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

Washington, D.C. 20549

FORM S-8 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 of Principal Executive Offices)

TCR² Therapeutics Inc. 2018 Stock Option and Incentive Plan TCR² Therapeutics Inc. 2018 Employee Stock Purchase Plan (Full Title of the Plans)

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)

Copies to:

Mitchell S. Bloom, Esq. Stephanie A. Richards, Esq. Goodwin Procter LLP 100 Northern Avenue Boston, Massachusetts 02210 (617) 570-1000 Margaret Siegel General Counsel TCR² Therapeutics Inc. 100 Binney Street Suite 710 Cambridge, Massachusetts 02142 (617) 949-5200

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

Large accelerated filer \Box

Non-accelerated filer

Accelerated filer

Smaller reporting company \square

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. \Box

EXPLANATORY NOTE

This Registration Statement on Form S-8 is filed for the purposes of registering (i) 1,568,135 shares of common stock, par value \$0.0001 per share ("Common Stock"), of TCR² Therapeutics Inc. (the "Registrant") that may be issued pursuant to equity awards granted pursuant to the TCR² Therapeutics Inc. 2018 Stock Option and Incentive Plan, as amended (the "2018 Plan") and (ii) an additional 392,034 shares of Common Stock of the Registrant that may be issued pursuant to the TCR² Therapeutics Inc. 2018 Employee Stock Purchase Plan (the "2018 ESPP"). The number of shares of Common Stock reserved and available for issuance under the 2018 Plan is subject to an automatic annual increase on each January 1 by an amount equal to up to four percent of the number of shares of Common Stock issued and outstanding on the immediately preceding December 31 or such lesser number of shares of Common Stock as determined by the Administrator (as defined in the 2018 Plan). Accordingly, on January 1, 2023, the number of shares of Common Stock reserved and available for issuance under the 2018 Plan increased by 1,568,135 shares of Common stock. This Registration Statement registers these additional 1,568,135 shares of Common Stock. The additional shares are of the same class as other securities relating to the 2018 Plan for which the Registrant's registration statements filed on Form S-8 (Registration No. <u>333-229691</u>) on February 14, 2019, on Form S-8 (Registration No. 333-237481) on March 30, 2020, on Form S-8 (Registration No. 333-254354) on March 16, 2021, and on Form S-8 (Registration No. 333-263770) on March 22, 2022, are effective. The information contained in the Registrant's registration statements on Form S-8 listed above is hereby incorporated by reference pursuant to General Instruction E, except for "Item 8. Exhibits". The number of shares of Common Stock reserved and available for issuance under the 2018 ESPP is subject to an automatic annual increase on each January 1 by an amount equal to the least of one percent of the number of shares of Common Stock issued and outstanding on the immediately preceding December 31, 500,000 shares of Common Stock or such lesser number of shares of Common Stock as determined by the Administrator (as defined in the 2018 ESPP). Accordingly, on January 1, 2023, the number of shares of Common Stock reserved and available for issuance under the 2018 ESPP increased by 392,034 shares of Common Stock. This Registration Statement registers these additional 392,034 shares of Common Stock. The additional shares are of the same class as other securities relating to the 2018 ESPP for which the Registrant's registration statements filed on Form S-8 (Registration No. <u>333-229691</u>) on February 14, 2019 and on Form S-8 (Registration No. 333-237481) on March 30, 2020, are effective. The information contained in the Registrant's registration statements on Form S-8 listed above is hereby incorporated by reference pursuant to General Instruction E, except for "Item 8. Exhibits".

Item 8. Exhibits.

See the Exhibit Index on the following page for a list of exhibits filed as part of this Registration Statement, which Exhibit Index is incorporated herein by reference.

EXHIBIT INDEX					
Exhibit No.	Description				
4.1	Amended and Restated Certificate of Incorporation (Incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-38811)).				
4.2	Amended and Restated By-laws (Incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-38811)).				
4.3	<u>Amendment No. 1 to Amended and Restated By-laws of the Registrant (Incorporated by reference to Exhibit 3.3 to the Registrant's</u> <u>Annual Report on 10-K (File No. 001-38811) filed with the Securities and Exchange Commission on March 16, 2021)</u>				
4.4	Amended and Restated Investors' Rights Agreement among the Registrant and certain of its stockholders, dated February 28, 2018 (Incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1, as amended (File No. 333-229066)).				
4.5	Form of Common Stock certificate of the Registrant (Incorporated by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-1, as amended (File No. 333-229066)).				
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 (included on signature page to this Registration Statement).				
99.1	2018 Stock Option and Incentive Plan and forms of award agreements thereunder (Incorporated by reference to Exhibit 10.2 to the Registrant's Registration Statement on Form S-1, as amended (File No. 333-229066)).				
99.2	Amendment No. 1 to 2018 Stock Option and Incentive Plan (Incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-38811)).				
99.3	2018 Employee Stock Purchase Plan (Incorporated by reference to Exhibit 10.4 to the Registrant's Registration Statement on Form S-1, as amended (File No. 333-229066)).				
107*	Filing Fee Table.				

