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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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**Syndax Pharmaceuticals, Inc.**

(Exact name of registrant as specified in its charter)

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**Delaware**  
(State or other jurisdiction of  
incorporation or organization)

**32-0162505**  
(IRS employer  
identification number)

**35 Gatehouse Drive  
Building D, Floor 3  
Waltham, Massachusetts 02451  
(781) 419-1400**  
(Address of principal executive offices)

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**2015 Omnibus Incentive Plan  
2015 Employee Stock Purchase Plan**  
(Full titles of the plans)

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**Briggs W. Morrison, M.D.**  
**Chief Executive Officer**  
**Syndax Pharmaceuticals, Inc.**  
**35 Gatehouse Drive  
Building D, Floor 3  
Waltham, Massachusetts 02451  
(781) 419-1400**  
(Name, address and telephone number of agent for service)

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*Copies to:*

**Laura Berezin  
Cooley LLP  
3175 Hanover Street  
Palo Alto, California 94304  
(650) 843-5000**

**Luke J. Albrecht  
Vice President, General Counsel & Secretary  
35 Gatehouse Drive  
Building D, Floor 3  
Waltham, Massachusetts 02451  
(781) 419-1400**

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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"/> (Do not check if a smaller reporting company)	Smaller reporting company	<input 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.

**CALCULATION OF REGISTRATION FEE**

Title of Securities To Be Registered	Amount To Be Registered <sup>(1)</sup>	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
<b>2015 Omnibus Incentive Plan</b> (Common stock, \$0.0001 par value per share)	728,948 <sup>(2)</sup>	\$11.26 <sup>(4)</sup>	\$8,207,954.48 <sup>(4)</sup>	\$951.30
<b>2015 Employee Stock Purchase Plan</b> (Common stock, \$0.0001 par value per share)	182,237 <sup>(3)</sup>	\$11.26 <sup>(4)</sup>	\$2,051,988.62 <sup>(4)</sup>	\$237.83

- (1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the “**Securities Act**”), this Registration Statement shall also cover any additional shares of common stock that become issuable under the above-named plans by reason of any stock dividend, stock split, recapitalization or any other similar transaction effected without receipt of consideration which results in an increase in the number of Syndax Pharmaceuticals, Inc.’s (the “**Registrant**”) outstanding shares of common stock.
- (2) Represents additional shares of the Registrant’s common stock reserved for future grant under the Syndax Pharmaceuticals, Inc. 2015 Omnibus Incentive Plan (the “**2015 Plan**”) as a result of the automatic increase in shares reserved thereunder on January 1, 2017 pursuant to the terms of the 2015 Plan. The 2015 Plan provides that an additional number of shares will automatically be added annually to the shares authorized for issuance under the 2015 Plan on January 1, from 2017 until the expiration of the 2015 Plan. The number of shares added each year will be equal to the lesser of: (a) 4% of the total number of shares of the Registrant’s common stock outstanding on December 31 of the preceding calendar year; and (b) the number of shares of the Registrant’s common stock designated by action of the Registrant’s board of directors prior to the first day of any calendar year.
- (3) Represents additional shares of the Registrant’s common stock reserved for issuance under the Syndax Pharmaceuticals, Inc. 2015 Employee Stock Purchase Plan (the “**ESPP**”) as a result of the automatic increase in shares reserved thereunder on January 1, 2017 pursuant to the terms of the ESPP. The ESPP provides that an additional number of shares will automatically be added annually to the shares authorized for issuance under the ESPP on January 1, from 2017 until the expiration of the ESPP. The number of shares added each year will be equal to the lesser of: (a) 1% of the total number of shares of the Registrant’s common stock outstanding on December 31 of the preceding calendar year; (b) 250,000 shares of the Registrant’s common stock; and (c) a number of shares of the Registrant’s common stock designated by action of the Registrant’s board of directors prior to the first day of any calendar year.
- (4) Estimated pursuant to Rule 457(c) and Rule 457(h) solely for the purpose of calculating the registration fee. The proposed maximum offering price per share and proposed maximum aggregate offering price are based on the average of the high and low sale prices of the Registrant’s common stock as reported on The NASDAQ Global Select Market on August 21, 2017.

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## **INCORPORATION OF DOCUMENTS BY REFERENCE**

The Registrant is filing this Registration Statement for the purpose of increasing the number of securities of the same class as other securities for which a Registration Statement of the Registrant on Form S-8 relating to the same employee benefit plans is effective.

The Registrant previously registered shares of its Common Stock for issuance under the 2015 Plan and the ESPP under Registration Statement on Form S-8 filed with the Securities and Exchange Commission on March 25, 2016 (File No. 333-210412). Pursuant to General Instruction E to Form S-8, this Registration Statement hereby incorporates by reference the contents of the Registration Statement referenced above.

## SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, 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 Waltham, Commonwealth of Massachusetts, on August 25, 2017.

