

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee(1)
Common Stock, \$0.0001 par value	\$100,000,000	\$10,910

- (1) Calculated in accordance with Rules 456(b) and 457(r) of the Securities Act of 1933, as amended. This "Calculation of Registration Fee" table shall be deemed to update the "Calculation of Registration Fee" table in the registrant's Registration Statement on Form S-3ASR (File No. 333-254355).

PROSPECTUS SUPPLEMENT
(To prospectus dated March 16, 2021)



Up to \$100,000,000

Common Stock

We have previously entered into an Open Market Sale Agreement with Jefferies LLC, or Jefferies, relating to shares of our common stock, par value \$0.0001 per share, offered by this prospectus supplement. In accordance with the terms of the Sales Agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to \$100,000,000 from time to time through or to Jefferies, acting as sales agent.

Our common stock is listed on The Nasdaq Global Select Market under the symbol "TCRR." On April 29, 2021, the closing price of our common stock, as reported on The Nasdaq Global Select Market, was \$23.81 per share.

Sales of our common stock, if any, under this prospectus supplement will be made by any method that is deemed to be an "at the market offering" as defined in Rule 415(a)(4) under the Securities Act of 1933, as amended, or the Securities Act. Jefferies is not required to sell any specific number or dollar amount of securities, but will act as our sales agent using commercially reasonable efforts, consistent with their normal trading and sales practices. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

Jefferies will be entitled to compensation at a commission rate of up to 3.0% of the gross sales price per common stock sold under the Sales Agreement. In connection with the sale of the common stock on our behalf, Jefferies will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation of Jefferies will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to Jefferies with respect to certain liabilities, including liabilities under the Securities Act or the Securities Exchange Act of 1934, as amended, or the Exchange Act. See "Plan of Distribution" beginning on page S-18 for additional information regarding the compensation to be paid to Jefferies.

Investing in our common stock involves a high degree of risk. You should review carefully the risks and uncertainties referenced under the heading "[Risk Factors](#)" on page S-6 of this prospectus supplement and in the documents that are incorporated by reference into this prospectus supplement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement is truthful or complete. Any representation to the contrary is a criminal offense.

Jefferies

The date of this prospectus supplement is April 30, 2021

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We are responsible for the information contained and incorporated by reference in this prospectus supplement and in any related free writing prospectus we prepare or authorize. We have not authorized anyone to give you any other information, and we take no responsibility for any other information that others may give you. If you are in a jurisdiction where offers to sell, or solicitations of offers to purchase, the securities offered by this documentation are unlawful, or if you are a person to whom it is unlawful to direct these types of activities, then the offer presented in this document does not extend to you. The information contained in this document speaks only as of the date of this document, unless the information specifically indicates that another date applies. Our business, financial condition, results of operations and prospects may have changed since those dates.

ABOUT THIS PROSPECTUS

This document is in two parts and is part of an automatic shelf registration statement that we filed with the Securities and Exchange Commission, or SEC, as a “well-known seasoned issuer” as defined in Rule 405 under the Securities Act of 1933, as amended, or the Securities Act, using a “shelf” registration process. The first part is this prospectus supplement, which describes the specific terms of this common stock offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference herein. The second part, the accompanying prospectus, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. Under the shelf registration process, we may offer shares of our common stock having an aggregate offering price of up to \$100,000,000 from time to time under this prospectus supplement at prices and on terms to be determined by market conditions at the time of the offering.

If the information contained in this prospectus supplement differs or varies from the information contained in the accompanying prospectus or any document incorporated by reference herein that was filed with the SEC before the date of this prospectus supplement, you should rely on the information set forth in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date (for example, a subsequently filed document deemed incorporated by reference in this prospectus supplement), the statement in the document having the later date modifies or supersedes the earlier statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

You should rely only on the information contained or incorporated by reference in this prospectus. We have not, and the sales agent has not, authorized anyone to provide you with information that is in addition to or different from that contained or incorporated by reference in this prospectus supplement or contained in any permitted free writing prospectuses we have authorized for use in connection with this offering. We and the sales agent take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may provide.

The information contained in this prospectus and the documents incorporated by reference herein is accurate only as of their respective dates, regardless of the time of delivery of any such document or the time of any sale of our common stock. Our business, financial condition, results of operations and prospects may have changed since those dates. It is important for you to read and consider all information contained or incorporated by reference in this prospectus in making your investment decision. You should read this prospectus, as well as the documents incorporated by reference herein, the additional information described under the section titled “Where You Can Find More Information” and “Incorporation by Reference” in this prospectus and any free writing prospectus that we have authorized for use in connection with this offering, before investing in our common stock.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference in this prospectus were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

We use various trademarks and trade names in our business, including without limitation our corporate name and logo. All other trademarks or trade names referred to in this prospectus are the property of their respective owners. Solely for convenience, the trademarks and trade names in this prospectus may be referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto. This prospectus and the documents incorporated by reference herein also contain estimates, projections and other information concerning our industry, our business, and the markets for certain diseases, including data regarding the estimated size of those markets, and the incidence and prevalence of certain medical conditions. 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 reflected in this information. Unless otherwise expressly stated, we

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obtained this industry, business, market and other data 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.

We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where such offers and sales are permitted. The distribution of this prospectus supplement and the accompanying prospectus and the offering of our common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and the accompanying prospectus must inform themselves about, and observe any restrictions relating to, the offering of our common stock and the distribution of this prospectus supplement and the accompanying prospectus outside the United States. This prospectus supplement does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

As used in this prospectus, unless the context otherwise requires, references to the “company,” “TCR2,” “we,” “us” and “our” refer to TCR2 Therapeutics Inc. together with its consolidated subsidiaries.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information about us and this offering and does not contain all of the information that you should consider before investing in our securities. Before investing in our common stock, you should carefully read the information contained and incorporated by reference in this prospectus supplement and the accompanying prospectus, including the sections titled "Risk Factors" and the financial statements and accompanying notes.

Company Overview

We are a clinical-stage cell therapy company developing a pipeline of novel T cell therapies for patients suffering from cancer by powering the T cell receptor (TCR) with our proprietary, first-in-class TCR Fusion Construct T cells (TRuC-T cells). Designed to overcome the limitations of current cell therapy modalities, our TRuC-T cells specifically recognize and kill cancer cells by harnessing the entire TCR signaling complex, which we believe is essential for T cell therapies to be effective in patients with solid tumors.

Our lead TRuC-T cell targeting solid tumors is gavocabtagene autoleucel (gavo-cel, formerly TC-210). We are conducting our Phase 1/2 clinical trial for gavo-cel to treat patients with non-small cell lung cancer (NSCLC), ovarian cancer, malignant pleural/peritoneal mesothelioma and cholangiocarcinoma. We estimate the patient population for gavo-cel in the four indications which we are exploring in our clinical trial is up to 80,000 patients in the United States alone. Based on interim data readouts from patients in dose escalation in our Phase 1/2 clinical trial, gavo-cel has demonstrated consistent clinical benefit, with every patient experiencing tumor regression and a 100% disease control rate (DCR). As of the November 24, 2020 cutoff date, we have observed a 38% Overall Response Rate (ORR) with three RECIST partial responses (PRs) (2 confirmed and 1 unconfirmed PRs), including one mesothelioma patient achieving a complete metabolic response. The safety profile of gavo-cel continues to be manageable with only two patients to date exhibiting gavocel-related non-hematologic grade >2 toxicity and no neurotoxicity or on-target, off-tumor toxicities observed. Based on our mesothelin cutoff screening protocol (confirmed positive mesothelin expression on ³50% of tumor cells that are 2+ and/or 3+ by immunohistochemistry), 45% of patients screened have been eligible to be enrolled in our clinical trial. We have received an Food and Drug Administration (FDA) Orphan Drug Designation for the treatment of mesothelioma with gavo-cel and also plan to apply for FDA Fast Track designation for gavo-cel. We anticipate interim updates of the Phase 1 portion of the gavo-cel Phase 1/2 clinical trial throughout 2021.

Our lead TRuC-T cell targeting hematological malignancies is TC-110. In the Phase 1/2 clinical trial for TC-110, we are treating patients with adult acute lymphoblastic leukemia (aALL) and with aggressive or indolent non-Hodgkin's lymphoma (NHL). We estimate the patient population for TC-110 in the three indications which we are exploring in our clinical trial is up to approximately 14,000 patients in the United States alone. In our preclinical studies of TC-110, we have observed better anti-tumor activity, improved persistence and lower cytokine release compared to chimeric antigen receptor (CAR) T cells we engineered to target CD19. Based on these preclinical studies, we believe we can improve on the efficacy and safety of current CD19 therapies. We continue to treat patients in the dose escalation portion of the study and anticipate an interim update from the Phase 1 portion of the TC-110 Phase 1/2 clinical trial in 2021.

In addition to our two lead clinical programs, we are expanding our pipeline by utilizing our versatile platform to address some of the primary challenges to cell therapies such as the hostile and immunosuppressive tumor microenvironment. These include enhancements, such as: TC-510, our TRuC-T cell co-expressing a PD-1:CD28 switch receptor that converts inhibitory PD-1 signaling into positive costimulation and IL-15 pathway enhancements to improve T cell persistence; dual targeting TRuC-T cells to combat tumor heterogeneity; and other accessories to combat the tumor microenvironment. We are also pursuing new targets such as CD70 and GPC3 for which we believe TRuC-T cells offer advantages over existing therapeutic

modalities. We continue to advance our allogeneic, or off-the-shelf, TRuC-T cell approaches to simplify manufacturing, reduce cost of therapy, and improve patient access. We anticipate filing an IND for TC-510 in 2021.

Our TRuC platform originated from the work of our scientific founder, Dr. Patrick Baeuerle, a leading immunologist who developed the world's first bispecific antibody, Blincyto®. We have assembled a scientific team with deep translational medicine, manufacturing, and immunotherapy expertise to develop optimally designed TRuC-T cells to treat patients suffering from a wide range of hematologic cancers and solid tumors. Our management team brings extensive experience in cell therapy, including CAR-T and TCR-T cells, and all phases of drug discovery, development and manufacturing gained at large pharmaceutical and biotechnology companies, and we believe they will enable us to continue advancing our pipeline and expanding the capabilities of our platform.

Corporate History and Information

We were incorporated under the laws of the State of Delaware in May 2015 under the name TCR2, Inc. On November 14, 2016, we changed our name to TCR2 Therapeutics Inc. Our principal executive office is located at 100 Binney Street, Suite 710, Cambridge, Massachusetts 02142, and our telephone number is (617) 949-5200. Our website address is www.tcr2.com. We do not incorporate the information on or accessible through our website into this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus. Additionally, you should not rely on any such information in making your decision whether to purchase our common stock. Our common stock trades on The Nasdaq Global Select Market under the symbol "TCRR."

Implications of Being an Emerging Growth Company and Smaller Reporting Company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or the JOBS Act. 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:

- 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;
- no non-binding advisory votes on executive compensation or golden parachute arrangements; and
- 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 our initial public 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 last day of the fiscal year in which we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission, or SEC, which means the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the prior June 30th. We may choose to take advantage of some but not all of these exemptions.

We are also a "smaller reporting company" as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies until the fiscal year following the determination that our voting and non-voting common stock held by non-affiliates is more than \$250 million

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measured on the last business day of our second fiscal quarter, or our annual revenues are more than \$100 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is more than \$700 million measured on the last business day of our second fiscal quarter.

