

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

**FORM S-8
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

CARTESIAN THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation or organization)

**7495 New Horizon Way
Frederick, Maryland**
(Address of principal executive offices)

26-1622110
(I.R.S. Employer
Identification No.)

21703
(Zip code)

(301) 348-8698
(Telephone number, including area code, of registrant's principal executive offices)

Cartesian Therapeutics, Inc. Amended and Restated 2016 Incentive Award Plan
(Full title of the plan)

Carsten Brunn, Ph.D.
President and Chief Executive Officer
Cartesian Therapeutics, Inc.
7495 New Horizon Way
Frederick, Maryland 21703
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copy to:

Brian K. Rosenzweig
Sarah C. Griffiths
Covington & Burling LLP
One International Place, Suite 1020
Boston, Massachusetts 02110
(617) 603-8805

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 under the Exchange Act.

Large accelerated filer
Non-accelerated filer

Accelerated filer
Smaller reporting company
Emerging growth company

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

EXPLANATORY NOTE

This registration statement on Form S-8 (the "Registration Statement") is being filed for the purpose of registering an additional 1,040,444 shares of common stock, par value \$0.0001 per share (the "Common Stock"), of Cartesian Therapeutics, Inc. (the "Registrant") to be issued pursuant to the Registrant's Amended and Restated 2016 Incentive Award Plan (the "Incentive Plan").

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference

The following documents filed with the Securities and Exchange Commission (the “Commission”) pursuant to the Securities Exchange Act of 1934, as amended (the “Exchange Act”), are hereby incorporated by reference into this registration statement:

- The Registrant’s definitive proxy statement on Schedule 14A for the 2026 annual meeting of stockholders, filed with the Commission on [April 28, 2026](#);
- The Registrant’s Annual Report on Form 10-K for the year ended December 31, 2025, filed with the Commission on [March 9, 2026](#);
- The Registrant’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2025, filed with the Commission on [April 30, 2026](#);
- The Registrant’s Current Report on Form 8-K filed with the Commission on [March 30, 2026](#); and
- The description of the Registrant’s Common Stock contained in Exhibit 4.12 to the Registrant’s Annual Report on Form 10-K, filed with the Commission on [March 9, 2026](#), and any amendment or report filed with the Commission for the purpose of updating such description; and
- The Registrant’s Registration Statements on Form S-8 (File Nos. [333-212215](#), [333-224109](#), [333-239075](#), [333-256061](#), [333-264691](#), [333-274036](#), [333-283049](#), and [333-287062](#)) filed with the Securities and Exchange Commission, relating to the Incentive Plan.

All documents filed by the Registrant pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act on or after the date of this Registration Statement and prior to the filing of a post-effective amendment to this Registration Statement that indicates that all securities offered have been sold or that deregisters all securities then remaining unsold shall be deemed to be incorporated by reference in this Registration Statement and to be part hereof from the date of filing of such documents; *provided, however*, that documents or information deemed to have been furnished and not filed in accordance with the rules of the Commission shall not be deemed incorporated by reference into this Registration Statement. Any statement contained in a document incorporated or deemed incorporated herein by reference shall be deemed to be modified or superseded for the purpose of this Registration Statement to the extent that a statement contained herein or in any subsequently filed document which also is, or is deemed to be, incorporated herein by reference modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement.

Item 8. Exhibits

<u>Exhibit Number</u>	<u>Exhibit Description</u>
3.1	Restated Certificate of Incorporation of the Registrant (incorporated herein by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K (File No. 001-37798) filed on June 29, 2016).
3.2	Certificate of Amendment to the Restated Certificate of Incorporation (incorporated herein by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K (File No. 001-37798) filed on June 21, 2022).
3.3	Certificate of Amendment to the Restated Certificate of Incorporation (incorporated herein by reference to Exhibit 3.3 of the Registrant's Current Report on Form 8-K (File No. 001-37798) filed on November 13, 2023).
3.4	Certificate of Amendment to the Restated Certificate of Incorporation (incorporated herein by reference to Exhibit 3.2 of the Registrant's Current Report on Form 8-K (File No. 001-37798) filed on March 28, 2024).
3.5	Amended and Restated By-laws of the Registrant (incorporated herein by reference to Exhibit 3.2 of the Registrant's Current Report on Form 8-K (File No. 001-37798) filed on October 30, 2025).
4.1	Specimen Stock Certificate evidencing the shares of common stock (incorporated herein by reference to Exhibit 4.1 to the Registrant's Annual Report on Form 10-K (File No. 001-37798) filed on March 13, 2025).
5.1 *	Opinion of Covington & Burling LLP.
23.1 *	Consent of Ernst & Young LLP, the Registrant's independent registered public accounting firm.
23.2 *	Consent of Covington & Burling LLP (included in Exhibit 5.1).
24.1 *	Power of Attorney (included on the signature pages of this Registration Statement).
99.1	Cartesian Therapeutics, Inc. Amended and Restated 2016 Incentive Award Plan, and forms of award agreements thereunder (incorporated herein by reference to Exhibit 10.1 of the Registrant's Registration Statement on Form S-1 (File No. 333-281204) filed on August 2, 2024).
107.1 *	Filing fee table.

* 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 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 Frederick, State of Maryland, as of April 30, 2026.

CARTESIAN THERAPEUTICS, INC.

