

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

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

X4 Pharmaceuticals, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

27-3181608
(I.R.S. Employer
Identification No.)

955 Massachusetts Avenue, 4th Floor
Cambridge, Massachusetts
(Address of Principal Executive Offices)

02139
(Zip Code)

X4 Pharmaceuticals, Inc. 2017 Equity Incentive Plan
X4 Pharmaceuticals, Inc. 2017 Employee Stock Purchase Plan
X4 Pharmaceuticals, Inc. 2019 Inducement Equity Incentive Plan
(Full title of the plan)

Paula Ragan, Ph.D.
President and Chief Executive Officer
X4 Pharmaceuticals, Inc.
955 Massachusetts Avenue, 4th Floor
Cambridge, Massachusetts 02139
(857) 529-8300

(Name, address and telephone number, including area code, of agent for service)

Copy to:

Daniel I. Goldberg
Richard C. Segal
Courtney T. Thorne
Cooley LLP
55 Hudson Yards
New York, NY 10001-2157
(212) 479-6000

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 checked="" type="checkbox"/>
Non-accelerated filer	<input 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.

CALCULATION OF REGISTRATION FEE

Title of securities to be registered	Amount to be registered (1)	Proposed maximum offering price per share (2)	Proposed maximum aggregate offering price (2)	Amount of registration fee
X4 Pharmaceuticals, Inc. 2017 Equity Incentive Plan Common Stock, \$0.001 par value per share	170,915 shares (3)	\$8.37	\$1,430,558.55	\$185.69

X4 Pharmaceuticals, Inc. 2017 Employee Stock Purchase Plan				
Common Stock, \$0.001 par value per share	85,457 shares (4)	\$8.37	\$715,275.09	\$92.85
X4 Pharmaceuticals, Inc. 2019 Inducement Equity Incentive Plan				
Common Stock, \$0.001 par value per share	250,000 shares (5)	\$8.37	\$2,092,500.00	\$271.61
Total	506,372 shares	N/A	\$4,238,333.64	\$550.15

- (1) Pursuant to Rule 416 of the Securities Act of 1933, as amended (the “**Securities Act**”), this Registration Statement shall also cover any additional shares of the Registrant’s common stock, par value \$0.001 per share (the “**Common Stock**”), that become issuable under the X4 Pharmaceuticals, Inc. 2017 Equity Incentive Plan (the “**2017 Plan**”), the X4 Pharmaceuticals, Inc. 2017 Employee Stock Purchase Plan (the “**2017 ESPP**”), the X4 Pharmaceuticals, Inc. 2019 Inducement Equity Incentive Plan (the “**Inducement Plan**” and together with the 2017 Plan and the 2017 ESPP, the “**Plans**”) by reason of any stock dividend, stock split, recapitalization or other similar transaction effected without receipt of consideration that increases the number of the Registrant’s outstanding shares of Common Stock.
- (2) This calculation is made solely for the purpose of determining the registration fee pursuant to the provisions of Rule 457(c) and (h) under the Securities Act. The offering price per share and the aggregate offering price for shares reserved for future grant or issuance under the Plans are based on the average of the high and low sale prices per share of the Common Stock as reported on The Nasdaq Capital Market as of a date (March 12, 2020) within five business days prior to filing this Registration Statement.
- (3) Consists of 170,915 shares of Common Stock that were automatically added to the shares authorized for issuance under the 2017 Plan on January 1, 2020, pursuant to an “evergreen” provision contained in the 2017 Plan. Pursuant to such “evergreen” provision contained in the 2017 Plan, on January 1 of each year from 2018 until (and including) 2027, the number of shares authorized for issuance under the 2017 Plan is automatically increased by a number equal to the amount equal to the least of (1) 170,915 shares of Common Stock, (2) 4% of the total number of shares of Common Stock outstanding on December 31st of the preceding calendar year, or (3) a number of shares determined by the Registrant’s board of directors.
- (4) Consists of 85,457 shares of Common Stock that were automatically added to the shares authorized for issuance under the 2017 ESPP on January 1, 2020, pursuant to an “evergreen” provision contained in the 2017 ESPP. Pursuant to the “evergreen” provision contained in the 2017 ESPP, on January 1 of each year from 2019 until (and including) 2029, the number of shares authorized for issuance under the 2017 ESPP is automatically increased by a number equal to the amount equal to the least of (1) 85,457 shares of Common Stock, (2) 2% of the total number of shares of Common Stock outstanding on December 31st of the preceding calendar year, or (3) a number of shares determined by the Registrant’s board of directors.
- (5) Consists of shares of Common Stock added to the Inducement Plan pursuant to resolution of the Board of Directors of the Registrant on December 9, 2019.

