

---

---

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

**FORM S-8**

**REGISTRATION STATEMENT UNDER  
THE SECURITIES ACT OF 1933**

**INOZYME PHARMA, INC.**

(Exact Name of Registrant as Specified in Its Charter)

**Delaware**

(State or Other Jurisdiction of Incorporation or Organization)

**38-4024528**

(I.R.S. Employer Identification No.)

**321 Summer Street  
Suite 400**

**Boston, Massachusetts**  
(Address of Principal Executive Offices)

**02210**

(Zip Code)

**2020 Stock Incentive Plan  
2020 Employee Stock Purchase Plan**  
(Full Title of the Plan)

**Douglas A. Treco  
Chairman and Chief Executive Officer  
321 Summer Street  
Suite 400  
Boston, Massachusetts 02210**  
(Name and Address of Agent For Service)

**(857) 330-4340**

(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

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, relating to the 2020 Stock Incentive Plan of Inozyme Pharma, Inc. (the “Registrant”) and the 2020 Employee Stock Purchase Plan of 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 relating to the 2020 Stock Incentive Plan and the 2020 Employee Stock Purchase Plan has previously been filed and is effective. Accordingly, this Registration Statement incorporates by reference the contents of (i) the Registration Statement on Form S-8, File No. 333-240146, filed by the Registrant with the Securities and Exchange Commission on [July 28, 2020](#), relating to the Registrant’s Amended and Restated 2017 Equity Incentive Plan, as amended, 2020 Stock Incentive Plan and 2020 Employee Stock Purchase Plan, (ii) the Registration Statement on Form S-8, File No. 333-254685, filed by the Registrant with the Securities and Exchange Commission on [March 25, 2021](#), relating to the Registrant’s 2020 Stock Incentive Plan and 2020 Employee Stock Purchase Plan, (iii) the Registration Statement on Form S-8, File No. 333-263586, filed by the Registrant with the Securities and Exchange Commission on [March 15, 2022](#), relating to the Registrant’s 2020 Stock Incentive Plan and 2020 Employee Stock Purchase Plan, and (iv) the Registration Statement on Form S-8, File No. 333-270733, filed by the Registrant with the Securities and Exchange Commission on [March 22, 2023](#), relating to the Registrant’s 2020 Stock Incentive Plan, 2020 Employee Stock Purchase Plan and 2023 Inducement Stock Incentive Plan, in each case, except to the extent amended or superseded by the contents hereof.

---

**Item 8.Exhibits.**

The following exhibits are incorporated herein by reference:

| Number | Description   |
|--------|---|
| 4.1    | <a href="#"><u>Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-39397) filed with the Securities and Exchange Commission on July 28, 2020)</u></a>        |
| 4.2    | <a href="#"><u>Amended and Restated Bylaws of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-39397) filed with the Securities and Exchange Commission on June 14, 2023)</u></a>                  |
| 5.1*   | <a href="#"><u>Opinion of Wilmer Cutler Pickering Hale and Dorr LLP, counsel to the Registrant</u></a>  |
| 23.1*  | <a href="#"><u>Consent of Wilmer Cutler Pickering Hale and Dorr LLP (included in Exhibit 5.1)</u></a>   |
| 23.2*  | <a href="#"><u>Consent of Ernst &amp; Young LLP, independent registered public accounting firm</u></a>  |
| 24.1*  | <a href="#"><u>Power of Attorney (included on the signature pages of this registration statement)</u></a>   |
| 99.1   | <a href="#"><u>2020 Stock Incentive Plan (incorporated by reference to Exhibit 10.5 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 (File No. 333-239648) filed with the Securities and Exchange Commission on July 20, 2020)</u></a>         |
| 99.2   | <a href="#"><u>2020 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.8 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 (File No. 333-239648) filed with the Securities and Exchange Commission on July 20, 2020)</u></a> |
| 107*   | <a href="#"><u>Filing Fee Table</u></a>   |

\* 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 12th day of March, 2024.

INOZYME PHARMA, INC.

By: /s/ Douglas A. Treco

Name: Douglas A. Treco

Title: Chairman and Chief Executive Officer

## POWER OF ATTORNEY AND SIGNATURES

We, the undersigned officers and directors of Inozyme Pharma, Inc., hereby severally constitute and appoint Douglas A. Treco, Sanjay Subramanian and Matthew Winton, and each of them singly, our true and lawful attorneys with full power to them, and each of them singly, 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 Inozyme Pharma, 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.

| <u>Signature</u>                                    | <u>Title</u>  | <u>Date</u>    |
|---|---|----------------|
| <u>/s/ Douglas A. Treco</u><br>Douglas A. Treco     | Chairman and Chief Executive Officer<br>(Principal Executive Officer)                     | March 12, 2024 |
| <u>/s/ Sanjay Subramanian</u><br>Sanjay Subramanian | Chief Financial Officer (Principal Financial<br>Officer and Principal Accounting Officer) | March 12, 2024 |
| <u>/s/ Sarah Bhagat</u><br>Sarah Bhagat             | Director  | March 12, 2024 |
| <u>/s/ Axel Bolte</u><br>Axel Bolte                 | Director  | March 12, 2024 |
| <u>/s/ Reinaldo Diaz</u>                            | Director  | March 12, 2024 |

---

Reinaldo Diaz

/s/ Martin Edwards Director  
Martin Edwards

March 12, 2024

/s/ Robert Hopfner Director  
Robert Hopfner

March 12, 2024

/s/ Edward Mathers Director  
Edward Mathers

March 12, 2024

/s/ Lynne Sullivan Director  
Lynne Sullivan

March 12, 2024

---

March 12, 2024

Inozyme Pharma, Inc.  
321 Summer Street  
Suite 400  
Boston, Massachusetts 02210

Re: 2020 Stock Incentive Plan  
2020 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 2,867,829 shares of common stock, \$0.0001 par value per share (the “Shares”), of Inozyme Pharma, Inc., a Delaware corporation (the “Company”), issuable under the Company’s 2020 Stock Incentive Plan and 2020 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 board of directors and stockholders of the Company, the Registration Statement, the Plans 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.

---

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.

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,

/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 2020 Stock Incentive Plan and the 2020 Employee Stock Purchase Plan of Inozyme Pharma, Inc. of our report dated March 12, 2024, with respect to the consolidated financial statements of Inozyme Pharma, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2023, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Boston, Massachusetts  
March 12, 2024

---



**Calculation of Filing Fee Tables**

**Form S-8**  
(Form Type)

**INOZYME PHARMA, 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, \$0.0001 par value per share | Other                | 2,867,829 (2)         | \$6.11 (3)                               | \$17,522,435.19 (3)              | 0.00014760 | \$2,586.32                 |
| <b>Total Offering Amounts</b> |  |                      |                       |  | \$17,522,435.19                  |            | \$2,586.32                 |
| <b>Total Fee Offsets</b>      |  |                      |                       |  |                                  |            | —                          |
| <b>Net Fee Due</b>            |  |                      |                       |  |                                  |            | \$2,586.32                 |

- (1) In accordance with Rule 416 under the Securities Act of 1933, as amended, 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) an additional 2,470,750 shares issuable under the 2020 Stock Incentive Plan; and (ii) an additional 397,079 shares issuable under the 2020 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 of 1933, as amended, and based upon the average of the high and low prices of the Registrant's Common Stock as reported on the Nasdaq Global Select Market on March 6, 2024.

