for the closure of any such tanks; and a Surrender Plan (to the extent surrender in accordance with Section 28 cannot be accomplished in 3 months). Tenant is not required, however, to provide Landlord with any portion(s) of the Haz Mat Documents containing information of a proprietary nature which, in and of themselves, do not contain a reference to any Hazardous Materials or hazardous activities. It is not the intent of this Section to provide Landlord with information which could be detrimental to Tenant’s business should such information become possessed by Tenants competitors.

(c) **Tenant Representation and Warranty.** Tenant hereby represents and warrants to Landlord that (i) neither Tenant nor any of its legal predecessors has been required by any prior landlord, lender or Governmental Authority at any time to take remedial action in connection with Hazardous Materials contaminating a property which contamination was permitted by Tenant of such predecessor or resulted from Tenant’s or such predecessor’s action or use of the property in question, and (ii) Tenant is not subject to any enforcement order issued by any Governmental Authority in connection with the use, storage, handling, treatment, generation, release or disposal of Hazardous Materials (including, without limitation, any order related to the failure to make a required reporting to any Governmental Authority). If Landlord determines that this representation and warranty was not true as of the date of this lease, Landlord shall have the right to terminate this Lease in Landlord’s sole and absolute discretion.

(d) **Testing.** Landlord shall have the right to conduct annual tests of the Premises to determine whether any contamination of the Premises or the Project has occurred as a result of Tenant’s use. Tenant shall be required to pay the cost of such annual test of the Premises; provided, however, that if Tenant conducts its own tests of the Premises using third party contractors and test procedures acceptable to Landlord which tests are certified to Landlord, Landlord shall accept such tests in lieu of the annual teste to be paid for by Tenant. In addition, at any time, and from time to time, prior to the expiration or earlier termination of the Term, Landlord shall have the right to conduct appropriate tests of the Premises and the Project to determine if contamination has occurred as a result of Tenant’s use of the Premises. In connection with such testing, upon the request of Landlord, Tenant shall deliver to Landlord or its consultant such non-proprietary information concerning the use of Hazardous Materials in or about the Premises by Tenant or any Tenant Party. If contamination has occurred for which Tenant is liable under this Section 30, Tenant shall pay all reasonable costs to conduct such tests. If no such contamination is found, Landlord shall pay the costs of such tests (which shall not constitute an Operating Expense). Landlord shall provide Tenant with a copy of all third party, non-confidential reports and tests of the Premises made by or on behalf of Landlord during the

Term without representation or warranty and subject to a confidentiality agreement. Tenant shall, at its sole cost and expense, promptly and satisfactorily remediate any environmental conditions identified by such testing in accordance with all Environmental Requirements. Landlord's receipt of or satisfaction with any environmental assessment in no way waives any rights which Landlord may have against Tenant.

(e) **Storage Tanks.** If underground or other storage tanks storing Hazardous Materials located on the Premises or the Project are used by Tenant or are hereafter placed on the Premises or the Project by Tenant, Tenant shall install, use, monitor, operate, maintain, upgrade and manage such storage tanks, maintain appropriate records, obtain and maintain appropriate insurance, implement reporting procedures, properly close any underground storage tanks, and take or cause to be taken all other actions necessary or required under applicable state and federal Legal Requirements, as such now exists or may hereafter be adopted or amended in connection with the installation, use, maintenance, management, operation, upgrading and closure of such storage tanks.

(f) **Tenant's Obligations.** Tenant's obligations under this Section 30 shall survive the expiration or earlier termination of the Lease. During any period of time after the expiration or earlier termination of this Lease required by Tenant or Landlord to complete the removal from the Premises of any Hazardous Materials (including, without limitation, the release and termination of any licenses or permits restricting the use of the Premises and the completion of the approved Surrender Plan), Tenant shall continue to pay the full Rent in accordance with this Lease for any portion of the Premises not relet by Landlord in Landlord's sole discretion, which Rent shall be prorated daily.

(g) **Definitions.** As used herein, the term "**Environmental Requirements**" means all applicable present and future statutes, regulations, ordinances, rules, codes, judgments, orders or other similar enactments of any Governmental Authority regulating or relating to health, safety, or environmental conditions on, under, or about the Premises or the Project or the environment, including without limitation, the following: the Comprehensive Environmental Response, Compensation and Liability Act; the Resource Conservation and Recovery Act; and all state and local counterparts thereto, and any regulations or policies promulgated or issued thereunder. As used herein, the term "**Hazardous Materials**" means and includes any substance, material, waste, pollutant, or contaminant listed or defined as hazardous or toxic, or regulated by reason of its impact or potential impact on humans, animals and/or the environment under any Environmental Requirements, asbestos and petroleum, including crude oil or any fraction thereof, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas). As defined in Environmental Requirements, Tenant is and shall be deemed to be the "**operator**" of Tenant's "**facility**" and the "**owner**" of all Hazardous Materials brought on the Premises by Tenant or any Tenant Party, and the wastes, by-products, or residues generated, resulting, or produced therefrom.

31. **Tenant's Remedies/Limitation of Liability.** Landlord shall not be in default hereunder unless Landlord fails to perform any of its obligations hereunder within 30 days after written notice from Tenant specifying such failure {unless such performance will, due to the nature of the obligation, require a period of time in excess of 30 days, then after such period of time as is reasonably necessary). Upon any default by Landlord, Tenant shall give notice by registered or certified mail to any Holder of a Mortgage covering the Premises and to any landlord of any lease of property in or on which the Premises are located and Tenant shall offer such Holder (to the extent that Tenant has received notice of same) and/or landlord a reasonable opportunity to cure the default, including time to obtain possession of the Project by power of sale or a judicial

action if such should prove necessary to effect a cure; provided Landlord shall have furnished to Tenant in writing the names and addresses of all such persons who are to receive such notices. All obligations of Landlord hereunder shall be construed as covenants, not conditions; and, except as may be otherwise expressly provided in this Lease, Tenant may not terminate this Lease for breach of Landlord's obligations hereunder.

Subject to the terms of the next sentence, all obligations of Landlord under this Lease will be binding upon Landlord only during the period of its ownership of the Premises and not thereafter. The term "**Landlord**" in this Lease shall mean only the owner for the time being of the Premises. Upon the transfer by such owner of its interest in the Premises, such owner shall thereupon be released and discharged from all obligations of Landlord thereafter accruing, but such obligations shall be binding during the Term upon each new owner for the duration of such owner's ownership.

32. Inspection and Access. Landlord and its agents, representatives, and contractors may enter the Premises at any reasonable time to inspect the Premises and to make such repairs as may be required or permitted pursuant to this Lease and for any other reasonable business purpose. Landlord and Landlord's representatives may enter the Premises during business hours on not less than 48 hours advance written notice (except in the case of emergencies in which case, no such notice shall be required and such entry may be at any time) for the purpose of effecting any such repairs, inspecting, the Premises, showing the Premises to prospective purchasers and, during the last year of the Term, to prospective tenants or for any other business purpose. Landlord may erect a suitable sign on the Premises stating the Premises are available to let or that the Project is available for sale. Landlord may grant and amend easements, make public dedications, designate Common Areas and create and amend restrictions on or about the Premises, provided that no such easement, dedication, designation or restriction materially, adversely affects Tenant's use or occupancy of the Premises for the Permitted Use. At Landlord's request, Tenant shall execute such instruments as may be necessary for such easements, dedications or restrictions. Tenant shall at all times, except in the case of emergencies, have the right to escort Landlord or its agents, representatives, contractors or guests while the same are in the Premises, provided such escort does not materially and adversely affect Landlord's access rights hereunder.

33. Security. Tenant acknowledges and agrees that security devices and services, if any, while intended to deter crime may not in given instances prevent theft or other criminal acts and that Landlord is not providing any security services with respect to the Premises. Tenant agrees that Landlord shall not be liable to Tenant for, and Tenant waives any claim against Landlord with respect to, any loss by theft or any other damage suffered or incurred by Tenant in connection with any unauthorized entry into the Premises or any other breach of security with respect to the Premises. Tenant shall be solely responsible for the personal safety of Tenant's officers, employees, agents, contractors, guests and invitees while any such person is in, on or about the Premises, Building, Project and/or the 50-60 Garage. Tenant shall at Tenant's cost obtain insurance coverage to the extent Tenant desires protection against such criminal acts.

34. Force Majeure. Neither party shall be responsible or liable for delays in the performance of its obligations hereunder when caused by, related to, or arising out of acts of God, strikes, lockouts, or other labor disputes, embargoes, quarantines, weather, national, regional, or local disasters, calamities, or catastrophes, inability to obtain labor or materials (or reasonable substitutes therefor) at reasonable costs or failure of, or inability to obtain, utilities necessary for performance, governmental restrictions, orders, limitations, regulations, or controls, national emergencies, delay in issuance or revocation of permits, enemy or hostile governmental action,

terrorism, insurrection, riots, civil disturbance or commotion, fire or other casualty, and other causes or events beyond the reasonable control of Landlord (“**Force Majeure**”). Notwithstanding anything to the contrary contained in this Lease, in no event shall any payment obligations of Tenant be delayed, abated, excused or reduced by Force Majeure.

35. **Brokers.** Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, “**Broker**”) in connection with this transaction and that no Broker brought about this transaction other than Jones Lang LaSalle and CBRE/New England. Landlord and Tenant each hereby agree to indemnify and hold the other harmless from and against any claims by any Broker, other than the broker, if any named in this Section 35, claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this leasing transaction.

36. **Limitation on Landlord’s Liability.** NOTWITHSTANDING ANYTHING SET FORTH HEREIN OR IN ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT TO THE CONTRARY: (A) LANDLORD SHALL NOT BE LIABLE TO TENANT OR ANY OTHER PERSON FOR (AND TENANT AND EACH SUCH OTHER PERSON ASSUME ALL RISK OF) LOSS, DAMAGE OR INJURY, WHETHER ACTUAL OR CONSEQUENTIAL TO: TENANT’S PERSONAL PROPERTY OF EVERY KIND AND DESCRIPTION, INCLUDING, WITHOUT LIMITATION TRADE FIXTURES, EQUIPMENT, INVENTORY, SCIENTIFIC RESEARCH, SCIENTIFIC EXPERIMENTS, LABORATORY ANIMALS, PRODUCT, SPECIMENS, SAMPLES, AND/OR SCIENTIFIC, BUSINESS, ACCOUNTING AND OTHER RECORDS OF EVERY KIND AND DESCRIPTION KEPT AT THE PREMISES AND ANY AND ALL INCOME DERIVED OR DERIVABLE THEREFROM; (B) THERE SHALL BE NO PERSONAL RECOURSE TO LANDLORD FOR ANY ACT OR OCCURRENCE IN, ON OR ABOUT THE PREMISES OR ARISING IN ANY WAY UNDER THIS LEASE OR ANY OTHER AGREEMENT BETWEEN LANDLORD AND TENANT WITH RESPECT TO THE SUBJECT MATTER HEREOF AND ANY LIABILITY OF LANDLORD HEREUNDER SHALL BE STRICTLY LIMITED SOLELY TO LANDLORD’S INTEREST IN THE PROJECT OR ANY PROCEEDS FROM SALE OR CONDEMNATION THEREOF AND ANY INSURANCE PROCEEDS PAYABLE IN RESPECT OF LANDLORD’S INTEREST IN THE PROJECT OR IN CONNECTION WITH ANY SUCH LOSS; AND (C) IN NO EVENT SHALL ANY PERSONAL LIABILITY BE ASSERTED AGAINST ANY OF LANDLORD’S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS. UNDER NO CIRCUMSTANCES SHALL LANDLORD OR ANY OF LANDLORD’S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS BE LIABLE FOR INJURY TO TENANT’S BUSINESS OR FOR ANY LOSS OF INCOME OR PROFIT THEREFROM.

37. **Severability.** If any clause or provision of this Lease is illegal, invalid or unenforceable under present or future laws, then and in that event, it is the intention of the parties hereto that the remainder of this Lease shall not be affected thereby. It is also the intention of the parties to this Lease that in lieu of each clause or provision of this Lease that is illegal, invalid or unenforceable, there be added, as a part of this Lease, a clause or provision as similar in effect to such illegal, invalid or unenforceable clause or provision as shall be legal, valid and enforceable.

38. **Signs; Exterior Appearance.** Tenant shall not, without the prior written consent of Landlord, which may be granted or withheld in Landlord’s sole discretion: (i) attach any awnings, exterior lights, decorations, balloons, flags, pennants, banners, painting or other projection to any outside wall of the Premises, Building or Project, (ii) use any curtains, blinds, shades or screens other than Landlord’s standard window coverings, (iii) coat or otherwise sunscreen the interior or exterior of any windows, (iv) place any bottles, parcels, or other articles

on the window sills, (v) place any equipment, furniture or other items of personal property on any exterior balcony, or (vi) paint, affix or exhibit on any part of the Premises, Building or Project any signs, notices, window or door lettering, placards, decorations, or advertising media of any type which can be viewed from the exterior of the Premises. Interior signs on doors and the directory tablet or other lobby signage for the purpose of identifying tenants of the Building shall be inscribed, painted or affixed for Tenant by Landlord at the sole cost and expense of Tenant, and shall be of a size, color and type acceptable to Landlord. Nothing may be placed on the exterior of corridor walls or corridor doors other than Landlord's standard lettering. The directory tablet shall be provided exclusively for the display of the name and location of tenants.

39. Right to Extend Term. Tenant shall have the right to extend the Term of the Lease upon the following terms and conditions:

(a) **Extension Right.** Tenant shall have 1 right (the "**Extension Right**") to extend the term of this Lease for 3 years (the "**Extension Term**") on the same terms and conditions as this Lease (other than Base Rent) by giving Landlord written notice of its election to exercise each Extension Right at least 12 months prior, and no earlier than 18 months, prior to the expiration of the Base Term of the Lease.

Upon the commencement of any Extension Term, Base Rent shall be payable at the Market Rate (as defined below). Base Rent shall thereafter be adjusted on each annual anniversary of the commencement of such Extension Term by a percentage as determined by Landlord and agreed to by Tenant at the time the Market Rate is determined. As used herein, "**Market Rate**" shall mean the then market rental rate for space comparable to the Premises in a building comparable to the Building in the East Cambridge market area, taking into account all relevant factors such a rent, free rent, tenant improvement allowance, payment of tenant's brokerage fees and other market concessions. The Market Rate shall be as determined by Landlord and agreed to by Tenant or determined by arbitration as provided below. In addition, Landlord may impose a market rent for the parking rights provided hereunder.

If, on or before the date which is 270 days prior to the expiration of the Base Term of this Lease, Tenant has not agreed with Landlord's determination of the Market Rate and the rent escalations during such Extension Term, Tenant may by written notice to Landlord not later than 240 days prior to the expiration of the Base Term of this Lease, elect arbitration as described in Section 39(b) below. If Tenant does not elect such arbitration, Tenant shall be deemed to have waived any right to extend, or further extend, the Term of the Lease and all of the remaining Extension Rights shall terminate.

(b) Arbitration.

(i) Within 10 days of Tenant's notice to Landlord of its election to arbitrate Market Rate and escalations, each party shall deliver to the other a proposal containing the Market Rate and escalations that the submitting party believes to be correct ("**Extension Proposal**"). If either party fails to timely submit an Extension Proposal, the other party's submitted proposal shall determine the Base Rent and escalations for the Extension Term. If both parties submit Extension Proposals, then Landlord and Tenant shall meet within 7 days after delivery of the last Extension Proposal and make a good faith attempt to mutually appoint a single Arbitrator (and defined below) to determine the Market Rate and escalations. If Landlord and Tenant are unable to agree upon a single Arbitrator, then each shall, by written notice delivered to the other within 10 days after the meeting, select an Arbitrator. If either party fails to timely give notice of its selection for an

Arbitrator, the other party's submitted proposal shall determine the Base Rent for the Extension Term. The 2 Arbitrators so appointed shall, within 5 business days after their appointment, appoint a third Arbitrator. If the 2 Arbitrators so selected cannot agree on the selection of the third Arbitrator within the time above specified, then either party, on behalf of both parties, may request such appointment of such third Arbitrator by application to any state court of general jurisdiction in the jurisdiction in which the Premises are located, upon 10 days' prior written notice to the other party of such intent.

(ii) The decision of the Arbitrator(s) shall be made within 30 days after the appointment of a single Arbitrator or the third Arbitrator, as applicable. The decision of the single Arbitrator shall be final and binding upon the parties. The average of the two closest Arbitrators in a three Arbitrator panel shall be final and binding upon the parties. Each party shall pay the fees and expenses of the Arbitrator appointed by or on behalf of such party and the fees and expenses of the third Arbitrator shall be borne equally by both parties. If the Market Rate and escalations are not determined by the first day of the Extension Term, then Tenant shall pay Landlord Base Rent in an amount equal to the Base Rent in effect immediately prior to the Extension Term and increased by the Rent Adjustment Percentage until such determination is made. After the determination of the Market Rate and escalations, the parties shall make any necessary adjustments to such payments made by Tenant. Landlord and Tenant shall then execute an amendment recognizing the Market Rate and escalations for the Extension Term.

(iii) An "Arbitrator" shall be any person appointed by or on behalf of either party or appointed pursuant to the provisions hereof and: (i) shall be (A) a member of the American Institute of Real Estate Appraisers with not less than 10 years of experience in the appraisal of improved office, high tech and life sciences real estate in the Cambridge, Massachusetts market area, or (B) a licensed commercial real estate broker with not less than 15 years' experience representing landlords and/or tenants in the leasing of high tech or life sciences space in the Cambridge, Massachusetts market area, (ii) devoting substantially all of their time to professional appraisal or brokerage work, as applicable, at the time of appointment and (iii) be in all respects impartial and disinterested.

(c) **Rights Personal.** The Extension Right is personal to Tenant and is not assignable without Landlord's consent, which may be granted or withheld in Landlord's sole discretion separate and apart from any consent by Landlord to an assignment of Tenant's interest in the Lease, except that the Extension Right may be assigned in connection with any Permitted Assignment of this Lease.

(d) **Exceptions.** Notwithstanding anything set forth above to the contrary, the Extension Right shall not be in effect and Tenant may not exercise the Extension Right:

(i) during any period of time that Tenant is in Default under any provision of this Lease; or

(ii) if Tenant has been in Default under any provision of this Lease 3 or more times, whether or not the Defaults are cured, during the 12-month period immediately prior to the date that Tenant intends to exercise an Extension Right, whether or not the Defaults are cured; or

(iii) if Tenant is not in occupancy of the entire Premises demised hereunder both at the time of the exercise of any such Extension Right and at the time of the commencement of any such Extension Term.

(e) **No Extensions.** The period of time within which the Extension Right may be exercised shall not be extended or enlarged by reason of Tenant's inability to exercise the Extension Right.

(f) **Termination.** The Extension Right shall terminate and be of no further force or effect even after Tenant's due and timely exercise of an Extension Right, if, after such exercise, but prior to the commencement date of an Extension Term, (i) Tenant fails to timely cure any default by Tenant under this Lease; or (ii) Tenant has Defaulted 3 or more times during the period from the date of the exercise of an Extension Right to the date of the commencement of the Extension Term, whether or not such Defaults are cured.

40. Miscellaneous.

(a) **Notices.** All notices or other communications between the parties shall be in writing and shall be deemed duly given upon delivery or refusal to accept delivery by the addressee thereof if delivered in person, or upon actual receipt if delivered by reputable overnight guaranty courier, addressed and sent to the parties at their addresses set forth above. Landlord and Tenant may from time to time by written notice to the other designate another address for receipt of future notices.

(b) **Joint and Several Liability.** If and when included within the term "**Tenant**," as used in this instrument, there is more than one person or entity, each shall be jointly and severally liable for the obligations of Tenant.

(c) **Financial Information.** Tenant shall furnish Landlord with true and complete copies of (i) Tenant's most recent unaudited annual financial statements within 90 days of the end of each of Tenant's fiscal years during the Term, (ii) Tenant's most recent audited annual financial statements within 180 days of the end of each of Tenant's fiscal years during the Term, (iii) at Landlord's request from time to time, updated business plans, including cash flow projections and/or pro forma balance sheets and income statements, all of which shall be treated by Landlord as confidential information belonging to Tenant, (iv) corporate brochures and/or profiles prepared by Tenant for prospective investors, and (v) any other financial information of summaries that Tenant typically provides to its lenders or shareholders. If the stock of Tenant is publicly traded on a recognized national exchange, then Tenant's filing of quarterly and annual financial statements with the Securities and Exchange Commission shall be deemed to satisfy Tenant's obligations to deliver financial statements under this Section. Except for Tenant's obligations to deliver unaudited and audited financial statements as provided above, in no event shall Tenant be required to provide any financial information to Landlord that Tenant does not otherwise prepare (or cause to be prepared) for its own purposes.

(d) **Recordation.** Neither this Lease nor a memorandum of lease shall be filed by or on behalf of Tenant in any public record. Landlord may prepare and file, and upon request by Landlord Tenant will execute, a memorandum of lease.

(e) **Interpretation.** The normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Lease or any exhibits or amendments hereto. Words of any gender used in this Lease shall be

held and construed to include any other gender, and words in the singular number shall be held to include the plural, unless the context otherwise requires. The captions inserted in this Lease are for convenience only and in no way define, limit or otherwise describe the scope or intent of this Lease, or any provision hereof, or in any way affect the interpretation of this Lease.

(f) **Not Binding Until Executed.** The submission by Landlord to Tenant of this Lease shall have no binding force or effect, shall not constitute an option for the leasing of the Premises, nor confer any right or impose any obligations upon either party until execution of this Lease by both parties.

(g) **Entire Agreement; Amendment.** This Lease constitutes the entire agreement between Landlord and Tenant pertaining to the lease of the Premises and supersedes all other agreements, whether oral or written, pertaining to the lease of the Premises, and no other agreements with respect thereto shall be effective, except for the letter agreement of even date pertaining to Section 22(b) and the letter agreement of even date pertaining to the Permitted Use. Any amendments or modifications of this Lease shall be in writing and signed by both Landlord and Tenant, and any other attempted amendment or modification of this Lease shall be void.

(h) **Limitations on interest.** It is expressly the intent of Landlord and Tenant at all times to comply with applicable law governing the maximum rate or amount of any interest payable on or in connection with this Lease. If applicable law is ever judicially interpreted so as to render usurious any interest called for under this Lease, or contracted for, charged, taken, reserved, or received with respect to this Lease, then it is Landlord's and Tenant's express intent that all excess amounts theretofore collected by Landlord be credited on the applicable obligation (or, if the obligation has been or would thereby be paid in full, refunded to Tenant), and the provisions of this Lease immediately shall be deemed reformed and the amounts thereafter collectible hereunder reduced, without the necessity of the execution of any new document, so as to comply with the applicable law, but so as to permit the recovery of the fullest amount otherwise called for hereunder.

(i) **Choice of Law.** Construction and interpretation of this Lease shall be governed by the internal laws of the state in which the Premises are located, excluding any principles of conflicts of laws.

(j) **Time.** Time is of the essence as to the performance of Tenant's obligations under this Lease.

(k) **OFAC.** Tenant, and all beneficial owners of Tenant, are currently (a) in compliance with and shall at all times during the Term of this Lease remain in compliance with the regulations of the Office of Foreign Assets Control ("OFAC") of the U.S. Department of Treasury and any statute, executive order, or regulation relating thereto (collectively, the "OFAC Rules"), (b) not listed on, and shall not during the Term of this Lease be listed on, the Specially Designated Nationals and Blocked Persons List, Foreign Sanctions Evaders List or the Sectoral Sanctions Identifications List, which are all maintained by OFAC and/or on any other similar list maintained by OFAC or other governmental authority pursuant to any authorizing statute, executive order, or regulation, and (c) not a person or entity with whom a U.S. person is prohibited from conducting business under the OFAC Rules.

(l) **Incorporation by Reference.** All exhibits and addenda attached hereto are hereby incorporated into this Lease and made a part hereof. If there is any conflict between such exhibits or addenda and the terms of this Lease, such exhibits or addenda shall control.

(m) **No Accord and Satisfaction.** No payment by Tenant or receipt by Landlord of a lesser amount than the monthly installment of Base Rent or any Additional Rent will be other than on account of the earliest stipulated Base Rent and Additional Rent, nor will any endorsement or statement on any check or letter accompanying a check for payment of any Base Rent or Additional Rent be an accord and satisfaction. Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such Rent or to pursue any other remedy provided in this Lease.

(n) **Hazardous Activities.** Notwithstanding any other provision of this Lease, Landlord, for itself and its employees, agents and contractors, reserves the right to refuse to perform any repairs or services in any portion of the Premises which, pursuant to Tenant's routine safety guidelines, practices or custom or prudent industry practices, require any form of protective clothing or equipment other than safety glasses. In any such case, Tenant shall contract with parties who are acceptable to Landlord, in Landlord's reasonable discretion, for all such repairs and services, and Landlord shall, to the extent required, equitably adjust Tenant's Share of Operating Expenses in respect of such repairs or services to reflect that Landlord is not providing such repairs or services to Tenant.

(o) **"Green" Certification.** Tenant acknowledges that Landlord may, but shall not be obligated to, seek to obtain Leadership in Energy and Environmental Design (LEED), WELL Building Standard, or other similar "green" certification with respect to the Project and/or the Premises, and Tenant agrees to reasonably cooperate with Landlord, and to provide such information and/or documentation as Landlord may reasonably request, in connection therewith.

IN WITNESS WHEREOF, Landlord and Tenant have executed this Lease as of the day and year first above written.

TENANT:

TCR² THERAPEUTICS INC.,
a Delaware corporation

By: /s/Garry E. Menzel
Its: CEO

LANDLORD:

ARE-MA REGION NO. 45, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P. a
Delaware limited partnership, Managing Member

By: ARB-QRS CORP., a Maryland corporation, General
Partner

By: /s/Jennifer Banks
Its: EVP, General Counsel

EXHIBIT A TO LEASE

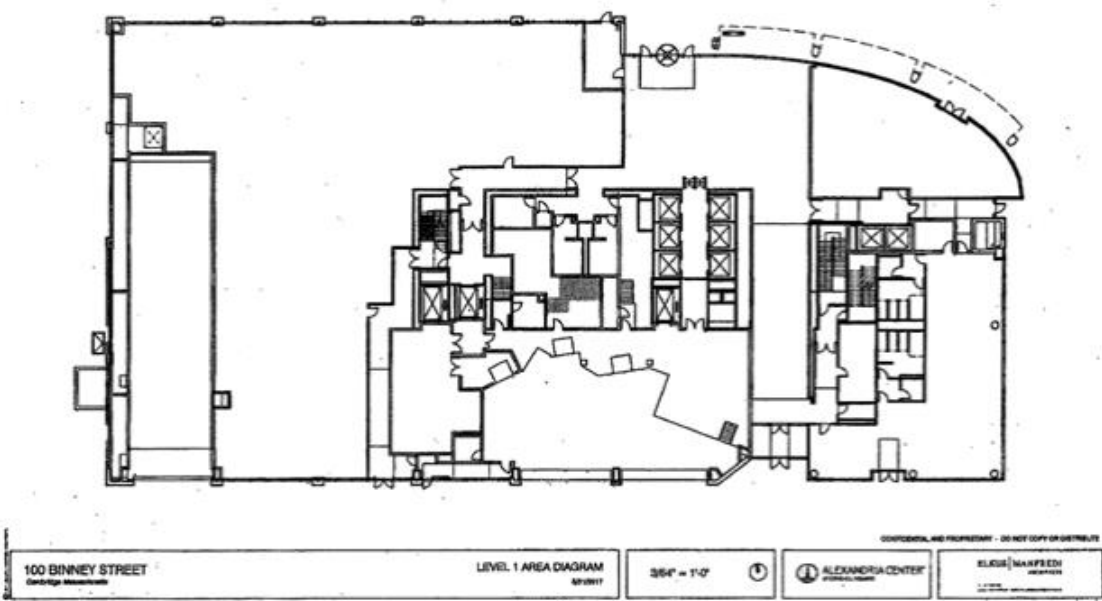
DRAWING SHOWING PREMISES

(attached)

ELKS | MANFRED
ARTISTS

CONFIDENTIAL AND PROPRIETARY - DO NOT COPY OR DISTRIBUTE

TCR2
LEASE EXHIBIT A - PREMISES DESCRIPTION



ELKES | MANFREDI
ARCHITECTS

CONFIDENTIAL AND PROPRIETARY - DO NOT COPY OR DISTRIBUTE

EXHIBIT B TO LEASE

DESCRIPTION OF PROJECT

That certain parcel of land located in Cambridge, Middlesex County, Massachusetts, shown as Lot 1 on that certain plan entitled "Consolidation and Subdivision Plan, 80-100 Binney Street; 41 William "Doc" Linskey Way; 77 William "Doc" Linskey Way; Cambridge, Mass.", dated February 10, 2011, prepared by Harry R. Feldman, Inc., recorded with Middlesex South Registry of Deeds as Plan No. 168 of 2011, said lot containing 54,423 square feet according to said plan.

Said premises are subject to and have the benefit of the following:

1. Notice of Decision by the Cambridge Planning Board, recorded with said Deeds in Book 54930, Page 202, as amended by Notice of Decision by the Cambridge Planning Board, recorded with said Deeds in Book 65330, Page 382.
2. Declaration of Covenants and Restrictions dated as of August 23, 2013, recorded with said Deeds in Book 62514, Page 201, as amended by First Amendment to Declaration of Covenants and Restrictions dated as of April 21, 2015, recorded with said Deeds in Book 65330, Page 381.
3. Decision by the Cambridge Board of Zoning Appeals dated July 24, 2006, filed with the Middlesex South Registry District of the Land Court as Document No. 1422643.
4. Garage Parking Easement Agreement between ARE-MA Region No. 50, LLC, as Grantor, and Landlord, as Grantee, dated as of May 28, 2015, recorded with said Deeds in Book 65584, Page 404.

EXHIBIT B-1 TO LEASE

DESCRIPTION OF CAMPUS

(attached)

EXHIBIT B-1 - DESCRIPTION OF CAMPUS



SPAGNOLO GISNESS & ASSOCIATES

urban context plan
ALEXANDRIA CENTER AT KENDALL SQUARE | CAMBRIDGE, MA

EXHIBIT C TO LEASE

WORK LETTER*[Landlord Build]*

THIS **WORK LETTER** (this “**Work Letter**”) is attached to and incorporated into that certain Lease Agreement (the “Lease”) dated as of June 30, 2017 by and between ARE-MA REGION NO. 45, LLC, a Delaware limited liability company (“**Landlord**”), and TCR² THERAPEUTICS INC., a Delaware corporation (“**Tenant**”). Any initially capitalized terms used but not defined herein shall have the meanings given them in the Lease.

1. General Requirements; Landlord’s Construction of the Building.

(a) **Tenant’s Authorized Representative.** Tenant designates Amy Lynch and John Pallies (either such individual acting alone, “**Tenant’s Representative**”) as the only persons authorized to act for Tenant pursuant to this Work Letter. Landlord shall not be obligated to respond to or act upon any request, approval, inquiry or other communication (“**Communication**”) from or on behalf of Tenant in connection with this Work Letter unless such Communication is in writing from Tenant’s Representative. Tenant may change either Tenant’s Representative at any time upon not less than 5 business days’ advance written notice to Landlord. Neither Tenant nor Tenant’s Representative shall be authorized to direct Landlord’s contractors in the performance of Landlord’s Work (as hereinafter defined).

(b) **Landlord’s Authorized Representative.** Landlord designates Andy Reinach, Danielle Blake and Jeff McComish (either such individual acting alone, “**Landlord’s Representative**”) as the only persons authorized to act for Landlord pursuant to this Work Letter. Tenant shall not be obligated to respond to or act upon any request, approval, inquiry or other Communication from or on behalf of Landlord in connection with this Work Letter unless such Communication is in writing from Landlord’s Representative. Landlord may change either Landlord’s Representative at any time upon not less than 5 business days’ advance written notice to Tenant. Landlord’s Representative shall be the sole persons authorized to direct Landlord’s contractors in the performance of Landlord’s Work.

(c) **Landlord’s Construction of the Building.** Landlord shall construct the following improvements on the Land (collectively, the “**Non-TI Project Improvements**”): (i) shell and core improvements for the Building (the “**Shell and Core Improvements**”); and (ii) all landscaping, plaza areas, walkways, driveways, sidewalks, and other improvements for the Project (the “**Site Improvements**”), in accordance with the Shell, Core and Site Construction Documents and the Landlord/Tenant Responsibility Matrix (each as defined below). Landlord shall construct the Non-TI Project Improvements at its sole cost and expense, except as otherwise expressly set forth herein. The cost of the Tenant Improvements to be undertaken by Landlord shall be paid for in accordance with Section 6 of this Work Letter.

(i) **Non-TI Project Improvements; Non-TI Construction Manager.** The construction manager for the Non-TI Project Improvements is John Moriarty & Associates, or such other contractors selected and retained by Landlord (“**Non-TI Construction Manager**”). The Non-TI Project Improvements shall be constructed pursuant to the Shell, Core and Site Construction Documents, as the same may be further modified as provided in this Work Letter to include any Landlord Modifications (as such term is defined below) and/or as required by any applicable Governmental Authorities.

(ii) **Project Architect.** Landlord has engaged Elkus Manfredi Architects as the architect for the Non-TI Project Improvements (the “**Project Architect**”).

(iii) **Shell, Core and Site Construction Documents.** The Shell, Core and Site Construction Documents for the construction of the Non-TI Project Improvements, a copy of which were furnished to and approved by Tenant prior to execution of the Lease, are listed on Schedule 1(c)(iii) (the “**Shell, Core and Site Construction Documents**”).

(iv) **Landlord Modifications to Shell, Core and Site Construction Documents.** It is anticipated that as Landlord completes construction of the Non-TI Project Improvements, Landlord may reasonably require changes to the Shell, Core and Site Construction Documents as Landlord shall desire and/or as may be required to obtain occupancy permits and other governmental approvals and comply with Legal Requirements. Landlord shall be entitled, from time to time, to make any such changes to the Shell, Core and Site Construction Documents (collectively, the “**Landlord Modifications**”), without Tenant’s consent, so long as such Landlord Modifications, if implemented, would not: (i) effect material changes to the design of the Non-TI Project Improvements to the extent that such design affects the Premises, Tenants access thereto or the construction of the Tenant Improvements; or (ii) adversely affect Tenant’s contemplated use or occupancy of the Premises, Building or the Project for the Permitted Uses; or (iii) materially increase the costs, or delay the TI Substantial Completion, of the Tenant Improvements (each as hereinafter defined) beyond the Target Commencement Date (collectively, an “**Adverse Condition**”); provided, however, to the extent a Landlord Modification is necessary to comply with Legal Requirements or is required by any applicable Governmental Authorities in connection with its enforcement of Legal Requirements, such Landlord Modification shall not constitute an Adverse Condition. In the event any such Landlord Modification, if implemented, would create an Adverse Condition, Landlord shall notify Tenant of such Landlord Modifications prior to implementation thereof (which notice shall include Landlord’s description of the Adverse Condition, and the adverse effects and impacts which Landlord believes comprise such Adverse Condition to the extent then known or reasonably anticipated by Landlord), and Tenant shall, within seven (7) business days after receipt of Landlord’s notice, notify Landlord of Tenant’s approval or reasonable disapproval thereof with specified reasons for such disapproval. Tenant’s failure to notify Landlord of its approval or reasonable disapproval within such seven (7) business day period shall be deemed Tenant’s approval of such proposed Landlord Modifications. In the event such Landlord Modifications, if implemented, would materially increase the costs of the Tenant Improvements, then Landlord and Tenant shall consult and coordinate on ways to minimize the effect of such Landlord Modification on the cost of the Tenant Improvements. If such Landlord Modification was desired by Landlord but not required to obtain occupancy permits and other governmental approvals or to comply with Legal Requirements (a “**Landlord Desired Modification**”) and after such consultation and coordination the effect of such Landlord Desired Modification will be to increase the costs of the Tenant Improvements, such increase in costs shall be borne solely by Landlord and not counted against the TI Allowance (as defined in Section 6 of this Work Letter). Tenant shall have no right to make or request, and Landlord shall, in its sole discretion, have no obligation to approve and may disapprove, any changes to the Shell, Core and Site Construction Documents desired by Tenant.

(v) **Completion of the Non-TI Project Improvements.** Landlord shall use commercially reasonable efforts to Substantially Complete the Shell and Core Improvements by October 27, 2017. For purposes of this Work Letter, the term “**Substantially Complete**”, “**Substantially Completed**” or “**Substantial Completion**” with regard to the Shell and Core Improvements shall mean the later to occur of (i) the substantial completion of construction of the Shell and Core Improvements in accordance with the Shell, Core and Site Construction Documents, as certified by the Project Architect, pursuant to and evidenced by a fully executed AIA G704 form signed by Landlord, Non-TI Construction Manager and the Project Architect, with the exception of any Punch List Items (as defined below), and (ii) the issuance by the City of Cambridge of a certificate of occupancy for the Shell and Core (unless such certificate is not available due to requirements of the Tenant Improvements in the Premises or improvements to other tenant spaces that in either case preclude issuance of a certificate of occupancy, in which case a certificate of occupancy shall not be a condition precedent to Substantial Completion, but Landlord shall obtain such a certificate when such requirements have been satisfied). Punch List Items shall be diligently completed by Landlord within a reasonable time, provided that Punch List Items which arise due to a delayed delivery of such Punch List Item or material portion thereof shall be completed no later than 60 days after Substantial Completion (except for items which cannot be completed until the Tenant Improvements are completed by Tenant, or for items affected by seasonal conditions, each of which shall be completed as soon as practicable). The term “**Punch List Items**” shall mean minor items of completion, correction or repair with respect to the Non-TI Project Improvements, which, by their nature, will not interfere with, or impair in any material respect, Tenant’s use or occupancy of or access to the Project, Building or Premises, including without limitation the Garage, for the purposes contemplated under the Lease, and which will not delay Tenant’s commencement of business operations in the Premises beyond the date that the Premises are Delivered to Tenant under Section 2(a) of the Lease. Following the Substantial Completion of the Shell and Core Improvements, Landlord shall use commercially reasonable efforts to complete any remaining Site Improvements that are not complete as of the date of Substantial Completion of the Shell and Core Improvements as soon as reasonably practicable, which for all seasonal components of the Site Improvements shall be prior to the end of the first full planting season that begins after the date of Substantial Completion of the Shell and Core Improvements.

2. Tenant Improvements.

(a) **Tenant Improvements Defined.** As used herein, “**Tenant Improvements**” shall mean all improvements to the Premises and permitted areas of the Project of a fixed and permanent nature as shown on the TI Construction Drawings (as defined in Section 2(d) below). Other than Landlord’s Work (as defined in Section 3(a) below and its obligations in this Work Letter, Landlord shall not have any obligation whatsoever with respect to the finishing of the Premises for Tenant’s use and occupancy.

(b) **Architects, Consultants and Contractors.** Landlord and Tenant hereby acknowledge and agree that: (i) the construction manager for the Tenant Improvements shall be The Richmond Group (the “**Tenant Improvements Construction Manager**”) and any subcontractors for the Tenant Improvements shall be selected by Landlord, and (ii) R.E. Dinneen Architects & Planners shall be the architect (the “**TI Architect**”) for the Tenant Improvements.

(c) **Tenant's Design Program and Test Fit.** The Tenant Improvements shall include the components listed in the "Tenant" column in the Landlord/Tenant Responsibility Matrix in Schedule 2(c)-1 (the "**Landlord/Tenant Responsibility Matrix**") and Landlord/Tenant Utility Allocation Matrix attached to this Work Letter as Schedule 2(c)-2 (the "**Landlord/Tenant Utility Allocation Matrix**"). Prior to execution of this Lease, Tenant delivered to Landlord and the TI Architect the outline specifications (the "**TI Design Program**") detailing Tenant's requirements for the Tenant Improvements. On or before the later of (i) June 1, 2017, or (ii) the date that is 14 days after the date of this Lease, Landlord shall deliver to Tenant test fit plans (the "**Test Fit**") consistent with the TI Design Program. Within 5 business days of delivery of the Test Fit, Tenant shall deliver to Landlord its written comments and questions, on the Test Fit; provided, however, that, without submitting a Change Request, Tenant may not disapprove any matter that is consistent with the TI Design Program or that is consistent with any matter not objected to in any prior version of the Test Fit. Landlord shall review Tenant's comments and questions and, within 10 business days of receipt of Tenant's comments and questions, deliver a revised Test Fit to Tenant. Such process shall continue until Tenant and Landlord have approved the Test Fit in writing.

(d) **Working Drawings.** Not later than 75 days following the date of the written approval of the Test Fit by Landlord and Tenant, Landlord shall cause the TI Architect to prepare and deliver to Tenant for review and comment the construction plans, specifications and drawings for the Tenant Improvements ("**TI Construction Drawings**"), which TI Construction Drawings shall be prepared substantially in accordance with the TI Design Program and the Test Fit (together, the "**TI Design Drawings**") and comply in all respects with the Landlord/Tenant Responsibility Matrix, Landlord/Tenant Utility Allocation Matrix and the LEED standards attached hereto at Schedule 2(d). Tenant shall be solely responsible for ensuring that the TI Construction Drawings reflect Tenant's requirements for the Tenant Improvements. Tenant shall deliver its written comments on the TI Construction Drawings to Landlord not later than 10 business days after Tenant's receipt of the same; provided, however, that Tenant may not disapprove any matter that is consistent with the TI Design Drawings without submitting a Change Request. Landlord and the TI Architect shall consider all such comments in good faith and shall, within 10 business days after receipt, notify Tenant how Landlord proposes to respond to such comments, but Tenant's review rights pursuant to the foregoing sentence shall not delay the design or construction schedule for the Tenant Improvements. Any disputes in connection with such comments shall be resolved in accordance with Section 2(e) hereof. Provided that the design reflected in the TI Construction Drawings is consistent with the TI Design Drawings, Tenant shall approve the TI Construction Drawings submitted by Landlord, unless Tenant submits a Change Request. Once approved by Tenant, subject to the provisions of Section 4 below, Landlord shall not materially modify the TI Construction Drawings except as may be reasonably required in connection with the issuance of the TI Permit (as defined in Section 3(b) below).

(e) **Approval and Completion.** It is hereby acknowledged by Landlord and Tenant that the TI Construction Drawings must be completed and approved not later than August 15, 2017 in order for the Landlord's Work to be TI Substantially Complete by the Target Commencement Date (as defined in the Lease). Upon any dispute regarding the design of the Tenant Improvements, which is not settled within 10 business days after notice of such dispute is delivered by one party to the other, Tenant may make the final decision regarding the design of the Tenant Improvements, provided (i) Tenant acts reasonably and such final decision is either consistent with or a compromise between Landlord's and Tenant's positions with respect to such dispute, (ii) that all costs and expenses resulting from any such decision by Tenant shall be payable out of the TI Fund (as defined in Section 5(d) below), and (iii) Tenant's decision will not affect the base Building, structural components of the Building or any Building systems. Any changes to the TI Construction Drawings following Landlord's and Tenant's approval of same requested by Tenant shall be processed as provided in Section 4 hereof.

3. Performance of Landlord's Work for the Construction of the Tenant Improvements.

(a) **Definition of Landlord's Work.** As used herein, "**Landlord's Work**" shall mean the work of constructing the Tenant Improvements. In connection with Landlord's Work, subject to Section 5 of this Work Letter, Landlord or the Tenant Improvements Construction Manager or its subcontractors shall purchase the materials and equipment called for by the TI Construction Drawings.

(b) **Commencement and Permitting.** Landlord shall commence construction of the Tenant Improvements upon obtaining a building permit (the "**TI Permit**") authorizing the construction of the Tenant Improvements consistent with the TI Construction Drawings approved by Tenant. The cost of obtaining the TI Permit shall be payable from the TI Fund. Tenant shall assist Landlord in obtaining the TI Permit. If any Governmental Authority having jurisdiction over the construction of Landlord's Work or any portion thereof shall impose terms or conditions upon the construction thereof that: (i) are inconsistent with Landlord's obligations hereunder, (ii) increase the cost of constructing Landlord's Work, or (iii) will materially delay the construction of Landlord's Work, Landlord and Tenant shall reasonably and in good faith seek means by which to mitigate or eliminate any such adverse terms and conditions.

(c) **Completion of Landlord's Work.** On or before the Target Commencement Date (subject to Tenant Delays and delays due to Force Majeure), Landlord shall substantially complete or cause to be substantially completed Landlord's Work in a good and workmanlike manner, in accordance with the TI Permit and the TI Construction Drawings, with Landlord having obtained a certificate of occupancy and completed all inspections required for issuance of a certificate of occupancy, subject, in each case, to Minor Variations and normal "punch list" items of a non-material nature that do not interfere with the use of the Premises ("**TI Substantially Complete**", "**TI Substantially Completed**", or "**TI Substantial Completion**"). Upon TI Substantial Completion of Landlord's Work, Landlord shall require the TI Architect and the Tenant . Improvements Construction Manager to execute and deliver, for the benefit of Tenant and Landlord, a Certificate of Substantial Completion in the form of the American Institute of Architects ("**AIA**") document G704. For purposes of this Work Letter, "**Minor Variations**" shall mean any modifications reasonably required: (i) to comply with all applicable Legal Requirements and/or to obtain or to comply with any required permit (including the TI Permit); (ii) to comply with any request by Tenant for modifications to Landlord's Work; (iii) to comport with good design, engineering, and construction practices that are not material; or (iv) to make reasonable adjustments for field deviations or conditions encountered during the construction of Landlord's Work.

(d) **Selection of Materials.** Where more than one type of material or structure is indicated on the TI Construction Drawings approved by Landlord and Tenant, the option will be selected at Landlord's sole and absolute subjective discretion. As to all building materials and equipment that Landlord is obligated to supply under this Work Letter, Landlord shall select the manufacturer thereof in its sole and absolute subjective discretion, unless a particular manufacturer has been specified in the TI Construction Drawings or specifications contained therein.

(e) **Delivery of the Premises.** When Landlord's Work is TI Substantially Complete, subject to the remaining terms and provisions of this Section 3(e), Tenant shall accept the Premises. Tenant's taking possession and acceptance of the Premises shall not constitute a waiver of: (i) any warranty with respect to workmanship (including installation of equipment) or

material (exclusive of equipment provided directly by manufacturers), (ii) any non-compliance of Landlord's Work with applicable Legal Requirements, or (iii) any claim that Landlord's Work was not completed substantially in accordance with the Tl Construction Drawings (subject to Minor Variations and such other changes as are permitted hereunder) (collectively, a "**Construction Defect**"). Tenant shall have one year after Tl Substantial Completion within which to notify Landlord of any such Construction Defect discovered by Tenant, and Landlord shall use reasonable efforts to remedy or cause the responsible contractor to remedy any such Construction Defect within 30 days thereafter. Notwithstanding the foregoing, Landlord shall not be in default under the Lease if the applicable contractor, despite Landlord's reasonable efforts, fails to remedy such Construction Defect within such 30-day period, in which case Landlord shall continue to use reasonable efforts to cause such Construction Defect to be remedied. Notwithstanding any provision of the Lease or this Work Letter to the contrary, Tenant shall not be required to pay for the costs of correcting any Construction Defect of which Tenant has given Landlord written notice within the 1-year period as provided in this paragraph or any construction defect in the initial construction of the Building, whether directly or as part of Operating Expenses.

Tenant shall be entitled to receive the benefit of all construction warranties and manufacturer's equipment warranties relating to equipment installed in the Premises. If requested by Tenant, Landlord shall attempt to obtain extended warranties from manufacturers and suppliers of such equipment, but the cost of any such extended warranties shall be borne solely out of the Tl Fund. Landlord shall promptly undertake and complete, or cause to be completed, all punch list items.

(f) **Commencement Date Delay.** Except as otherwise provided in the Lease, Delivery of the Premises shall occur when Landlord's Work has been Tl Substantially Completed, except to the extent that Tl Substantial Completion of Landlord's Work shall have been actually delayed by any one or more of the following causes ("**Tenant Delay**"):

(i) Tenant's Representative was not available to give or receive any Communication or to take any other action required to be taken by Tenant hereunder;

(ii) Tenant's request for Change Requests (as defined in Section 4(a) below) whether or not any such Change Requests are actually performed;

(iii) Construction of any Change Requests;

(iv) Tenant's request for materials, finishes or installations requiring unusually long

(v) Tenant's delay in reviewing, revising or approving plans and specifications beyond the periods set forth herein;

(vi) Tenant's delay in providing information critical to the normal progression of Landlord's Work. Tenant shall provide such information as soon as reasonably possible, but in no event longer than 5 business days after receipt of any request for such information from Landlord;

(vii) Tenant's delay in making payments to Landlord for Excess Tl Costs (as defined in Section 5 below);

(viii) Labor disharmony as a result of non-union labor employed by any contractor or subcontractor engaged by Tenant or any Tenant Party; or

(ix) Any other act or omission by Tenant or any Tenant Party (as defined in the Lease), or persons employed by any of such persons.

If Delivery is delayed for any of the foregoing reasons, then Landlord shall cause the TI Architect to certify the date on which the Tenant Improvements would have been completed but for such Tenant Delay and such certified date shall be the date of Delivery. Landlord shall take such measures as Landlord determines are commercially reasonable under the circumstances, without cost or expense to Landlord, to mitigate the effects of any Tenant Delay.

4. **Changes.** Any changes requested by Tenant to the Tenant Improvements after the delivery and approval by Landlord of the TI Design Drawings shall be requested and instituted in accordance with the provisions of this Section 4 and shall be subject to the written approval of Landlord and the TI Architect, such approval not to be unreasonably withheld, conditioned or delayed.

(a) **Tenant's Request for Changes.** If Tenant shall request changes to the Tenant Improvements ("**Changes**"), Tenant shall request such Changes by notifying Landlord in writing in substantially the same form as the AIA standard change order form (a "**Change Request**"), which Change Request shall detail the nature and extent of any such Change. Such Change Request must be signed by Tenant's Representative. Landlord shall, before proceeding with any Change, use commercially reasonable efforts to respond to Tenant as soon as is reasonably possible with an estimate of: (i) the time it will take, and (ii) the architectural and engineering fees and costs that will be incurred, to analyze such Change Request (which costs shall be paid from the TI Fund to the extent actually incurred, whether or not such change is implemented). Landlord shall thereafter submit to Tenant in writing, within 5 business days of receipt of the Change Request (or such longer period of time as is reasonably required depending on the extent of the Change Request), an analysis of the additional cost or savings involved, including, without limitation, architectural and engineering costs and the period of time, if any, that the Change will extend the date on which Landlord's Work will be TI Substantially Complete. Any such delay in the completion of Landlord's Work caused by a Change, including any suspension of Landlord's Work while any such Change is being evaluated and/or designed, shall be Tenant Delay.

(b) **Implementation of Changes.** If Tenant: (i) approves in writing the cost or savings and the estimated extension in the time for completion of Landlord's Work, if any, and (ii) deposits with Landlord any Excess TI Costs required in connection with such Change, Landlord shall cause the approved Change to be instituted. Notwithstanding any approval or disapproval by Tenant of any estimate of the delay caused by such proposed Change, the TI Architect's determination of the amount of Tenant Delay in connection with such Change shall be final and binding on Landlord and Tenant.

5. Costs.

(a) **Budget for Tenant Improvements.** Before the commencement of construction of the Tenant Improvements, Landlord shall obtain a detailed breakdown by trade of the costs incurred or that will be incurred in connection with the design and construction of the Tenant Improvements (the "**Budget**"). The Budget shall be based upon the TI Construction Drawings approved by Tenant and shall include a payment to Landlord of administrative rent ("**Administrative Rent**") equal to 3% of the TI Costs for managing, monitoring, and inspecting the

construction of the Tenant Improvements and Changes, which sum shall be payable from the TI Fund (as defined in Section 5(d)). Administrative Rent shall include, without limitation, all out-of-pocket costs, expenses and fees incurred by or on behalf of Landlord arising from, out of, or in connection with monitoring the construction of the Tenant Improvements and Changes, and shall be payable out of the TI Fund. Administrative Rent shall also include the costs of utilities used in the Premises, and during the period of construction of the Tenant Improvements through the date that the Tenant Improvements are TI Substantial Completed, Tenant shall not be charged separately for such utilities used in the Premises. If the Budget is greater than the TI Allowance, the TI Costs (as defined below) shall be funded on a *pari passu* basis as costs are incurred in accordance with Section 5(e) below.

(b) **TI Allowance.** Landlord shall make available for the payment of the TI Costs a tenant improvement allowance (the “**TI Allowance**”) of \$190.00 per rentable square foot of the Premises; or \$4,349,100.00 in the aggregate. Within 5 business days of receipt of the Budget from Landlord, Tenant shall notify Landlord how much of the TI Allowance Tenant has elected to receive from Landlord. Such election shall be final and binding on Tenant, and may not thereafter be modified without Landlord’s consent, which may be granted or withheld in Landlord’s sole and absolute subjective discretion. The TI Allowance shall be disbursed in accordance with this Work Letter.

Tenant shall have no right to the use or benefit (including any reduction to or payment of Base Rent) of any portion of the TI Allowance not required for the construction of (i) the Tenant Improvements described in the TI Construction Drawings approved pursuant to Section 2(d) or (ii) any approved Changes pursuant to Section 4.

(c) **Test Fit Allowance.** Landlord shall make available for the payment of the costs of the Test Fit a test fit allowance (the “**Test Fit Allowance**”) of \$0.10 per rentable square foot of the Premises, or \$2,289.00 in the aggregate, as provided herein, for the preparation of initial Test Fit and revisions thereto. Landlord shall have no obligation to bear any portion of the cost of the Test Fit in excess of the Test Fit Allowance, and Tenant shall pay Landlord for any costs of the Test Fit in excess of the Test Fit Allowance within 10 business days of the date of invoice therefor. The Test Fit Allowance shall not be included in the TI Allowance.

(d) **Costs Includable in TI Fund.** The TI Fund (as defined in Section 5(e) below) shall be used solely for the payment of the design, planning, engineering, permitting and construction costs in connection with the construction of the Tenant Improvements, including, without limitation, the cost of preparing the TI Design Drawings and the TI Construction Drawings, all costs set forth in the Budget, including Landlord’s Administrative Rent, Landlord’s out-of-pocket expenses, costs resulting from Tenant Delays and the cost of Changes (collectively, “**TI Costs**”). Notwithstanding anything to the contrary contained herein, the TI Fund shall not be used to purchase any furniture, personal property or other non-building system materials or equipment, including, but not limited to, Tenant’s voice or data cabling, non-ducted biological safety cabinets and other scientific equipment not incorporated into the Tenant Improvements.

(e) **Excess TI Costs.** Landlord shall have no obligation to bear any portion of the cost of any of the Tenant Improvements except to the extent of the TI Allowance and Landlord’s obligations with respect to any Construction Defect subject to and in accordance with Section 3(e) above. If at any time the remaining TI Costs under the then-current Budget exceed the remaining unexpended TI Allowance (such excess sometimes referred to herein as “**Excess TI Costs**”), each party’s obligations for payment shall be as set forth in this Section 5(e) and in Section 5(f). The TI Allowance and Excess TI Costs are herein referred to as the “**TI Fund**.” As used in this

Work Letter, **“Landlord’s Portion”** shall equal the Tl Allowance. For purposes of this Work Letter, **“Landlord’s Proportionate Share”** shall mean a fraction, the numerator of which shall be the Landlord’s Portion and the denominator of which shall be the then-current Budget. If at any time Tl Costs under the then-current Budget exceed the Tl Allowance, the difference shall be referred to herein as **“Tenant’s Portion.”** For purposes of this Work Letter, **“Tenant’s Proportionate Share”** shall mean a fraction, the numerator of which is Tenant’s Portion and the denominator of which is the then-current Budget. Upon notice to Tenant, Landlord may equitably adjust Landlord’s Proportionate Share and Tenant’s Proportionate Share from time to time based on changes in the anticipated Tl Costs. After the end of each calendar month, beginning with the month in which Landlord obtains the Budget: (i) Landlord shall determine the Tl Costs incurred for the prior calendar month (and if applicable, for the period prior to Lease execution) (collectively, the **“Total Monthly Costs”**), (ii) Tenant shall reimburse Landlord within the time period set forth in Section 5(f) below for Tenant’s Proportionate Share of Total Monthly Costs, and (iii) Landlord shall pay Landlord’s Proportionate Share of Total Monthly Costs.

(f) **Funding Requisition; Reconciliation; Timely Payment.** Landlord shall submit to Tenant monthly during the performance of the Tenant Improvements a report (each, a **“Reimbursement Notice”**) setting forth in reasonable detail: (i) a computation of the Tl Costs incurred during the prior calendar month, including without limitation costs relating to all requested Changes; (ii) the then-current cumulative Tl Costs; and (iii) Landlord’s calculation of the parties’ respective responsibilities for payment of such costs for such month (i.e., the estimated amounts of Tenant’s Portion and/or Landlord’s Portion due for such month). Each month, Landlord shall prepare a reconciliation of actual Tl Costs with Tl Costs in accordance with the Budget for which Tenant has advanced Tenant’s Proportionate Share, and: (x) in the event of any overpayment by Tenant, then, solely to the extent of any Tenant’s Proportionate Share that Tenant has actually deposited with Landlord, such overpayment shall be credited against the amounts next due hereunder unless construction of the Tenant Improvements is completed, in which case such overpayment shall be promptly refunded to Tenant; and (y) in the event of an underpayment by Tenant, Tenant shall, as a condition precedent to Landlord’s obligation to complete the Tenant Improvements, reimburse Landlord therefor within thirty (30) days of receipt of a Reimbursement Notice. Notwithstanding anything to the contrary set forth in this Section, Tenant shall be fully and solely liable for Tl Costs and the costs of Changes and Minor Variations in excess of the Tl Allowance. Reimbursement Notices may be sent at the beginning of a calendar month for the prior calendar month and shall be submitted no later than the end of each calendar month for the prior calendar month. Upon final completion of the Tenant Improvements (including all Punch List Items), Landlord shall prepare a final reconciliation consisting of a reconciliation of the total costs of the Tenant Improvements. Tenant shall pay to Landlord the amount of Tenant’s Proportionate Share of Total Monthly Costs as set forth in each Reimbursement Notice within thirty (30) days of receipt of each Reimbursement Notice (or such lesser period as may be required to enable Landlord to comply with the Massachusetts “Prompt Pay” legislation). Such payment by Tenant shall be a condition precedent to Landlord’s obligation to complete the Tenant Improvements. If Tenant fails to pay Tenant’s Proportionate Share of Total Monthly Costs as set forth in any Reimbursement Notice within such period, Landlord shall have all of the rights and remedies set forth in the Lease for nonpayment of Rent (including, but not limited to, the right to interest at the Default Rate and the right to assess a late charge, each in accordance with the terms of the Lease). For purposes of any claim made or litigation instituted with regard to Tenant’s Proportionate Share of Total Monthly Costs, such amounts shall constitute Rent under the Lease.

6. Tenant Access.

(a) **Tenant's Access Rights.** Landlord hereby agrees to permit Tenant access, at Tenant's sole risk and expense, to the Building (i) 30 days prior to the Commencement Date to perform any work ("**Tenant's Work**") required by Tenant other than Landlord's Work, provided that such Tenant's Work is coordinated with the TI Architect and the Tenant Improvements Construction Manager, and complies with the Lease and all other reasonable restrictions and conditions Landlord may impose, and (ii) prior to the completion of Landlord's Work, to inspect and observe work in process; all such access shall be during normal business hours or at such other times as are reasonably designated by Landlord. Notwithstanding the foregoing, Tenant shall have no right to enter onto the Premises or the Project unless and until Tenant shall deliver to Landlord evidence reasonably satisfactory to Landlord demonstrating that any insurance reasonably required by Landlord in connection with such pre-commencement access (including, but not limited to, any insurance that Landlord may require pursuant to the Lease) is in full force and effect. Any entry and access by Tenant shall comply with all established safety practices of the Tenant Improvements Construction Manager and Landlord.

(b) **No interference.** Neither Tenant nor any Tenant Party (as defined in the Lease) shall interfere with the performance of Landlord's Work or the work on the Non-TI Project Improvements, nor with any inspections or issuance of final approvals by applicable Governmental Authorities, and upon any such interference, Landlord shall have the right, in addition to other rights and remedies under the Work Letter or Lease, to exclude Tenant and/or any Tenant Party from the Premises and the Project until TI Substantial Completion of Landlord's Work.

(c) **Labor Harmony.** Tenant agrees that any work performed by or on behalf of Tenant or any Tenant Party shall be performed in such manner and by such persons as shall maintain harmonious labor relations at the Project. If labor disharmony arises as a result of non-union labor employed by a subcontractor or other contractor engaged by Tenant or any Tenant Party, and such labor disharmony causes a delay in the construction of the Non-TI Project Improvements or Landlord's Work, such delay shall be a Tenant Delay under this Work Letter. If labor disharmony arises as a result of a contractor or subcontractor engaged by Tenant or any Tenant Party, or if Landlord reasonably believes that a contractor or subcontractor employed by Tenant or any Tenant Party will cause labor disharmony in the Project, Landlord shall have the right, in addition to other rights and remedies under the Work Letter or Lease, to exclude from the Premises and Project such contractor or subcontractor employed by Tenant or any Tenant Party.

(d) **No Acceptance of Premises.** The fact that Tenant may, with Landlord's consent, enter into the Project prior to the date Landlord's Work is TI Substantially Complete for the purpose of performing Tenant's Work shall not be deemed an acceptance by Tenant of possession of the Premises, but in such event Tenant shall defend with counsel reasonably acceptable by Landlord, indemnify and hold Landlord harmless from and against any loss of or damage to Tenant's property, completed work, fixtures, equipment, materials or merchandise, and from liability for death of, or injury to, any person, caused by the act or omission of Tenant or any Tenant Party.

7. Miscellaneous.

(a) **Consents.** Whenever consent or approval of either party is required under this Work Letter, that party shall not unreasonably withhold, condition or delay such consent or approval, unless expressly set forth herein to the contrary.

(b) **Modification.** No modification, waiver or amendment of this Work Letter or of any of its conditions or provisions shall be binding upon Landlord or Tenant unless in writing signed by Landlord and Tenant.

(c) **Default.** Notwithstanding anything set forth herein or in the Lease to the contrary, Landlord shall not have any obligation to perform any work hereunder or to fund any portion of the T1 Fund during any period Tenant is in Default under the Lease.

List of Schedules attached to this Work Letter:

Schedule 1(c)(iii) - List of Shell, Core and Site Construction Documents

Schedule 2(c)-1 - Landlord/Tenant Responsibility Matrix

Schedule 2(c)-2 - Landlord/Tenant Utility Allocation Matrix

Schedule 2(d) - LEED Standards

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Schedule 1(c)(iii).

