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

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**FORM S-8  
REGISTRATION STATEMENT**  
*Under  
The Securities Act of 1933*

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**AMYLYX PHARMACEUTICALS, INC.**  
(Exact name of registrant as specified in its charter)

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Delaware  
(State or other jurisdiction of  
incorporation or organization)

46-4600503  
(I.R.S. Employer  
Identification No.)

43 Thorndike St.  
Cambridge, MA 02141  
(617) 682-0917  
(Address, including zip code and telephone number, including area code, of Registrant's principal executive offices)

Amylyx Pharmaceuticals, Inc. 2022 Stock Option and Incentive Plan  
Amylyx Pharmaceuticals, Inc. 2022 Employee Stock Purchase Plan  
(Full title of the plans)

Joshua B. Cohan, Co-Chief Executive Officer  
Justin B. Klee, Co-Chief Executive Officer  
Amylyx Pharmaceuticals, Inc.  
43 Thorndike St.  
Cambridge, MA 02141  
(617) 682-0917  
(Name, address, including zip code, and telephone number, including area code, of agent for service)

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*Copies to:*

Mitchell S. Bloom, Esq.  
Benjamin K. Marsh, Esq.  
Goodwin Procter LLP  
100 Northern Avenue  
Boston, MA 02210  
(617) 570-1000

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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	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

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.

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## Statement of Incorporation by Reference

This Registration Statement on Form S-8 is filed to register the offer and sale of (i) an additional 3,325,600 shares of the Registrant's common stock, \$0.0001 par value per share, to be issued under the Registrant's 2022 Stock Option and Incentive Plan and (ii) an additional 665,120 shares of the Registrant's common stock, \$0.0001 par value per share, to be issued under the Registrant's 2022 Employee Stock Purchase Plan. This Registration Statement incorporates by reference the contents of the registration statement on [Form S-8](#), File No. 333-262125, filed by the Registrant on January 12, 2022.

### Part II Information Required in the Registration Statement

#### Item 8. Exhibits.

See the Exhibit Index below for a list of exhibits filed as part of this registration statement on Form S-8, which Exhibit Index is incorporated herein by reference.

#### EXHIBIT INDEX

Exhibit No.	Description
4.1	<a href="#">Form of Fourth Amended and Restated Certificate of Incorporation (Incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on January 11, 2022).</a>
4.2	<a href="#">Form of Second Amended and Restated Bylaws (Incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on January 11, 2022).</a>
4.3	<a href="#">Second Amended and Restated Investors' Rights Agreement among the Registrant and certain of its stockholders, dated July 1, 2021 (Incorporated by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-261703) filed with the Securities and Exchange Commission on December 16, 2021).</a>
5.1*	<a href="#">Opinion of Goodwin Procter LLP.</a>
23.1*	<a href="#">Consent of Deloitte &amp; Touche LLP, Independent Registered Public Accounting Firm.</a>
23.2*	<a href="#">Consent of Goodwin Procter LLP (included in Exhibit 5.1).</a>
24.1*	<a href="#">Power of Attorney (included on signature page).</a>
99.1	<a href="#">2022 Stock Option and Incentive Plan and form of award agreements thereunder. (Incorporated by reference to Exhibit 10.2 to the Registrant's Registration Statement on Form S-1/A (File No. 333-261703) filed with the Securities and Exchange Commission on January 3, 2022).</a>
99.2	<a href="#">2022 Employee Stock Purchase Plan. (Incorporated by reference to Exhibit 10.5 to the Registrant's Registration Statement on Form S-1/A (File No. 333-261703) filed with the Securities and Exchange Commission on January 3, 2022).</a>
107*	<a href="#">Filing Fee Table.</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 Cambridge, State of Massachusetts, on this 13<sup>th</sup> day of March, 2023.

### AMYLYX PHARMACEUTICALS, INC.

By: /s/ Joshua Cohen

Joshua Cohen

*Co-Chief Executive Officer and Director*

## POWER OF ATTORNEY AND SIGNATURES

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Joshua Cohen and Justin Klee and each of them, his true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for him and in his 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 other documents in connection therewith, with the Securities and Exchange Commission, granting unto each 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 might or could do in person, hereby ratifying and confirming all that each of said attorney-in-fact 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 persons in the capacities and on the date indicated.