THE OFFERING

Common stock offered by us:	Shares of our common stock having an aggregate offering price of up to \$100,000,000.
Common stock to be outstanding immediately after this offering:	Up to 37,716,711 shares (as more fully described in the notes following this table), assuming sales of 4,199,916 shares of our common stock in this offering at an offering price of \$23.81 per share, which was the last reported sale price of our common stock on The Nasdaq Global Select Market on April 29, 2021. The actual number of shares issued will vary depending on how many shares of our common stock we choose to sell and the prices at which such sales occur.
Plan of Distribution:	"At the market offering" that may be made from time to time on The Nasdaq Global Select Market or other existing trading market for our common stock through or to Jefferies LLC, as sales agent or principal. See "Plan of Distribution" on page S-18 of this prospectus.
Use of Proceeds:	Our management will retain broad discretion regarding the allocation and use of the net proceeds. We currently intend to use the net proceeds from this offering primarily for general corporate purposes, including, but not limited to, research and development costs, clinical trial costs, manufacturing costs, potential strategic acquisitions or licensing of complementary businesses, services or technologies, working capital and capital expenditures. See "Use of Proceeds" on page S-14 of this prospectus.
Risk Factors:	Investing in our common stock involves significant risks. See "Risk Factors" on page S-6 of this prospectus and under similar headings in the documents incorporated by reference into this prospectus for a discussion of the factors you should carefully consider before deciding to invest in our common stock.
The Nasdaq Global Select Market symbol:	"TCRR"

All information in this prospectus related to the number of shares of our common stock to be outstanding immediately after this offering is based on 33,516,795 shares of our common stock outstanding as of December 31, 2020. The number of shares outstanding as of December 31, 2020 as used throughout this prospectus, unless otherwise indicated, excludes:

- 5,011,349 shares of common stock issuable upon the exercise of stock options under our 2015 Stock Option and Grant Plan, or the 2015 Plan, and our 2018 Stock Option and Incentive Plan, or the 2018 Plan, collectively, at a weighted average exercise price of \$14.99 per share;
- 8,017 shares of common stock issuable upon the exercise of outstanding options issued outside of our 2015 Plan and 2018 Plan at an exercise price of \$0.74 per share;
- 203,676 shares of common stock issuable upon the exercise of warrants to purchase common stock at a weighted-average exercise price of \$0.74 per share;

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- 700,294 shares of our common stock reserved for future issuance under the 2018 Plan; and
- 275,522 shares of common stock reserved for the future issuance under our 2018 Employee Stock Purchase Plan, or the 2018 ESPP; and
- 4,590,164 shares of common stock sold in our public offering in January 2021 under our Registration Statement on Form S-3 (File No. 333-236965).

Unless otherwise stated, all information contained in this prospectus assumes no exercise of stock options after December 31, 2020 and reflects an assumed public offering price of \$23.81, which was the last reported sale price of our common stock on The Nasdaq Global Select Market on April 29, 2021.

RISK FACTORS

Investing in our common stock involves a high degree of risk. Before making an investment decision, you should carefully consider the risks described below and in our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K, as well as any amendments thereto reflected in subsequent filings with the SEC, each of which are incorporated by reference in this prospectus, and all of the other information in this prospectus, including our financial statements and related notes incorporated by reference herein. If any of these risks is realized, our business, financial condition, results of operations and prospects could be materially and adversely affected. In that event, the trading price of our common stock could decline and you could lose part or all of your investment. Additional risks and uncertainties that are not yet identified or that we currently believe to be immaterial may also materially harm our business, financial condition, results of operations and prospects and could result in a complete loss of your investment.

Risks Related To This Offering and Our Common Stock

An active, liquid and orderly trading market for our common stock may not be sustained.

In February 2019, we closed our IPO and our common stock began trading on The Nasdaq Global Select Market. Prior to our IPO, there was no public trading market for shares of our common stock. Although we completed our IPO and our common stock is listed and trading on The Nasdaq Global Select Market, an active trading market for our shares may not be sustained. If an active market for our common stock does not continue, it may be difficult for our stockholders to sell their shares without depressing the market price for the shares or sell their shares at or above the prices at which they acquired their shares or sell their shares at the time they would like to sell. Any inactive trading market for our common stock may also impair our ability to raise capital to continue to fund our operations 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.

Our stock price has been and will likely continue to be volatile and you may not be able to sell shares of common stock at or above the offering price, if at all.

The trading price of our common stock is likely to be highly volatile. The stock market in general and the market for smaller pharmaceutical and biotechnology companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, you may not be able to sell your common stock at or above the purchase price and you may lose some or all of your investment. The market price of our common stock may be influenced by many factors, including:

- the timing and results of clinical trials of gavo-cel, TC-110 and any other product candidates and 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;

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- 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;
- 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.

Since shares of our common stock were sold in our IPO in February 2019 at a price of \$15.00 per share, our stock price has fluctuated significantly, ranging from an intraday low of \$8.63 to an intraday high of \$35.86 through April 29, 2021. If the market price of shares of our common stock after this offering does not exceed the offering price, you may not realize any return on your investment in us and may lose some or all of your investment.

In addition, the stock market in general, and The Nasdaq Global Select 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 your purchase 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.

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.

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

The offering price per share in this offering may exceed the net tangible book value per share of our common stock outstanding prior at the time of sale. Assuming that an aggregate of 4,199,916 shares of our common stock are sold at a price of \$23.81 per share, the last reported sale price of our common stock on The Nasdaq Global Select Market on April 29, 2021, for aggregate gross proceeds of \$100 million, after deducting commissions payable by

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us, investors in this offering would experience immediate dilution of \$15.06 per share, representing the difference between our as-adjusted net tangible book value per share as of December 31, 2020, after giving effect to this offering and the assumed offering price.

This dilution is due to the substantially lower price paid by some of our investors who purchased shares prior to this offering as compared to the price offered to the public in this offering and the exercise of stock options granted to our employees, directors and consultants. In addition, we have a significant number of stock options outstanding. The exercise of any of these outstanding options would result in further dilution. As a result of the dilution to investors purchasing shares in this offering, investors may receive significantly less than the purchase price paid in this offering, if anything, in the event of our liquidation. Further, because we expect we will need to raise additional capital to fund our future activities, we may in the future sell substantial amounts of common stock or securities convertible into or exchangeable for common stock.

Future issuances of common stock or common stock-related securities, together with the exercise of outstanding stock options, if any, may result in further dilution. For a further description of the dilution that you will experience immediately after this offering, see the section titled "Dilution."

Future sales and issuances of our common stock or rights to purchase common stock 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.

In addition, sales of a substantial number of shares of our outstanding common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares of common stock intend to sell shares, could reduce the market price of our common stock. Stockholders who had invested in the Company prior to our initial public offering continue to hold a substantial number of shares of our common stock that many of them are now able to sell in the public market. Significant portions of these shares are held by a relatively small number of stockholders. Sales by our stockholders of a substantial number of shares, or the expectation that such sales may occur, could significantly reduce the market price of our common stock.

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 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.

As of March 1, 2021, our executive officers, directors, and 5% stockholders beneficially owned approximately 50% of our voting stock. 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 are a “smaller reporting company,” and the reduced disclosure requirements applicable to smaller reporting companies may make our common stock less attractive to investors.

We are considered a “smaller reporting company” under Rule 12b-2 of the Exchange Act of 1934, as amended, or the Exchange Act. We are therefore entitled to rely on certain reduced disclosure requirements, such as an exemption from providing selected financial data and executive compensation information. These exemptions and reduced disclosures in our SEC filings due to our status as a smaller reporting company also mean our auditors are not required to review our internal control over financial reporting and may make it harder for investors to analyze our results of operations and financial prospects. 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 common stock prices may be more volatile. We will remain a smaller reporting company until our public float exceeds \$250 million or our annual revenues exceed \$100 million with a public float greater than \$700 million as of the prior June 30.

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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.

Sales of a substantial number of shares of our common stock in the public market or the perception that these sales might occur could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. We are unable to predict the effect that such sales may have on the prevailing market price of our common stock. In addition, the sale of substantial amounts of our common stock could adversely impact its price. As of December 31, 2020, we had outstanding 33,516,795 shares of our common stock. The sale or the availability for sale of a large number of shares of our common stock in the public market could cause the price of our common stock to decline.

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 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 amended bylaws designate certain courts as the exclusive forum for certain litigation that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us.

Our amended bylaws provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware is the sole and exclusive forum for state law claims 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 (including the interpretation, validity or enforceability thereof) or (iv) any action

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asserting a claim that is governed by the internal affairs doctrine (the “Delaware Forum Provision”). The Delaware Forum Provision will not apply to any causes of action arising under the Securities Act or the Exchange Act. In addition, our amended and restated bylaws will further provide that unless we consent in writing to the selection of an alternate forum, the federal district courts of the United States shall be the sole and exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act (the “Federal Forum Provision”). In addition, our amended and restated bylaws 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 Delaware Forum Provision and the Federal Forum Provision; provided, however, that stockholders cannot and will not be deemed to have waived our compliance with U.S. federal securities laws and the rules and regulations thereunder.

We recognize that the Delaware Forum Provision and the Federal Forum Provision in our bylaws may impose additional litigation costs on stockholders in pursuing any such claims. Additionally, the forum selection clauses in our amended and restated bylaws may limit our stockholders' ability to bring a claim in a forum that they find favorable for disputes with us or our directors, officers or employees, which may discourage such lawsuits against us and our directors, officers and employees even though an action, if successful, might benefit our stockholders. In addition, while the Delaware Supreme Court ruled in March 2020 that federal forum selection provisions purporting to require claims under the Securities Act be brought in federal court are “facially valid” under Delaware law, there is uncertainty as to whether other courts will enforce our Federal Forum Provision. If the Federal Forum Provision is found to be unenforceable, we may incur additional costs associated with resolving such matters. The Federal Forum Provision may also impose additional litigation costs on stockholders who assert that the provision is not enforceable or invalid. The Court of Chancery of the State of Delaware and the federal district courts of the United States 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.

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.

The market price of our common stock may be adversely affected by market conditions affecting the stock markets in general, including price and trading fluctuations on The Nasdaq Global Select Market.

Market conditions may result in volatility in the level of, and fluctuations in, market prices of stocks generally and, in turn, our common stock and sales of substantial amounts of our common stock in the market, in each case being unrelated or disproportionate to changes in our operating performance. Concerns over global stability, as well as political and economic conditions in the U.S. and abroad, have contributed to the extreme volatility of the markets, which may have an effect on the market price of our common stock.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the information and documents incorporated by reference herein contain forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. Any statements about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and may be forward-looking. These statements are often, but are not always, made through the use of words or phrases such as “may,” “will,” “could,” “should,” “expects,” “intends,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “projects,” “seeks,” “endeavor,” “potential,” “continue,” and similar expressions, or the negative of these terms, or similar expressions. Accordingly, these statements involve estimates, assumptions, risks and uncertainties which could cause actual results to differ materially from those expressed in them. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus and the documents incorporated by reference herein, and in particular those factors referenced in the section “Risk Factors.”