List of Shell, Core and Site Construction Documents

(attached)

Schedule 1 (c)(iii)
Shell, Core and Site Construction Documents List

NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
DRAWINGS				
GENERAL				
A000	DRAWING LIST	05/06/15	Bull. No. 067BMS	11/11/16
A000A	DRAWING LIST		Bull. No. 067BMS	11/11/16
A000B	ACTIVE DRAWING LIST		Bull. No. 068	1/20/17
GEOTECHNICAL				
GT-1.0	UNDERSLAB DRAINAGE PLAN	05/06/15	Final CD Set	5/6/15
CIVIL				
C-N	PROJECT NOTES	05/06/15	Final CD Set	5/6/15
C-1	EXISTING CONDITIONS PLAN -100 BINNEY STREET	05/06/15	Final CD Set	5/6/15
C-2	SITE PREPARATION PLAN	05/06/15	Final CD Set	5/6/15
C-2A	EROSION AND SEDIMENT CONTROL PLAN	05/06/15	Final CD Set	5/6/15
C-3	BUILDING LAYOUT PLAN	05/06/15	Add'm2	5/29/15
C-4	COMPOSITE UTILITY PLAN -100 BINNEY	05/06/15	ASI-018	6/16/16
C-5	ELECTRIC UTILITY PROFILE PLAN-100 BINNEY	05/06/15	ASI-017	6/16/16
C-6	PRESSURE UTILITY PLAN-100 BINNEY	05/06/15	ASI-053	3/24/17
C-7	GRAVITY PLAN-100 BINNEY STREET	05/06/15	ASI-017	6/16/16
C-9	DETAIL SHEET #1	05/06/15	Final CD Set	5/6/15
C-10	DETAIL SHEET #2	05/06/15	Final CD Set	5/6/15
C-11	DETAIL SHEET #3	05/06/15	Bull. No. 060	5/2/16
C-12	DETAIL SHEET #4	05/06/15	Bull. No. 031BMS	1/19/16
TRANSPORTATION				
T-1	LEGEND AND GENERAL NOTES	05/06/15	Bull. No. 006	9/18/15
T-2	CONSTRUCTION PLAN	05/06/15	Bull. No. 006	9/18/15
T-3	ALIGNMENT AND GRADING PLAN	05/06/15	Bull. No. 006	9/18/15
T-4	TRAFFIC AND SIGNAGE PLAN	05/06/15	Bull. NO. 006	9/18/15
T-5	DETAILS	05/06/15	Bull. No. 006	9/18/15
LANDSCAPE				
L000	LANDSCAPE ARCHITECTURAL NOTES AND	05/06/15	Final CD Set	5/6/15
L100	MATERIALS PLAN	05/06/15	ASI-049R1	4/28/17
L200	LAYOUT PLAN	05/06/15	ASI-049R1	4/28/17
L201	LAYOUT ENLARGEMENT PLAN A	05/06/15	ASI-049	4/14/17
L202	LAYOUT ENLARGEMENT PLAN B	05/06/15	ASI-049	9/18/15
L203	LAYOUT ENLARGEMENT PLAN C	05/06/15	Bull. No. 006	9/18/15
L204	LAYOUT ENLARGEMENT PLAN D	05/06/15	ASI-049R1	4/28/17
L205	LAYOUT ENLARGEMENT PLAN E	05/06/15	ASI-049R1	4/28/17
L206	LAYOUT DETAILS	05/06/15	ASI-049	4/14/17
L207	LAYOUT - CATENARY LIGHTING	05/06/15	Bull. No. 060	5/2/16
L300	GRADING PLAN	05/06/15	ASI-049R1	4/28/17
L400	PLANTING SOIL PLAN	05/06/15	ASM349R1	4/28/17
L401	SOIL AERATION PIPE PLAN	05/06/15	ASI-049R1	4/28/17
L402	PLANTING SOIL DETAILS	05/06/15	Final CD Set	5/6/15
L403	AERATION DETAILS	05/06/15	Final CD Set	5/6/15

Schedule 1 (c)(iii)
Shell, Core and Site Construction Documents List

NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
L500	PLANTING PLAN	05/06/15	ASI-049R1	4/28/17
L501	PLANTING ENLARGEMENTS	05/06/15	ASI-049R1	4/28/17
L502	PLANTING DETAILS	05/06/15	Final CD Set	5/6/15
L600	SITE SECTIONS REFERENCE PLAN	05/06/15	ASI-049R1	4/28/17
L601	SITE SECTIONS A, B, C	05/06/15	ASI-049	4/14/17
L602	SITE SECTIONS D, E	05/06/15	ASI-049	4/14/17
L603	SITE SECTIONS F, 6	05/06/15	ASI-049	4/14/17
L604	SITE SECTIONS H-M	05/06/15	Final CD Set	5/6/15
L605	SITE SECTIONS N, O, P	05/06/15	ASI-049	4/14/17
L606	SITE SECTIONS Q, R, S	05/06/15	ASI-049	4/14/17
L701	PAVEMENT DETAILS	05/06/15	ASI-049	4/14/17
L702	PAVEMENT DETAILS	05/06/15	Add'm 2	5/29/15
L801	SITE DETAILS - FURNISHINGS	05/06/15	Add'm 2	5/29/15
L802	SITE DETAILS - METAL BENCH	05/06/15	Final CD Set	5/6/15
L803	SITE DETAILS - METAL BENCH	05/06/15	Final CD Set	5/6/15
L804	SITE DETAILS - PLANT BED RAIL	05/06/15	Bull. No. 006	9/18/15
L805	SITE DETAILS-BIKE RACK	05/06/15	Add'm 2	5/29/15
1101	IRRIGATION PLAN	05/06/15	Bull. No. 060	5/2/16
1102	IRRIGATION DETAILS	05/06/15	Final CD Set	5/6/15
1103	IRRIGATION PUMP SYSTEM	05/06/15	Final CD Set	5/6/15
ARCHITECTURAL				
A001	GENERAL NOTES, ABBREVIATIONS, SYMBOLS	05/06/15	Final CD Set	5/6/15
A002	PERSPECTIVES	05/06/15	Bull. No. 001R1	8/28/15
A003	STUDY VIEWS	05/06/15	Bull. No. 001 Ft 1	8/28/15
A010	CODE SUMMARY	05/06/15	Final CD Set	5/6/15
A011	LIFE SAFETY PLANS LEVEL B3 - LEVEL 1	05/06/15	ASI-031	11/25/16
A012	LIFE SAFETY PLANS LEVEL 2 - LEVEL 6	05/06/15	Bull. No. 067BMS	11/11/16
A013	LIFE SAFETY PLANS LEVEL 7 - LEVEL M2	05/06/15	Bull. No. 065	7/5/16
A020	THERMAL INSULATION PLAN DIAGRAMS LEVELS 1, 2,3 AND 4	05/06/15	Final CD Set	5/6/15
A021	THERMAL INSULATION PLAN DIAGRAM LEVELS 5,6,7 AND M1	05/06/15	Final CD Set	5/6/15
A022	THERMAL INSULATION PLAN DIAGRAM LEVELS M2 AND ROOF	05/06/15	Final CD Set	5/6/15
A030	SPRAY FIRE-RESISTANCE MATERIAL (SFRM) LEVELS B3 -1	05/06/15	Final CD Set	5/6/15
A031	SPRAY FIRE-RESISTANCE MATERIAL (SFRM) LEVELS 2-5	05/06/15	Final CD Set	5/6/15
A032	SPRAY FIRE RESISTANCE MATERIAL (SFRM) LEVELS 6-9	05/06/15	Final CD Set	5/6/15
A033	SPRAY FIRE-RESISTANCE MATERIAL (SFRM) LEVELS 10-RF	05/06/15	Final CD Set	5/6/15
A040	GARAGE PLANS AND SECTIONS WATERPROOFING DIAGRAMS	05/06/15	Bull. No. 005	8/18/15
A041	GARAGE AND LOADING DOCK TRAFFIC COATING DIAGRAMS	05/06/15	Bull. No. 047	5/18/16
A1B3S	LEVEL B3 SLAB EDGE PLAN	05/06/15	Bull. No. 038	12/3/15

Schedule 1 (c)(iii)
Shell, Core and Site Construction Documents List

NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
A1B2S	LEVEL B2 SLAB EDGE PLAN	05/06/15	Bull NO. 056	4/8/16
A1B1S	LEVEL B1 SLAB EDGE PLAN	05/06/15	Bull. No. 047	5/18/16
A101S	LEVEL 1 SLAB EDGE PLAN	05/06/15	ASI-015	6/8/16
	CIP Crash Waif on Slab Edge Plan @ Level 1	11/04/15	Bull. No. 001R1	11/4/15
	Level i Slab edge at garage intake	11/13/15	Bull'. No. 001R1	11/13/15
A101SA	LEVEL 1 PARTIAL SLAB EDGE PLAN	05/06/15	ASI-015	6/8/16
A102S	LEVEL 2 SLAB EDGE PLAN	05/06/15	ASI-015	6/8/16
A103S	LEVEL 3 SLAB EDGE PLAN	05/06/15	Bull. No. 032BMS	8/28/15
A104S	LEVEL4 SLAB EDGE PLAN	05/06/15	Bull. No. 001R1.	2/2/16
	Level 4 and Level 6 Slab Edges		Bull. No. 001R1	1/0/00
A105S	LEVEL 5 SLAB EDGE PLAN	05/06/15	Bull. No. 001R1	8/28/15
A106S	LEVEL 6'SLAB EDGE PLAN	05/66/15	Bull. No. 061	4/6/16
A107S	LEVEL 7 SLAB EDGE PLAN	05/06/15	Bull. No. 001R1	8/28/15
	Level 7 Northwest Edge of Slab (8-10 Similar}		But). No. 001R1	1/0/00
A108S	LEVEL 8 SLAB EDGE PLAN	05/06/15	Bull. No. 001R1	8/28/15
A109S	LEVEL 9 SLAB EDGE PLAN	05/06/15	Bull. No. 001R1	8/28/15
A110S	LEVEL 10 SLAB EDGE PLAN	05/06/15	Bull. No. 001R1	8/28/15
A111S	LEVEL M1 SLAB EDGE PLAN	05/06/15	Bull. NO. 017	11/4/15
A112S	LEVEL M2 SLAB EDGE PLAN	05/06/15	Bull. No. 001R1	8/28/15
A113S	ROOF SLAB EDGE PLAN		Bull. No. 039	2/18/16
A1B3	LEVEL B3 PLAN	05/06/15	Bull. No. 065	7/5/16
A1B2	LEVEL B2 PLAN	05/06/15	ASI-02S	10/6/16
A1B1	LEVEL B1 PLAN	05/06/15	Bulletin'072	3/14/17
A101	LEVEL 1 PLAN	05/06/15	ASI-049	4/14/17
A102	LEVEL 2 PLAN	05/06/15	Bull. No,067BMS	11/11/16
	Elevator 9 Typical Plan (Updated in Bull. No. 049)		Bull. No. 001R1	2/9/16
A103	LEVEL 3 PLAN	05/06/15	ASI-009	5/4/16
	Curb and Waterproofing for Vortex Strainers in Plumbing Rm		Bull. No. 024BMS	12/4/15
A104	LEVEL 4 PLAN	05/06/15	ASI-009	5/4/16
	Precast dimensions			1/0/00
A105	LEVEL 5 PLAN	05/06/15	Bull. No. 056	4/8/16
	Precast dimensions			1/6/00
A106	LEVEL 6 PLAN	05/06/15	Bull. No. 064	5/19/16
	Precast dimensions			1/0/00
A107	LEVEL 7 PLAN	05/06/15	Bull. No. 056	4/8/16
	Precast dimensions			1/0/00
A108	LEVEL 8 PLAN	05/06/15	Bull. No. 056	4/8/16
	Precast dimensions			1/0/00
A109	LEVEL 9 PLAN	05/06/15	Bull. No. 056	4/8/16
	Precast dimensions			1/0/00
A110	LEVEL 10 PLAN	05/06/15	Bull. No. 056	4/8/16
	Precast dimensions			1/0/00
A111	LEVEL M1 PLAN	05/06/15	Bull. No. 052R1	12/22/16

Schedule 1 (c)(iii)
Shell, Core and Site Construction Documents List

NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
A111a	LEVEL M1 WINDOW WASHING ANCHOR PLAN		ASI-010	8/18/16
A112	LEVEL M2 PLAN	05/06/15	Bull. No. 071	4/7/17
A113	ROOF PLAN	05/06/15	Bull. No. 039	2/18/16
A12B3	LEVEL B3RCP	05/06/15	Bull. No. 047	5/18/16
A12B2	LEVEL B2 RCP	05/06/15	Bull. No. 047	5/18/16
A12B1	LEVEL B1RCP	05/06/15	ASI-056	4/13/17
A121	LEVEL 1 RCP	05/06/15	ASI-060	4/14/17
A121B	LEVEL 1 ENLARGED RCP	05/06/15	Bull. No. 044	3/25/16
A122	LEVEL 2 RCP	05/06/15	ASi-050	3/23/17
A124	LEVEL 4 RCP (LEVELS 3-5 SIM INTERIOR)	05/06/15	ASI-009	5/4/16
A126	LEVEL 6 RCP (LEVELS 7-10 SIM INTERIOR)	05/06/15	Bull No. 056	4/8/16
A126B	Level 8 RCP		Bull No. 056	4/8/16
A127	LEVEL M1 RCP	05/06/15	Bull No. 052	4/4/16
A128	LEVEL M2 RCP	05/06/15/	Bull No. 052	4/4/16
A201	BUILDING ELEVATION NORTH	05/06/15	Bull No. 057	4/5/16
	Typical Glass Type Location			
	Glass Types Legend			
A201A	BUILDING ELEVATION NORTH CURTAIN WALL PATTERN RHYTHM	05/06/15	Bull. No. 029	12/22/15
A202	BUILDING ELEVATION SOUTH	05/06/15	ASI-042	2/9/17
	Valance			
A202A	BUILDING ELEVATION SOUTH CURTAIN WALL PATTERN RHYTHM			
A203	BUILDING ELEVATION EAST	05/06/15	ASI-042	2/9/17
A203A	BUILDING ELEVATION EAST CURTAIN WALL PATTERN RHYTHM	05/06/15	Bull. No. 029R1	1/28/16
A204	BUILDING ELEVATION WEST	05/06/15	ASI-010	8/18/16
A204A	BUILDING ELEVATION WEST CURTAIN WALL PATTERN RHYTHM	05/06/15	Bull No. 029R1	1/28/16
A205	LIGHTING ELEVATIONS	05/06/15	Bull No.051	4/5/16
A206	PENTHOUSE ELEVATIONS	05/06/15	Bull No. 057	4/5/16
A301	BUILDING SECTION	05/06/15	Final CD Set	5/5/16
A302	CROSS SECTION	05/06/15	Final CD Set	5/5/16
A303	BUILDING SECTIONS	05/06/15	Final CD Set	5/6/15
A304	SECTIONS – GARAGE RAMP	05/06/15	Bull. No 001R1	8/28/15
A401A	WALL SECTIONS AND ENLARGED ELEVATIONS	05/06/15	Bull No. 029R1	1/28/16
A401B	WALL SECTIONS AND ENLARGED ELEVATIONS	05/06/15	Bull. No. 029	12/22/15
A402	WALL SECTIONS AND ENLARGED ELEVATIONS	05/06/15	ASI-016	6/14/16
A403A	WALL SECTIONS AND ENLARGED ELEVATIONS	05/06/15	Bull No 029R1	1/28/16
A403B	WALL SECTIONS AND ENLARGED ELEVATIONS	05/06/15	Bull. No. 029R1	1/28/16

Schedule 1 (c)(iii)
Shell, Core and Site Construction Documents List

NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
A404	WALL SECTIONS AND ENLARGED ELEVATIONS	05/06/15	ASI-015	6/8/16
A405	WALL SECTIONS AND ENLARGED ELEVATIONS	05/06/15	Bull. No.029R1	1/28/16
A406	WALL SECTIONS AND ENLARGED ELEVATIONS	05/06/15	Bull No. 029R1	1/28/16
A411	LOADING DOCK SECTION	05/06/15	ASI-031	11/25/16
A420	PERFORMANCE MOCK-UP DETAILS		Bull. No 029R1	8/6/15
	Elevation Detail of 35% Privacy Frit			8/6/15
	Section Through Curtainwall-Typical Parapet			1/0/00
A421	PERFORMANCE MOCK-UP BRICK COURSING DETAILS		Bull No. 007R1	12/3/15
A451	ENLARGED PLANS	05/06/15	Final CD Set	5/6/15
A452	ENLARGED PLANS	11/04/15	ASI-029	10/13/16
	Steel at Entry Vestibule	11/04/15		11/4/15
A453	ENLARGED PLANS	05/06/15	Bull No. 029	12/22/15
A454	ENLARGED PLANS	05/06/15	ASI-007	4/11/16
A455	ENLARGED PLANS	05/06/15	ASI-009	5/4/16
A456	ENLARGED PLANS	05/06/15	Bull. No. 029R1	1/28/16
A457	ENLARGED PLANS	05/06/15	ASI-007	4/11/16
A458	ENLARGED PLANS	05/06/15	ASI-015	6/8/16
A459	ENLARGED PLANS	05/06/15	ASI-020	8/18/16
A501	EXTERIOR SECTION DETAILS - CURTAINWALL	05/06/15	Bull. No. 061	4/6/16
A502	EXTERIOR SECTION DETAILS - PRECAST PANELS	05/06/15	Bull. No. 029R1	1/28/16
A503	EXTERIOR SECTION DETAILS - METAL PANEL AND STONE VENEER	05/06/15	ASI-007	4/11/16
A504	EXTERIOR SECTION DETAILS	05/06/15	ASI-007	4/11/16
A504A	EXTERIOR SECTION DETAILS AT ENTRY CANOPY		Bull. No. 029	12/22/15
A505	EXTERIOR SECTION DETAILS - AT GRADE	05/06/15	ASI-006	4/12/16
A506	EXTERIOR SECTION DETAILS - MISC	05/06/15	ASI-049	4/14/17
A507	WEST FACADE EXTERIOR DETAILS	05/06/15	ASI-006	4/12/16
A508	TYPICAL ROOF DETAILS	05/06/15	Bull. No. 001R1	8/28/15
A509	FOUNDATION WATERPROOFING DETAILS		Bull. No. 005	8/18/15
A551	EXTERIOR PLAN DETAILS	05/06/15	ASI-015	6/8/16
A552	EXTERIOR PLAN DETAILS	05/06/15	ASI-007	4/11/16
A553	EXTERIOR PLAN DETAILS	05/06/15	ASI-009	5/4/16
A600	MOUNTING HEIGHT DETAILS	05/06/15	Bull. NO. 001R1	8/28/15
A601	ENLARGED LEVEL 1 PLAN	05/06/15	ASI-031	11/25/16
A602	ENLARGED LEVEL 2 PLAN	05/06/15	Bull. No. 067BMS	11/11/16
A603	TYPICAL CORE PLAN - LEVELS 3-10	05/06/15	ASI-046	3/1/17
A6B3F	LEVEL B3 FINISHES PLAN	05/06/15	Bull. No. 044R1	5/27/16
A6B2F	LEVEL B2 FINISHES PLAN	05/06/15	Bull. No. 047	5/18/16
A6B1F	LEVEL B1 FINISHES PLAN	05/06/15	Bull. No. 044R1	5/27/16

Schedule 1 (c)(iii)
Shell, Core and Site Construction Documents List

NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
A601F	ENLARGED LEVEL 1 FINISHES PLAN	05/06/15	Bull. NO. 052R1	12/22/16
A602F	ENLARGED LEVEL 2 FINISH PLAN	05/06/15	Bull. NO. 070	2/21/17
A603F	ENLARGED TYPICAL CORE FINISHES PLAN LEVELS 3-10	05/06/15	ASI-048	3/8/17
A610	INTERIOR ELEVATIONS AT LOBBY	05/06/15	Bull. No. 070	2/21/17
A611	INTERIOR ELEVATIONS	05/06/15	ASI-022	8/23/16
A612	TYPICAL RESTROOM PLANS AND INTERIOR ELEVATIONS	05/06/15	ASI-046	3/1/17
A612A	RESTROOM PLANS AND INTERIOR FINISHES		ASI-020	8/18/16
A613	TYPICAL GARAGE LOBBY PLAN AND INTERIOR ELEVATIONS	05/06/15	Bull. No. 056	4/8/16
A614	SHOWER AND LOCKER ROOMS	05/06/15	Bull. No. 001R1	8/28/15
A615	VAULT ROOM PLAN	05/06/15	Add'm 2	5/29/15
A616	SECTIONS AT CORRIDOR B119 & GARAGE EXHAUST	05/06/15	ASI-009	5/4/16
A620	LEVEL 1 GARAGE ENTRY PLAN	05/06/15	Bull. No. 001R1	8/28/15
A621	LEVEL B1 - GARAGE ACCESS ISLAND	05/06/15	Bull.No.01R1	8/28/15
A625	LEVEL B3-STRIPING PLAN	05/06/15	Bull. No. 0047	5/18/16
A626	LEVEL B2-STRIPING PLAN	05/06/15	ASI-045	2/24/17
A627	LEVEL B1-STRIPING PLAN	05/06/15	Bull. No. 047	5/18/16
A630	LOBBY INTERIOR DETAILS	05/06/15	Bull. No. 070	2/21/17
A630A	LOBBY RECEPTION DESK & PERFORATED PANELS		ASI-025	9/21/16
A631	LOBBY INTERIOR DETAILS	05/06/15	Bull. No. 070	2/21/17
A631A	COMMUNITY TABLE MILLWORK		Bull. No. 044	3/25/16
A635	ELEVATOR CAB DETAILS	05/06/15	Bull. No. 044R2	6/24/16
A650	PARTITION TYPES	05/06/15	Bull. No. 065	7/5/16
A660	ROOM FINISH SCHEDULE		ASI-048	3/8/17
A701	STAIR 1 SECTIONS AND PLANS	05/06/15	ASI-064	4/25/17
A702	STAIR 2 SECTIONS AND PLANS	05/06/15	ASI-064	4/25/17
A703	STAIR SECTIONS AND PLANS		ASI-027	10/3/16
A704	COOLING TOWER GRATING DETAILS		Bulletin No. 071	4/7/17
A750	TYPICAL STAIR DETAILS	05/06/15	Final CD Set	5/6/15
A760	ELEVATOR PLANS AND SECTIONS		Bull. No. 002R1	11/3/15
A761	ELEVATOR PLANS AND SECTIONS		ASI-028	10/6/16
A762	ELEVATOR PLANS AND SECTIONS		ASI-028	10/6/16
A802	DOOR SCHEDULE, DOOR AND FRAME TYPES	05/06/15	ASI-040	3/2/17
A803	TYPICAL DOOR FRAME AND FLOORING DETAILS	05/06/15	ASI-023	9/2/16
A804	DOOR DETAILS		ASI-010R1	9/1/16
A810	PRECAST PANELS	05/06/15	Bull, NO. 029	12/22/15
A811	PRECAST PANELS	05/06/15	Bull. No. 029	12/22/15
A812	BRICK COURSING ELEVATIONS - WEST AND SOUTH		Bull. No. 029R1	1/28/16
A813	BRICK COURSING ELEVATIONS - SOUTH		Bull. No. 029	12/22/15

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NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
A814	BRICK COURSING ELEVATION - EAST		Bull. No. 029	12/22/15
A815	CURTAINWALL DATUMS		Bull. No. 029R1	1/28/16
A820	UNITIZED CURTAIN WALL TYPES		Bull. No. 029	12/22/15
A821	UNITIZED CURTAIN WALL TYPES	05/06/15	Bull. No. 029	12/22/15
A822	UNITIZED CURTAIN WALL TYPES	05/06/15	Bull. No. 029R1	1/28/16
A823	UNITIZED CURTAIN WALL TYPES	05/06/15	Bull. No. 029	12/22/15
A824	UNITIZED CURTAIN WALL TYPES	05/06/15	Bull. No. 029	12/22/15
A825	UNITIZED CURTAIN WALL TYPES	05/06/15	Bull. No. 029R1	1/28/16
A826	UNITIZED CURTAIN WALL TYPES	05/06/15	Bull. No. 029R1	1/28/16
A827	UNITIZED CURTAIN WALL TYPES	05/06/15	Bull. No. 029R1	1/28/16
A828	UNITIZED CURTAIN WALL TYPES		Bull. No. 029R1	1/28/16
A829	UNITIZED CURTAIN WALL TYPES		Bull. No. 029R1	1/28/16
A830	UNITIZED CURTAIN WALL TYPES		Bull. No. 029R1	1/28/16
ELEVATORS				
VT01	GENERAL ELEVATOR INFORMATION		Bull. No. 002R1	11/3/15
VT02	PLANS AND HOISTWAY SECTION - ELEVATORS 1-6		Bull. No. 002R1	11/3/15
VT03	PLANS AND HOISTWAY SECTION - ELEVATORS 7-8		Bull. No. 002R1	11/3/15
VT04	PLANS AND HOISTWAY SECTION - ELEVATOR 9		Bull. No. 049	3/2/16
VT05	PLANS AND HOISTWAY SECTION - ELEVATOR 10		Bull. No. 002R1	11/3/15
VT06	PLANS AND HOISTWAY SECTION - ELEVATOR 11		Bull. No. 002R1	11/3/15
STRUCTURAL				
S001	DRAWING INDEX	05/06/15	Add'm 2	5/29/15
	<i>Detail @ Embed Interference w/Slurry Wall Joint</i>			8/7/15
S002	GENERAL NOTES	05/06/15	Bull. No. 010	8/7/15
S1B3	LEVEL B3 FOUNDATION PLAN	05/06/15	Bull. No. 033	11/13/15
S1B2	LEVEL B2 FRAMING PLAN	05/06/15	Bull. No. 047	5/18/16
S1B1	LEVEL B1 FRAMING PLAN	05/06/15	Bull. No. 047	5/18/16
S101	LEVEL 1 FRAMING PLAN	05/06/15	Bull. No. 044	3/25/16
S101a	PARTIAL FRAMING PLANS	05/06/15	Bull. No. 043	2/22/16
S101b	LANDSCAPE CATENARY LIGHTING PARTIAL PLANS	05/06/15	ASI-47	3/17/17
S102	LEVEL 2 FRAMING PLAN	05/06/15	ASI-015	6/8/16
S103	LEVEL 3 FRAMING PLAN	05/06/15	Bull. No. 032BMS	2/2/16
S104	LEVELS FRAMING PLAN	05/06/15	Bull. No. 017	11/4/15
S105	LEVEL 5 FRAMING PLAN	05/06/15	Bull. No. 054	3/15/16
S106	LEVEL 6 FRAMING PLAN	05/06/15	Bull. No. 001R1	8/28/15
S107	LEVEL 7 FRAMING PLAN	05/06/15	Bull. No. 001R1	8/28/15
S108	LEVEL 8 FRAMING PLAN	05/06/15	Bull. No. 001R1	8/28/15
S109	LEVEL 9 FRAMING PLAN	05/06/15	Bull. No. 013	9/18/15
S110	LEVEL 10 FRAMING PLAN	05/06/15	Bull. No. 033	11/13/15
S111	LEVEL M1 FRAMING PLAN	05/06/15	Bull. No. 53	3/30/16

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S112	LEVEL M2 FRAMING PLAN	05/06/15	Bull. No. 071	4/7/17
S113	ROOF FRAMING PLAN	05/06/15	Bull. No. 039	2/18/16
S211	SLURRY WALL ELEVATIONS	05/06/15	Add'm 2	5/29/15
S212	SLURRY WALL SECTIONS AND DETAILS I	05/06/15	Add'm 2	5/29/15
S213	SLURRY WALL SECTIONS AND DETAILS II	05/06/15	Add'm 2	5/29/15
S214	SLURRY WALL SECTIONS AND DETAILS III	05/06/15	Bull. No. 044	3/25/16
S215	SLURRY WALL SECTIONS AND DETAILS IV	05/06/15	Add'm 2	5/29/15
S216	SLURRY WALL SECTIONS AND DETAILS V	05/06/15	Add'm 2	5/29/15
S301	COLUMN SCHEDULE	05/06/15	Add'm 4	6/10/15
S310	LATERAL FRAME ELEVATIONS I	05/06/15	Bull. No. 001R1	8/28/15
S311	LATERAL FRAME ELEVATIONS II	05/06/15	Bull. No. 033	11/13/15
S401	TYPICAL CONCRETE DETAILS I	05/06/15	Add'm 2	5/29/15
S402	TYPICAL CONCRETE DETAILS II	05/06/15	Bull. No. 033	11/13/15
S403	TYPICAL CONCRETE DETAILS III	05/06/15	Final CD Set	5/6/15
S501	TYPICAL STEEL DETAILS I	05/06/15	Final CD Set	5/6/15
S502	TYPICAL STEEL DETAILS II	05/06/15	Final CD Set	5/6/15
S503	TYPICAL STEEL DETAILS III	05/06/15	Add'm 2	5/29/15
S504	TYPICAL STEEL DETAILS IV	05/06/15	Bull. No. 001R1	8/28/15
S505	TYPICAL STEEL DETAILS V	05/06/15	Bull. No. 033	11/13/15
S511	COMPOSITE JOIST ELEVATIONS I	05/06/15	Bull. No. 001R1	8/28/15
S512	COMPOSITE JOIST ELEVATIONS II	05/06/15	Bull. No. 0328MS	2/2/16
S513	COMPOSITE JOIST SECTIONS AND DETAILS	05/06/15	Bull. No. 010	8/7/15
S601	SECTIONS AND DETAILS I	05/06/15	Bull. No. 017	11/4/15
S602	SECTIONS AND DETAILS II	05/06/15	ASI-015	6/8/16
S603	SECTIONS AND DETAILS III	05/06/15	Bull. No. 001R1	8/28/15
S604	SECTIONS AND DETAILS IV	05/06/15	Bull. No. 019	1/19/16
S611	TYPICAL CURTAIN WALL/ PRECAST SECTION DETAILS	05/06/15	ASI-015	6/8/16
S621	LANDSCAPE CATENARY LIGHTING SECTIONS AND DETAILS	05/06/15	ASI-047	3/17/17
S701	TYPICAL ARCHITECTURAL PRECAST CONNECTION DETAILS	05/06/15	Final CD Set	5/6/15
FIRE PROTECTION				
FP000	FIRE PROTECTION LEGEND, SYMBOLS AND	05/06/15	Add'm 2	5/29/15
FP1B3	FIRE PROTECTION LEVEL B3 PLAN	05/06/15	Final CD Set	5/6/15
FP1B2	FIRE PROTECTION LEVEL B2 PLAN	05/06/15	ASI-054	3/27/17
FP1B1	FIRE PROTECTION LEVEL B1 PLAN	05/06/15	ASI-054	3/27/17
FP101	FIRE PROTECTION LEVEL 1 PLAN	05/06/15	Bull. No. 052R1	12/22/16
FP102	FIRE PROTECTION LEVEL 2 PLAN	05/06/15	ASI-050	3/23/17
	<i>Fire Protection 2nd Floor</i>			2/2/16
FP103	FIRE PROTECTION LEVEL 3 PLAN	05/06/15	Bull. No. 001R1	8/28/15
FP104	FIRE PROTECTION LEVEL 4 PLAN	05/06/15	ASI-037	1/20/17
FP105	FIRE PROTECTION LEVEL 5 PLAN	05/06/15	Add'm 2	5/29/15
FP106	FIRE PROTECTION LEVEL 6 PLAN	05/06/15	Add'm 2	5/29/15
FP107	FIRE PROTECTION LEVEL 7 PLAN	05/06/15	Add'm 2	5/29/15

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FP108	FIRE PROTECTION LEVEL 8 PLAN	05/06/15	Add'm 2	5/29/15
FP109	FIRE PROTECTION LEVEL 9 PLAN	05/06/15	Final CD Set	5/6/15
FP110	FIRE PROTECTION LEVEL 10 PLAN	05/06/15	Final CD Set	5/6/15
FP111	FIRE PROTECTION LEVEL M1 PLAN	05/06/15	Bull. No. 046	2/24/16
FP112	FIRE PROTECTION LEVEL M2 PLAN	05/06/15	Bull. No. 046	2/24/16
FP400	FIRE PROTECTION RISER DIAGRAM	05/06/15	Bull. No. 046	2/24/16
FP500	FIRE PROTECTION SCHEDULES, GRAPHS & FIRE PUMP ROOM	05/06/15	Add'm 2	5/29/15
FP600	FIRE PROTECTION DETAILS SHEET 1	05/06/15	Final CD Set	5/6/15
FP601	FIRE PROTECTION DETAILS SHEET 2	05/06/15	Final CD Set	5/6/15
PLUMBING				
P000	PLUMBING LEGEND, SYMBOLS & ABBREVIATIONS	05/06/15	Final CD Set	5/6/15
P1B3	PLUMBING LEVEL B3 PLAN	05/06/15	Bull. No. 047	5/18/16
P1B2	PLUMBING LEVEL B2 PLAN	05/06/15	Bull. No. 047	5/18/16
P1B1	PLUMBING LEVEL B1 PLAN	05/06/15	Bull. No. 069	1/20/17
P101	PLUMBING LEVEL 1 PLAN	05/06/15	Bull. No. 069	1/20/17
P102	PLUMBING LEVEL 2 PLAN	05/06/15	ASI-029	10/13/16
P103	PLUMBING LEVEL 3 PLAN	05/06/15	ASI-029	10/13/16
P104	PLUMBING LEVEL 4 PLAN	05/06/15	Bull. No. 056	4/8/16
P105	PLUMBING LEVEL 5 PLAN	05/06/15	Bull. No. 056	4/8/16
P106	PLUMBING LEVEL 6 PLAN	05/06/15	Bull. No. 056	4/8/16
P107	PLUMBING LEVEL 7 PLAN	05/06/15	Bull. No. 056	4/8/16
P108	PLUMBING LEVEL 8 PLAN	05/06/15	Bull. No. 056	4/8/16
P109	PLUMBING LEVEL 9 PLAN	05/06/15	Bull. No. 056	4/8/16
P110	PLUMBING LEVEL 10 PLAN	05/06/15	Bull. No. 056	4/8/16
P111	PLUMBING LEVEL M1 PLAN	05/06/15	ASI-029	10/13/16
P112	PLUMBING LEVEL M2 PLAN	05/06/15	ASI-029	10/13/16
P200	PLUMBING ENLARGED PART PLANS	05/06/15	Bull. No. 056	4/8/16
P201	PLUMBING ISOMETRICS	05/06/15	Bull. No. 024BMS	12/4/15
P300	PLUMBING SECTIONS	05/06/15	Final CD Set	5/6/15
P400	PLUMBING RAIN WATER RISER DIAGRAM	05/06/15	Bull. No. 024BMS	12/4/15
P401	PLUMBING SANITARY AND VENT RISER DIAGRAM	05/06/15	Final CD Set	5/6/15
P402	PLUMBING NATURAL GAS RISER DIAGRAM	05/06/15	Bull. No. 014	9/25/15
P403	PLUMBING DOMESTIC AND NON-POTABLE RISER DIAGRAM	05/06/15	Add'm 2	5/29/15
P404	PLUMBING RAINWATER RECLAIM SYSTEM FLOW DIAGRAM	05/06/15	Final CD Set	5/6/15
P500	PLUMBING SCHEDULES	05/06/15	Bull. No. 014	9/25/15
P600	PLUMBING DETAILS SHEET 1	05/06/15	Bull. No. 014	9/25/15
P601	PLUMBING DETAILS SHEET 2	05/06/15	Final CD Set	5/6/15
P602	PLUMBING DETAILS SHEET 3	05/06/15	ASI-039	1/23/17
MECHANICAL				
M000	MECHANICAL LEGEND	05/06/15	Add'm 2	5/29/15
M1B3	MECHANICAL LEVEL 63 PLAN	05/06/15	Bull. 008	7/29/15

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NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
M1B2	MECHANICAL LEVEL B2 PLAN	05/06/15	Bull, No. 037	1/19/16
	<i>Level B2 Supply & Exhaust Air Bulletin #28</i>			1/0/00
M1B1	MECHANICAL LEVEL B1 PLAN	05/06/15	Bull. No. 062	7/6/16
	<i>Level B2 Supply & Exhaust Air Bulletin #28</i>			7/1/16
M101	MECHANICAL LEVEL 1 PLAN	05/06/15	ASI-061	4/19/17
	<i>Loading Dock Air Door Revision</i>			1/0/00
M102	MECHANICAL LEVEL 2 PLAN	05/06/15	ASI-050	3/23/17
	<i>Level 2 Duct Layout Change</i>		Bull. No. 031BMS	2/2/16
M103	MECHANICAL LEVEL 3 PLAN	05/06/15	Bull. No. 062	7/6/16
M104	MECHANICAL LEVEL 4 PLAN	05/06/15	Bull. No. 062	7/6/16
M105	MECHANICAL LEVEL 5 PLAN	05/06/15	Bull. No. 062	7/6/16
M106	MECHANICAL LEVEL 6 PLAN	05/06/15	Bull. No. 062	7/6/16
M107	MECHANICAL LEVEL 7 PLAN	05/06/15	Bull. No. 062	7/6/16
M108	MECHANICAL LEVEL 8 PLAN	05/06/15	Bull. No. 062	7/6/16
M109	MECHANICAL LEVEL 9 PLAN	05/06/15	Bull. No. 062	7/6/16
M110	MECHANICAL LEVEL 10 PLAN	05/06/15	Bull. No. 062	7/6/16
Mill	MECHANICAL LEVEL M1 PLAN	05/06/15	Bull. No. 023BMS	7/1/16
M112	MECHANICAL LEVEL M2 PLAN	05/06/15	Bull. No. 023BMS	7/1/16
	<i>Level M2 Generator Sound Attenuator Removal - Bulletin #20</i>			1/21/16
M113	MECHANICAL ROOF PLAN	05/06/15	Final CD Set	5/6/15
M201	MECHANICAL SECTIONS & ENLARGED PLANS	05/06/15	Add'm 2	5/29/15
M202	MECHANICAL SECTIONS & ENLARGED PLANS	05/06/15	Bull. No. 022BMSR2	3/23/16
M203	MECHANICAL SECTIONS & ENLARGED PLANS	05/06/15	Bull. No. 022BMSR2	3/23/16
M204	MECHANICAL SECTIONS & ENLARGED PLANS	05/06/15	Bull. No. 034	1/12/16
M205	MECHANICAL TYPICAL AHU PIPING	05/06/15	Final CD Set	5/6/15
M206	MECHANICAL SECTIONS & ENLARGED PLANS	05/06/15	Bull. No. 022BMSR2	3/23/16
M207	MECHANICAL SECTIONS & ENLARGED PLANS	05/06/15	Bull. No. 022BMSR2	3/23/16
M301	MECHANICAL CHILLED WATER FLOW	05/06/15	Bull. No. 071	4/7/17
M302	MECHANICAL HOT WATER FLOW DIAGRAM	05/06/15	Bull. NO. 022BMSR2	3/23/16
M303	MECHANICAL SUPPLY AIR RISER DIAGRAM	05/06/15	ASI-051	3/23/17
M304	MECHANICAL EXHAUST AIR RISER DIAGRAM	05/06/15	Bull. No. 062	7/6/16
M305	MECHANICAL FLOW DIAGRAM	05/06/15	Bull. No. 066	9/7/16
M306	MECHANICAL HEAT RECOVERY GLYCOL	05/06/15	Bull. NO. 022BMSR2	3/23/16
M308	MECHANICAL STEAM FLOW DIAGRAM		Bull. No. 023BMS	7/1/16
M401	MECHANICAL DETAILS	05/06/15	Final CD Set	5/6/15
M402	MECHANICAL DETAILS	05/06/15	Final CD Set	5/6/15
M403	MECHANICAL DETAILS	05/06/15	Final CD Set	5/6/15
M404	MECHANICAL DETAILS	05/06/15	Bull. No. 014	9/25/15

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M405	MECHANICAL DETAILS	05/06/15	Bull. No. 022BMSR2	3/23/16
M406	MECHANICAL DETAILS		Bull. No. 023BMS	7/1/16
M501	MECHANICAL SCHEDULES	05/06/15	Bull. No. 055	5/20/16
	<i>Sound Attenuator Schedule</i>			1/21/16
M502	MECHANICAL SCHEDULES	05/06/15	Bull. No. 066	9/7/16
	<i>Steam Humidifier Schedule</i>	10/08/15		10/8/15
M503	MECHANICAL SCHEDULES	05/06/15	Bull. No. 022BMSR2	3/23/16
M504	MECHANICAL AHU SCHEDULES	05/06/15	Bull. No. 003	7/29/15
M505	MECHANICAL EXHAUST AHU SCHEDULES	05/06/15	Bull. No. 008	7/29/15
M506	MECHANICAL SCHEDULES		Bull. No. 0233MS	7/1/16
M601	MECHANICAL ISOMETRIC VIEWS	05/06/15	Final CD Set	5/6/15
M602	MECHANICAL ISOMETRIC VIEWS	05/06/15	Final CD Set	5/6/15
M603	MECHANICAL ISOMETRIC VIEWS	05/06/15	Final CD Set	5/6/15
M604	MECHANICAL ISOMETRIC VIEWS	05/06/15	Add'm 2	5/29/15
M605	MECHANICAL ISOMETRIC VIEWS	05/06/15	Final CD Set	5/6/15
	BUILDING CONTROLS			
BC100	MECHANICAL CONTROLS LEGEND SHEET	05/06/15	Add'm 2	5/29/15
BC200	SUPPLY AHU CONTROL	05/06/15	ASI-051	3/23/17
BG201	EXHAUST AHU CONTROL	05/06/15	Bull. No. 066R1	10/31/16
BC202	CHILLER & CONDENSER WATER	05/06/15	Bull. No. 071	4/7/17
BC203	CHILLED AND CONDENSER WATER	05/06/15	ASI-038	1/20/17
BC204	GLYCOL HEAT RECOVERY CONTROL	05/06/15	Bull. No. 022BMSR2	3/23/16
BC205	HOT WATER SYSTEM CONTROLS	05/06/15	Bull. NO.022BMSR2	3/23/16
BC206	TERMINAL UNIT CONTROL	05/06/15	Final CD Set	5/6/15
BC207	MISC. MECHANICAL CONTROLS #1	05/06/15	Final CD Set	5/6/15
BC208	MISC. MECHANICAL CONTROLS #2	05/06/15	Final CD Set	5/6/15
BC209	FUEL OIL SYSTEM CONTROLS	05/06/15	Bull. No. 008	7/29/15
BC210	GARAGE EXHAUST CONTROL	05/06/15	Final CD Set	5/6/15
BC211	MISC MECHANICAL CONTROLS #3	05/06/15	Add'm 2	5/29/15
BC212	EMERGENCY POWER MATRIX		Bull. No. 022BMSR2	3/23/16
BC214	STEAM SYSTEM CONTROLS		Bull. No. 023BMS	7/1/16
BC300	MECHANICAL LIFE SAFETY CONTROLS	05/06/15	Final CD Set	5/6/15
BC301	MECHANICAL LIFE SAFETY CONTROLS	05/06/15	Bull. No. 022BMSR2	3/23/16
BC302	MECHANICAL SMOKE DETECTION MATRIX 1	05/06/15	Final CD Set	5/6/15
BC303	MECHANICAL SMOKE DETECTION MATRIX 2	05/06/15	Final CD Set	5/6/15
BC304	MECHANICAL SMOKE DETECTION MATRIX 3	05/06/15	Bull. No 030	11/10/15
BC305	MECHANICAL SMOKE DETECTION MATRIX 4	05/06/15	Final CD Set	5/6/15
	ELECTRICAL			
E000	ELECTRICAL LEGEND	05/06/15	Add'm 2	5/29/15
E010	ELECTRICAL SITE PLAN	05/06/15	ASI-047	3/17/17
E1B3	ELECTRICAL LEVEL B3 POWER PLAN	05/06/15	Bull. No. 068	1/20/17
E1B3-E	ELECTRICAL LEVEL B3	05/06/15	Final CD Set	5/6/15

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E1B2	ELECTRICAL LEVEL B2 POWER PLAN	05/06/15	Bull. No. 068	1/20/17
E1B1	ELECTRICAL LEVEL B1 POWER PLAN	05/06/15	Bull. No. 068	1/20/17
E1B1-E	ELECTRICAL LEVEL B1	05/06/15	ASI-036	1/11/17
E101	ELECTRICAL LEVEL 1 POWER PLAN	05/06/15	ASI-041	2/17/17
	<i>winch power</i>			
	<i>Air Curtain Power</i>			
E102	ELECTRICAL LEVEL 2 POWER PLAN	05/06/15	Bull. No. 056	4/8/16
E103	ELECTRICAL LEVEL 3 POWER PLAN	05/06/15	Bull. No. 056	4/8/16
E104	ELECTRICAL LEVEL 4 POWER PLAN	05/06/15	Bull. No. 056	4/8/16
E105	ELECTRICAL LEVEL 5 POWER PLAN	05/06/15	Bull. No. 056	4/8/16
E106	ELECTRICAL LEVEL 6 POWER PLAN	05/06/15	Bull. NO. 056	4/8/16
E107	ELECTRICAL LEVEL 7 POWER PLAN	05/06/15	Bull. No. 056	4/8/16
E108	ELECTRICAL LEVEL 8 POWER PLAN	05/06/15	Bull. No. 056	4/8/16
E109	ELECTRICAL LEVEL 9 POWER PLAN	05/06/15	Bull. No. 056	4/8/16
E110	ELECTRICAL LEVEL 10 POWER PLAN	05/06/15	Bull. No. 056	4/8/16
E111	ELECTRICAL LEVEL M1 POWER PLAN	05/06/15	Bull. No, 068	1/20/17
E112	ELECTRICAL LEVEL M2 POWER PLAN	05/06/15	Bull. No. 055	4/14/17
E2B3	ELECTRICAL LEVEL B3 LIGHTING PLAN	05/06/15	Add'm 2	5/29/15
E2B2	ELECTRICAL LEVEL B2 LIGHTING PLAN	05/06/15	Bull. No. 035	1/19/16
E2B1	ELECTRICAL LEVEL B1 LIGHTING PLAN	05/06/15	Bull. No. 047	5/18/16
E201	ELECTRICAL LEVEL 1 LIGHTING PLAN	05/06/15	ASI-060	4/14/17
E202	ELECTRICAL LEVEL 2 LIGHTING PLAN	05/06/15	ASt-024	9/20/16
E203	ELECTRICAL LEVEL 3 LIGHTING PLAN	05/06/15	Bull. No. 001R1	8/28/15
E204	ELECTRICAL LEVEL 4 LIGHTING PLAN	05/06/15	Bull. No. 001R1	8/28/15
E205	ELECTRICAL LEVEL 5 LIGHTING PLAN	05/06/15	Bull. No. 001R1	8/28/15
E206	ELECTRICAL LEVEL 5 LIGHTING PLAN	05/06/15	Bull. No. 001R1	8/28/15
E207	ELECTRICAL LEVEL 7 LIGHTING PLAN	05/06/15	Bull. No. 001R1	8/28/15
E208	ELECTRICAL LEVEL 8 LIGHTING PLAN	05/06/15	Bull. No. 001R1	8/28/15
E209	ELECTRICAL LEVEL 9 LIGHTING PLAN	05/06/15	Bull. No. 001R1	8/28/15
E210	ELECTRICAL LEVEL 10 LIGHTING PLAN	05/06/15	Bull. NO. 001R1	8/28/15
E211	ELECTRICAL LEVEL M1 LIGHTING PLAN	05/06/15	Bull. No. 022BMSR2	3/23/16
E212	ELECTRICAL LEVEL M2 LIGHTING PLAN	05/06/15	Bull. No. 022BMS	1/20/16
E213	ELECTRICAL NORTH ELEVATION EXTERIOR LIGHTING PLAN	05/06/15	Final CD Set	5/6/15
E214	ELECTRICAL EAST ELEVATION EXTERIOR LIGHTING PLAN	05/06/15	Bull. No 051R1	11/16/16
E215	ELECTRICAL SOUTH ELEVATION EXTERIOR LIGHTING PLAN	05/06/15	Final CD Set	5/6/15
E216	ELECTRICAL WEST ELEVATION EXTERIOR LIGHTING PLAN	05/06/15	Final CD Set	5/6/15
E3B3	ELECTRICAL LEVEL B3 FIRE ALARM PLAN	05/06/15	Final CD Set	5/6/15
E3B2	ELECTRICAL LEVEL B2 FIRE ALARM PLAN	05/06/15	Add'm 2	5/29/15
E3B1	ELECTRICAL LEVEL B1 FIRE ALARM PLAN	05/06/15	Bull. No. 047	5/18/16
E301	ELECTRICAL LEVEL 1 FIRE ALARM PLAN	05/06/15	Bull. No. 069	1/20/17
E302	ELECTRICAL LEVEL 2 FIRE ALARM PLAN	05/06/15	Bull. No. 067BMS	11/11/16
E303	ELECTRICAL LEVEL 3 FIRE ALARM PLAN	05/06/15	Bull. No. 027BMS	11/20/15

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Shell, Core and Site Construction Documents List

NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
E304	ELECTRICAL LEVEL 4 FIRE ALARM PLAN	05/06/15	Bull. No. 049	3/2/16
E305	ELECTRICAL LEVEL 5 FIRE ALARM PLAN	05/06/15	Bull. No. 049	3/2/16
E306	ELECTRICAL LEVEL 6 FIRE ALARM PLAN	05/06/15	Bull. No. 049	3/2/16
E307	ELECTRICAL LEVEL 7 FIRE ALARM PLAN	05/06/15	Bull. No. 049	3/2/16
E308	ELECTRICAL LEVEL 8 FIRE ALARM PLAN	05/06/15	Bull. No. 049	3/2/16
E309	ELECTRICAL LEVEL 9 FIRE ALARM PLAN	05/06/15	Bull. No. 049	3/2/16
E310	ELECTRICAL LEVEL 10 FIRE ALARM PLAN	05/06/15	Bull. NO. 049	3/2/16
E311	ELECTRICAL LEVEL M1 FIRE ALARM PLAN	05/06/15	Bull. NO. 050	6/21/16
E312	ELECTRICAL LEVEL M2 FIRE ALARM PLAN	05/06/15	Final CD Set	5/6/15
E400	ELECTRICAL SERVICE RISER DIAGRAM	05/06/15	Bull. No. 063	9/1/16
E401	ELECTRICAL RISER DIAGRAM	05/06/15	Bull. No. 063	9/1/16
E402	ELECTRICAL RISER DIAGRAM		Bull. No. 066	9/7/16
E405	ELECTRICAL FIRE ALARM RISER	05/06/15	Bull. No. 050	6/21/16
E406	ELECTRICAL FIRE ALARM INPUT/OUTPUT MATRIX	05/06/15	Bull. No. 050	6/21/16
E407	LIGHTING CONTROL RISER DIAGRAM AND SCHEDULES	05/06/15	Bull. No. 051R1	11/16/16
E500	ELECTRICAL CIRCUIT SCHEDULES AND NOTES	05/06/15	Final CD Set	5/6/15
E510	ELECTRICAL MECHANICAL SCHEDULES 1	05/06/15	RFI293	7/7/16
E511	ELECTRICAL MECHANICAL SCHEDULES 2	05/06/15	Bull. No. 066	9/7/16
E520	ELECTRICAL PANELBOARD SCHEDULES	05/06/15	Bull. No. 023BMS	7/1/16
E521	ELECTRICAL SCHEDULE	05/06/15	Bull. No. 008	7/29/15
E530	ELECTRICAL LIGHTING FIXTURE SCHEDULE AND NOTES	05/06/15	ASI-031	11/25/16
E600	ELECTRICAL DETAILS	05/06/15	Final CD Set	5/6/15
E601	ELECTRICAL DETAILS	05/06/15	Final CD Set	5/6/15
E602	ELECTRICAL ENLARGED PART PLANS	05/06/15	Add'm 2	5/29/15
E603	ELECTRICAL ENLARGED PART PLANS	05/06/15	Final CD Set	5/6/15
E604	ELECTRICAL ENLARGED PART PLANS	05/06/15	Final CD Set	5/6/15
E800	ELECTRICAL ROOF PLAN POWER	05/06/15	Bull. No. 039	2/18/16
E801	PV SYSTEM RISER DIAGRAM	05/06/15	Bull. No. 039	2/18/16
E803	PV SYSTEM DETAILS	05/06/15	Final CD Set	5/6/15
SECURITY				
SEC001	SECURITY SPECIFICATIONS AND LEGEND	05/06/15	Bull. No. 037	1/19/16
SEC1B3	SECURITY LEVEL B3	05/06/15	Bull. No. 015-R1	12/15/15
SEC1B2	SECURITY LEVEL B2	05/06/15	Bull. No. 015-R1	12/15/15
SEC1B1	SECURITY LEVEL B1	05/06/15	Bull. No. 037	1/19/16
SEG101	SECURITY LEVEL 1	05/06/15	Bull. No. 047	5/18/16
SEC102	SECURITY LEVEL 2 details	05/07/15	Bull. No. 067BMS	11/11/16
SEC111	SECURITY LEVEL M1	05/06/15	Add'm 2	5/29/15
SEC200	SECURITY RISER	05/06/15	Bull. No. 047	5/18/16
SEC201	SECURITY DETAILS	05/06/15	Bull. No. 037	1/19/16
SEC202	SECURITY DETAILS	05/07/15	Bull. No. 067BMS	11/11/16
TEL/DATA				
TD001	TEL/DATA SPECIFICATIONS AND LEGEN D	05/06/15	Bull. No. 068	1/20/17

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NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
TD183	TEL-DATA LEVEL B3 PLAN	05/06/15	Final CD Set	5/6/15
TD1B2	TEL-DATA LEVEL B2 PLAN	05/06/15	ASI-024	9/20/16
TD1B1	TEL-DATA LEVEL B1 PLAN	05/06/15	Bull. No. 068	1/20/17
TD101	TEL-DATA LEVEL 1 PLAN	05/06/15	Bull. No. 068	1/20/17
TD102	TEL-DATA LEVEL 2-10 TYPICAL PLAN	05/06/15	Bull. NO.067BMS	11/11/16
TD103	TEL-DATA LEVEL M1 PLAN	05/06/15	Bull. No. 068	1/20/17
TD104	TEL-DATA LEVEL M2 PLAN	05/06/15	Bull. No. 068	1/20/17
TD201	TEL-DATA CONDUIT RISER DIAGRAM	05/06/15	Bull. No. 068	1/20/17
TD202	TEL-DATA COPPER RISER DIAGRAM	05/06/15	ASI-024	9/20/16
TD203	TEL-DATA BONDING AND GROUNDING DIAGRAM		Bull. No. 037	1/19/16
TD204	TEL-DATA PARKING LOBBY RISER	05/06/16	Bull. No. 037	12/16/15
TD205	TEL-DATA PARKING LOBBY RISER		Bull. NO. 068	12/17/15
TD301	TEL-DATA ENLARGED PART PLANS	05/06/15	Bull. No. 068	1/20/17
TD401	TEL-DATA DETAILS		Bull. No. 068	1 /on/u
SPECIFICATIONS				
DIVISION 00 - PROCUREMENT AND CONTACTING REQUIREMENTS				
00 62 31	LEED Reporting Form		Final CD Set	1/0/00
DIVISION 01 - GENERAL REQUIREMENTS				
01 06 00	Permits and Regulatory Requirements	05/06/15	Final CD Set	5/6/15
01 10 50	Rodent Control	05/06/15	Final CD Set	5/6/15
01 15 00	Special Requirements	05/06/15	Final CD Set	5/6/15
01 20 00	General Requirements for Utility Work	05/06/15	Final CD Set	5/6/15
01 21 00	Allowances	05/06/15	Final CD Set	5/6/15
01 25 00	Substitutions and Product Options	05/06/15	Final CD Set	5/6/15
01 25 50	Substitution Request Form	05/06/15	Final CD Set	5/6/15
01 31 13	Coordination	05/06/15	Final CD Set	5/6/15
01 32 00	Progress Schedule	05/06/15	Final CD Set	5/6/15
01 33 00	Submittals	05/06/15	Final CD Set	5/6/15
01 35 29	Health and Safety	05/06/15	Final CD Set	5/6/15
01 43 10	Materials and Equipment	05/06/15	Final CD Set	5/6/15
01 43 39	Building Mock-ups	05/06/15	Final CD Set	5/6/15
01 50 00	Temporary Facilities and Controls	05/06/15	Final CD Set	5/6/15
01 56 00	Temporary Environmental Controls	05/06/15	Final CD Set	5/6/15
01 57 00	Maintenance of and Protection of Traffic	05/06/15	Final CD Set	5/6/15
01 5717.13	LEED Temporary Erosion and Sedimentation Control Plan	05/06/15	Final CD Set	5/6/15
01 71 23	Site Field Engineering	05/06/15	Final CD Set	5/6/15
01 73 29	Cutting and Patching	05/06/15	Final CD Set	5/6/15
01 74 19	Construction Waste Management and Disposal	05/06/15	Final CD Set	5/6/15
01 77 00	Contract Closeout	05/06/15	Bull. No. 026	5/6/15
01 81 13	Sustainable Design Requirements	05/06/15	Add'm 2	5/29/15
01 81 19	Construction indoor Air Quality Management	05/06/15	Final CD Set	5/6/15
01 81 23	Volatile Organic Compound Limits	05/06/15	Final CD Set	5/6/15

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Shell, Core and Site Construction Documents List

NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
	DIVISION 02 - EXISTING CONDITIONS			
02 30 00	Subsurface Data	05/06/15	Final CD Set	5/6/15
02 61 13	Excavated Soil and Materials Management Plan	05/06/15	Final CD Set	5/6/15
	DIVISION 03 - CONCRETE			
03 30 00	Cast-In-Place Concrete	05/06/15	Bull. No. 012	9/11/15
03 30 55	Cast-in-Place Concrete (Site)	05/06/15	Final CD Set	5/6/15
03 35 50	Concrete Sealer/Hardener	05/06/15	Final CD Set	5/6/15
03 45 00	Architectural Precast Concrete	05/06/15	Bull. No. 041	5/6/15
03 54 16	Cement Underlayment	05/06/15	Final CD Set	5/6/15
03 60 00	Grouting	05/06/15	Final CD Set	5/6/15
	DIVISION 04-MASONRY			
04 20 00	Masonry	05/06/15	Final CD Set	5/6/15
04 40 00	Exterior Stone	05/06/15	Final CD Set	5/6/15
	DIVISION 05 - METALS			
05 12 00	Structural Steel	05/06/15	Final CD Set	5/6/15
05 30 00	Metal Decking	05/06/15	Final CD Set	5/6/15
05 40 00	Cold Formed Metal Framing	05/06/15	Add'm 2	5/29/15
05 50 00	Miscellaneous Metals	05/06/15	Final CD Set	5/6/15
05 7000	Ornamental Metal Fabrications	05/06/15	Final CD Set	5/6/15
05 72 00	Metal Column Enclosures	05/06/15	Final CD Set	5/6/15
	DIVISION 06 - WOODS AND PLASTICS			
06 10 00	Rough Carpentry	05/06/15	Bull. No. 042	5/6/15
06 22 23	Finish Carpentry and Millwork	05/06/15	Final CD Set	5/6/15
06 64 00	Glass Reinforced Polyester Wail Panels	05/06/15	Final CD Set	5/6/15
	DIVISION 07 - THERMAL & MOISTURE PROTECTION			
07 11 00	Damp proofing	05/06/15	Final CD Set	5/6/15
07 13 25	Composite Membrane Waterproofing		Add'm 2	5/29/15
07 14 25	Hot Applied Bitumen Waterproofing	05/06/15	Final CD Set	5/6/15
07 1616	Capillary Waterproofing	OS/06/15	Final CD Set	5/6/15
07 18 16	Traffic Deck Coating	05/06/15	Final CD Set	5/6/15
07 19 10	Traffic Deck Sealer	05/06/15	Final CD Set	5/6/15
07 21 00	Building Insulation	05/06/15	Bull. No. 029R1	5/6/15
07 25 00	Air & Moisture Barrier Membrane	05/06/15	Add'm 2	5/6/15
07 42 43	Formed Composite Panels	5/6/2015	Add'm 6	8/5/15
07 42 60	Pre-formed Metal Siding		Bull. No. 001R1	1/0/00
07 54 20	Thermoplastic Membrane Roofing	05/06/15	Add'm 2	5/29/15
07 65 00	Flashing and Sheet Metal	05/06/15	Add'm 2	5/29/15
07 72 00	Roof Accessories	05/06/15	Final CD Set	5/6/15
07 81 25	Thin Film Fireproofing	05/06/15	Final CD Set	5/6/15
07 81 30	Sprayed Fireproofing	05/06/15	Final CD Set	5/6/15
07 84 00	Fire Stops and Smoke Seals	05/06/15	Final CD Set	5/6/15
07 90 00	Sealants	05/06/15	Final CD Set	5/6/15
	DIVISION 08 - DOORS & WINDOWS			
08 11 13	Steel Doors and Frames	05/06/15	Final CD Set	5/6/15
08 14 00	Wood Doors	05/06/15	Final CD Set	5/6/15

