UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-3 REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

TCR² THERAPEUTICS INC.

(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization) 47-4152751 (I.R.S. Employer Identification Number)

100 Binney Street, Suite 710 Cambridge, Massachusetts 02142 (617) 949-5200

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

Garry E. Menzel, Ph.D. President and Chief Executive Officer TCR² Therapeutics Inc. 100 Binney Street, Suite 710 Cambridge, Massachusetts 02142 (617) 949-5200 (Name, address, including zip code, and telephone number, including area code, of agent for service)

With copies to:

Mitchell S. Bloom, Esq. Stephanie A. Richards, Esq. Goodwin Procter LLP 100 Northern Avenue Boston, Massachusetts 02210 (617) 570-1000

Approximate date of commencement of proposed sale to the public: From time to time after this Registration Statement becomes effective.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. \boxtimes 333-236965

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

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. \Box

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional

securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. \Box

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

Large accelerated filer \Box Non-accelerated filer \boxtimes

- Accelerated filer
- Smaller reporting company
- Emerging growth company \square

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE

	Proposed	
	maximum	
Title of each class of	aggregate offering	Amount of
securities to be registered	price(1)	registration fee(2)
Common Stock, par value \$0.0001 per share	\$3,599,984.00	\$392.76

(1) The registrant previously registered securities at an aggregate offering price not to exceed \$300,000,000 on a Registration Statement on Form S-3 (File No. 333-236965), which was filed by the registrant on March 6, 2020 and declared effective on April 28, 2020 (the "Prior Registration Statement"). In accordance with Rule 462(b) under the Securities Act of 1933, as amended (the "Securities Act"), an additional amount of securities having a proposed maximum aggregate offering price of \$3,599,984.00 is hereby registered, which includes shares issuable upon the exercise of the underwriters' option to purchase additional shares, representing no more than 20% of the maximum aggregate offering price of unsold securities under the Prior Registration Statement. In no event will the maximum aggregate offering price of all securities issued pursuant to this Registration Statement and the Prior Registration Statement exceed that registered under such Registration Statements.

(2) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(o) under the Securities Act.

This Registration Statement shall become effective upon filing with the Securities and Exchange Commission in accordance with Rule 462(b) promulgated under the Securities Act.

EXPLANATORY NOTE AND INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

Pursuant to Rule 462(b) under the Securities Act of 1933, as amended, TCR² Therapeutics Inc. (the "*Registrant*") is filing this Registration Statement on Form S-3 (this "*Registration Statement*") with the Securities and Exchange Commission (the "*Commission*"). This Registration Statement relates to the public offering of securities contemplated by the Registration Statement on Form S-3 (File No. 333-236965) (the "*Prior Registration Statement*"), which the Registrant originally filed with the Commission on March 6, 2020, and which the Commission declared effective on April 28, 2020.

The Registrant is filing this Registration Statement for the sole purpose of increasing the aggregate number of securities offered by the Registrant by a proposed aggregate offering price of \$3,599,984.00, which includes shares that may be sold by the Registrant in the event the underwriters exercise their option to purchase additional shares of the Registrant's common stock. The additional securities that are being registered for issuance and sale are in an amount and at a price that together represent no more than 20% of the maximum aggregate offering price of unsold securities under the Prior Registration Statement. The information set forth in the Prior Registration Statement and all exhibits to the Prior Registration Statement are hereby incorporated by reference into this Registration Statement.

The required opinion and consents are listed on the Exhibit Index attached hereto and filed herewith.

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EXHIBIT INDEX

Exhibit No.	Description of Exhibit		
5.1	Opinion of Goodwin Procter LLP.		
23.1	Consent of KPMG LLP, Independent Registered Public Accounting Firm.		
23.2	Consent of Goodwin Procter LLP (included in Exhibit 5.1).		
24.1	Power of Attorney (incorporated by reference to Exhibit 24.1 of the Registration Statement on Form S-3 (File No. 333-236965) filed on March 6, 2020).		

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Cambridge, Commonwealth of Massachusetts, on this 19th day of January, 2021.

TCR² THERAPEUTICS, INC.

By: /s/ Garry Menzel, Ph.D.

Garry Menzel, Ph.D. President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Garry Menzel	President, Chief Executive Officer and	January 19, 2021
Garry Menzel	Director (Principal Executive Officer)	
/s/ Mayur Somaiya	Chief Financial Officer	January 19, 2021
Mayur (Ian) Somaiya	(Principal Financial and Accounting Officer)	
*	Director	January 19, 2021
Ansbert Gadicke		
*	Director	January 19, 2021
Patrick Baeuerle		
*	Director	January 19, 2021
Andrew Allen		
*	Director	January 19, 2021
Neil Gibson		
*	Director	January 19, 2021
Mitchell Finer		
/s/ Alex Hoos	Director	January 19, 2021
Alex Hoos		
/s/ Stephen W. Webster	Director	January 19, 2021
Stephen W. Webster		
*By: /s/ Garry Menzel		January 19, 2021
Garry Menzel		
Attorney-in-fact		

II-3



Goodwin Procter LLP 100 Northern Avenue Boston, MA 02210

goodwinlaw.com +1 617 570 1000

January 19, 2021

TCR² Therapeutics Inc. 100 Binney Street, Suite 710 Cambridge, MA 02142

Re: Securities Registered under Registration Statement on Form S-3

We have acted as counsel to you in connection with your filing of (i) a Registration Statement on Form S-3 (File No. 333-236965 (as amended or supplemented, the "Initial Registration Statement") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), and (ii) a second Registration Statement on Form S-3 filed pursuant to Rule 462(b) promulgated under the Securities Act (the "462(b) Registration Statement," and together with the Initial Registration Statement, the "Registration Statement"). This opinion letter is furnished to you in connection with your filing of the 462(b) Registration Statement, relating to the registration of the offering by TCR² Therapeutics Inc., a Delaware corporation (the "Company") of up to \$3,599,984.00 of shares (the "Shares") of the Company's Common Stock, \$0.0001 par value per share, including Shares purchasable by the underwriters upon their exercise of an over-allotment option granted to the underwriters by the Company. The Shares are being sold to the several underwriters named in, and pursuant to, an underwriting agreement among the Company and such underwriters (the "Underwriting Agreement").

We have reviewed such documents and made such examination of law as we have deemed appropriate to give the opinions set forth below. We have relied, without independent verification, on certificates of public officials and, as to matters of fact material to the opinions set forth below, on certificates of officers of the Company.

The opinion set forth below is limited to the Delaware General Corporation Law.

Based on the foregoing, we are of the opinion that the Shares have been duly authorized and, upon issuance and delivery against payment therefor in accordance with the terms of the Underwriting Agreement, the Shares will be validly issued, fully paid and non-assessable.

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the 462(b) Registration Statement and to the references to our firm under the caption "Legal Matters" in the Initial Registration Statement. In giving our consent, we do not admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,

/s/ Goodwin Procter LLP

GOODWIN PROCTER LLP

Consent of Independent Registered Public Accounting Firm

The Board of Directors TCR² Therapeutics Inc.:

We consent to the use of our report dated March 30, 2020, with respect to the consolidated balance sheets of TCR² Therapeutics Inc. and subsidiaries as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive loss, redeemable convertible preferred stock and stockholders' equity (deficit), and cash flows for the years then ended, and the related notes, incorporated herein by reference.

/s/ KPMG LLP

Boston, Massachusetts January 19, 2021