This prospectus, any related free writing prospectus and the information and documents incorporated herein contain forward-looking statements that are based on our management’s belief and assumptions and on information currently available to our management. These statements relate to future events or our future financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements include, but are not limited to, statements about:

- the timing of preclinical studies and clinical trials of gavo-cel, 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, conduct successful clinical trials and obtain regulatory approval for gavo-cel, 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 gavo-cel, TC-110 or any other product candidates that we may pursue;
- our ability to manufacture gavo-cel, TC-110 or any other product candidate in conformity with our specifications and 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 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;
- the impact of the ongoing COVID-19 pandemic on our business, operations, strategy, goals and anticipated timelines;
- our ability to retain the continued service of our key professionals and to identify, hire and retain additional qualified professionals;
- our estimates of our expenses, ongoing losses, future revenue, capital requirements and our needs for or ability to obtain additional financing;

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- our expectations regarding the time during which we will be an emerging growth company under the Jumpstart Our Business Startups Act, or the JOBS Act;
- our financial performance; and
- other risks and uncertainties, including those listed under the section titled “Risk Factors” and the other risk factors identified in our most recently filed Annual Report on Form 10-K and our other reports filed from time to time with the SEC and any prospectus supplement.

These forward-looking statements are neither promises nor guarantees of future performance due to a variety of risks and uncertainties and other factors, many of which are beyond our control, which could cause actual results to differ materially from those indicated by these forward looking statements, including, without limitations those more fully discussed in the “Risk Factors” section in this prospectus, the section of any accompanying prospectus supplement entitled “Risk Factors” and the risk factors and cautionary statements described in other documents that we file from time to time with the SEC, specifically under “Item 1A. Risk Factors” and elsewhere in our most recent Annual Report on Form 10-K for the year ended December 31, 2020, and any other Annual Reports on Form 10-K, our Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K that are incorporated herein by reference, and the section of any accompanying prospectus supplement entitled “Risk Factors.”

You should read this prospectus and the documents that we incorporate by reference in this prospectus completely and with the understanding that our actual future results may be materially different from what we expect. The forward-looking statements in this prospectus and the documents we incorporate by reference herein represent our views as of their respective dates. 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 and the documents incorporated by reference herein may also contain estimates, projections and other information concerning our industry, our business, and the markets for certain diseases, including data regarding the estimated size of those markets, and the incidence and prevalence of certain medical conditions. 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 reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market and other data 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.

USE OF PROCEEDS

We may issue and sell shares of our common stock having aggregate sales proceeds of up to \$100,000,000 from time to time. The amount of proceeds from this offering will depend upon the number of shares of our common stock sold and the market price at which they are sold. There can be no assurance that we will be able to sell any shares under or fully utilize the Sales Agreement with Jeffries LLC as a source of financing. Therefore, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time.

We intend to use any net proceeds from this offering for general corporate purposes. General corporate purposes may include research and development costs, including the conduct of one or more clinical trials and process development and manufacturing of our product candidates, potential strategic acquisitions or licensing of complementary businesses, services or technologies, expansion of our technology infrastructure and capabilities, working capital, capital expenditures and other general corporate purposes. We may temporarily invest the net proceeds in a variety of capital preservation instruments, including investment grade, interest bearing instruments and U.S. government securities, until they are used for their stated purpose. We have not determined the amount of net proceeds to be used specifically for such purposes. As a result, management will retain broad discretion over the allocation of net proceeds.

DIVIDEND POLICY

We have never declared or paid cash dividends on our capital stock. We intend to retain all of our future earnings, if any, to finance the growth and development of our business. We do not intend to pay cash dividends to our stockholders in the foreseeable future.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be diluted to the extent of the difference between the public offering price per share of our common stock in this offering and the as adjusted net tangible book value per share of our common stock immediately after this offering. Our net tangible book value as of December 31, 2020 was approximately \$236.5 million, or approximately \$7.06 per share of common stock. Net tangible book value per share represents the amount of total tangible assets (total assets less intangible assets) less total liabilities, divided by the number of shares of our common stock outstanding as of December 31, 2020.

Dilution in net tangible book value per share to new investors participating in this offering represents the difference between the amount per share paid by purchasers in this offering and the as adjusted net tangible book value per share of our common stock immediately after giving effect to this offering. After giving effect to the assumed sale of 4,199,916 shares of our common stock in the aggregate amount of approximately \$100.0 million at an assumed offering price of \$23.81 per share, the last reported sale price of our common stock on The Nasdaq Global Select Market on April 29, 2021 and after deduction of commissions payable by us, our as adjusted net tangible book value as of December 31, 2020 would have been approximately \$330.1 million, or approximately \$8.75 per share of common stock. This represents an immediate increase in net tangible book value of \$1.69 per share of common stock to our existing stockholders and an immediate dilution in net tangible book value of \$15.06 per share of common stock to investors participating in this offering at the assumed offering price.

Dilution per share to new investors is determined by subtracting as adjusted net tangible book value per share after this offering from the assumed public offering price per share paid by new investors. The following table illustrates this per share dilution:

Assumed offering price per share		\$23.81
Net tangible book value per share as of December 31, 2020	\$7.06	
Increase in net tangible book value per share attributable to new investors attributable to this offering	\$1.69	
As adjusted net tangible book value per share as of December 31, 2020, after giving effect to this offering		8.75
Dilution in net tangible book value per share to new investors participating in this offering		<u>\$15.06</u>

The table above assumes for illustrative purposes that an aggregate of 4,199,916 shares of our common stock are sold at a price of \$23.81 per share, the last reported sale price of our common stock on The Nasdaq Global Select Market on April 29, 2021, for aggregate gross proceeds of approximately \$100.0 million. The shares sold in this offering, if any, will be sold from time to time at various prices. An increase of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$23.81 per share shown in the table above, assuming all of our common stock in the aggregate amount of approximately \$100.0 million is sold at that price, would result in an increase to our adjusted net tangible book value per share after the offering to \$8.86 and an increase in the dilution in net tangible book value per share to new investors in this offering to \$15.95, after deducting commissions payable by us. A decrease of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$23.81 per share shown in the table above, assuming all of our common stock in the aggregate amount of approximately \$100.0 million is sold at that price, would result in a decrease to our adjusted net tangible book value per share after the offering to \$8.65 and a decrease in the dilution in net tangible book value per share to new investors in this offering to \$14.16, after deducting commissions payable by us. This information is supplied for illustrative purposes only, and will adjust based on the actual offering prices, the actual number of shares that we offer and sell in this offering and other terms of each sale of shares in this offering.

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The information above and in the foregoing table is based upon 33,516,795 shares of our common stock outstanding as of December 31, 2020. The information above and in the foregoing table excludes, as of December 31, 2020:

- 5,011,349 shares of common stock issuable upon the exercise of stock options under the 2015 Plan and the 2018 Plan, collectively, at a weighted average exercise price of \$14.99 per share;
- 8,017 shares of common stock issuable upon the exercise of outstanding options issued outside of our 2015 Plan and 2018 Plan at an exercise price of \$0.74 per share;
- 203,676 shares of common stock issuable upon the exercise of warrants to purchase common stock at a weighted-average exercise price of \$0.74 per share;
- 700,294 shares of our common stock reserved for future issuance under the 2018 Plan;
- 275,522 shares of common stock reserved for the future issuance under the 2018 ESPP; and
- 4,590,164 shares of common stock sold in our public offering in January 2021 under our Registration Statement on Form S-3 (File No. 333-236965).

In addition, we may choose to raise additional capital in the future through the sale of equity or convertible debt securities 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 any of our outstanding options are exercised, new options are issued under our equity incentive plans or we issue additional shares of common stock or other equity or convertible debt securities in the future, there will be further dilution to investors participating in this offering.

PLAN OF DISTRIBUTION

We have previously entered into a sales agreement with Jefferies on March 6, 2020, under which we may offer and sell shares of common stock from time to time through Jefferies acting as agent. Pursuant to this prospectus supplement, we may offer and sell up to \$100 million shares of our common stock. Sales of our shares of common stock, if any, under this prospectus supplement and the accompanying prospectus will be made by any method that is deemed to be an “at the market offering” as defined in Rule 415(a)(4) under the Securities Act.

Each time we wish to issue and sell shares of common stock under the sales agreement, we will notify Jefferies of the number of shares to be issued, the dates on which such sales are anticipated to be made, any limitation on the number of shares to be sold in any one day and any minimum price below which sales may not be made. Once we have so instructed Jefferies, unless Jefferies declines to accept the terms of such notice, Jefferies has agreed to use its commercially reasonable efforts consistent with its normal trading and sales practices to sell such shares up to the amount specified on such terms. The obligations of Jefferies under the sales agreement to sell our shares of common stock are subject to a number of conditions that we must meet.

The settlement of sales of shares between us and Jefferies is generally anticipated to occur on the second trading day following the date on which the sale was made. Sales of our shares of common stock as contemplated in this prospectus supplement will be settled through the facilities of The Depository Trust Company or by such other means as we and Jefferies may agree upon. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

We will pay Jefferies a commission up to 3.0% of the aggregate gross proceeds we receive from each sale of our shares of common stock. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. In addition, we have agreed to reimburse Jefferies for the fees and disbursements of its counsel, payable upon execution of the sales agreement, in an amount not to exceed \$50,000, in addition to certain ongoing disbursements of its legal counsel unless we and Jefferies otherwise agree. We estimate that the total expenses for the offering, excluding any commissions or expense reimbursement payable to Jefferies under the terms of the sales agreement, will be approximately \$300,000. The remaining sale proceeds, after deducting any other transaction fees, will equal our net proceeds from the sale of such shares.

Jefferies will provide written confirmation to us before the open on The Nasdaq Global Select Market on the day following each day on which shares of common stock are sold under the sales agreement. Each confirmation will include the number of shares sold on that day, the aggregate gross proceeds of such sales and the proceeds to us.

In connection with the sale of the shares of common stock on our behalf, Jefferies will be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation of Jefferies will be deemed to be underwriting commissions or discounts. We have agreed to indemnify Jefferies against certain civil liabilities, including liabilities under the Securities Act. We have also agreed to contribute to payments Jefferies may be required to make in respect of such liabilities.

The offering of our shares of common stock pursuant to the sales agreement will terminate upon the earlier of (i) the sale of all shares of common stock subject to the sales agreement and (ii) the termination of the sales agreement as permitted therein. We and Jefferies may each terminate the sales agreement at any time upon ten days' prior notice.

This summary of the material provisions of the sales agreement does not purport to be a complete statement of its terms and conditions. A copy of the sales agreement is filed as an exhibit to the registration statement of which this prospectus supplement forms a part and is incorporated herein by reference.

Jefferies and its affiliates may in the future provide various investment banking, commercial banking, financial advisory and other financial services for us and our affiliates, for which services they may in the future receive customary fees. In the course of its business, Jefferies may actively trade our securities for its own account or for the accounts of customers, and, accordingly, Jefferies may at any time hold long or short positions in such securities.

A prospectus supplement and the accompanying prospectus in electronic format may be made available on a website maintained by Jefferies, and Jefferies may distribute the prospectus supplement and the accompanying prospectus electronically.

LEGAL MATTERS

Certain legal matters in connection with this offering and the validity of the securities offered by this prospectus will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts. Jefferies LLC is being represented in connection with this offering by Cooley LLP, New York, New York.

EXPERTS

The consolidated financial statements of TCR2 Therapeutics Inc. as of December 31, 2020 and 2019, and for each of the years then ended, have been incorporated by reference herein in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the information requirements of the Exchange Act and, in accordance therewith, file annual, quarterly and special reports, proxy statements and other information with the SEC. These documents may be accessed through the SEC's electronic data gathering, analysis and retrieval system, or EDGAR, via electronic means, including the SEC's home page on the Internet (www.sec.gov). Copies of certain information filed by us with the SEC are also available on our website at www.tcr2.com. The information contained on our website is not incorporated by reference into this prospectus and, therefore, is not part of this prospectus or any accompanying prospectus supplement.

