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

Verve Therapeutics, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware (State or Other Jurisdiction of Incorporation or Organization)

201 Brookline Avenue, Suite 601 Boston, MA (Address of Principal Executive Offices) 82-4800132 (I.R.S. Employer Identification No.)

> 02215 (Zip Code)

2021 Stock Incentive Plan Amended and Restated 2021 Employee Stock Purchase Plan (Full Title of the Plan)

> Sekar Kathiresan, M.D. Chief Executive Officer Verve Therapeutics, Inc. 201 Brookline Avenue, Suite 601 Boston, MA 02215 (Name and Address of Agent for Service)

(617) 603-0070 (Telephone Number, Including Area Code, of Agent for Service)

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

Large accelerated filer □ Non-accelerated filer ⊠

Accelerated filer

Smaller reporting company \Box

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

STATEMENT OF INCORPORATION BY REFERENCE

This Registration Statement on Form S-8, relating to the 2021 Stock Incentive Plan (the "2021 Plan") and the Amended and Restated 2021 Employee Stock Purchase Plan (together with the 2021 Plan, the "Plans") of Verve Therapeutics, Inc. (the "Registrant"), is being filed for the purpose of registering additional securities of the same class as other securities for which a Registration Statement on Form S-8 has previously been filed and is effective. Pursuant to General Instruction E to Form S-8, except as otherwise set forth below, this Registration Statement incorporates by reference the contents of (i) the Registration Statement on Form S-8, File No. 333-257175, filed by the Registration Statement on Form S-8, File No. 333-263518, filed by the Registrant with the SEC on March 14, 2022 relating to the Plans, and the information required by Part II is omitted, except as supplemented by the information set forth below.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 8. Exhibits.

The following exhibits are incorporated herein by reference:

Number	Description				
4.1	Restated Certificate of Incorporation of the Registrant, effective as of June 21, 2021 (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K, File No. 001-40489, filed June 21, 2021).				
4.2	Second Amended and Restated Bylaws of the Registrant, effective as of February 14, 2023 (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K, File No. 001-40489, filed February 17, 2023).				
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- 5.1* <u>Opinion of Wilmer Cutler Pickering Hale and Dorr LLP, counsel to the Registrant.</u>
- 23.1* <u>Consent of Ernst & Young LLP, independent registered public accounting firm.</u>
- 23.2* Consent of Wilmer Cutler Pickering Hale and Dorr LLP (included in Exhibit 5.1).
- 24.1* <u>Power of attorney (included on the signature pages of this registration statement).</u>
- 99.1 2021 Stock Incentive Plan (incorporated by reference to Exhibit 10.4 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 (File No. 333-256608) filed June 14, 2021).
- 99.2 <u>Amended and Restated 2021 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.7 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 (File No. 333-256608) filed June 14, 2021).</u>
- 107* <u>Filing Fee Table.</u>

* Filed herewith

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-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Boston, Commonwealth of Massachusetts on this 2nd day of March, 2023.

Verve Therapeutics, Inc.

By: /s/ Sekar Kathiresan, M.D.

Sekar Kathiresan, M.D. Chief Executive Officer

POWER OF ATTORNEY AND SIGNATURES

We, the undersigned officers and directors of Verve Therapeutics, Inc., hereby severally constitute and appoint Sekar Kathiresan, Allison Dorval and Andrew Ashe, and each of them singly (with full power to each of them to act alone), our true and lawful attorneys with full power of substitution and resubstitution in each of them for him or her and in his or her name, place and stead, and in any and all capacities, to sign for us and in our names in the capacities indicated below, the registration statement on Form S-8 filed herewith and any and all subsequent amendments to said registration statement, and generally to do all such things in our names and on our behalf in our capacities as officers and directors to enable Verve Therapeutics, Inc. to comply with the provisions of the Securities Act of 1933, as amended, and all requirements of the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our said attorneys, or any of them, to said registration statement and any and all amendments thereto.