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NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
08 17 00	Integrated Door Opening Assemblies		Bull. No. 027BMS	11/20/15
08 31 00	Access Panels	05/06/15	Final CD Set	5/6/15
08 31 50	Floor Hatches		Add'm 2	5/29/15
08 33 00	Coiling Overhead Doors		Add'm 3	6/9/15
08 33 20	Coiling Fire Shutters		Add'm 2	5/29/15
08 33 23	High Performance Overhead Colling Doors	05/06/15	Final CD Set	5/6/15
08 38 00	Impact Doors	05/06/15	Final CD Set	5/6/15
08 41 00	Aluminum Entrance Doors and Frames	05/06/15	Final CD Set	5/6/15
08 41 26	Glass Entrances	05/06/15	Final CD Set	5/6/15
08 42 30	Revolving Doors		Bull. No. 044	3/23/16
08 44 13	Aluminum and Glass Building Enclosure Systems	05/06/15	Final CD Set	5/6/15
08 71 00	Door Hardware	05/06/15	ASI-040	3/2/17
08 80 00	Glass and Glazing	05/06/15	RFI-0168	5/6/15
08 88 00	Glass Balustrade System	05/06/15	Final CD Set	5/6/15
08 90 00	Louvers	05/06/15	Final CD Set	5/6/15
08 91 11	Vertical Louvers		Bull. No. 001R1	8/28/15
DIVISION 09-FINISHES				
09 27 00	Glass Reinforced Gypsum Fabrications	05/06/15	Final CD Set	5/6/15
09 29 00	Gypsum Wallboard System	05/06/15	Final CD Set	5/6/15
09 30 00	Tile Work	05/06/15	Final CD Set	5/6/15
09 45 00	Interior Stone Work	05/06/15	Final CD Set	5/6/15
09 51 00	Acoustical Ceilings	05/06/15	Final CD Set	5/6/15
09 65 00	Resilient Flooring	05/06/15	Final CD Set	5/6/15
09 67 13	Membrane Flooring	05/06/15	Final CD Set	5/6/15
09 67 16	Seamless Epoxy Flooring	05/06/15	Add'm 2	5/29/15
09 68 00	Carpeting	05/06/15	Final CD Set	5/6/15
09 72 00	Wall Covering	05/06/15	Bull. No. 026	5/6/15
09 85 00	Seamless Acoustic Finish System	05/06/15	Final CD Set	5/6/15
09 99 00	Painting	05/06/15	Bull. No. 025	5/29/15
09 99 99	Finish Schedule	05/06/15	Bull. No. 044R1	5/27/16
DIVISION 10 - SPECIALTIES				
10 14 00	Interior Signage	05/06/15	Final CD Set	5/6/15
10 14 50	Luminous Egress Signage		Add'm 2	5/29/15
10 14 55	Traffic and Regulatory Signage	05/06/15	Final CD Set	5/6/15
10 21 10	Metal Toilet Compartments	05/06/15	Final CD Set	5/6/15
10 28 10	Toilet Accessories	05/06/15	Final CD Set	5/6/15
10 51 00	Lockers	05/06/15	Final CD Set	5/6/15
10 52 00	Fire Extinguishers and Cabinets	05/06/15	Final CD Set	5/6/15
10 73 13	Awnings		ASI-065	4/28/17
10 82 00	Treillage	05/06/15	Final CD Set	5/6/15
10 95 00	Building Specialties	05/06/15	Add'm 2	5/29/15
DIVISION 11 - EQUIPMENT				
11 12 00	Parking Access and Control System	05/06/15	Final CD Set	5/18/16
11 12 23	Parking Meter	05/06/15	Final CD Set	5/6/15

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Shell, Core and Site Construction Documents List

NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
11 1313	Miscellaneous Dock Equipment	05/06/15	Final CD Set	5/6/15
11 1318	Hydraulic Dock Leveler	05/06/15	Final CD Set	5/6/15
11 13 23	Hydraulic Scissors Lift	05/06/15	Final CD Set	5/6/15
11 14 13	Security Turnstiles	05/06/15	. Bull. No. 044	3/25/16
11 24 23	Window Washing Equipment	05/06/15	Final CD Set	5/6/15
11 82 26	Facility Waste Compactors VOID	05/06/15	Bull. No. 001R1	7/15/15
11 82 26	Waste Compactor Winch System	05/06/15	Bull. No. 001R1	8/28/15
DIVISION 12 - FURNISHINGS				
12 4815	Entrance Mats		Bull. No. 025	1/0/00
12 93 00	Site Improvements	05/06/15	Add'm 2	5/29/15
12 93 13	Bicycle Racks	05/06/15	Final CD Set	5/6/15
DIVISION 13 - SPECIAL CONSTRUCTION				
			Final CD Set	1/0/00
DIVISION 14 - CONVEYING SYSTEMS				
14 21 00	Electric fraction Elevators		Add'm 5	6/9/15
DIVISION 20-RESERVED				
20 05 00	Basic Mechanical and Electrical Requirements	05/06/15	Final CD Set	5/6/15
20 05 48	Vibration Isolation arid Seismic/Wind Restraints	05/06/15	Bull. No. 014	8/28/15
DIVISION 21 - FIRE SUPPRESSION				
21 10 00	Fire Protection	05/06/15	Final CD Set	5/6/15
DIVISION 22 - PLUMBING				
22 10 00	Plumbing Systems	05/06/15	Final CD Set	5/6/15
22 40 00	Plumbing Fixtures	05/06/15	ASI-059	4/12/17
22 50 00	Plumbing Equipment	05/06/15	Final CD Set	5/6/15
DIVISION 23 - HEATING, VENTILATION AND AIR-CONDITIONING (HVAC)				
23 05 93	Building Controls Systems (BCS)	05/06/15	Bull. No. 008	5/29/15
23 06 00	Heating, Ventilating and Air-conditioning	05/06/15	Bull. No. 071	4/7/17
23 09 00	Testing, Adjusting and Balancing	05/06/15	Final CD Set	5/6/15
DIVISION 25 - INTEGRATED AUTOMATION				
			Final CD Set	1/0/00
DIVISION 26 - ELECTRICAL				
26 10 00	Electrical	05/06/15	Bull. No. 001R1	8/28/15
26 60 10	EV Car Charging Stations		Bull. No. 001R1	8/28/15
DIVISION 27 - COMMUNICATIONS				
27 00 00	Telecommunications		Bull: No. 044	3/25/16
DIVISION 28 - ELECTRONIC SAFETY AND SECURITY				
28 00 00	Security	05/06/15	Bull. No. 015	12/2/15
DIVISION 31 - EARTHWORK				
31 09 13	Geotechnical Instrumentation	05/06/15	Final CD Set	5/6/15
31 21 15	Vapor Liner		Bull. No. 005	8/18/15
31 22 10	Earth Excavation, Backfill, Fill and Grading for Utilities	05/06/15	Final CD Set	5/6/15
31 23 00	Excavation and Backfilling - For Foundations	05/06/15	Final CD Set	5/6/15
31 23 19	Construction Dewatering	05/06/15	Final CD Set	5/6/15

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Shell, Core and Site Construction Documents List

NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
31 32 23	Jet Grouting For Soil Solidification	05/06/15	Bull. No. 004	7/21/15
31 50 00	Lateral Support of Excavation	05/06/15	Final CD Set	5/6/15
31 56 00	Concrete Diaphragm Wall	05/06/15	Final CD Set	5/6/15
DIVISION 32 - EXTERIOR IMPROVEMENTS				
32 01 16.17	Milling Asphalt Paving	05/06/15	Final CD Set	5/6/15
32 11 00	Base Courses (Pavement)	05/06/15	Final CD Set	5/6/15
32 12 16	Asphalt Paving	05/06/15	Final CD Set	5/6/15
32 12 16.29	Polymer-Modified Asphalt Paving	Q5/06/15	Final CD Set	5/6/15
32 12 43	Decomposed Granite Pavement	05/06/15	Final CD Set	5/6/15
32 13 00	Cast-in-place Concrete for Site Work	05/06/15	Final CD Set	5/6/15
32 13 13	Exposed Aggregate Concrete Pavement	05/06/15	Add'm 2	5/29/15
32 14 00	Stone Pavers	05/06/15	Final CD Set	5/6/15
32 16 10	Curbing	05/06/15	Final CD Set	5/6/15
32 17 22	Pavement Marking (Garage)	05/06/15	Final CD Set	5/6/15
32 17 23	Pavement Markings	05/06/15	Final CD Set	5/6/15
32 31 19	Site Ornamental Metals	05/06/15	. Add'm 2	5/29/15
32 84 00	Irrigation System	05/06/15	Final CD Set	5/6/15
32 84 20	irrigation Pump System	05/06/15	Final CD Set	5/6/15
32 91 13	Planting Soils	05/06/15	Final CD Set	5/6/15
32 93 00	Planting and Fine Grading	05/06/15	Add'm 2	5/29/15
DIVISION 33 - UTILITIES				
33 13 00	Disinfection of Water Mains	05/06/15	Final CD Set	5/6/15
33 14 00	Pipeline Pressure and Leakage Testing	05/06/15	Final CD Set	5/6/15
33 26 01	Sanitary Sewer Manholes and Tanks	05/06/15	Final CD Set	5/6/15
33 26 04	Drain Structures	05/06/15	Final CD Set	5/6/15
33 26 15	Ductile Iron Pipe and Fittings	05/06/15	Final CD Set	5/6/15
33 26 22	Polyvinyl Chloride Gravity Pipe	05/06/15	Final CD Set	5/6/15
33 26 40	Valves and Appurtenances	05/06/15	Final CD Set	5/6/15
33 26 50	Hydrants	05/06/15	Final CD Set	5/6/15
33 41 00	Storm Utility Drainage	05/06/15	Final CD Set	5/6/15
33 91 00	Underground Duct Systems	05/06/15	Final CD Set	5/6/15
33 92 00	Utility Structures	05/06/15	Final CD Set	5/6/15
DIVISION 34 - TRANSPORTATION				
DIVISION 35 - WATERWAY AND MARINE CONSTRUCTION				
DIVISION 40 - PROCESS INTEGRATION				
DIVISION 41 - MATERIAL PROCESSING AND HANDLING EQUIPMENT				
DIVISION 42 - PROCESS HEATING, COOLING, AND DRYING EQUIPMENT				

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NUMBER	TITLE	FINAL CD DATE	CURRENT ISSUE	CURRENT DOC DATE
	DIVISION 44 - POLLUTION CONTROL EQUIPMENT			
	DIVISION 45 - MANUFACTURING EQUIPMENT			
	DIVISION 48 - ELECTRICAL POWER GENERATION			
	DIVISION 50 - RESERVED			
50 08 00	Commissioning	05/06/15	Final CD Set	5/6/15
	APPENDICES			
1	LEED for Core & Shell Version 3.0 Summary Scorecard		Add'm 2	5/29/15

Schedule 2(c)-1

Landlord/Tenant Responsibility Matrix

(attached)

100 BINNEY STREET:
Schedule 2(c)-1
LANDLORD / TENANT RESPONSIBILITY MATRIX

100 BINNEY STREET	ALLOCATION		Landlord (at Tenant's Expense)
	LANDLORD	TENANT	
MULTI-TENANT			
GENERAL			
Building's USGBC LEED certification level is a minimum of LEED Silver with Gold being the target.	X		
Below-grade parking with approximately 185 spaces	X		
Base Building third-party commissioning to meet LEED Enhanced Commissioning requirements	X		
Tenant Improvements third-party commissioning to meet LEED Enhanced Commissioning requirements		X	
Changes to Base Building to meet FM Global requirements			X
SITework			
Perimeter sidewalks, street curbs, miscellaneous site furnishings, landscaping and parking	X		
Telephone service to main demarcation room from local exchange carrier	X		
Domestic sanitary sewer connection to street	X		
Lab waste sewer connection	X		
Roof storm drainage	X		
Eversource (fka NSTAR) primary and secondary electrical service	X		
Steam and condensate lines for tenant use	X		
Steam service for Tenant needs		X	
Eversource gas service for core/shell equipment with allowance for retail tenants	X		
Eversource gas service for Tenant needs			X
Domestic water service to Base Building	X		
Fire protection water service to Base Building	X		
LANDSCAPING			
Complete site improvements package, including design and installation	X		
Landscape plans including location, species, and sizes of trees, shrubs, groundcovers, flowering plants, ornamental flowering trees and coniferous evergreen trees. All plantings shall be of specimen quality.	X		
Hardscape plans including walkways, driveways, curbing, exterior lighting, and non-Tenant signage. Design and site improvements materials shall be of corporate headquarters quality.	X		
STRUCTURE			
Reinforced concrete slabs with live load capacity of 100 psf (typical areas)	X		
Structural enhancements to the Base Building for specific Tenant load requirements			X
Reinforced concrete slabs with 150 psf live load capacities in Base Building and Tenant mechanical spaces in levels M1 and M2.	X		
Reinforced concrete slabs with 100 psf live load capacity in Tenant mechanical spaces	X		
Concrete containment curbs at mechanical penthouse walls and shafts	X		
Containment curbs in Tenant Premises to support Tenant program		X	
Structural reinforcing to meet vibration criterion of 8,000 micro inches per second at 75 steps per minute	X		
Upgrade structural reinforcing to meet vibration criterion required by Tenant			X
Floor to floor (top of slab to top of slab): 16'-0" on level one; 14-6" on levels two through six; 12-8" on floors seven through nine; 13'-2" on level ten.	X		
Column bay spacing: 32-0" typical	X		
Structural framing dunnage above roof for Base Building equipment	X		

100 BINNEY STREET:
Schedule 2(c)-1
LANDLORD / TENANT RESPONSIBILITY MATRIX

100 BINNEY STREET	ALLOCATION		Landlord (at Tenant's Expense)
	LANDLORD	TENANT	
MULTI-TENANT			
Structural framing dunnage above roof for Tenant equipment.			X
Framed openings for Base Building utility risers and future Tenant risers at pre-determined locations	X		
Additional framed openings for Tenant, subject to Landlord review and approval ‘			X
Miscellaneous metals and/or concrete pads for Base Building equipment	X		
Miscellaneous metals items and/or concrete pads for Tenant equipment		X	
ROOFING			
Heat-welded TPO roofing system with rigid insulation and 20 year warranty	X		
Roofing penetrations for Base Building equipment/systems	X		
Roofing penetrations for Tenant equipment/systems			X
Walkway pads to Base Building equipment	X		
Walkway pads to Tenant equipment			X
Roofing alterations due to Tenant-requested changes within Building penthouse			X
EXTERIOR			
Building exterior consisting of curtain wall, precast concrete panels with brick infill, formed metal panels and windows	X		
Base Building entrances	X		
Building mounted exterior signage for Tenant identification in accordance with City of Cambridge rules and regulations subject to Landlord review and approval		X	
Ground mounted exterior signage for Tenant identification in accordance with City of Cambridge rules and regulations subject to Landlord review and approval	X		
Two overhead coiling doors at loading dock	X		
One high performance overhead coiling door at parking garage entrance	X		
Penthouse enclosure for Base Building rooftop equipment	X		
Penthouse enclosure for Tenant rooftop equipment (within existing penthouse)	X		
COMMON AREAS			
Accessible main entrance with integrated security hardware and recessed walk off aluminum floor grille. Main building entrance will include a stainless steel/all-glass revolving door with a glass canopy and two Herculite door wings. The revolving door has a welded floor grille and bookfold mechanism for egress.	X		
Security turnstiles in main lobby at entrance to elevator lobby	X		
Core area toilet rooms. Floors and base shall be thin set ceramic tile. Full height ceramic tile shall be provided on wet walls. All other wall surfaces shall be painted drywall. Lavatory counters shall be solid surface with under mount vitreous china sinks, and continuous mirror above lavatory counters to the ceiling height. Metal toilet enclosures shall be metal ceiling-hung toilet compartments, steel panel construction with a stainless steel finish. Toilet room accessories shall be similar or equal to those manufactured by Bobrick Company, all in accordance with handicapped accessibility regulations	X		
Bicycle storage and shower rooms on Level 1 sufficient to obtain LEED Sustainable Sites Credit 3.2: Alternative Transportation	X		
Shower rooms shall utilize finishes similar to core area toilet rooms	X		
Janitor’s closets in core areas	X		

100 BINNEY STREET:
Schedule 2(c)-1
LANDLORD / TENANT RESPONSIBILITY MATRIX

100 BINNEY STREET	ALLOCATION		Landlord (at Tenant's Expense)
	LANDLORD	TENANT	
MULTI-TENANT			
Electrical closets in core areas. Electrical closets may be used for Tenant-provided electrical equipment, subject to availability remaining after Base Building equipment and conformance to all Code requirements.	X		
Core walls facing tenant spaces to receive level 4 finish to 10'0" AFF.	X		
Final paint finish on walls in stairways and Base Building utility rooms	X		
Painted metal railings in all stairways	X		
Code required interior signage for Base Building rooms	X		
IDF connected to demarcation room (pathway only)	X		
Demarcation room	X		
46" high loading dock provided with bumpers and 3,000 lb. hydraulic dock levelers at the three truck bays accommodating 30' trucks	X		
Doors, frames, and hardware at common areas	X		
Parking control equipment in garage including AVI readers at entrance	X		
Exhaust re-entrainment study to account for Tenant proposed exhaust sources. Initial study was completed for the Base Building	X		
Base Building design modifications to accommodate exhaust re-entrainment study recommendations for placement of Tenant exhaust sources			X
ELEVATORS			
Four passenger elevators servicing floors 1 through 10; one passenger elevator servicing floors 1, 6-10; one passenger elevator serving floors 2-5. All passenger elevators will have 3,500 lb. capacity, 350 FPM; door entrance is 3-6" wide x 8'-0" high.	X		
Two passenger elevators servicing all garage levels and the main lobby on floor 1; 3,500 lb. capacity, 350 FPM; door entrance is 3'-6" wide x 7'-0" high	X		
One Base Building service elevator servicing levels B2 through M2 with 5,000 lb. capacity, 350 FPM; door entrance is 4-6" wide x 8'-0" high	X		
One Base Building service elevator servicing levels B1 through M1 with 5,000 lb. capacity, 350 FPM; door entrance is 4'-6" wide x 8'-0" high	X		
WINDOW TREATMENT			
Furnish and install Base Building Standard window treatment, including associated supports and blocking, in Tenant areas. Base Building Standard is Mecho Systems ThermoVeil Basket Weave in Eggshell 1316.		X	
Solid surface window sills as applicable within Tenant Premises		X	
TENANT AREAS			
Drywall and finishes at inside face of exterior walls		X	
Finishes at inside face at Tenant side of core partitions		X	
Additional toilet rooms within Tenant Premises		X	
HVAC and Plumbing Rooms within Tenant Premises		X	
Electrical closets within Tenant Premises		X	
Additional tel/data rooms for interconnection with Tenant tel/data		X	
Tenant kitchen areas		X	
Modifications to core areas to accommodate Tenant requirements			X
Moisture mitigation measures at slabs in Tenant Premises		X	
Partitions, ceilings, flooring, painting, finishes, DFH, millwork, casework, and build out		X	
Fixed or movable casework		X	
Laboratory equipment (except as otherwise noted herein)		X	
Shared glasswash/autoclave room on the floor	X		
Chemical fume hoods, bench fume hood, lab casework		X	
Shaft enclosures for Base Building risers	X		

100 BINNEY STREET:
Schedule 2(c)-1
LANDLORD / TENANT RESPONSIBILITY MATRIX

100 BINNEY STREET	ALLOCATION		Landlord (at Tenant's Expense)
	LANDLORD	TENANT	
MULTI-TENANT			
Shaft enclosures for Tenant risers within allocated space in the main Base Building shafts, installed in accordance with Base Building schedule			X
Shaft enclosures for Tenant risers outside of the allocated Tenant shaft locations as noted on the Base Building plans			X
All interior signage for Tenant Premises		X	
Sound attenuation upgrades (interior and/or exterior) in order to comply with City of Cambridge acoustical criteria and design of Tenant Premises			X
Unfinished Tenant mechanical space within parking garage (CMU enclosure, metal doors and frames)	X		
Changes to garage-level Tenant mechanical space (i.e. containment curbs; pads; finished walls, ceiling, or floor; upgraded doors, frames and hardware)		X	
FIRE PROTECTION			
Fire service entrance including fire department connection, alarm valve, and back flow protection	X		
Base Building area distribution piping and upturned sprinkler heads	X		
Stair distribution piping and sprinkler heads	X		
Primary distribution and sprinkler heads adequate to support ordinary hazard (with upturned heads)	X		
All run outs, drop heads, and related equipment within Tenant Premises		X	
Modification of sprinkler piping and head locations to accommodate Tenant layout and hazard index		X	
Specialized extinguishing systems		X	
Preaction dry-pipe systems within Tenant Premises		X	
Fire extinguisher cabinets within Base Building areas	X		
Fire extinguisher cabinets within Tenant Premises		X	
Standpipes, distribution and hose connections within egress stairs, garage and lobby	X		
Additional hose connections within Tenant Premises, including distribution piping		X	
PLUMBING			
Tenant point of connection for RO reject water	X		
Domestic water distribution within Tenant Premises including reduced pressure backflow preventer		X	
Domestic water service with backflow prevention and Base Building risers	X		
Base Building restroom plumbing fixtures compliant with ADA requirements	X		
Base Building plumbing fixture count based on a population density of 1 occupant per 250 GSF	X		
Tenant Premises restroom plumbing fixtures (in addition to those provided by the Base Building)		X	
Wall hydrants within Base Building areas (where required by Code)	X		
Non-potable water risers for Tenant use including water booster system and reduced pressure backflow preventer	X		
Non-potable water distribution within Tenant Premises		X	
Tenant metering and sub-metering at Tenant connection			X
Storm drainage system	X		
Sanitary waste and vent service for Base Building areas	X		
Sanitary waste and vent service within Tenant Premises		X	
Hot water generation for Base Building restrooms	X		
Two stage active pH neutralization system managed by Landlord	X		X

100 BINNEY STREET:
Schedule 2(c)-1
LANDLORD / TENANT RESPONSIBILITY MATRIX

<u>100 BINNEY STREET</u>	<u>ALLOCATION</u>		<u>Landlord (at Tenant's Expense)</u>
	<u>LANDLORD</u>	<u>TENANT</u>	
MULTI-TENANT			
Lab waste and vent pipe risers and distribution serving Tenant Premises		X	
Non-potable hot water generation for Tenant use		X	
Central air compressor, risers and pipe distribution managed by Landlord	X		X
Central vacuum system, risers and pipe distribution managed by Landlord	X		X
Tepid water generator and risers including open ended drain for Tenant Use	X		
Tepid water loop pipe distribution for tenant fit outs including open end drain		X	
RO water generator, risers, pipe distribution and reject routing to the point of connection managed by Landlord	X		X
DI water generator, risers, pipe distribution and reject routing to the point of connection		X	
Manifolds, piping, cylinders and other Tenant-specific requirements not specifically mentioned above		X	
NATURAL GAS			
Natural gas service to Base Building located on west elevation of Building exterior	X		
Natural gas service to Base Building boilers and standby generators	X		
Natural gas service, pressure regulator, venting to roof and meter for Tenant equipment		X	
Natural gas piping from Tenant meter to Tenant Premises (including equipment areas)		X	
Natural gas piping distribution within Tenant Premises or equipment connections at Tenant equipment area		X	
Natural gas pressure Base Building regulator vent pipe riser from valve location through roof	X		
HEATING, VENTILATION, AIR CONDITIONING			
Central water-cooled chilled water plant with performance optimization control, 3,675 tons total for Base Building equipment only	X		
Chilled water pipe risers for Tenant requirements; 1544 gpm (160 gpm on floor 1; 248 gpm/floor on floor 2,4,5; 140 gpm/floor on floor 3; 100 gpm/floor on floors 6-10} based on program area.	X		
Chilled water pipe distribution and BTU meter within Tenant Premises		X	
Condenser water capacity for Tenant requirements, including heat exchanger to isolate Base Building water from Tenant equipment, pumps and piping; 1,699 gpm (78.65 gpm on floor 1; 180 gpm/floor on floors 2-10) based on program area	X		
Condenser water pipe distribution and BTU meter within Tenant Premises		X	
Central gas fired boiler plant with total nominal output of 43.2 million BTU/hr.	X		
Additional boilers to accommodate tenant program		X	
Steam condensate pumps to return condensate to the utility	X		
Steam and condensate lines from the service entrance to the penthouse with isolation valves available for Tenant use.	X		
Steam and condensate piping, equipment and flow meter in the penthouse level for Tenant use		X	
2” steam connection and valve with 1.5” condensate connection and valve from the risers to the Tenant floors.	X		
Steam and condensate distribution with flow meter within the Tenant Premises.		X	

100 BINNEY STREET:
Schedule 2(c)-1
LANDLORD / TENANT RESPONSIBILITY MATRIX

<u>100 BINNEY STREET</u>	<u>ALLOCATION</u>		<u>Landlord (at Tenant's Expense)</u>
	<u>LANDLORD</u>	<u>TENANT</u>	
MULTI-TENANT			
Additional heat exchangers and humidifiers to accommodate Tenant's program		X	
Hot water pipe risers	X		
Hot water pipe distribution and BTU meter within Tenant Premises		X	
Fan coil units within Tenant Premises		X	
Reheat coils within Tenant Premises		X	
Fan coil units within Base Building areas	X		
Reheat coils within Base Building areas	X		
Building Management System (BMS) for Base Building	X		
BMS (compatible with Landlord's system) within Tenant Premises monitoring Tenant infrastructure		X	
Once-through supply air handling units with 30% pre-filters, electronically enhanced 90% final filters, chilled water coils, hot water coils, and heat recovery coils. Units are sized for approximately 660,000 CFM total to the building	X		
Vertical supply air duct distribution with horizontal take-off through a smoke/fire damper and air flow measuring station at each connection to each floor; duct risers sized for 2,500 FPM	X		
Supply air duct distribution, including ring duct, VAV terminals, equipment connections, insulation, air terminals, dampers, hangers, etc. for Tenant Premises. 2" of water column available downstream of smoke fire damper.		X	
Supply air duct distribution, VAV terminals, equipment connections, insulation, air terminals, dampers, hangers, etc. within Base Building areas	X		
Roof mounted laboratory exhaust air handlers and fans with energy recovery coils	X		
Vertical exhaust air duct risers with air flow measuring station and variable volume exhaust terminal unit at each connection to each Tenant floor.	X		
Exhaust air duct distribution, exhaust air valves, equipment connections, insulation, air terminals, dampers, hangers, etc. within Tenant Premises.		X	
Exhaust air duct distribution, exhaust air valves, equipment connections, insulation, air terminals, dampers, hangers, etc. within Base Building	X		
Tenant exhaust for non-combined hoods (radio-isotope, perchloric acid, etc.), ductwork and fans; limit 3 per floor (no more than 15 in the Building). Tenant shall receive its proportional share of the 15 risers.		X	
Restroom exhaust for Base Building bathrooms	X		
Restroom exhaust for new bathrooms within Tenant Premises		X	
Electric room ventilation system for Base Building electrical closets	X		
Electric room ventilation system for electrical closets within Tenant Premises		X	
Sound attenuation for Base Building infrastructure to comply with Cambridge Noise Ordinance	X		
Sound attenuation for Tenant equipment to comply with Cambridge Noise Ordinance		X	
Additional cooling equipment for Tenant requirements		X	
Garage exhaust fans with CO detection; 50,000 CFM total	X		
50% glycol heat recovery system for central AHUs	X		
Stair and elevator pressurization systems for stairs and elevators within Base Building areas	X		
Elevator pressurization systems within Tenant Premises or installed by Tenant		X	

100 BINNEY STREET:
Schedule 2(c)-1
LANDLORD / TENANT RESPONSIBILITY MATRIX

100 BINNEY STREET	ALLOCATION		Landlord (at Tenant's Expense)
	LANDLORD	TENANT	
MULTI-TENANT			
Electrical utility vault ventilation system for Base Building	X		
Garage ramp snow melt system	X		
Design criteria:			
Winter: Outdoor temperature of 6°F DB; indoor temperature of 70°F DB and RH of 30% (Uncontrolled RH) Summer: Outdoor temperature of 88°F DB/71°F WB; indoor temperature of 75°F DB and RH of 55% +10% (Uncontrolled RH)	X		
Indoor design criteria:			
Heat at exterior walls to achieve humidity levels greater than levels provided by the Base Building		X	
ELECTRICAL			
Electrical utility service to switchgear in main electrical room	X		
4000 amp, 480/277v bus risers—two (2) for Base Building and two (2) for Tenant	X		
11.5 watts/SF at 480V of program area available for Tenant use	X		
One (1) 800 kW diesel generator for Base Building life safety and code-required emergency power systems; junction boxes will contain capped life safety circuits for future emergency lighting (maximum .25 watts/SF of life safety power for Tenant use).	X		
Two (2) 750 kW/937 kVA, 480/277 volt, 60 Hz, three phase/four-wire natural gas-fired generators for standby power—maximum Tenant use is 4 watts/SF of program area	X		
Future standby generator for Tenant use (in addition to 4 watts/SF of program area provided by the Base Building).		X	
Design, engineering and construction (including piping to inside the building) of fuel oil tank(s) for future standby generator for Tenant use.			X
Standby and life safety power distribution within Tenant Premises		X	
Automatic transfer switch for Tenant load per floor- maximum Tenant use is 4 watts/SF of program area		X	
Automatic transfer switch for Base Building life safety generator	X		
Sound attenuation for Tenant future standby generator to comply with Cambridge Noise Ordinance		X	
Sound attenuation for Base Building life safety generator and standby generator to comply with Cambridge Noise Ordinance	X		
Lighting and power distribution for Base Building areas	X		
Lighting and power distribution for Tenant Premises		X	
Meter socket and meter for Tenant bus tie-in per floor.		X	
Future optional standby generator for Tenant use.		X	
Tenant panels, transformers, etc. in addition to Base Building house panels for Base Building area		X	
FIRE ALARM			
Base Building fire alarm system with devices within Base Building areas	X		
Fire alarm sub panels and devices for Tenant Premises with integration into Base Building system. FA vendor must be approved by Landlord.		X	
Alteration to fire alarm system to facilitate Tenant program		X	
TELEPHONE/DATA			
Underground local exchange carrier service to primary demarcation room in basement.	X		
Service from primary demarcation room to secondary demarcation room		X	
Intermediate distribution frame rooms		X	
Tenant tel/data rooms		X	
Pathway from demarcation room to Tenant tel/data rooms	X		

100 BINNEY STREET:
Schedule 2(c)-1
LANDLORD / TENANT RESPONSIBILITY MATRIX

100 BINNEY STREET	ALLOCATION		Landlord (at Tenant's Expense)
	LANDLORD	TENANT	
MULTI-TENANT			
Tel/Data cabling from demarcation room to intermediate distribution frame rooms		X	
Tel/Data cabling from demarcation room and/ or intermediate distribution frame rooms to Tenant tel/data room		X	
Fiber optic service for Tenant use		X	
Carriers with fiber optic capability serving the property:			
• Verizon			
• Comcast			
• Lighttower, through which the below carriers are potentially available			
• Last Mile Solutions			
• RCN			
• Zayo			
• Genesis Fiber			
• Century Link			
Tel/data infrastructure including, but not limited to, servers, computers, phone systems, switches, routers, MUX panels, equipment racks, ladder racks, etc.		X	
Provisioning of circuits and service from service providers		X	
Audio visual systems and support		X	
Station cabling from Tenant tel/data room to all Tenant locations, within the Premises and exterior to the Premises if needed		X	
SECURITY			
Card access at Building entries	X		
Video camera coverage of common areas and garage	X		
AV! readers with integrated transponder system at Parking Garage entrance	X		
Card access into or within Tenant Premises on separate Tenant installed and managed system		X	
Video camera coverage of Tenant Premises on separate Tenant installed and managed system		X	
Security station in Lobby	X		

Schedule 2(c)-2

Landlord/Tenant Utility Allocation Matrix

(attached)

Schedule 2(c)-2 Utility Allocation Matrix

Revision#1: 6-18-2015

Revision#2: 6-09-2016

Revision#3: 5-09-2017

100 Binney Street Work Letter Schedule 2(c) -2 Utility Allocation Matrix

Level			Conditioned Area	Air Flow Rate	Heating Hot Water Flow	Normal Elect. Power Utility	Emerg. Elect. Power	Slby Elect. Power	Chilled Water Flow	Condenser Water Flow	Steam Flow Utility	Potable Water	Tempered Water	Non-portable Water
			56 F SAT	140F EWT, 120F LWT	Provided	Oil-Fired Generator	Gas-Fired Generator	44F EWT, 68F LWT	80FEWT, 100F LWT	Provided at 180 psig & 600F (note 1)	Water at 50 psig	Water (note 2)	Water at 60 psig	
			Sq. Ft.	GPM	GPM	kW @ 430 V	kW @277 V	kW @ 430 V	GPM	GPM	MBH	GPM	GPM	
TCR2	16415	51%	28,726	94	196.76	4.34	70.15	51.19	67.13	2559.99	29.81	60.00	63.98	

Notes:

1. Pipe riser and tap provided as part of base building. Pipe is sized for capacities listed. Tenant responsible for agreement with utility steam company.
2. Building can support two emergency showers operating at once.

Schedule 2(d)

LEED Standards

(attached)

Work Letter (Landlord Build)

Schedule 1(d) - LEED Standards

WEc3: Water Use Reduction

Any additional Tenant added fixtures shall meet the following maximum water use rates: Toilets maximum 1.28 gallons per flush; Urinals maximum 0.125 gallons per flush; Sensored Lavatory faucets maximum 0.5 gallons per minute (12 second cycle); Shower heads maximum 1.75 gallons per minute; P3antry faucets maximum 1.8 gallons per minute.

EAprereG2: Minimum Energy Performance

ALL future Tenant improvements shall meet or exceed the baseline requirements of ANSI/ASHRAE/IESNA Standard 90.1-2007. Accordingly, tenants shall install energy efficient lighting fixtures such as those-qualified by ENERGY STAR (www.eneravstar.gov), and energy efficient light bulbs, such as compact fluorescent and LEDs, so that the connected lighting power density in office spaces does not exceed an average of 0.85W/sf.

EAprereG3: Fundamental Refrigerant Management

The base building heating, ventilating, air conditioning and refrigeration systems do not use any chlorofluorocarbon (CFC)-based refrigerants. The use of CFC-based refrigerants in any Tenant provided system or equipment is strictly prohibited.

EAc4: Enhanced Refrigerant Management

The base building heating, ventilating, air conditioning and refrigeration systems have been selected to reduce ozone depletion and support early compliance with the Montreal Protocol while minimizing direct contributions to climate change. All tenant provided HVAC&R equipment must also comply with the following formula, which sets a maximum threshold for the combined contributions to ozone depletion and global warming potential:

$$\frac{S (LCGWP + LCODP \times 10^5) \times Q_{unit} \times 100}{Q_{total}}$$

IEQc5: Indoor Chemical and Pollutant Source Control

The base building has been designed to minimize building occupant exposure to potentially hazardous particulates and chemical pollutants. All Tenant work affecting the entry of pollutants into the building and potential cross contamination of regularly occupied areas must be mitigated through the following strategies, as applicable to the tenant improvements:

1. Employ permanent entryway systems at least 10 feet long (3 meters) in the primary direction of travel to capture dirt and particulates entering the building at regularly used exterior entrances. Acceptable entryway systems include permanently installed grates, grills and slotted systems that allow for cleaning underneath. Roll-out mats are acceptable only when maintained on a weekly basis by a contracted service organization. Projects that do not have entryway systems cannot achieve this credit.
2. Sufficiently exhaust each space where hazardous gases or chemicals may be present or used (e.g. garages, housekeeping and laundry areas and copying and printing rooms) to create negative pressure with respect to adjacent spaces when the doors to the room are closed. For each of these spaces, provide self-closing doors and deck-to-deck partitions or a hard-lid ceiling. The exhaust rate must be at least 0.50 cubic feet per minute (cfm) per square foot (0.15 cubic meters per minute per square meter), with no air recirculation. The pressure differential with the surrounding spaces must be at least 5 Pascals (Pa) (0.02 inches of water gauge) on average and 1 Pa (0.004 inches of water) at a minimum when the doors to the rooms are closed.

Work Letter (Landlord Build)

Schedule 3.3(c) - LEED Standards

3. In mechanically ventilated buildings, each ventilation system that supplies outdoor air shall comply with the following:
- A. Particle filters or air cleaning devices shall be provided to clean the outdoor air at any location prior to its introduction to occupied spaces.
 - B. These filters or devices shall meet one of the following criteria:
 - Filtration media is rated a minimum efficiency reporting value (MERV) of 13 or higher in accordance with ASHRAE Standard .52.2.
 - Filtration media is Class F7 or higher, as defined by CEN Standard EN 779: 2002, Particulate air filters for general ventilation, Determination of the filtration performance.
 - Filtration media has a minimum dust spot efficiency of 80% or higher and greater than 98% arrestance on a particle size of 3-10 µg.
 - C. Clean air filtration media shall be installed in all air systems after completion of construction and prior to occupancy.

Innovation Credit: Low-Mercury Lighting

The landlord is pursuing a LEED Innovation Credit for the use of low-mercury lighting. All tenant provided interior and exterior site lighting must be designed and specified such that it does not exceed average mercury content of 80 picograms per lumen hour.

EXHIBIT D TO LEASE**ACKNOWLEDGMENT OF COMMENCEMENT DATE**

This ACKNOWLEDGMENT OF COMMENCEMENT DATE is made as of this ____ day of _____, 201__ between **ARE-MA REGION NO. 45, LLC**, a Delaware limited liability company (“**Landlord**”), and **TCR² THERAPEUTICS INC.**, a Delaware corporation (“**Tenant**”), and is attached to and made a part of the Lease dated as of _____, 2017 (the “**Lease**”), by and between Landlord and Tenant. Any initially capitalized terms used but not defined herein shall have the meanings given them in the Lease.

Landlord and Tenant hereby acknowledge and agree, for all purposes of the Lease, that the Commencement Date of the Base Term of the Lease is _____, _____, the Rent Commencement Date is _____, _____, and the expiration date of the Base Term of the Lease shall be midnight on _____, _____. In case of a conflict between this Acknowledgment of Commencement Date and the Lease, this Acknowledgment of Commencement Date shall control for all purposes.

IN WITNESS WHEREOF, Landlord and Tenant have executed this ACKNOWLEDGMENT OF COMMENCEMENT DATE to be effective on the date first above written.

TENANT:

TCR² THERAPEUTICS INC.,
a Delaware corporation

By: _____
Its: _____

LANDLORD:

ARE-MA REGION NO. 45, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P., a
Delaware limited partnership, Managing Member

By: ARE-QRS CORP.,
a Maryland corporation,
General Partner

By: _____
Its: _____

EXHIBIT E TO LEASE

INTENTIONALLY OMITTED

EXHIBIT F TO LEASE

LANDLORD-TENANT OPERATIONS MATRIX

(attached)

Exhibit F - Operations Responsibility Matrix

DESCRIPTION	ALLOCATION	
	Landlord's Responsibility Building Operating Expense	Tenant's Responsibility
OPERATIONS RESPONSIBILITY MATRIX* (not to be used for determining capital expenses)		
UTILITIES		
Tenant Premises utility meters and consumption.		X
Base Building and Common Area utility meters and consumption.	X	
Garage Area utilities separately metered.	X	
Telephone to main demarcation room from local exchange carrier for Common Areas and Base Building Equipment.	X	
Sanitary sewer and discharge pipes to street connection.	X	
Eversource primary and secondary electrical service for Base Building and Common Area.	X	
Eversource gas service to Building for Base Building and Common area equipment.	X	
Domestic water service to Building and Common Area.	X	
Fire protection water service to Building.	X	
STRUCTURE		
Steel structure, maintenance and repair.	X	
Structural enhancements for specific Tenant load requirements.		X
Maintenance and repair of structural framing dunnage above roof for Base Building equipment.	X	
Maintenance and repair of structural framing dunnage above roof for Tenant equipment subject to Landlord review and approval.		X
Maintenance and repair of framed openings for Base Building utility risers.	X	
Maintenance and repair of framed openings for Tenant utility risers in addition to Base Building subject to Landlord review and approval.		X
Maintenance and repair of miscellaneous metals items and/or concrete pads for Base Building equipment.	X	
Maintenance and repair of miscellaneous metals items and/or concrete pads for Tenant equipment.		X
ROOFING		
Maintenance and repair of roofing.	X	
Maintenance and repair of roofing penetrations for Base Building equipment/systems.	X	

Exhibit F - Operations Responsibility Matrix

DESCRIPTION	ALLOCATION	
	Landlord's Responsibility Building Operating Expense	Tenant's Responsibility
Maintenance and repair of walkway pads to Base Building equipment.	X	
EXTERIOR		
Perimeter sidewalks, street curbs, miscellaneous site furnishings, landscaping and parking garage.	X	
Main Building entrances.	X	
Maintenance and repair of loading dock area and overhead doors.	X	
Maintenance and repair of Cambridge Noise Ordinance Compliance for Base Building rooftop equipment.	X	
Cambridge Noise Ordinance Compliance for Tenant rooftop equipment.		X
COMMON AREAS		
Accessible main building entrance.	X	
Upper level elevator lobbies on multi-tenant floors.	X	
Common Area toilet rooms on multi-tenant floors.	X	
Janitor's closets in core areas on multi-tenant floors.	X	
Electric service for lighting for all public areas and special service areas in a manner to the extent deemed by Landlord to be in keeping with the standards of other first class laboratory and office buildings in the Cambridge, Massachusetts market area.	X	
Electrical closets in core areas on multi-tenant floors.	X	
Electrical closets in core areas Serving Base Building and Common Area.	X	
IDF connected to secondary demarcation room.		X
Maintenance and repair of the Building as described in Section 13 of the Lease.	X	
Maintenance and repair of primary demarcation room.	X	
Maintenance and repair of loading dock area.	X	
Maintenance and repair of doors, frames, and hardware at common areas.	X	
CLEANING, LANDSCAPING, SNOW PLOWING AND GARAGE		
Nightly cleaning services in Tenant Premises.		X
Day porter services for Tenant Premises.		X
Nightly cleaning and day porter services for Common Area.	X	
Common Area Cleaning supplies and paper goods.	X	
Trash service in loading dock.	X	

Exhibit F - Operations Responsibility Matrix

DESCRIPTION	ALLOCATION	
	Landlord's Responsibility Building Operating Expense	Tenant's Responsibility
Exterior Landscaping.	X	
Snowplowing and deicing.	X	
Garage Operations.	X	
ELEVATORS		
Maintenance and repair of passenger elevators.	X	
Maintenance and repair of freight elevator.	X	
WINDOW WASHING		
Window Washing Exterior—twice annually.	X	
Window Washing Interior—Common Area—twice annually.	X	
Window Washing Interior—Tenant Premises.		X
FIRE PROTECTION		
Maintenance and repair of fire service entrance including fire department connection, alarm valve, and flow protection.	X	
Maintenance and repair of core area distribution piping and sprinkler heads.	X	
Maintenance and repair of stair distribution piping and sprinkler heads.	X	
Maintenance and repair of primary distribution and sprinkler heads adequate to support ordinary hazard (with upturned heads).	X	
Maintenance and repair of all run outs, drop heads, and related equipment within Tenant premises.		X
Modification of sprinkler piping and head locations to suit Tenant layout and hazard index.		X
Specialized extinguishing systems.		X
Pre-action dry-pipe systems (if required).		X
Where required, maintenance and repair of fire extinguisher cabinets at core areas.	X	
Fire extinguisher cabinets in Tenant Premises.		X
PLUMBING		
Common Area plumbing repairs, maintenance and repair.	X	
Tenant plumbing repairs or replacements,		X
Maintenance and repair of domestic water service with backflow prevention and Base Building risers.	X	
Domestic water distribution within Tenant Premises.		X

Exhibit F - Operations Responsibility Matrix

DESCRIPTION	ALLOCATION	
	Landlord's Responsibility Building Operating Expense	Tenant's Responsibility
Hot and cold domestic water and sanitary sewer at points of supply provided by Landlord for general use of Tenants of the Building, including restrooms and kitchens.	X	
Maintenance and repair of Common Area restroom plumbing fixtures compliant with accessibility requirements.	X	
Tenant restroom plumbing fixtures compliant with accessibility requirements (In addition to those provided by the Base Building).		X
Maintenance and repair of wall hydrants in Common Areas (where required by code).	X	
Tenant metering and sub-metering at Tenant connection.		X
Maintenance and repair of sanitary waste and vent service.	X	
Hot water generation for restrooms.	X	
Lab waste water system, distribution, effluent connection to sanitary, permitting.		X
NATURAL GAS/STEAM		
Maintenance and repair of natural gas/steam pipes for service within Building up to Tenant meter.	X	
Maintenance and repair of natural gas/steam service to Base Building boilers/heat exchangers.	X	
Natural gas service, pressure regulator and meter for Tenant equipment.		X
Natural gas/steam piping from Tenant meter to Tenant Premises or Tenant equipment area.		X
Natural gas/steam pipe distribution within Tenant Premises.		X
Natural gas/steam pressure regulator vent pipe riser from valve location through roof.		X
HEATING, VENTILATION, AIR CONDITIONING		
Maintenance and repair of chillers for core HVAC System -penthouse mechanical.	X	
Maintenance and repair of chilled water pipe risers.	X	
Chilled water pipe distribution within Tenant Premises,		X
Maintenance and repair of central gas fired boiler plant/steam service and heat exchangers—Penthouse Mechanical.	X	
Maintenance and repair of hot water pipe risers.	X	
Hot water pipe distribution within Tenant Premises.		X
Fan coil units and/or VAV boxes within Tenant Premises.		X
Reheat coils, VAV boxes within Tenant Premises.		X

Exhibit F - Operations Responsibility Matrix

DESCRIPTION	ALLOCATION	
	Landlord's Responsibility Building Operating Expense	Tenant's Responsibility
Maintenance and repair of fan coil units within core Common Areas.	X	
Reheat coils VAV boxes within Building Common Areas,	X	
Maintenance and repair of building management system (BMS) for core area and Base Building infrastructure.	X	
Tenant (compatible with Landlord's system—to be a slave system to Base Building Tenant System) within Tenant Premises and Tenant infrastructure.		X
Air Handling Units per Floor serving Single Tenant Premises.		X
Maintenance and repair of vertical supply and return air duct distribution. Terminates at damper on each floor.	X	
Supply air duct distribution, VAV terminals, equipment connections, insulation, air terminals, dampers, hangers, etc. within Tenant Premises.		X
Maintenance and repair of supply air duct distribution, VAV terminals, equipment connections, insulation, air terminals, dampers, hangers, etc. within Base Building.	X	
Maintenance and repair of roof mounted Base Building HVAC infrastructure.	X	
Maintenance and repair of vertical exhaust air duct risers for Building Common Areas.	X	
Exhaust air duct distribution, exhaust air valves, equipment connections, insulation, air terminals, dampers, hangers, etc. within Tenant Premises.		X
Maintenance and repair of exhaust air duct distribution, exhaust air valves, equipment connections, insulation, air terminals, dampers, hangers, etc. within Base Building.	X	
Maintenance and repair of restroom exhaust for Base Building area.	X	
Restroom exhaust for restrooms within Tenant Premises.		X
Maintenance and repair of electric room ventilation system for Base Building electrical closets.	X	
Electric room ventilation system for electrical closets within Tenant premises.		X
Maintenance and repair of sound attenuation for Base Building infrastructure to comply with Cambridge Noise Ordinance.	X	
Sound attenuation for Tenant equipment to comply with Cambridge Noise Ordinance.		X
Additional/ dedicated cooling for Tenant requirements.		X

Exhibit F - Operations Responsibility Matrix

DESCRIPTION	ALLOCATION	
	Landlord's Responsibility Building Operating Expense	Tenant's Responsibility
ELECTRICAL		
Tenant Premises electrical repairs, replacements.		X
Common Area electrical repairs, replacements.	X	
Maintenance and repair of electrical utility service to switchgear.	X	
Tenant Premises Meters—metered by utility provider or sub-metered by Landlord.		X
Maintenance and repair of emergency generator for life safety for Base Building.	X	
Maintenance and repair of sound attenuation for emergency generator for life safety to comply with Cambridge Noise Ordinance.	X	
Standby power distribution within Tenant Premises.		X
Maintenance and repair of lighting and power distribution for Base Building.	X	
Lighting and power distribution for Tenant Premises.		X
Meter for Tenant bus tie-in.		X
Maintenance and repair of common area life safety emergency lighting/signage.	X	
Tenant Premises life safety emergency lighting/signage.		X
Tenant panels, transformers, etc. in addition to Base Building.		X
FIRE ALARM		
Maintenance and repair of Base Building fire alarm system with devices for Building and Common areas.	X	
Fire alarm sub panels and devices for Tenant Premises with integration into Base Building system.		
Testing by Landlord upon occupancy.		X
Alteration to fire alarm system to facilitate Tenant program.		X
Testing of Tenant specific fire suppression system.		X
Installation of fire suppression system Tenant space.		X
Maintenance and repair of fire suppression system testing Common and-Tenant Area Space.	X	
TELEPHONE/DATA		
Maintenance and repair of underground local exchange carrier conduits to primary demarcation room.	X	
Tenant tel/data rooms. .		X
Tel/Data cabling from demarcation room to intermediate Tenant Premises.		X
Fiber optic service for Tenant use.		X

Exhibit F - Operations Responsibility Matrix

<u>DESCRIPTION</u>	<u>ALLOCATION</u>	
	<u>Landlord's Responsibility Building Operating Expense</u>	<u>Tenant's Responsibility</u>
Tel/data infrastructure including but not limited to servers, computers, phone systems, switches, routers, MUX panels, equipment racks, ladder racks, etc.		X
Provisioning of circuits and service from service providers.		X
Audio visual systems and support for Tenant Premises.		X
SECURITY		
Maintenance and repair of card access at Common Area Building entries and video camera coverage of common areas and garage.	X	
Card access into or within Tenant Premises on separate Tenant installed and managed system.		X
Video camera coverage of Tenant Premises on separate Tenant installed and managed system.		X
Maintenance and repair of security in Common Area lobby.	X	
Manned security station in building lobby 24/7/365, but after hours may be remote.	X	
Access cards for Base Building and parking garages furnished by Landlord.	X	

* This list is for building maintenance responsibilities for landlord's Building Operating Expenses and Tenant's responsibilities for maintenance that Tenant is to separately perform at Tenant's sole cost and expense.

EXHIBIT F-1 TO LEASE

FORM OF LICENSE AGREEMENT FOR SHARED EQUIPMENT

LICENSE AGREEMENT

THIS LICENSE AGREEMENT (this “**Agreement**”), dated as of _____, 2017, is made and entered into by and between **ARE-MA REGION NO. 45 LLC**, a Delaware limited liability company (“**Licensor**”), and **TCR² THERAPEUTICS INC.**, a Delaware corporation (“**Licensee**”), with reference to the following Recitals:

RECITALS

A. Licensor is the owner of that certain property commonly known as 100 Binney Street, Cambridge, Massachusetts (the “**Property**”).

B. Concurrently herewith, Licensee and Licensor are entering into that certain Lease Agreement (the “**Lease**”) for certain space located at the Property and more particularly described therein (the “**Premises**”). All initially capitalized terms used herein but not otherwise defined shall have the respective meanings ascribed thereto in the Lease.

C. Licensee desires to have, and Licensor desires to grant to Licensee, certain rights to access and use a certain area of the Property described as the “**Shared Science Facility**” on **Exhibit 1** attached hereto, all in accordance with the terms and provisions set forth below.

AGREEMENT

For and in consideration of the covenants and premises herein contained and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

1. **License.** Licensor hereby grants Licensee, and Licensee hereby accepts, a non-exclusive license to use the Shared Science Facility subject to the terms and provisions of this Agreement.
2. **Use.** Licensee shall exercise its limited rights hereunder in compliance with all laws, orders, judgments, ordinances, regulations, codes, directives, permits, licenses, covenants and restrictions now or hereafter applicable to the Property or Shared Science Facility and the use and occupancy thereof, including the rules and regulations attached as **Exhibit 2** hereto, as the same may be revised by Licensor from time to time. Licensor shall provide written notice to Tenant of such rules and regulations and revisions thereto.
3. **Term.** The term of this Agreement shall commence on the Commencement Date set forth in the Lease (the “**Commencement Date**”) and continue until the earlier to occur of (a) the last day on which Licensee is entitled to occupy the Premises pursuant to the terms of the Lease, (b) the date this Agreement is sooner terminated pursuant to its terms, and (c) the date the Lease is sooner terminated pursuant to its terms. The period between the Commencement Date and the date of termination of this Agreement shall be the “**Term.**”

4. **Relocation and Modification of Shared Science Facility.** Licensor shall have the right at any time to reconfigure, relocate or modify the Shared Science Facility from time to time and to revise or expand any of the services (if any) provided therein; provided, however, that such reconfiguration, relocation or modification of the Shared Science facility or any revision or expansion of services shall not materially adversely affect Tenant's use of the Shared Science Facility or service as permitted pursuant to this Agreement.

5. **Interference.** Licensee shall use the Shared Science Facility in a manner that will not interfere with the rights of any tenants, other licensees or Licensor's service providers. Licensor assumes no responsibility for enforcing Licensee's rights or for protecting the Shared Science Facility from interference or use from any person, including, without limitation, tenants or other licensees of the Property.

6. **Default by Licensee.**

(a) It is mutually agreed that Licensee shall be in default hereunder ("**Default**"),

(i) if Licensee fails to comply with any of the terms or provisions of this Agreement, and fails to cure such default within 30 days after the date of delivery of written notice of default from Licensor, provided that if the nature of such default is such that it cannot be cured by the payment of money and reasonably requires more than 30 days to cure, then Licensee shall not be deemed to be in Default under this License if Licensee commences such cure within 30 days of the aforesaid, notice from Licensor and thereafter diligently prosecutes such cure to completion within 90 days of the aforesaid notice from Licensor; or

(ii) during the occurrence and continuation of any Default (as defined in the Lease) under the Lease.

(b) In the event of any Default by Licensee hereunder, Licensor shall be entitled to all rights and remedies provided for Landlord under the Lease, and all other rights and remedies provided at law or in equity, including without limitation, the right to terminate this Agreement and the license granted hereunder.

7. **Indemnification and Limitation of Liability.**

(a) Licensor's sole obligation for providing any autoclave, glasswash equipment, standby generators or any other standby power equipment, other equipment, systems, furnishings or personal property to the Shared Science Facility, whether or not affixed to the Building (collectively, "**Equipment**") shall be (i) to provide such Equipment as is determined by Licensor in its sole and absolute discretion, and (ii) to contract with a third party (determined by Licensor to be qualified) to maintain the Equipment that is deemed by Licensor (in its reasonable professional discretion) to need periodic maintenance per the manufacturer's standard maintenance guidelines. Licensor shall have no obligation to provide Licensee with operational Equipment, back-up Equipment or back-up utilities or to supervise, oversee or confirm that the third party maintaining the Equipment is maintaining the Equipment as per the manufacturer's standard guidelines or otherwise. During any period of replacement, repair or maintenance of the Equipment when such Equipment is not operational, including any delays thereto due to the inability to obtain parts or replacements, Licensor shall have no obligation to provide Licensee with alternative or back-up Equipment or alternative sources of utilities. Licensee expressly

acknowledges and agrees that Licensor does not guaranty that the Equipment will be operational at all times, will function or perform adequately, or that emergency power will be available to the Premises when needed, and Licensor shall not be liable for any damages resulting from the failure of such Equipment. Licensee hereby releases Licensor from and against any and all claims arising directly or indirectly out of or relating to the Equipment, or the existence, use of failure thereof, unless caused solely by the willful misconduct or gross negligence of Licensor. The terms and provisions of this Section 7(a) shall survive the expiration or earlier termination of this Agreement.

(b) NOTWITHSTANDING ANYTHING SET FORTH HEREIN OR IN ANY OTHER AGREEMENT BETWEEN LICENSOR AND LICENSEE TO THE CONTRARY: (i) LICENSOR SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER PERSON FOR (AND LICENSEE AND EACH SUCH OTHER PERSON ASSUME ALL RISK OF) LOSS, DAMAGE OR INJURY, WHETHER ACTUAL OR CONSEQUENTIAL TO PERSONAL PROPERTY OF EVERY KIND AND DESCRIPTION, INCLUDING, WITHOUT LIMITATION, TRADE FIXTURES, EQUIPMENT, INVENTORY, SCIENTIFIC RESEARCH, SCIENTIFIC EXPERIMENTS, LABORATORY ANIMALS, PRODUCT, SPECIMENS, SAMPLES, AND/OR SCIENTIFIC, BUSINESS, ACCOUNTING AND OTHER RECORDS OF EVERY KIND AND DESCRIPTION AND ANY AND ALL INCOME DERIVED OR DERIVABLE THEREFROM; AND (ii) THERE SHALL BE NO PERSONAL RECOURSE TO LICENSOR FOR ANY ACT OR OCCURRENCE RELATED TO THE EQUIPMENT IN, ON OR ABOUT THE PREMISES, SHARED SCIENCE FACILITY OR PROJECT OR ARISING IN ANY WAY UNDER THIS LICENSE AGREEMENT OR ANY OTHER AGREEMENT BETWEEN LICENSOR AND LICENSEE WITH RESPECT TO THE SUBJECT MATTER HEREOF AND ANY LIABILITY OF LICENSOR HEREUNDER SHALL BE STRICTLY LIMITED SOLELY TO LICENSOR'S INTEREST IN THE PROJECT OR ANY PROCEEDS FROM SALE OR CONDEMNATION THEREOF AND ANY INSURANCE PROCEEDS PAYABLE IN RESPECT OF LICENSOR'S INTEREST IN THE PROJECT OR IN CONNECTION WITH ANY SUCH LOSS; AND (iii) IN NO EVENT SHALL ANY PERSONAL LIABILITY BE ASSERTED AGAINST LICENSOR OR ANY OF ITS OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS IN CONNECTION WITH THIS LICENSE AGREEMENT NOR SHALL ANY RECOURSE BE HAD TO ANY OTHER PROPERTY OR ASSETS OF LICENSOR OR ANY OF LICENSOR'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS OR CONTRACTORS.

(c) Licensee acknowledges and agrees that there are no warranties of any kind, whether express or implied, made by Licensor or otherwise with respect to the Equipment, Shared Science Facility¹ or any services (if any) provided in the Shared Science Facility, and Licensee disclaims any and all such warranties.

(d) Licensor shall not be in default hereunder unless Licensor fails to perform any of its obligations hereunder within thirty (30) days after written notice from Licensee specifying such failure, with such extension of time by reason of Force Majeure as may be reasonably necessary; provided, however, that if the nature of Licensor's obligation arises from an emergency condition and Licensee provides notice to Licensor (which may be telephonic if followed by written notice on the same day describing the emergency condition in reasonable detail, including without limitation the emergency nature of the condition and specifying in all capital letters and boldface type that the condition is an emergency and response is required by Licensor pursuant to this Agreement), then Licensor shall respond within a reasonable period after receipt of such notice of the emergency condition. Licensee's sole remedy for any breach or default by Licensor hereunder shall be to terminate this Agreement and Licensee hereby, to the maximum extent possible, knowingly waives the provisions of any law or regulation, now or hereafter in effect which provides additional or other remedies to Licensee as a result of any breach by Licensor hereunder or under any such law or regulation.

8. Miscellaneous.

(a) This Agreement, together with the Lease, constitutes the entire agreement and understanding between the parties, and supersedes all offers, negotiations and other agreements concerning the subject matter contained herein. Any amendments to this Agreement must be in writing and executed by both parties.

(b) If any clause or provision of this Agreement is illegal, invalid or unenforceable under present or future laws, then and in that event, it is the intention of the parties hereto that the remainder of this Agreement shall not be affected thereby.

(c) This Agreement shall be binding on and inure to the benefit of the successors and permitted assigns of the respective parties.

(d) All notices or other communications between the parties shall be in writing and shall be deemed duly given upon delivery or refusal to accept delivery by the addressee thereof if delivered in person, or upon actual receipt if delivered by reputable overnight guaranty courier, addressed and sent to the parties at their addresses set forth in the Lease {as the same may be revised from time to time in accordance with the terms of the Lease}.

(e) The license granted hereunder is appurtenant to Licensee's leasehold interest in the Premises and may not be assigned or otherwise pledged or transferred, directly or indirectly, except in connection with any assignment of the Lease or sublease of the Premises to which Landlord consents or is otherwise permitted under the Lease. In the event of a permitted assignment of the Lease, this Agreement shall automatically be assigned thereby, and thereupon the assigning Licensee shall have no further rights to use or access the Shared Science Facility. No assignment or other transfer of the Lease or of this License shall release Licensee of its obligations hereunder.

(f) This Agreement shall be construed, interpreted, governed and enforced pursuant to the laws of the state in which the Property is located.

(g) This Agreement may be executed in multiple counterparts but all counterparts taken together shall constitute a single document.

(h) Time is of the essence of each and every provision of this Agreement.

(i) The parties to this Agreement hereby acknowledge that each such party and its counsel have participated in the negotiation and preparation of this Agreement, and this Agreement shall be construed and interpreted without regard to any presumption or other rule requiring construction against the party causing the Agreement to be drafted.

(j) Licensee acknowledges that its use of the Shared Science Facility are non-exclusive and will be subject to the use of other tenants and licensees of the Property. Licensee acknowledges that it will be important for all such users to cooperate with each other, to maintain the confidentiality of each party's documents and operations as well as information a party may hold under confidential arrangements with third parties. Licensee shall maintain and treat as

confidential and secret all information and materials which may intentionally or unintentionally be disclosed to it in connection with such shared occupancy (the “**Confidential Information**”). Licensee shall not disclose Confidential Information to any third party and will take appropriate action by instruction, agreement or otherwise with its employees, agents, affiliates, associates, representatives, contractors and invitees to ensure that security of the Confidential Information is maintained. Notwithstanding the foregoing, Licensee may disclose Confidential Information to the extent that (a) disclosure is compelled by judicial or administrative process or other requirements of law, or (b) Licensee can show that such Confidential information (i) was publicly available prior to the date of this Agreement or thereafter became publicly available without violation of this Agreement by Licensee or its employees, agents, affiliates, associates, representatives, contractors or invitees, or (ii) became available to Licensee by means other than its use of or access to the Shared Science Facility. The provisions of this Section 8(j) shall survive the expiration or earlier termination of this Agreement

[Signatures on Next Page]

IN WITNESS WHEREOF, Licensors and Licensee have caused this Agreement to be executed by their duly authorized representatives as of the date first above written.

LICENSEE:

TCR2 THERAPEUTICS INC.,
a Delaware corporation

By: _____

Its: _____

LICENSOR:

ARE-MA REGION NO. 45, LLC, a Delaware limited liability corporation

By: Alexandria Real Estate Equities, L.P., a Delaware limited partnership, Managing Member

By: ARE-QRS CORP., a Maryland corporation,
General Partner

By: _____

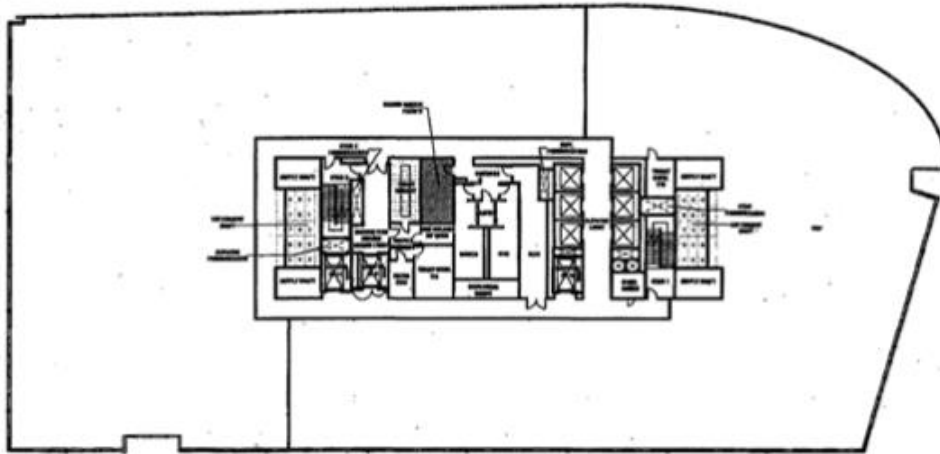
Its: _____

EXHIBIT 1 TO LICENSE AGREEMENT

DRAWING SHOWING SHARED SCIENCE FACILITY

(attached)

TCR
 EXHIBIT 1 TO LICENSE AGREEMENT FOR SHARED EQUIPMENT
 DRAWING SHOWING SHARED SCIENCE FACILITY



SHARED SCIENCE FACILITY

100 BINNEY STREET
 Cambridge, Massachusetts

LEVEL 7 AREA DIAGRAM
 06/10/17

3/8" = 1'-0"



ALEXANDRIA CENTER
 2/20/17/18

ELKS MAXFRESH
 06/10/17

CONFIDENTIAL AND PROPRIETARY - DO NOT COPY OR DISTRIBUTE

EXHIBIT 2 TO LICENSE AGREEMENT

RULES AND REGULATIONS

Rules and regulations (if any) will be established and implemented by Licensor during the Term.