INCORPORATION OF DOCUMENTS BY REFERENCE

This Registration Statement on Form S-8 is being filed for the purpose of increasing the number of securities of the same class as other securities for which a Registration Statement on Form S-8 of the Registrant relating to the same employee benefit plans is effective. Accordingly, this Registration Statement incorporates by reference the contents of (i) the Registration Statement on Form S-8 (File No. 333-221622) filed with the Securities and Exchange Commission (“SEC”) on [November 16, 2017](#) relating to the Registrant’s 2010 Special Stock Incentive Plan, 2011 Stock Incentive Plan, the 2017 Plan and the 2017 ESPP; (ii) the Registration Statement on Form S-8 (File No. 333-223539) filed with the SEC on [March 9, 2018](#) relating to the Registrant’s 2017 Plan; (iii) the Registration Statement on Form S-8 (File No. 333-230181) filed with the SEC on [March 11, 2019](#) relating to the 2017 Plan and the 2017 ESPP and (iv) the Registration Statement on Form S-8 (File No. 333-233162) filed with the SEC on [August 9, 2019](#) relating to the Inducement Plan, in each case except for Item 8, Exhibits, with respect to which the Exhibit Index below is incorporated herein by reference.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 8. Exhibits.

Exhibit Number	Exhibit Description	Filed Herewith	Incorporated Reference herein from Form or Schedule	Filing Date	SEC File/Reg. Number
4.1.1	Restated Certificate of Incorporation of the Registrant, filed with the Secretary of State of the State of Delaware on November 20, 2017		8-K (Exhibit 3.1)	11/20/2017	001-38295
4.1.2	Certificate of Amendment (Reverse Stock Split) to the Restated Certificate of Incorporation of the Registrant, filed with the Secretary of State of the State of Delaware on March 13, 2019		8-K (Exhibit 3.1)	03/13/2019	001-38295
4.1.3	Certificate of Amendment (Name Change) to the Restated Certificate of Incorporation of the Registrant, filed with the Secretary of State of the State of Delaware on March 13, 2019		8-K (Exhibit 3.2)	03/13/2019	001-38295
4.2	Amended and Restated By-laws of the Registrant		8-K (Exhibit 3.2)	11/20/2017	001-38295
4.3	Form of Common Stock Certificate		8-K (Exhibit 4.1)	03/13/2019	001-38295
5.1	Opinion of Cooley LLP with respect to the legality of the securities being registered	X			
23.1	Consent of PricewaterhouseCoopers LLP, independent registered public accounting firm	X			
23.2	Consent of Cooley LLP (included in Exhibit 5.1)	X			
24.1	Power of Attorney to file future amendments (set forth on the signature page of this Registration Statement)	X			
99.1	2017 Equity Incentive Plan		S-1 (Exhibit 10.7)	10/20/2017	001-38295
99.2	Form of Incentive Stock Option Agreement under the 2017 Equity Incentive Plan		S-1 (Exhibit 10.8)	10/20/2017	001-38295
99.3	Form of Nonstatutory Stock Option Agreement under the 2017 Equity Incentive Plan		S-1 (Exhibit 10.9)	10/20/2017	001-38295
99.4	Form of Restricted Stock Agreement under the 2017 Equity Incentive Plan		8-K (Exhibit 10.6)	11/27/2018	001-38295
99.5	Form of Restricted Stock Unit Agreement under the 2017 Equity Incentive Plan		8-K (Exhibit 10.5)	6/19/2019	001-38295

99.6	<u>2017 Employee Stock Purchase Plan</u>	S-1 (Exhibit 10.10)	10/20/2017	001-38295
99.7	<u>2019 Inducement Equity Incentive Plan</u>	8-K (Exhibit 10.1)	6/19/2019	001-38295
99.8	<u>Form of Stock Option Agreement under the 2019 Inducement Equity Incentive Plan</u>	8-K (Exhibit 10.2)	6/19/2019	001-38295
99.9	<u>Form of Restricted Stock Agreement under 2019 Inducement Equity Incentive Plan</u>	8-K (Exhibit 10.3)	6/19/2019	001-38295
99.10	<u>Form of Restricted Stock Unit Agreement under 2019 Inducement Equity Incentive Plan</u>	8-K (Exhibit 10.4)	6/19/2019	001-38295

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, Commonwealth of Massachusetts, on March 13, 2020.