This prospectus is part of a registration statement that we have filed with the SEC. Certain information in the registration statement has been omitted from this prospectus in accordance with SEC rules and regulations. For more detail about us and any securities that may be offered by this prospectus, you may examine the registration statement on Form S-3 and the exhibits filed with it at the locations listed in the previous paragraph. Please be aware that statements in this prospectus referring to a contract or other document are summaries and you should refer to the exhibits that are part of the registration statement for a copy of the contract or document.

INCORPORATION BY REFERENCE

The SEC allows us to incorporate by reference the information and reports we file with it, which means that we can disclose important information to you by referring you to these documents. The information incorporated by reference is considered to be a part of this prospectus, and the information that we file later with the SEC will automatically update and, where applicable, supersede the information already incorporated by reference. We incorporate by reference the documents listed below that we filed with the SEC:

- our Annual Report on [Form 10-K](#) for the year ended December 31, 2020 filed with the SEC on March 16, 2021;
- our Current Reports on Form 8-K filed with the SEC on [January 19, 2021](#), [January 22, 2021](#), [February 4, 2021](#) and [March 29, 2021](#);
- the description of our common stock contained in our registration statement on [Form 8-A](#) filed with the SEC on February 12, 2019, including any amendments or reports filed for the purposes of updating this description; and
- all future documents filed by us with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, including all filings made after the date of the filing of this prospectus, prior to the termination of the offering of the underlying securities; provided, however, that we are not incorporating by reference any additional documents or information furnished and not filed with the SEC.

Upon request, either orally or in writing, we will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered, a copy of the documents incorporated by reference into this prospectus but not delivered with the prospectus. You may request a copy of these filings, and any exhibits we have specifically incorporated by reference as an exhibit in this prospectus, at no cost by writing us at the following address: TCR2 Therapeutics Inc., 100 Binney Street, Suite 710, Cambridge, Massachusetts 02142.

You should rely only on the information incorporated by reference or provided in this prospectus or any prospectus supplement. We have not authorized anyone to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus or in the documents incorporated by reference is accurate as of any date other than the date on the front of this prospectus or those documents.

PROSPECTUS



Common Stock
Preferred Stock
Debt Securities
Warrants
Units

We may from time to time issue, in one or more series or classes, our common stock, preferred stock, debt securities, warrants and/or units, in any combination, together or separately, in one or more offerings in amounts, at prices and on the terms that we will determine at the time of the offering and which will be set forth in a prospectus supplement to this prospectus and any related free writing prospectus.

We may offer these securities separately or together in units. Each time we sell securities described herein, we will provide prospective investors with a supplement to this prospectus that will specify the terms of the securities being offered. We may sell these securities to or through underwriters or dealers and also to other purchasers or through agents. We will set forth the names of any underwriters or agents, and any fees, conversions, or discount arrangements, in the applicable prospectus supplement. We may not sell any securities under this prospectus without delivery of the applicable prospectus supplement. You should read this document and any prospectus supplement or amendment carefully before you invest in our securities.

Our common stock is listed on The Nasdaq Global Select Market under the symbol "TCRR." On March 15, 2021, the closing price for our common stock, as reported on The Nasdaq Global Select Market, was \$26.10 per share. Our principal executive offices are located at 100 Binney Street, Suite 710, Cambridge, Massachusetts 02142.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties referenced under the heading "[Risk Factors](#)" contained in this prospectus beginning on page 2 and any applicable prospectus supplement, and under similar headings in the other documents that are incorporated by reference into this prospectus. You should read the entire prospectus carefully before you make your investment decision.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this Prospectus is March 16, 2021

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ABOUT THIS PROSPECTUS

This prospectus is part of an automatic shelf registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, as a “well-known seasoned issuer” as defined in Rule 405 under the Securities Act of 1933, as amended, or the Securities Act. Under this shelf registration process, we may from time to time sell any combination of the securities described in this prospectus in one or more offerings.

This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide one or more prospectus supplements that will contain specific information about the terms of the offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The prospectus supplement may also add, update or change information contained in this prospectus. If there is any inconsistency between the information in this prospectus and a prospectus supplement, you should rely on the information in that prospectus supplement. You should read both this prospectus and any applicable prospectus supplement together with the additional information described under the heading “Where You Can Find More Information” and “Incorporation By Reference.”

You should rely only on the information contained in or incorporated by reference in this prospectus, any applicable prospectus supplement or in any related free writing prospectus filed by us with the SEC. We have not authorized anyone to provide you with different information. This prospectus and any applicable prospectus supplement do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities described in the applicable prospectus supplement or an offer to sell or the solicitation of an offer to buy such securities in any circumstances in which such offer or solicitation is unlawful. You should assume that the information appearing in this prospectus, any prospectus supplement, the documents incorporated by reference and any related free writing prospectus is accurate only as of their respective dates. Our business, financial condition, results of operations and prospects may have changed materially since those dates.

As used in this prospectus, unless the context otherwise requires, references to the “company,” “TCR²,” “we,” “us” and “our” refer to TCR² Therapeutics Inc. and, where appropriate, our subsidiaries. We use various trademarks and trade names in our business, including without limitation our corporate name and logo. All other trademarks or trade names referred to in this prospectus are the property of their respective owners. This prospectus, any applicable prospectus supplement and the information incorporated herein or therein by reference may also contain trademarks and trade names of third parties, which are the property of their respective owners. Solely for convenience, the trademarks and trade names referred to or incorporated by reference in this prospectus, any applicable prospectus supplement or any free writing prospectus may be referred to without the ® and ™ symbols, but such references should not be construed as any indicator that their respective owners will not assert, to the fullest extent under applicable law, their rights thereto.

THIS PROSPECTUS MAY NOT BE USED TO OFFER AND SELL SECURITIES UNLESS IT IS ACCOMPANIED BY AN ADDITIONAL PROSPECTUS OR A PROSPECTUS SUPPLEMENT.

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risks referenced below and described in the documents incorporated by reference in this prospectus and any prospectus supplement, as well as other information we include or incorporate by reference into this prospectus and any applicable prospectus supplement, before making an investment decision. Our business, financial condition or results of operations could be materially adversely affected by the materialization of any of these risks. The trading price of our securities could decline due to the materialization of any of these risks, and you may lose all or part of your investment. This prospectus and the documents incorporated herein by reference also contain forward-looking statements that involve risks and uncertainties. Actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks referenced below and described in the documents incorporated herein by reference, including (i) our most recent Annual Report on Form 10-K, (ii) our most quarterly reports on Form 10-Q, and (iii) other documents we file with the SEC that are deemed incorporated by reference into this prospectus.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any applicable prospectus supplement, any related free writing prospectus and the documents that we incorporate by reference herein or therein, contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. Any statements about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and may be forward-looking. These statements are often, but are not always, made through the use of words or phrases such as “may,” “will,” “could,” “should,” “expects,” “intends,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “projects,” “seeks,” “endeavor,” “potential,” “continue,” and similar expressions, or the negative of these terms, or similar expressions. Accordingly, these statements involve estimates, assumptions, risks and uncertainties which could cause actual results to differ materially from those expressed in them. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus, and in particular those factors referenced in the section “Risk Factors.”

This prospectus contains forward-looking statements that are based on our management’s belief and assumptions and on information currently available to our management. These statements relate to future events or our future financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements include, but are not limited to, statements about:

- the timing of preclinical studies and clinical trials of gavo-cel, 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, conduct successful clinical trials and obtain regulatory approval for gavo-cel, 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 gavo-cel, TC-110 or any other product candidates that we may pursue;
- our ability to manufacture gavo-cel, TC-110 or any other product candidate in conformity with our specifications and 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 estimates regarding our expenses, future revenues, capital requirements and our needs for additional financing;
- our ability to maintain and establish collaborations;
- our ability to effectively manage our anticipated growth;
- developments relating to our competitors and our industry, including the impact of government regulation;

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- our estimates regarding the market opportunities for our product candidates;
- the impact of the ongoing COVID-19 pandemic on our business, operations, strategy, goals and anticipated timelines;
- our ability to retain the continued service of our key professionals and to identify, hire and retain additional qualified professionals;
- our estimates of our expenses, ongoing losses, future revenue, capital requirements and our needs for or ability to obtain additional financing;
- our expectations regarding the time during which we will be an emerging growth company under the Jumpstart Our Business Startups Act, or the JOBS Act;
- our financial performance; and
- other risks and uncertainties, including those listed under the section titled “Risk Factors” and the other risk factors identified in our most recently filed Annual Report on Form 10-K and our other reports filed from time to time with the SEC and any prospectus supplement.

These forward-looking statements are neither promises nor guarantees of future performance due to a variety of risks and uncertainties and other factors, many of which are beyond our control, which could cause actual results to differ materially from those indicated by these forward looking statements, including, without limitations those more fully discussed in the “Risk Factors” section in this prospectus, the section of any accompanying prospectus supplement entitled “Risk Factors” and the risk factors and cautionary statements described in other documents that we file from time to time with the SEC, specifically under “Item 1A. Risk Factors” and elsewhere in our most recent Annual Report on Form 10-K for the year ended December 31, 2020, and any other Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K that are incorporated herein by reference, and the section of any accompanying prospectus supplement entitled “Risk Factors.”

You should read this prospectus and the documents that we incorporate by reference in this prospectus completely and with the understanding that our actual future results may be materially different from what we expect. The forward-looking statements in this prospectus and the documents incorporated by reference represent our views as of their respective dates. 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 assume no obligation to update or revise any forward-looking statements 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 dates on which they were made.

This prospectus and the documents incorporated by reference herein may also contain estimates, projections and other information concerning our industry, our business, and the markets for certain diseases, including data regarding the estimated size of those markets, and the incidence and prevalence of certain medical conditions. 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 reflected in this information. Unless otherwise expressly stated, we obtained this industry, business, market and other data 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.

THE COMPANY

Our Business

We are a clinical-stage cell therapy company developing a pipeline of novel T cell therapies for patients suffering from cancer by powering the T cell receptor (TCR) with our proprietary, first-in-class TCR Fusion Construct T cells (TRuC-T cells). Designed to overcome the limitations of current cell therapy modalities, our TRuC-T cells specifically recognize and kill cancer cells by harnessing the entire TCR signaling complex, which we believe is essential for T cell therapies to be effective in patients with solid tumors.

Our lead TRuC-T cell targeting solid tumors is gavocabtagene autoleucel (gavo-cel, formerly TC-210). We are conducting our Phase 1/2 clinical trial for gavo-cel to treat patients with non-small cell lung cancer (NSCLC), ovarian cancer, malignant pleural/peritoneal mesothelioma and cholangiocarcinoma. We estimate the patient population for gavo-cel in the four indications which we are exploring in our clinical trial is up to 80,000 patients in the United States alone. Based on interim data readouts from patients in dose escalation in our Phase 1/2 clinical trial, gavo-cel has demonstrated consistent clinical benefit, with every patient experiencing tumor regression and a 100% disease control rate (DCR). As of the November 24, 2020 cutoff date, we have observed a 38% Overall Response Rate (ORR) with three RECIST partial responses (PRs) (2 confirmed and 1 unconfirmed PRs), including the first ovarian cancer patient to ever achieve a PR with an engineered cell therapy and one mesothelioma patient achieving a complete metabolic response. The safety profile of gavo-cel continues to be manageable with no neurotoxicity or on-target, off-tumor toxicities observed. Based on our mesothelin cutoff screening protocol (confirmed positive mesothelin expression on ³50% of tumor cells that are 2+ and/or 3+ by immunohistochemistry), 45% of patients screened have been eligible to be enrolled in our clinical trial. We have received an Food and Drug Administration (FDA) Orphan Drug Designation for the treatment of mesothelioma with gavo-cel and also plan to apply for FDA Fast Track designation for gavo-cel. We anticipate interim updates of the Phase 1 portion of the gavo-cel Phase 1/2 clinical trial throughout 2021.