EXHIBIT G TO LEASE

TENANT'S PERSONAL PROPERTY

None.

EXHIBIT H

FORM OF ESTOPPEL CERTIFICATE

THIS TENANT ESTOPPEL CERTIFICATE (“Certificate”), dated as of _____, 20__, is executed by TCR² THERAPEUTICS INC., a Delaware corporation (“Tenant”) in favor of ARE-MA REGION NO. 45, LLC, a Delaware limited liability company, together with its nominees, designees and assigns (collectively, “Landlord”).

RECITALS

- A. Tenant and Landlord have entered into that certain Lease Agreement dated as of _____, 2017 (together with all amendments, modifications, and supplements, thereof, the “Lease”), for a portion of the Project.
- B. Pursuant to the Lease, Tenant has agreed that upon the request of Landlord, Tenant would execute and deliver an estoppel certificate certifying the status of the Lease.
- C. Landlord has requested that Tenant execute this Certificate with an understanding that Landlord and parties designated by Landlord will rely on the representations and agreements below.

NOW, THEREFORE, Tenant certifies, warrants, and represents to Landlord as follows:

1. **Lease.** Attached hereto as Exhibit 1 is a true, correct and complete copy of the Lease, including the following amendments, modifications, supplements, guarantees and restatements thereof, which together represent all of the amendments, modifications, supplements, guarantees and restatements thereof: _____. (If none, please state “None.”)
2. **Premises.** Pursuant to the Lease, Tenant leases those certain premises (the “Premises”) consisting of approximately _____ rentable square feet within the Project, as more particularly described in the Lease. In addition, pursuant to the terms of the Lease, Tenant has a license for the use of [_____] parking spaces in the Garage and [_____] parking spaces in the parking garage located at 50-60 Binney Street, Cambridge, Massachusetts during the Term of the Lease.
3. **Full Force of Lease.** The Lease has been duly authorized, executed and delivered by Tenant, is in full force and effect has not been terminated and constitutes a legally valid instrument, binding and enforceable against Tenant in accordance with its terms, subject only to applicable limitations imposed by laws relating to bankruptcy and creditor’s rights.
4. **Complete Agreement.** The Lease constitutes the complete agreement between Landlord and Tenant for the Premises and the Project, except as modified by the Lease amendments noted above (if any).
5. **Acceptance of Premises.** The Premises have been Delivered to Tenant. [NOTE: N/A if prior to Commencement Date.] Tenant has accepted possession and is currently occupying the Premises [NOTE: N/A if prior to Commencement Date].

6. Lease Term; Extension; Expansion. The term of the Lease commenced on _____, 20__ and ends on _____, 20__. Tenant has one option to extend the Base Term as set forth in the Lease. Tenant has no option to lease, right of first refusal to lease, right of first offer to lease, or other right to expand the Premises or lease any other portion of the Project.

7. No Purchase Rights. Tenant has no option, right of first refusal, right of first offer on sale, or other right to purchase all or any portion of the Premises or the Project.

8. Rent. The obligation to pay rent under the Lease commenced on _____, 20__. The rent under the Lease is current, and to the best of Tenant's knowledge, Tenant is not in Default in the performance of any of its obligations under the Lease.

Tenant is currently paying base rent under the Lease in the amount of \$_____ per month, and is currently paying for parking under the Lease in the amount of \$_____ per month. Tenant has not received and is not, presently, entitled to any abatement, refunds, rebates, concessions or forgiveness of rent or other charges, free rent, partial rent, or credits, offsets or reductions in rent, except as follows: _____. (If none, please state "None.")

Tenant's estimated share of operating expenses, common area charges, insurance, real estate taxes and administrative and overhead expenses is ____% and is currently being paid at the rate of \$_____ per month, payable to: _____. Tenant's estimated share of 50-60 Garage Expenses is ____% and is currently being paid at the rate of \$_____ per month, payable to: _____.

To the best of Tenant's knowledge, as of the date hereof, there are no existing defenses or offsets against rent due or to become due under the terms of the Lease, and there presently is no default or other wrongful act or omission by Landlord under the Lease or otherwise in connection with Tenant's occupancy of the Premises, except as follows: _____. (If none, please state "None.")

9. Security Deposit. A Security Deposit in the form of a letter of credit in the amount of \$_____ is held by Landlord under the Lease.

10. Prepaid Rent. The amount of prepaid rent is \$_____, covering the period from _____, 20__ to _____, 20__.

11. Tenant Improvements. As of the date of this Certificate, to the best of Tenant's knowledge, Landlord has performed all obligations required of Landlord pursuant to the Lease; no offsets, counterclaims, or defenses of Tenant under the Lease exist against Landlord; except as follows: _____. (If none, please state "None.")

12. Assignments by Landlord. Tenant has received no notice of any assignment, hypothecation or pledge of the Lease or rentals under the Lease by Landlord, except as follows: _____. (If none, please state "None".)

13. Assignments by Tenant. Tenant has not sublet or assigned the Leased Premises or the Lease or any portion thereof to any sublessee or assignee, except as follows: _____. (If none, please state "None".) The address for notices to be sent to Tenant is as set forth in the Lease.

Tenant makes this Certificate with the knowledge that it will be relied upon by Landlord and its designees.

Tenant has executed this Certificate as of the date first written above by the person named below, who is duly authorized to do so.

TENANT:

TCR² THERAPEUTICS INC.,
a Delaware corporation

By: _____

Name: _____

Its: _____

EXHIBIT I

RULES AND REGULATIONS

1. The sidewalk, entries, and driveways of the Project shall not be obstructed by Tenant, or any Tenant Party, or used by them for any purpose other than ingress and egress to and from the Premises.
2. Tenant shall not place any objects, including antennas, outdoor furniture, etc., in the parking areas, landscaped areas or other areas outside of its Premises, or on the roof of the Project.
3. Except for animals assisting the disabled, no animals shall be allowed in the offices, halls, or corridors in the Project.
4. Tenant shall not disturb the occupants of the Project or adjoining buildings by the use of any radio or musical instrument or by the making of loud or improper noises.
5. If Tenant desires telegraphic, telephonic or other electric connections in the Premises, Landlord or its agent will direct the electrician as to where and how the wires may be introduced; and, without such direction, no boring or cutting of wires will be permitted. Any such installation or connection shall be made at Tenant's expense.
6. Tenant shall not install or operate any steam or gas engine or boiler, or other mechanical apparatus in the Premises, except as specifically approved in or in connection with the Lease. The use of oil, gas or inflammable liquids for heating, lighting or any other purpose is expressly prohibited. Explosives or other articles deemed extra hazardous shall not be brought into the Project.
7. Parking any type of recreational vehicles is specifically prohibited on or about the Project. Except for the overnight parking of operative vehicles, no vehicle of any type shall be stored in the parking areas at any time. In the event that a vehicle is disabled, it shall be removed within 48 hours. There shall be no "For Sale" or other advertising signs on or about any parked vehicle. All vehicles shall be parked in the designated parking areas in conformity with all signs and other markings. All parking will be open parking, and no reserved parking, numbering or lettering of individual spaces will be permitted except as specified by Landlord.
8. Tenant shall maintain the Premises free from rodents, insects and other pests.
9. Landlord reserves the right to exclude or expel from the Project any person who, in the judgment of Landlord, is intoxicated or under the influence of liquor or drugs or who shall in any manner do any act in violation of the Rules and Regulations of the Project.
10. Tenant shall not cause any unnecessary labor by reason of Tenant's carelessness or indifference in the preservation of good order and cleanliness. Landlord shall not be responsible to Tenant for any loss of property on the Premises, however occurring, or for any damage done to the effects of Tenant by the janitors or any other employee or person.

11. Tenant shall give Landlord prompt notice of any defects in the water, lawn sprinkler, sewage, gas pipes, electrical lights and fixtures, heating apparatus, or any other service equipment affecting the Premises.
12. Tenant shall not permit storage outside the Premises, including without limitation, outside storage of trucks and other vehicles, or dumping of waste or refuse or permit any harmful materials to be placed in any drainage system or sanitary system in or about the Premises.
13. All moveable trash receptacles provided by the trash disposal firm for the Premises must be kept in the trash enclosure areas, if any, provided for that purpose.
14. No auction, public or private, will be permitted on the Premises or the Project.
15. No awnings shall be placed over the windows in the Premises except with the prior written consent of Landlord.
16. The Premises shall not be used for lodging, sleeping or cooking or for any immoral or illegal purposes or for any purpose other than that specified in the Lease (except for the use of microwave ovens, coffee makers and similar appliances customarily used in office kitchens). No gaming devices shall be operated in the Premises.
17. Tenant shall ascertain from Landlord the maximum amount of electrical current which can safely be used in the Premises, taking into account the capacity of the electrical wiring in the Project and the Premises and the needs of other tenants, and shall not use more than such safe capacity. Landlord's consent to the installation of electric equipment shall not relieve Tenant from the obligation not to use more electricity than such safe capacity.
18. Tenant assumes full responsibility for protecting the Premises from theft, robbery and pilferage.
19. Tenant shall not install or operate on the Premises any machinery or mechanical devices of a nature not directly related to Tenant's ordinary use of the Premises and shall keep all such machinery free of vibration, noise and air waves which may be transmitted beyond the Premises.

EXHIBIT J

FORM OF SNDA

This Lease Subordination, Non-Disturbance of Possession and Attornment Agreement (hereinafter, the “**Subordination, Non-Disturbance and Attornment Agreement**” or “**Agreement**”) is made as of the ____ day of _____, 20__, among _____ a, _____ having a place of business at _____ (the “**Agent**”), as agent for itself and any other lenders (collectively, the “**Lenders**”) which may become mortgage lenders to ARE-MA Region No. 45, LLC, a Delaware limited liability company having an address at 385 East Colorado Boulevard, Suite 299, Pasadena, CA 91101 (hereinafter, the “**Landlord**”), and TCR2 Therapeutics Inc., a Delaware corporation, having a place of business at _____ (hereinafter, the “**Tenant**”). The term Agent shall include anyone claiming by, through or under Agent.

Introductory Provisions

A. The Agent and the Lenders are relying on this Agreement as an inducement to Lender in making and maintaining a loan (hereinafter, the “**Loan**”) secured by, among other things, a certain [Title of Mortgage] dated as of _____, 20__ (hereinafter, the “**Mortgage**”) given by Landlord covering property located and known as 100 Binney Street, Cambridge, Massachusetts, which property is more particularly described on Exhibit A hereto (hereinafter, the “**Property**”). The Agent is also the “Assignee” under an Assignment of Leases and Rents (hereinafter, the “**Assignment**”) dated as of _____, 20__, from Landlord with respect to the Property.

B. Tenant is the tenant under that certain Lease Agreement (hereinafter, the “**Lease**”) dated _____, 2017, made with Landlord, covering certain premises (hereinafter, the “**Premises**”) at the Property as more particularly described in the Lease.

C. Agent and Lenders require, as a condition to the making and maintaining of the Loan, that the Mortgage be and remain superior to the Lease and that its rights under the Assignment be recognized.

D. Tenant requires as a condition to the Lease being subordinate to the Mortgage that its rights under the Lease be recognized.

E. Agent, Landlord, and Tenant desire to confirm their understanding with respect to the Mortgage and the Lease.

NOW, THEREFORE, in consideration of the foregoing, the mutual covenants and agreements contained herein, and other valuable consideration, the receipt and adequacy of which are hereby acknowledged, and with the understanding by Tenant that Lender shall rely hereon in making and maintaining the Loan, the Agent, the Landlord, and the Tenant agree as follows:

1. Subordination. Subject to Section 2 of this Agreement, the Lease is subordinate and inferior to the lien of the Mortgage, as affected by any amendment, renewal, substitution, extension or replacement of the Mortgage and each advance made thereunder as though the Mortgage, and each such amendment, renewal, substitution, extension or replacement were executed and recorded, and the advance made, before the execution of the Lease.

2. Non-Disturbance. So long as Tenant is not in Default (beyond any period expressed in the Lease within which Tenant may cure such default) in the payment of rent or in the performance or observance of any of the terms, covenants or conditions of the Lease on Tenant's part to be performed or observed: (i) Tenant's occupancy of the Premises under the terms of the Lease shall not be disturbed by Agent in the exercise of any of its rights under the Mortgage during the term of the Lease, or any extension or renewal thereof made in accordance with the terms of the Lease, (ii) Agent will not join Tenant as a party defendant in any action or proceeding for the purpose of terminating Tenant's interest and estate under the Lease because of any default under the Mortgage, and (iii) Agent shall recognize all of Tenant's rights under the Lease (subject to the terms of this Agreement).

3. Attornment and Certificates. In the event Agent succeeds to the interest of Landlord as Landlord under the Lease, or if the Property or the Premises are sold pursuant to the power of sale under the Mortgage, Tenant shall attorn to Agent, or a purchaser upon any such foreclosure sale, and shall recognize Agent, or such purchaser, thereafter as the Landlord under the Lease. Such attornment shall be effective and self-operative without the execution of any further instrument. Tenant agrees, however, to execute and deliver at any time and from time to time, upon the request of any holder(s) of any of the indebtedness or other obligations secured by the Mortgage, or upon request of any such purchaser: (a) any instrument or certificate, in form and substance reasonably acceptable to Tenant, which, in the reasonable judgment of such holder(s), or such purchaser, may be necessary or appropriate in any such foreclosure proceeding or otherwise to evidence such attornment, and (b) an instrument or certificate regarding the status of the Lease, consisting of statements, if true (and if not true, specifying in what respect): (i) that the Lease is in full force and effect, (ii) the date through which rentals have been paid, (iii) the duration and date of the commencement of the term of the Lease, (iv) the nature of any amendments or modifications to the Lease, (v) that, to the knowledge of Tenant, no default, or state of facts, which with the passage of time, or notice, or both, would constitute a default, exists on the part of either party to the Lease, (vi) the dates on which payments of additional rent, if any, are due under the Lease and (vii) any other matters provided to be given in estoppels by Tenant under the Lease.

4. Limitations. If: (i) Agent exercises any of its rights under the Assignment or the Mortgage, or (ii) Agent shall succeed to the interest of Landlord under the Lease in any manner, or (iii) any purchaser acquires the Property, or the Premises, upon or after any foreclosure of the Mortgage, or any deed in lieu thereof (each hereinafter referred to as a "Succession Event"), Agent or such purchaser, as the case may be, shall have the same remedies by entry, action or otherwise in the event of any default by Tenant (beyond any period expressed in the Lease within which Tenant may cure such default) in the payment of rent or in the performance or observance of any of the terms, covenants and conditions of the Lease on Tenant's part to be paid, performed or observed that the Landlord had or would have had if Agent or such purchaser had not succeeded to the interest of the present Landlord. From and after any such Succession Event, Agent or such purchaser shall, except as provided herein, be bound to Tenant under all the terms, covenants and conditions of the Lease, and Tenant shall, from and after such attornment to Agent, or to such purchaser, have the same remedies against Agent, or such purchaser, for the breach of an agreement contained in the Lease that Tenant might have had under the Lease against Landlord, if Agent or such purchaser had not succeeded to the interest of Landlord; provided, however, that Agent or such purchaser shall only be bound during the period of its ownership, and that in the case of the exercise by Agent of its rights under the Mortgage, or the Assignment, or any combination thereof, or a foreclosure, or deed in lieu of foreclosure, all Tenant claims shall be satisfied only out of the interest, if any, of Agent, or such purchaser, in the Property, and Agent

and such purchaser shall not, subject to the provisions of the following paragraph, be (a) liable for any act or omission or misrepresentation of any prior landlord (including the Landlord); or (b) liable for or incur any obligation with respect to the construction of the Property or any improvements of the Premises or the Property; or (c) subject to any offsets or defenses which Tenant might have against Landlord, except those of which notice of which was given to Agent in accordance with Section 9 hereof; or (d) bound by any rent or additional rent which Tenant might have paid for more than the then current rental period to any prior landlord including the Landlord (other than to the extent that estimated monthly payments required to be paid by Tenant pursuant to provisions of the Lease exceed the actual amount of additional rent due from Tenant); or (e) bound by any amendment or modification of the Lease, made without Agent's prior written consent, which consent shall not be unreasonably withheld and which consent shall not be required with respect to amendments ratifying the exercise by Tenant of its rights under the Lease (e.g., without limitation, extension and expansion options); (f) bound by or responsible for any security deposit or proceeds of any letter of credit not actually received by Agent; or (g) liable for or incur any obligation with respect to the payment of any amounts due and owing to the Tenant by the Landlord including, without limitation, payment of any TI , Allowance (as defined in the "Work Letter-Tenant Improvements" in Exhibit C to the Lease); or (h) liable for consequential damages.

Subject to Tenant's obligation to provide notice of defaults to Agent as provided in Section 7, below: (x) nothing herein shall affect or delay Tenant's rights under Sections 18 and 19 of the Lease, and (y) no holder shall be relieved of its obligations as party-Landlord arising under the Lease from or after the date of a Succession Event that such holder first acquires title or possession to the Premises. Without limiting the foregoing, nothing herein shall relieve any holder from Landlord's obligation to perform maintenance and repairs as required under the Lease based upon the fact that the need for such maintenance or repairs first arose prior to the Succession Date. However, Agent shall in no event be responsible for any hazardous materials or environmental or safety issues, or any violations of any related laws, rules regulations or orders with respect to the Property (an "**Environmental Concern**") which first occur or first exist prior to any acceptance of title to the Property by Agent after foreclosure or deed in lieu of foreclosure, if ever. The presumptive burden of proof shall be on any party claiming that any Environmental Concern first occurred or first existed after Agent acquired title to the Property.

5. Construction Related Costs. Notwithstanding anything in the Lease to the contrary, neither the Agent nor Lenders shall be obligated to Tenant with respect to any construction-related costs (including, but not limited to, for any base building work or unfunded TI Allowance) that may be payable by Landlord under the Lease.

6. Rights Reserved. Nothing herein contained is intended, nor shall it be construed, to abridge or adversely affect any right or remedy of: (a) the Landlord under the Lease, or any subsequent Landlord, against the Tenant in the event of any default by Tenant (beyond any period expressed in the Lease within which Tenant may cure such default) in the payment of rent or in the performance or observance of any of the terms, covenants or conditions of the Lease on Tenant's part to be performed or observed; or (b) the Tenant under the Lease against the original or any prior Landlord in the event of any default by the original Landlord to pursue claims against such original or prior Landlord whether or not such claim is barred against Agent or a subsequent purchaser.

7. Notice and Right to Cure. Tenant agrees to provide Agent with a copy of each notice of default under the Lease or failure of Landlord to satisfy a condition precedent to Tenant's obligations under the Lease, at the same time as Tenant provides Landlord with such notice, and that in the event of any default or failure by the Landlord under the Lease, Tenant will take no action to terminate the Lease: (a) if the default or failure is not curable by Agent (so long as the default does not interfere with Tenant's use and occupation of the Premises), or (b) if the default or failure is curable by Agent, unless the default or failure remains uncured for a period of thirty (30) days after written notice thereof shall have been given, postage prepaid, to Landlord at Landlord's address, and to Agent at the address provided in Section 8 below; provided, however, that if any such default or failure is such that it reasonably cannot be cured within such thirty (30) day period, such period shall be extended for such additional period of time as shall be reasonably necessary (including, without limitation, a reasonable period of time to obtain possession of the Property and to foreclose the Mortgage, provided, however, that in no event shall such period exceed 150 days), if Agent gives Tenant written notice within such thirty (30) day period of Agent's election to undertake the cure of the default or failure and if curative action (including, without limitation, action to obtain possession and foreclose) is instituted within a reasonable period of time and is thereafter diligently pursued; and provided, further, however, that the foregoing notice and extended cure periods shall not limit or delay, except as otherwise set forth herein, any rent abatement or termination rights permitted to Tenant under the Lease under Sections 18 or 19, provided, however, that Tenant gives Agent a copy of any written notice and, with respect to Tenant's abatement rights pursuant to Sections 18 or 19, neither Landlord or Agent pays the full amount due to Tenant within thirty (30) days after such notice. Agent shall have no obligation to cure any default or failure under the Lease.

8. Notices. Any notice or communication required or permitted hereunder shall be in writing, and shall be given or delivered: (i) by United States mail, registered or certified, postage fully prepaid, return receipt requested, or (ii) by recognized courier service or recognized overnight delivery service; and in any event addressed to the party for which it is intended at its address set forth below:

To Agent:

Attention: _____

and

Attention: _____

with copies by regular mail or such hand delivery:

Attention: _____

If to Landlord:

385 East Colorado Boulevard, Suite 299

Pasadena, CA 91101
Attention: Corporate Secretary
Re: 100 Binney Street, Cambridge, MA

If to Tenant:

Attention: _____

With a copy to:

Attention: _____

or such other address as such party may have previously specified by notice given or delivered in accordance with the foregoing. Any such notice shall be deemed to have been given and received on the date delivered or tendered for delivery during normal business hours as herein provided.

9. No Oral Change. This Agreement may not be modified orally or in any manner than by an agreement in writing signed by the parties hereto or their respective successors in interest.

10. Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon the parties hereto, their respective heirs, personal representatives, successors and assigns, and any purchaser or purchasers at foreclosure of the Property or any portion thereof, and their respective heirs, personal representatives, successors and assigns.

11. Payment of Rent To Agent. Tenant acknowledges that It has notice that the Lease and the rent and all sums due thereunder have been assigned to Agent, on behalf of the Lenders, as part of the security for the obligations secured by the Mortgage. In the event Agent notifies Tenant of a default under the Loan and demands that Tenant pay its rent and ail other sums due under the Lease to Agent, Tenant agrees that it will honor such demand and pay its rent and all other sums due under the Lease to Agent, or Agent's designated agent, until otherwise notified in writing by Agent. Landlord unconditionally authorizes and directs Tenant to make rental payments directly to Agent following receipt of such notice and further agrees that Tenant may rely upon such notice without any obligation to further inquire as to whether or not any default exists under the Mortgage or the Assignment, that Landlord shall have no right or claim against Tenant for or by reason of any payments of rent or other charges made by Tenant to Agent following receipt of such notice, and that any amounts paid by Tenant in accordance with such notice shall have the same effect under the Lease as if Tenant had made such payments directly to Landlord.

12. No Amendment of Lease. So long as the Mortgage remains undischarged of record, Tenant shall not amend or modify the Lease without Agent's prior written consent in each instance, such consent not to be unreasonably withheld, delayed or conditioned in the case of an amendment or modification of the Lease or any assignment and subletting (and which consent shall not be unreasonably withheld or delayed and which consent shall not be required with respect to any amendment, modification or termination which is the result of the exercise by Tenant of its rights under the Lease, e.g., without limitation, extension and expansion rights).

13. Captions. Captions and headings of sections are not parts of this Agreement and shall not be deemed to affect the meaning or construction of any of the provisions of this Agreement.

14. Counterparts. This Agreement may be executed in several counterparts each of which when executed and delivered is an original, but all of which together shall constitute one instrument.

15. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts.

16. Parties Bound. The provisions of this Agreement shall be binding upon and inure to the benefit of Tenant, Agent, Lender and Landlord and their respective successors and assigns; provided, however, reference to successors and assigns of Tenant shall not constitute a consent by Landlord to an assignment or sublet by Tenant, but has reference only to those instances in which such consent is not required pursuant to the Lease or for which such consent has been given.

[Remainder of this page intentionally left blank; signature pages follow]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed as of the date first above written.

AGENT:

By: _____

Its: _____

100 Binney Street, Cambridge/TCR² Therapeutics Inc.

TENANT:

TCR² THERAPEUTICS INC.,
a Delaware corporation

By: _____

Its: _____

LANDLORD:

ARE-MA REGION NO. 45, LLC,
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P., a
Delaware limited partnership, Managing Member

By: ARE-QRS CORP.,
a Maryland corporation,
General Partner

By: _____

Its: _____

STATE OF _____

_____ County, ss.

On this ____ day of _____, 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was _____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose, as _____ of _____, a _____, as the voluntary act of said _____.

(official signature and seal of notary)

My commission expires

COMMONWEALTH OF MASSACHUSETTS

_____ County, ss.

On this ____ day of _____, 20__, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was _____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that (he) (she) signed it voluntarily for its stated purpose, as _____ of _____, a _____, as the voluntary act of said _____.

(official signature and seal of notary)

My commission expires

Exhibit A
Legal Description

That certain parcel of land located in Cambridge, Middlesex County, Massachusetts, shown as Lot 1 on that certain plan entitled “Consolidation and Subdivision Plan, 30-100 Binney Street; 41 William “Doc” Linskey Way; 77 William “Doc” Linskey Way; Cambridge, Mass.”, dated February 10, 2011, prepared by Harry R. Feldman, Inc., recorded with Middlesex South Registry of Deeds as Plan No. 168 of 2011, said lot containing 54,423 square feet according to said plan.

EMPLOYMENT AGREEMENT

This Employment Agreement (“Agreement”) is made by and between TCR² Therapeutics Inc., a Delaware corporation (the “Company”), and (the “Executive”), and is effective as of the closing of the Company’s first underwritten public offering of its equity securities pursuant to an effective registration statement under the Securities Act of 1933, as amended (the “Effective Date”). Except with respect to the Equity Documents and the Restrictive Covenants Agreement (each as defined below) and subject to Section 10 below, this Agreement supersedes, amends and restates in all respects all prior agreements between the Executive and the Company regarding the subject matter herein, including without limitation any offer letter, employment agreement or severance agreement.

WHEREAS, the Company desires to continue to employ the Executive and the Executive desires to continue to be employed by the Company on the terms contained herein.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. Employment.

(a) Term. The Company and the Executive desire to continue their employment relationship pursuant to this Agreement commencing as of the Effective Date and continuing in effect until terminated by either party in accordance with this Agreement (the “Term”). The Executive’s employment with the Company will continue to be “at will,” meaning that the Executive’s employment may be terminated by the Company or the Executive at any time and for any reason subject to the terms of this Agreement.

(b) Position and Duties. During the Term, the Executive shall serve as the **[title]** of the Company, and shall have powers and duties that may from time to time be prescribed by the [Board of Directors of the Company (the “Board”)]¹ [Company’s Chief Executive Officer (the “CEO”) or another authorized executive]². The Executive shall devote [his]/[her] full working time and efforts to the business and affairs of the Company. Notwithstanding the foregoing, the Executive may serve on up to [two] other boards of directors, with the prior written approval of the [Chairman of the Board]³/[Chairman of the Board of Directors of the Company (the “Board”)]⁴, which approval shall not be unreasonably withheld, or engage in religious, charitable or other community activities as long as such services and activities are disclosed to the Board and do not interfere with the Executive’s performance of [his]/[her] duties to the Company as provided in this Agreement. The Executive reaffirms that [he]/[she] has no contractual commitments or other legal obligations that would prohibit [him]/[her] from fully performing [his]/[her] duties for the Company.

¹ NTD: CEO agreement only.

² NTD: Other C-level agreements.

³ NTD: CEO agreement.

⁴ NTD: Other C-level agreements.

2. Compensation and Related Matters.

(a) Base Salary. The Executive's base salary shall be paid at the rate of \$ _____ per year, which is subject to review and redetermination by the Board or the Compensation Committee. The base salary in effect at any given time is referred to herein as "Base Salary." The Base Salary shall be payable in a manner that is consistent with the Company's usual payroll practices for senior executives.

(b) Incentive Compensation. During the Term, the Executive shall be eligible to receive cash incentive compensation as determined by the Board or the Compensation Committee from time to time. The Executive's target annual incentive compensation shall be _____ percent of [his]/[her] Base Salary, as may be redetermined from time to time (the "Target Bonus"). The actual amount of the Executive's annual incentive compensation, if any, shall be determined in the sole discretion of the Board or the Compensation Committee. Except as otherwise provided herein, to earn incentive compensation, the Executive must be employed by the Company on the day such incentive compensation is paid.

(c) Expenses. The Executive shall be entitled to receive prompt reimbursement for all reasonable expenses incurred by [him]/[her] during the Term in performing services hereunder, in accordance with the policies and procedures then in effect and established by the Company for its senior executive officers.

(d) Other Benefits. During the Term, the Executive shall be entitled to continue to participate in or receive benefits under the Company's employee benefit plans in effect from time to time, including paid sick time under applicable law, subject to the terms of such plans and to the Company's ability to amend, modify, replace or terminate such plans and programs.

(e) Vacations. During the Term, the Executive shall be entitled to take paid time off in accordance with the Company's applicable paid time off policy for executives, as may be in effect from time to time. The Executive shall also be entitled to all paid holidays given by the Company to its executives.

(f) Equity. The equity awards held by the Executive shall be governed by the terms and conditions of the Company's applicable equity incentive plan(s) and the applicable award agreement(s) governing the terms of such equity awards held by the Executive (collectively, the "Equity Documents"); provided, however, and notwithstanding anything to the contrary in the Equity Documents, Section 5(c) of this Agreement shall apply for all previous and future equity grants in the event of a termination by the Company without Cause or by the Executive for Good Reason in either event outside the Change in Control Period (as such terms are defined below) and Section 6(a)(ii) of this Agreement shall apply for all previous and future equity grants in the event of a termination by the Company without Cause or by the Executive for Good Reason in either event within the Change in Control Period.

3. Termination. During the Term, the Executive's employment hereunder may be terminated without any breach of this Agreement under the following circumstances:

(a) Death. The Executive's employment hereunder shall terminate upon [his]/[her] death.

(b) Disability. The Company may terminate the Executive's employment if [he]/[she] is disabled and unable to perform the essential functions of the Executive's then existing position or positions under this Agreement with or without reasonable accommodation for a period of 180 days (which need not be consecutive) in any 12-month period. If any question shall arise as to whether during any period the Executive is disabled so as to be unable to perform the essential functions of the Executive's then existing position or positions with or without reasonable accommodation, the Executive may, and at the request of the Company shall, submit to the Company a certification in reasonable detail by a physician selected by the Company to whom the Executive or the Executive's guardian has no reasonable objection as to whether the Executive is so disabled or how long such disability is expected to continue, and such certification shall for the purposes of this Agreement be conclusive of the issue. The Executive shall cooperate with any reasonable request of the physician in connection with such certification. If such question shall arise and the Executive shall fail to submit such certification, the Company's determination of such issue shall be binding on the Executive. Nothing in this Section 3(b) shall be construed to waive the Executive's rights, if any, under existing law including, without limitation, the Family and Medical Leave Act of 1993, 29 U.S.C. §2601 *et seq.* and the Americans with Disabilities Act, 42 U.S.C. §12101 *et seq.*

(c) Termination by Company for Cause. The Company may terminate the Executive's employment hereunder for Cause. For purposes of this Agreement, "Cause" shall mean: (i) the Executive's dishonest statements or acts with respect to the Company or any affiliate of the Company, or any current or prospective customers, suppliers vendors or other third parties with which such entity does business; (ii) the Executive's commission of (A) a felony or (B) any misdemeanor involving moral turpitude, deceit, dishonesty or fraud; (iii) the Executive's failure to perform [his]/[her] assigned duties and responsibilities to the reasonable satisfaction of the Company which failure continues, in the reasonable judgment of the Company, after written notice given to the Executive by the Company; (iv) the Executive's gross negligence, willful misconduct or insubordination with respect to the Company or any affiliate of the Company; or (v) the Executive's material violation of any provision of any agreement(s) between the Executive and the Company relating to noncompetition, nonsolicitation, nondisclosure and/or assignment of inventions.

(d) Termination without Cause. The Company may terminate the Executive's employment hereunder at any time without Cause. Any termination by the Company of the Executive's employment under this Agreement which does not constitute a termination for Cause under Section 3(c) and does not result from the death or disability of the Executive under Section 3(a) or (b) shall be deemed a termination without Cause.

(e) Termination by the Executive. The Executive may terminate [his]/[her] employment hereunder at any time for any reason, including but not limited to Good Reason. For purposes of this Agreement, "Good Reason" shall mean that the Executive has complied with the "Good Reason Process" (hereinafter defined) following the occurrence of any of the following events: (i) a material diminution in the Executive's responsibilities, authority or duties including, without limitation, changes in reporting that occur as a result of a Change in Control

(as defined below); (ii) a material diminution in the Executive's Base Salary except for across-the-board salary reductions based on the Company's financial performance similarly affecting all or substantially all senior management employees of the Company; (iii) a material change in the geographic location at which the Executive provides services to the Company; or (iv) the material breach of this Agreement by the Company. "Good Reason Process" shall mean that (i) the Executive reasonably determines in good faith that a "Good Reason" condition has occurred; (ii) the Executive notifies the Company in writing of the first occurrence of the Good Reason condition within 60 days of the first occurrence of such condition; (iii) the Executive cooperates in good faith with the Company's efforts, for a period not less than 30 days following such notice (the "Cure Period"), to remedy the condition; (iv) notwithstanding such efforts, the Good Reason condition continues to exist; and (v) the Executive terminates [his]/[her] employment within 60 days after the end of the Cure Period. If the Company cures the Good Reason condition during the Cure Period, Good Reason shall be deemed not to have occurred.

If the Executive's employment with the Company is terminated for any reason, the Company shall pay or provide to the Executive (or to [his]/[her] authorized representative or estate) (i) any Base Salary earned through the Date of Termination, unpaid expense reimbursements (subject to, and in accordance with, Section 2(c) of this Agreement) and unused vacation that accrued through the Date of Termination on or before the time required by law but in no event more than 30 days after the Executive's Date of Termination; and (ii) any vested benefits the Executive may have under any employee benefit plan of the Company through the Date of Termination, which vested benefits shall be paid and/or provided in accordance with the terms of such employee benefit plans (collectively, the "Accrued Benefit").

4. Notice and Date of Termination.

(a) Notice of Termination. Except for termination as specified in Section 3(a), any termination of the Executive's employment by the Company or any such termination by the Executive shall be communicated by written Notice of Termination to the other party hereto. For purposes of this Agreement, a "Notice of Termination" shall mean a notice which shall indicate the specific termination provision in this Agreement relied upon.

(b) Date of Termination. "Date of Termination" shall mean: (i) if the Executive's employment is terminated by [his]/[her] death, the date of [his]/[her] death; (ii) if the Executive's employment is terminated on account of disability under Section 3(b) or by the Company for Cause under Section 3(c), the date on which Notice of Termination is given; (iii) if the Executive's employment is terminated by the Company under Section 3(d), the date on which a Notice of Termination is given, or another date specified in the Notice of Termination; (iv) if the Executive's employment is terminated by the Executive under Section 3(e) other than for Good Reason, 30 days after the date on which a Notice of Termination is given, and (v) if the Executive's employment is terminated by the Executive under Section 3(e) for Good Reason, the date on which a Notice of Termination is given after the end of the Cure Period. Notwithstanding the foregoing, in the event that the Executive gives a Notice of Termination to the Company, the Company may unilaterally accelerate the Date of Termination and such acceleration shall not result in a termination by the Company for purposes of this Agreement.

5. Compensation Upon Termination by the Company without Cause or by the Executive for Good Reason Outside the Change in Control Period. During the Term, if the Executive's employment is terminated by the Company without Cause as provided in Section 3(d), or the Executive terminates [his]/[her] employment for Good Reason as provided in Section 3(e), each outside of the Change in Control Period (as defined below), then the Company shall pay the Executive [his]/[her] Accrued Benefit. In addition, subject to the Executive signing a separation agreement and release in a form and manner satisfactory to the Company (the "Separation Agreement and Release") and the Separation Agreement and Release becoming irrevocable, all within 60 days after the Date of Termination (or such shorter period as set forth in the Separation Agreement and Release):

(a) the Company shall pay the Executive an amount equal to []5 months of the Executive's Base Salary (the "Severance Amount"). Notwithstanding the foregoing, if the Executive (i) breaches any of the provisions contained in Section 8 of this Agreement or the Restrictive Covenants Agreement, or (ii) commences new employment, all payments of the Severance Amount shall immediately cease;

(b) if the Executive was participating in the Company's group health plan immediately prior to the Date of Termination and elects COBRA health continuation, then the Company shall pay the monthly employer COBRA premium for the same level of group health coverage as in effect for the Executive on the Date of Termination until the earliest of the following: (i) the []6 month anniversary of the Date of Termination; (ii) the Executive's eligibility for group health coverage through other employment; or (iii) the end of the Executive's eligibility under COBRA for continuation coverage for health care. Notwithstanding the foregoing, if the Company determines at any time that its payments pursuant to this paragraph may be taxable income to the Executive, it may convert such payments to payroll payments directly to the Executive on the Company's regular payroll dates, which shall be subject to tax-related deductions and withholdings; and

(c) notwithstanding anything to the contrary in any applicable option agreement or other stock-based award agreement, those shares underlying restricted stock awards, stock options and other stock-based awards held by the Executive and subject to time-based vesting that would have vested in the []7 months following the Date of Termination had the Executive remained employed during such period shall immediately accelerate and become fully exercisable or nonforfeitable as of the Date of Termination.

The amounts payable under this Section 5 shall be paid out in substantially equal installments in accordance with the Company's payroll practice over []8 months commencing within 60 days after the Date of Termination; provided, however, that if the 60-day period begins in one calendar year and ends in a second calendar year, the Severance Amount shall begin to be paid in the second calendar year by the last day of such 60-day period; provided, further, that the initial payment shall include a catch-up payment to cover amounts retroactive to the day immediately following the Date of Termination. Each payment pursuant to this Agreement is intended to constitute a separate payment for purposes of Treasury Regulation Section 1.409A-2(b)(2).

5 NTD: 12 months for CEO agreement; 9 months for other C-level agreements.

6 NTD: 12 for CEO agreement; 9 for other C-level agreements.

7 NTD: 12 for CEO agreement; 9 for other C-level agreements.

8 NTD: 12 for CEO; 9 for other C-level agreements.

6. Compensation Upon Termination by the Company without Cause or by the Executive for Good Reason within the Change in Control Period. The provisions of this Section 6 shall apply in lieu of, and expressly supersede, the provisions of Section 5 regarding severance pay and benefits upon a termination by the Company without Cause or by the Executive for Good Reason if such termination of employment occurs within 12 months after the occurrence of the first event constituting a Change in Control (such period, the "Change in Control Period"). These provisions shall terminate and be of no further force or effect beginning 12 months after the occurrence of a Change in Control.

(a) Change in Control. If during the Change in Control Period the Executive's employment is terminated by the Company without Cause as provided in Section 3(d) or the Executive terminates [his]/[her] employment for Good Reason as provided in Section 3(e), then, subject to the signing of the Separation Agreement and Release by the Executive and the Separation Agreement and Release becoming irrevocable, all within 60 days after the Date of Termination (or such shorter period as set forth in the Separation Agreement and Release),

(i) the Company shall pay the Executive an amount equal to []9 months of the Executive's current Base Salary (or the Executive's Base Salary in effect immediately prior to the Change in Control, if higher) (the "Change in Control Payment"). Notwithstanding the foregoing, if the Executive (i) breaches any of the provisions contained in Section 8 of this Agreement or the Restrictive Covenants Agreement, or (ii) commences new employment, all payments of the Change in Control Payment shall immediately cease; and

(ii) notwithstanding anything to the contrary in any applicable option agreement or other stock-based award agreement, all time-based stock options and other stock-based awards subject to time-based vesting held by the Executive (the "Time-Based Equity Awards") shall immediately accelerate and become fully exercisable or nonforfeitable as of the later of (i) the Date of Termination or (ii) the Effective Date of the Separation Agreement and Release (the "Accelerated Vesting Date"); *provided* that any termination or forfeiture of the unvested portion of such Time-Based Equity Awards that would otherwise occur on the Date of Termination in the absence of this Agreement will be delayed until the Effective Date of the Separation Agreement and Release and will only occur if the vesting pursuant to this subsection does not occur due to the absence of the Separation Agreement and Release becoming fully effective within the time period set forth therein. Notwithstanding the foregoing, no additional vesting of the Time-Based Equity Awards shall occur during the period between the Executive's Date of Termination and the Accelerated Vesting Date; and

(iii) if the Executive was participating in the Company's group health plan immediately prior to the Date of Termination and elects COBRA health continuation, then the Company shall pay the monthly employer COBRA premium for

⁹ NTD: 18 for CEO; 12 for other C-level agreements.

the same level of group health coverage as in effect for the Executive on the Date of Termination until the earliest of the following: (i) the []¹⁰ month anniversary of the Date of Termination; (ii) the Executive's eligibility for group health coverage through other employment; or (iii) the end of the Executive's eligibility under COBRA for continuation coverage for health care. Notwithstanding the foregoing, if the Company determines at any time that its payments pursuant to this paragraph may be taxable income to the Executive, it may convert such payments to payroll payments directly to the Executive on the Company's regular payroll dates, which shall be subject to tax-related deductions and withholdings.

The amounts payable under this Section 6(a) shall be paid out in substantially equal installments in accordance with the Company's payroll practice over []¹¹ months commencing within 60 days after the Date of Termination; provided, however, that if the 60-day period begins in one calendar year and ends in a second calendar year, the Severance Amount shall begin to be paid in the second calendar year by the last day of such 60-day period; provided, further, that the initial payment shall include a catch-up payment to cover amounts retroactive to the day immediately following the Date of Termination. In addition to the payments and benefits listed above, in the Board's sole discretion, the Company may pay the Executive a percentage of the Executive's Target Bonus in a lump sum upon the same date as the first payment payable pursuant to the foregoing sentence. Each payment pursuant to this Agreement is intended to constitute a separate payment for purposes of Treasury Regulation Section 1.409A-2(b)(2).

(b) Additional Limitation.

(i) Anything in this Agreement to the contrary notwithstanding, in the event that the amount of any compensation, payment or distribution by the Company to or for the benefit of the Executive, whether paid or payable or distributed or distributable pursuant to the terms of this Agreement or otherwise, calculated in a manner consistent with Section 280G of the Code and the applicable regulations thereunder (the "Aggregate Payments"), would be subject to the excise tax imposed by Section 4999 of the Code, then the Aggregate Payments shall be reduced (but not below zero) so that the sum of all of the Aggregate Payments shall be \$1.00 less than the amount at which the Executive becomes subject to the excise tax imposed by Section 4999 of the Code; provided that such reduction shall only occur if it would result in the Executive receiving a higher After Tax Amount (as defined below) than the Executive would receive if the Aggregate Payments were not subject to such reduction. In such event, the Aggregate Payments shall be reduced in the following order, in each case, in reverse chronological order beginning with the Aggregate Payments that are to be paid the furthest in time from consummation of the transaction that is subject to Section 280G of the Code: (1) cash payments not subject to Section 409A of the Code; (2) cash payments subject to Section 409A of the Code; (3) equity-based payments and acceleration; and (4) non-cash forms of benefits; provided that in the case of all the foregoing Aggregate Payments all amounts or payments that are not subject to calculation under Treas. Reg. §1.280G-1, Q&A-24(b) or (c) shall be reduced before any amounts that are subject to calculation under Treas. Reg. §1.280G-1, Q&A-24(b) or (c).

¹⁰ NTD: 18 for CEO; 12 for other C-level agreements.

¹¹ NTD: 18 for CEO; 12 for other C-level agreements.

(ii) For purposes of this Section 6(b), the “After Tax Amount” means the amount of the Aggregate Payments less all federal, state, and local income, excise and employment taxes imposed on the Executive as a result of the Executive’s receipt of the Aggregate Payments. For purposes of determining the After Tax Amount, the Executive shall be deemed to pay federal income taxes at the highest marginal rate of federal income taxation applicable to individuals for the calendar year in which the determination is to be made, and state and local income taxes at the highest marginal rates of individual taxation in each applicable state and locality, net of the maximum reduction in federal income taxes which could be obtained from deduction of such state and local taxes.

(iii) The determination as to whether a reduction in the Aggregate Payments shall be made pursuant to Section 6(b)(i) shall be made by a nationally recognized accounting firm selected by the Company (the “Accounting Firm”), which shall provide detailed supporting calculations both to the Company and the Executive within 15 business days of the Date of Termination, if applicable, or at such earlier time as is reasonably requested by the Company or the Executive. Any determination by the Accounting Firm shall be binding upon the Company and the Executive.

(c) Definitions. For purposes of this Section 6, a “Change in Control” shall mean a “Sale Event” as defined in the Company’s 2018 Stock Option and Incentive Plan, but only to the extent such Sale Event is also a “change in control event” within the meaning of Section 409A of the Code and the regulations promulgated thereunder.

7. Section 409A.

(a) Anything in this Agreement to the contrary notwithstanding, if at the time of the Executive’s separation from service within the meaning of Section 409A of the Code, the Company determines that the Executive is a “specified employee” within the meaning of Section 409A(a)(2)(B)(i) of the Code, then to the extent any payment or benefit that the Executive becomes entitled to under this Agreement on account of the Executive’s separation from service would be considered deferred compensation otherwise subject to the 20 percent additional tax imposed pursuant to Section 409A(a) of the Code as a result of the application of Section 409A(a)(2)(B)(i) of the Code, such payment shall not be payable and such benefit shall not be provided until the date that is the earlier of (A) six months and one day after the Executive’s separation from service, or (B) the Executive’s death. If any such delayed cash payment is otherwise payable on an installment basis, the first payment shall include a catch-up payment covering amounts that would otherwise have been paid during the six-month period but for the application of this provision, and the balance of the installments shall be payable in accordance with their original schedule.

(b) All in-kind benefits provided and expenses eligible for reimbursement under this Agreement shall be provided by the Company or incurred by the Executive during the time periods set forth in this Agreement. All reimbursements shall be paid as soon as administratively practicable, but in no event shall any reimbursement be paid after the last day of

the taxable year following the taxable year in which the expense was incurred. The amount of in-kind benefits provided or reimbursable expenses incurred in one taxable year shall not affect the in-kind benefits to be provided or the expenses eligible for reimbursement in any other taxable year (except for any lifetime or other aggregate limitation applicable to medical expenses). Such right to reimbursement or in-kind benefits is not subject to liquidation or exchange for another benefit.

(c) To the extent that any payment or benefit described in this Agreement constitutes “non-qualified deferred compensation” under Section 409A of the Code, and to the extent that such payment or benefit is payable upon the Executive’s termination of employment, then such payments or benefits shall be payable only upon the Executive’s “separation from service.” The determination of whether and when a separation from service has occurred shall be made in accordance with the presumptions set forth in Treasury Regulation Section 1.409A-1(h).

(d) The parties intend that this Agreement will be administered in accordance with Section 409A of the Code. To the extent that any provision of this Agreement is ambiguous as to its compliance with Section 409A of the Code, the provision shall be read in such a manner so that all payments hereunder comply with Section 409A of the Code. Each payment pursuant to this Agreement is intended to constitute a separate payment for purposes of Treasury Regulation Section 1.409A-2(b)(2). The parties agree that this Agreement may be amended, as reasonably requested by either party, and as may be necessary to fully comply with Section 409A of the Code and all related rules and regulations in order to preserve the payments and benefits provided hereunder without additional cost to either party.

(e) The Company makes no representation or warranty and shall have no liability to the Executive or any other person if any provisions of this Agreement are determined to constitute deferred compensation subject to Section 409A of the Code but do not satisfy an exemption from, or the conditions of, such Section.

8. Restrictive Covenants.

(a) Restrictive Covenants Agreement. The terms of the Employee Confidentiality and Assignment Agreement dated between the Company and the Executive, as modified herein (the “Restrictive Covenants Agreement”), continue to be in full force and effect. The Executive agrees that the term “Company,” as used in the Restrictive Covenants Agreement, shall mean the Company, its subsidiaries and other affiliates, and its and their successors and assigns. The Executive hereby reaffirms the terms of the Restrictive Covenants Agreement, as modified herein.

(b) Third-Party Agreements and Rights. The Executive hereby confirms that the Executive is not bound by the terms of any agreement with any previous employer or other party which restricts in any way the Executive’s use or disclosure of information or the Executive’s engagement in any business. The Executive represents to the Company that the Executive’s execution of this Agreement, the Executive’s employment with the Company and the performance of the Executive’s proposed duties for the Company will not violate any obligations the Executive may have to any such previous employer or other party. In the

Executive's work for the Company, the Executive will not disclose or make use of any information in violation of any agreements with or rights of any such previous employer or other party, and the Executive will not bring to the premises of the Company any copies or other tangible embodiments of non-public information belonging to or obtained from any such previous employment or other party.

(c) Litigation and Regulatory Cooperation. During and after the Executive's employment, the Executive shall cooperate fully with the Company in the defense or prosecution of any claims or actions now in existence or which may be brought in the future against or on behalf of the Company which relate to events or occurrences that transpired while the Executive was employed by the Company. The Executive's full cooperation in connection with such claims or actions shall include, but not be limited to, being available to meet with counsel to prepare for discovery or trial and to act as a witness on behalf of the Company at mutually convenient times. During and after the Executive's employment, the Executive also shall cooperate fully with the Company in connection with any investigation or review of any federal, state or local regulatory authority as any such investigation or review relates to events or occurrences that transpired while the Executive was employed by the Company. The Company shall reimburse the Executive for any reasonable out-of-pocket expenses incurred in connection with the Executive's performance of obligations pursuant to this Section 8(c).

(d) Injunction. The Executive agrees that it would be difficult to measure any damages caused to the Company which might result from any breach by the Executive of the promises set forth in this Section 8, and that in any event money damages would be an inadequate remedy for any such breach. Accordingly, the Executive agrees that if the Executive breaches, or proposes to breach, any portion of this Agreement, the Company shall be entitled, in addition to all other remedies that it may have, to an injunction or other appropriate equitable relief to restrain any such breach without showing or proving any actual damage to the Company.

(e) Protected Disclosures and Other Protected Actions. Nothing in this Agreement shall be interpreted or applied to prohibit the Executive from making any good faith report to any governmental agency or other governmental entity (a "Government Agency") concerning any act or omission that the Executive reasonably believes constitutes a possible violation of federal or state law or making other disclosures that are protected under the anti-retaliation or whistleblower provisions of applicable federal or state law or regulation. In addition, nothing contained in this Agreement limits the Executive's ability to communicate with any Government Agency or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency, including the Executive's ability to provide documents or other information, without notice to the Company. In addition, for the avoidance of doubt, pursuant to the federal Defend Trade Secrets Act of 2016, the Executive shall not be held criminally or civilly liable under any federal or state trade secret law or under this Agreement or the Restrictive Covenants Agreements for the disclosure of a trade secret that (a) is made (i) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (b) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

9. Consent to Jurisdiction. The parties hereby consent to the jurisdiction of the Superior Court of the Commonwealth of Massachusetts and the United States District Court for the District of Massachusetts. Accordingly, with respect to any such court action, the Executive (a) submits to the personal jurisdiction of such courts; (b) consents to service of process; and (c) waives any other requirement (whether imposed by statute, rule of court, or otherwise) with respect to personal jurisdiction or service of process.

10. Integration. This Agreement constitutes the entire agreement between the parties with respect to compensation, severance pay, benefits and accelerated vesting and supersedes in all respects all prior agreements between the parties concerning such the subject matter hereof, including without limitation any offer letter, employment agreement or severance agreement relating to the Executive's employment relationship with the Company and/or the ending of that employment relationship. Notwithstanding the foregoing, the Equity Documents, the Restrictive Covenants Agreement and any other agreement relating to confidentiality or assignment of inventions shall not be superseded by this Agreement and the Executive acknowledges and agrees that any such agreements remain in full force and effect.

11. Withholding. All payments made by the Company to the Executive under this Agreement shall be net of any tax or other amounts required to be withheld by the Company under applicable law.

12. Enforceability. If any portion or provision of this Agreement (including, without limitation, any portion or provision of any section of this Agreement) shall to any extent be declared illegal or unenforceable by a court of competent jurisdiction, then the remainder of this Agreement, or the application of such portion or provision in circumstances other than those as to which it is so declared illegal or unenforceable, shall not be affected thereby, and each portion and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

13. Survival. The provisions of this Agreement shall survive the termination of this Agreement and/or the termination of the Executive's employment to the extent necessary to effectuate the terms contained herein.

14. Waiver. No waiver of any provision hereof shall be effective unless made in writing and signed by the waiving party. The failure of any party to require the performance of any term or obligation of this Agreement, or the waiver by any party of any breach of this Agreement, shall not prevent any subsequent enforcement of such term or obligation or be deemed a waiver of any subsequent breach.

15. Notices. Any notices, requests, demands and other communications provided for by this Agreement shall be sufficient if in writing and delivered in person or sent by a nationally recognized overnight courier service or by registered or certified mail, postage prepaid, return receipt requested, to the Executive at the last address the Executive has filed in writing with the Company or, in the case of the Company, at its main offices, attention of the Board.

16. Amendment. This Agreement may be amended or modified only by a written instrument signed by the Executive and by a duly authorized representative of the Company.

17. Effect on Other Plans and Agreements. An election by the Executive to resign for Good Reason under the provisions of this Agreement shall not be deemed a voluntary termination of employment by the Executive for the purpose of interpreting the provisions of any of the Company's benefit plans, programs or policies. Nothing in this Agreement shall be construed to limit the rights of the Executive under the Company's benefit plans, programs or policies except as otherwise provided in Section 8 hereof, and except that the Executive shall have no rights to any severance benefits under any Company severance pay plan, offer letter or otherwise. In the event that the Executive is party to an agreement with the Company providing for payments or benefits under such agreement and this Agreement, the terms of this Agreement shall govern and the Executive may receive payment under this Agreement only and not both. Further, Section 5 and Section 6 of this Agreement are mutually exclusive and in no event shall the Executive be entitled to payments or benefits pursuant to Section 5 and Section 6 of this Agreement.

18. Governing Law. This is a Massachusetts contract and shall be construed under and be governed in all respects by the laws of the Commonwealth of Massachusetts, without giving effect to the conflict of laws principles of such Commonwealth. With respect to any disputes concerning federal law, such disputes shall be determined in accordance with the law as it would be interpreted and applied by the United States Court of Appeals for the First Circuit.

19. Assignment. Neither the Executive nor the Company may make any assignment of this Agreement or any interest in it, by operation of law or otherwise, without the prior written consent of the other; provided, however, that the Company may assign its rights and obligations under this Agreement (including the Restrictive Covenants Agreement) without the Executive's consent to any affiliate or to any person or entity with whom the Company shall hereafter effect a reorganization, consolidate with, or merge into or to whom it transfers all or substantially all of its properties or assets; provided further that if the purchaser in any transaction involving the transfer of all or substantially all of the Company's assets assumes this Agreement and the Executive accepts a position with the purchaser that is equivalent or better to [his]/[her] position immediately preceding such transaction, then the Executive shall not be entitled to any Severance Amount pursuant to Section 5 or any Change in Control Payment pursuant to Section 6. This Agreement shall inure to the benefit of and be binding upon the Executive and the Company, and each of the Executive's and the Company's respective successors, executors, administrators, heirs and permitted assigns.

20. Counterparts. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be taken to be an original; but such counterparts shall together constitute one and the same document.

21. Gender Neutral. Wherever used herein, a pronoun in the masculine gender shall be considered as including the feminine gender unless the context clearly indicates otherwise.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties have executed this Agreement effective on the Effective Date.

TCR2 THERAPEUTICS INC.

By: _____
Its: _____

EXECUTIVE

[Name]

*Schedule of material terms of this Form Employment Agreement for each of the Company's executive officers:**

Name	Section 1(b) Title**	Section 2(a) Base Salary**	Section 2(b)** Target Bonus (Percentage of Base Salary)
Garry Menzel	President and Chief Executive Officer	\$ 500,000	50%
Alfonso Quintas Cardama	Chief Medical Officer	\$ 430,000	35%
Robert Hofmeister	Chief Scientific Officer	\$ 380,000	35%
Mayur (Ian) Somaiya	Chief Financial Officer	\$ 375,000	35%

* The Company's Board of Directors has approved this Form of Employment Agreement for each of the Company's executive officers.

** Reflects terms under the Form Employment Agreements, which shall become effective upon the closing of the Company's initial public offering.

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

LICENSE AGREEMENT

This License Agreement (this “**Agreement**”) is made and is effective this 21th day of June, 2017 (the “**Effective Date**”) between TCR2 Therapeutics, Inc., a Delaware corporation (“**TCR2**”) and having an address at 450 Kendall St, Cambridge, MA 02142, and Harpoon Therapeutics, Inc., a Delaware corporation (“**HARPOON**”) and having an address at Suite 250, 4000 Shoreline Ct., South San Francisco, CA 94080. TCR2 and HARPOON are each referred to as a “**Party**” and collectively referred to as the “**Parties**.”

Recitals

WHEREAS, TCR2 and HARPOON are engaged in the research and development of therapeutics for the treatment of diseases;

WHEREAS, each Party possesses certain technology and related intellectual property rights useful for the research, development, and commercialization of therapeutics for the treatment of diseases;

WHEREAS, TCR2 granted to HARPOON certain rights under the Material Transfer Agreement dated August 7, 2016 (the “BCMA MTA”);

WHEREAS, HARPOON granted to TCR2 certain rights under the Material Transfer Agreement dated October 28, 2016 (the “Mesothelin MTA”);

WHEREAS, TCR2 wishes to grant to HARPOON, a perpetual, irrevocable, non-exclusive, worldwide, royalty-free, fully paid up license under the Licensed TCR2 Patent Rights (as defined below) to develop, make, have made, use, import, export, offer for sale or sell or otherwise commercialize Products (as defined below) with the right to sublicense, in all cases subject to the terms and conditions of this Agreement;

WHEREAS, HARPOON wishes to grant to TCR2, a perpetual, irrevocable, non-exclusive, worldwide, royalty-free, fully paid up license under the Licensed HARPOON Patent Rights (as defined below) to develop, make, have made, use, import, export, offer for sale or sell or otherwise commercialize Products (as defined below) with the right to sublicense, in all cases subject to the terms and conditions of this Agreement;

NOW THEREFORE, TCR2 and HARPOON, intending to be legally bound, agree as follows:

ARTICLE 1 Definitions

1.1 “**Affiliate**” means, with respect to a Party, any Person that controls, is controlled by, or is under common control with such Party. For purposes of this Section 1.1, “control” shall refer to (i) in the case of a Person that is a corporate entity, direct or indirect ownership of more

than fifty percent (50%) of the stock or shares having the right to vote for the election of directors of such Person and (ii) in the case of a Person that is not a corporate entity, the possession, directly or indirectly, of the power to direct, or cause the direction of, the management or policies of such Person, whether through the ownership of voting securities, by contract or otherwise.

1.2 “**Base BCMA Binder**” means the BCMA antibody sequence set forth on Exhibit A.

1.3 “**Base MSLN Binders**” means the MSLN antibody sequences set forth on Exhibit B.

1.4 “**Base Binders**” means either Base BCMA Binder or Base MSLN Binders.

1.5 “**Confidential Information**” means any confidential or proprietary information furnished by one Party to the other Party in connection with this Agreement, *provided* that such information is (i) specifically designated as confidential or (ii) reasonably identifiable by an individual familiar with the industry as confidential or proprietary. Confidential Information includes:

(a) non-public information disclosed by either Party to the other Party in the initial and any subsequent Regulatory Base Binder Reports pursuant to Section 3.3;

(b) the know how set forth on Exhibit E that is disclosed or made available by HARPOON to TCR2 pursuant to the grant of a know how license under Section 2.1(iii); and

(c) information of one Party received by the other Party prior to the Effective Date pursuant to the Confidentiality Agreement between the Parties, dated as of September 1, 2015, the BCMA MTA and the Mesothelin MTA.

1.6 “**Controlled**” means, with respect to Patent Rights, that a Party owns or has a license or sublicense to such Patent Rights and has the ability to grant a license or sublicense to such Patent Rights as provided for in this Agreement, or has the ability to assign its right, title and interest in and to such Patent Rights, without violating the terms of any agreement or other arrangement with any Third Party.

1.7 “**Cover**,” “**Covering**” or “**Covered**” means, with respect to a product, technology, process or method, that in the absence of ownership of or a license granted under Licensed Patent Rights, the manufacture, use, offer for sale, sale, exportation or importation of such product or the practice of such technology, process or method would infringe such Licensed Patent Rights.

1.8 “**HARPOON Improved BCMA Binders**” means the BCMA antibody sequences derived from, or improvements to, the Base BCMA Binder that may have been generated, developed or invented by or on behalf of HARPOON prior to the Effective Date, or are generated, developed or invented by or on behalf of HARPOON on and after the Effective Date

pursuant to Section 3.2. Such derivations and improvements may include, but are not limited to, humanization, affinity enhancement, and cross reactivity optimization.

1.9 “**Improved Binders**” means any and all of HARPOON Improved BCMA Binders, and TCR2 Improved MSLN Binders (as defined below).

1.10 “**IND**” means an investigational new drug application filed by either Party with the FDA, or the equivalent application in any foreign jurisdiction filed with another Regulatory Authority.

1.11 “**Intellectual Property**” means ideas, concepts, discoveries, inventions, developments, know-how, trade secrets, techniques, methodologies, modifications, processes, innovations, improvements, writings, documentation, electronic code, data and rights (whether or not protectable under state, federal or foreign patent, trademark, copyright or similar laws) or the like, whether or not written or otherwise fixed in any form or medium, regardless of the media on which contained and whether or not patentable or copyrightable.

1.12 “**Law**” means all federal, state, provincial, local, supranational, national and regional laws, statutes, rules, codes, regulations, orders, judgments, ordinances, guidelines, directives and regulatory requirements applicable to a Party, this Agreement or the activities contemplated hereunder.

1.13 “**Licensed HARPOON Patent Rights**” means any patents or patent applications and any and all related Patent Rights (a) listed on Exhibit D, but only to the extent such patents or patent applications and any and all related Patent Rights Cover the Base MSLN Binders, or (b) to the extent Covering the Base MSLN Binders. HARPOON shall endeavor to amend and update Exhibit D to incorporate the details of any additional Licensed HARPOON Patent Rights during the Term.