X4 PHARMACEUTICALS, INC.

By: /s/ Paula Ragan, Ph.D

Paula Ragan, Ph.D.

President and Chief Executive Officer

SIGNATURES AND POWER OF ATTORNEY

We, the undersigned officers and directors of X4 Pharmaceuticals, Inc., hereby severally constitute and appoint Paula Ragan, Ph.D. and Adam S. Mostafa, and each of them singly (with full power to each of them to act alone), our 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 sign any and all amendments (including post-effective amendments) to this Registration Statement on Form S-8 of X4 Pharmaceuticals, Inc., 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 or necessary to be done in and about the premises, as full 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 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 below by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Paula Ragan</u> Paula Ragan, Ph.D.	President, Chief Executive Officer and Director (principal executive officer)	March 13, 2020
<u>/s/ Adam S. Mostafa</u> Adam S. Mostafa	Chief Financial Officer and Treasurer (principal financial officer and principal accounting officer)	March 13, 2020
<u>/s/ Michael S. Wyzga</u> Michael S. Wyzga	Chairman of the Board of Directors	March 13, 2020
<u>/s/ William E. Aliski</u> William E. Aliski	Director	March 13, 2020
<u>/s/ Gary J. Bridger</u> Gary J. Bridger, Ph.D.	Director	March 13, 2020
<u>/s/ David McGirr</u> David McGirr, M.B.A.	Director	March 13, 2020
<u>/s/ René Russo</u> René Russo, Pharm.D.	Director	March 13, 2020
<u>/s/ Murray W. Stewart, M.D.</u> Murray W. Stewart, M.D.	Director	March 13, 2020



Daniel I. Goldberg
+1 212 479 6722
dgoldberg@cooley.com

March 13, 2020

X4 Pharmaceuticals, Inc.
955 Massachusetts Avenue
Cambridge, MA 02139

Ladies and Gentlemen:

We have acted as counsel to X4 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 506,372 shares (the "**Shares**") of the Company's Common Stock, \$0.001 par value per share ("**Common Stock**"), consisting of (i) 170,915 shares of Common Stock reserved for issuance pursuant to the Company's 2017 Equity Incentive Plan (the "**2017 Plan**"), (ii) 85,457 shares of Common Stock reserved for issuance pursuant to the Company's 2017 Employee Stock Purchase Plan (the "**2017 ESPP**") and (iii) 250,000 shares of Common Stock reserved for issuance pursuant to the Company's 2019 Inducement Plan (together with the 2017 Plan and the 2017 ESPP, the "**Plans**").

In connection with this opinion, we have examined and relied upon (a) the Registration Statement and the related prospectuses, (b) the Company's Amended and Restated Certificate of Incorporation, as amended, and the Company's Amended and Restated Bylaws, each as currently in effect, (c) the Plans and (d) such other documents, records, certificates, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below. 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, the accuracy, completeness and authenticity of certificates of public officials, and the due authorization, execution and delivery of all documents by all persons other than the Company where authorization, execution and delivery are prerequisites to the effectiveness thereof. 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.

Our opinion is expressed only with respect to the General Corporation Law of the State of Delaware. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state securities law, rule or regulation.

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 the related prospectuses, 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).

Cooley LLP 55 Hudson Yards New York, NY 10001-2157
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X4 Pharmaceuticals, Inc.

March 13, 2020

Page Two

Our opinion is limited to the matters stated herein and no opinion is implied or may be inferred beyond the matters expressly stated and 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 consent to the filing of this opinion as an exhibit to the Registration Statement.

Sincerely,

Cooley LLP

By: /s/ Daniel I. Goldberg

Daniel I. Goldberg, Partner

Cooley LLP 55 Hudson Yards New York, NY 10001-2157
t: (212) 479-6000 f: (212) 479-6275 cooley.com

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-8 of X4 Pharmaceuticals, Inc. of our report dated March 12, 2020 relating to the financial statements, which appears in X4 Pharmaceuticals, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2019.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
March 13, 2020