By: /s/ Carsten Brunn, Ph.D.
Carsten Brunn, Ph.D.
President and Chief Executive Officer, and Chairman of
the Board

POWER OF ATTORNEY

Each of the undersigned officers and directors of the registrant hereby severally constitutes and appoints Carsten Brunn, Ph.D. and Blaine Davis, and each of them singly (with full power to each of them to act alone), as his or her true and lawful attorneys-in-fact and agents, 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 file and sign any and all amendments, including post-effective amendments, to this registration statement and any other registration statement for the same offering that is to be effective under Rule 462(b) of the Securities Act of 1933, and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith 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 attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof. This power of attorney shall be governed by and construed with the laws of the State of Delaware and applicable federal securities laws.

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Carsten Brunn, Ph.D.</u> Carsten Brunn, Ph.D.	President and Chief Executive Officer, and Chairman of the Board (Principal Executive Officer)	April 30, 2026
<u>/s/ Blaine Davis</u> Blaine Davis	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	April 30, 2026
<u>/s/ Timothy C. Barabe</u> Timothy C. Barabe	Director	April 30, 2026
<u>/s/ Adrian Bot, M.D., Ph.D.</u> Adrian Bot, M.D., Ph.D.	Director	April 30, 2026
<u>/s/ Nishan de Silva, M.D.</u> Nishan de Silva, M.D.	Director	April 30, 2026
<u>/s/ Kemal Malik, MBBS</u> Kemal Malik, MBBS	Director	April 30, 2026
<u>/s/ Michael Singer, M.D. Ph.D.</u> Michael Singer, M.D. Ph.D.	Director	April 30, 2026
<u>/s/ Timothy Springer, Ph.D.</u> Timothy Springer, Ph.D.	Director	April 30, 2026
<u>/s/ Patrick Zenner</u> Patrick Zenner	Director	April 30, 2026

CALCULATION OF FILING FEE TABLE

Form S-8
(Form Type)

Cartesian 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 to be Registered ⁽¹⁾	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Equity	Common Stock, par value \$0.0001 per share, to be issued under the Registrant's Amended and Restated 2016 Incentive Award Plan	Rules 457(c) and 457(h)	1,040,444 ⁽²⁾	\$6.915 ⁽³⁾	\$7,194,670.26	0.00013810	\$993.58
Total Offering Amounts						\$7,194,670.26	\$993.58
Total Fee Offsets ⁽⁴⁾							\$0.00
Net Fee Due							\$993.58

- (1) In accordance with Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement (this "Registration Statement") shall be deemed to cover any additional securities that may from time to time be offered or issued under the Cartesian Therapeutics, Inc. Amended and Restated 2016 Incentive Award Plan (the "Incentive Plan") to prevent dilution resulting from stock splits, stock dividends or similar transactions.
- (2) Consists of 1,040,444 shares of the Registrant's common stock, par value \$0.0001 per share (the "Common Stock") that may become issuable under the Incentive Plan pursuant to its terms.
- (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 prices of the Registrant's Common Stock as reported on the Nasdaq Global Market on April 24, 2026.
- (4) The Registrant does not have any fee offsets.

COVINGTON

BEIJING BOSTON BRUSSELS DUBAI FRANKFURT
JOHANNESBURG LONDON LOS ANGELES NEW YORK
PALO ALTO SAN FRANCISCO SEOUL SHANGHAI WASHINGTON

Covington & Burling LLP
The New York Times Building
620 Eighth Avenue
New York, NY 10018-1405
T +1 212 841 1000

April 30, 2026

Cartesian Therapeutics, Inc.
7495 New Horizon Way
Frederick, MD 21703

Ladies and Gentlemen:

We have acted as counsel to Cartesian Therapeutics, Inc., a Delaware corporation (the “Company”), and are rendering this opinion in connection with the registration by the Company under the Securities Act of 1933 (the “Securities Act”) of 1,040,444 shares of the Company’s common stock, par value \$0.0001 per share (the “Shares”), issuable under the Company’s Amended and Restated 2016 Incentive Award Plan (the “Incentive Plan”), pursuant to the registration statement on Form S-8 being filed with the Securities and Exchange Commission on the date hereof (the “Registration Statement”).

We have reviewed such corporate records, certificates and other documents, and such questions of law, as we have considered necessary or appropriate for the purposes of this opinion. We have assumed that all signatures are genuine, that all documents submitted to us as originals are authentic and that all copies of documents submitted to us conform to the originals.

We have relied as to certain matters on information obtained from public officials, officers of the Company and other sources believed by us to be responsible.

Based upon the foregoing, we are of the opinion that the Shares have been duly authorized and, when issued in accordance with the terms of the Company’s Restated Certificate of Incorporation, as amended, the Incentive Plan, and any awards duly adopted thereunder and in accordance therewith, will be validly issued, fully paid and nonassessable.

We are members of the bar of the State of New York. We do not express any opinion herein on any laws other than the General Corporation Law of the State of Delaware and reported judicial decisions interpreting such law.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act.

Very truly yours,

/s/ Covington & Burling 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 Cartesian Therapeutics, Inc. Amended and Restated 2016 Incentive Award Plan of our report dated March 9, 2026, with respect to the consolidated financial statements of Cartesian Therapeutics, Inc., included in its Annual Report (Form 10-K) for the year ended December 31, 2025, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Boston, Massachusetts

April 30, 2026