1.14 “**Licensed Patent Rights**” means either Licensed TCR2 Patent Rights (as defined below) or Licensed HARPOON Patent Rights.

1.15 “**Licensed TCR2 Patent Rights**” means any patents or patent applications and any and all related Patent Rights (a) listed on Exhibit C, but only to the extent such patents or patent applications and any and all related Patent Rights Cover the Base BCMA Binders, or (b) Covering the Base BCMA Binder. TCR2 shall endeavor to amend and update Exhibit C to incorporate the details of any additional Licensed TCR2 Patent Rights during the Term.

1.16 “**Patent Rights**” means with respect to any patents or patent applications, any and all (a) patents issuing from such patent applications, (b) substitutions, divisionals, renewals, continuations or continuations-in-part (only to the extent of claims that are entitled to the priority date of the parent application); (c) patents of addition, restorations, extensions, supplementary protection certificates, registration or confirmation patents, patents resulting from post-grant proceedings, re-issues and re-examinations; (d) other patents or patent applications claiming and entitled to claim priority to (i) such patents and patent applications and any patent or patent application specified in (a), (b) or (c), or (ii) any patent or patent application from which such

patents and patent applications or a patent or patent application specified in (a), (b) or (c) claims and is entitled to claim priority; (d) all rights of priority attendant to such patents and patent applications and any of the patents and patent applications listed in (a) through (c); and (e) in each case of such patents and patent applications and of the patents and patent applications described in (a) through (d), including all counterparts and foreign equivalents thereof filed in any country, territory or jurisdiction in the world.

1.17 “**Person**” means any natural person or any corporation, company, partnership, joint venture, firm or other entity, including a Party, or any government or agency or political subdivision thereof.

1.18 “**Product**” means, on a country-by-country basis, any product or part of a product containing either a Base Binder or Improved Binder, the making, using, selling, offering for sale, importing or exporting of which in such country would, but for the licenses granted herein, infringe any of the Licensed Patent Rights in such country.

1.19 “**Prosecution and Maintenance**” or “**Prosecute and Maintain**” means, with respect to the applicable Patent Rights, the preparation, filing, prosecution and maintenance of such Patent Rights, as well as re-examinations, reissues, appeals, and requests for patent term adjustments and patent term extensions with respect to such Patent Rights, together with the initiation or defense of interferences, the initiation or defense of oppositions, post grant review, and other similar proceedings with respect to the particular Patent Rights, and any appeals therefrom. For clarification, “Prosecution and Maintenance” or “Prosecute and Maintain” shall not include any other enforcement actions taken with respect to Patent Rights.

1.20 “**Regulatory Approval**” means, with respect to a country or territory, the approvals (including any applicable governmental price and reimbursement approvals), licenses, registrations or authorizations of Regulatory Authorities necessary for the commercialization of a pharmaceutical product in such country or territory, including, as applicable, approval of a BLA or comparable filing in the United States or approval of a comparable filing in any other country or jurisdiction, including a marketing authorization approval by the EMA.

1.21 “**Regulatory Authority**” means a federal, national, multinational, state, provincial or local regulatory agency, department, bureau or other governmental entity with authority over the testing, manufacture, use, storage, import, export, promotion, marketing or sale of a product in the applicable country.

1.22 “**Regulatory Base Binder Information**” means any information related to a Base Binder that a comparable Third Party in the same industry would reasonably be expected to provide to the Regulatory Authority in order to file an IND and/or seek Regulatory Approval for the Product containing such Base Binder.

1.23 “**Sublicensee**” shall have the meaning set forth in [Section 2.2\(a\)](#).

1.24 “**TCR2 Improved MSLN Binders**” means the MSLN antibody sequences derived from, or improvements to, the Base MSLN Binders that may have been generated,

developed or invented by or on behalf of TCR2 prior to the Effective Date, or are generated, developed or invented by or on behalf of TCR2 on and after the Effective Date pursuant to Section 3.2. Such derivations and improvements may include, but are not limited to, humanization, affinity enhancement, and cross reactivity optimization.

1.25 “**Term**” means the term of this Agreement as provided in Section 9.1.

1.26 “**Third Party**” means any Person other than a Party or any of its Affiliates.

1.27 Additional Definitions. Each of the following definitions is set forth in the section of this Agreement indicated below:

<u>Definition</u>	<u>Section</u>
AAA	10.11(b)(i)
Bankruptcy Code	2.5(a)
HARPOON Intellectual Property	5.1
Prosecuting Party	5.2(b)
TCR2 Intellectual Property	5.1

ARTICLE 2

Grant of License

2.1 License Grant.

Subject to the terms and conditions of this Agreement, without additional consideration, (i) TCR2 hereby grants to HARPOON a perpetual, irrevocable, non-exclusive, worldwide, royalty-free, fully paid up license under the Licensed TCR2 Patent Rights, with the right to grant sublicenses as set forth in Section 2.2, to research, develop, make, have made, use, sell, have sold, offer to sell, import, export, commercialize or otherwise exploit Products containing the Base BCMA Binder, itself and through its Affiliates and Third Parties; (ii) HARPOON hereby grants to TCR2 a perpetual, irrevocable, non-exclusive, worldwide, royalty-free, fully paid up license under the Licensed HARPOON Patent Rights, with the right to grant sublicenses as set forth in Section 2.2, to research, develop, make, have made, use, sell, have sold, offer to sell, import, export, commercialize or otherwise exploit Products containing Base MSLN Binders, itself and through its Affiliates and Third Parties; and (iii) HARPOON hereby grants to TCR2 a perpetual, irrevocable, non-exclusive, worldwide, royalty-free, fully paid up, non-exclusive license, with the right to grant sublicenses as set forth in Section 2.2, to use the know-how that is set forth on Exhibit E hereto. For the avoidance of doubt, HARPOON does not grant to TCR2 any rights or licenses whatsoever with respect to any HARPOON Improved BCMA Binders or Products containing the Base BCMA Binder or any HARPOON Improved

BCMA Binders, and HARPOON shall not update Exhibit E (such that the know how that is being licensed by HARPOON to TCR2 hereunder, is limited to the know how that is set forth on Exhibit E as of the Effective Date). It is understood and agreed that TCR2 shall not use the know-how that is licensed hereunder in any way that would preclude or prevent HARPOON from being able to use any of the licensed know how without restriction, or that would otherwise impair HARPOON's ability to use any of the licensed know-how without restriction.

2.2 Sublicensing.

(a) Each Party shall have the right to grant sublicenses under the license granted to it under Section 2.1 hereof (a "**Sublicensee**"); *provided* that each such sublicense shall be subject to all relevant provisions, restrictions and limitations set forth in this Agreement. Each Party shall be responsible for each of its Sublicensee's complying with all obligations of such Party under this Agreement that are applicable to sublicenses.

(b) If this Agreement is terminated for any reason, then, at the option of any Sublicensee not in default of the applicable sublicense (or any provision of this Agreement applicable to such Sublicensee), it shall become a direct licensee under, and subject to the terms and conditions of, this Agreement, subject only to modifications with respect to territory, field and exclusivity (as applicable) so as to accommodate all such Sublicensees.

2.3 Affiliates and Sublicensees. Each Party may exercise or perform, or have exercised or performed on its behalf, some or all of its rights or obligations under this Agreement by one or more of such Party's Affiliates or Sublicensees. Each Party shall be responsible for each of its Affiliates' and Sublicensees' compliance with all obligations of such Party under this Agreement.

2.4 Subcontractors. Each Party may exercise or perform some or all of its rights or obligations under this Agreement by subcontracting the exercise or performance of all or any portion of such rights and obligations on the Party's behalf, provided that the Party shall be responsible for each of its subcontractors complying with all obligations of the Party under this Agreement.

2.5 Section 365(n) of the Bankruptcy Code.

(a) All rights and licenses granted under or pursuant to any section of this Agreement are and will otherwise be deemed to be for purposes of Section 365(n) of the United States Bankruptcy Code (Title 11, U.S. Code), as amended or any comparable Law outside the United States (the "**Bankruptcy Code**"), licenses of rights to "intellectual property" as defined in Section 101(35A) of the Bankruptcy Code. Each Party agrees that each Party, as a party to this Agreement, will retain and may fully exercise all of its rights and elections under the Bankruptcy Code or any other provisions of Law outside the United States that provide similar protection for "intellectual property." Any agreement supplemental hereto will be deemed to be "agreements supplementary to" this Agreement for purposes of Section 365(n) of the Bankruptcy Code.

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

(b) In the event that either Party is unable to obtain or retain the licenses set forth in Section 2.1 of this Agreement as a result of a bankruptcy proceeding by or against the other Party under provisions of applicable Law analogous to Section 365(n) of the Bankruptcy Code, such Party shall have a right to purchase such other Party's right, title and interest in and to Licensed Patent Rights of such other Party at fair market value, provided that such Party gives such other Party written notice of such intention no later than four (4) weeks after such Party becomes aware of the commencement of such bankruptcy proceeding. The fair market value of the Licensed Patent Rights shall be determined by an assessment made by a mutually agreed upon third party, or, if the Parties do not agree within thirty (30) days of such Party's written notice, a third party reasonably selected by such Party with a background in conducting such assessments. The costs of any such assessment shall be borne equally by the Parties.

ARTICLE 3

Development and Commercialization

3.1 Compliance. Each Party shall, and shall ensure that its Affiliates and Sublicensees, and its and their subcontractors, conduct all research and development, manufacture and commercialization of Base Binders, Improved Binders, and Products Covered under Licensed Patent Rights in compliance with all Laws.

3.2 Research and Development Activities. TCR2 may at its sole discretion and expense, and without restriction, carry out research and development activities on Base MSLN Binders and Improved MSLN Binders during the Term and thereafter. HARPOON may at its sole discretion and expense, and without restriction, carry out research and development activities on the Base BCMA Binder and Improved BCMA Binders during the Term and thereafter. For the avoidance of doubt, any and all Intellectual Property (and all associated Patent Rights) arising from, made or developed solely by or on behalf of the Party carrying out such research and development activities ("Developed IP") shall also be solely owned by such Party.

3.3 Regulatory Base Binder Information. Each Party shall provide, within twenty (20) days of receipt of written request from the other Party made anytime during the Term, a written report of Regulatory Base Binder Information on the Base Binder(s) Covered under the Licensed Patent Rights of such Party.

ARTICLE 4

Consideration

The Parties jointly and severally represent, warrant and covenant that each has received full and sufficient consideration for all grants made and obligations undertaken under this Agreement.

ARTICLE 5

Intellectual Property Protection and Related Matters

5.1 Ownership.

5.1.1 As between the Parties, other than as provided for in this Section 5.1, each Party shall solely own all Intellectual Property, including Patent Rights related thereto, made, conceived, reduced to practice, or otherwise discovered, whether prior to, on or after the Effective Date, solely by employees, agents, contractors or consultants of such Party or its Affiliates. For purposes of determining ownership under this Section 5.1, inventorship shall be determined in accordance with the Laws of the United States.

5.1.2 Notwithstanding the foregoing or anything to the contrary herein, the Parties agree that all Intellectual Property, including Patent Rights related thereto, made, conceived, reduced to practice, or otherwise discovered, whether prior to, on or after the Effective Date, by or on behalf of a Party or its Affiliates, alone or with others, pertaining to:

- (i) any and all Base MSLN Binders (either isolated or as incorporated into a composition),
- (ii) any and all HARPOON Improved BCMA Binders,
- (iii) any and all products containing HARPOON Improved BCMA Binders or the Base BCMA Binder, which products are covered by any claims in [***], and
- (iv) any and all Products containing HARPOON Improved BCMA Binders or the Base BCMA Binder, which Products are developed and/or commercialized by or on behalf of HARPOON or its Affiliates or Sublicensees,

in each case, shall be solely owned by HARPOON (“HARPOON Intellectual Property”).

5.1.3 Notwithstanding the foregoing or anything to the contrary herein, the Parties agree that all Intellectual Property, including Patent Rights related thereto, made, conceived, reduced to practice, or otherwise discovered, whether prior to, on or after the Effective Date, by or on behalf of a Party or its Affiliates, alone or with others, pertaining to:

- (i) any and all Base BCMA Binders (either isolated or as incorporated into a composition),
- (ii) any and all TCR2 Improved MSLN Binders,
- (iii) any and all products containing TCR2 Improved MSLN binders or Base MSLN Binders, which products are covered by any claims in [***], and
- (iv) any and all Products containing TCR2 Improved MSLN Binders or Base MSLN Binders, which Products are developed and/or commercialized by or on behalf of TCR2 or its Affiliates or Sublicensees.

in each case, shall be solely owned by TCR2 (“TCR2 Intellectual Property”).

5.1.4 Accordingly and without additional consideration, (i) TCR2 hereby assigns and agrees to assign to Harpoon, all HARPOON Intellectual Property, including Patent Rights related thereto and enforcement rights, made, conceived, reduced to practice, or otherwise discovered, whether prior to, on or after the Effective Date, and TCR2 shall cause its employees, agents, contractors and Affiliates to do the same; and (ii) HARPOON hereby assigns and agrees to assign to TCR2, all TCR2 Intellectual Property, including Patent Rights related thereto and enforcement rights, made, conceived, reduced to practice, or otherwise discovered, whether prior to, on or after the Effective Date, and HARPOON shall cause its employees, agents, contractors and Affiliates to do the same. For the avoidance of any doubt, under no circumstances and in no event, under this Agreement or otherwise, shall TCR2 acquire any ownership rights in any Base MSLN Binder, nor shall HARPOON acquire any ownership rights in the Base BCMA Binder.

5.2 Prosecution and Maintenance of Licensed Patent Rights.

(a) During the Term and thereafter, HARPOON shall remain solely responsible for the Prosecution and Maintenance of all HARPOON Intellectual Property worldwide and TCR2 shall remain solely responsible for the Prosecution and Maintenance of all TCR2 Intellectual Property worldwide.

(b) The Party controlling the Prosecution and Maintenance of the applicable Licensed Patent Rights in accordance with Section 5.2(a) is referred to as the “**Prosecuting Party**”. The Prosecuting Party shall be responsible for all fees and costs charged by patent counsel with respect to the Prosecution and Maintenance of the applicable Licensed Patent Rights and all other out-of-pocket costs and expenses incurred by the Prosecuting Party in connection with such Prosecution and Maintenance of the applicable Licensed Patent Rights during the Term. For clarity, such expenses shall not include any actions undertaken by the other Party other than at the Prosecuting Party’s request.

5.3 Third Party Infringement.

Each Party shall notify the other Party promptly of any knowledge it acquires of any actual or potential infringements of the Licensed Patent Rights with respect to any activities of a Third Party in any country in the world and shall provide the other Party with all available evidence regarding such known or suspected infringement or unauthorized use.

ARTICLE 6
Confidentiality

6.1 Confidential Obligations. Each Party shall (a) maintain in strict confidence the Confidential Information of the other Party to the same extent such Party maintains its own confidential information, but in no event less than a reasonable degree of care, (b) not disclose such Confidential Information to any Third Party without the prior written consent of the other Party (except as permitted pursuant to Section 6.3 below), and (c) not use such Confidential Information for any purpose except those expressly permitted by this Agreement. The obligations of confidentiality, non-disclosure and non-use under this Section 6.1 shall be in full

force during the Term and for a period of ten (10) years thereafter. Each Party, upon the request of the other Party, will return all copies of or destroy (and certify such destruction in writing) the Confidential Information disclosed or transferred to it by the other Party pursuant to this Agreement, within sixty (60) days of such request or, if earlier, the termination or expiration of this Agreement; provided however that a Party may retain (i) Confidential Information of the other Party which expressly survives such termination pursuant to this Agreement, and (ii) one (1) copy of all other Confidential Information in archives solely for the purpose of establishing the contents thereof; provided, further, that a Party is not required to return or destroy Confidential Information contained in electronic back-ups unless and until such Confidential Information is accessed.

6.2 Exceptions to Confidentiality. Notwithstanding the foregoing, the obligations of confidentiality set forth in Section 6.1 shall not apply to information that, in each case as demonstrated by competent written documentation:

- (a) is publicly disclosed or made generally available to the public by the disclosing Party, either before or after it becomes known to the receiving Party;
- (b) was known to the receiving Party, without any obligation to keep it confidential, prior to the date of first disclosure by the disclosing Party to the receiving Party, as shown by the receiving Party's files and records;
- (c) is subsequently disclosed to the receiving Party by a Third Party lawfully in possession thereof without obligation to keep it confidential and without a breach of such Third Party's obligations of confidentiality;
- (d) has been publicly disclosed or made generally available to the public other than through any act or omission of the receiving Party or its Affiliates or Sublicensees in breach of this Agreement; or
- (e) has been independently developed by the receiving Party without the aid, application or use of or reliance on or reference to the disclosing Party's Confidential Information (the competent written proof of which must be contemporaneous with such independent development).

6.3 Authorized Disclosure. Notwithstanding Section 6.1, a Party may disclose Confidential Information of the other Party to the extent such disclosure is reasonably necessary in the following instances:

- (a) complying with applicable Laws or submitting information to governmental authorities; *provided* that if a Party is required by Law or governmental authority to make any public disclosure of Confidential Information of the other Party, to the extent it may legally do so, it will give reasonable advance written notice to the other Party of such disclosure and will use its reasonable efforts to challenge or limit such required disclosure or secure confidential treatment of such Confidential Information prior to its disclosure (whether through protective orders or otherwise);

(b) to obtain and maintain Regulatory Approval of Products or to research, develop, make, have made, use, have used, offer to sell, sell, import, export, commercialize or otherwise exploit Products subject to and in accordance with this Agreement;

(c) to its Affiliates, its and their directors, and to prospective and actual acquirers, lenders, licensees, investors and sublicensees, and to each of their employees, consultants, contractors, agents, accountants, lawyers, advisors, investors and underwriters, on a need to know basis, each of whom, in the case of Third Parties, prior to disclosure must be bound by written or professional ethical obligations of confidentiality and non-use equivalent in scope to those set forth in this Article 6; or

(d) to the extent mutually agreed to in writing by the Parties.

ARTICLE 7

Representations and Lack of Warranties

7.1 Representations of Authority. Each Party represents and warrants to the other that as of the Effective Date it has full right, power and authority to enter into this Agreement and to perform its respective obligations under this Agreement.

7.2 Consents. Each Party represents and warrants that as of the Effective Date all necessary consents, approvals and authorizations of all government authorities and other Persons required to be obtained by such Party in connection with execution, delivery and performance of this Agreement have been obtained.

7.3 No Conflict. Each Party represents and warrants that, as of the Effective Date, the execution and delivery of this Agreement and the performance of such Party's obligations hereunder (a) do not conflict with or violate any requirement of applicable Laws and (b) do not conflict with, violate or breach or constitute a default of, or require any consent under, any contractual obligations of such Party, except such consents as have been obtained as of the Effective Date.

7.4 Employee, Consultant and Advisor Obligations. Each Party represents and warrants that, as of the Effective Date, each of its and its Affiliates' employees, consultants and advisors has executed an agreement or has an existing obligation under law obligating such employee, consultant or advisor to maintain the confidentiality of Confidential Information to the extent required under Article 6.

7.5 No Warranties. **EXCEPT AS OTHERWISE EXPRESSLY SET FORTH HEREIN, THE PARTIES MAKE NO REPRESENTATIONS AND EXTEND NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, THERE ARE NO WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR NON-MISAPPROPRIATION OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS, ARE MADE OR GIVEN BY OR ON BEHALF OF A PARTY. EACH PARTY MAKES NO WARRANTIES, EXPRESS OR IMPLIED,**

REGARDING THE PATENTABILITY, VALIDITY OR ENFORCEABILITY OF ANY LICENSED PATENT RIGHTS. EXCEPT AS EXPRESSLY STATED IN THIS AGREEMENT, ALL REPRESENTATIONS AND WARRANTIES, WHETHER ARISING BY OPERATION OF LAW OR OTHERWISE, ARE HEREBY EXPRESSLY EXCLUDED.

ARTICLE 8
Indemnification; Limitation on Damages

8.1 By HARPOON. HARPOON agrees to defend TCR2, its Affiliates and their respective directors, officers, employees, consultants and agents at HARPOON's cost and expense, and shall indemnify and hold harmless TCR2 and its Affiliates and their respective directors, officers, employees, consultants and agents from and against any liabilities, losses, costs, damages, fees or expenses (including without limitation, attorney fees and the costs of litigation, investigation and settlement regardless of outcome) arising out of any Third Party claim, suit, action or demand to the extent resulting from (i) any breach by HARPOON of any of its representations, warranties or obligations pursuant to this Agreement, (ii) the alleged or actual infringement or misappropriation of any Third Party Intellectual Property by the manufacture, use or sale of the Base BCMA Binder, any HARPOON Improved BCMA Binder, or Product containing the Base BCMA Binder or HARPOON Improved BCMA Binder, in each case by or on behalf of HARPOON or its Affiliates or Sublicensees, (iii) personal or bodily injury, illness or death, property damage or other loss or damage resulting from the research, development, making, having made, using, offering for sale, selling, having sold, importing, exporting, commercialization or other exploitation of Products containing the Base BCMA Binder or any HARPOON Improved BCMA Binder, in each case by or on behalf of HARPOON or its Affiliates or Sublicensees.

8.2 By TCR2. TCR2 agrees to defend HARPOON, its Affiliates and their respective directors, officers, employees, consultants and agents at TCR2's cost and expense, and shall indemnify and hold harmless HARPOON and its Affiliates and their respective directors, officers, employees, consultants and agents from and against any liabilities, losses, costs, damages, fees or expenses (including without limitation, attorney fees and the costs of litigation, investigation and settlement regardless of outcome) arising out of any Third Party claim, suit, action or demand to the extent resulting from (i) any breach by TCR2 of any of its representations, warranties or obligations pursuant to this Agreement, (ii) the alleged or actual infringement or misappropriation of any Third Party Intellectual Property by the manufacture, use or sale of any Base MSLN Binder, TCR2 Improved MSLN Binder, or Product containing a Base MSLN Binder or TCR2 Improved MSLN Binder, in each case by or on behalf of TCR2 or its Affiliates or Sublicensees, (iii) personal or bodily injury, illness or death, property damage or other loss or damage resulting from the research, development, making, having made, using, offering for sale, selling, having sold, importing, exporting, commercialization or other exploitation of Products containing Base MSLN Binders or TCR2 Improved MSLN Binders, in each case by or on behalf of TCR2 or its Affiliates or Sublicensees.

8.3 Procedures. A Person entitled to indemnification under this Article 8 (an “**Indemnified Party**”) shall give prompt written notification to the Party from whom indemnification is sought (the “**Indemnifying Party**”) of any claim, suit, action or demand for which indemnification is sought under this Agreement; provided, however, that no delay or failure on the part of an Indemnified Party in so notifying the Indemnifying Party shall relieve the Indemnifying Party of any liability or obligation hereunder except to the extent of any damage or liability caused by or arising out of such delay or failure. Within thirty (30) days after delivery of such notification, the Indemnifying Party may, upon written notice thereof to the Indemnified Party, assume control of the defense and settlement of such claim, suit, action or demand with counsel reasonably satisfactory to the Indemnified Party. If the Indemnifying Party does not assume control of such defense, the Indemnified Party shall control such defense. The Party not controlling such defense may participate therein with counsel of its own choosing at its own expense; *provided* that, the Indemnified Party shall have the right to retain its own counsel, at the expense of the Indemnifying Party, if representation of such Indemnified Party by the counsel retained by the Indemnifying Party would be inappropriate because of actual or potential differences in the interests of such Indemnified Party and any other party represented by such counsel. The Indemnified Party shall cooperate with the Indemnifying Party in its defense and settlement of any claim, suit, action or demand for which indemnification is sought under this Agreement, and the Indemnified Party shall not agree to any disposition, compromise or settlement of such action, suit, proceeding or claim without the prior written consent of the Indemnifying Party, which shall not be unreasonably withheld, delayed or conditioned.

8.4 **NEITHER PARTY HERETO WILL BE LIABLE FOR INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES, INCLUDING LOST PROFITS OR LOSS OF USE, ARISING FROM OR RELATING TO THIS AGREEMENT, REGARDLESS OF ANY NOTICE OF SUCH LOSSES OR DAMAGES OR IF A PARTY KNEW OR SHOULD HAVE KNOWN OF THE POSSIBILITY OF SUCH LOSSES OR DAMAGES. THIS EXCLUSION OF LOSSES AND DAMAGES SHALL NOT APPLY WITH RESPECT TO A PARTY’S INDEMNIFICATION OBLIGATIONS UNDER SECTIONS 8.1 AND 8.2.**

ARTICLE 9

Term and Termination

9.1 Term. This Agreement shall become effective as of the Effective Date and unless earlier terminated as set forth in this Article 9, shall otherwise remain in effect on a Product-by- Product basis until it expires (the “**Term**”) in its entirety upon the expiration of all Licensed Patent Rights.

9.2 Termination for Material Breach. Upon any material breach of this Agreement by either Party, the other Party may terminate this Agreement by providing sixty (60) days’ prior written notice to the breaching Party, specifying the material breach. The termination shall become effective at the end of the sixty (60) day period unless the breaching Party cures such breach during such sixty (60) day period.

9.3 Termination for Bankruptcy. To the extent allowed under applicable Law, either Party shall have the right to terminate this Agreement in the event of the commencement of any proceeding in or for bankruptcy, insolvency, dissolution or winding up by or against the other Party (other than pursuant to a corporate restructuring) that is not dismissed or otherwise disposed of within sixty (60) days thereafter and/or the administrator of the bankruptcy estate or the Party under in-court restructuring has not, within five (5) days after the receipt of an inquiry from the other Party, confirmed that the bankruptcy estate or the Party under in-court restructuring will adopt this Agreement.

9.4 Effects of Termination.

(a) Generally. Expiration or termination of this Agreement shall not relieve the Parties of any obligation accruing prior to such expiration or termination. Any expiration or termination of this Agreement shall be without prejudice to the rights of either Party against the other accrued or accruing under this Agreement prior to expiration or termination. Termination of this Agreement shall be in addition to, and shall not prejudice, the Parties' remedies at law or in equity, including the Parties' ability to receive legal damages or equitable relief with respect to any breach of this Agreement, regardless of whether or not such breach was the reason for the termination.

(b) Rights and Licenses. In the event of any termination of this Agreement by a Party pursuant to Section 9.2 or 9.3, notwithstanding anything contained in this Agreement to the contrary, upon the effective date of such termination: (i) all rights and licenses granted herein to the terminated Party shall automatically terminate and all such rights and licenses granted by the terminating Party to the terminated Party shall revert in their entirety to the terminating Party; and (ii) the terminated Party shall return or destroy all Confidential Information of the terminating Party.

9.5 Survival. The following provisions shall survive the expiration or termination of this Agreement: Article 1 (Definitions) (to the extent necessary to give effect to other surviving provisions), Article 5 (Intellectual Property), Article 6 (Confidentiality), Article 8 (Indemnification; Limitation on Damages) and Article 10 (Miscellaneous Provisions), and Sections 2.2 (Sublicensing) (and such other provisions of this Agreement as are necessary to give effect to the continuing licenses contemplated under Section 2.2), 9.4 (Effects of Termination) and this Section 9.5 (Survival).

ARTICLE 10
Miscellaneous Provisions

10.1 Governing Law; Language. This Agreement and all disputes arising out of or related to this Agreement shall be construed and the respective rights of the Parties determined in accordance with the laws of the State of New York, U.S.A., excluding application of any conflict of laws principles that would require application of the laws of a jurisdiction outside of New York, and will be subject to the exclusive jurisdiction of the courts of competent jurisdiction

located in New York, New York. The Parties hereby expressly consent to the jurisdiction of such courts and irrevocably waive any objection to jurisdiction or venue. This Agreement and all communications related to it, or to any dispute or controversy arising out of it, shall be conducted in English.

10.2 Notice. Any notices required or permitted by this Agreement shall be in writing, shall specifically refer to this Agreement, and shall be sent by hand, recognized national overnight courier, confirmed facsimile transmission, confirmed electronic mail or registered or certified mail, postage prepaid, return receipt requested, to the following address or facsimile number of the Parties:

If to HARPOON:

Harpoon Therapeutics, Inc.
Suite 250
4000 Shoreline Ct.,
South San Francisco, CA 94080
Attention: Chief Executive Officer

If to TCR2:

TCR² Therapeutics, Inc.
450 Kendall St
Cambridge, MA 02142
Attention: Chief Executive Officer

All notices under this Agreement shall be deemed effective upon receipt. A party may change its contact information immediately upon written notice to the other party in the manner provided in this Section 10.2.

10.3 Assignment. Either Party may assign this Agreement, in its entirety, without the consent of the other Party, (a) in connection with a sale or transfer of all or substantially all of the business and assets of the assigning Party to which this Agreement relates, including by way of merger, consolidation, transfer, or sale of assets related to this Agreement or (b) to an Affiliate. Any assignment in circumvention of the foregoing shall be void. Subject to the foregoing, this Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective permitted successors and assigns.

10.4 Entire Agreement. This Agreement constitutes the entire agreement between the Parties with respect to its subject matter and supersedes all prior agreements or understandings between the Parties relating to its subject matter including the Confidentiality Agreement, the BCMA MTA and the Mesothelin MTA.

10.5 Interpretation. The captions and headings to this Agreement are for convenience only, and are to be of no force or effect in construing or interpreting any of the provisions of this

Agreement. Unless specified to the contrary, references to Articles, Sections or Exhibits mean the particular Articles, Sections or Exhibits to this Agreement and references to this Agreement include all Exhibits hereto. Unless context otherwise clearly requires, whenever used in this Agreement: (a) the words “include” or “including” shall be construed as incorporating, also, “but not limited to” or “without limitation;” (b) the word “day” or “year” means a calendar day or year unless otherwise specified; (c) the word “notice” shall mean notice in writing (whether or not specifically stated) and shall include notices, consents, approvals and other written communications contemplated under this Agreement; (d) the words “hereof,” “herein,” “hereby” and derivative or similar words refer to this Agreement (including any Exhibits); (e) the word “or” shall be construed as the inclusive meaning identified with the phrase “and/or;” (f) provisions that require that a Party or the Parties hereunder “agree,” “consent” or “approve” or the like shall require that such agreement, consent or approval be specific and in writing, whether by written agreement, letter or otherwise; (g) words of any gender include the other gender; (h) words using the singular or plural number also include the plural or singular number, respectively; and (i) the word “law” (or “laws”) when used herein means any applicable, legally binding statute, ordinance, resolution, regulation, code, guideline, rule, order, decree, judgment, injunction, mandate or other legally binding requirement of a government entity, together with any then-current modification, amendment and re-enactment thereof, and any legislative provision substituted therefor. The Parties and their respective counsel have had an opportunity to fully negotiate this Agreement. If any ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the Parties, and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any provision of this Agreement. No prior draft of this Agreement shall be used in the interpretation or construction of this Agreement.

10.6 Amendment and Waiver. This Agreement may be amended, supplemented, or otherwise modified only by means of a written instrument signed by both Parties. Any waiver of any right or failure to act in a specific instance shall relate only to such instance and shall not be construed as an agreement to waive any right or fail to act in any other instance, whether or not similar.

10.7 Severability. In the event that any provision of this Agreement shall be held invalid or unenforceable for any reason, such invalidity or unenforceability shall not affect any other provision of this Agreement. The Parties shall consult one another and use reasonable efforts to agree upon a valid and enforceable provision that is a reasonable substitute for the invalid or unenforceable provision.

10.8 Use of Name. Neither Party shall use the other Party’s name (except in connection with disclosures permitted under Article 6) or logo without the other Party’s express prior written consent, which consent may be granted in the context of the Parties mutually approving in writing a press release or other public disclosure related to this Agreement.

10.9 Counterparts. This Agreement may be executed in counterparts, each of which counterparts, when so executed and delivered, shall be deemed to be an original, and all of which counterparts, taken together, shall constitute one and the same instrument.

10.10 Force Majeure. Neither Party will be responsible for delays (excluding delays in payment) resulting from causes beyond the reasonable control of such Party, including without limitation, fire, explosion, flood, war, strike, or riot, *provided* that the nonperforming Party promptly notifies the other Party in writing of such causes and uses commercially reasonable efforts for a company of its size and resources to avoid or promptly remove such causes of nonperformance and continues performance under this Agreement with reasonable dispatch whenever such causes are removed.

10.11 Dispute Resolution.

(a) Escalation. If any dispute arises out of or relates to this Agreement, the Parties agree to first seek to resolve such dispute by referring such dispute to the respective Chief Executive Officers of each Party for resolution. Such referral shall take place within thirty (30) days after a written request by either Party to the other Party that resolution by the Chief Executive Officers be attempted. If, after an additional sixty (60) days, the Chief Executive Officers of the Parties have not succeeded in negotiating a resolution of the dispute, and a Party wishes to pursue the matter, such Party may initiate binding arbitration in accordance with Section 10.11(b).

(b) Alternative Dispute Resolution. Any dispute arising out of or relating to this Agreement that has not been resolved pursuant to Section 10.11(a) shall be resolved through binding arbitration as follows:

(i) A Party may submit such dispute to arbitration by notifying the other Party, in writing, of such dispute. Within thirty (30) days after receipt of such notice, the Parties shall designate in writing a single arbitrator to resolve the dispute; *provided, however*, that if the Parties cannot agree on an arbitrator within such 30-day period, the arbitrator shall be selected by the New York, New York office of the American Arbitration Association (the “AAA”). The arbitrator shall not be an Affiliate, employee, consultant, officer, director or stockholder of any Party.

(ii) Within thirty (30) days after the designation of the arbitrator, the arbitrator and the Parties shall meet, at which time the Parties shall be required to set forth in writing all disputed issues and a proposed ruling on the merits of each such issue.

(iii) The arbitrator shall set a date for a hearing, which shall be no later than forty-five (45) days after the submission of written proposals pursuant to Section 10.11(b)(ii), to discuss each of the issues identified by the Parties. The Parties shall have the right to be represented by counsel. Except as provided herein, the arbitration shall be governed by the Commercial Arbitration Rules of the AAA; *provided, however*, that the Federal Rules of Evidence shall apply with regard to the admissibility of evidence and the arbitration shall be conducted by a single arbitrator.

(iv) The arbitrator shall use his or her best efforts to rule on each disputed issue within thirty (30) days after the completion of the hearings described in Section 10.11(b)(iii). The determination of the arbitrator as to the resolution of any

dispute shall be binding and conclusive upon all Parties. All rulings of the arbitrator shall be in writing and shall be delivered to the Parties.

(v) The attorneys' fees of the Parties in any arbitration, fees of the arbitrator, and costs and expenses of the arbitration shall be borne by the Parties as determined by the arbitrator.

(vi) Any arbitration pursuant to this Section 10.11 shall be conducted in New York, New York, U.S.A. and the arbitrator shall the laws of the State of New York. Any arbitration award may be entered in and enforced by any court of competent jurisdiction.

(c) No Limitation. Nothing in this Section 10.11 shall be construed as limiting in any way the right of a Party to seek an injunction or other equitable relief with respect to any actual or threatened breach of this Agreement without having to prove actual damages or post a bond, or to bring an action in aid of arbitration. Should any Party seek an injunction or other equitable relief, or bring an action in aid of arbitration, then for purposes of determining whether to grant such injunction or other equitable relief, or whether to issue any order in aid of arbitration, the dispute underlying the request for such injunction or other equitable relief, or action in aid of arbitration, may be heard by the court in which such action or proceeding is brought.

10.12 No Third Party Beneficiaries. No Person other than HARPOON, TCR2 and their respective Affiliates, successors and permitted assignees hereunder, shall be deemed an intended beneficiary hereunder or have any right to enforce any obligation of this Agreement.

10.13 Independent Contractors. It is expressly agreed that HARPOON and TCR2 shall be independent contractors and that the relationship between HARPOON and TCR2 shall not constitute a partnership, joint venture or agency. Neither HARPOON nor TCR2 shall have the authority to make any statements, representations, or commitments of any kind, or to take any action, which shall be binding on the other Party, without the prior written consent of such other Party.

10.14 No Implied Rights or Licenses. Other than as expressly provided for in this Agreement, there are no licenses, rights or interests in or to the Patent Rights or other Intellectual Property or Confidential Information of a Party granted or implied under this Agreement.

[remainder of page intentionally left blank]

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the Effective Date.

HARPOON THERAPEUTICS, INC.

By: /s/ William E. Picht Jr.
Name: William E. Picht Jr.
Title: Chief Financial Officer

TCR2 THERAPEUTICS, INC.

By: /s/ Garry E. Menzel
Name: Garry E. Menzel
Title: Chief Executive Officer

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

Exhibit A

Base BCMA Binder Sequence

[***]

C-1

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

Exhibit B

Base MSLN Binders Sequences

[***]

D-1

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

Exhibit C

Licensed TCR2 Patent Rights

[***]

D-1

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

Exhibit D

Licensed HARPOON Patent Rights

[***]

D-1

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

Exhibit E

Licensed Know How

[***]

D-1

TCR2, INC.

CONSULTING AGREEMENT

THIS CONSULTING AGREEMENT (the “Agreement”), made this first day of October, 2015, is entered into by TCR2, Inc., a Delaware corporation (the “Company”), and Patrick Baeuerle (the “Consultant”).

INTRODUCTION

The Company desires to retain the services of the Consultant and the Consultant desires to perform certain services for the Company. In consideration of the mutual covenants and promises contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties hereto, the parties agree as follows:

1. Services.

1.1 During the Consultation Period (as defined herein), the Consultant agrees to perform such consulting, advisory and related services to and for the Company as may be reasonably requested from time to time by the Company (the “Services”). Consultant agrees that the Company may, at its discretion, publicize the fact that Consultant is providing Services to the Company by featuring his biography on the Company’s website (if any) and in marketing material relating to the Company and/or its affiliates. During the time Consultant is providing Services, he will hold the title of “President” of the Company.

1.2 The Company acknowledges that the Consultant is concurrently providing consulting services for MPM Asset Management LLC (“MPM”) and for Harpoon Therapeutics, Inc. (“Harpoon”), separate and apart from his Services to the Company. It is understood and agreed that Consultant’s Services under this Agreement will be consistent with Consultant’s obligations to MPM and to Harpoon; provided, however, that Consultant shall use his reasonable best efforts and all due diligence in performing the Services.

2. Compensation.

2.1 Consulting Fees. The consideration described below in this Section 2.1 constitutes the full consideration for the consulting services to be provided by the Consultant to the Company.

(a) The Company shall pay to the Consultant consulting fees of Euros 15,416.66 per month (annualized to Euro 185,000, gross sum), payable in Euros monthly on the last day of each month. Payment for any partial month shall be prorated. Consultant shall also be eligible, at the discretion of the Board of Directors, for an annual bonus equal to up to 33% of the annual fees paid hereunder, based on Consultant’s performance and the Company’s performance, pro-rated as necessary for the period of time over which Consultant provides the Services.

2.2 Reimbursement of Expenses. The Company shall reimburse the Consultant for all reasonable and necessary expenses incurred or paid by the Consultant in connection with, or related to, the performance of his services under this Agreement. The Consultant shall submit to the Company itemized monthly statements, in a form satisfactory to the Company, of such expenses incurred in the previous month. The Company shall pay to the Consultant amounts shown on each such statement within 30 days after receipt thereof. Notwithstanding the foregoing, the Consultant shall not incur total expenses in excess of US\$1,000 per month without the prior written approval of the Company.

2.3 Benefits. The Consultant shall not be entitled to any benefits, coverages or privileges, including, without limitation, social security, unemployment, medical or pension payments, made available to employees of the Company.

3. Term and Termination.

3.1 This Agreement shall commence upon the date hereof (the "Effective Date") and shall continue until the first anniversary of the Effective Date, after which it shall automatically extend for additional one-year periods (such period, as it may be extended, being referred to as the "Consultation Period") by mutual consent of the Parties, and unless sooner terminated in accordance with the provisions of Section 3.2.

3.2 Without limiting any rights which either party to this Agreement may have by reason of any default by the other party (which shall include the right to terminate this Agreement for Cause (as defined herein) as well as any other remedies that may be available at law or in equity), each party reserves the right to terminate this Agreement at its convenience by written notice given to the other party. Such termination shall be effective upon the date not earlier than 30 days following the date of such notice as shall be specified in said notice.

3.3 Sections 3 through 15 hereof shall survive termination or expiration of this Agreement, unless otherwise explicitly provided herein. In addition, termination of this Agreement shall not affect the Company's obligation to pay for services previously performed by the Consultant or expenses reasonably incurred by the Consultant for which the Consultant is entitled to reimbursement under Section 2.2, above.

4. Cooperation. The Consultant shall use his best efforts in the performance of his obligations under this Agreement. The Company shall provide such access to its information and property as may be reasonably required in order to permit the Consultant to perform his obligations hereunder. The Consultant shall cooperate with the Company's personnel, shall not interfere with the conduct of the Company's business and shall observe all rules, regulations and security requirements of the Company concerning the safety of persons and property.

5. Non-Competition. During the Consultation Period, the Consultant shall not, either or alone or in association with others, directly or indirectly provide services for other commercial entities that are not affiliated with MPM.

6. Inventions and Proprietary Information.

6.1 Inventions. All inventions, discoveries, computer programs, data, technology, designs, innovations and improvements (whether or not patentable and whether or not copyrightable) which are made, conceived, reduced to practice, created, written, designed or developed by the Consultant, solely or jointly with others and whether during normal business hours or otherwise, if related to the business of the Company (collectively, "Inventions"), shall be the sole property of the Company. Without limiting the generality of the foregoing, it is understood and agreed that "Inventions" shall include any of the foregoing inventions, discoveries, computer programs, data, technology, designs, innovations and improvements that arise from the Consultant's performance of services for the Company or from the use of the Company's Proprietary Information. The Consultant hereby assigns and agrees to assign to the Company all Inventions and any and all related patents, copyrights, trademarks, trade names, and other industrial and intellectual property rights and applications therefor, in the United States and elsewhere and appoints any officer of the Company as his duly authorized attorney to execute, file, prosecute and protect the same before any government agency, court or authority. Upon the request of the Company and at the Company's expense, the Consultant shall execute such further assignments, documents and other instruments as may be necessary or desirable to fully and completely assign all Inventions to the Company and to assist the Company in applying for, obtaining and enforcing patents or copyrights or other rights in the United States and in any foreign country with respect to any Invention. The Consultant also hereby waives all claims to moral rights in any Inventions.

6.2 Proprietary Information.

(a) The Consultant acknowledges that his relationship with the Company is one of high trust and confidence and that in the course of his service to the Company he will have access to and contact with Proprietary Information. The Consultant agrees that he will not, during the Consultation Period or at any time thereafter, disclose to others, or use for his benefit or the benefit of others, any Proprietary Information or Invention.

(b) For purposes of this Agreement, Proprietary Information shall mean, by way of illustration and not limitation, all information (whether or not patentable and whether or not copyrightable) owned, possessed or used by the Company, including, without limitation, any Invention, formula, vendor information, customer information, apparatus, equipment, trade secret, process, research, report, technical data, know-how, computer program, software, software documentation, hardware design, technology, marketing or business plan, forecast, unpublished financial statement, budget, license, price, cost and employee list that is communicated to, learned of, developed or otherwise acquired by the Consultant in the course of his service as a consultant to the Company.

(c) The Consultant's obligations under this Section 6.2 shall not apply to any information that (i) is or becomes known to the general public under circumstances involving no breach by the Consultant or others of the terms of this Section 6.2, (ii) is generally disclosed to third parties by the Company without restriction on such third parties, or (iii) is approved for release by written authorization of the Board of Directors of the Company.

(d) Upon termination of this Agreement or at any other time upon request by the Company, the Consultant shall promptly deliver to the Company all records, files, memoranda, notes, designs, data, reports, price lists, customer lists, drawings, plans, computer programs, software, software documentation, sketches, laboratory and research notebooks and other documents (and all copies or reproductions of such materials) relating to the business of the Company.

(e) The Consultant represents that his retention as a consultant with the Company and his performance under this Agreement does not, and shall not, breach any agreement that obligates him to keep in confidence any trade secrets or confidential or proprietary information of his or of any other party or to refrain from competing, directly or indirectly, with the business of any other party. The Consultant shall not disclose to the Company any trade secrets or confidential or proprietary information of any other party.

6.3 Remedies. The Consultant acknowledges that any breach of the provisions of this Section 6 shall result in serious and irreparable injury to the Company for which the Company cannot be adequately compensated by monetary damages alone. The Consultant agrees, therefore, that, in addition to any other remedy it may have, the Company shall be entitled to enforce the specific performance of this Agreement by the Consultant and to seek both temporary and permanent injunctive relief (to the extent permitted by law) without the necessity of proving actual damages.

7. Defense and Indemnification. The Company agrees, at its sole expense, to defend Consultant against, and to indemnify and hold Consultant harmless from, any liability, claim, judgment, cost, expense, damage, deficiency, loss, or obligation, of any kind or nature (including without limitation reasonable attorneys' fees and other costs and expenses of defense) relating to a claim or suit by a third party against Consultant, either arising from this Agreement, the Consultant's performance of services for the Company under this Agreement, or any Company products or services which result from the Consultant's performance of services under this Agreement.

8. Independent Contractor Status. The Consultant shall perform all services under this Agreement as an "independent contractor" and not as an employee or agent of the Company. Consultant is free to determine the time and place of the Services to be provided under this Agreement. Consultant warrants to perform his obligations under this Agreement with the usual standard of diligence but does not guarantee the achievement of any specific commercial objectives. The Consultant is not authorized to assume or create any obligation or responsibility, express or implied, on behalf of, or in the name of, the Company or to bind the Company in any manner.

9. Notices. All notices required or permitted under this Agreement shall be in writing and shall be deemed effective upon personal delivery or upon deposit in the United States Post Office, by registered or certified mail, postage prepaid, addressed to the other party at the address shown above, or at such other address or addresses as either party shall designate to the other in accordance with this Section 9.

10. Pronouns. Whenever the context may require, any pronouns used in this Agreement shall include the corresponding masculine, feminine or neuter forms, and the singular forms of nouns and pronouns shall include the plural, and vice versa.

11. Entire Agreement. This Agreement and the Stock Agreement constitute the entire agreement between the parties and supersedes all prior agreements and understandings, whether written or oral, relating to the subject matter of this Agreement.

12. Amendment. This Agreement may be amended or modified only by a written instrument executed by both the Company and the Consultant.

13. Governing Law. This Agreement shall be construed, interpreted and enforced in accordance with the laws of the Commonwealth of Massachusetts.

14. Successors and Assigns. This Agreement shall be binding upon, and inure to the benefit of, both parties and their respective successors and assigns, including any corporation with which, or into which, the Company may be merged or which may succeed to its assets or business, provided, however, that the obligations of the Consultant are personal and shall not be assigned by him.

15. Miscellaneous.

15.1 No delay or omission by the Company in exercising any right under this Agreement shall operate as a waiver of that or any other right. A waiver or consent given by the Company on any one occasion shall be effective only in that instance and shall not be construed as a bar or waiver of any right on any other occasion.

15.2 The captions of the sections of this Agreement are for convenience of reference only and in no way define, limit or affect the scope or substance of any section of this Agreement.

15.3 In the event that any provision of this Agreement shall be invalid, illegal or otherwise unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired thereby.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year set forth above.

TCR2, INC.

By: /s/ Gregory Sieczkiewicz
Name: Gregory Sieczkiewicz
Title: Secretary

CONSULTANT

/s/ Patrick Bauerle
Patrick Baeuerle

November 1, 2016

Patrick Baeuerle, PhD

BY EMAIL

Dear Patrick,

This letter serves to amend your Consulting Agreement dated October 1, 2015 (the “Consulting Agreement”) with TCR², Inc. (“TCR²”) in certain respects, as set forth below. Capitalized terms used in this letter but not otherwise defined are as defined in the Consulting Agreement. Except as set forth below, the Consulting Agreement remains unmodified and in full force and effect.

- Your compensation under Section 2.1(a) of the Consulting Agreement will be revised to Euros 3,837.83 per month, annualized to Euros 46,055.00.

Best,

/s/ Garry Menzel

Garry Menzel
Chief Executive Officer

AGREED AND ACCEPTED:

/s/ Patrick Bauerle

Patrick Baeuerle, PhD

TCR² THERAPEUTICS INC.

AMENDED AND RESTATED CONSULTING AGREEMENT

This Amended and Restated Consulting Agreement (the “**Agreement**”), made this 9th day of May, 2017 (“**Effective Date**”), is entered into by TCR² Therapeutics Inc., a Delaware corporation (the “**Company**”), Mitchell Finer (the “**Dr. Finer**”), and Pattern Recognition Ventures (the “**Consultant**” and, collectively with the Company and Dr. Finer, the “**Parties**”).

WHEREAS, the Company and Dr. Finer entered into that certain Consulting Agreement (the “**Original Consulting Agreement**”), dated as of March 1, 2016 (the “**Original Effective Date**”), pursuant to which, *inter alia*, Dr. Finer agreed to perform certain services for the Company, and the Company agreed to pay Dr. Finer a consulting fee and to issue Dr. Finer restricted common stock of the Company, par value \$0.0001 per share (“**Common Stock**”), in consideration of the services provided pursuant to the Original Consulting Agreement;

WHEREAS, on January 1, 2017 (the “**Transition Date**”), Consultant began providing Services (as defined below) for the Company;

WHEREAS, the Company desires to continue receiving the Services of the Consultant, and the Consultant desires to continue performing such Services for the Company;

WHEREAS, Dr. Finer maintains a service relationship with the Consultant;

WHEREAS, Dr. Finer desires to cease directly providing services for the Company pursuant to the Prior Consulting Agreement and to continue providing Services for the Company indirectly, through his service relationship with the Consultant;

WHEREAS, the Company issued Dr. Finer 227,509 shares of restricted Common Stock (the “**Shares**”) pursuant to that certain Founder Stock Restriction Agreement, dated as of June 1, 2015, by and between the Company and Dr. Finer (the “**Stock Restriction Agreement**”); and

WHEREAS, the Company issued Dr. Finer an option to purchase 49,661 of Common Stock, pursuant to that certain Non-Qualified Stock Option Agreement, dated as of December 13, 2016, by and between the Company and Dr. Finer (the “**Option Agreement**”);

WHEREAS, the Parties desire to amend and restate the Original Consulting Agreement upon the terms and conditions provided herein.

NOW, THEREFORE, in consideration of the mutual: covenants and promises contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the Parties hereto, the Parties agree as follows:

1. Services. The Consultant agrees to perform scientific consulting, advisory and related services to and for the Company as may be reasonably requested from time to time by the Company, including, without limitation, making Dr. Finer available to serve as Chairman of the Company’s Scientific Advisory Board (SAB) (the “**Services**”).

2. Compensation.

2.1 Mr. Finer's Previous Compensation.

(a) The Parties hereby acknowledge and agree that, pursuant to the Original Consulting Agreement, the Company paid to Dr. Finer an amount equal to \$56,627.99 for his services performed pursuant to, and for all expenses reimbursed pursuant to, the Original Consulting Agreement from the Original Effective Date to the Transition Date pursuant to the Original Consulting Agreement and an amount equal to \$37,500 for the work Dr. Finer performed for the six-month period from October 1, 2015 through March 31, 2016.

(b) The Parties hereby acknowledge and agree that, pursuant to the Original Consulting Agreement and the Stock Restriction Agreement, the Company issued Dr. Finer the Shares in consideration of Dr. Finer's services performed pursuant to the Original Consulting Agreement.

2.2 Cancellation of Option Agreement. The Company and Mr. Finer acknowledge and agree that, pursuant to Section 12 of the Company's 2015 Stock Option and Grant Plan, as amended, the Company shall cancel the Option Agreement.

2.3 The Consultant's Compensation.

(a) Consulting Fee. The Company shall pay to the Consultant a consulting fee of \$18,750 per quarter for his services hereunder, payable in advance commencing, on July 1, 2017. Payment for any partial quarter shall be prorated. If the Company and Consultant conclude that Consultant is spending materially more or less time than anticipated per quarter, the Company and the Consultant will discuss and revise the fee accordingly.

(b) Previous Compensation. The Parties hereby acknowledge and agree that the Company paid to the Consultant an amount equal to \$37,500 for the work Consultant has already performed, and will perform, for the six-month period from the Transition Date through June 30, 2017.

(c) Equity. In consideration of the Consultant's provision of Services, subject to approval by the Board of Directors of the Company (the "**Board**") and the cancellation of the Option Agreement, the Company shall issue to Consultant an option to purchase up to 49,661 shares of Common Stock at an exercise price per share equal to the fair market value of a share of Common Stock at the time of such issuance, pursuant to the terms set forth in the Non-Qualified Stock Option Agreement, in substantially the form attached hereto as Exhibit A.

(d) Expenses. The Company shall reimburse the Consultant for all reasonable and necessary documented out of pocket expenses incurred or paid by the Consultant in connection with, or related to, the performance of Consultant's services under this Agreement. The Consultant shall submit to the Company itemized monthly statements, in a form satisfactory to the Company, of such expenses incurred in the previous month. The Company shall pay to the Consultant amounts shown on each such statement within thirty (30) days after receipt thereof. Notwithstanding the foregoing, the Consultant is not expected to incur total expenses in excess of \$1,000.00 per month without the prior written approval of the Company. Consultant shall not incur expenses that are not consistent with the expense reimbursement guidelines of the Company.

(e) Benefits. The Consultant shall not be entitled to any benefits, coverages or privileges, including, without limitation, health insurance, social security, unemployment, medical or pension payments, made available to employees of the Company.

3. Proprietary Information and Inventions.

3.1 Dr. Finer acknowledges that Dr. Finer is bound by the terms of the TCR2, Inc. Confidentiality and Assignment Agreement between Consultant and the Company dated October 19, 2015 (the “**Finer Confidentiality Agreement**”).

3.2 The Consultant agrees to enter into the TCR2 Therapeutics Inc. Confidentiality and Assignment Agreement, in substantially the form attached hereto as Exhibit B (the “**Consultant Confidentiality Agreement**”), on or before the Effective Date.

4. Termination. This Agreement may be terminated in the following manner: (a) by either the Company or the Consultant upon not less than thirty (30) days prior written notice to the other Party; (b) by the Company, upon twenty-four (24) hours prior written notice to the Consultant if the Consultant or Dr. Finer has materially breached this Agreement; (c) by the Consultant, upon twenty-four (24) hours prior written notice to the Company if the Company has materially breached this Agreement; or (d) at any time upon the mutual written consent of the Company and the Consultant. In the event of termination, the Consultant shall be entitled to payment for services performed and (subject to the limitation in Section 2.3) for expenses paid or incurred prior to the effective date of termination that have not been previously paid. Notwithstanding the foregoing, the Company may terminate this Agreement effective immediately by giving written notice to the Consultant if Dr. Finer breaches or threatens to breach any provision of the Finer Confidentiality Agreement, or if the Consultant breaches or threatens to breach any provision of the Consultant Confidentiality Agreement.

5. Cooperation. The Consultant shall use Consultant’s best efforts in the performance of Consultant’s obligations under this Agreement. The Company shall provide such access to its information, technology and property as may be reasonably required in order to permit the Consultant to perform Consultant’s obligations hereunder, and that such access is granted solely for the performance of this Agreement and not for any other purpose. The Consultant shall cooperate with the Company’s personnel, shall not interfere with the conduct of the Company’s business and shall observe all rules, regulations and security requirements of the Company concerning the safety of persons and property.

6. Other Agreements. Each of the Consultant and Dr. Finer hereby represents that, except as each of the Consultant and Dr. Finer has disclosed in writing to the Company or as otherwise required by the Massachusetts Supreme Judicial Court Rules of Professional Conduct, neither the Consultant nor Dr. Finer is not bound by the terms of any agreement with any third party to refrain from using or disclosing any trade secret or confidential or proprietary information in the course of Consultant’s consultancy with the Company, to refrain from

competing, directly or indirectly, with the business of such third party or to refrain from soliciting employees, customers or suppliers of such third party. Each of the Consultant and Dr. Finer further represents that Consultant's performance of all the terms of this Agreement and the performance of the services as a consultant of the Company do not and will not breach any agreement with any third party to which the Consultant or Dr. Finer is a party (including, without limitation, any nondisclosure or non-competition agreement), and that neither the Consultant nor Dr. Finer will disclose to the Company or induce the Company to use any confidential or proprietary information or material belonging to any current or previous employer or others.

7. Independent Contractor Status.

7.1 The Consultant shall perform all services under this Agreement as an "independent contractor" and not as an employee or agent of the Company. The Consultant is not authorized to assume or create any obligation or responsibility, express or implied, on behalf of, or in the name of, the Company or to bind the Company in any manner.

7.2 The Consultant shall have the right to control and determine the time, place, methods, manner and means of performing the services. In performing the services, the amount of time devoted by the Consultant on any given day will be entirely within the Consultant's control, and the Company will rely on the Consultant to put in the amount of time necessary to fulfill the requirements of this Agreement. The Consultant will provide all equipment and supplies required to perform the services. The Consultant is not required to attend regular meetings at the Company. However, upon reasonable notice, the Consultant shall meet with representatives of the Company at a location to be designated by the Company and the Consultant for the purpose of periodic meetings related to the business or research and development conducted or planned to be conducted by the Company.

7.3 In the performance of the Services, the Consultant has the authority to control and direct the performance of the details of the Services, the Company being interested only in the results obtained. However, the Services contemplated by the Agreement must meet the Company's standards and approval and shall be subject to the Company's general right of inspection and supervision to secure their satisfactory completion.

7.4 Neither the Consultant nor Dr. Finer shall use the Company's trade names, trademarks, service names or servicemarks without the prior approval of the Company.

7.5 The Consultant shall be solely responsible for all state and federal income taxes, unemployment insurance and social security taxes in connection with this Agreement and for maintaining adequate workers' compensation insurance coverage.

8. Continuing Business Relationship. The Company and Dr. Finer hereby acknowledge and agree that (i) Dr. Finer has continuously served as a member of the Board of Directors of the Company (a "**Director**") since October 16, 2017 and continues to serve as a Director; (ii) Dr. Finer has continuously maintained a Business Relationship (as defined in the Stock Restriction Agreement) since the Stock Restriction Agreement became effective; and (iii) Dr. Finer shall continue to have a Business Relationship with the Company so long as Dr. Finer serves as a Director or otherwise maintains a Business Relationship with the Company.

9. Non-Exclusivity. The Consultant retains the right to contract with other companies or entities for Consultant's consulting services without restriction. The Company retains a right to contract with other companies and/or individuals for consulting services without restriction.

10. Indemnification. The Consultant shall be liable for, and shall indemnify, defend and hold harmless the Company and its successors and assigns from any claims, suits, judgments or causes of action initiated by any third party against the Company where such actions result from or arise out of the Services performed by the Consultant under this Agreement, but only insofar as such actions result from the gross negligence or willful misconduct of the Consultant. The Consultant shall further be solely liable for, and shall indemnify, defend and hold harmless the Company and its successors and assigns from and against any claim or liability of any kind (including penalties, fees or charges) resulting from the Consultant's failure to pay the taxes, penalties, and payments referenced in Section 9 of this Agreement.

11. Notices. All notices required or permitted under this Agreement shall be in writing and shall be deemed effective upon personal delivery or upon deposit in the United States Post Office, by registered or certified mail, postage prepaid, addressed to the other party at the address shown below, or at such other address or addresses as either party shall designate to the other in accordance with this Section 11.

12. Pronouns. Whenever the context may require, any pronouns used in this Agreement shall include the corresponding masculine, feminine or neuter forms, and the singular forms of nouns and pronouns shall include the plural, and vice versa.

13. Entire Agreement. This Agreement and the other agreements referenced herein constitute the entire agreement between the Parties and supersedes all prior agreements and understandings, whether written or oral, relating to the subject matter of this Agreement.

14. Amendment. This Agreement may be amended or modified only by a written instrument executed by the Company the Consultant; provided, however, that this Agreement may not be amended with respect to any term related to Dr. Finer unless Dr. Finer consents in writing to such amendment.

15. Non-Assignability of Contract. This Agreement is personal to the Consultant and the Consultant shall not have the right to assign any of Consultant's rights or delegate any of Consultant's duties without the express written consent of the Company. Any non-consented-to assignment or delegation, whether express or implied or by operation of law, shall be void and shall constitute a breach and a default by the Consultant.

16. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts without giving effect to any choice or conflict of law provision or rule that would cause the application of laws of any other jurisdiction.

17. Successors and Assigns. This Agreement shall be binding upon, and inure to the benefit of, the Parties and their respective successors and assigns, including any corporation with which, or into which, the Company may be merged or which may succeed to its assets or business, provided, however, that the obligations of the Consultant are personal and shall not be assigned by it.

18. Interpretation. If any restriction set forth in Section 6 or Section 7 is found by any court of competent jurisdiction to be unenforceable because it extends for too long a period of time or over too great a range of activities or in too broad a geographic area, it shall be interpreted to extend only over the maximum period of time, range of activities or geographic area as to which it may be enforceable.

19. Survival.

19.1 Sections 5 through 18 shall survive the expiration or termination of this Agreement.

20. Miscellaneous.

20.1 No delay or omission by the Company in exercising any right under this Agreement shall operate as a waiver of that or any other right. A waiver or consent given by the Company on any one occasion shall be effective only in that instance and shall not be construed as a bar or waiver of any right on any other occasion.

20.2 The captions of the sections of this Agreement are for convenience of reference only and in no way define, limit or affect the scope or substance of any section of this Agreement.

20.3 In the event that any provision of this Agreement shall be invalid, illegal or otherwise unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired thereby.

[Signature Page to Follow]

IN WITNESS WHEREOF, the parties hereto have executed this Amended and Restated Consulting Agreement as of the date and year first above written.

COMPANY:

TCR² THERAPEUTICS INC.

By: /s/ Garry Menzel

Name: Garry Menzel

Title: Chief Executive Officer

CONSULTANT:

PATTERN RECOGNITION VENTURES

By: /s/ Mitchell Finer

Name: Mitchell Finer

Title:

DR. FINER:

/s/ Mitchell Finer

Mitchell Finer

Address: 450 Kendall St.
Cambridge, MA 02142

[TCR² Therapeutics - Signature Page to Amended and Restated Consulting Agreement]

Exhibit A

Non-Qualified Stock Option Agreement

TCR² THERAPEUTICS INC.
NON-QUALIFIED STOCK OPTION GRANT NOTICE

TCR² Therapeutics Inc., a Delaware corporation (together with any successor, the “Company”), has granted to the individual named below, an option (the “Stock Option”) to purchase on or prior to the Expiration Date, or such earlier date as is specified herein, all or any part of the number of shares of Common Stock, par value \$0.0001 per share (“Common Stock”), of the Company indicated below (the “Shares”), at the Option Exercise Price per share, subject to the terms and conditions set forth in this Non-Qualified Stock Option Grant Notice (the “Grant Notice”), and the attached Non-Qualified Stock Option Agreement (the “Agreement”). For the avoidance of doubt, this Stock Option is not issued under the Company’s 2015 Stock Option and Grant Plan, as amended (the “Plan”); however, for the purposes of interpreting the applicable provisions of this Stock Option, the terms and conditions of the Plan (other than those applicable to the share reserve) shall govern and apply to this Stock Option as if such Stock Option had been issued under the Plan. This Stock Option is not intended to qualify as an “incentive stock option” as defined in Section 422(b) of the Internal Revenue Code of 1986, as amended from time to time (the “Code”).