* Filed herewith.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 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 the 23rd day of March 2023.

TCR² THERAPEUTICS INC.

By: /s/ Garry Menzel

Garry Menzel President and Chief Executive Officer

POWER OF ATTORNEY AND SIGNATURES

KNOW ALL BY THESE PRESENT, that each individual whose signature appears below hereby constitutes and appoints Garry Menzel and Eric Sullivan, and each of them, either of whom may act without the joinder of the other, as his or her true and lawful attorney-in-fact and agent with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement on Form S-8, and to file the same, with all exhibits thereto, and all documents in connection therewith, with the Securities and Exchange Commission granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following person in the capacities and on the date indicated.

Signature	Title	Date
/s/ Garry Menzel		
Garry Menzel	President, Chief Executive Officer and Director	March 23, 2023
	(Principal Executive Officer)	
/s/ Eric Sullivan		
Eric Sullivan	Chief Financial Officer	March 23, 2023
	(Principal Financial Officer and Principal Accounting Officer)	
/s/ Andrew Allen		
Andrew Allen	Director	March 23, 2023
/s/ Ansbert Gadicke		
Ansbert Gadicke	Director	March 23, 2023
/s/ Priti Hegde		
Priti Hegde	Director	March 23, 2023
/s/ Neil Gibson		
Neil Gibson	Director	March 23, 2023
/s/ Axel Hoos		
Axel Hoos	Director	March 23, 2023

/s/ Shawn Tomasello Shawn Tomasello	Director	March 23, 2023
/s/ Stephen Webster Stephen Webster	Director	March 23, 2023

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

Re: Securities Being Registered under Registration Statement on Form S-8

We have acted as counsel to you in connection with your filing of a Registration Statement on Form S-8 (the "Registration Statement") pursuant to the Securities Act of 1933, as amended (the "Securities Act"), on or about the date hereof relating to an aggregate of 1,960,169 shares (the "Shares") of common stock, par value \$0.0001 per share ("Common Stock"), of TCR² Therapeutics Inc., a Delaware corporation (the "Company"), that may be issued pursuant to the Company's 2018 Stock Option and Incentive Plan and the Company's 2018 Employee Stock Purchase Plan (collectively, the "Plans").

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

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

For purposes of the opinion set forth below, we have assumed that no event occurs that causes the number of authorized shares of Common Stock available for issuance by the Company to be less than the number of then unissued Shares.

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

We hereby consent to the inclusion of this opinion as Exhibit 5.1 to the 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

We consent to the use of our report dated March 23, 2023, with respect to the consolidated financial statements of TCR² Therapeutics Inc., incorporated herein by reference.

/s/ KPMG LLP

Boston, Massachusetts March 23, 2023

Calculation of Filing Fee Tables

Form S-8

(Form Type)

TCR² Therapeutics Inc. (Exact Name of Registrant as Specified in its Charter)

Security Type	Security Class Title	Fee Calculation Rule	Amount Registered(1)	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee					
Equity	Common Stock, \$0.0001											
	par value per share	Other (3)	1,568,135(2)	\$1.49(3)	\$2,336,521.15	0.00011020	\$257.48					
Equity	Common Stock, \$0.0001											
	par value per share	Other (3)	392,034(4)	\$1.49 (3)	\$584,130.66	0.00011020	\$64.37					
Total Offering Amounts					\$2,920,651.81		_					
Total Fees Previously Paid							_					
Total Fee Offsets							_					
Net Fee Due							\$321.86					

Table 1: Newly Registered Securities

(1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), this Registration Statement shall also cover any additional shares of common stock which become issuable under the registrant's 2018 Stock Option and Incentive Plan, as amended (the "2018 Plan"), and the registrant's 2018 Employee Stock Purchase Plan (the "2018 ESPP") by reason of any stock dividend, stock split, recapitalization or any other similar transaction effected without the receipt of consideration which results in an increase in the number of the registrant's outstanding shares of common stock.

- (2) Represents an automatic increase of 1,568,135 shares of common stock to the number of shares available for issuance under the 2018 Plan, effective January 1, 2023. Shares available for issuance under the 2018 Plan were previously registered on registration statements on Form S-8 filed with the Securities and Exchange Commission on February 14, 2019 (File No. 333-229691), March 30, 2020 (File No. 333-237481), March 16, 2021 (File No. 333-21746570) and on March 22, 2022 (File No. 333-263770).
- (3) Estimated solely for the purpose of calculating the registration fee pursuant to Rules 457(c) and 457(h) of the Securities Act and based upon the average of the high and low sale prices of the registrant's common stock as reported on the Nasdaq Global Select Market on March 17, 2023.
- (4) Represents an automatic increase of 392,034 shares of common stock to the number of shares available for issuance under the 2018 ESPP, effective January 1, 2023. Shares available for issuance under the 2018 ESPP were previously registered on registration statements on Form S-8 filed with the Securities and Exchange Commission on February 14, 2019 (File No. 333-229691) and March 30, 2020 (File No. 333-237481).