Name	Title	Date
<u>/s/ Joshua Cohan</u> Joshua Cohan	Co-Chief Executive Officer and Director (Principal Executive Officer)	March 13, 2023
<u>/s/ Justin Klee</u> Justin Klee	Chief Business Officer (Principal Financial Officer)	March 13, 2023
<u>/s/ James M. Frates</u> James M. Frates, MBA	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 13, 2023
<u>/s/ George Mclean Milne Jr.</u> George Mclean Milne Jr., Ph.D.	Director	March 13, 2023
<u>/s/ Paul Fonteyne</u> Paul Fonteyne, MS, MBS	Director	March 13, 2023
<u>/s/ Daphne Quimi</u> Daphne Quimi, MBA	Director	March 13, 2023



Goodwin Procter LLP  
100 Northern Ave.  
Boston, MA 02210  
goodwinlaw.com  
+1 617 570 1000

March 13, 2023

Amylyx Pharmaceuticals, Inc.  
43 Thorndike St.  
Cambridge, MA 02141

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 3,990,720 shares (the "Shares") of Common Stock, par value \$0.0001 per share ("Common Stock"), of Amylyx Pharmaceuticals, Inc., a Delaware corporation (the "Company"), that may be issued pursuant to the Company's 2022 Stock Option and Incentive Plan and 2022 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 opinions 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 issuance and delivery against payment therefor in accordance with the terms of the Plans, will be validly issued, fully paid and nonassessable.

This opinion letter and the opinion it contains shall be interpreted in accordance with the Core Opinion Principles as published in *74 Business Lawyer* 815 (Summer 2019).

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 incorporation by reference in this Registration Statement on Form S-8 of our report dated March 13, 2023, relating to the financial statements of Amylyx Pharmaceuticals, Inc., appearing in the Annual Report on Form 10-K of Amylyx Pharmaceuticals, Inc. for the year ended December 31, 2022.

/s/ Deloitte & Touche LLP

Boston, Massachusetts  
March 13, 2023

## CALCULATION OF REGISTRATION FEE

Form S-8  
(Form Type)

**Amylyx Pharmaceuticals, Inc.**  
(Exact name of Registrant as Specified in its Charter)

## Newly Registered Securities

Security Type	Security Class Title	Fee Calculation Rule	Amount Registered(1)	Proposed Maximum Offering Price Per Share	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
Equity	Common Stock, \$0.0001 par value per share, reserved for issuance pursuant to the Amylyx Pharmaceuticals, Inc. 2022 Stock Option and Incentive Plan	Rule 457(c) and Rule 457(h)	3,325,600 shares (2)	\$31.39 (3)	\$104,390,584 (3)	\$0.00011020	\$11,503.84
Equity	Common Stock, \$0.0001 par value per share, reserved for issuance pursuant to the Amylyx Pharmaceuticals, Inc. 2022 Employee Stock Purchase Plan	Rule 457(c) and Rule 457(h)	665,120 shares (4)	\$26.6815 (5)	\$17,746,399.28 (5)	\$0.00011020	\$1,955.65
Total Offering Amounts					\$122,136,983.28		—
Total Fees Previously Paid							—
Total Fee Offsets							—
Net Fee Due							\$13,459.49

- (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 effected without the receipt of consideration which results in an increase in the number of our outstanding shares of common stock.
- (2) Represents an automatic increase to the number of shares available for issuance under the 2022 Stock Option and Incentive Plan (the "2022 Plan") of 3,325,600, effective as of January 1, 2023. Shares available for issuance under the 2022 Plan were previously registered on registration statement on Form S-8 filed with the Securities and Exchange Commission on January 12, 2022 (File No. 333-262125).
- (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. The price per share and aggregate offering price are calculated on the basis of \$31.39, the average of the high and low price of the registrant's Common Stock as reported on the NASDAQ Global Market on March 10, 2023.
- (4) Represents an automatic increase to the number of shares available for issuance under the 2022 Employee Stock Purchase Plan (the "2022 ESPP") of 665,120, effective as of January 1, 2023. Shares available for issuance under the 2022 ESPP were previously registered on registration statement on Form S-8 filed with the Securities and Exchange Commission on January 12, 2022 (File No. 333-262125).
- (5) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) and 457(h) of the Securities Act, and based on 85% of the average of the high and low sales price of the Registrant's common stock, as quoted on the Nasdaq Global Select Market, on March 10, 2023. Pursuant to the 2022 ESPP, the purchase price of the shares of common stock reserved for issuance thereunder will be 85% of the fair market value per share of common stock on the applicable offering date or on the exercise date of the applicable offering period, whichever is less.