Our lead TRuC-T cell targeting hematological malignancies is TC-110. In the Phase 1/2 clinical trial for TC-110, we are treating patients with adult acute lymphoblastic leukemia (aALL) and with aggressive or indolent non-Hodgkin's lymphoma (NHL). We estimate the patient population for TC-110 in the three indications which we are exploring in our clinical trial is up to 13,700 patients in the United States alone. In our preclinical studies of TC-110, we have observed better anti-tumor activity, improved persistence and lower cytokine release compared to chimeric antigen receptor (CAR) T cells we engineered to target CD19. Based on these preclinical studies, we believe we can improve on the efficacy and safety of current CD19 therapies. We continue to treat patients in the dose escalation portion of the study and anticipate an interim update from the Phase 1 portion of the TC-110 Phase 1/2 clinical trial in 2021.

In addition to our two lead clinical programs, we are expanding our pipeline by utilizing our versatile platform to address some of the primary challenges to cell therapies such as the hostile and immunosuppressive tumor microenvironment. These include enhancements, such as: TC-510, our TRuC-T cell co-expressing a PD-1:CD28 switch receptor that converts inhibitory PD-1 signaling into positive costimulation and IL-15 pathway enhancements to improve T cell persistence; dual targeting TRuC-T cells to combat tumor heterogeneity; and other accessories to combat the tumor microenvironment. We are also pursuing new targets such as CD70 and GPC3 for which we believe TRuC-T cells offer advantages over existing therapeutic modalities. We continue to advance our allogeneic, or off-the-shelf, TRuC-T cell approaches to simplify manufacturing, reduce cost of therapy, and improve patient access. We anticipate filing an IND for TC-510 in 2021, presenting preclinical data for our autologous CD70 and allogeneic mesothelin TRuC-T cell programs, among others, throughout 2021; and selecting a development candidate for our allogeneic program in 2021.

Our TRuC platform originated from the work of our scientific founder, Dr. Patrick Baeuerle, a leading immunologist who developed the world's first bispecific antibody, Blincyto®. We have assembled a scientific team with deep translational medicine, manufacturing, and immunotherapy expertise to develop optimally

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designed TRuC-T cells to treat patients suffering from a wide range of hematologic cancers and solid tumors. Our management team brings extensive experience in cell therapy, including CAR-T and TCR-T cells, and all phases of drug discovery, development and manufacturing gained at large pharmaceutical and biotechnology companies, and we believe they will enable us to continue advancing our pipeline and expanding the capabilities of our platform.

Corporate History and Information

We were incorporated under the laws of the State of Delaware in May 2015 under the name TCR², Inc. On November 14, 2016, we changed our name to TCR² Therapeutics Inc. Our principal executive office is located at 100 Binney Street, Suite 710, Cambridge, Massachusetts 02142, and our telephone number is (617) 949-5200. Our website address is www.tcr2.com. We do not incorporate the information on or accessible through our website into this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus. Additionally, you should not rely on any such information in making your decision whether to purchase our common stock. Our common stock trades on The Nasdaq Global Select Market under the symbol “TCRR.”

USE OF PROCEEDS

We intend to use the net proceeds from the sale of any securities offered under this prospectus for general corporate purposes unless otherwise indicated in the applicable prospectus supplement. General corporate purposes may include research and development and clinical development costs to support the advancement of our product candidates and the expansion of our research and development programs; working capital; capital expenditures; office expansion; and other general corporate purposes. We may temporarily invest the net proceeds in a variety of capital preservation instruments, including short-term, investment-grade, interest-bearing instruments and U.S. government securities, or may hold such proceeds as cash, until they are used for their stated purpose. We have not determined the amount of net proceeds to be used specifically for such purposes. As a result, management will retain broad discretion over the allocation of net proceeds.

SECURITIES WE MAY OFFER

This prospectus contains summary descriptions of the securities we may offer from time to time. These summary descriptions are not meant to be complete descriptions of each security. The particular terms of any security will be described in the applicable prospectus supplement. This prospectus provides you with a general description of the securities we may offer. Each time we sell securities described herein, we will provide prospective investors with a supplement to this prospectus that will contain specific information about the terms of that offering, including the specific amounts, prices and terms of the securities offered.

We may sell the securities to or through underwriters, dealers or agents, directly to purchasers or through a combination of any of these methods of sale or as otherwise set forth below under “Plan of Distribution.” We, as well as any agents acting on our behalf, reserve the sole right to accept and to reject in whole or in part any proposed purchase of securities. Any prospectus supplement will set forth the names of any underwriters, dealers, agents or other entities involved in the sale of securities described in that prospectus supplement and any applicable fee, commission or discount arrangements with them.

DESCRIPTION OF CAPITAL STOCK

The following description of our common stock and preferred stock, together with the additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of the common stock and preferred stock that we may offer under this prospectus. The following description of our capital stock does not purport to be complete and is subject to, and qualified in its entirety by, our amended and restated certificate of incorporation, or our charter, and amended and restated by-laws, or our by-laws, which are exhibits to the registration statement of which this prospectus forms a part, and by applicable law. The terms of our common stock and preferred stock may also be affected by Delaware law.

Authorized Capital Stock

Our authorized capital stock consists of 150,000,000 shares of common stock, par value \$0.0001 per share, and 10,000,000 shares of preferred stock, par value \$0.0001 per share, all of which shares of preferred stock are undesignated. As of March 1, 2021, 38,137,440 shares of our common stock were outstanding and no shares of preferred stock were outstanding.

Common Stock

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of the stockholders. Holders of our common stock are entitled to receive dividends ratably, if any, as may be declared by our board of directors out of legally available funds, subject to any preferential dividend rights of any preferred stock then outstanding. The holders of our common stock do not have any cumulative voting rights. Holders of our common stock have no preemptive, subscription, redemption or conversion rights and no sinking fund provisions are applicable to our common stock.

In the event of our dissolution, liquidation or winding up, holders of our common stock are entitled to share ratably in our net assets legally available after the payment of all our debts and other liabilities, subject to the preferential rights of any preferred stock then outstanding. The rights, preferences and privileges of holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate and issue in the future.

All outstanding shares are fully paid and non-assessable. When we issue shares of common stock under this prospectus, the shares will fully be paid and non-assessable and will not have, or be subject to, any preemptive or similar rights.

Preferred Stock

Our board of directors is authorized, without further action by the stockholders, to designate and issue up to an aggregate of 10,000,000 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. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of common stock and the likelihood that such holders will receive dividend payments and payments upon our liquidation.

The purpose of authorizing our board of directors to issue preferred stock in one or more series and determine the number of shares in the series and its rights, preferences, privileges and restrictions is to eliminate delays associated with a stockholder vote on specific issuances. The issuance of preferred stock, while providing flexibility in connection with possible future financings and acquisitions and other corporate purposes could, under certain circumstances, have the effect of delaying, deferring or preventing a change in control of our company or other corporate action.

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When we issue shares of preferred stock under this prospectus, the shares will fully be paid and non-assessable and will not be subject to any preemptive or similar rights.

Registration Rights

Pursuant to the terms of our Amended and Restated Investors' Rights Agreement, dated as of February 28, 2018, with certain of our stockholders, including our principal stockholders and their affiliates, or the Investors' Rights Agreement, certain of our stockholders are entitled to rights with respect to the registration of their shares under the Securities Act, including 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.

The holders of 7,600,116 shares of our common stock outstanding at the time of this prospectus are entitled to the registration rights described below. We refer to these shares collectively as registrable securities.

Demand Registration Rights

The holders of our registrable securities 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 outstanding registrable securities, 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 outstanding registrable securities (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 up to two registrations pursuant to this provision of the Investors' Rights Agreement in any twelve-month period.

Short-Form Registration Rights

The holders of our registrable securities are also entitled to 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 holders of at least 10% of our outstanding registrable securities to sell registrable securities with an anticipated aggregate offering amount of at least \$1.0 million, we will be required to use our commercially reasonable efforts to file a Form S-3 registration restatement covering all registrable securities 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

The holders of our registrable securities are also entitled to piggyback registration rights. If we register any of our securities either for our own account or for the account of other security holders, the holders of our outstanding registrable securities 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

The 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

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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 upon the earlier of (i) a merger, sale or liquidation of our company, (ii) at such time after our initial public offering when all registrable securities could be sold under Rule 144 of the Securities Act or a similar exemption without limitation during a three-month period without registration or (iii) the fifth anniversary of our initial public offering.

Anti-Takeover Effects of Delaware Law and Provisions of our Charter and our By-laws

Certain provisions of the Delaware General Corporation Law and of our charter and our by-laws could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage certain types of coercive takeover practices and inadequate takeover bids and, as a consequence, they might also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions are also designed in part to encourage anyone seeking to acquire control of us to first negotiate with our board of directors. These provisions might also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders might otherwise deem to be in their best interests. However, we believe that the advantages gained by protecting our ability to negotiate with any unsolicited and potentially unfriendly acquirer outweigh the disadvantages of discouraging such proposals, including those priced above the then-current market value of our common stock, because, among other reasons, the negotiation of such proposals could improve their terms.

Delaware Anti-Takeover Statute

We are 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;

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- 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;
- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; and
- 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 by-laws provide that, unless we consent 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 any state law claims for: (1) any derivative action or proceeding brought on our behalf; (2) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers and employees to us or our stockholders; (3) any action asserting a claim arising pursuant to the Delaware General Corporation Law or our certificate of incorporation or by-laws (including the interpretation, validity or enforceability thereof) or (4) any action asserting a claim that is governed by the internal affairs doctrine; provided, however, that this provision shall not apply to any causes of action arising under the Securities Act or Exchange Act. In addition, our bylaws provide that, unless we consent in writing to an alternative forum, the federal district courts of the United States shall be the sole and exclusive forum for resolving any complaint asserting a cause of action under the Securities Act (the Federal Forum Provision). Any person or entity purchasing or otherwise acquiring any interest in our securities shall be deemed to have notice of and consented to these forum provisions. These forum provisions may impose additional costs on stockholders, may limit our stockholders' ability to bring a claim in a forum they find favorable, and the designated courts may reach different judgments or results than other courts. In addition, there is uncertainty as to whether our Federal Forum Provision will be enforced, which may impose additional costs on us and our stockholders.

Provisions of our Charter and our By-laws

Our charter and our by-laws include a number of provisions that may have the effect of delaying, deferring or discouraging 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. In accordance with our charter, our board is divided into three classes serving staggered three-year terms, with one class being elected each year. Our charter 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.

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No Written Consent of Stockholders. Our charter 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 requirement may lengthen the amount of time required to take stockholder actions and would prevent the amendment of our by-laws or removal of directors by our stockholders without holding a meeting of stockholders.

Meetings of Stockholders. Our charter and by-laws 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 by-laws 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 by-laws 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 by-laws 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 Charter and By-laws. As required by the Delaware General Corporation Law, any amendment of our charter must first be approved by a majority of our board of directors, and if required by law or our charter, 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 charter must be approved by not less than two-thirds of the outstanding shares entitled to vote on the amendment, and not less than two-thirds of the outstanding shares of each class entitled to vote thereon as a class. Our by-laws may be amended by the affirmative vote of a majority of the directors then in office, subject to any limitations set forth in the by-laws, 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 charter provides for 10,000,000 authorized shares of preferred stock. The existence of authorized but unissued shares of preferred stock may enable our board of directors to render more difficult or 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. 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.