**SYNDAX PHARMACEUTICALS, INC.**

By: /s/ Briggs W. Morrison, M.D.  
Briggs W. Morrison, M.D.  
Chief Executive Officer

## POWER OF ATTORNEY

**KNOW ALL PERSONS BY THESE PRESENTS**, that each person whose signature appears below constitutes and appoints Briggs W. Morrison, M.D. and Luke J. Albrecht, and each of them, his true and lawful attorney-in-fact and agents, each with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement, 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, 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 any of them, or their or his or her substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, 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/ Briggs W. Morrison, M.D.</u> Briggs W. Morrison, M.D.	Chief Executive Officer and Director (Principal Executive Officer)	August 25, 2017
<u>/s/ Richard P. Shea</u> Richard P. Shea	Chief Financial Officer and Treasurer (Principal Financial and Accounting Officer)	August 25, 2017
<u>/s/ Dennis G. Podlesak</u> Dennis G. Podlesak	Chairman of the Board of Directors	August 25, 2017
<u>/s/ Henry Chen</u> Henry Chen	Director	August 25, 2017
<u>/s/ Luke Evnin, Ph.D.</u> Luke Evnin, Ph.D.	Director	August 25, 2017
<u>/s/ Fabrice Egros, PharmD, Ph.D.</u> Fabrice Egros, PharmD, Ph.D.	Director	August 25, 2017
<u>/s/ Keith A. Katkin</u> Keith A. Katkin	Director	August 25, 2017
<u>/s/ Pierre Legault</u> Pierre Legault	Director	August 25, 2017

## EXHIBIT INDEX

<b>Exhibit Number</b>	<b>Exhibit Description</b>
4.1	Amended and Restated Certificate of Incorporation (incorporated herein by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-37708), filed with the Commission on March 8, 2016).
4.2	Amended and Restated Bylaws (incorporated herein by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-37708), filed with the Commission on March 8, 2016).
4.3	Specimen common stock certificate (incorporated herein by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1/A (File No. 333-208861), filed with the Commission on February 10, 2016).
4.4	2015 Omnibus Incentive Plan (incorporated herein by reference to Exhibit 4.13 to the Company's Registration Statement on Form S-8 (File No. 333-210412), as filed with the SEC on March 25, 2016).
4.5	Form of Incentive Stock Option Agreement under 2015 Omnibus Incentive Plan (incorporated herein by reference to Exhibit 10.13 to the Registrant's Registration Statement on Form S-1 (File No. 333-208861), filed with the Commission on January 4, 2016).
4.6	Form of Non-Qualified Option Agreement under 2015 Omnibus Incentive Plan (incorporated herein by reference to Exhibit 10.14 to the Registrant's Registration Statement on Form S-1 (File No. 333-208861), filed with the Commission on January 4, 2016).
4.7	2015 Employee Stock Purchase Plan (incorporated herein by reference to Exhibit 4.16 to the Company's Registration Statement on Form S-8 (File No. 333-210412), as filed with the SEC on March 25, 2016).
5.1	Opinion of Cooley LLP.
23.1	Consent of Independent Registered Accounting Firm.
23.2	Consent of Cooley LLP (included in Exhibit 5.1).
24.1	Power of Attorney (included on the signature page to this Registration Statement).

August 25, 2017

Syndax Pharmaceuticals, Inc.  
35 Gatehouse Drive, Building D,  
Floor 3  
Waltham, Massachusetts 02451

Ladies and Gentlemen:

We have acted as counsel to Syndax Pharmaceuticals, Inc., a Delaware corporation (the “**Company**”), and you have requested our opinion in connection with the filing of a registration statement on Form S-8 (the “**Registration Statement**”) with the Securities and Exchange Commission covering the offering of up to 911,185 shares of the Company’s Common Stock, \$0.0001 par value (the “**Shares**”), pursuant to the Company’s 2015 Omnibus Incentive Plan and 2015 Employee Stock Purchase Plan (the “**Plans**”).

In connection with this opinion, we have examined the Registration Statement and related prospectus, your Certificate of Incorporation, as amended and restated, and Bylaws, as amended and restated, and such other documents, records, certificates, memoranda and other instruments as we deem necessary as a basis for this opinion. As to certain factual matters, we have relied upon a certificate of an officer of the Company and have not sought independently to verify such matters. We have assumed the genuineness and authenticity of all documents submitted to us as originals, the conformity to originals of all documents submitted to us as copies thereof, and the due execution and delivery of all documents where due execution and delivery are a prerequisite to the effectiveness thereof. Our opinion is limited to the matters stated herein and no opinion is implied or may be inferred beyond the matters expressly stated.

Our opinion herein is expressed solely with respect to the General Corporation Law of the State of Delaware. Our opinion is based on those laws as in effect on the date hereof, and we disclaim any obligation to advise you of facts, circumstances, events or developments which hereafter may be brought to our attention and which may alter, affect or modify the opinion expressed herein. We express no opinion as to whether the laws of any jurisdiction other than those identified above are applicable to the subject matter hereof. We are not rendering any opinion as to compliance with any federal or state law, rule or regulation relating to securities, or to the sale or issuance thereof.

On the basis of the foregoing, and in reliance thereon, we are of the opinion that the Shares, when sold and issued in accordance with the Plans, the Registration Statement and related prospectus, will be validly issued, fully paid, and nonassessable (except as to shares issued pursuant to certain deferred payment arrangements, which will be fully paid and nonassessable when such deferred payments are made in full).

We consent to the filing of this opinion as an exhibit to the Registration Statement.

Very truly yours,

COOLEY LLP

By: /s/ Laura A. Berezin  
Laura A. Berezin

**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 14, 2017, relating to the financial statements of Syndax Pharmaceuticals, Inc. and its subsidiaries, appearing in the Annual Report on Form 10-K of Syndax Pharmaceuticals, Inc. and its subsidiaries for the year ended December 31, 2016.

/s/ Deloitte & Touche LLP

Boston, Massachusetts  
August 25, 2017