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/ Sekar Kathiresan Sekar Kathiresan, M.D.	Chief Executive Officer, Director (Principal Executive Officer)	March 2, 2023
/s/ Allison Dorval Allison Dorval	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 2, 2023
/s/ Burt Adelman Burt Adelman, M.D.	Director	March 2, 2023
/s/ Lonnel Coats Lonnel Coats	Director	March 2, 2023
/s/ Alexander Cumbo Alexander Cumbo	Director	March 2, 2023
/s/ Michael MacLean Michael MacLean	Director	March 2, 2023
/s/ Sheila Mikhail Sheila Mikhail, J.D.	Director	March 2, 2023
/s/ Krishna Yeshwant Krishna Yeshwant, M.D.	Director	March 2, 2023

Exhibit 5.1

WILMERHALE

March 2, 2023

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Verve Therapeutics, Inc. 201 Brookline Avenue, Suite 601 Boston, MA 02215

> Re: 2021 Stock Incentive Plan Amended and Restated 2021 Employee Stock Purchase Plan

Ladies and Gentlemen:

We have assisted in the preparation of a Registration Statement on Form S-8 (the "Registration Statement") to be filed with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), relating to an aggregate of 3,703,849 shares of common stock, \$0.001 par value per share (the "Shares"), of Verve Therapeutics, Inc., a Delaware corporation (the "Company"), issuable under the Company's 2021 Stock Incentive Plan and Amended and Restated 2021 Employee Stock Purchase Plan (collectively, the "Plans").

We have examined the Certificate of Incorporation and Bylaws of the Company, each as amended and restated to date, and originals, or copies certified to our satisfaction, of all pertinent records of the meetings of the directors and stockholders of the Company, the Registration Statement and such other documents relating to the Company as we have deemed material for the purposes of this opinion.

In our examination of the foregoing documents, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as certified, photostatic or other copies, the authenticity of the originals of any such documents and the legal competence of all signatories to such documents.

We assume that the appropriate action will be taken, prior to the offer and sale of the Shares in accordance with the Plans, to register and qualify the Shares for sale under all applicable state securities or "blue sky" laws.

We express no opinion herein as to the laws of any state or jurisdiction other than the General Corporation Law of the State of Delaware and the federal laws of the United States of America.

It is understood that this opinion is to be used only in connection with the offer and sale of the Shares while the Registration Statement is in effect.

Wilmer Cutler Pickering Hale and Dorr 11P, 60 State Street, Boston, Massachusetts 02109 Beijing Berlin Boston Brussels Denver Frankfurt London Los Angeles New York Palo Alto San Francisco Washington Verve Therapeutics Inc. March 2, 2023 Page 2

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters.

Based on the foregoing, we are of the opinion that the Shares have been duly authorized for issuance and, when the Shares are issued and paid for in accordance with the terms and conditions of the Plans, the Shares will be validly issued, fully paid and nonassessable.

We hereby consent to the filing of this opinion with the Commission in connection with the Registration Statement in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act. In giving such consent, we do not hereby 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 of the Commission.

Very truly yours,

By: /s/ Wilmer Cutler Pickering Hale and Dorr LLP WILMER CUTLER PICKERING HALE AND DORR LLP

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8) pertaining to the 2021 Stock Incentive Plan and the Amended and Restated 2021 Employee Stock Purchase Plan of Verve Therapeutics, Inc. of our report dated March 2, 2023, with respect to the consolidated financial statements of Verve Therapeutics, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2022, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Boston, Massachusetts March 2, 2023

Calculation of Filing Fee Tables

Form S-8 (Form Type)

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

Table 1—Newly Registered Securities

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,						
	\$0.001						
	par value		3,703,849			\$110.20 per	
	per share	Other	shares (2)	\$18.935 (3)	\$70,132,380.82 (3)	\$1,000,000	\$7,728.59
Total Offering Amounts					\$70,132,380.82		\$7,728.59
Total Fee Offsets							_
Net Fee Due							\$7,728.59

(1) In accordance with Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement shall be deemed to cover any additional securities that may from time to time be offered or issued to prevent dilution resulting from stock splits, stock dividends or similar transactions.

(2) Consists of (i) 3,086,541 shares issuable under the 2021 Stock Incentive Plan and (ii) 617,308 shares issuable under the Amended and Restated 2021 Employee Stock Purchase Plan.

(3) Estimated solely for the purpose of calculating the registration fee pursuant to Rules 457(c) and 457(h) of the Securities Act. The price per share and aggregate offering price are calculated on the basis of the average of the high and low sale prices of the registrant's common stock on the Nasdaq Global Select Market on February 27, 2023, in accordance with Rule 457(c) under the Securities Act.