Nasdaq Global Select Market Listing

Our common stock is listed on The Nasdaq Global Select Market under the symbol "TCRR." On March 15, 2021, the closing price for our common stock, as reported on The Nasdaq Global Select Market, was \$26.10 per share.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC. The transfer agent and registrar's address is 6201 15th Avenue, Brooklyn, New York 11219, and its telephone number is (800) 937-5449.

DESCRIPTION OF DEBT SECURITIES

We may offer debt securities which may be senior or subordinated. We refer to senior debt securities and subordinated debt securities collectively as debt securities. Each series of debt securities may have different terms. The following description summarizes the general terms and provisions of the debt securities. We will describe the specific terms of the debt securities and the extent, if any, to which the general provisions summarized below apply to any series of debt securities in the prospectus supplement relating to the series and any applicable free writing prospectus that we authorize to be delivered.

We may issue senior debt securities from time to time, in one or more series under a senior indenture to be entered into between us and a senior trustee to be named in a prospectus supplement, which we refer to as the senior trustee. We may issue subordinated debt securities from time to time, in one or more series, under a subordinated indenture to be entered into between us and a subordinated trustee to be named in a prospectus supplement, which we refer to as the subordinated trustee. The forms of senior indenture and subordinated indenture are filed as exhibits to the registration statement of which this prospectus forms a part. Together, the senior indenture and the subordinated indenture are referred to as the indentures and, together, the senior trustee and the subordinated trustee are referred to as the trustees. This prospectus briefly outlines some of the provisions of the indentures. The following summary of the material provisions of the indentures is qualified in its entirety by the provisions of the indentures, including definitions of certain terms used in the indentures. Wherever we refer to particular sections or defined terms of the indentures, those sections or defined terms are incorporated by reference in this prospectus or the applicable prospectus supplement. You should review the indentures that are filed as exhibits to the registration statement of which this prospectus forms a part for additional information. As used in this prospectus, the term “debt securities” includes the debt securities being offered by this prospectus and all other debt securities issued by us under the indentures.

General

The indentures:

- do not limit the amount of debt securities that we may issue;
- allow us to issue debt securities in one or more series;
- do not require us to issue all of the debt securities of a series at the same time; and
- allow us to reopen a series to issue additional debt securities without the consent of the holders of the debt securities of such series.

Unless otherwise provided in the applicable prospectus supplement, the senior debt securities will be unsubordinated obligations and will rank equally with all of our other unsecured and unsubordinated indebtedness. Payments on the subordinated debt securities will be subordinated to the prior payment in full of all of our senior indebtedness, as described under “—Subordination” and in the applicable prospectus supplement.

Each indenture provides that we may, but need not, designate more than one trustee under an indenture. Any trustee under an indenture may resign or be removed and a successor trustee may be appointed to act with respect to the series of debt securities administered by the resigning or removed trustee. If two or more persons are acting as trustee with respect to different series of debt securities, each trustee shall be a trustee of a trust under the applicable indenture separate and apart from the trust administered by any other trustee. Except as otherwise indicated in this prospectus, any action described in this prospectus to be taken by each trustee may be taken by each trustee with respect to, and only with respect to, the one or more series of debt securities for which it is trustee under the applicable indenture.

The prospectus supplement for each offering will provide the following terms, where applicable:

- the title of the debt securities and whether they are senior or subordinated;
- any limit upon the aggregate principal amount of the debt securities of that series;

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- the date or dates on which the principal of the debt securities of the series is payable;
- the price at which the debt securities will be issued, expressed as a percentage of the principal and, if other than the principal amount thereof, the portion of the principal amount thereof payable upon declaration of acceleration of the maturity thereof or, if applicable, the portion of the principal amount of such debt securities that is convertible into another security of ours or the method by which any such portion shall be determined;
- the rate or rates at which the debt securities of the series shall bear interest or the manner of calculation of such rate or rates, if any;
- the date or dates from which interest will accrue, the interest payment dates on which such interest will be payable or the manner of determination of such interest payment dates, the place(s) of payment, and the record date for the determination of holders to whom interest is payable on any such interest payment dates or the manner of determination of such record dates;
- the right, if any, to extend the interest payment periods and the duration of such extension;
- the period or periods within which, the price or prices at which and the terms and conditions upon which debt securities of the series may be redeemed, converted or exchanged, in whole or in part;
- our obligation, if any, to redeem or purchase debt securities of the series pursuant to any sinking fund, mandatory redemption, or analogous provisions (including payments made in cash in satisfaction of future sinking fund obligations) or at the option of a holder thereof and the period or periods within which, the price or prices at which, and the terms and conditions upon which, debt securities of the series shall be redeemed or purchased, in whole or in part, pursuant to such obligation;
- the form of the debt securities of the series including the form of the Certificate of Authentication for such series;
- if other than minimum denominations of one thousand U.S. dollars (\$1,000) or any integral multiple of \$1,000 thereof, the denominations in which the debt securities of the series shall be issuable;
- whether the debt securities of the series shall be issued in whole or in part in the form of a global debt security or global debt securities; the terms and conditions, if any, upon which such global debt security or global debt securities may be exchanged in whole or in part for other individual debt securities; and the depository for such global debt security or global debt securities;
- whether the debt securities will be convertible into or exchangeable for common stock or other securities of ours or any other Person and, if so, the terms and conditions upon which such debt securities will be so convertible or exchangeable, including the conversion or exchange price, as applicable, or how it will be calculated and may be adjusted, any mandatory or optional (at our option or the holders' option) conversion or exchange features, and the applicable conversion or exchange period;
- any additional or alternative events of default to those set forth in the indenture;
- any additional or alternative covenants to those set forth in the indenture;
- the currency or currencies including composite currencies, in which payment of the principal of (and premium, if any) and interest, if any, on such debt securities shall be payable (if other than the currency of the United States of America), which unless otherwise specified shall be the currency of the United States of America as at the time of payment is legal tender for payment of public or private debts;
- if the principal of (and premium, if any), or interest, if any, on such debt securities is to be payable, at our election or at the election of any holder thereof, in a coin or currency other than that in which such debt securities are stated to be payable, then the period or periods within which, and the terms and conditions upon which, such election may be made;
- whether interest will be payable in cash or additional debt securities at our or the holders' option and the terms and conditions upon which the election may be made;

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- the terms and conditions, if any, upon which we will pay amounts in addition to the stated interest, premium, if any and principal amounts of the debt securities of the series to any holder that is not a “United States person” for federal tax purposes;
- additional or alternative provisions, if any, related to defeasance and discharge of the offered debt securities than those set forth in the indenture;
- the applicability of any guarantees;
- any restrictions on transfer, sale or assignment of the debt securities of the series; and
- any other terms of the debt securities (which may supplement, modify or delete any provision of the indenture insofar as it applies to such series).

We may issue debt securities that provide for less than the entire principal amount thereof to be payable upon declaration of acceleration of the maturity of the debt securities. We refer to any such debt securities throughout this prospectus as “original issue discount securities.”

We will provide you with more information in the applicable prospectus supplement regarding any deletions, modifications, or additions to the events of default or covenants that are described below, including any addition of a covenant or other provision providing event risk or similar protection.

Payment

Unless otherwise provided in the applicable prospectus supplement, the principal of, and any premium or make-whole amount, and interest on, any series of the debt securities will be payable by mailing a check to the address of the person entitled to it as it appears in the applicable register for the debt securities or by wire transfer of funds to that person at an account maintained within the United States.

All monies that we pay to a paying agent or a trustee for the payment of the principal of, and any premium, or interest on, any debt security will be repaid to us if unclaimed at the end of two years after the obligation underlying payment becomes due and payable. After funds have been returned to us, the holder of the debt security may look only to us for payment, without payment of interest for the period which we hold the funds.

Merger, Consolidation or Sale of Assets

The indentures provide that we may, without the consent of the holders of any outstanding debt securities, (i) consolidate with, (ii) sell, lease or convey all or substantially all of our assets to, or (iii) merge with or into, any other entity provided that:

- either we are the continuing entity, or the successor entity, if other than us, assumes the obligations (a) to pay the principal of, and any premium, and interest on, all of the debt securities and (b) to duly perform and observe all of the covenants and conditions contained in the applicable indenture; and in the event the debt securities are convertible into or exchangeable for common stock or other securities of ours, such successor entity will, by such supplemental indenture, make provision so that the holders of debt securities of that series shall thereafter be entitled to receive upon conversion or exchange of such debt securities the number of securities or property to which a holder of the number of common stock or other securities of ours deliverable upon conversion or exchange of those debt securities would have been entitled had such conversion or exchange occurred immediately prior to such consolidation, merger, sale, conveyance, transfer or other disposition; and
- an officers’ certificate and legal opinion covering such conditions are delivered to each applicable trustee.

Events of Default, Notice and Waiver

Unless the applicable prospectus supplement states otherwise, when we refer to “events of default” as defined in the indentures with respect to any series of debt securities, we mean:

- default in the payment of any installment of interest on any debt security of such series continuing for 90 days unless such date has been extended or deferred;

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- default in the payment of principal of, or any premium on, any debt security of such series when due and payable unless such date has been extended or deferred;
- default in the performance or breach of any covenant or warranty in the debt securities or in the indenture by us continuing for 90 days after written notice described below;
- bankruptcy, insolvency or reorganization, or court appointment of a receiver, liquidator or trustee of us; and
- any other event of default provided with respect to a particular series of debt securities.

If an event of default (other than an event of default described in the fourth bullet point above) occurs and is continuing with respect to debt securities of any series outstanding, then the applicable trustee or the holders of 25% or more in principal amount of the debt securities of that series will have the right to declare the principal amount of, and accrued interest on, all the debt securities of that series to be due and payable. If an event of default described in the fourth bullet point above occurs, the principal amount of, and accrued interest on, all the debt securities of that series will automatically become and will be immediately due and payable without any declaration or other act on the part of the trustee or the holders of the debt securities. However, at any time after such a declaration of acceleration has been made, but before a judgment or decree for payment of the money due has been obtained by the applicable trustee, the holders of at least a majority in principal amount of outstanding debt securities of such series or of all debt securities then outstanding under the applicable indenture may rescind and annul such declaration and its consequences if:

- we have deposited with the applicable trustee all required payments of the principal, any premium, interest and, to the extent permitted by law, interest on overdue installment of interest, plus applicable fees, expenses, disbursements and advances of the applicable trustee; and
- all events of default, other than the non-payment of accelerated principal, or a specified portion thereof, and any premium, have been cured or waived.

The indentures provide that holders of debt securities of any series may not institute any proceedings, judicial or otherwise, with respect to such indenture or for any remedy under the indenture, unless the trustee fails to act for a period of 90 days after the trustee has received a written request to institute proceedings in respect of an event of default from the holders of 25% or more in principal amount of the outstanding debt securities of such series, as well as an offer of indemnity reasonably satisfactory to the trustee. However, this provision will not prevent any holder of debt securities from instituting suit for the enforcement of payment of the principal of, and any premium, and interest on, such debt securities at the respective due dates thereof.

The indentures provide that, subject to provisions in each indenture relating to its duties in the case of a default, a trustee has no obligation to exercise any of its rights or powers at the request or direction of any holders of any series of debt securities then outstanding under the indenture, unless the holders have offered to the trustee reasonable security or indemnity. The holders of at least a majority in principal amount of the outstanding debt securities of any series or of all debt securities then outstanding under an indenture shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the applicable trustee, or of exercising any trust or power conferred upon such trustee. However, a trustee may refuse to follow any direction which:

- is in conflict with any law or the applicable indenture;
- may involve the trustee in personal liability; or
- may be unduly prejudicial to the holders of debt securities of the series not joining the proceeding.

