Registration No. 333-

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-8

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

Catabasis Pharmaceuticals, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware

(State or Other Jurisdiction of Incorporation or Organization)

100 High Street 28th Floor Boston, Massachusetts (Address of Principal Executive Offices) **26-3687168** (I.R.S. Employer Identification No.)

> **02110** (Zip Code)

Amended and Restated 2015 Stock Incentive Plan 2015 Employee Stock Purchase Plan (Full Title of the Plan)

> Benjamin Harshbarger Chief Legal Officer 100 High Street 28th Floor Boston, Massachusetts 02110 (Name and Address of Agent For Service)

> > (617) 349-1971

(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 \Box Non-accelerated filer \boxtimes

Accelerated filer	
Smaller reporting company	\times
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.

CALCULATION OF REGISTRATION FEE

Title of Securities to be Registered	Amount to be Registered ⁽¹⁾	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, \$0.001 par value per share	6,036,470 shares	\$1.53(2)	\$9,235,799.10	\$1,007.63

(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) 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 Market on August 6, 2021.

Statement of Incorporation by Reference

This Registration Statement on Form S-8, relating to the Amended and Restated 2015 Stock Incentive Plan and the 2015 Employee Stock Purchase Plan of Catabasis Pharmaceuticals, 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. Accordingly, this Registration Statement incorporates by reference the contents of:

- the Registration Statement on Form S-8, File No. 333-206394, filed with the Securities and Exchange Commission on August 14, 2015 by the Registrant, relating to the Registrant's Amended and Restated 2008 Equity Incentive Plan, 2015 Stock Incentive Plan and 2015 Employee Stock Purchase Plan,
- : the Registration Statement on Form S-8, File No. 333-210229, filed with the Securities and Exchange Commission on March 16, 2016 by the Registrant, relating to the Registrant's 2015 Stock Incentive Plan and 2015 Employee Stock Purchase Plan,
- : the Registration Statement on Form S-8, File No. 333-216793, filed with the Securities and Exchange Commission on March 17, 2017 by the Registrant, relating to the Registrant's 2015 Stock Incentive Plan and 2015 Employee Stock Purchase Plan,
- : the Registration Statement on Form S-8, File No. 333-223721, filed with the Securities and Exchange Commission on March 16, 2018 by the Registrant, relating to the Registrant's 2015 Stock Incentive Plan and 2015 Employee Stock Purchase Plan,
- : the Registration Statement on Form S-8, File No. 333- 229643, filed with the Securities and Exchange Commission on February 13, 2019 by the Registrant, relating to the Registrant's Amended and Restated 2015 Stock Incentive Plan and 2015 Employee Stock Purchase Plan, and
- the Registration Statement on Form S-8, File No. 333-239114, filed with the Securities and Exchange Commission on June 12, 2020 by the Registrant, relating to the Registrant's Amended and Restated 2015 Stock Incentive Plan and 2015 Employee Stock Purchase Plan, except in each case for Item 8, Exhibits.

PART II INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 8. Exhibits.

EXHIBIT INDEX

		Incorporated by Reference				
Exhibit Number	Description of Exhibit	Form	File Number	Date of Filing	Exhibit Number	Filed Herewith
<u>4.1</u>	Restated Certificate of Incorporation of the Registrant	<u>8-K</u>	001-37467	<u>July 1, 2015</u>	<u>3.1</u>	
<u>4.2</u>	<u>Certificate of Amendment to Restated Certificate of Incorporation</u> of the Registrant	<u>8-K</u>	<u>001-37467</u>	December 31, 2018	<u>3.1</u>	
<u>4.3</u>	<u>Certificate of Designation of Preferences, Rights and Limitations</u> <u>of Series X Convertible Preferred Stock</u>	<u>8-K</u>	<u>001-37467</u>	<u>January 29, 2021</u>	<u>3.1</u>	
<u>4.4</u>	Amended and Restated By-Laws of the Registrant	<u>8-K</u>	<u>001-37467</u>	<u>July 1, 2015</u>	<u>3.2</u>	
<u>5.1</u>	<u>Opinion of Wilmer Cutler Pickering Hale and Dorr LLP, counsel</u> to the Registrant					X
<u>23.1</u>	<u>Consent of Wilmer Cutler Pickering Hale and Dorr LLP (included in Exhibit 5.1)</u>					<u>X</u>
<u>23.2</u>	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm					<u>X</u>
<u>24.1</u>	<u>Power of attorney (included on the signature pages of this</u> registration statement)					<u>X</u>
<u>99.1</u>	Amended and Restated 2015 Stock Incentive Plan	<u>8-K</u>	<u>001-37467</u>	<u>June 2, 2021</u>		
<u>99.2</u>	2015 Employee Stock Purchase Plan	<u>S-1</u>	<u>333-204144</u>	<u>June 3, 2015</u>		

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 9th day of August, 2021.

CATABASIS PHARMACEUTICALS, INC.

By: /s/ Jill C. Milne

Jill C. Milne, Ph.D. President and Chief Executive Officer

POWER OF ATTORNEY AND SIGNATURES

We, the undersigned officers and directors of Catabasis Pharmaceuticals, Inc., hereby severally constitute and appoint Jill C. Milne, Ph.D., Benjamin Harshbarger and Noah C. Clauser , 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 Catabasis Pharmaceuticals, 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/ Jill C. Milne, Ph.D. Jill C. Milne, Ph.D.	President and Chief Executive Officer and Director (<i>Principal Executive Officer</i>)	August 9, 2021
/s/ Noah C. Clauser Noah C. Clauser	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	August 9, 2021
/s/ Kenneth Bate Kenneth Bate	Chairman of the Board of Directors	August 9, 2021
/s/ Joanne T. Beck, Ph.D. Joanne T. Beck, Ph.D.	Director	August 9, 2021
/s/ Fred Callori Fred Callori	Director	August 9, 2021
/s/ Hugh Cole Hugh Cole	Director	August 9, 2021
/s/ Michael Kishbauch Michael Kishbauch	Director	August 9, 2021
/s/ Gregg Lapointe Gregg Lapointe	Director	August 9, 2021
/s/ Jonathan Violin Jonathan Violin	_ Director	August 9, 2021

WILMERHALE

+1 617 526 6000 (t) +1 617 526 5000 (f) wilmerhale.com

August 9, 2021

Catabasis Pharmaceuticals, Inc. 100 High Street Floor 28 Boston, Massachusetts 02110

Re: Registration Statement on Form S-8: Amended and Restated 2015 Stock Incentive Plan and 2015 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 6,036,470 shares of common stock, \$0.001 par value per share (the "**Shares**"), of Catabasis Pharmaceuticals, Inc., a Delaware corporation (the "**Company**"), issuable under the Company's Amended and Restated 2015 Stock Incentive Plan and the 2015 Employee Stock Purchase Plan (the "**Plans**").

We have examined the Certificate of Incorporation and By-Laws 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 state laws of the Commonwealth of Massachusetts, 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.

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 applicable Plan, 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,

WILMER CUTLER PICKERING HALE AND DORR LLP

By: /s/ Rosemary G. Reilly Rosemary G. Reilly, a Partner

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8) pertaining to the Amended and Restated 2015 Stock Incentive Plan and the 2015 Employee Stock Purchase Plan of Catabasis Pharmaceuticals, Inc. of our report dated March 11, 2021, with respect to the consolidated financial statements of Catabasis Pharmaceuticals, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2020, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Boston, Massachusetts August 9, 2021