Name of Optionee:	Pattern Recognition Ventures (the “Optionee”)
No. of Shares:	49,661 Shares of Common Stock
Grant Date:	_____, 2017
Vesting Commencement Date:	December 13, 2016 (the “Vesting Commencement Date”)
Expiration Date:	_____, 2027 (the “Expiration Date”)
Option Exercise Price/Share:	\$0.12 (the “Option Exercise Price”)
Vesting Schedule:	25 percent of the Shares shall vest and become exercisable on the first anniversary of the Vesting Commencement Date; provided that the Optionee continues to provide consulting services to the Company at such time. Thereafter, the remaining 75 percent of the Shares shall vest and become exercisable in 36 equal monthly installments following the first anniversary of the Vesting Commencement Date until December 1, 2020, on which date, subject to the vesting conditions herein, all remaining Shares shall vest and become exercisable, provided the Optionee continues to provide consulting services to the Company on each vesting date. Notwithstanding anything in the Agreement to the contrary, in the case of a Sale Event, this Stock Option and the Shares shall be treated as provided in Section 3(c) of the Plan.

Attachments: Non-Qualified Stock Option Agreement, 2015 Stock Option and Grant Plan

TCR2 THERAPEUTICS INC.
NON-QUALIFIED STOCK OPTION AGREEMENT

All capitalized terms used herein and not otherwise defined shall have the respective meanings set forth in the Grant Notice and the Plan.

1. Vesting, Exercisability and Termination.

(a) No portion of this Stock Option may be exercised until such portion shall have vested and become exercisable.

(b) Except as set forth below, and subject to the determination of the Committee in its sole discretion to accelerate the vesting schedule hereunder, this Stock Option shall be vested and exercisable on the respective dates indicated below:

(i) This Stock Option shall initially be unvested and unexercisable.

(ii) This Stock Option shall vest and become exercisable in accordance with the Vesting Schedule set forth in the Grant Notice.

2. Exercise of Stock Option.

(a) The Optionee may exercise this Stock Option only in the following manner: Prior to the Expiration Date, the Optionee may deliver a Stock Option exercise notice (an "Exercise Notice") in the form of Appendix A hereto indicating its election to purchase some or all of the Shares with respect to which this Stock Option is then exercisable. Such notice shall specify the number of Shares to be purchased. Payment of the purchase price may be made by one or more of the methods described in Section 5 of the Plan, subject to the limitations contained in such Section of the Plan, including the requirement that the Committee specifically approve in advance certain payment methods.

(b) Notwithstanding any other provision hereof or of the Plan, no portion of this Stock Option shall be exercisable after the Expiration Date.

3. Accredited Investor. Optionee hereby represents and warrants to the Company that such Optionee is an "accredited investor" within the meaning of Rule 501 of Regulation D promulgated under the Securities Act, as presently in effect.

4. Incorporation of Plan. As stated above, this Stock Option is not granted pursuant to the Plan. However, for purposes of interpreting the applicable provisions of this Stock Option, the terms and conditions of the Plan shall govern and apply to this Stock Option as if such Stock Option had been issued under the Plan.

5. Transferability of Stock Option. This Stock Option is personal to the Optionee and is not transferable by the Optionee in any manner, except as may be expressly permitted by the Company.

6. Restrictions on Transfer of Shares. The Shares acquired upon exercise of the Stock Option shall be subject to certain transfer restrictions and other limitations including, without limitation, the provisions contained in Section 9 of the Plan.

7. Miscellaneous Provisions.

(a) Equitable Relief. The parties hereto agree and declare that legal remedies may be inadequate to enforce the provisions of this Agreement and that equitable relief, including specific performance and injunctive relief, may be used to enforce the provisions of this Agreement.

(b) Adjustments for Changes in Capital Structure. If, as a result of any reorganization, recapitalization, reincorporation, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Common Stock, the outstanding shares of Common Stock are increased or decreased or are exchanged for a different number or kind of securities of the Company, the restrictions contained in this Agreement shall apply with equal force to additional and/or substitute securities, if any, received by the Optionee in exchange for, or by virtue of its ownership of, this Stock Option or Shares acquired pursuant thereto.

(c) Change and Modifications. This Agreement may not be orally changed, modified or terminated, nor shall any oral waiver of any of its terms be effective. This Agreement may be changed, modified or terminated only by an agreement in writing signed by the Company and the Optionee.

(d) Governing Law. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the Commonwealth of Massachusetts, without regard to conflict of law principles that would result in the application of any law other than the law of the Commonwealth of Massachusetts.

(e) Headings. The headings are intended only for convenience in finding the subject matter and do not constitute part of the text of this Agreement and shall not be considered in the interpretation of this Agreement.

(f) Saving Clause. If any provision(s) of this Agreement shall be determined to be illegal or unenforceable, such determination shall in no manner affect the legality or enforceability of any other provision hereof.

(g) Notices. All notices, requests, consents and other communications shall be in writing and be deemed given when delivered personally, by telex or facsimile transmission or when received if mailed by first class registered or certified mail, postage prepaid. Notices to the Company or the Optionee shall be addressed as set forth underneath their signatures below, or to such other address or addresses as may have been furnished by such party in writing to the other.

(h) Benefit and Binding Effect. This Agreement shall be binding upon and shall inure to the benefit of the parties hereto, their respective successors, assigns, and legal representatives. The Company has the right to assign this Agreement, and such assignee shall become entitled to all the rights of the Company hereunder to the extent of such assignment.

(i) Counterparts. For the convenience of the parties and to facilitate execution, this Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which shall constitute one and the same document.

(j) Integration. This Agreement constitutes the entire agreement between the parties with respect to this Stock Option and supersedes all prior agreements and discussions between the parties concerning such subject matter.

8. Dispute Resolution.

(a) Except as provided below, any dispute arising out of or relating to the Plan or this Stock Option, this Agreement, or the breach, termination or validity of the Plan, this Stock Option or this Agreement, shall be finally settled by binding arbitration conducted expeditiously in accordance with the J.A.M.S./Endispute Comprehensive Arbitration Rules and Procedures (the "J.A.M.S. Rules"). The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. Sections 1-16, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. The place of arbitration shall be Boston, Massachusetts.

(b) The arbitration shall commence within 60 days of the date on which a written demand for arbitration is filed by any party hereto. In connection with the arbitration proceeding, the arbitrator shall have the power to order the production of documents by each party and any third-party witnesses. In addition, each party may take up to three depositions as of right, and the arbitrator may in his or her discretion allow additional depositions upon good cause shown by the moving party. However, the arbitrator shall not have the power to order the answering of interrogatories or the response to requests for admission. In connection with any arbitration, each party to the arbitration shall provide to the other, no later than seven business days before the date of the arbitration, the identity of all persons that may testify at the arbitration and a copy of all documents that may be introduced at the arbitration or considered or used by a party's witness or expert. The arbitrator's decision and award shall be made and delivered within six months of the selection of the arbitrator. The arbitrator's decision shall set forth a reasoned basis for any award of damages or finding of liability. The arbitrator shall not have power to award damages in excess of actual compensatory damages and shall not multiply actual damages or award punitive damages, and each party hereby irrevocably waives any claim to such damages.

(c) The Company, the Optionee, each party to the Agreement and any other holder of Shares issued pursuant to this Agreement (each, a "Party") covenants and agrees that such party will participate in the arbitration in good faith. This Section 8 applies equally to requests for temporary, preliminary or permanent injunctive relief, except that in the case of temporary or preliminary injunctive relief any party may proceed in court without prior arbitration for the limited purpose of avoiding immediate and irreparable harm.

(d) Each Party (i) hereby irrevocably submits to the jurisdiction of any United States District Court of competent jurisdiction for the purpose of enforcing the award or decision in any such proceeding, (ii) hereby waives, and agrees not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above named courts, that its property is exempt or immune from attachment or execution (except as protected by applicable law), that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court, and (iii) hereby waives and agrees not to seek any review by any court of any other jurisdiction which may be called upon to grant an enforcement of the judgment of any such court. Each Party hereby consents to service of process by registered mail at the address to which notices are to be given. Each Party agrees that its submission to jurisdiction and its consent to service of process by mail is made for the express benefit of each other Party. Final judgment against any Party in any such action, suit or proceeding may be enforced in other jurisdictions by suit, action or proceeding on the judgment, or in any other manner provided by or pursuant to the laws of such other jurisdiction.

9. Waiver of Statutory Information Rights. The Optionee understands and agrees that, but for the waiver made herein, upon exercise the Optionee would be entitled, upon written demand under oath stating the purpose thereof, to inspect for any proper purpose, and to make copies and extracts from, the Company's stock ledger, a list of its stockholders, and its other books and records, and the books and records of subsidiaries of the Company, if any, under the circumstances and in the manner provided in Section 220 of the General Corporation Law of Delaware (any and all such rights, and any and all such other rights of the Optionee as may be provided for in Section 220, the "Inspection Rights"). In light of the foregoing, until the first sale of Stock of the Company to the general public pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission under the Securities Act, the Optionee hereby unconditionally and irrevocably waives the Inspection Rights, whether such Inspection Rights would be exercised or pursued directly or indirectly pursuant to Section 220 or otherwise, and covenants and agrees never to directly or indirectly commence, voluntarily aid in any way, prosecute, assign, transfer, or cause to be commenced any claim, action, cause of action, or other proceeding to pursue or exercise the Inspection Rights. The foregoing waiver shall not affect any rights of a director, in its capacity as such, under Section 220. The foregoing waiver shall not apply to any contractual inspection rights of the Optionee under any other written agreement between the Optionee and the Company.

[SIGNATURE PAGE FOLLOWS]

The foregoing Agreement is hereby accepted and the terms and conditions thereof hereby agreed to by the undersigned as of the date first above written.

TCR2 THERAPEUTICS INC.

By: _____
Name: _____
Title: _____

Address: _____

The undersigned hereby acknowledges receiving and reviewing a copy of the Plan, including, without limitation, Section 9 thereof, and understands that this Stock Option is subject to the terms of this Agreement, and to the extent set forth in Section 3 of this Agreement, the Plan. This Agreement is hereby accepted, and the terms and conditions of the Plan, the Grant Notice and this Agreement, SPECIFICALLY INCLUDING THE ARBITRATION PROVISIONS SET FORTH IN SECTION 8 AND THE WAIVER OF STATUTORY INFORMATION RIGHTS SET FORTH IN SECTION 9 OF THIS AGREEMENT, are hereby agreed to, by the undersigned as of the date first above written.

OPTIONEE:

Name: _____

Address: _____

STOCK OPTION EXERCISE NOTICE

TCR2 Therapeutics Inc.
Attention: Treasurer

Pursuant to the terms of the grant notice and stock option agreement between the undersigned and TCR2 Therapeutics Inc. (the “Company”) dated (the “Agreement”), I, [Insert Name], hereby [Circle One] partially/fully exercise such option by including herein payment in the amount of \$ _____ representing the purchase price for [Fill in number of Shares] _____ Shares. I have chosen the following form(s) of payment:

- ☐ 1. Cash
- ☐ 2. Certified or bank check payable to TCR2 Therapeutics Inc.
- ☐ 3. Other (as referenced in the Agreement and described in the TCR2 Therapeutics Inc. 2015 Stock Option and Grant Plan (please describe))
-

In connection with my exercise of the option as set forth above, I hereby represent and warrant to the Company as follows:

(i) I am purchasing the Shares for my own account for investment only, and not for resale or with a view to the distribution thereof.

(ii) I have had such an opportunity as I have deemed adequate to obtain from the Company such information as is necessary to permit me to evaluate the merits and risks of my investment in the Company and have consulted with my own advisers with respect to my investment in the Company.

(iii) I have sufficient experience in business, financial and investment matters to be able to evaluate the risks involved in the purchase of the Shares and to make an informed investment decision with respect to such purchase.

(iv) I can afford a complete loss of the value of the Shares and am able to bear the economic risk of holding such Shares for an indefinite period of time.

(v) I understand that the Shares may not be registered under the Securities Act of 1933 (it being understood that the Shares are being issued and sold in reliance on the exemption provided in Rule 501 thereunder) or any applicable state securities or “blue sky” laws and may not be sold or otherwise transferred or disposed of in the absence of an effective registration statement under the Securities Act of 1933 and under any applicable state securities or “blue sky” laws (or exemptions from the registration requirement thereof). I further acknowledge that certificates representing Shares will bear restrictive legends reflecting the foregoing and/or that book entries for uncertificated Shares will include similar restrictive notations.

(vi) I have read and understand the Plan and acknowledge and agree that the Shares are subject to all of the relevant terms of the Plan, including without limitation, the transfer restrictions set forth in Section 9 of the Plan.

(vii) I understand and agree that the Company has a right of first refusal with respect to the Shares pursuant to Section 9(b) of the Plan.

(viii) I understand and agree that the Company has certain repurchase rights with respect to the Shares pursuant to Section 9(c) of the Plan.

(ix) I understand and agree that I may not sell or otherwise transfer or dispose of the Shares for a period of time following the effective date of a public offering by the Company as described in Section 9(f) of the Plan.

(x) I understand and agree to the waiver of statutory information rights as set forth in Section 9 of the Agreement.

Sincerely yours,

Name:

Address:

Date: _____

Exhibit B

Consultant Confidentiality Agreement

CONFIDENTIALITY AGREEMENT

THIS CONFIDENTIALITY AGREEMENT (this “**Agreement**”), entered into as of _____, 2017 (the “**Effective Date**”), governs the disclosure of information by and between TCR² Therapeutics Inc. with an address of 675 West Kendall St. Suite I, Cambridge, Massachusetts 02142, and Pattern Recognition Ventures, personally (“**Recipient**”).

1. Purpose. TCR² Therapeutics Inc. and Recipient intend to engage in discussions concerning the possible establishment of a consulting relationship between TCR² Therapeutics Inc. and Recipient (the “**Purpose**”). In the course of these discussions, TCR² Therapeutics Inc. may disclose or deliver to Recipient certain of its Confidential Information (defined below).

2. Confidential Information. As used herein, “**Confidential Information**” means any and all information including scientific, technical, business, or financial information or trade secrets, including third party information, that is furnished or disclosed by or on behalf of TCR² Therapeutics Inc., in whatever form or medium (regardless of whether tangible, intangible, visual or oral), to Recipient. “Confidential Information” includes but is not limited to: (a) patent and patent applications; (b) trade secrets; and (c) other proprietary information, ideas, medical devices, gene sequences, cell lines, samples, chemical compounds, assays, biological materials, techniques, sketches, drawings, works of authorship, models, inventions, know-how, processes, apparatuses, equipment, and formulae related to the current, future, and proposed products and services of TCR² Therapeutics Inc., and including without limitation, information concerning research, experimental work, development, design details and specifications, engineering, financial information, procurement requirements, purchasing, manufacturing, customer lists, investors, employees, business and contractual relationships, business forecasts, analyst reports, sales and merchandising, marketing plans and any additional information provided to Recipient.

3. Obligations. Recipient agrees to: (a) use the Confidential Information solely for the Purpose stated above; (b) maintain the confidentiality of the Confidential Information; (c) not disclose any of the Confidential Information to anyone except as expressly permitted in Section 4 below; (d) not disclose either the fact that discussions or negotiations are taking place concerning a possible relationship between the parties nor any of the terms, conditions, or other facts with respect to the possible relationship, including the status thereof or the receipt of Confidential Information; (e) treat such Confidential Information with same degree of care as Recipient treats their own confidential information, which in no event shall be less than reasonable care; and (f) if directed, limit as directed the number of copies made of the Confidential Information. Recipient agrees to immediately notify TCR² Therapeutics Inc. upon discovery of any loss or unauthorized disclosure of the Confidential Information.

4. Permitted Disclosures. Recipient may disclose TCR² Therapeutics Inc.’s Confidential Information solely to their legal counsel on a need-to-know basis, solely for purposes of providing legal advice, and Recipient remains liable for the compliance of such legal counsel. Notwithstanding the foregoing nondisclosure obligations, pursuant to 18 USC Section 1833(b), Recipient shall not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that is made: (1) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney, and solely for the purpose of reporting or investigating a suspected violation of law; or (2) in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

5. **Exceptions.** The obligations and restrictions imposed by this Agreement will not apply to any Confidential Information that Recipient can show through competent evidence (a) is already known to Recipient prior to TCR² Therapeutics Inc.'s disclosure, other than as a result of Recipient's breach of any legal obligation; (b) is or becomes publicly available through no wrongful act on the part of

Recipient; or (c) is obtained by Recipient from a source other than TCR² Therapeutics Inc. on a non-confidential basis having the legal right to disclose such Confidential Information. Recipient may disclose the Confidential Information to the extent required pursuant to the lawful order of a government agency or if disclosure is required by operation of the law, provided that Recipient provides TCR² Therapeutics Inc. with prior written notice in order to permit TCR² Therapeutics Inc. to seek confidential treatment of such information. Recipient will reasonably cooperate with TCR² Therapeutics Inc. in its efforts to seek such a protective order. If confidential treatment is not received for the Confidential Information, Recipient shall only disclose that portion of the Confidential Information which it is required to disclose.

6. **Handling of Information and Materials.** Confidential Information will not be reproduced in any form except as required to accomplish the Purpose. Any reproduction of any Confidential Information by Recipient will remain the property of TCR² Therapeutics Inc. and will contain any and all confidential or proprietary notices or legends that appear on the original, unless otherwise authorized in writing by TCR² Therapeutics Inc. Upon termination or expiration of this Agreement, or upon written request of TCR² Therapeutics Inc., Recipient will promptly return to TCR² Therapeutics Inc. all documents and other tangible materials representing the Confidential Information and all copies thereof, provided that Recipient shall have the right to keep one (1) copy of the Confidential Information for archival purposes.

7. **No Other Rights.** The parties recognize and agree that nothing contained in this Agreement will be construed as granting any property rights, by license or otherwise, to any Confidential Information, or to any invention or any patent, copyright, trademark or other intellectual property right that has issued or that may issue, based on such Confidential Information. Recipient will not make, have made, use or sell for any purpose any product or other item using, incorporating or derived from any Confidential Information.

8. **Term and Termination.** This Agreement will expire one (1) year after the Effective Date, or may be terminated by either party at any time upon written notice to the other party. Recipient's obligations under this Agreement will survive for a period of seven (7) years following termination or expiration of this Agreement; provided, however, that the non-disclosure and non-use obligations imposed by this Agreement with respect to trade secrets included in the Confidential Information will continue for as long as TCR² Therapeutics Inc. continues to treat such Confidential Information as a trade secret.

9. **Notice.** Any notice to be given hereunder by either party to the other will be in writing addressed to the address set forth above (unless either provides written notice of a different address) and will be deemed given: (a) upon delivery if sent by facsimile or by overnight courier; or (b) three (3) days after deposit in the mail if sent by pre-paid, certified mail, return receipt requested mail.

10. **No Warranties.** TCR² Therapeutics Inc. makes no representations or warranties, express or implied, with respect to the accuracy or completeness of its Confidential Information. TCR² Therapeutics Inc. will have no liability with respect to the use or reliance upon its Confidential Information by Recipient.

11. **General.** This Agreement constitutes the entire Agreement between the parties with respect to the subject matter of this Agreement. This Agreement supersedes all previous agreements between the parties relating to the subject matter hereof. The headings to sections of this Agreement are inserted for convenience only and will not be deemed a part hereof or affect the construction or interpretation of any provision hereof. No provision of this Agreement will be deemed waived, amended or modified by either party, unless such waiver, amendment or modification is made in writing and signed, in the case of a waiver, by the party granting the waiver, and in the case of an amendment or modification, by both parties. This Agreement will be governed by and construed in accordance with the laws of the State of Delaware, without reference to conflict of laws principles. Any dispute under this Agreement may be brought in the state courts and the Federal courts located in the Commonwealth of Massachusetts, and the parties hereby consent to the personal jurisdiction and venue of these courts. Recipient acknowledges that its breach of this Agreement may cause irreparable damage and hereby agrees that TCR² Therapeutics Inc. will be entitled to seek injunctive relief under this Agreement, as well as such further relief as may be granted by a court of competent jurisdiction. If any provision of this Agreement is found by a proper authority to be unenforceable or invalid, such unenforceability or invalidity will not render this Agreement unenforceable or invalid as a whole, and such provision will be changed and interpreted so as to best accomplish the objectives of such unenforceable or invalid provision within the limits of applicable law or applicable court decisions. This Agreement will be binding upon and inure to the benefit of each of the party’s heirs, successors and assigns. Recipient will not export, directly or indirectly, any technical data acquired from TCR² Therapeutics Inc. pursuant to this Agreement or any product utilizing any such data to any country for which the U.S. Government or any agency thereof at the time of export requires an export license or other governmental approval without first obtaining such license or approval. This Agreement may be executed in one or more counterparts, each of which will be deemed an original, and all of which together will be deemed to be one and the same instrument. A facsimile or electronic copy of this Agreement, including the signature pages, will be deemed an original.

EXECUTED as of the Effective Date.

TCR² Therapeutics Inc.

PATTERN RECOGNITION VENTURES

By: _____
Name: Garry Menzel
Title: Chief Executive Officer

By: _____
Name: Mitchell Finer
Title:

Address: PO Box 650
Niwot, CO 80544

TCR² THERAPEUTICS, INC.

CONSULTING AGREEMENT

This Consulting Agreement (the “**Agreement**”) is effective October 1st, 2017 (the “**Effective Date**”) and entered into by TCR² Therapeutics, Inc., a Delaware corporation (the “**Company**”), and Globeways Holdings Limited, a British Virgin Islands corporation with a correspondence address at 8 Rue Saint Leger, 1205 Geneva, Switzerland (the “**Consultant**”).

WHEREAS, the Company and the Consultant desire to have the Consultant serve as an advisor to the Company.

NOW, THEREFORE, in consideration of the mutual covenants and promises contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the parties hereto, the parties agree as follows:

1. Services. The Consultant agrees to serve as a Consultant to Company and provide such consulting, advisory and related services (o and for the Company as may be reasonably requested as a Strategic Advisor.

During the Consultation Period (as defined below), except as otherwise provided herein, the Consultant shall not engage in any activity that has a conflict of interest with the Company, including any commercially competitive employment, and shall not directly and knowingly assist any other person or organization that competes, or intends to compete, with the Company.

2. Term. This Agreement shall commence on the Effective Date and shall renew annually (such period, as it may be extended or sooner terminated in accordance with the provisions of Section 4, being referred to as the “**Consultation Period**”).

3. Compensation.

3.1 Consulting Fees. The Company shall pay to the Consultant a consulting fee of \$25,000 per quarter (\$100,000 per year), payable on the last day of each quarter. Payment for any partial month shall be prorated.

3.2 Expenses. The Company shall reimburse the Consultant for all reasonable and necessary documented out of pocket expenses incurred or paid by the Consultant in connection with, or related to, the performance of Consultant’s services under this Agreement. The Consultant shall submit to the Company itemized monthly statements, in a form satisfactory to the Company, of such expenses incurred in the previous month. The Company shall pay to the Consultant amounts shown on each such statement within thirty (30) days after receipt thereof. Notwithstanding the foregoing, the Consultant shall not incur total expenses in excess of \$1,000 per month without the prior written approval of the Company. Consultant shall not incur expenses that are not consistent with the expense reimbursement guidelines of the Company.

3.3 Benefits. The Consultant shall not be entitled to any benefits, coverages or privileges, including, without limitation, health insurance, social security, unemployment, medical or pension payments, made available to employees of the Company.

4. Termination. This Agreement may be terminated prior to the Term Date in the following manner: (a) by either the Company or the Consultant upon not less than thirty (30) days prior written notice to the other party; (b) by the non-breaching party, upon twenty-four (24) hours prior written notice to the breaching party if one party has materially breached this Agreement; or (c) at any time upon the mutual written consent of the parties hereto. In the event of termination, the Consultant shall be entitled to payment for services performed and (subject to the limitation in Section 3.2) for expenses paid or incurred prior to the effective date of termination that have not been previously paid. Such payment shall constitute full settlement of any and all claims of the Consultant of every description against the Company. Notwithstanding the foregoing, the Company may terminate this Agreement effective immediately by giving written notice to the Consultant if the Consultant breaches or threatens to breach any provision of Sections 6 or 7.

5. Cooperation. The Consultant shall use Consultant's best efforts in the performance of Consultant's obligations under this Agreement. The Company shall provide such access to its information and property as may be reasonably required in order to permit the Consultant to perform Consultant's obligations hereunder. The Consultant shall cooperate with the Company's personnel, shall not interfere with the conduct of the Company's business and shall observe all rules, regulations and security requirements of the Company concerning the safety of persons and property.

6. Proprietary Information and Inventions.

6.1 Proprietary Information.

(a) The Consultant acknowledges that Consultant's relationship with the Company is one of high trust and confidence and that in the course of Consultant's service to the Company, Consultant will have access to and contact with Proprietary Information. The Consultant will not disclose any Proprietary Information to any person or entity other than employees of the Company or use the same for any purposes (other than in the performance of the services) without written approval by an officer or executive of the Company, either during or after the Consultation Period, unless and until such Proprietary Information has become public knowledge without fault by the Consultant.

(b) For purposes of this Agreement, Proprietary Information shall mean, by way of illustration and not limitation, all information, whether or not in writing, whether or not patentable and whether or not copyrightable, of a private, secret or confidential nature, owned, possessed or used by the Company, concerning the Company's business, business relationships or financial affairs, including, without limitation, any Invention, formula, vendor information, customer information, apparatus, equipment, trade secret, process, research, report, technical or research data, clinical data, know-how, computer program, software, software documentation, hardware design, technology, product, processes, methods, techniques, formulas, compounds, projects, developments, marketing or business plan, forecast, unpublished financial statement, budget, license, price, cost, customer, supplier or personnel information or employee list that is communicated to, learned of, developed or otherwise acquired by the Consultant in the course of Consultant's service as a consultant to the Company.

(c) The Consultant's obligations under this Section 6.1 shall not apply to any information that (i) is or becomes known to the general public under circumstances involving no breach by the Consultant or others of the terms of this Section 6.1, (ii) is generally disclosed to third parties by the Company without restriction on such third parties, or (iii) is approved for release by written authorization of an officer of the Company.

(d) The Consultant agrees that the Proprietary Information contained within all files, documents, letters, memoranda, reports, records, data sketches, drawings, models, laboratory notebooks, program listings, computer equipment or devices, computer programs or other written, photographic, or other tangible material, whether created by the Consultant or others, which shall come into Consultant's custody or possession, shall be and are the exclusive property of the Company to be used by the Consultant only in the performance of Consultant's duties for the Company and shall not be copied or removed from the Company premises except in the pursuit of the business of the Company. All such materials or copies thereof and all tangible property of the Company in the custody or possession of the Consultant shall be delivered to the Company, upon the earlier of (i) a request by the Company or (ii) the termination of this Agreement. After such delivery, the Consultant shall not retain any such materials or copies thereof or any such tangible property.

(e) The Consultant agrees that Consultant's obligation not to disclose or to use information and materials of the types set forth in paragraphs (b) and (d) above, and Consultant's obligation to return materials and tangible property set forth in paragraph (d) above extends to such types of information, materials and tangible property of customers of the Company or suppliers to the Company or other third parties who may have disclosed or entrusted the same to the Company or to the Consultant.

(f) The Consultant acknowledges that the Company from time to time may have agreements with other persons or with the United States or foreign governments, or agencies thereof, that impose obligations or restrictions on the Company regarding inventions made during the course of work under such agreements or regarding the confidential nature of such work. The Consultant agrees to be bound by all such obligations and restrictions that are known to him and to take all action necessary to discharge the obligations of the Company under such agreements.

6.2 Inventions.

(a) All inventions, ideas, creations, discoveries, computer programs, works of authorship, data, developments, technology, designs, innovations and improvements (whether or not patentable and whether or not copyrightable) which are made, conceived, reduced to practice, created, written, designed or developed by the Consultant, solely or jointly with others or under Consultant's direction and whether during normal business hours or otherwise, (i) during the Consultation Period if arising out of the performance of the Services for the Company or (ii) after the Consultation Period if resulting or directly derived from the Company's Proprietary Information (collectively under clauses (i) and (ii), "**Inventions**") and which are not owned by Institution pursuant to the Uniform Provisions, shall be the sole property of the Company. The Consultant hereby assigns to the Company all Inventions and any and all related patents, copyrights, trademarks, trade names, and other industrial and intellectual

property rights and applications therefor, that are not owned by Institution pursuant to the Uniform Provisions, in the United States and elsewhere and appoints any officer of the Company as his duly authorized attorney to execute, file, prosecute and protect the same before any government agency, court or authority. However, this paragraph shall not apply to Inventions which do not relate to the research and development conducted or planned to be conducted by the Company at the time such Invention is created, made, conceived or reduced to practice and which are made and conceived by the Consultant not during normal working hours, not on the Company's premises and not using the Company's tools, devices, equipment or Proprietary Information.

Company acknowledges that Consultant has, to the extent required by Institution's policy, assigned or is obligated to assign to Institution any and all intellectual property rights made, conceived, reduced to practice, created, written, designed or developed by the Consultant, solely or jointly with others or under Consultant's direction, within the scope of his employment to Institution and any rights so assigned are not subject in any way to the terms of this Agreement and the Company shall have no rights by reason of the Agreement in any publication, invention, discovery, improvement, or other intellectual property whatsoever, whether or not publishable, patentable, or copyrightable, which is developed as a result of Consultant's employment at Institution. Consultant agrees not to provide any services for the Company hereunder on the premises of, or using any funds received from, Institution, without the express prior written consent of the Company.

(b) Upon the request of the Company and at the Company's expense, the Consultant shall execute such further assignments, documents and other instruments as may be necessary or desirable to fully and completely assign all Inventions to the Company and to assist the Company in applying for, obtaining and enforcing patents or copyrights or other rights in the United States and in any foreign country with respect to any Invention. The Consultant also hereby waives all claims to moral rights in any Inventions.

(c) The Consultant shall promptly disclose to the Company all Inventions and will maintain adequate and current written records (in the form of notes, sketches, drawings and as may be specified by the Company) to document the conception and/or first actual reduction to practice of any Invention. Such written records shall be available to and remain the sole property of the Company at all times.

7. Non-Solicitation. During the Consultation Period and for a period of six (6) months thereafter (the "**Post-Termination Period**"), the Consultant shall not, either alone or in association with others, (i) solicit, or permit any organization directly or indirectly controlled by the Consultant to solicit, any employee of the Company to leave the employ of the Company; (ii) solicit for employment, hire or engage as an independent contractor, or permit any organization directly or indirectly controlled by the Consultant to solicit for employment, hire or engage as an independent contractor, any person who is employed or engaged by the Company; and/or (iii) solicit, divert or take away, the business or patronage of any of the clients, customers or accounts or prospective clients, customers or accounts, of the Company that were contacted, solicited or served by the Consultant on behalf of the Company during the term of the Consultant's engagement with the Company. During the Post-Termination Period Consultant shall be paid Consulting Fees at the rate and the manner provided for in Section 3.1.

8. Other Agreements. The Consultant hereby represents that, except as the Consultant has disclosed in writing to the Company, the Consultant is not bound by the terms of any agreement with any third party to refrain from using or disclosing any trade secret or confidential or proprietary information in the course of Consultant's consultancy with the Company, to refrain from competing, directly or indirectly, with the business of such third party or to refrain from soliciting employees, customers or suppliers of such third party. The Consultant further represents that Consultant's performance of all the terms of this Agreement and the performance of the services as a consultant of the Company do not and will not breach any agreement with any third party to which the Consultant is a party (including, without limitation, any nondisclosure or non-competition agreement), and that the Consultant will not disclose to the Company or induce the Company to use any confidential or proprietary information or material belonging to any current or previous employer or others.

9. Non-Exclusivity. Except as set forth in the second paragraph of Section 1, the Consultant retains the right to contract with other companies or entities for Consultant's consulting services without restriction. The Company retains a right to contract with other companies and/or individuals for consulting services without restriction.

10. Remedies. The Consultant acknowledges that any breach of the provisions of Sections 6 or 7 of this Agreement shall result in serious and irreparable injury to the Company for which the Company cannot be adequately compensated by monetary damages alone. The Consultant agrees, therefore, that, in addition to any other remedy the Consultant may have, the Company shall be entitled to enforce the specific performance of this Agreement by the Consultant and to seek both temporary and permanent injunctive relief (to the extent permitted by law) without the necessity of proving actual damages or posting a bond.

11. Indemnification. The Company hereby agrees to indemnify and hold Consultant harmless from all liabilities incurred by, or claims against, Consultant as a result of his performance of his obligations under this Agreement, other than liability incurred or claims against the Consultant caused by his gross negligence or willful misconduct. Consultant hereby agrees to indemnify and hold Company harmless from claims made by Institution against the Company and liabilities associated therewith, resulting from Consultant's gross negligence or willful misconduct.

12. Notices. All notices required or permitted under this Agreement shall be in writing and shall be deemed effective upon personal delivery or upon deposit in the United States Post Office, by registered or certified mail, postage prepaid, addressed to the other party at the address shown above, or at such other address or addresses as either party shall designate to the other in accordance with this Section 13.

13. Pronouns. Whenever the context may require, any pronouns used in this Agreement shall include the corresponding masculine, feminine or neuter forms, and the singular forms of nouns and pronouns shall include the plural, and vice versa.

14. Entire Agreement. This Agreement constitutes the entire agreement between the parties and supersedes all prior agreements and understandings, whether written or oral, relating to the subject matter of this Agreement

15. Amendment. This Agreement may be amended or modified only by a written instrument executed by both the Company and the Consultant.
16. Non-Assignability of Contract. This Agreement is personal to the Consultant and the Consultant shall not have the right to assign any of Consultant's rights or delegate any of Consultant's duties without the express written consent of the Company. Any non-consented-to assignment or delegation, whether express or implied or by operation of law, shall be void and shall constitute a breach and a default by the Consultant.
17. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts without giving effect to any choice or conflict of law provision or rule that would cause the application of laws of any other jurisdiction.
18. Successors and Assigns. This Agreement shall be binding upon, and inure to the benefit of, both parties and their respective successors and assigns, including any corporation with which, or into which, the Company may be merged or which may succeed to its assets or business, provided, however, that the obligations of the Consultant are personal and shall not be assigned by him.
19. Interpretation. If any restriction set forth in Section 6 or Section 7 is found by any court of competent jurisdiction to be unenforceable because it extends for too long a period of time or over too great a range of activities or in too broad a geographic area, it shall be interpreted to extend only over the maximum period of time, range of activities or geographic area as to which it may be enforceable.
20. Survival. Sections 4 through 22 shall survive the expiration or termination of this Agreement.
21. Miscellaneous.

21.1 No delay or omission by the Company in exercising any right under this Agreement shall operate as a waiver of that or any other right. A waiver or consent given by the Company on any one occasion shall be effective only in that instance and shall not be construed as a bar or waiver of any right on any other occasion.

21.2 The captions of the sections of this Agreement are for convenience of reference only and in no way define, limit or affect the scope or substance of any section of this Agreement.

21.3 In the event that any provision of this Agreement shall be invalid, illegal or otherwise unenforceable, the validity, legality and enforceability of the remaining provisions shall in no way be affected or impaired thereby.

IN WITNESS WHEREOF, the parties hereto have executed this Consulting Agreement effective as of the date and year first above written.

COMPANY:

TCR² THERAPEUTICS, INC.

By: /s/ Garry Menzel
Name: Garry Menzel
Title: Chief Executive Officer

CONSULTANT:

GLOBEWAYS HOLDINGS LIMITED

By: /s/ Vanessa Briceno
Name: Vanessa Briceno
Title: Corporate Director

By: /s/ Ross Belhomme
Name: Ross Belhomme
Title: Corporate Director

ROYALTY TRANSFER AGREEMENT

This Royalty Transfer Agreement (the “**Agreement**”) is made and entered into on May 26, 2016 (the “**Effective Date**”), by and between TCR², Inc., a Delaware corporation (the “**Company**”), MPM Oncology Charitable Foundation, Inc. a Massachusetts charitable foundation (the “**MPM Charitable Foundation**”) and the UBS Optimus Foundation, a Swiss charitable foundation “Optimus.” and together with the MPM Charitable Foundation, the “**Charitable Foundations**”).

WHEREAS, certain investors of the Company have requested that the Company enter into this Agreement providing for the transfer of 1.0% of Net Sales on the term and conditions outlined below; and

WHEREAS, the Company is willing to enter into this Agreement in connection with such request.

NOW, THEREFORE, the Company, the MPM Charitable Foundation and Optimus agree as follows:

Section 1: Definitions

Definitions. The following terms, as used herein, have the following meanings:

“**Affiliate**” shall mean any legal entity (such as a corporation, partnership, limited liability company, etc.) that is directly or indirectly controlled by, or is under common control of the Company. For the purposes of this definition, “control” shall mean direct or indirect (i) beneficial ownership of at least 50% of the voting securities of a legal entity; or (ii) a 50% or greater interest in the net assets or profits of a legal entity.

“**Bad Debt**” shall mean any amounts booked as such on the Company’s financial statements, prepared in accordance with GAAP.

“**Company Products**” shall mean any product developed or owned by the Company requiring pro-market regulatory approval, provided that any product developed or owned by the Company that references, practices or incorporates, or (if such intellectual property was not owned or controlled by the Company), would infringe, only Post-IPO IP shall not be deemed a “Company Product” hereunder. Further, notwithstanding anything to the contrary herein, for the avoidance of doubt. Company Products shall not include any products that are discovered, developed, manufactured and/or commercialized by or on behalf of, or are covered by intellectual property (whether or not patentable) of, any person or entity that is an acquiror or merger partner of Company, becomes an Affiliate of the Company by reason of any transaction in connection with the sale of all or substantially all of the stock and/or assets of the Company (such transaction, an “**Acquisition**”), or an assignee of this Agreement in connection with any of the aforementioned transactions, provided that (he discovery, development, manufacture and/or commercialization of such product arc performed without use of Pre-Acquisition IP.

“**End of the Year**” shall mean December 31 of a given calendar year.

“Licensee” shall mean any party that is not an Affiliate that has been granted a license to the Company Products.

“Net Sales” means, with respect to Company Products, the gross amounts invoiced in arm’s length transactions by the Company or its Affiliates or Licensees to third parties for sales of such Company Product, less good faith estimates of the following deductions to the extent specifically relating to sales of such Company Products, which will be adjusted to reflect actual deductions on a periodic basis (no less frequently than annually):

- a) discounts (including trade, quantity, and cash discounts) actually allowed, cash and noncash coupons, and retroactive price reductions (including to governmental entities or agencies, purchasers, reimburses, customers, distributors, wholesalers, and group purchasing and managed care organizations or entities (and other similar entities and institutions);
- b) credits or allowances, if any, on account of price adjustments, recalls, claims, damaged goods, rejections or returns of items previously sold (including Company Products returned in connection with recalls or withdrawals) and amounts written off by reason of Bad Debt; provided, that if the debt is [hereafter paid, the corresponding amount will be added to the Net Sales of the period during which it is paid;
- c) rebates (or their equivalent), administrative fees, and any other similar allowances granted by Company, its Affiliates or Licensees (including to governmental authorities, purchasers, reimbursers, customers, distributors, wholesalers, and managed care organizations and entities (and other similar entities and institutions) that effectively reduce the selling price or gross sales of the Company Products;
- d) insurance, customs charges, freight, postage, shipping, handling, and other transportation costs incurred by Company, its Affiliates or Licensees in shipping Company Products;
- e) to the extent not already deducted or excluded from the gross amounts invoiced, import taxes, export taxes, excise taxes, sales taxes, value-added taxes, consumption taxes, duties or other taxes levied on, absorbed, determined, and/or imposed with respect to such sales, including pharmaceutical excise taxes (such as those imposed by the United States Patient Protection and Affordable Care Act of 2010 (Pub. L. No. 111-48) and other comparable laws), but excluding income or net profit taxes or franchise taxes of any kind; and
- f) other similar or customary deductions taken in the ordinary course of business in accordance with GAAP.

Net Sales will be determined in accordance with GAAP except with respect to the pharmaceutical excise taxes described in clause (e) above. Net Sales will not be imputed to transfers of Company Products for use in clinical trials, non-clinical development activities, or other development activities that might be required by regulatory authorities with respect to Company Products, for bona fide charitable purposes, for compassionate use, for indigent patient programs, or as free samples.

Notwithstanding the foregoing, in the event a Company Product contains another active ingredient that is not a Company Product itself (such Company Product, a “**Combination Product**”). Net Sales of such Company Product for a particular country for the purpose of determining royalties due hereunder shall be calculated using commercially reasonable accounting practices.

“**Company IP**” shall mean (a) any invention discovered or developed and/or (b) any patents and/or patent applications in each case which is in whole or in part developed by, or otherwise becomes owned or controlled by, the Company.

“**Post-IPO IP**” shall mean Company IP that, in the case of (a) that was discovered or developed, or in the case of (b) that has a priority date, after an initial public offering of the Company’s common stock pursuant to an effective registration statement under the Securities Act of 1933,

“**Pre-Acquisition IP**” shall mean Company IP that, in the case of (a) that was discovered or developed, or in the case of (b) that has a priority date, prior to an Acquisition of the Company.

Section 2: Payments/Termination

2.1 Payments to MPM Charitable Foundation. Within 120 days of the End of the Year, the Company agrees to pay to the MPM Charitable Foundation 0.5% of all global Net Sales of any Company Products received by the Company, its Licensees or its Affiliates during the prior calendar year. The Company’s payment obligations to the MPM Charitable Foundation under this Section 2.1 shall terminate immediately upon the winding up or dissolution of the MPM Charitable Foundation.

2.2 Payments to Optimus. Within 120 days of the End of the Year, the Company agrees to pay to Optimus 0.5% of all global Net Sales of any Company Products received by the Company, its Licensees or its Affiliates during the prior calendar year. The Company’s payment obligations to Optimus under this Section 2.2 shall terminate immediately upon the expiration or termination of the Contribution Agreement relating to the Quality and Access Initiative for Health in Resource Poor Settings between Optimus and Oncology Impact Fund (Cayman) Management L.P. (“**OIF Management**”).

2.3 Terminal ion/Step-Down. Notwithstanding the foregoing, Company’s obligation to pay royalties under Section 2.1 and 2.2 for a Company Product shall terminate on a country-by-country basis upon the later of (i) the date that is the twelfth (12th) anniversary of the first commercial sale of that Company Product in such country, and (ii) the expiration of the last to expire valid patent claim of any Pre-Acquisition IP (other than Post-IPO IP) covering such Company Product in such country (the “**Royalty Term**”). If the Royalty Term pursuant to clause (i) of this Section 2.3 exceeds the Royalty Term pursuant to clause (ii), the royalty rates under Sections 2.1 and 2.2 shall each be reduced by Fifty percent (50%) for the remainder of the Royalty Term, such that the new royalty rates under Section 2.1 and 2.2 shall be 0.25% each for the remainder of the Royalty Term. If MPM Oncology Impact Management GP, LP ceases for any reason to serve as the general partner for the OIF Management, then this Agreement shall terminate immediately.

Section 3: Miscellaneous

3.1 **Binding Agreement and Assignment**. This Agreement shall be binding upon and inure to the benefit of the Company and its successors and assigns. The Company may not transfer, assign or sell any rights with respect to any Company Products without securing from the transferee, assignee or acquirer, as the case may be, an acknowledgement of its continuing obligations under this Agreement. The Charitable Foundations may not assign any of their rights or obligations under this Agreement to any individual or entity without the express written prior consent of the Company.

3.2 **Entire Agreement, Headings, and Modification**. This Agreement contains the entire understandings of the parties with respect to the subject matter herein, and supersedes all previous agreements (whether oral or written), negotiations, and discussions. The descriptive headings of the sections of this Agreement are inserted for convenience only and shall not control or affect the meaning or construction of any provision hereof. Any modifications or amendments to this Agreement must be made in writing and signed by both parties.

3.3 **Choice of Law**. This Agreement shall be construed, governed, interpreted, and applied in accordance with the laws of the Commonwealth of Massachusetts, exclusive of its conflicts of law provisions. Any unresolved controversy or claim arising out of or relating to this Agreement shall be submitted to arbitration by one arbitrator mutually agreed upon by the parties, and if no agreement can be reached within 30 days after names of potential arbitrators have been proposed by the American Arbitration Association (the “AAA”), then by one arbitrator having reasonable experience in licensing and royalty transactions who is chosen by the AAA. The arbitration shall take place in Boston, Massachusetts, in accordance with the AAA rules then in effect, and judgment upon any award rendered in such arbitration will be binding and may be entered in any court having jurisdiction thereof.

3.4 **Waiver**. The waiver by any party of the breach of any covenant or provision in this Agreement shall not operate or be construed as a waiver of any subsequent breach by such party.

3.5 **Severability**. In the event a court of competent jurisdiction declares any term or provision of this Agreement to be invalid or unenforceable for any reason, this Agreement will remain in full force and effect, and either: (a) the invalid or unenforceable provision(s) will be modified to the minimum extent necessary to make such provision(s) valid and enforceable; or (b) if such a modification is not possible, this Agreement will be interpreted as if such invalid or unenforceable provisions) were not a part of this Agreement.

3.6 **Counterparts**. This Agreement may be executed in any number of counterparts, all of which will constitute one and the same instrument, and will be an original of this Agreement.

[Signatures on Following Page]

IN WITNESS WHEREOF, this Agreement has been executed by the parties hereto through their duly authorized officers as of the Effective Date.

TCR2, INC

By: /s/ Patrick Baeuerle
Name: Patrick Baeuerle
Title: President

MPM ONCOLOGY CHARITABLE FOUNDATION

By: /s/ Ansbert Gadicke
Name: Ansbert Gadicke
Title: President

UBS OPTIMUS FOUNDATION

By: /s/Phyllis Costanza
Name: Phyllis Costanza
Title: CEO
and: /s/Karin Schumacher
Name: Karin Schumacher
Title: Business Manager

[Royalty Transfer Agreement]

LETTER AGREEMENT

May 26, 2016

TCR2, Inc.

Re: Execution of Royalty Transfer Agreement

To Whom It May Concern:

Reference is made to that certain Series A Preferred Stock Purchase Agreement, dated as of October 16, 2015 ("Purchase Agreement"), by and among TCR2, Inc., a Delaware corporation (the "Company") and the other parties thereto, as amended by that certain Amendment No. 1 to Series A Preferred Stock Purchase Agreement, dated as of January 29, 2016, by and among the Company and parties listed on the signature pages thereto. By executing and delivering this letter, in connection with the purchase by UBS Oncology Impact Fund LP. ("OIF") of 3,258,427 shares of Series A Preferred Stock of the Company at the Additional Closing (as defined in the Purchase Agreement), OIF MPM Oncology Impact fund Charitable foundation, the UBS Optimus foundation and the Company hereby acknowledges and agree as follows:

1. A portion of the cash consideration paid by OIF to the Company in respect of shares of Series A Preferred Stock shall be treated as consideration for the right to receive from the Company one percent (1.0%) of (i) all global Net Sales of any Company Products and (ii) any License Income, in both cases received by the Company (such payments, the "Royalty Stream").
2. Effective immediately subsequent to the purchase by OIF of the Royalty Stream, OIF hereby transfers its rights under the Royalty Stream to the MPM Charitable Foundation and UBS Optimus Foundation by directing the Company to execute, deliver and perform that certain Royalty Transfer Agreement among the Company, MPM Charitable Foundation, and UBS Optimus Foundation (the "RTA"), which RTA provides for, among other things, payment of 50% of the Royalty Stream to the MPM Charitable Foundation and payment of 50% of the Royalty Stream to UBS Optimus foundation.

Unless otherwise required by a "determination" within the meaning of Section 1313 of the Internal Revenue Code of 1986, as amended, and the Treasury Regulations thereunder (and any comparable position of state, local or non-U.S. tax law) the parties agree, that they and their affiliates shall (A) prepare and file all tax returns required to be filed by the parties or their Affiliates in a manner consistent with the foregoing, (B) take no position on any tax return, or in any audit or other proceeding with respect to taxes in a manner that is inconsistent with the foregoing.

This letter shall be governed by and construed and enforced in accordance with the laws of the State of Delaware. Without giving effect to the principles of conflicts of law thereof. This letter and the RTA together constitute the full and entire understanding and agreement between the parties with respect to the subject matter hereof, and any other written or oral agreement relating to the subject matter hereof existing between the parties are expressly canceled. This letter may also be executed and delivered by facsimile signature and in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Capitalized terms used but not defined herein shall have the meaning ascribed to them under the RTA.

(Signature Page Follows)

TCR2, INC.

By: /s/ Patrick Baeuerle
Name: Patrick Baeuerle
Title: President

MPM CHARITABLE FOUNDATION

By: /s/ Ansbert Gadicke
Name: Ansbert Gadicke
Title: President

UBS OPTIMUS FOUNDATION

By: /s/Phyllis Costanza
Name: Phyllis Costanza
Title: CEO
and: /s/Karin Schumacher
Name: Karin Schumacher
Title: Business Manager

/s/Ansbert Gadicke
Ansbert Gadicke

on behalf of

MPM ONCOLOGY IMPACT MANAGEMENT GP LLC
in its capacity as general partner of
MPM ONCOLOGY IMPACT MANAGEMENT LP
in its capacity as general partner of
ONCOLOGY IMPACT FUND (CAYMAN) MANAGEMENT L.P.
in its capacity as general partner of
UBS ONCOLOGY IMPACT FUND L.P.

[*Direction Letter*]

***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

DATED DECEMBER 18, 2018

(1) TCR² THERAPEUTICS INC.

- and -

(2) CELL THERAPY CATAPULT LIMITED

COLLABORATION AGREEMENT



THIS COLLABORATION AGREEMENT (the “Agreement”) is dated the 18th of December 2018 (the “**Effective Date**”)

BETWEEN

- (1) **TCR2 Therapeutics Inc.**, a company incorporated in under the laws of the State of Delaware and located at 100 Binney Street, Suite 710, Cambridge, MA 02142, US (“**COLLABORATOR**”); and
- (2) **Cell Therapy Catapult Limited, trading as Cell and Gene Therapy Catapult**, a company incorporated and registered in England & Wales with company number 07964711 whose registered office is at 12th Floor Tower Wing, Guys Hospital, Great Maze Pond, London, SE1 9RT, United Kingdom (the “**Catapult**”).

BACKGROUND

- (A) Catapult’s purpose in commissioning the cell and gene therapy manufacturing centre is to further its broader aims within the UK to develop novel technologies, processes, supply chains, facilities, skills, and working practices for simultaneous and cost effective large-scale manufacture and distribution of multiple ATMP products.
- (B) COLLABORATOR is developing certain cell and gene therapy products. As part of this activity COLLABORATOR wishes to use the Centre in order to further develop and scale up manufacturing processes and capability for cell and gene therapy products.
- (C) COLLABORATOR and Catapult would each like to collaborate further with the other as further set forth in this Agreement (“**Project**” or “**Collaboration**”, as further described in the work streams set out at **Schedule 1**).
- (D) Other parties who collaborate with the Catapult and occupy the Centre in the same way will be referred to as a “Collaborator” or “Other Collaborator(s)” (and together with COLLABORATOR as “All Collaborators”).
- (E) This document aims to record the contributions of each party with respect to this Agreement, and the terms under which COLLABORATOR and Catapult will work together within the Centre.

OPERATIVE PROVISIONS

1. **DEFINITIONS AND INTERPRETATION**

1.1 In this Agreement, the following words will have the following meanings:

“ Accompanied Access Areas ”	means the areas of the Centre marked yellow on the Plans which are accessible by All Collaborators, but on condition such access is in the company of Catapult personnel.
“ Activity Related Inputs ”	means the inputs provided by Catapult set out at Clause 9.2 .
“ Activity Related Input Contributions ”	means the financial contribution made by COLLABORATOR with respect to the provision of the Activity Related Inputs, and as described in Clause 8.4.3 .
“ Additional Inputs ”	means inputs COLLABORATOR requires Catapult to contribute to the Project, other than Activity Related Inputs and Integral Inputs, which will be arranged through the completion of an Additional Input Agreement in the form set out at Schedule 16 (“ Additional Input Agreement ”).
“ Affiliate ”	in relation to a Party, means any person that Controls, is Controlled by, or is under common Control with that Party.

“Applicable Law”	<p>means any:</p> <ul style="list-style-type: none"> (a) statute, statutory instrument, by-law, order, regulation, directive, treaty, decree, decision of the European Council or law; (b) legally binding rule, policy, guidance or recommendation issued by any governmental, statutory or regulatory body with jurisdiction over this Agreement or the activities conducted hereunder; and/or (c) legally binding industry code of conduct or guideline; <p>which relates to this Agreement and/or the Inputs and/or the activities which are comprised in the Project.</p>
“Background Intellectual Property”	<ul style="list-style-type: none"> (a) in relation to COLLABORATOR, means the Intellectual Property that is either <ul style="list-style-type: none"> (i) owned by or licensed to COLLABORATOR prior to the Effective Date, or (ii) that is developed or licensed by COLLABORATOR after the Effective Date and outside of the conduct of activities for the Project; and in the case of either (i) or (ii), that COLLABORATOR uses in the performance of the Project, other than Foreground Intellectual Property; and (b) in relation to Catapult, means the Intellectual Property owned by or licensed to Catapult at the Effective Date, together with Intellectual Property that is developed by or licensed to Catapult after the Effective Date and outside of the conduct of activities for the Project; and in either case that Catapult uses in the performance of the Agreement, and that is not Foreground Intellectual Property. Catapult represents and warrants that to the best of Catapult’s knowledge and belief, as of the Effective Date, Catapult Background Intellectual Property, consists of the Intellectual Property as set forth in the attached Schedule 4, which Catapult will update from time to time as additional Catapult Background Intellectual Property is brought into the Project.
“Business Rates”	<p>means the portion of the business rates chargeable against the Centre paid for by COLLABORATOR in accordance with Clause 8.4.2 and in the amount set out at Schedule 3.</p>
“Centre”	<p>means the Cell and Gene Therapy Catapult Manufacturing Centre located at Cell and Gene Therapy Catapult Manufacturing Centre, Gunnels Wood Road, Stevenage, Herts, SG1 2FX. The Centre outlines are edged in blue on the Plans.</p>
“CNC corridor”	<p>means the controlled non-classified corridor forming part of the Common Access Areas.</p>
“Code of Conduct”	<p>means the code of conduct set out at Schedule 5.</p>
“Collaborator Forums”	<p>means the Quality Forum, the Health and Safety Forum, and the Operational Forum, each as more particularly referenced, and described in Clause 9.6 and Schedule 15.</p>
“COLLABORATOR Manufacturing Process”	<p>means the process to be developed and operated by COLLABORATOR under the Agreement in order to enable the production of COLLABORATOR Product on a large scale as more particularly defined prior to signature of this contract in the Product Overview Document . It may be amended from time to time in accordance with Clause 7.2 and the QTA.</p>

“COLLABORATOR Personnel”	means the employees or contractors of COLLABORATOR located at the Module from time to time.
“COLLABORATOR Product”	means COLLABORATOR owned and developed product, or products, to be produced on a large scale through the creation and adoption of COLLABORATOR Manufacturing Process.
“COLLABORATOR Responsibilities”	means the obligations on COLLABORATOR set out in Clause 10 (each one severally being a “COLLABORATOR Responsibility”).
“Commissioning”	has the meaning given in Clause 6.1
“Common Access Areas”	means any part of the Centre shown edged green on the Plans which does not form part of the Module, the Restricted Access Areas, the Shared Restricted Access Areas or the Accompanied Access Areas, or that is designated by Catapult from time to time for common use by Catapult, and All Collaborators from time to time.
“Compensations”	has the meaning given to it in Clause 18.1.1 .
“Conducting Media”	means any media for the transmission of Supplies.
“Confidential Information”	means any information in any form or medium disclosed by one Party or such Party’s Affiliates, or their legal counsel, advisors, contractors (the “Disclosing Party”) to the other Party or its Affiliates, or their legal counsel, advisors, contractors (the “Receiving Party”) or to which either Party gains access as a result of COLLABORATOR’s occupancy of the Module and Centre or Catapult or Third Party’s use of the Centre at any time, or as a result of participation in any of the Collaborator Forums, concerning the business affairs, finances, technology, plans, strategy, products, manufacturing services, Know-how or services of (i) the Disclosing Party, (ii) any of its Affiliates, (iii) any other entity with which the Disclosing Party or any of its Affiliates is in business negotiations or has contracted or to which it owes a duty of confidence, or (iv) any other Collaborator ((iv) being an “Alternative Disclosing Party”), and all copies of the same. Confidential Information also includes any information disclosed by either Party under the terms of the confidentiality agreement between the Parties dated 24 August 2018 (“Pre-existing CDA”).
“Contributions”	means the Activity Input Contributions, Integral Input Contributions, Establishment Input Contributions, the Additional Input Contributions and/or any other contributions as agreed in writing between the Parties and provided by Catapult to COLLABORATOR from time to time.
“Control”	means (a) the direct or indirect ownership of fifty percent (50%) or more of the total voting power of securities or other evidences of ownership interest in a party or (b) the power to direct or cause the direction of the management and policies of such party, directly or indirectly, whether through ownership of voting securities, by contract or otherwise; and the terms “controlling” and “controlled” have meanings correlative to the foregoing, as the case may be.
“Disclosing Party”	has the meaning given in the definition of “Confidential Information” .
“Effective Date”	has the meaning given in the preamble of this Agreement.
“Establishment Inputs”	means the inputs provided by Catapult set out at Clause 9.3 .
“Establishment Input Contributions”	means the financial contributions payable in accordance with cause 8.1.5, to be made by COLLABORATOR with respect to the provision of the Establishment Inputs by Catapult, which are detailed in the Establishment Input Statement.

“Establishment Input Statement”	means the Establishment Input Contributions Statement by and between Catapult and Collaborator dated December [***], 2018.
“Expected Occupation Date”	means 1 March 2019, the contemplated date by which COLLABORATOR will occupy the Manufacturing Space, or such other date as mutually agreed by the parties in writing.
“Facility Contribution”	means the contribution to be made by COLLABORATOR with respect to the provision of the Module and other capital aspects, as more particularly described at Clause 8.4.1 .1 , and at Schedule 3 .
“Foreground Intellectual Property”	means the results, technical information, knowledge, inventions, improvements, experience, materials and data developed and arising directly from and as a direct result of the Project, together with any Intellectual Property in such items.
“GMP” or “EU-GMP”	means good manufacturing practice, being the standard required under the Laws of the European Union.
“GMP Requirements”	means the guidance for the interpretation of the principles and guidelines of good manufacturing practices for medicinal products for human and veterinary use laid down in the Commission 2003/94/EC as amended and set out in Volume 4 of Eudralex (the rules governing medicinal products in the European Union), and the MHRA Rules and Guidance for Pharmaceutical Manufacturers and Distributors (The Orange Guide).
“Ground Level”	means the Level 0 Ground Level as shown on the Plans.
“Health and Safety Forum”	means the forum in which COLLABORATOR, Other Collaborators, and Catapult will convene to discuss health and safety matters as more particularly described in Clause 9.6 and Schedule 15.
“HVAC”	heating, ventilation and air-conditioning.
“Improvement”	means, with respect to any Intellectual Property or material: (a) all improvements, modifications and /or adaptations of such Intellectual Property or materials; and (b) all other Intellectual Property in, derived from, relating to, or otherwise within the scope of any claim, right, or interest which would impair or restrict the use of, application, or rights comprised in, such Intellectual Property or material.
“Insured Risks”	means the risks covered by the policies of insurance under Clauses 19.1 and 19.2 , in each case to the extent that cover is generally available on normal commercial terms in the UK insurance market at the time the insurance is taken out and any other risks against which Catapult reasonably insures from time to time, subject in all cases to any excesses, limitations and exclusions imposed by the insurers.
“Integral Input Contributions”	means the financial contribution made by COLLABORATOR with respect to the provision of the Integral Inputs, as more particularly described in Clause 8.4.4 , and at Schedule 3 .
“Integral Inputs”	the inputs provided by Catapult set out at Clause 9.1 .
“Intellectual Property”	means any and all issued patents and patent applications, inventions, utility models, registered and unregistered trademarks and service marks, registered designs, unregistered design rights, domain names, trade or business names, copyright, database rights, rights in respect of confidential information, rights under data exclusivity laws, rights under licences, rights under orphan drug laws, property rights in biological or chemical materials, topography rights, Know-how, extension of the terms of any such rights (including supplementary protection certificates), applications for and the right to apply any of the foregoing registered property and rights, and similar or analogous rights anywhere in the world.

“IT Infrastructure”	the information technology facilities in the Centre for use by COLLABORATOR and, where applicable, by Other Collaborators as more particularly described in Schedule 10 .
“Know-how”	means unpatented technical information (including without limitation information relating to inventions, discoveries, concepts, methodologies, models, research, development, and testing procedures; the results of experiments, tests, and trials; manufacturing processes, techniques, and specifications; and quality control data, analyses, reports, and submissions) that is not in the public domain.
“Lease”	means a lease dated 1 October 2015 made between the (1) Stevenage Bioscience Catalyst and (2) Cell Therapy Catapult Limited.
“Liability”	means liability arising out of this Agreement, whether in contract, tort, misrepresentation, restitution, under statute or otherwise, including any liability under an indemnity contained in this Agreement.
“Letter Agreement”	Means the heads of terms entered into between the parties connected to COLLABORATOR’S occupation of the Centre dated 5 October 2018
“Licence Period”	means the Term.
“MAL”	means material airlock.
“Manufacturing Office”	means the manufacturing office space forming part of the Module, allocated for COLLABORATOR’s use in accordance with Clause 3 , and more particularly described in Schedules 2 and 12 .
“Manufacturing Space”	means the manufacturing space forming part of the Module, allocated for COLLABORATOR’s use in accordance with Clause 3 , more particularly described in Schedules 2 and 12 .
“Module”	means the specific Manufacturing Space, the Manufacturing Office, and Non-Manufacturing Office each allocated by Catapult under this Agreement for COLLABORATOR’s occupation and use at the Centre for carrying out the Project shown shaded in grey on the Plans, and which will include all fixtures and fittings and plant and machinery located within the Manufacturing Space, the Manufacturing Office and Non-Manufacturing Office, to be set out in the Schedule of Condition and Inventory of Module Fixtures and Fittings immediately prior to occupancy and appended as Schedule 7 .
“Necessary Consents”	means all planning permissions and all other consents, licences, permissions, certificates, authorisations and approvals whether of a public or private nature which will be required by any regulatory authority for the Permitted Use
“Non-Manufacturing Office”	means the office space forming part of the Module allocated for COLLABORATOR’s use in Clause 3 , the specifications for which are set out in Schedules 2 and 12 .
“Occupation Date”	means the date by which Catapult has materially completed its obligations contained in this Agreement and the Establishment Input Statement that are required to enable COLLABORATOR to physically occupy the Module. For the avoidance of doubt: (i) the Occupation Date shall not be triggered solely by the occupation of the Non-Manufacturing Office if such occupation occurs prior to the material completion of Catapult’s obligations under this Agreement and the Establishment Input Statement and (ii) COLLABORATOR will not have access to the Module until the later of: (a) the date that the Parties have agreed and entered into the QTA or (b) the Occupation Date.