Within 120 days after the close of each fiscal year, we will be required to deliver to each trustee a certificate, signed by one of our several specified officers, stating whether or not that officer has knowledge of any default under the applicable indenture. If the officer has knowledge of any default, the notice must specify the nature and status of the default.

Modification of the Indentures

Subject to certain exceptions, the indentures may be amended with the consent of the holders of a majority in aggregate principal amount of the outstanding debt securities of all series affected by such amendment (including consents obtained in connection with a tender offer or exchange for the debt securities of such series).

We and the applicable trustee may make modifications and amendments of an indenture without the consent of any holder of debt securities for any of the following purposes:

- to cure any ambiguity, defect, or inconsistency in the applicable indenture or in the Securities of any series;
- to comply with the covenant described above under “—Merger, Consolidation or Sale of Assets”;
- to provide for uncertificated debt securities in addition to or in place of certificated debt securities;
- to add events of default for the benefit of the holders of all or any series of debt securities;
- to add the covenants, restrictions, conditions or provisions relating to us for the benefit of the holders of all or any series of debt securities (and if such covenants, restrictions, conditions or provisions are to be for the benefit of less than all series of debt securities, stating that such covenants, restrictions, conditions or provisions are expressly being included solely for the benefit of such series), to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default, or to surrender any right or power in the applicable indenture conferred upon us;
- to add to, delete from, or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication, and delivery of debt securities, as set forth in the applicable indenture;
- to make any change that does not adversely affect the rights of any holder of notes under the applicable indenture in any material respect;
- to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series as provided in the applicable indenture, to establish the form of any certifications required to be furnished pursuant to the terms of the applicable indenture or any series of debt securities under the applicable indenture, or to add to the rights of the holders of any series of debt securities;
- to evidence and provide for the acceptance of appointment under the applicable indenture by a successor trustee or to appoint a separate trustee with respect to any series;
- to comply with any requirements of the SEC or any successor in connection with the qualification of the indenture under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act; or
- to conform the applicable indenture to this “—Description of Debt Securities” or any other similarly titled section in any prospectus supplement or other offering document relating to a series of debt securities.

Subordination

Payment by us of the principal of, premium, if any, and interest on any series of subordinated debt securities issued under the subordinated indenture will be subordinated to the extent set forth in an indenture supplemental to the subordinated indenture relating to such series.

Discharge, Defeasance and Covenant Defeasance

Unless otherwise provided in the applicable prospectus supplement, the indentures allow us to discharge our obligations to holders of any series of debt securities issued under any indenture when:

- either (i) all securities of such series have already been delivered to the applicable trustee for cancellation; or (ii) all securities of such series have not already been delivered to the applicable trustee

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for cancellation but (a) have become due and payable, (b) will become due and payable within one year, or (c) if redeemable at our option, are to be redeemed within one year, and we have irrevocably deposited with the applicable trustee, in trust, funds in such currency or currencies, or governmental obligations in an amount sufficient to pay the entire indebtedness on such debt securities in respect of principal and any premium, and interest to the date of such deposit if such debt securities have become due and payable or, if they have not, to the stated maturity or redemption date;

- we have paid or caused to be paid all other sums payable.

Unless otherwise provided in the applicable prospectus supplement, the indentures provide that, upon our irrevocable deposit with the applicable trustee, in trust, of an amount, in such currency or currencies in which such debt securities are payable at stated maturity, or government obligations, or both, applicable to such debt securities, which through the scheduled payment of principal and interest in accordance with their terms will provide money in an amount sufficient to pay the principal of, and any premium or make-whole amount, and interest on, such debt securities, and any mandatory sinking fund or analogous payments thereon, on the scheduled due dates therefor, the issuing company shall be released from its obligations with respect to such debt securities under the applicable indenture or, if provided in the applicable prospectus supplement, its obligations with respect to any other covenant, and any omission to comply with such obligations shall not constitute an event of default with respect to such debt securities.

The applicable prospectus supplement may further describe the provisions, if any, permitting such defeasance or covenant defeasance, including any modifications to the provisions described above, with respect to the debt securities of or within a particular series.

Conversion Rights

The terms and conditions, if any, upon which the debt securities are convertible into common stock or other securities of ours will be set forth in the applicable prospectus supplement. The terms will include whether the debt securities are convertible into shares of common stock or other securities of ours, the conversion price, or manner of calculation thereof, the conversion period, provisions as to whether conversion will be at the issuing company's option or the option of the holders, the events requiring an adjustment of the conversion price and provisions affecting conversion in the event of the redemption of the debt securities and any restrictions on conversion.

Governing Law

The indentures and the debt securities will be governed by and construed in accordance with the laws of the State of New York, except to the extent that the Trust Indenture Act is applicable.

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplements, summarizes the material terms and provisions of the warrants that we may offer under this prospectus and the related warrant agreements and warrant certificates. While the terms summarized below will apply generally to any warrants that we may offer, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. If we indicate in the prospectus supplement, the terms of any warrants offered under that prospectus supplement may differ from the terms described below. Specific warrant agreements will contain additional important terms and provisions and will be incorporated by reference as an exhibit to the registration statement, which includes this prospectus.

General

We may issue warrants for the purchase of common stock, preferred stock and/or debt securities in one or more series. We may issue warrants independently or together with common stock, preferred stock and/or debt securities, and the warrants may be attached to or separate from these securities.

We will evidence each series of warrants by warrant certificates that we will issue under a separate warrant agreement. We will enter into the warrant agreement with a warrant agent. We will indicate the name and address of the warrant agent in the applicable prospectus supplement relating to a particular series of warrants.

We will describe in the applicable prospectus supplement the terms of the series of warrants, including:

- the offering price and aggregate number of warrants offered;
- the currency for which the warrants may be purchased;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;
- if applicable, the date on and after which the warrants and the related securities will be separately transferable;
- in the case of warrants to purchase debt securities, the principal amount of debt securities purchasable upon exercise of one warrant and the price at, and currency in which, this principal amount of debt securities may be purchased upon such exercise;
- in the case of warrants to purchase common stock or preferred stock, the number of shares of common stock or preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreement and the warrants;
- the terms of any rights to redeem or call the warrants;
- any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;
- the periods during which, and places at which, the warrants are exercisable;
- the manner of exercise;
- the dates on which the right to exercise the warrants will commence and expire;
- the manner in which the warrant agreement and warrants may be modified;
- federal income tax consequences of holding or exercising the warrants;
- the terms of the securities issuable upon exercise of the warrants; and
- any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

DESCRIPTION OF UNITS

We may issue units comprised of shares of common stock, shares of preferred stock, debt securities and/or warrants in any combination. We may issue units in such amounts and in as many distinct series as we wish. This section outlines certain provisions of the units that we may issue. If we issue units, they will be issued under one or more unit agreements to be entered into between us and a bank or other financial institution, as unit agent. The information described in this section may not be complete in all respects and is qualified entirely by reference to the unit agreement with respect to the units of any particular series. The specific terms of any series of units offered will be described in the applicable prospectus supplement. If so described in a particular prospectus supplement, the specific terms of any series of units may differ from the general description of terms presented below. We urge you to read any prospectus supplement related to any series of units we may offer, as well as the complete unit agreement and unit certificate that contain the terms of the units. If we issue units, forms of unit agreements and unit certificates relating to those units will be incorporated by reference as exhibits to the registration statement, which includes this prospectus.

Each unit that we may issue will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date. The applicable prospectus supplement may describe:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions of the governing unit agreement;
- the price or prices at which the units will be issued;
- the applicable United States federal income tax considerations relating to the units;
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units; and
- any other terms of the units and of the securities comprising the units.

The provisions described in this section, as well as those described under “Description of Capital Stock,” “Description of Debt Securities” and “Description of Warrants” will apply to the securities included in each unit, to the extent relevant based on the composition of the unit and as may be updated in any applicable prospectus supplements.

Issuance in Series

We may issue units in such amounts and in as many distinct series as we wish. This section summarizes terms of the units that apply generally to all series. Most of the financial and other specific terms of a particular series of units will be described in the applicable prospectus supplement.

Unit Agreements

We will issue the units under one or more unit agreements to be entered into between us and a bank or other financial institution, as unit agent. We may add, replace or terminate unit agents from time to time. We will identify the unit agreement under which each series of units will be issued and the unit agent under that agreement in the applicable prospectus supplement. The following provisions will generally apply to all unit agreements unless otherwise stated in the applicable prospectus supplement:

Modification without Consent

We and the applicable unit agent may amend any unit or unit agreement without the consent of any holder:

- to cure any ambiguity, including modifying any provisions of the governing unit agreement that differ from those described below;

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- to correct or supplement any defective or inconsistent provision; or
- to make any other change that we believe is necessary or desirable and will not adversely affect the interests of the affected holders in any material respect.

We do not need any approval to make changes that affect only units to be issued after the changes take effect. We may also make changes that do not adversely affect a particular unit in any material respect, even if they adversely affect other units in a material respect. In those cases, we do not need to obtain the approval of the holder of the unaffected unit; we need only obtain any required approvals from the holders of the affected units.

Modification with Consent

We may not amend any particular unit or a unit agreement with respect to any particular unit unless we obtain the consent of the holder of that unit, if the amendment would:

- impair any right of the holder to exercise or enforce any right under a security included in the unit if the terms of that security require the consent of the holder to any changes that would impair the exercise or enforcement of that right; or
- reduce the percentage of outstanding units or any series or class the consent of whose holders is required to amend that series or class, or the applicable unit agreement with respect to that series or class, as described below.

Any other change to a particular unit agreement and the units issued under that agreement would require the following approval:

- If the change affects only the units of a particular series issued under that agreement, the change must be approved by the holders of a majority of the outstanding units of that series; or
- If the change affects the units of more than one series issued under that agreement, it must be approved by the holders of a majority of all outstanding units of all series affected by the change, with the units of all the affected series voting together as one class for this purpose.

These provisions regarding changes with majority approval also apply to changes affecting any securities issued under a unit agreement, as the governing document.

In each case, the required approval must be given by written consent.

Unit Agreements Will Not Be Qualified under Trust Indenture Act

No unit agreement will be qualified as an indenture, and no unit agent will be required to qualify as a trustee, under the Trust Indenture Act. Therefore, holders of units issued under unit agreements will not have the protections of the Trust Indenture Act with respect to their units.

Mergers and Similar Transactions Permitted; No Restrictive Covenants or Events of Default

The unit agreements will not restrict our ability to merge or consolidate with, or sell our assets to, another corporation or other entity or to engage in any other transactions. If at any time we merge or consolidate with, or sell our assets substantially as an entirety to, another corporation or other entity, the successor entity will succeed to and assume our obligations under the unit agreements. We will then be relieved of any further obligation under these agreements.

The unit agreements will not include any restrictions on our ability to put liens on our assets, nor will they restrict our ability to sell our assets. The unit agreements also will not provide for any events of default or remedies upon the occurrence of any events of default.

Governing Law

The unit agreements and the units will be governed by Delaware law.

Form, Exchange and Transfer

We will issue each unit in global—i.e., book-entry—form only. Units in book-entry form will be represented by a global security registered in the name of a depository, which will be the holder of all the units represented by the global security. Those who own beneficial interests in a unit will do so through participants in the depository's system, and the rights of these indirect owners will be governed solely by the applicable procedures of the depository and its participants. We will describe book-entry securities, and other terms regarding the issuance and registration of the units in the applicable prospectus supplement.