“Office Hours	9am – 5.30pm (UK time) Monday to Friday (inclusive) but excluding bank holidays and public holidays in England.
“On-boarding”	means part of the Establishment Inputs and a process completed by Catapult together with COLLABORATOR involving the risk assessment and regulatory oversight required to bring COLLABORATOR’s manufacturing processes and products into the Centre as referred to in Clause 9.3.1 (b) , and more particularly set out at Schedule 6 .
“Operational Forum”	means the forum in which COLLABORATOR, Other Collaborators, and Catapult will convene to discuss operations matters connected with the Centre as more particularly described in Clause 9.6 and Schedule 15 .
PAL	means personnel airlock.
“Parties”	COLLABORATOR and Catapult; “Party” shall mean either of them, and “Parties” shall mean both COLLABORATOR and Catapult.
“Permitted Use”	means any activity strictly in connection with the performance of the Project.
“Plans”	means the plans of the Module allocated to COLLABORATOR under this Agreement, and of the Centre generally, attached to this Agreement at Schedule 2, Part 4 .
“PrAL”	means product airlock.
“Pre-Screen Questionnaire”	means a questionnaire described at Schedule 6 defining the COLLABORATOR Manufacturing Process and Product as part of the COLLABORATOR Selection phase.
“Product Overview Document” or “POD”	means a quality document completed as part of the On-boarding Project defining the COLLABORATOR Manufacturing Process and COLLABORATOR Product.
“Process Transfer”	means an Establishment Input, and the practical transfer of COLLABORATOR equipment and processes into the Centre under the control and responsibility of COLLABORATOR as referred to in Clause 9.3.1 (a) and more particularly set out at Schedule 6 .
“Project”	has the meaning given in Recital (C).
“Quality Forum”	means the forum in which COLLABORATOR, Other Collaborators, and Catapult will convene to discuss quality matters connected with the Centre as more particularly described in Clause 9.4 and Schedule 15.
“Quality Management System” or “QMS”	means a collection of business processes and governance structures focused on consistently meeting Regulatory Authority and GMP requirements. The Quality Management System is expressed as an organisational structure, policies, procedures, processes and resources needed to maintain compliance to Eudralex Vol 4, Chapter 1 that are set out in the Quality Technical Agreement, and encompass the contents of Schedule 8 (Warehouse and Procurement Management Provisions), Schedule 9 (Environmental Monitoring), Schedule 10 (IT Infrastructure), Schedule 12 (Module and Centre Specification).

“Quality Technical Agreement” or “QTA”	means the agreement between the Parties governing the quality aspects of the Centre that are comprised in the Quality Management System (as it may be amended from time to time)
“Quarter”	means a period of three months commencing on 1 January, 1 April, 1 July, or 1 October; and “Quarterly” shall be construed accordingly.
“Receiving Party”	has the meaning given in the definition of “Confidential Information”.
“Registered Rights”	means patents, registrable design rights, trademarks, and all other registered Intellectual Property.
“Regulatory Authority”	means the competent authority for each country or for any relevant grouping of countries legally responsible for authorising the sale or supply of human pharmaceutical products in that country or group of countries.
“Restricted Access Area(s)”	means the parts of the Centre accessible only by Catapult personnel marked in pink on the Plan.
“Shared Restricted Access Area”	means the areas shared between the Manufacturing Space and an adjacent manufacturing space belonging either to COLLABORATOR or to another Collaborator marked in turquoise on the Plans.
“Supplies”	means water, gas, air, foul and surface water, drainage, electricity, oil, telephone, heating, telecommunications, internet, data communications and similar supplies or utilities.
“Steering Committee”	the representatives of the COLLABORATOR and Catapult appointed as set out in Clause 9.5 .
“Technology Transfer”	means the transfer of COLLABORATOR’s existing production and/or manufacturing processes into the Module which is divided into On-boarding and Process Transfer.
“Term”	means the period specified in Clause 17.1.17.1 .
“Termination Date”	means the date on which this Agreement expires or terminates for any reason.
“Third Party”	means any person other than a Party or its Affiliates.
“Warehouse and Procurement Management Provisions”	means the standards and obligations relating to the management of the warehouse set out at Schedule 8 .
“UPS”	means uninterrupted power supply.
“Validation”	means documenting the way in which the equipment, facility or system used in a ‘process’ will result in an output meeting its specifications and predetermined quality attributes.
“Year”	means the financial year ending 31 March.

1.2 In this Agreement, unless otherwise specified:

- 1.2.1 references to Clauses and Schedules are to the clauses of, and schedules to, this Agreement;
- 1.2.2 headings are for convenience only and do not affect the interpretation of this Agreement;

- 1.2.3 references to a person includes a body corporate or unincorporated body, and references to a company includes any company, corporation or other body corporate, wherever and however incorporated or established;
- 1.2.4 unless the context otherwise requires, words in the singular will include the plural and vice versa;
- 1.2.5 references to approvals or notices being “in writing” or “written” will include email;
- 1.2.6 any reference to a statute or statutory provision is a reference to it as amended, extended, re-enacted and/or replaced from time to time; and
- 1.2.7 ‘including’ means ‘including but not limited to’ and ‘include’ and ‘includes’ will be construed accordingly.

2. CONDUCT OF THE PROJECT

The Parties will undertake the Project in accordance with the provisions of this Agreement.

3. OCCUPATION OF THE MODULE

Catapult permits COLLABORATOR to occupy the Module on the terms set out in **Schedule 2**.

4. MODULE SPECIFICATION

- 4.1 Catapult will ensure the Manufacturing Space will be in accordance with the specifications at **Schedule 12 Part A**.
- 4.2 Catapult will ensure the Manufacturing Office and Non-Manufacturing Office will be in accordance with the specifications at **Schedule 12 Part B**.

5. CENTRE SPECIFICATIONS

The Centre is a UK-licensed EU-GMP-compliant facility developed in close relationship with the Medicines and Healthcare Products Regulatory Agency (the “MHRA”), comprising the facilities set out at **Schedule 12, Part C**. It is also planned to consult with the United States Food and Drug Agency in order to demonstrate FDA compliance

6. COMMISSIONING AND QUALIFICATION OF THE CENTRE

- 6.1 In advance of COLLABORATOR being granted access to the Manufacturing Space and subject to **Clause 7**, Catapult will test equipment, facilities and/or plant which is Catapult owned or controlled and installed in order to verify it functions according to its design objectives or specifications (“**Commissioning**”).
- 6.2 Commissioning will not cover the formal qualification of manufacturing systems or manufacturing process equipment but will include the static and dynamic commissioning of the following:
 - 6.2.1 the Building Management System (BMS);
 - 6.2.2 the Quality Control Area HVAC
 - 6.2.3 the electrical supply (single and three phase);
 - 6.2.4 the boilers;
 - 6.2.5 the chiller;
 - 6.2.6 HVAC;
 - 6.2.7 lighting – including emergency lighting;
 - 6.2.8 back-up generator;

- 6.2.9 UPS systems;
 - 6.2.10 door interlocks;
 - 6.2.11 pharmaceutical grade gas supplies (air, oxygen, carbon dioxide and nitrogen);
 - 6.2.12 CCTV;
 - 6.2.13 fire alarm;
 - 6.2.14 LN2 / Low level, temperature and oxygen monitors;
 - 6.2.15 drainage; and
 - 6.2.16 appropriate IT Infrastructure (including cable network, switches, and server rooms).
- 6.3 Where appropriate, Catapult will qualify the building, systems and equipment that form part of the Centre, and this will extend to installation qualification, operational qualification, and performance qualification of all GMP direct impacting systems and integral equipment (**“Qualification”**). The basis for this Qualification and results obtained as related to shared areas (including Shared Restricted Access Area) and the COLLABORATOR Module will be shared with quality representatives for COLLABORATOR on request.
- 6.4 Formal Qualification will be undertaken (which includes installation qualification and operational qualification) concurrent with leveraging the output of facility Commissioning. Performance qualification will only occur subsequent to the completion of Commissioning, installation qualification and operational qualification. Performance qualification will only be applied to those Inputs, systems and items of equipment that have been identified as having direct impact on product quality according to a formal system level impact assessment. These include, but are not necessarily limited to:
- 6.4.1 Manufacturing Space and all additional air locks HVAC
 - 6.4.2 Warehouse HVAC
 - 6.4.3 Environmental Monitoring System (EMS)
 - 6.4.4 Grade C corridor and technical area HVAC
 - 6.4.5 Carbon dioxide system
 - 6.4.6 Nitrogen gas system
 - 6.4.7 Liquid nitrogen system, storage tanks (PQ will be carried out in conjunction with a collaborator) and shared Controlled Rate Freezing equipment (COLLABORATOR will be responsible for their own cycle development and PQ)
 - 6.4.8 Oxygen system; and
 - 6.4.9 Cold room, fridges, freezers (PQ will be carried out in conjunction with COLLABORATOR)
 - 6.4.10 the Environmental Monitoring System (EMS)
 - Environmental monitoring equipment (e.g. viable air sampler, non-viable particulate monitors); PQ will be carried out in conjunction with a Collaborator

7. PROCESS AND PRODUCT

7.1 VALIDATION

- 7.1.1 Process Validation is entirely the responsibility of COLLABORATOR.
- 7.1.2 Where COLLABORATOR has completed a Technology Transfer of COLLABORATOR's Manufacturing Process to the Module, then COLLABORATOR's Manufacturing Process validation will be the sole responsibility of COLLABORATOR.

7.2 PROCESS AND PRODUCT AMENDMENT

- 7.2.1 Catapult confirms that it approved the information contained in the initial POD provided as part of the On-boarding Project as describing the COLLABORATOR Process and COLLABORATOR Product that can and may be developed, implemented, and manufactured in the Module by COLLABORATOR. The initial COLLABORATOR Product provided as part of the On-boarding Project has been included in the QTA Product List, and, therefore, constitutes a COLLABORATOR Product. It further confirms that such approval of COLLABORATOR Product will remain valid during the Term on the condition that no amendments are made at a later stage.
- 7.2.2 The COLLABORATOR Product and Process will be again vetted and approved in advance of occupation as part of the On-boarding Process. In the event the On-boarding Process reveals any variations and/or additions to the information contained in the POD ("**Product or Process Modifications**") these will be considered in accordance with the following procedure and in meeting the requirements of the QTA:
 - 7.2.2.1 COLLABORATOR must notify Catapult in writing of its application for the intended changes (the "**Notification**");
 - 7.2.2.2 In response, Catapult will apply the principles under Clause 7.2.3. If the requested Product or Process Modifications meet the requirements of these principles, and are therefore capable of introduction, Catapult will always endeavour to approve the earliest date feasible for introduction, allowing for logistical constraints, and the competing interests of Other Collaborators in existence at the time of request (the "**Introduction Date**"); and
 - 7.2.2.3 Catapult will confirm the outcome of the application of the criteria in **Clause 7.2.3** and, if applicable, of the Introduction Date in writing to COLLABORATOR as soon as it is able to from the date of notification under Clause 7.2.2.1, but in any event within 30 calendar days of receipt of Notification by Catapult. Where Catapult indicates that the Modifications will not be permitted, it will identify the reasons why such Notification has been refused.
- 7.2.3 Catapult will permit (a) new COLLABORATOR Product(s), and/or COLLABORATOR Process(es) or COLLABORATOR modification(s) to such COLLABORATOR Product(s) or COLLABORATOR Process(es) if:
 - 7.2.3.1 The new or modified COLLABORATOR Product(s), and/or COLLABORATOR Process(es) meet the requirements of the QTA;
 - 7.2.3.2 The proposed product(s) is/are not a restricted product listed at Clause 7.3;
 - 7.2.3.3 It does not affect Catapult's ability to comply with GMP or GMP Requirements;

- 7.2.3.4 It does not compromise the safety of the Centre, or that of any Other Collaborator;
 - 7.2.3.5 It does not place an additional, unreasonable demand on the resources of Catapult personnel and their ability to operate the Centre;
 - 7.2.3.6 It does not interfere with the Catapult's, COLLABORATOR's, or any Other Collaborator's compliance with their respective legal duties; and/or
 - 7.2.3.7 It can be accommodated in the Centre, taking into account the overall capacity of the Centre.
- 7.2.4 In the event that COLLABORATOR does not agree with the outcome of Catapult's application of the principles under **Clause 7.2.3**, the matter will be referred to the Steering Committee for resolution, and if no agreement is reached within a reasonable period, then the Parties will comply with the Expert Determination Procedure set out in **Schedule 13**.

7.3 RESTRICTED PRODUCTS

COLLABORATOR will not be permitted, and Catapult undertakes that it will not allow any Other Collaborator to produce or utilise in their process the following products in the Centre (unless prior agreement is sought from all collaborators by Catapult):

- B Lactam Antibiotics
- Other highly sensitising antibiotics
- Pathogenic Organisms (Containment Level 3 or 4)
- GMO 3 and above
- Radiopharmaceuticals
- Ectoparasiticides
- Sources of ionising radiation (but excluding low energy laboratory scale X-irradiators which have been assessed and approved by Catapult)

8. CONTRIBUTIONS

- 8.1 A risk and capital contribution will be charged throughout the Term calculated at the rate of 10% of each Contribution, except for the Facility Contribution and Business Rates. The risk and capital contribution will remain fixed at the rate of 10% throughout the Term.
- 8.2 VAT, if applicable, will be added to all Contributions. The Parties acknowledge that on signature of the Letter Agreement COLLABORATOR made a reservation contribution to Catapult of £200,000. As a result, Catapult will reduce the aggregate of all Contributions due from COLLABORATOR on the Occupation Date by this amount.
- 8.3 Any changes to the Contributions (other than the Facility Contributions which are fixed for the Term) will be made once per year based on the new annual budget which will be discussed at the Operational Forum.
- 8.4 COLLABORATOR will make the following Contributions to the costs of the Collaboration:
- 8.4.1 subject to **Clauses 8.1 to 8.3**, from the Occupation Date, the Facility Contribution, payable quarterly in advance;
 - 8.4.2 subject to **Clauses 8.1 to 8.3**, from the Occupation Date, for each Module occupied by COLLABORATOR, one-fifth of the total costs chargeable against Centre in the form of Business Rates, payable quarterly in advance;
 - 8.4.3 the Activity Related Input Contributions as they are incurred, due individually from the COLLABORATOR;

- 8.4.4 subject to **Clauses 8.1 to 8.3**, from the Occupation Date, the Integral Input Contributions payable quarterly in advance and calculated in accordance with the following provisions of **Clauses 8.4.4 (a), (b), and (c)**:
- (a) Catapult will estimate the aggregate Integral Input Contributions incurred for five (5) Modules on the Ground Level in concurrent occupation for the next year (the “**Estimated Aggregate Integral Input Contributions**”). COLLABORATOR will be responsible for a fixed amount, as set out at **Schedule 3**, such amount to be based on a 20% share of this Estimated Aggregate Integral Input Contributions. When five (5) Modules on the Ground Level are in concurrent occupation (“**Full Occupation**”), the contributions model in 8.4.4(b) will apply. In the event the share of the Estimated Aggregate Integral Input Contributions requested from the collaborators for the Year ending 31 March 2019 falls short of the actual amounts incurred by Catapult for that Year, Catapult will not be permitted to include any such shortfall in the COLLABORATOR’S share of the Estimated Integral Input Contributions for the Year beginning 1 April 2019.
 - (b) From the date Full Occupation is achieved, COLLABORATOR will continue to pay a 20% share of the Estimated Aggregate Integral Input Contributions incurred. However, from and including the first anniversary date (the “**First Anniversary Date**”) that Full Occupation is achieved, a reconciliation will take place at the end of each Year and a refund or further contribution will be made to the COLLABORATOR with respect to its share of the Integral Input Contributions based on the difference between the Estimated Aggregate Integral Input Contributions, and the pro rata actual aggregate Integral Input Contributions incurred for that Year.
- 8.4.5 The Establishment Input Contributions will be payable directly to Catapult as detailed in the Establishment Input Statement.
- 8.4.6 Any further contributions payable by COLLABORATOR to Catapult pursuant to this Agreement will be payable within thirty (30) days of receipt of an accurate, complete and valid invoice by COLLABORATOR for such contributions.
- 8.5 Catapult will use reasonable endeavours to ensure the Occupation Date is not later than the Expected Occupation Date. In the event the Occupation Date is not achieved by the Expected Occupation Date, Facility Contributions, Business Rates and Integral Input Contributions will only accrue on a pro rata basis from the Occupation Date.
- 8.6 By being part of the Centre, COLLABORATOR has access to the wider Catapult supporting infrastructure which includes, but is not limited to, reimbursement support, clinical trial support, process development capability, and regulatory and market access consultancy expertise. The cost of such supporting inputs are to be agreed through separate negotiation and contractual agreement.
- 8.7 Catapult undertakes to keep full and proper books of account and records relating to the Integral Input Contributions and the Establishment Input Contributions. In addition COLLABORATOR will be provided with the opportunity to comment on such planned expenditure and consensus sought through participation in the Collaborator Forums (although for clarity, Catapult reserves its discretion in exercising its professional judgment in relation to making any final decisions with respect to the Integral Input Contributions, Activity Related Input Contributions and Establishment Input Contributions incurred, while being consistent with the objectives set out in the terms of reference for the Collaborator Forums, particularly with respect to maintaining a suitable level of services required for robust operation of a licensed facility suitable for late stage clinical and commercial manufacture of ATMPs in the most economical way).
- 8.8 At the beginning of each Year during the Term Catapult will provide to all Collaborators a budget setting out all anticipated contributions for the Year with respect to Integral and Activity Related Inputs to be provided in that Year. In addition to this, from the date Full Occupation is achieved, a quarterly statement will be provided to all Collaborators in the Centre comparing actuals to the budgeted amounts.
- 8.9 Catapult will procure an audit for each Year during the Term to be carried out by an independent auditor acceptable to all Collaborators. The Audit report will be made available to all Collaborators in the Centre.

8.10 [***].

8.11 [***]

In any event of conflict between this Clause 8.11 of this Agreement and the QTA, the QTA shall prevail

9. CATAPULT INPUTS, FACILITIES AND SUPPORT

The operation of the Centre is dependent on a range of critical inputs split between:

(i) **Integral Inputs** are inputs Catapult, using its reasonable judgment considers as fundamental to the operation of the Centre and that all collaborators will draw on in equal measure. Integral Inputs may be varied from time to time by Catapult, after prior discussion and consideration of concerns raised by COLLABORATOR and Other Collaborators in the Operational Forum, in order to cater for the common, but not necessarily universal requirements of the COLLABORATOR and Other Collaborators in the Centre.

(ii) **Activity Inputs** are inputs that are dependent on COLLABORATOR's manufacturing processes and activity.

It is a condition of occupation that the Integral Inputs, Establishment Inputs and Activity Related Inputs will be procured through Catapult.

(iii) **Additional Inputs** are inputs COLLABORATOR requires Catapult to contribute to the Project. These will be arranged through the completion of an Additional Input Agreement in the form set out at Schedule 16 ("**Additional Input Agreement**"). Once signed by both Parties, the Additional Input Agreement will amend this agreement and an Additional Input will be deemed appended to the list of Additional Inputs at Clause 9.4 and any associated contributions from COLLABORATOR in consideration of the Additional Inputs will be deemed as having been inserted at Schedule 3.

(iii) **Establishment Inputs** which are activities to be performed by Catapult, in conjunction with COLLABORATOR, to support the On-boarding Project.

9.1 Catapult will provide the following Integral Inputs:

- 9.1.1 The Quality Management System and supporting quality assurance function assuring all GMP services contributed by Catapult are maintained in compliance with GMP Requirements;
- 9.1.2 management and governance of the Quality Management System GMP compliance process;
- 9.1.3 GMP regulatory compliance of the Centre from start up, including handling of associated MHRA compliance governance activity such as routine audits inspections, subject to the following provisions:
 - (a) From the Occupation Date, if any activity required to ensure GMP regulatory compliance of the Centre, including the handling of associated MHRA compliance governance activity such as inspections ("**MHRA Compliance Activity**") impacts any COLLABORATOR Product and/or any COLLABORATOR Manufacturing Process, then the interactions with the MHRA related to such activity will be led by COLLABORATOR with assistance being provided by Catapult. COLLABORATOR will be entitled to nominate representatives to coordinate and accompany all inspections involved in such MHRA Compliance Activity on COLLABORATOR's behalf;
 - (b) If any MHRA Compliance Activity required as a result of COLLABORATOR activity in the Module or Centre impacts on any Catapult personnel, Other Collaborator personnel, Catapult activity within the Centre, Other Collaborator(s), or any part of the Centre other than the Module, then the interactions with the MHRA related to such activity will be led by Catapult and assisted by

COLLABORATOR. During inspections, Catapult will be entitled to nominate representatives to coordinate and accompany all MHRA activity in this paragraph on Catapult's behalf; and

- (c) To the extent any MHRA Compliance Activity impacts on COLLABORATOR use of the Module or performance of the COLLABORATOR process, Catapult will notify COLLABORATOR of such MHRA Compliance Activity and keep COLLABORATOR informed of the progress and communication relevant to such MHRA Compliance Activity.
- 9.1.4 insurance as described in **Clause 19**;
 - 9.1.5 safety systems and equipment such as emergency light testing, fire extinguishers, health and safety equipment outside the Manufacturing Space, and associated safety audits;
 - 9.1.6 a managed reception within Office Hours, and the provision of a mechanism for COLLABORATOR to access the Module at any time;
 - 9.1.7 all utilities necessary for the operations of the Centre (but not the Manufacturing Space) as set out in **Schedule 14**;
 - 9.1.8 support for IT Infrastructure; for the avoidance of doubt, this does not include applications support for COLLABORATOR;
 - 9.1.9 hosting, maintenance and administration of all IT systems (BMS, EMS, eQMS, LIMS and WMS) plus all required access rights for IT systems required primarily for Centre functions and required even when no collaborators are in occupation (BMS, EMS);
 - 9.1.10 receipt of incoming patient material and starting material into the Centre within Office Hours;
 - 9.1.11 a system for booking in and managing COLLABORATOR owned inventory for raw materials, consumables, product contact materials and excipients within the warehouse;
 - 9.1.12 short term final product and Drug Substance storage subject to terms to be agreed;
 - 9.1.13 out of hours call out system for all facilities alarms (bar the Manufacturing Space alarms);
 - 9.1.14 cleaning and disinfection of all areas outside of the Manufacturing Space and outside of any Quality Control laboratory space occupied by any collaborator;
 - 9.1.15 (save with respect to the Manufacturing Space which is provided for in **Clause 9.2.1** and for any Quality Control laboratory space occupied by any collaborator)) perform environmental monitoring in the form of viable and non-viable particulate monitoring required to demonstrate maintenance of the appropriate environmental classifications;
 - 9.1.16 access to a controlled rate freezer and allocated short term storage capacity at the following temperatures: controlled room temperature, 2-8°C, -20°C, -80°C and gas phase of liquid nitrogen;
 - 9.1.17 Toilet provision and services in relation to toilets available for COLLABORATOR use;
 - 9.1.18 Security input as required for general security of Centre;
 - 9.1.19 program and relationship management;

- 9.1.20 a kitchen area and vending machines for snacks, hot and cold drinks within the Centre;
- 9.1.21 a dedicated secure Manufacturing Office and a Non-Manufacturing Office per Module; and
- 9.1.22 any other Inputs which Catapult, using its reasonable judgment, considers as fundamental to the operation of the Centre and that the COLLABORATOR and all Other Collaborators will draw on in equal measure.

As part of the Integral Inputs, Catapult will also ensure compliance with Applicable Laws and GMP Requirements in relation to the Restricted Access Areas, the Shared Restricted Access Areas or the Accompanied Access Areas by all collaborators. Should any default by any third-party Collaborator be identified by Catapult, Catapult will respond to such default as set out under the terms of the QTA.

9.2 Catapult will provide the following Activity Related Inputs:

- 9.2.1 perform environmental monitoring in the form of viable monitoring and non-viable particulate monitoring required to demonstrate maintenance of the appropriate environmental classifications, including undertaking remote non-viable sampling in the Manufacturing Space, provided that the COLLABORATOR is responsible for performing viable sampling in the Manufacturing Space which will then be processed by Catapult;
- 9.2.2 measured electrical power to the Manufacturing Space;
- 9.2.3 upon request of COLLABORATOR, Manufacturing Space decontamination;
- 9.2.4 a measured supply of pharmaceutical grade oxygen, nitrogen, carbon dioxide, and air;
- 9.2.5 routine maintenance for the air handling system, including ULPA and HEPA filter changes
- 9.2.6 gowning for Catapult staff providing services to the collaborators, (COLLABORATOR gowning is ordered by COLLABORATOR from Catapult warehouse stock);
- 9.2.7 Leased telephone line with a data package from the supplier if required;
- 9.2.8 transfer of decontaminated clinical, biological and hazardous chemical liquid waste from the liquid waste staging area and arrange its removal from the Centre by appropriately licensed contractors;
- 9.2.9 transfer of decontaminated clinical and biological solid waste from the solid waste staging area and arrange its removal from the Centre by appropriately licensed contractors; ;
- 9.2.10 packing, and dispatch as described in **Schedule 8**;
- 9.2.11 warehouse movements over and above a fair usage level, such level to be defined prior to the Occupation Date
- 9.2.12 access rights to IT systems required for COLLABORATOR activity within the module: eQMS, LIMS, WMS; a stand-by facility and personnel to receive incoming patient material and starting material into the Centre outside of Office Hours;
- 9.2.13 provision of Quality Assurance inputs to support for COLLABORATOR operation within the Module; , in terms of handling non-process related deviations, Quality Events and planned changes, cleanroom environmental excursions, governance of Catapult generated GMP data provided to COLLABORATOR, providing GMP documentation to support QP certification of Drug Product;

9.2.14 engineering and maintenance support for COLLABORATOR operation within the Module.

9.3 Catapult will provide the following Establishment Inputs:

- 9.3.1 Catapult will work in cooperation with COLLABORATOR to define and implement an agreed strategy for Technology Transfer, made up of:
 - (a) Process Transfer: defining, implementing and/or supporting conduct of Process Transfer, but such process under the control and responsibility of COLLABORATOR, and
 - (b) On-boarding: the Parties agree the process is summarised in Schedule 6, but that the precise break down of responsibilities and the processes will be defined and agreed in the Establishment Input Statement.
- 9.3.2 Catapult will clean and decontaminate the Manufacturing Space and ensure the Manufacturing Space is operating at the specified cleanliness grade prior to COLLABORATOR occupation;
- 9.3.3 Catapult will decontaminate the Manufacturing Space at termination of the contract; and
- 9.3.4 Catapult will select and authorise all Collaborators and ensure their processes and procedures meet the minimum standards required by Catapult, such standard in each case sufficient to meet the requirement of this Agreement including GMP.

9.4 Additional Inputs

Additional Inputs to be listed once the process is completed in accordance with Clause 9 (iii) above.

9.5 Steering Committee

The Parties will each nominate two representatives who will form the steering committee for the Project (“**Steering Committee**”). Where possible the representatives from both Parties will be the same as those serving on the steering committee for the On-boarding Project. The Steering Committee will meet (by telephone or in person) as required to discuss matters relating specifically to the COLLABORATOR and/or the Project (such as changes to Contributions and Inputs, staffing updates, collaboration performance and resolution of issues). The Steering Committee will also participate in dispute resolution as set out in **Clause 33** as required.

9.6 Collaborator Forums

Catapult undertakes to COLLABORATOR it will ensure that the Collaborator Forums take place in accordance with the frequencies, the parameters, and all other terms set out in Schedule 15.

9.7 Catapult Inputs: Failure or Prevention in Performance

- 9.7.1 If COLLABORATOR’s performance of its obligations under this Agreement is prevented or delayed by any act or omission of Catapult, its agents, sub-contractors or employees, COLLABORATOR will not be liable for any costs, charges or loss sustained or incurred by Catapult arising directly or indirectly from such prevention or delay.
- 9.7.2 If Catapult delays or does not perform its responsibilities under this Agreement that directly impact COLLABORATOR’S ability to develop the COLLABORATOR Process or to produce the COLLABORATOR Product, COLLABORATOR, directly or through a third-party, may perform such responsibilities in its place and Catapult will compensate COLLABORATOR for any costs it incurs in discharging such responsibilities on Catapult’s behalf.

10. COLLABORATOR RESPONSIBILITIES

- 10.1 COLLABORATOR will, and will ensure that COLLABORATOR Personnel will, comply with the following COLLABORATOR Responsibilities:
- 10.1.1 abide by the Code of Conduct and all other guidelines and protocols in force from time to time at the Centre;
 - 10.1.2 perform health and safety and quality risk assessments for all materials and processes before such materials and processes enter or are carried out in (as applicable) the Manufacturing Space and provided always that such materials and processes have first been authorised by Catapult and provide copies of such risk assessments to Catapult on request;
 - 10.1.3 handle all large volume liquid waste (such as culture media and buffers) within the cleanroom and securely and safely transfer it to the handling area in the Centre (as designated by Catapult from time to time);
 - 10.1.4 collect all small volume liquid waste in a sealable container within the Manufacturing Space and decontaminate it in-situ before removing it from the cleanroom via the MAL out to a waste staging and disposal area;
 - 10.1.5 remove all solid waste from the cleanroom via the MAL out to a staging area for removal by the Catapult;
 - 10.1.6 maintain and implement in accordance with Catapult's standard operating procedures cleaning regimes for the Manufacturing Space;
 - 10.1.7 unless otherwise agreed with Catapult, define and implement Process Transfer;
 - 10.1.8 perform as required by Catapult all appropriate environmental monitoring within the Manufacturing Space and make the plates available to Catapult for analysis;
 - 10.1.9 obtain, and maintain insurance in accordance with Clause 19; and
 - 10.1.10 comply with its obligations under the QTA.
- 10.2 If Catapult's performance of its obligations under this Agreement is prevented or delayed by any act or omission of COLLABORATOR, its agents, sub-contractors or employees, Catapult will not be liable for any costs, charges or loss sustained or incurred by COLLABORATOR arising directly or indirectly from such prevention or delay.
- 10.3 If COLLABORATOR delays or does not perform its responsibilities under this Agreement, Catapult may perform such responsibilities in its place and COLLABORATOR will compensate Catapult for any costs it incurs in discharging such responsibilities on COLLABORATOR's behalf.

11. BACKGROUND INTELLECTUAL PROPERTY

- 11.1 Subject to the provisions of this Agreement, COLLABORATOR hereby grants to Catapult a non-exclusive, fully paid-up, royalty-free, licence, under COLLABORATOR's Background Intellectual Property solely for use in connection with the Project.
- 11.2 Subject to the provisions of this Agreement, Catapult hereby grants to COLLABORATOR a non-exclusive, fully paid-up, royalty-free, licence, under Catapult's Background Intellectual Property to undertake the Project.
- 11.3 From the Termination Date, such license will extend to permit COLLABORATOR to replicate the Module, or in the alternative, to such extent as required to enable COLLABORATOR to otherwise replicate the COLLABORATOR Manufacturing Process, or to produce the COLLABORATOR Product, provided it is acknowledged that COLLABORATOR, at its own cost, will need to procure the consents required to use any Third Party Intellectual Property Rights forming any part of the following items that constitute the overall Catapult Background Intellectual Property for use outside the Centre: the Electronic Quality Management System, the Laboratory Information Management System, Warehouse

Management System and Environmental Monitoring System. (it is acknowledged Catapult cannot procure the grant of such rights and that if COLLABORATOR does not procure such rights that Catapult accepts no liability whatsoever for claims resulting from breaches of any Third Party Intellectual Property Rights resulting from such inaction).

- 11.4 This Agreement does not affect the ownership of any Intellectual Property in any Background Intellectual Property, Know-how, or materials of a Party. Each Party will retain the sole and exclusive ownership rights in and to its Background Intellectual Property and except for the license granted to Catapult in **Clause 11.1** and to COLLABORATOR in **Clause 11.2**, nothing in this **Clause 11** will be construed as giving to either Party any rights to use any Background Intellectual Property of the other Party other than as expressly granted by this Agreement. Each Party will treat any other Party's Background Intellectual Property as Confidential Information belonging to that other Party.

12. FOREGROUND INTELLECTUAL PROPERTY

- 12.1 All Foreground Intellectual Property excluding Catapult Foreground Intellectual Property (as defined in **Clause 12.2** below), whether or not it is capable of being a Registered Right will be deemed to be the sole property of COLLABORATOR, regardless of which Party created such Foreground Intellectual Property. COLLABORATOR Foreground Intellectual Property will constitute Confidential Information belonging to COLLABORATOR. COLLABORATOR may take such steps as it may decide from time to time, and at its own expense, to register and maintain any protection for the Foreground Intellectual Property, including filing and prosecuting patent applications. Catapult will ensure that its employees involved in the creation of the Foreground Intellectual Property give COLLABORATOR such assistance as COLLABORATOR may reasonably request in connection with the registration and protection of the Foreground Intellectual Property, including filing and prosecuting patent applications, and taking any action in respect of any alleged or actual infringement of the Foreground Intellectual Property (for clarity, any costs connected with such assistance will be borne by COLLABORATOR).

- 12.2 All Foreground Intellectual Property that constitutes an Improvement to the Catapult Background Intellectual Property will be owned by Catapult ("**Catapult Foreground Intellectual Property**"). Subject to COLLABORATOR meeting the conditions under Clause 11.3, enabling Catapult to grant a license to the Catapult Background IP forming part of any Catapult Foreground Intellectual Property to be licensed under this clause, Catapult grants to COLLABORATOR a non-exclusive, fully paid-up, royalty-free, worldwide, sub-licensable licence under the Catapult Foreground Intellectual Property to undertake the Project.

Subject to COLLABORATOR meeting the conditions under Clause 11.3, from the Termination Date, such license will extend to permit COLLABORATOR to replicate the Module, or in the alternative, to such extent as required to enable COLLABORATOR to otherwise replicate the COLLABORATOR Manufacturing Process, or to produce the COLLABORATOR Product.

Any costs associated with the licence of any Intellectual Property to COLLABORATOR under this Clause 12.2 will be borne by COLLABORATOR.

- 12.3 To the extent that any Catapult Foreground Intellectual Property is capable of prospective assignment, COLLABORATOR now assigns the Catapult Foreground Intellectual Property to Catapult; and to the extent any Catapult Foreground Intellectual Property cannot prospectively be assigned, COLLABORATOR will assign such Catapult Foreground IP to Catapult as and when they are created, at the request of Catapult.
- 12.4 To the extent that any COLLABORATOR Foreground Intellectual Property is capable of prospective assignment, Catapult now assigns COLLABORATOR Foreground Intellectual Property to COLLABORATOR; and to the extent any COLLABORATOR Foreground Intellectual Property cannot prospectively be assigned, Catapult will assign such COLLABORATOR Foreground Intellectual Property to COLLABORATOR as and when they are created, at the request of COLLABORATOR.
- 12.5 In the event any COLLABORATOR Foreground Intellectual Property is required by any Other Collaborator or Catapult in order to operate within the Centre in accordance with GMP and the QTA, COLLABORATOR will grant a non-exclusive licence to such Other Collaborators or Catapult of such COLLABORATOR Foreground Intellectual Property to operate within the Centre.

13. CONFIDENTIAL INFORMATION

- 13.1 The Receiving Party undertakes:
- 13.1.1 to maintain as secret and confidential all Confidential Information of the Disclosing Party and its Affiliates;
 - 13.1.2 where the Receiving Party is Catapult, to use such Confidential Information only for the purposes of making the Centre, Module and Inputs available to

COLLABORATOR (and other Collaborators, solely with respect to their Confidential Information) in accordance with this Agreement and the QTA and for exercising its rights under this Agreement and the QTA, or where the Receiving Party is COLLABORATOR, for the purpose of exercising its rights, and complying with its obligations, under this Agreement and the QTA (in each case, a “**Permitted Purpose**”, and together, the “**Permitted Purposes**” as it applies to each Party); and

- 13.1.3 Subject to **Clause 13.3**, to disclose such Confidential Information only to those of its employees, officers, contractors, consultants, advisors, legal counsel, Affiliates and sub-licensees pursuant to this Agreement (if any) to whom and to the extent that such disclosure is reasonably necessary for the Permitted Purposes. For clarity, notwithstanding the foregoing, Catapult shall not disclose COLLABORATOR’s or its Affiliates’ Confidential Information (or the Confidential Information of any other entity with which COLLABORATOR or any of its Affiliates is in business negotiations or has contracted or to which it owes a duty of confidence) to any other Collaborator, without (i) COLLABORATOR’s express prior written permission, on a case by case basis, and (ii) Catapult complying with **Clause 13.6** and ensuring that such collaborator is made aware of the confidential nature of the Confidential Information.

- 13.2 The provisions of **Clause 13.1** shall not apply to Confidential Information which the Receiving Party can demonstrate by reasonable, written evidence:

- 13.2.1 was, prior to its receipt by the Receiving Party from the Disclosing Party or Alternative Disclosing Party, in the possession of the Receiving Party and at its free disposal;
- 13.2.2 is subsequently disclosed to the Receiving Party without any obligations of confidence by a Third Party who has not derived it directly or indirectly from the Disclosing Party or Alternative Disclosing Party;
- 13.2.3 is or becomes generally available to the public through no act or default of the Receiving Party or its agents, officers, employees, Affiliates, advisors, contractors, consultants, legal counsel or sub-licensees;
- 13.2.4 is independently developed by the Receiving Party by individuals who have not had any direct or indirect access to the Disclosing Party’s or Alternative Disclosing Party’s Confidential Information;
- 13.2.5 the Receiving Party is required to disclose (and so discloses) to the courts of any competent jurisdiction, or to any government regulatory agency or financial authority, provided that the Receiving Party shall (i) inform the Disclosing Party or Alternative Disclosing Party as soon as is reasonably practicable, and (ii) at the Disclosing Party’s or Alternative Disclosing Party’s request seek to persuade the court, agency or authority to have the information treated in a confidential manner, where this is possible under the court, agency, or authority’s procedures, in which case, if the Confidential Information is treated in a confidential manner by the applicable court, agency or authority, such that it retains its confidential nature, **Clause 13.1** shall continue to apply to such Confidential Information; or
- 13.2.6 was disclosed by COLLABORATOR pursuant to **Clause 13.8**.

- 13.3 The Receiving Party shall procure that all of its employees, officers, contractors, consultants, advisors, legal counsel, Affiliates and sub licensees pursuant to this Agreement (if any) who have access to any of the Disclosing Party’s or Alternative Disclosing Party’s information to which **Clause 13.1** applies, shall be made aware of and subject to these obligations and shall be subject to undertakings of confidentiality at least as restrictive as **Clause 13.1** and which apply to the Disclosing Party’s or Alternative Disclosing Party’s Confidential Information before being given access to the Disclosing Party’s or Alternative Disclosing Party’s Confidential Information, and the Receiving Party shall be liable to the Disclosing Party or Alternative Disclosing Party for any breach of its employees, officers, contractors, consultants, advisors, legal counsel, Affiliates or sub licensees of the terms of this **Clause 13**.

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

- 13.4 Upon any termination or expiry of this Agreement, the Receiving Party shall return to the Disclosing Party or Alternative Disclosing Party any documents or other materials that contain the Disclosing Party's or Alternative Disclosing Party's Confidential Information, including all copies made, and make no further use or disclosure thereof save that the Receiving Party shall not be obliged to purge or delete Confidential Information of the Disclosing Party or Alternative Disclosing Party from its IT systems that is stored by any automated back-up system, and shall be permitted to retain one (1) copy of all such Confidential information in its legal files solely for purposes of ensuring compliance with the terms of this Agreement, and shall not otherwise use or disclose such Confidential Information.
- 13.5 For the avoidance of doubt, and in light of Catapult's objective to disseminate best practices and foster the development of the regenerative medicine sector in the UK, Catapult shall be entitled to publish or otherwise disclose any of its Confidential Information (but excluding the terms of this Agreement), including the Catapult Background Intellectual Property and Catapult Foreground Intellectual Property.
- 13.6 Catapult (a) will procure that each other Collaborator, and any other Third Party contractor or other business partner working under contract with Catapult or any other Collaborator that has access to the Centre, has agreed in writing to obligations of confidence equivalent to those set out in this Agreement with Catapult in relation to COLLABORATOR's Confidential Information (and COLLABORATOR's Affiliates' Confidential Information (and the Confidential Information of any other entity with which COLLABORATOR or any of its Affiliates is in business negotiations or has contracted or to which it owes a duty of confidence)) and (b) will procure that (wherever possible with respect to such Third Parties other than Collaborators, but in all cases for Collaborators) COLLABORATOR will be given a third party right to enforce such confidentiality provisions.
- 13.7 For the purposes of this Agreement, Confidential Information shall also include any confidential information disclosed between COLLABORATOR and Catapult under (a) the Pre-existing CDA (defined in the definition of Confidential Information), and (b) the Letter Agreement relating to the Collaboration between the Parties dated 5 October 2018. In relation to Confidential Information disclosed under these prior agreements, the terms of this Agreement shall supersede the terms in those prior agreements.
- 13.8 COLLABORATOR shall refer to its intended occupation of the Centre in regulatory filings and COLLABORATOR shall be entitled to disclose the existence of this Agreement if required by applicable law, including any rules or regulations of the U.S. Securities and Exchange Commission (the "SEC"). COLLABORATOR shall provide Catapult with a reasonable opportunity to review and comment on any such proposed disclosure. In the event this Agreement must be included with any report, statement or other document to be filed with such regulatory or other government agency, COLLABORATOR will use good faith efforts to obtain confidential treatment from the SEC, or similar regulatory agency, of Catapult's confidential financial information or other information of a competitive or confidential nature, and will include in such confidentiality request such provisions of this Agreement as may be reasonably requested by Catapult.

14. WARRANTIES

14.1 All Party Warranties

Each Party warrants, represents and undertakes to the other that:

- 14.1.1 it has full capacity and authority to enter into and to perform this Agreement;
- 14.1.2 there are no:
- (a) actions, suits or proceedings pending or, to its knowledge, threatened against or affecting it before any court or administrative body or arbitration tribunal; or
 - (b) investigations by any Regulatory Authority pending or, to its knowledge, threatened against or affecting it;
- 14.1.3 once duly executed, this Agreement will constitute its legal, valid and binding obligations; and
- 14.1.4 it is not aware of any matters which might adversely affect its ability to perform its obligations pursuant to this Agreement.

14.2 Catapult Warranties

Catapult warrants, represents and undertakes to COLLABORATOR that from the Effective Date until the Termination Date:

- 14.2.1 it will use reasonable commercial endeavours to ensure it will at all times have the ability and all rights, titles and Necessary Consents to perform its obligations under this Agreement;
- 14.2.2 comply with its obligations under the QTA;
- 14.2.3 it will maintain the Lease and perform all of its obligations thereunder;
- 14.2.4 it will provide the Inputs with all due care and skill and in any event in accordance with Applicable Law; and
- 14.2.5 it will make available the Centre and the Module in accordance with the provisions of this Agreement and in any event in accordance with all Applicable Law.

14.3 COLLABORATOR Warranties

COLLABORATOR warrants, represents and undertakes to Catapult that from the Effective Date until the Termination Date it will:

- 14.3.1 use reasonable commercial endeavours to ensure it will at all times have the ability and all rights, titles and Necessary Consents to perform its obligations under this Agreement;
- 14.3.2 perform both its obligations under this Agreement and all activities in respect of the Project in accordance with all Applicable Law and the Code of Conduct; and
- 14.3.3 perform COLLABORATOR's Responsibilities.

14.4 Intellectual Property Warranties

Each Party represents, warrants, and undertakes to the other Party that:

- 14.4.1 To its knowledge and belief, it has all right, title, and interest in and to its Background Intellectual Property (Subject to the Third Party Intellectual Property Rights in the categories of Catapult Background in Clause 11.3); and
- 14.4.2 it has not done, and will not do nor agree to do during the continuation of this Agreement, anything that would be inconsistent with the exercise by the other Party of the rights granted to it under this Agreement.

14.5 Except as expressly provided in **Clause 11.3 and 14.4**, neither Party makes any representation nor gives any warranty or undertaking:

- 14.5.1 as to the efficacy or usefulness of its Background Intellectual Property;
- 14.5.2 that the use of any of its Background Intellectual Property or the exercise of any of the rights granted under this Agreement will not infringe any other Intellectual Property or other rights of any other person;
- 14.5.3 that the use of any of its Background Intellectual Property under or in connection with this Agreement will produce Products of satisfactory or merchantable quality or fit for their intended purpose or that any Product will not have any latent or other defects, whether or not discoverable; or
- 14.5.4 as imposing any obligation on it to bring or prosecute actions or proceedings against third parties for infringement.

15. INDEMNITY

- 15.1 COLLABORATOR agrees to indemnify, and hold Catapult harmless from and against Liabilities that Catapult suffers or incurs arising out of or in connection with:
- 15.1.1 any claim or proceedings made, brought or threatened against Catapult by a Third Party in respect of the COLLABORATOR Product or Process, or when in respect of the Project, whenever a Third-Party claim or proceeding is made, brought or threatened against Catapult because of the negligence, omission or wilful misconduct of COLLABORATOR, its employees, agents, visitors or subcontractors;
 - 15.1.2 any loss of or damage to the tangible property or equipment belonging to a Third Party caused by or resulting from the negligence, omission or wilful misconduct of COLLABORATOR, its visitors, employees, agents or subcontractors;
 - 15.1.3 any costs relating to an investigation, action or proceeding by a Regulatory Authority which arises as a result of COLLABORATOR's material breach of this Agreement;
- 15.2 Indemnification of Catapult under this **Clause 15.1** is conditional upon: (a) the extent that the indemnified claim is caused by or resulting from the negligence, omission or wilful misconduct of Catapult, its employees, agents or subcontractors, or their failure to take any measures as are reasonable in the relevant circumstances to mitigate the loss or damage that has occurred or may occur (in which case any portion of the claim not caused by or resulting from the negligence, omission or wilful misconduct of Catapult, its employees, agents or subcontractors or failure to mitigate will remain valid for indemnification); (b) Catapult promptly, on becoming aware of such claim, notifying COLLABORATOR of the existence of the relevant claim ; (c) Catapult refraining from making any admissions in respect of the relevant claim; and (d) COLLABORATOR having sole control over the defence and/or settlement of the relevant claim.
- 15.3 Catapult agrees to indemnify, and hold COLLABORATOR harmless from and against Liabilities that COLLABORATOR suffers or incurs arising out of or in connection with:
- 15.3.1 any claim or proceedings made, brought or threatened against COLLABORATOR by a Third Party in respect of the fabric or the operation of the Centre, and/or in respect of any property within the Centre's demise, whenever a Third-Party claim or proceeding is made, brought or threatened against COLLABORATOR because of the negligence, omission or wilful misconduct of Catapult, its employees, agents, visitors or subcontractors;
 - 15.3.2 any loss of or damage to the tangible property or equipment belonging to a Third Party caused by or resulting from the negligence, omission or wilful misconduct of Catapult, its visitors, employees, agents or subcontractors;
 - 15.3.3 any costs relating to an investigation, action or proceeding by a Regulatory Authority which arises as a result of Catapult's material breach of this Agreement;
- 15.4 Indemnification of COLLABORATOR under this **Clause 15.3** is conditional upon: (a) the extent that the indemnified claim is caused by or resulting from the negligence, omission or wilful misconduct of COLLABORATOR, its employees, agents or subcontractors, or their failure to take any measures as are reasonable in the relevant circumstances to mitigate the loss or damage that has occurred or may occur (in which case any portion of the claim not caused by or resulting from the negligence, omission or wilful misconduct of COLLABORATOR, its employees, agents or subcontractors or failure to mitigate will remain valid for indemnification); (b) COLLABORATOR promptly, on becoming aware of such claim, notifying Catapult of the existence of the relevant claim ; (c) COLLABORATOR refraining from making any admissions in respect of the relevant claim; and (d) Catapult having sole control over the defence and/or settlement of the relevant claim.

16. LIMITATION OF LIABILITY

- 16.1 Collaborating organisations occupying the Centre generally, and COLLABORATOR and Catapult in particular with respect to this Agreement, in choosing to employ the Centre as a base for GMP manufacturing activities accept and acknowledge a degree of risk inherent in any multi-mode, shared occupancy manufacturing facility and the nature of the biological processes undertaken within. Occasional unforeseen situations may arise associated with, for example utilities, equipment and associated processes that have the potential to disrupt or have a detrimental impact on processing, including on the COLLABORATOR Product(s), and/or the COLLABORATOR Process(es).

- 16.1.1 In light of this, Catapult will procure from each Collaborator, prior to their occupation of the Centre, contractual agreement not to commence or sustain legal proceedings against COLLABORATOR (or any other Collaborators or Catapult) for damages, or any other financial reimbursement (“**Agreement Not to Sue**”), as a consequence of any unexpected and unintended consequences as a result of such a situation at the Centre as described in this **Clause 16.1** (“**Unforeseen Risks**”) unless it is a result of attributable gross negligence or wilful misconduct of COLLABORATOR (or any other Collaborators or Catapult, as applicable), breach of confidence, material breach of any obligation under the relevant Collaborator’s (or, COLLABORATOR’S, or Catapult’s) collaboration agreement or quality agreement for the Centre, or material breach of Catapult SOPs or breach of Applicable Laws, by COLLABORATOR (or any other Collaborators or Catapult, as applicable) and shall procure a direct right of enforcement of such Agreement Not to Sue by COLLABORATOR against each such Collaborator or Catapult pursuant to the Contracts (Rights of Third Parties) Act 1999.
- 16.1.2 With respect to each Collaborator that Catapult has obtained an enforceable Agreement Not to Sue in accordance with **Clause 16.1.1**, which COLLABORATOR has a direct right to enforce against such Collaborator pursuant to the Contracts (Rights of Third Parties) Act 1999, COLLABORATOR agrees that it shall not commence or sustain legal proceedings against such a Collaborator for damages, or any other financial reimbursement, as a consequence of any Unforeseen Risks unless it is a result of attributable gross negligence or wilful misconduct of, or a breach of confidence, material breach of any obligation under the relevant Collaborator’s collaboration agreement or quality agreement for the Centre, or material breach of Catapult SOPs or breach of Applicable Laws by, such a Collaborator.
- 16.1.3 Catapult and COLLABORATOR, each agree not to commence or sustain legal proceedings against the other Party for damages, or any other financial reimbursement, as a consequence of any Unforeseen Risks unless it is a result of attributable gross negligence or wilful misconduct of the other Party, or is a breach of confidence, material breach of any obligation under this Agreement or the QTA, or a material breach of Catapult SOPs or breach of Applicable Laws, by the other Party.
- 16.1.4 This **Clause 16.1** is not intended to qualify, and is subject to and without prejudice to, each Party’s rights and obligations under **Clause 15** (Indemnity).
- 16.2 All Parties are obliged to abide by the operating requirements of the Centre in order to comply with GMP (as defined in the Quality Technical Agreement) and exercise an appropriate duty of care such as to minimise the frequency and severity of events alluded to in Clause 16.1, thus offering each other mutual protection. In order to ensure no Party exposes themselves to unreasonable financial risk as a result of such a situation, Catapult and COLLABORATOR (and Catapult will procure this of each collaborating organisation in occupation of the Centre) will ensure the continued and uninterrupted maintenance of an appropriate level of public liability, business continuity and professional indemnity insurances.
- 16.3 Without prejudice to **Clauses 15.1, 16.1, 16.5, 16.6** and **16.7**, the maximum aggregate Liability of COLLABORATOR which arises from any single event which occurs in any Year will be limited to five million pounds sterling (£5,000,000) for any single event, with no limit on the number of claims made against it from Catapult.
- 16.4 Without prejudice to **Clauses 15.3, 16.1, 16.5** and **16.6**, the maximum aggregate Liability of Catapult which arises from any single event which occurs in any Year will be limited to five million pounds sterling (£5,000,000) for any single event, with no limit on the number of claims made against it from COLLABORATOR.

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

16.5 In no circumstance will any Party have any Liability for:

16.5.1 any indirect, special or consequential loss; or

16.5.2 any loss of profits, revenue, business opportunity, data, or goodwill (in each case whether such loss is direct or indirect).

16.6 Nothing in this Agreement limits or excludes any person's liability to the extent that it may not be so limited or excluded by law, including any such liability for death or personal injury caused by that person's negligence, or liability for fraud or fraudulent misrepresentation.

16.7 Without prejudice to **Clause 16.6**, nothing in this Agreement will operate to exclude or restrict COLLABORATOR's Liability:

16.7.1 under the indemnity contained in **Clause 15**; or (in 16.7.2 below, other than when the specific conditions stipulated in the Agreement are met so as to justify otherwise); or

16.7.2 to pay the Contributions that are correctly incurred under this Agreement; or

16.7.3 to pay the Compensations.

16.8 The Parties agree that they have negotiated this **Clause 16** and the allocation of risk in this Clause is a fair and equitable position.

17. DURATION AND TERMINATION

17.1 This Agreement, and the licences granted hereunder, will come into effect on the Effective Date and, unless terminated earlier in accordance with this **Clause 17** or unless specified in the continuing obligations provisions of this Agreement as having continued effect, will continue in force until the date 3 years after the Occupation Date (the "**Term**"), and on such date this Agreement will terminate automatically by expiry.

17.2 On the conditions that (a) COLLABORATOR has consistently complied with its obligations in the Collaboration Agreement throughout the Term up to the date the option is exercised, and (b) the Option is exercised not less than 12 months before the end of the Term, then COLLABORATOR will have a six-month period during which it will be entitled to negotiate with Catapult the duration, terms and conditions of an extension to its occupation of a module. At the end of such 6 month period the option will lapse and Catapult will have no obligation to continue such negotiations with COLLABORATOR.

17.3

i. [***].

ii. For a maximum period of 12 calendar months from the date that all the modules in the second release of modules at the Centre are available for reservation (the "**Option Term**"), Catapult grants COLLABORATOR the non-transferrable option to negotiate for one additional module in that second release (the "**Option**").

iii. [***].

iv. [***].

v. [***].

17.4 The Parties may terminate this Agreement at any time by mutual written consent, signed by the authorised signatories of the Parties and the provisions of **Clauses 18.1** and **18.2** will not apply.

17.5 Either Party may elect to terminate this Agreement at any time by notice in writing to the other Party, such notice to take effect as specified in the notice:

17.5.1 if the other Party is in material breach of this Agreement and, in the case of a breach capable of remedy within 90 days, the breach is not remedied within 90 days of the party receiving notice specifying the breach and requiring its remedy; or

- 17.5.2 if (A) the other Party becomes insolvent or unable to pay its debts as and when they become due; or (B) an order is made or a resolution is passed for the winding up of the other Party (other than voluntarily for the purpose of solvent amalgamation or reconstruction); or (C) a liquidator, administrator, administrative receiver, receiver, or trustee is appointed in respect of the whole or any part of the other party's assets or business; or (D) the other Party makes any composition with its creditors; or (E) the other Party ceases to continue its business; or (F) as a result of debt and/or maladministration the other party takes or suffers any similar or analogous action in any jurisdiction.
- 17.6 COLLABORATOR may terminate this Agreement at any time after the Effective Date by notice in writing to the Catapult specifying the Termination Date of this Agreement, in which case the provisions of **Clause 18.1.1** or **18.1.2** (as applicable) will apply, and this Agreement will end on the Termination Date.
- 17.7 COLLABORATOR may terminate this Agreement hereunder immediately upon written notice in the event that Catapult is in material breach of its obligations under **Clause 20**. Catapult will have no claim against COLLABORATOR for any loss of whatever nature by virtue of the termination of this Agreement in accordance with this **Clause 17.7**. To the extent that the laws of the territory provide for any such compensation to be paid to Catapult upon the termination of this Agreement, or under circumstances where breach is caused in any part by COLLABORATOR, Catapult hereby expressly agrees to waive (to the extent possible under the laws of the territory) any such compensation.
- 17.8 A Party's right of termination under this Agreement, and the exercise of any such right, will be without prejudice to any other right or remedy (including any right to claim damages) that such Party may have in the event of a breach of contract or other default by the other Party.
18. **CONSEQUENCES OF TERMINATION**
- 18.1 COLLABORATOR recognises that considerable planning and advance preparation is required to ensure timely COLLABORATOR occupation of the Module. In recognition of the opportunity cost of reserving a Module for COLLABORATOR, if COLLABORATOR serves notice to terminate this Agreement in any circumstances other than as set out in **Clause 17.4**, or **Clause 17.7**, COLLABORATOR will compensate Catapult as follows:
- 18.1.1 where notice to terminate is served after the Effective Date but before the Expected Occupation Date, COLLABORATOR will pay to Catapult the sum equivalent to 1 year's income and which will include: the Facility Contribution; the Business Rates; Integral Input Contributions, any Establishment Input Contributions and any other unavoidable costs resulting from the Module remaining unoccupied for up to a period of 1 year (the "**Compensations**"). Catapult will, to the extent that it is reasonably able to do so in the circumstances, release COLLABORATOR from its obligations where a suitable alternative collaborator is secured by Catapult.;
- 18.1.2 Thereafter, where notice to terminate is served from and including the Expected Occupation Date, COLLABORATOR will pay the Catapult Compensations until the earliest to occur of: (i) the expiration of one (1) year, (ii) through the end of the Term, or (iii) the date on which a suitable alternative collaborator (if any) is secured by the Catapult. In the event this Agreement is terminated in accordance with Clause 8.10.1, the Compensations due to Catapult following the Termination Date shall be determined pursuant to Clause 8.10.2.
- 18.2 The provisions of **Clause 18.1** will not apply where this Agreement is terminated in accordance with **Clause 20**.
- 18.3 Upon termination of this Agreement for any reason (and unless otherwise agreed by the Parties in a subsequent, written agreement, including any agreement entered into in accordance with the provisions of **Clause 26.1**):
- 18.3.1 the provisions of **0, 11, 12, 13, 15 14, 18, and 19** will remain in force; and
- 18.3.2 the Collaboration will terminate, subject to any subsisting and continuing obligations.

19. INSURANCE

- 19.1 Catapult will take out with a reputable insurance company and maintain at all times during the Term of this Agreement professional indemnity, and public liability insurance including against all loss of and damage to the Module, the Centre, and injury to persons including death arising out of or in connection with this Agreement. Such insurances may be limited in respect of one claim provided that such limit must be at least **£5 million (five million pounds)**. Product liability insurance will continue to be maintained for a further six years from the end of the term of this Agreement.
- 19.2 COLLABORATOR will take out with a reputable insurance company, and maintain at all times during the Term of this Agreement public and product liability insurance including against all loss of and damage to the Module and Centre, injury to persons including death arising out of or in connection with this Agreement, and against all loss of and damage to any COLLABORATOR owned equipment, or COLLABORATOR personnel personal effects within the Module or in the Centre generally. Such insurances may be limited in respect of one claim provided that such limit must be at least **£5 million (five million pounds)**. Product liability insurance will continue to be maintained for a further six years from the end of the term of this Agreement. COLLABORATOR acknowledges that Catapult will have no responsibility for any COLLABORATOR owned equipment or any COLLABORATOR personnel personal effects located in the Module or any other part of the Centre.
- 19.3 If there is destruction or damage to the Centre that leaves the whole or substantially the whole of the Centre and / or the Module unfit for occupation and use or inaccessible, the Catapult may terminate this Agreement immediately by written notice to COLLABORATOR at any time within the period of 2 years after the date of such damage or destruction.
- 19.4 If there is destruction or damage to the Centre that leaves the whole or substantially the whole of the Centre and / or the Module unfit for occupation and use or inaccessible and the Module has not been made fit for occupation and use by COLLABORATOR within 2 years of the date of such destruction or damage then either Party may serve notice on the other to terminate this Agreement with immediate effect, but before such reinstatement is completed.
- 19.5 If there is destruction or damage to the Centre by any of the Insured Risks that leaves the whole or substantially the whole of the Centre and / or the Module unfit for occupation and use or inaccessible, then, save to the extent that the Catapult's insurance has not been vitiated or policy moneys refused because of any act or default of COLLABORATOR then the Facility Charge, the Activity Related Input Contributions, the Integral Input Contributions, and the Business Rates or a fair proportion of them will not be payable from and including the date of such damage or destruction until the earlier of the date that the Module is once again fit for occupation and use and accessible and the date 2 years from and including the date of such damage or destruction.

20. ANTI-BRIBERY AND ANTI-CORRUPTION

- 20.1 Each Party agrees that, in connection with this Agreement and the Projects, they will each, (and will procure that their respective officers, employees, agents and any other persons who perform services for them or on their behalf in connection with this Agreement will):
- 20.1.1 not commit any act or omission which causes or could cause the other Party to breach, or commit an offence under, any laws relating to anti-bribery and/or anti-corruption;
 - 20.1.2 keep accurate and up to date records showing all payments made and received and all other advantages given and received in connection with this Agreement and the steps taken to comply with this Clause 20, and permit the other Party to inspect those records as reasonably required;
 - 20.1.3 promptly notify the other Party of:
 - (a) any request or demand for any financial or other advantage received by it (or that person); and
 - (b) any financial or other advantage it (or that person) give or intend to givewhether directly or indirectly in connection with this Agreement; and
 - 20.1.4 promptly notify the other Party of any breach of this Clause 20.

21. **PUBLICITY**

The Parties agree consent is required before use of the other's name, or any adaptation of their name, or any of their logo(s), trademark(s), or other of their device(s) in any advertising, promotional, or sales materials (however, they also agree that such consent is not to be unreasonably withheld).

22. **STATE AID**

- 22.1 The parties acknowledge that Catapult is a 'Research Organisation' as defined under European Union legislation and has an obligation to ensure, and is subject to audits to demonstrate, that all activities it undertakes are compliant with EU state aid rules, including its activities under this Agreement. The parties therefore agree that, notwithstanding any other provision of this Agreement:

Catapult will be entitled to cooperate fully with any investigation by any grant funder of Catapult or by the European Commission or any court of law with respect to this Agreement regarding the grant/alleged grant of state aid and the provision of Inputs hereunder and COLLABORATOR will, if so requested by Catapult, promptly provide to Catapult all reasonable and necessary assistance in connection with any such investigation(s);

Catapult will keep COLLABORATOR informed of any active and specific investigation into this Agreement and, where possible, liaise with COLLABORATOR concerning any response to the European Commission; and

the parties will comply with any ruling of the European Commission or court of law in relation to the application of the EU state aid rules to this Agreement.

- 22.2 The obligations set out in **Clause 22.1** 22.1 above will subsist for a period of 10 years from the date of this Agreement, notwithstanding any earlier termination of this Agreement.

23. **NOTICES**

- 23.1 Any notice required to be given under this Agreement will be given in writing and sent by prepaid airmail post or courier, delivered personal, or sent by email to the following addresses or such other address as may be notified by the relevant party from time to time in writing:

To Catapult:

If sent by post to:

Cell Therapy Catapult
12th Floor Tower Wing
Guy's Hospital
Great Maze Pond
London
SE1 9RT
United Kingdom

For the attention of:

Matthew Durdy, CBO

If sent by email, to:

matthew.durdy@ct.catapult.org.uk

To COLLABORATOR:

If sent by post to:

TCR2 Therapeutics Inc.
100 Binney Street, Suite 710,
Cambridge, MA 02142
US

For the attention of:

Garry Menzel, CEO

If sent by email, to:

garry@tcr2.com

With a copy to:

Margaret Siegel, Corporate Counsel
margaret.siegel@tcr2.com

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

23.2 Any notice so sent will be deemed to have been duly given:

- 23.2.1 if sent by personal delivery or courier, on delivery at the address of the relevant party;
- 23.2.2 if sent by prepaid airmail post, five days after the date of posting; and
- 23.2.3 if sent by email, only on acknowledgement of receipt, such acknowledgement not being an automated message.

24. FURTHER ASSURANCES

Each party will, as and when requested by the other party and without charge, do all such acts and execute all such documents as may be reasonably necessary to give full effect to the provisions of this Agreement.

25. ENTIRE AGREEMENT

- 25.1 This Agreement constitutes the entire agreement between the parties and supersedes and replaces any and all previous agreements, understandings or arrangements between the parties, whether oral or in writing, relating to its subject matter, including the Pre-Existing CDA.
- 25.2 The Parties acknowledge that in entering into this Agreement they do not rely on any statement, representation (including, without limitation, any negligent misrepresentation but excluding any fraudulent misrepresentation), warranty, course of dealing, custom, understanding or promise except for those expressly set out in this Agreement.
- 25.3 Except as expressly set forth in this Agreement, neither party grants to the other by implication, estoppel or otherwise, any right, title, licence or interest in any Intellectual Property Right.

26. VARIATION

- 26.1 Subject to **Clause 26.2**, no variation or amendment to this Agreement will be effective unless it is made in writing and signed by the duly authorised representatives of both parties.
- 26.2 The following principles will be adhered to in the event a change is proposed by Catapult to **Schedule 8** (Warehouse and Procurement Management Provisions), **Schedule 9** (Environmental Monitoring), **Schedule 10** (IT Infrastructure), and **Schedule 12** (Module and Centre Specifications), and **Clause 10** only:
 - 26.2.1 If the proposed change has no material impact on the COLLABORATOR Product(s) or Process(es), or COLLABORATOR's compliance with GMP guidelines, Catapult may enact the change by a written notification (signed by a member of Catapult's Quality team) to COLLABORATOR, such written notification forming an amendment to this Agreement; and
 - 26.2.2 If the proposed change has a material impact on the COLLABORATOR Product(s) or Process(es), such change will require the mutual written consent of the Parties in the form of an amendment to this Agreement signed by authorised signatories of their respective Quality Teams.
 - 26.2.3 If COLLABORATOR disagrees with Catapult's assessment that a change under Clause 26.2.1 has no material impact, the matter will be resolved through the use of the Expert Determination Procedure under Schedule 13.

27. ASSIGNMENT AND SUB-CONTRACTING

- 27.1 Subject to **Clause 27.2** and except as provided in **Clause 27.3**, neither Party will assign, sub-contract, mortgage, charge, or otherwise transfer any rights or obligations under this Agreement, without the prior written consent of the other Party.
- 27.2 Either Party may assign and transfer all its rights and obligations under this Agreement to an Affiliate or to any company to which it transfers all or substantially all of its assets or business to which this Agreement relates, provided that the assignee undertakes to the other Party to be bound by and perform the obligations of the assignor under this Agreement. However, COLLABORATOR'S right to assign will be subject to Catapult's consent, such consent not to be unreasonably withheld or delayed, and a Party will not have such a right to assign this Agreement if it is insolvent or any other circumstance described in **Clause 17.5.2** applies to it.

[***] INDICATES MATERIAL THAT HAS BEEN OMITTED AND FOR WHICH CONFIDENTIAL TREATMENT HAS BEEN REQUESTED. ALL SUCH OMITTED MATERIAL HAS BEEN FILED WITH THE SECURITIES AND EXCHANGE COMMISSION PURSUANT TO RULE 406 PROMULGATED UNDER THE SECURITIES ACT OF 1933, AS AMENDED

- 27.3 Catapult will be entitled to sub-contract any of its obligations under this Agreement, provided that it will ensure any relevant obligations are passed on to such sub-contractor and Catapult will be responsible for the performance of such sub-contractor. In the event Catapult changes its operating model from that in place on the Expected Occupation Date such that it sub-contracts any additional material obligation not set out under this Agreement, Catapult will provide notice of the same to COLLABORATOR.

28. **WAIVER**

No failure or delay by a party to exercise any right or remedy provided under this Agreement or by law will constitute a waiver of that or any other right or remedy, nor will any single or partial exercise of any right or remedy preclude the further exercise of such right or remedy.

29. **SEVERABILITY**

If any provision (or part of any provision) of this Agreement is held to be invalid, void or otherwise unenforceable by a court of competent jurisdiction from whose decision no appeal is available, or from whose decision no appeal is made within the applicable time limit, then the provision (or relevant part of the provision) will be omitted and the remaining provisions of this Agreement (and parts of the relevant provision, as applicable) will continue in full force and effect.

30. **RELATIONSHIP OF THE PARTIES**

Nothing in this Agreement is intended to, or will be deemed to, establish or imply any agency, partnership or joint venture between the parties. Neither party will act or describe itself as the agent of the other party and neither party will have, or hold itself out as having any authority to make commitments for or on behalf of the other party.

31. **THIRD PARTY RIGHTS**

This Agreement does not create any right enforceable by any person who is not a Party to it save for (i) with respect to Clause 13 which the Parties agree may be directly enforceable (as applicable, as an Alternative Disclosing Party) by any other Collaborator that has occupied the Centre concurrently with COLLABORATOR, provided that COLLABORATOR is able to directly enforce provisions equivalent to Clause 13 with respect to COLLABORATOR's Confidential Information in a collaboration agreement between such Collaborator and Catapult, and (ii) as provided in Clause 16.1.

32. **GOVERNING LAW AND JURISDICTION**

- 32.1 This Agreement and any dispute or claim arising out of or in connection with it or its subject matter or formation (including non-contractual disputes or claims) will be governed by and construed in accordance with the laws of England and Wales.
- 32.2 The parties to this Agreement irrevocably agree that the courts of England will have exclusive jurisdiction to settle any dispute or claim that arises out of or in connection with this Agreement or its subject matter or formation (including non-contractual disputes or claims), except that a Party may seek an interim injunction in any court of competent jurisdiction

33. **DISPUTE RESOLUTION PROCEDURE**

- 33.1 If a dispute arises out of or in connection with this Agreement or the performance, validity or enforceability of it (**Dispute**), then, except as expressly provided in specific clauses of this Agreement, the Parties will follow the procedure set out in this clause:
- 33.1.1 either Party will give to the other written notice of the Dispute, setting out its nature and full particulars (**Dispute Notice**), together with relevant supporting documents. On service of the Dispute Notice, the Chief Business Officer of the Catapult, and the head of manufacturing of COLLABORATOR or another authorized representative of COLLABORATOR will attempt in good faith to resolve the Dispute;

- 33.1.2 if the Chief Business Officer of Catapult and the COLLABORATOR representative are for any reason unable to resolve the Dispute within 30 days of service of the Dispute Notice, the Parties agree to enter into mediation in good faith to settle the Dispute in accordance with the CEDR Model Mediation Procedure. To initiate the mediation, a Party must serve notice in writing (**ADR notice**) to the other Party to the Dispute, referring the dispute to mediation. A copy of the ADR notice should be sent to CEDR. Unless otherwise agreed between the Parties within 10 days of service of the ADR Notice, the mediator will be nominated by CEDR. Unless otherwise agreed between the Parties, the mediation will start not later than 15 days after the date of the ADR notice.

- 33.2 No Party may commence any court proceedings under **Clause 32** (Governing Law and Jurisdiction) in relation to the whole or part of the Dispute until 40 days after service of the ADR notice, provided that the right to issue proceedings is not prejudiced by a delay.
- 33.3 If the Dispute is not resolved within 40 days after service of the ADR notice, or either Party fails to participate or ceases to participate in the mediation before the expiry of that 40-day period, or the mediation terminates before the expiry of that 40-day period, the Dispute will be finally resolved by the courts of England and Wales in accordance with **Clause 32** (Governing Law and Jurisdiction) in this Agreement.

34. COUNTERPARTS

This Agreement may be executed in any number of counterparts, each of which when executed and delivered will constitute a duplicate original of this agreement, but all the counterparts will together constitute the same agreement. If this Agreement is executed in counterparts, it will not be effective unless and until each party has executed and delivered a counterpart to the other party.

35. FORCE MAJEURE

Neither Party will have any liability or be deemed to be in breach of this Agreement for any delays or failures in performance of this Agreement that result from circumstances beyond the reasonable control of that Party, including without limitation labour disputes involving that Party. The Party affected by such circumstances will promptly notify the other Party in writing when such circumstances cause a delay or failure in performance and when they cease to do so.

36. DATA PROTECTION

- 36.1 **“Data Protection Legislation”** means the the EU General Data Protection Regulation 2016/679) and all other applicable legislation relating to privacy or data protection in the United Kingdom.
- 36.2 In this Agreement the terms:
- 36.2.1 “Personal Data”, “Data Subject” and “Process” are as defined in the EU General Data Protection Regulation 2016/679) (“Act”). Each Party shall comply with its respective obligations under the provisions of the Act and all applicable Data Protection Legislation;
- 36.2.2 “Data Processor” and “Data Controller” are as “Data Processor” and “Data Controller” are defined in the EU General Data Protection Regulation 2016/679).
- 36.3 COLLABORATOR shall act as the Data Controller in respect of any Personal Data Processed by Catapult on behalf of COLLABORATOR in connection with this Agreement, the Project and/or Inputs and in compliance with COLLABORATOR’s obligations as such under the Act. Nothing in this Clause 36 relieves Catapult of its own obligations as Data Processor under the Data Protection Legislation; some of the material Processing it will perform, including examples of the Personal Data and categories of data subject connected to this Processing, is broadly (but not exhaustively) set out in the Catapult Data Processing Summary in Schedule 11 to the rear of this Agreement.
- 36.4 Insofar as COLLABORATOR provides or otherwise makes available Personal Data to Catapult and such Personal Data is Processed by Catapult, or if Catapult is required to Process Personal Data on behalf of COLLABORATOR in connection with this Agreement, the Project and/or Inputs, COLLABORATOR shall ensure that it has all rights, consents and authority to permit Catapult to lawfully Process such Personal Data and will comply with applicable Data Protection Legislation generally including ensuring that all Personal Data provided or otherwise made available pursuant to this Agreement to Catapult is:
- (a) adequate, relevant and limited to what is necessary for Catapult to discharge its obligations, and to enjoy its rights under this Agreement; and

(b) accurate and, where necessary, kept up to date.

36.5 In so far as Catapult Processes any Personal Data on behalf of COLLABORATOR, Catapult shall:

- 36.5.1 Process the Personal Data on behalf of COLLABORATOR only to the extent necessary for performing this Agreement and only in accordance with the specific written instructions of COLLABORATOR (save to the extent that Catapult considers that such instructions infringe the Data Protection Legislation, in which case Catapult shall notify COLLABORATOR) or as required by any regulator or Applicable Law;
- 36.5.2 not otherwise modify, amend or alter the contents of the Personal Data or disclose or permit the disclosure of any of the Personal Data to any third party unless: (i) specifically authorised in writing by COLLABORATOR or (ii) required in order for Catapult to perform its obligations under this Agreement or enjoy its rights under this Agreement (including where such obligations are sub-contracted to a third party);
- 36.5.3 implement appropriate technical and organisational methods to maintain the security of such Personal Data and preventing unauthorised or unlawful Processing and against accidental loss, destruction, damage, alteration or disclosure;
- 36.5.4 keep and procure that all of its employees, contractors and agents keep, the Personal Data confidential in accordance with Catapult's confidentiality obligations under Clause 13;
- 36.5.5 maintain a record of its Processing activities and, at COLLABORATOR's cost in respect of Catapult's out of pocket expenses, provide all information to COLLABORATOR as is reasonably necessary for COLLABORATOR to demonstrate compliance with its obligations pursuant to Article 28 of EU General Data Protection Regulation 2016/679, or any provisions under equivalent legislation that is implemented in the UK after the date of this Agreement.
- 36.5.6 permit audits, including inspections, conducted by or on behalf of COLLABORATOR or its regulators including permitting audits to the extent that these are demanded by a Regulatory Authority overseeing compliance with the GDPR. To the extent the following do not contravene the conditions imposed by a Regulatory Authority COLLABORATOR will: not conduct more than one audit per calendar year, give Catapult reasonable (and at least 14 days') prior written notice of each such audit and ensure that each audit is carried out during Catapult's normal business hours, so as to cause the minimum disruption to Catapult's business and without COLLABORATOR or its auditor having any access to any data belonging to a person other than COLLABORATOR;
- 36.5.7 notify COLLABORATOR in writing without undue delay and in any event within 48 hours of discovery of, and provide reasonable cooperation (at COLLABORATOR's cost, except where the breach is caused by Catapult or its agents or subcontractors in which case such cooperation will be provided at Catapult's cost) in the event of, any breach of security leading to the accidental or unlawful destruction, loss, alteration, unauthorised disclosure of, or access to, Personal Data in Catapult's possession or control;
- 36.5.8 notify COLLABORATOR in writing without undue delay and in any event within ten days of receipt if it receives a request from a Data Subject to have access to that person's Personal Data, a complaint or request relating to COLLABORATOR's obligations under Data Protection Legislation or any other communication relating to the Processing of Personal Data, in each case where such request, complaint or communication relates directly to the Processing of Personal Data undertaken by Catapult on behalf of COLLABORATOR under or in connection with this Agreement; and

- 36.5.9 insofar as is possible, assist COLLABORATOR (at COLLABORATOR's cost, except where the complaint or request arises from Catapult's, or its agents or subcontractors processing of that Personal Data other than in accordance with Clause 36, in which case such assistance will be provided at Catapult's cost) in relation to any complaint or request made by a regulator or data subject in respect of any Personal Data Processed by Catapult on behalf of COLLABORATOR under or in connection with this Agreement.
- 36.5.10 at the choice of COLLABORATOR, delete or return all Personal Data to COLLABORATOR promptly after termination or expiry of this Agreement, and delete all copies of the Personal Data (save to the extent that retention of copies is required by Applicable Law or that electronic copies are made on the Catapult IT systems as part of regular business archiving activity, but Catapult will ensure that any such archived electronic copies are kept confidential and in compliance with this Clause 36) providing confirmation of such deletion to COLLABORATOR;
- 36.6 COLLABORATOR authorises Catapult to transfer Personal Data outside of the European Economic Area on condition that Catapult shall:
 - 36.6.1 provide an adequate level of protection to any Personal Data that is transferred outside of the EEA (which may include ensuring that the entity located outside the EEA to which Personal Data is transferred enters into the standard contractual clauses for the transfer of Personal Data from the EU to processors in third countries); and
 - 36.6.2 comply with any other reasonable instructions notified to it by COLLABORATOR,
in any event, Catapult confirms that its subcontractors with respect to LIMS and eQMS do not process such Personal Data outside of the European Economic Area.
- 36.7 COLLABORATOR authorises Catapult to engage other Data Processors and sub-processors in respect of any Personal Data Processing that is undertaken in connection with this Agreement and in accordance with its terms. Where a sub-processor is duly engaged to carry out specific Processing activities on behalf of COLLABORATOR, Catapult shall ensure that it enters into a written contract with such sub-processor containing data protection obligations no less onerous than those set out in this Clause 36 which shall apply to the sub-processor. Catapult shall remain liable for the acts and omission of any such sub-processor.
- 36.8 Catapult shall without undue delay (and in any event within 48 hours of it becoming aware) notify COLLABORATOR in the event that it becomes aware of any breach of the Data Protection Legislation by Catapult or any of the subcontractors of Catapult in connection with this Agreement.
- 36.9 Subject to Clause 16.6, COLLABORATOR agrees that Catapult shall have no liability (whether in contract, tort, misrepresentation, restitution, under statute or otherwise, including under any indemnities, in each case howsoever caused including if caused by negligence) to COLLABORATOR in connection with any act and/or omission by Catapult to the extent that the liability arises from:
 - (a) any breach of the Data Protection Legislation by COLLABORATOR; or
 - (b) any breach by COLLABORATOR of its obligations under this Clause 36; or
 - (c) Catapult complying with any written instructions from COLLABORATOR in accordance with Clause 36.5.1.
- 36.10 Subject to Clause 16.6, Catapult agrees that COLLABORATOR shall have no liability (whether in contract, tort, misrepresentation, restitution, under statute or otherwise, including under any indemnities, in each case howsoever caused including if caused by negligence) to Catapult in connection with any act and/or omission by COLLABORATOR to the extent that the liability arises from:
 - (a) any breach of the Data Protection Legislation by Catapult; or

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(b) any material breach by Catapult of its obligations under this Clause 36

36.11 **As of the date of this Agreement the Parties acknowledge that no Personal Data has been provided, and that they do not intend to provide Personal Data from either of them to the other but that if this changes they agree they will enter into an amendment to record any change in Schedule 11.**

37. **JOINT AND SEVERAL OBLIGATIONS.**

COLLABORATOR covenants and agrees to incorporate and registered a wholly owned subsidiary in England & Wales (the “SUB”). COLLABORATOR will procure that the SUB shall be jointly and severally liable with respect to the obligations of COLLABORATOR under this Agreement by causing the SUB to execute a Joinder Agreement in the form attached in Schedule 17 to confirm its joint and several liability hereunder as soon as practicable following formation of the SUB.

38. **NON-SOLICITATION**

During the Term and for a period of twelve (12) months following any termination or expiration of this Agreement, each Party agrees, on behalf of itself and its Affiliates, not to solicit for employment, employ or otherwise retain any employee of the other Party or its Affiliates except with the prior written consent of the other Party; provided, however, that it will not be a violation of the non-solicitation obligation of this Section 38 (Non-Solicitation) if an employee of the other Party responds to an indirect solicitation (e.g., advertisements in media of general circulation).

[Signature Page Follows]

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SCHEDULE 1

WORK STREAMS

1. Development and operation of a COLLABORATOR-operated Manufacturing Space facility for GMP manufacture of COLLABORATOR product, including QMS and QC which will be governed under a separate agreement
2. Development and operation of aspects of a multi-product manufacturing centre and its associated quality management system that are connected with the production of the COLLABORATOR's Product
3. Development and operation of a supply and distribution chain in connection with Work Stream 1

SCHEDULE 2

Part 1 - Occupation of Module

1. Definitions

In this Schedule 2:

- **“Co-location Fee”** means the aggregate of the Facility Contribution and Business Rates payable under clauses 8.1.1 and 8.1.2 of this Agreement.
- **“end of the Licence Period”** means the expiry of the Term or its earlier termination pursuant to Clause 17 or 18 of this Agreement and “Licence Period” will have the same meaning as “Term”.

2. Occupation of the Module

Catapult permits COLLABORATOR to occupy the Module for the Permitted Use from the later of: (a) the Occupation Date and (b) the date that the QTA is agreed, and entered into by the Parties, until the end of the Licence Period in common with Catapult and all others authorised by Catapult (so far as this is not inconsistent with the rights given to COLLABORATOR to use the Module for the Permitted Use) together with the rights mentioned in Part 2 of this Schedule and subject to the rights reserved to Catapult in Part 3 of this Schedule and subject further to payment of the Co-location Fee in accordance with Clause 8 of this Agreement.

Applicable only when a COLLABORATOR is party to Collaboration Agreements for 2 (two) adjoining modules which share a Restricted Access Area, will COLLABORATOR be provided with exclusive use of and access to the Shared Restricted Access Area between the two modules belonging to COLLABORATOR. For the avoidance of doubt, access to the PAL, MAL and PrAL of the Shared Restricted Access Area is restricted to COLLABORATOR, Catapult and their subcontractors via electronic access control. Access to the grade C corridor of the Shared Restricted Access Area is restricted to COLLABORATOR, Catapult and their subcontractors via Standard Operating Procedures. Catapult permits COLLABORATOR to employ the PrAL for their own purposes, in-line with Centre policies.

3. COLLABORATOR’s Covenants and Acknowledgement

3.1 COLLABORATOR covenants with Catapult as follows:

- 3.1.1 to keep the Module clean, tidy and clear of rubbish;
- 3.1.2 not to use the Module other than for the Permitted Use;
- 3.1.3 not to make any alteration or addition to the Module or the Centre without the prior written consent of Catapult;
- 3.1.4 not to display any advertisement, signboards, nameplate, inscription, flag, banner, placard, poster, signs or notices at the Module or elsewhere in the Centre (that is not on agreed signage areas) without the prior written consent of Catapult, such consent not to be unreasonably withheld or delayed;
- 3.1.5 not to do or permit to be done in the Module anything which is illegal or which may be or become a disruption, nuisance (whether actionable or not), annoyance, inconvenience, or disturbance to Catapult, or to other occupiers of the Centre or to the owner or occupier of neighbouring property;
- 3.1.6 not to cause or permit to be caused any damage (other than general wear and tear as would be expected from general usage of the Module over time for the Permitted Use) to:
 - 3.1.6.1 the Module, Centre or any neighbouring property; or
 - 3.1.6.2 any property of the owners or occupiers of any neighbouring property;

- 3.1.7 not to obstruct the Common Access Areas, make them dirty or untidy or leave any rubbish on them and to otherwise keep the Common Access Areas free and clear of any equipment, materials or personal property of COLLABORATOR;
- 3.1.8 not to apply for any planning permission in respect of the Module unless agreed in advance in writing with Catapult;
- 3.1.9 not to do anything that will or might constitute a breach of any Applicable Law affecting the Centre or which will or might vitiate in whole or in part any insurance effected by Catapult in respect of the Centre from time to time and, in the case of the latter, to the extent that Catapult has made COLLABORATOR aware in writing of such requirements under its insurance;
- 3.1.10 (in as much as this applies to COLLABORATOR as the end user of any such supplies) to comply with all laws and with any recommendations of the relevant suppliers relating to the supply and removal of electricity, gas, water, sewerage, telecommunications and data and other services and utilities to or from the Module;
- 3.1.11 to observe any rules and regulations Catapult makes and notifies to COLLABORATOR from time to time in writing governing COLLABORATOR's use of the Module and the Common Access Areas; and
- 3.1.12 not to do anything on or in relation to the Module and the Centre that would or might cause Catapult to be in breach of Catapult's covenants and the conditions contained in the Lease, repeated, for reference, in Schedule 1 to this Agreement; and
- 3.1.13 to comply with Catapult's reasonable requests for cooperation with respect to any further development of the Centre and the Module and not to raise any objection to any noise and disturbance resulting from such further development on condition Catapult uses reasonable endeavours to minimise any disruption to the COLLABORATOR's activities within the Module and the Centre.

3.2 COLLABORATOR acknowledges that:

- 3.2.1 Catapult is entitled to exclusive control and possession of the Centre and the Module and nothing contained in this Agreement creates any relationship of landlord and tenant or any other relationship other than that of a licensor and licensee between Catapult and COLLABORATOR; and
- 3.2.2 this Agreement is personal to COLLABORATOR and is not assignable, and the rights set out in Schedule 2 may only be exercised by COLLABORATOR and its employees.

4. **Relocation of Module**

5. Catapult will be entitled, upon not less than 6 months' written notice to Collaborator, from time to time, to relocate COLLABORATOR to a different location within the Centre provided that

(a) relocation is not decided upon based on the requirements of any single other collaborator; (b) Catapult has first considered all reasonable alternatives to relocation, while discussing such alternatives with Collaborator; (c) any relocation does not affect Collaborator's ability to continue manufacture, release and/or make shipment of Collaborator products in accordance with applicable law; (d) Catapult provides written notification to Collaborator of its intention to relocate Collaborator, (e) Collaborator is permitted to continue occupation of the Module for 3 months in tandem with that of the proposed replacement module for the latter 3 months of the 6 month notice period to enable a smooth handover, (f) the alternative module is in all material respects (including size, access and facilities) the same as the Module, (g) the costs and expenses incurred in relocating Collaborator shall be borne by Catapult.

6. **Termination**

6.1 At the end of the Licence Period:

6.1.1 COLLABORATOR's rights to occupy the Module will automatically terminate;

6.1.2 COLLABORATOR will leave the Module in the same state and condition (taking into account normal "wear and tear" usage), with all fixtures, fittings and equipment as were provided to it by Catapult as recorded in the Schedule of Condition and Inventory referred to at **Schedule 7**.

6.2 The termination of COLLABORATOR's rights to occupy the Module will be without prejudice to any subsisting breach of COLLABORATOR's obligations contained in this Schedule.

Part 2 – Rights granted to COLLABORATOR

The following rights are granted to COLLABORATOR in common with Catapult, any person authorised by Catapult and all Other Collaborators and occupiers of the Centre but subject to Catapult's rights:

7. **Running of services**

To connect to and use the existing service media at the Centre for the passage of supplies to and from and to the Module.

8. **Access and servicing**

8.1 Access to and from the Module on foot only over the Common Access Areas from time to time designated by Catapult for COLLABORATOR's use.

8.2 To use any service area from time to time designated by Catapult for COLLABORATOR's use for loading and unloading and otherwise servicing the Module and the service roads with or without vehicles to come and go to and from that service area.

9. **Refuse disposal**

To deposit rubbish in any receptacles or waste compactors within the Common Access Areas provided by Catapult for that purpose and designated by Catapult for the use of COLLABORATOR.

10. **Support and shelter**

Support and shelter for the Module from the Centre.

11. **Parking**

Use of parking spaces available for COLLABORATOR'S specific use, the location of which may be re-designated by Catapult from time to time,

12. **Signage**

To exhibit COLLABORATOR's name in such form, shape and size as approved by Catapult and COLLABORATOR in writing.

13. **Toilet facilities**

To use any toilet facilities within the Common Access Areas designated by Catapult as facilities for the use of COLLABORATOR.

14. **Escape**

On foot only, in emergencies and for fire escape drills, to use all fire escape routes in the Centre designated by Catapult for the use of COLLABORATOR whether or not forming part of the Common Access Areas.

15. **QC Lab Space**

COLLABORATOR may at any time request access to, and use of any available of QC Lab Space; Catapult may, reserving its sole discretion, grant access to, and use of such QC Lab Space as may be available at the time of request.

Part 3 – Rights reserved to Catapult

The following rights are excepted and reserved to Catapult and all those authorised by Catapult:

16. **Support, shelter, light and air**

16.1 Support and shelter for the remainder of the Centre from the Module.

16.2 All rights of light or air to the Module that now exist or that might (but for this reservation) be acquired over any other land.

17. **Running of services**

The passage and running of Supplies from and to the remainder of the Centre through existing Conducting Media (if any) within the Module.

18. **Entry on to the Module**

18.1 To enter the Module during regular business hours and on not less than 24 hours prior notice, but excluding any period in which COLLABORATOR Products are being manufactured in the Manufacturing Space (unless access is required in order for Catapult to fulfil any obligations under the QTA when no notice will be required) for any purpose including (without limitation) to:

18.1.1 estimate the current value or rebuilding cost of the Centre for insurance or any other purpose;

18.1.2 install, inspect, clean, maintain, replace and to take readings from metering equipment, heat cost allocators and thermostatic radiator valves within or relating to the Module and to prepare an energy performance certificate; and

18.1.3 do anything that Catapult is expressly entitled or required to do under this Agreement or the Lease or for any other reasonable purpose in connection with this Agreement including to inspect the state of repair and condition of the Module.

18.1.4 To enter the Module to carry out any works to the Module to improve their environmental performance.

18.1.5 If the relevant work cannot be reasonably carried out without entry onto the Module, to enter them to:

18.1.5.1 build on or into any boundary or party walls on or adjacent to the Module;

18.1.5.2 inspect, clean, maintain, repair, alter, decorate, rebuild or carry out works upon the Centre;

18.1.5.3 carry out any of the necessary inputs; or

18.1.5.4 for any other reasonable management purpose.

19. **Common Access Areas and Conducting Media**

19.1 In an emergency, or when works are being carried out to them, to close off or restrict access to the Common Access Areas, so long as (except an emergency) alternative facilities are provided that are not materially less convenient.

19.2 To change, end the use of or reduce the extent of any Common Access Areas or Conducting Media so long as alternative facilities are provided that are not materially less convenient or, if no alternative is provided, the use and enjoyment of the Module is not materially adversely affected.

20. **Adjoining Property**

To carry out works of construction, demolition, alteration or redevelopment on Centre and any adjoining property (and to permit others to do so) as Catapult in its absolute discretion considers fit (whether or not these works interfere with the flow of light and air to the Module).

21. **Plant, equipment and scaffolding**

The right, where necessary, to bring plant and equipment onto the Module and to place scaffolding and ladders upon the exterior of or outside any buildings on the Centre (including the Module).

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Part 4: Plans of the Module and the Centre

[***]

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SCHEDULE 3

Contributions – Initial Budget based on projected Full Occupancy Cost Base

	Contributions
1. Facility Contributions	[***]
2. Business Rates	[***]
3. Integral Inputs Contribution	[***]
4. Establishment Input Contribution	[***]

SCHEDULE 4

Catapult Background Intellectual Property

- Centre design (under licence from a third-party design firm)
- QMS structure and content
- Operating procedures (including, but not limited to: Warehouse; Common areas; Interactions with multiple collaborators; On-boarding process, Process transfer)
- Cleaning and decontamination validation

SCHEDULE 5

Code of Conduct

COLLABORATOR Agrees To:

- (a)** Operate in a manner consistent with EU GMP to maintain a compliant multiproduct environment;
- (b)** Operate in the spirit of the Collaboration;
- (c)** Respect the confidentiality, privacy and operations of Other Collaborators;
- (d)** Wherever possible utilise the common infrastructure offered by the collection of cell and gene therapy related organisations in the local area, and nationally (the “Cluster”) in order to increase the benefits of the collaboration, and augment Cluster development, including the development of infrastructure connected with the Cluster ;
- (e)** Maintain an environment within its Module in accordance with any procedures governing the Centre’s operation and the terms of occupation;
- (f)** Adhere to facility quality policies and protocol;
- (g)** Adhere to roles and responsibilities as detailed in the Quality Technical Agreement
- (h)** Abide by incident reporting requirements communicated by Catapult; and
- (i)** Operate in compliance with all appropriate environment, health and safety requirements (both national and local).

Schedule 6

New Business Introduction and On-boarding

Introduction

The Catapult is committed to providing excellence in new business introduction for our collaborators. The following objectives underpin the Catapult's new business introduction philosophy:

- To guarantee that new business is introduced in accordance with our collaborators' expectations;
- To manage the new business introduction process to add value for our collaborators and for Catapult;
- To ensure that new business introductions meet the requirements of the Catapult Quality and EHS policies;
- To be open, honest and accurate in all of our new business introduction communications.

To develop excellence in our employees through the development of world class project management skills.

The new business introduction process for the Centre is divided into (i) a selection process, (ii) a negotiation phase on a Heads of Terms basis and a subsequent Collaboration Agreement and (iii) the On-boarding phase.

Summary of the Selection process

The new business introduction process starts with the interest of a potential new collaborator in joining the Centre. After signing a CDA (Confidential Disclosure Agreement) Catapult will provide COLLABORATOR with a 'Pre-Screen Questionnaire' to complete. This document allows Catapult to assess whether the COLLABORATOR and the planned Collaborator Product(s) meet the requirements of the Centre's standards. The process should ensure a smooth transition to the negotiation phase of the Collaboration Agreement from a quality and operational perspective.

The On-boarding process for introduction of COLLABORATOR Product and Process into the Module is detailed in the Establishment Input Statement

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Schedule 7

Schedule of Condition and Inventory of Module Fixtures and Fittings

To be provided under cover of a separate document, signed by both Parties immediately prior to, or contemporaneously with occupation, but incorporated into this Schedule 7 by reference.

Schedule 8

Warehouse and Procurement Management Provisions

1. General

- 1.1 Catapult is responsible for operating the warehouse area & processes in a GMP compliant manner. In summary this includes goods in, common consumables stock and COLLABORATOR owned stock, storage, picking, delivery and final product storage.
- 1.2 Catapult is responsible for the EHS within the warehouse and monitoring storage temperatures.
- 1.3 The Centre warehouse is an access controlled area limited to authorised Catapult personnel. COLLABORATOR personnel can only access the warehouse when accompanied by Catapult personnel.
- 1.4 Catapult will man the warehouse during Office Hours each week day (excluding bank holidays).
- 1.5 Catapult will provide a 24/7 call-out system for unexpected out of Office Hours' deliveries, etc.as an Additional Input
- 1.6 Catapult may facilitate access to additional warehousing outside of the Centre if required by COLLABORATOR and subject to additional contributions.
- 1.7 All COLLABORATOR equipment, samples and materials must enter the Centre through the Centre's goods in warehouse entrance. Samples and materials will be booked onto the Catapult Warehouse management system.
- 1.8 Transfer to the Manufacturing Space of all COLLABORATOR equipment, samples and materials must be formally authorised by Catapult personnel.
- 1.9 The Centre is considered a forward picking area and as such warehouse space is limited.
 - i. Catapult will maintain a stock of common consumables.
 - (i) Each COLLABORATOR will have allocated storage at ambient temperature (15°C to 25°C), 2-8°C, -20°C, -80°C and LN2 for their raw materials, product contact equipment & excipients. Catapult will be responsible for the qualification (IQ and OQ plus equipment-specific PQ with the units under load), monitoring, maintenance and functioning of the storage equipment and areas. Any COLLABORATOR-specific PQ will be an Additional Input.
 - ii. Visibility of the COLLABORATOR's inventory is through the warehouse management system (initially a paper based system).. Each collaborator will only have visibility of their inventory items.

2. Common consumables stock

- 2.1 CATAPULT will maintain a stock of an agreed list of commonly used consumables.
- 2.2 CATAPULT will be responsible for purchasing this stock or arranging a consignment stock with external vendors for direct purchase by COLLABORATOR, maintaining stock levels, undertaking the appropriate QC & putting the stock away.
- 2.3 CATAPULT will invoice the COLLABORATOR for the stock used and purchased by the COLLABORATOR
- 2.4 CATAPULT personnel will transfer the consumables to the COLLABORATOR's Grade C MAL staging area once a day or as agreed.
- 2.5 Common consumables stock will not be segregated between collaborators.

3. COLLABORATOR owned inventory

- 3.1 COLLABORATOR is responsible for the management of its own inventory supply chain including sourcing & auditing suppliers, price negotiation, purchasing and insurance.
- 3.2 Before purchasing any stock to be stored in the Centre, COLLABORATOR is responsible for providing a list of the inventory they will store & use within the Centre. Catapult reserves the right to reject any inventory item that is not in compliance with CATAPULT policies & procedures e.g. EHS
- 3.3 COLLABORATOR is responsible for the completion & submission of a Material Specification for each item which will include such information as product container size, weight, required stock level, minimum stock level, QC sampling and testing regime.
- 3.4 CATAPULT will be responsible for notifying COLLABORATOR when the stock has reached its minimum stock level. The stock will then be re-ordered by COLLABORATOR.
- 3.5 COLLABORATOR must give at least 48 hours' notice of a delivery of their items, and must be delivered during the Office Hours unless by prior agreement.
- 3.6 CATAPULT personnel will book the goods into the Warehouse management system, attach appropriate labels, undertake the initial goods inspection, notify COLLABORATOR of the goods receipt (and promptly notify COLLABORATOR of any issues identified on initial goods inspection) and place the goods in a location. Catapult will store COLLABORATOR inventory in a separate location from that of other Collaborators
- 3.7 COLLABORATOR is responsible for the management of all retention samples.
- 3.8 COLLABORATOR will be responsible for the Quality Control (QC) of their inventory & Pass labelling.

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- 3.9 If the products fail QC then COLLABORATOR personnel will be responsible for attaching Reject labels. CATAPULT personnel will transfer these Reject products to the relevant Reject product storage area. CATAPULT will store these Reject products for up to 30 days during which time it is expected that the COLLABORATOR will arrange appropriate disposal. If this is not arranged CATAPULT will manage the appropriate disposal with additional costs being charged to the COLLABORATOR.

4. Picking & delivery of stock for the COLLABORATOR

- 4.1 For non-batch related common consumables stock such as clean room clothing CATAPULT manage the supply of these items.
- 4.2 For batch specific common consumables and for COLLABORATOR owned materials, COLLABORATOR will provide CATAPULT with a Bill of Materials (BoM) and a schedule identifying when the full or part BoMs are required.
- 4.3 A member of the COLLABORATOR staff will formally receive the BoM. If there are any queries or discrepancies with the BoM these will be highlighted & addressed at this time.
- 4.4 For Biological material or cold-stored items, through prior arrangement, the COLLABORATOR with a CATAPULT representative will pick and transfer these items to the Manufacturing Space.

5. Final Product storage

- 5.1 The Centre will provide final product and product intermediate storage at the following temperatures:
 - i. -20°C
 - ii. -80°C
 - iii. LN2 (vapour phase)
- 5.2 The final product (or any intermediate thereof as requested by COLLABORATOR) will be stored in multi-collaborator storage equipment unless by previous agreement
- 5.3 COLLABORATOR can store final product in these storage areas for up to 44 days unless by agreement as an Additional Input for which there may be an Additional Contributions payable.
- 5.4 Access to the product storage areas will be strictly controlled and will only be possible when accompanied by an appropriately trained and authorised CATAPULT representative
- 5.5 Centre will be responsible for the qualification and maintenance of all equipment in this area including the temperature monitoring system and 24/7 emergency cover

6. Drug Substance (DS) or Drug Product (DP) packing area

- 6.1 CATAPULT will provide either a supervised GMP packing area or perform GMP packing.
- 6.2 CATAPULT will provide an area to charge dry shippers with liquid nitrogen.
- 6.3 CATAPULT will provide storage area for a reasonable supply of packing materials and boxes.

7. Drug Substance (DS) or Drug Product (DP) shipping

- 7.1 If required CATAPULT will provide access to cold chain GMP compliant courier service.

8. Examples of the warehouse & logistics Additional Inputs not included within Integral or Activity Related Inputs

- 8.1 Out of hours support.
- 8.2 Sampling of COLLABORATOR raw materials.
- 8.3 QC analysis of COLLABORATOR raw materials.
- 8.4 Auditing the COLLABORATOR supply chain.
- 8.5 Purchasing the COLLABORATOR raw materials.
- 8.6 Storing COLLABORATOR raw materials or starting materials for longer than the specified period.
- 8.7 Managing and storing retention samples.
- 8.8 GMP packing.
- 8.9 Arranging GMP shipping service through a GMP compliant logistics service provider.
- 8.10 Offsite additional storage space.

Schedule 9

Environmental Monitoring Schedule

Introduction

Catapult is committed to providing and maintaining manufacturing and manufacturing support environments that are fit for their intended purpose with regard to air quality. These environments will be appropriately controlled and monitored based on the room classification requirements defined in Eudralex Volume 4 Annex 1. This will be achieved by:

- The regular application of qualified cleaning procedures to all GMP environments within the Centre
- The training and qualification of personnel to assure the consistent and appropriate execution of gowning and de-gowning procedures
- The development of and adherence to an appropriate environmental monitoring program
- Regular reporting and trending of data generated by the program
- The creation and dissemination of procedures for the appropriate handling of starting materials, raw materials, consumables, samples, in-process and final product and waste within the manufacturing facility

Summary of the environmental monitoring process

- The environmental monitoring (EM) program will be established by CATAPULT to comply with the requirements of Eudralex Volume 4 Annex 1 – Manufacture of sterile medicinal products.
- CATAPULT Quality will establish and periodically reassess (based on historical data) action and alert limits for EM test result values or all types of monitoring.
- CATAPULT will supply and perform routine calibration and servicing of the following calibrated EM sampling and measuring equipment per module for COLLABORATOR use, unless COLLABORATOR elects to employ their own monitoring equipment within isolators.
 - 3 portable active air samplers (for ‘in-operation’ viable air monitoring)
 - 3 portable non-viable particulate monitors
 - 5 fixed sampling points and associated non-viable particulate monitors
- Catapult will maintain a stock in the Catapult warehouse of all the necessary consumables to facilitate COLLABORATORS to undertake viable ‘in-operation’ environmental monitoring (including sufficient TSA & SDA settle plates and contact plates to cover monitoring of the entire daily processing period).
- Responsibility for the execution of the manufacturing facility environmental monitoring program will be shared between Catapult and the COLLABORATORS per the QTA:

Sampling Activity - EM					
	Facility	Module Airlocks		Module	
Non-viable		LG	HGs		
Validation (fixed)	CGT	N/A	N/A	CGT	Post client equipment configuration - data provision only to support COL controlled validation
Validation (mobile)	CGT	CGT 1.	CGT 1.	COL	Post client equipment configuration, 1. If COL changes initial validation conditions, responsibility falls to COL
At Rest (fixed)	CGT	N/A	N/A	CGT	
At Rest (mobile)	CGT	CGT	COL	COL	
In Operation (fixed)	CGT	N/A	N/A	CGT	
In Operation (mobile)	CGT	CGT	COL	COL	
Viable					
Validation	CGT	CGT 1.	CGT 1.	COL	Post client equipment configuration, 1. If COL changes initial validation conditions, responsibility falls to COL
At Rest	CGT	CGT	COL	COL	
In Operation	CGT	CGT	COL	COL	
					NOTES
					COL also indiCGTes testing of samples is an activity
					(fixed) refers to the integral sampling devices designed
					(mobile) refers to ANY other method of sampling

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- When requested by COLLABORATOR staff, CATAPULT Technical Services staff are responsible for the delivery of EM consumables to the relevant Materials Air Lock of the COLLABORATOR's Manufacturing Space
- COLLABORATOR collected EM samples should be appropriately labelled and packaged immediately subsequent to exposure.
- When requested by COLLABORATOR staff, CATAPULT Technical Services staff are responsible for the collection of exposed EM samples, their transportation to CATAPULT QC Microbiology, documentation of their receipt and transfer to QC staff for storage prior to testing.
- CATAPULT QC Microbiology staff are responsible for the appropriate processing of EM samples (incubation, enumeration and speciation as required), documenting the results and providing trended data to COLLABORATOR.
- All Manufacturing Space specific EM data and that collected from sampling of the common Centre areas will be made available to individual collaborators.
- Data will be presented per specific EM session and as a trend graph on a mutually agreed frequency. Data will include the results of any speciation undertaken as a result of an action or alert limit breach.
- Alert limit breach trends and any action limit breaches will result in CATAPULT QC staff raising a record in the Quality Management System to document the event, investigate root cause (with COLLABORATOR assistance if appropriate) and identify the appropriate preventative and corrective actions necessary to mitigate the risk of recurrence.

Schedule 10
IT infrastructure

The Centre will accommodate several collaborators consecutively, each of whom could potentially use the Centre in a different way.

The underlying IT infrastructure has been configured for each module to have its own self-contained secure network. This will allow independent network scenarios, the configuration of these requirements will be carried out, administered and monitored by CATAPULT IT staff.

COLLABORATOR will have its own dedicated secure virtual local area networks (VLANs). Catapult will provide COLLABORATOR all documentation related to the VLAN, including but not limited to, information regarding it's: configuration, patching, and administration.

All collaborators will however be subject to the CATAPULT's information security policy.

Internet provision is not provided as standard however we can provide the following:

- Synchronous fibre broadband provided by CATAPULT at current market rates.
- COLLABORATOR supplies their own internet connectivity subject to wayleave
- COLLABORATOR organises their own lease Line (PPTP) connectivity between their own sites and the Centre, subject to wayleave.

Server infrastructure can also be provided by CATAPULT, the options that are available are as follows:

- Physical server on the premises – This will be located in one of our communications rooms with restricted access (all access will be accompanied by CATAPULT IT staff)
- Virtual server on the premises – This will be located in the CATAPULT virtual environment; remote access will be provided to the COLLABORATOR – SSL VPNs will be provided for access from external sites.
- Virtual server in private cloud – This will be located on CATAPULT `s own private cloud; remote access will be provided to COLLABORATOR – SSL VPNs will be provided for access from external sites.

If COLLABORATOR does not wish to use the options above, CATAPULT may offer, subject to availability and feasibility, the following option:

- Physical / Virtual server on COLLABORATOR's own site – An SSL site to site Tunnel will be provided with access controlled by dedicated VLAN`s

Schedule 11

Catapult Data Processing Summary

This Schedule 11 includes certain details of the Processing of Personal Data as required by Article 28(3) GDPR.

- 1

Controller

[***]
- 2

Processor

[***]
- 3

Subject matter and duration of processing

[***]
- 4

Nature and purpose of processing

[***]
- 5

Types of Personal Data (including special categories of data, where applicable)

The Personal Data Processed concern the following categories of data:

[***]
- 6

Categories of data subjects

The Personal Data Processed concern the following categories of Data Subjects:

[***]
- 7

Obligations and rights of the Controller

[***]

Schedule 12

Module and Centre Specifications

Part A: Manufacturing Space Specification

It :

- Is part of a UK-licensed EU-GMP-compliant facility developed in close relationship with the Medicines and Healthcare Products Regulatory Agency
- is of a design, construction, fit and finish in compliance with governing environment, health and safety legislation;
- was designed, built, fitted and finished in compliance with Applicable Law including 2001/83/EC and 2001/20/EC;
- has individual personnel access control
- includes a positive pressure maintained cleanroom with production area of not less than 86m² and a culture room of not less than 15m²;
- has appropriate pressure cascades with negative pressure sinks in all entry and exit routes to minimise the risk of ingress and/or egress of contamination;
- has walk-on ceilings and a technical corridor;
- has a high-efficiency particulate arrestance (“HEPA”) filtered HVAC supplying segregated air as single pass through, with heat recovery;
- has a gas supply delivered through services plates (details of the service plates are set out in Schedule 7);
- has single and three phase power supply, partly with UPS and emergency generator back-up, supplied through service plates (details of the service plates are set out in Schedule 7); and
- has dedicated adjacent material air locks (“MALs”) and dedicated, adjacent personnel air locks (“PALs”)

Part B: Manufacturing Office and Non-Manufacturing Office Specification

There is:

- a Manufacturing Office of not less than 15m² as set out on the Plans with direct access from the controlled, non-classified corridor (CNC); and designed for occupation by 4 people a Non- Manufacturing Office of not less than 28m² on the first or second floor of the Centre, as set out in the Plans, and designed for occupation for 2 people

Both of these offices:

- are equipped for normal administrative functions only;
- are equipped with lighting in line with British standards;
- have lockable doors compliant with insurers requirements;
- are furnished with desks, chairs and storage as agreed with the Centre staff, to accommodate the number of occupants they are designed to house
- have small power outlets suitable for normal small office equipment use. The electricity usage will be measured and recharged
- have service media outlets for IT and Telephones. Internet services can be provided on request and recharged as appropriate as an Activity Related Contribution;
- have a telephone for communication with the Catapult. Outgoing calls will be charged at the service provider’s standard rate; and
- are heated and cooled from the central Centre systems. Temperature control will be only via the Building Management System (BMS) under the control of the Centre team.

Part C: Centre Specifications

Facilities include:

- a 2-8°C cold room
- a secure cryo storage area
- a packing and dispatch area; operated in accordance with Schedule 8;
- a solid waste staging area;
- a liquid waste staging and disposal area;
- male and female changing areas to access the controlled non-classified- (CNC) corridor;
- PALs in and MALs in to access the grade C corridor; and
- PrALs to access the CNC corridor
- PALs out and MALs out to access the CNC corridor
- a reception area

Schedule 13

Expert Determination

Definition

Expert: a person appointed in accordance with Clause 7.2.5 to resolve a disagreement as to the acceptability of a new product and/or process, and/or the introduction of any modification to an existing COLLABORATOR Product or Process into the Centre applying the criteria in Clause 7.2.4 OR in accordance with clause 26.2 to resolve a disagreement connected with a change to the schedules listed at that clause.

1. EXPERT

- 1 An Expert is a person appointed in accordance with this clause to resolve a disagreement as to the acceptability of a new product or process, and/or the introduction of any modification to an existing COLLABORATOR Product or Process into the Centre.
- 2 The Parties shall agree on the appointment of an independent Expert and shall agree with the Expert the terms of their appointment.
- 3 If the Parties are unable to agree on an Expert or the terms of their appointment within seven days of either Party serving details of a suggested expert on the other, either Party shall then be entitled to request the Centre for Effective Dispute Resolution (CEDR) to appoint an Expert of professional repute and for the CEDR to agree with the Expert the terms of appointment.
- 4 The Expert is required to prepare a written decision including reasons and give notice (including a copy) of the decision to the parties within a maximum of three months of the matter being referred to the Expert.
- 5 If the Expert dies or becomes unwilling or incapable of acting, or does not deliver the decision within the time required by this Clause then:
 - (b) either Party may apply to the London Court of International Arbitration to discharge the Expert and to appoint a replacement Expert with the required expertise; and
 - (c) this Clause shall apply to the new Expert as if they were the first Expert appointed.
- 6 All matters under this clause must be conducted, and the Expert's decision shall be written, in the English language.
- 7 The Parties are entitled to make submissions to the Expert including oral submissions and will provide (or procure that others provide) the Expert with such assistance and documents as the Expert reasonably requires for the purpose of reaching a decision.
- 8 Each Party shall with reasonable promptness supply each other with all information and give each other access to all documentation and personnel and/or things as the other Party may reasonably require to make a submission under this clause.
- 9 The Expert shall act as an expert and not as an arbitrator. The Expert shall determine the matter under the agreement. The Expert may award interest as part of their decision. The Expert's written decision on the matters referred to them shall be final and binding on the parties in the absence of manifest error or fraud.
- 10 The Expert's fees and any costs properly incurred by them in arriving at their determination (including any fees and costs of any advisers appointed by the Expert) shall be borne by the Parties equally or in such other proportions as the Expert shall direct.
- 11 All matters concerning the process and result of the determination by the Expert shall be kept confidential among the Parties and the Expert.
- 12 Each Party shall act reasonably and co-operate to give effect to the provisions of this clause and otherwise do nothing to hinder or prevent the Expert from reaching their determination.
- 13 The Expert and Nominating Body shall have no liability to the parties for any act or omission in relation to this appointment; save in the case of bad faith.

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Schedule 14

List of Centre Utilities as referenced at Clause 9.1.7

- Utility
- Natural Gas
- Electricity
- Water
- Sewerage

Schedule 15

Collaborator Forums

The purposes of the collaborator forums (the “Forums”) are:

- to facilitate open and transparent exchange of information between Catapult and collaborators, and between collaborators,
- to enable all parties to contribute to the safe, efficient, and successful operation of the Centre, and of the collaborators’ manufacturing activity,
- to enable the standards of the centre to be maintained at an appropriate cost.

The Forums will be supplemented by regular informal ad-hoc meetings and weekly/bi-weekly surgeries involving Catapult and any collaborator as is necessary.

Key objectives of the Forums include:

1. Updating any requirements needed to continue to maintain a suitable level of services for robust operation of a licensed facility suitable for late stage clinical and commercial manufacture of ATMPs in the most economical way;
2. Considering COLLABORATOR input into the relevant aspects of the management and operation of the Centre;
3. Ensuring Catapult and COLLABORATOR compliance with all relevant Quality, Health & Safety and Legal requirements;
4. Discussing any modifications to any Module or the Centre with the potential to impact any collaborator (Prior to being raised in the relevant Forum, Catapult will consider all collaborator requests for facility modifications that require any Other Collaborator’s cleanroom to be non-operational for any period of time, or that affect the facility license and will discuss feasibility with the all Collaborators. For clarity, such modifications should remain part of the notification to collaborators of the agenda for any Collaborator Forum);
5. Having formal two-way communications between Catapult and collaborators to discuss common issues;
6. Raising awareness of issues and incidents with potential for impact on the Catapult and Other Collaborators;
7. Encouraging and facilitating the sharing of best practice between collaborators; and
8. Examining appropriate ways of managing costs.

The Forums will be advisory in their nature and initially take place monthly, with their frequency being reviewed/varied as required. However, the frequency of Forums will be no less than quarterly.

The agenda, format, time and venue will be set and reasonable notice given in advance by Catapult, with the agenda being subject to change based on operational experience and input from collaborators. Relevant issues will be discussed and appropriate recommendations made during the Forums. Outputs of any key decisions that need to be made separately outside of the Forums will be communicated prior to the following meeting.

Key issues and follow-up actions will be summarised and circulated to all Collaborators by Catapult after each Forum.

Collaborators will be fully consulted prior to any key decisions being made. In recognition of the fact that the Catapult has overall responsibility for the operation of the centre Catapult reserves the right to make the final decision in the best interests of all Collaborators and the Catapult.

There will be 3 Forums covering 3 key areas, with the relevant Catapult chairs, Catapult leads, and Terms of Reference being summarised in the table below.

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The Forums will be separated into 3 key areas, with the relevant Catapult chairs, Catapult leads or their representatives, and Terms of Reference being summarised in the table below.

FORUM	CATAPULT CHAIR	CATAPULT LEAD	TERMS OF REFERENCE
Quality Forum	Director of Quality	Head of QA	<ul style="list-style-type: none"> • Environmental Monitoring Trends • Collective discussion of recent deviations or changes with a shared impact • Audit findings (internal and external) • Audit findings of shared Vendors • Regulatory Trends • Best Practise Information • Training Requirements • Updates to Facility Management Procedures • Updates to Foundation Documents • Quality Agreement Compliance
Health & Safety Forum	Manufacturing Centre Director	H&S Representative	<ul style="list-style-type: none"> • Review of Catapult & collaborator accidents, incidents and near misses since last meeting • Review of accident, incident and near miss trends • Review of collaborators EHS concerns • Catapult H&S update as it relates to: <ul style="list-style-type: none"> • People • Facilities, offices & equipment • Facility modifications • Biological & chemical • Contractor management • Catapult Environmental update • New or updated EHS legislation
Operational Forum	Manufacturing Centre Director	Operations Lead(s)	<ul style="list-style-type: none"> • Summary of current key discussions in the Quality and H&S forum, to ensure that any business-critical topics receive broad attention • Catapult general operational updates • Collaborator general operational updates • Area specific issues/updates <ul style="list-style-type: none"> • Welfare • Process • Equipment • Materials & Product • Waste Management • IT • Communications • Proposed Facility modifications – requirements and costs • Schedule for any planned shutdowns • People & Training • Budgetary and resource issues/updates <ul style="list-style-type: none"> • Proposed capital expenditure • Update on any expected changes in Integral, Activity Related Input Contributions and Additional Input Contributions • Staff resources

Schedule 16

ADDITIONAL INPUT AGREEMENT NO. [INSERT]

This Additional Input Agreement is entered into between TCR² Therapeutics Inc. (TCR²) and Cell Therapy Catapult Limited in accordance with, and in relation to, the Collaboration Agreement entered into between TCR² and Catapult and dated [INSERT] (the “**Collaboration Agreement**”) [and a licence for alterations entered between TCR² and Catapult on or about the date of this agreement (“Licence for Alterations”)].

For the avoidance of doubt this Additional Input Agreement makes no amendments or changes to the Collaboration Agreement other than, and solely with respect to, the Additional Inputs under this Additional Input Agreement.

The Collaboration Agreement is otherwise un-amended and unchanged and shall continue in full force and effect.

Collaborator **TCR² Therapeutics Inc. (“TCR²”)** **TCR² Manager: [INSERT]**

Catapult: **Cell Therapy Catapult Limited (“Catapult”)** Catapult statement author: **[INSERT]**

Date of this ADDITIONAL INPUT AGREEMENT: _____

1. Additional Inputs Required:

- a.Title: [INSERT]
 - b.Project scope and required specification: [INSERT]
 - c. Sub-contracted Works: [INSERT]
- [TCR² permits the works inserted here to be sub-contracted by Catapult.]

2. Contributions associated with this Additional Input Agreement:

Inputs	Contributions
1. [INSERT]	£XXX.00
2. [INSERT]	£XXX.00
3. Sub contracted works as set out in section 1c above	£XXX.00
4. Sub-contracted works as set out in section 1c above	£XXX.00
Total cost without 10% capital & risk charge	£XXX.00
10% capital & risk charge	£XXX.00
TOTAL	£XXX.00

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All prices are valid until [INSERT]

All costs are subject to vat at the prevailing rate

All costs are subject to a 10% capital and risk charge (itemised in the contributions table above)

Payment Schedule:

Payment will be due within 30 days of receipt of invoice

3. Additional terms required as a result of the changes to be made under this Additional Input Agreement:

[If any of the Works are required to take place outside of normal working hours due to any preference or actions of TCR², the subcontractors will request an additional payment, which will be charged as a pass-through cost to TCR².]

[If any of the Works are required to take place outside of normal working hours in order for Catapult to avoid interference with the normal business operation of either Catapult or other collaborators, the subcontractors will request an additional payment, which will be charged as a pass-through cost to TCR²

[Drafter's Note: Amend as necessary]

4. Responsibility for the specification and/or design of any works performed as part of the Additional Inputs ("Works"):

[The Parties agree that they have worked together to prepare the correct specifications and/or designs for any Works inserted in this Additional Input Agreement under section 1b (the "Specifications").

Catapult will be responsible only with respect to how the Specifications, and the Works themselves are compatible for use within the Module and/or the Manufacturing Centre. Other than this, Catapult undertakes no liability, and makes no representation or warranty that the Specifications and the Works will be fit for any particular purpose (including with respect to their suitability for TCR²'s Products or Processes, or any other use to which TCR² will put the Works) or that they will conform with any other specification or quality standard that is not imposed by a regulatory body or authority governing those works.

TCR² agrees it will have sole responsibility for ensuring the Specification and the Works will be suitable for the TCR² Products or Processes, or any other use to which it wishes to put the Works to.

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All other liability will be governed under the terms of the [Licence for Alterations and] the Collaboration Agreement (as applicable).] **[Drafter’s Note: Amend as necessary]**

5. Works Acceptance:

On completion of the Works in accordance with the Specifications set out in Section 1b of this Additional Input Agreement Catapult will issue the final invoice to TCR².

6. Further Works:

The Parties agree that as part of the ongoing progress of the Works, further works may be required from time to time that are not included in this Additional Input Agreement.

When the need for such further works arise, Catapult will send an email to TCR²’s manager (set out in the header of this Additional Input Agreement) (the “TCR² Manager”) requesting acknowledgment and formal approval for the further works and attributable costs that will be set out in such email.

TCR² confirms [the COLLABORATOR’S manager] is legally authorised to bind it and it agrees that an email response from the COLLABORATOR’S manager] confirming acceptance of such further works, their scope and their cost will be a legally binding and valid communication from TCR² confirming acceptance of such further works and their cost. Catapult confirms that the scope and other terms described within this email will constitute a formal extension of the scope of this original Additional Input Agreement and be subject to the terms of this original Additional Input Agreement.

This **Additional Input Agreement** is accepted:

For and on behalf of: TCR² Therapeutics Inc.	For and on behalf of Cell Therapy Catapult Limited
Signed: _____	Signed: _____
Full Name: _____	Full Name: _____
Job Title: _____	Job Title: _____

Schedule 17

JOINDER AGREEMENT

This Joinder Agreement (“**Joinder Agreement**”) is executed on _____, 20____, by the undersigned (“**NewCo**”) pursuant to the Clause 37 of that certain Collaboration Agreement dated as of December____, 2018 (the “**Agreement**”), by and among TCR² Therapeutics Inc. (“**COLLABORATOR**”) and Cell Therapy Catapult Limited (“**Catapult**”). Capitalized terms used but not defined in this Joinder Agreement shall have the respective meanings ascribed to such terms in the Agreement.

By the execution of this Joinder Agreement, NewCo hereby accepts and becomes a party to the Agreement and shall be jointly and severally liable for all obligations of COLLABORATOR under the Agreement.

AGREED by the duly authorised representative on the date written at the start of this Joinder Agreement:

For and on behalf of:
[**NEWCO**]

Signed: _____

Full Name: _____

Job Title: _____

ACCEPTED and AGREED by the parties through their duly authorised representatives on the date written at the start of this Joinder Agreement:

For and on behalf of:
TCR² Therapeutics Inc.

Signed: _____

Full Name: _____

Job Title: _____

For and on behalf of
Cell Therapy Catapult Limited

Signed: _____

Full Name: _____

Job Title: _____

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Signature Page of Collaboration Agreement

AGREED by the parties through their duly authorised representatives on the date written at the start of this Agreement:

For and on behalf of:
TCR2 Therapeutics Inc.

For and on behalf of
Cell Therapy Catapult Limited

Signed: _____
Full Name: Garry E. Menzel
Job Title: President and Chief Executive Officer

Signed: _____
Full Name: _____
Job Title: _____

END OF DOCUMENT

SUBSIDIARIES

<u>Subsidiary</u>	<u>Jurisdiction of Incorporation</u>
TRUC Securities Corporation	Massachusetts

Consent of Independent Registered Public Accounting Firm

The Board of Directors
TCR² Therapeutics Inc.:

We consent to the use of our report included herein and to the reference to our firm under the heading “Experts” in the prospectus.

(signed) KPMG LLP

Cambridge, Massachusetts
December 28, 2018