Each unit and all securities comprising the unit will be issued in the same form.

If we issue any units in registered, non-global form, the following will apply to them.

The units will be issued in the denominations stated in the applicable prospectus supplement. Holders may exchange their units for units of smaller denominations or may request that their units be combined into fewer units of larger denominations, as long as the total amount of units held by a holder is not changed.

- Holders may exchange or transfer their units at the office of the unit agent. Holders may also replace lost, stolen, destroyed or mutilated units at that office. We may appoint another entity to perform these functions or perform them ourselves.
- Holders will not be required to pay a service charge to transfer or exchange their units, but they may be required to pay for any tax or other governmental charge associated with the transfer or exchange. The transfer or exchange, and any replacement, will be made only if our transfer agent is satisfied with the holder's proof of legal ownership. The transfer agent may also require an indemnity before replacing any units.
- If we have the right to redeem, accelerate or settle any units before their maturity, and we exercise our right as to less than all those units or other securities, we may block the exchange or transfer of those units during the period beginning 15 days before the day we mail the notice of exercise and ending on the day of that mailing, in order to freeze the list of holders to prepare the mailing. We may also refuse to register transfers of or exchange any unit selected for early settlement, except that we will continue to permit transfers and exchanges of the unsettled portion of any unit being partially settled. We may also block the transfer or exchange of any unit in this manner if the unit includes securities that are or may be selected for early settlement.

Only the depository will be entitled to transfer or exchange a unit in global form, since it will be the sole holder of the unit.

Payments and Notices

In making payments and giving notices with respect to our units, we will follow the procedures as described in the applicable prospectus supplement.

PLAN OF DISTRIBUTION

We may sell the securities offered through this prospectus and any accompanying prospectus supplement, if required, in any of the following ways: (i) to or through underwriters or dealers, (ii) directly to purchasers, including our affiliates, (iii) through agents, or (iv) through a combination of any of these methods. The securities may be distributed at a fixed price or prices, which may be changed, market prices prevailing at the time of sale, prices related to the prevailing market prices, or negotiated prices, either:

- on or through the facilities of The Nasdaq Global Select Market or any other securities exchange or quotation or trading service on which such securities may be listed, quoted or traded at the time of sale; and/or
- to or through a market maker otherwise than on The Nasdaq Global Select Market or such other securities exchanges or quotation or trading services.

In addition, we may issue the securities as a dividend or distribution or in a subscription rights offering to our existing security holders.

We may directly solicit offers to purchase securities, or agents may be designated to solicit such offers. In the prospectus supplement relating to such offering, we will name any agent that could be viewed as an underwriter under the Securities Act and describe any commissions that we must pay to any such agent. Any such agent will be acting on a best efforts basis for the period of its appointment or, if indicated in the applicable prospectus supplement, on a firm commitment basis. This prospectus may be used in connection with any offering of our securities through any of these methods or other methods described in the applicable prospectus supplement.

Each prospectus supplement will describe the method of distribution of the securities and any applicable restrictions.

The prospectus supplement with respect to the securities of a particular series will describe the terms of the offering of the securities, including the following:

- the name of the agent or any underwriters;
- the public offering or purchase price;
- any discounts and commissions to be allowed or paid to the agent or underwriters;
- all other items constituting underwriting compensation;
- any discounts and commissions to be allowed or paid to dealers; and
- any exchanges on which the securities will be listed.

If any underwriters or agents are used in the sale of the securities in respect of which this prospectus is delivered, we will enter into an underwriting agreement, sales agreement or other agreement with them at the time of sale to them, and we will set forth in the prospectus supplement relating to such offering the names of the underwriters or agents and the terms of the related agreement with them.

In connection with the offering of securities, we may grant to the underwriters an option to purchase additional securities with an additional underwriting commission, as may be set forth in the accompanying prospectus supplement. If we grant any such option, the terms of such option will be set forth in the prospectus supplement for such securities.

If a dealer is used in the sale of the securities in respect of which the prospectus is delivered, we will sell such securities to the dealer, as principal. The dealer, who may be deemed to be an “underwriter” as that term is defined in the Securities Act, may then resell such securities to the public at varying prices to be determined by such dealer at the time of resale.

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If we offer securities in a subscription rights offering to our existing security holders, we may enter into a standby underwriting agreement with dealers, acting as standby underwriters. We may pay the standby underwriters a commitment fee for the securities they commit to purchase on a standby basis. If we do not enter into a standby underwriting arrangement, we may retain a dealer-manager to manage a subscription rights offering for us.

Agents, underwriters, dealers and other persons may be entitled under agreements which they may enter into with us to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, and may be customers of, engage in transactions with or perform services for us in the ordinary course of business.

If so indicated in the applicable prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by certain institutions to purchase securities from us pursuant to delayed delivery contracts providing for payment and delivery on the date stated in the prospectus supplement. Each contract will be for an amount not less than, and the aggregate amount of securities sold pursuant to such contracts shall not be less nor more than, the respective amounts stated in the prospectus supplement. Institutions with whom the contracts, when authorized, may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutions, but shall in all cases be subject to our approval. Delayed delivery contracts will not be subject to any conditions except that:

- the purchase by an institution of the securities covered under that contract shall not at the time of delivery be prohibited under the laws of the jurisdiction to which that institution is subject; and
- if the securities are also being sold to underwriters acting as principals for their own account, the underwriters shall have purchased such securities not sold for delayed delivery. The underwriters and other persons acting as our agents will not have any responsibility in respect of the validity or performance of delayed delivery contracts.

Offered securities may also be offered and sold, if so indicated in the prospectus supplement, in connection with a remarketing upon their purchase, in accordance with a redemption or repayment pursuant to their terms, or otherwise, by one or more remarketing firms, acting as principals for their own accounts or as agents for us. Any remarketing firm will be identified and the terms of its agreement, if any, with us and its compensation will be described in the applicable prospectus supplement. Remarketing firms may be deemed to be underwriters in connection with their remarketing of offered securities.

Certain agents, underwriters and dealers, and their associates and affiliates, may be customers of, have borrowing relationships with, engage in other transactions with, or perform services, including investment banking services, for us or one or more of our respective affiliates in the ordinary course of business.

In order to facilitate the offering of the securities, any underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the securities or any other securities the prices of which may be used to determine payments on such securities. Specifically, any underwriters may over allot in connection with the offering, creating a short position for their own accounts. In addition, to cover overallocments or to stabilize the price of the securities or of any such other securities, the underwriters may bid for, and purchase, the securities or any such other securities in the open market. Finally, in any offering of the securities through a syndicate of underwriters, the underwriting syndicate may reclaim selling concessions allowed to an underwriter or a dealer for distributing the securities in the offering if the syndicate repurchases previously distributed securities in transactions to cover syndicate short positions, in stabilization transactions or otherwise. Any of these activities may stabilize or maintain the market price of the securities above independent market levels. Any such underwriters are not required to engage in these activities and may end any of these activities at any time.

We may engage in at the market offerings into an existing trading market in accordance with Rule 415(a)(4) under the Securities Act. In addition, we may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable

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prospectus supplement so indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of stock. The third party in such sale transactions will be an underwriter and, if not identified in this prospectus, will be named in the applicable prospectus supplement (or a post-effective amendment). In addition, we may otherwise loan or pledge securities to a financial institution or other third party that in turn may sell the securities short using this prospectus and an applicable prospectus supplement. Such financial institution or other third party may transfer its economic short position to investors in our securities or in connection with a concurrent offering of other securities.

Under Rule 15c6-1 of the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. The applicable prospectus supplement may provide that the original issue date for your securities may be more than two scheduled business days after the trade date for your securities. Accordingly, in such a case, if you wish to trade securities on any date prior to the second business day before the original issue date for your securities, you will be required, by virtue of the fact that your securities initially are expected to settle in more than two scheduled business days after the trade date for your securities, to make alternative settlement arrangements to prevent a failed settlement.

The securities may be new issues of securities and may have no established trading market. The securities may or may not be listed on a national securities exchange. We can make no assurance as to the liquidity of or the existence of trading market for any of the securities.

The specific terms of any lock-up provisions in respect of any given offering will be described in the applicable prospectus supplement.

The underwriters, dealers and agents may engage in transactions with us, or perform services for us, in the ordinary course of business for which they receive compensation.

The anticipated date of delivery of offered securities will be set forth in the applicable prospectus supplement relating to each offer.

LEGAL MATTERS

Certain legal matters in connection with this offering will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts. Any underwriters will also be advised about the validity of the securities and other legal matters by their own counsel, which will be named in the prospectus supplement.

EXPERTS

The consolidated financial statements of TCR² Therapeutics Inc. as of December 31, 2020 and 2019, and for the years then ended, have been incorporated by reference herein in reliance upon the report of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the information requirements of the Exchange Act and, in accordance therewith, file annual, quarterly and special reports, proxy statements and other information with the SEC. These documents may be accessed through the SEC's electronic data gathering, analysis and retrieval system, or EDGAR, via electronic means, including the SEC's home page on the Internet (www.sec.gov). Copies of certain information filed by us with the SEC are also available on our website at www.tcr2.com. The information contained on our website is not incorporated by reference into this prospectus and, therefore, is not part of this prospectus or any accompanying prospectus supplement.

This prospectus is part of a registration statement that we have filed with the SEC. Certain information in the registration statement has been omitted from this prospectus in accordance with SEC rules and regulations. For more detail about us and any securities that may be offered by this prospectus, you may examine the registration statement of which this prospectus forms a part, including its exhibits and schedules. Statements contained in this prospectus and the applicable prospectus supplement, including documents that we have incorporated by reference, as to the contents of a contract or other document referred to are not necessarily complete, and with respect to any contract or other document filed as an exhibit to the registration statement or any other such document, each such statement is qualified in all respects by reference to the corresponding exhibit. You should refer to the exhibits that are part of the registration statement for a copy of the contract or document.

INCORPORATION BY REFERENCE

The SEC allows us to incorporate by reference the information and reports we file with it, which means that we can disclose important information to you by referring you to these documents. The information incorporated by reference is considered to be a part of this prospectus, and the information that we file later with the SEC will automatically update and, where applicable, supersede the information already incorporated by reference. We are incorporating by reference the documents listed below, which have already been filed with the SEC (SEC File No. 001-38811), and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including all filings made after the date of the filing of this registration statement, except as to any portions of any future report or document that is not deemed filed under such provisions until we sell all of the securities:

- our Annual Report on [Form 10-K](#) for the year ended December 31, 2020 filed with the SEC on March 16, 2021; and
- the description of our common stock contained in our registration statement on [Form 8-A](#) filed with the SEC on February 12, 2019, including any amendments or reports filed for the purposes of updating this description.

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Upon request, either orally or in writing, we will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered, a copy of the documents incorporated by reference into this prospectus but not delivered with the prospectus. You may request a copy of these filings, and any exhibits we have specifically incorporated by reference as an exhibit in this prospectus, at no cost by writing us at the following address: TCR² Therapeutics Inc., 100 Binney Street, Suite 710, Cambridge, Massachusetts 02142.

You should rely only on the information incorporated by reference or provided in this prospectus or any prospectus supplement. We have not authorized anyone to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus or in the documents incorporated by reference is accurate as of any date other than the date on the front of this prospectus or those documents.



**Up to \$100,000,000
Common Stock**

PROSPECTUS

Jefferies

April 30, 2021
