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

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**SCHEDULE 13D**

**Under the Securities Exchange Act of 1934  
(Amendment No. 1)\***

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**X4 PHARMACEUTICALS, INC.**  
(Name of Issuer)

**Common Stock, \$0.001 par value**  
(Title of Class of Securities)

**98420X103**  
(CUSIP Number)

**Polaris Partners**  
**One Marina Park Drive, 10<sup>th</sup> Floor**  
**Boston, MA 02210**

**Gunderson Dettmer Stough Villeneuve**  
**Franklin & Hachigian, LLP**  
**One Marina Park Drive, Suite 900**  
**Boston, MA 02210**  
**Attn: Jay K. Hachigian, Esq.**  
**(617) 648-9100**

(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)

**March 13, 2019**  
(Date of Event which Requires Filing of this Statement)

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If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box:

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**Note:** Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties to whom copies are to be sent.

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\* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

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1.	Names of Reporting Persons. Polaris Venture Partners V, L.P. ("PVP V")
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>
3.	SEC Use Only
4.	Source of Funds (See Instructions) WC
5.	Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>
6.	Citizenship or Place of Organization Delaware
Number of Shares Beneficially Owned by Each Reporting Person With	7. Sole Voting Power 300,571 shares of Common Stock, except that (i) Polaris Venture Management Co. V, L.L.C. ("PVM V"), the general partner of PVP V, may be deemed to have sole power to vote these shares, and (ii) Jonathan A. Flint ("Flint"), a managing member of PVM V, may be deemed to have shared power to vote these shares, and Terrance G. McGuire ("McGuire"), a managing member of PVM V, may be deemed to have shared power to vote these shares.
	8. Shared Voting Power See response to row 7.
	9. Sole Dispositive Power 300,571 shares of Common Stock, except that (i) PVM V, the general partner of PVP V, may be deemed to have sole power to dispose of these shares, and (ii) Flint, a managing member of PVM V, may be deemed to have shared power to dispose of these shares, and McGuire, a managing member of PVM V, may be deemed to have shared power to dispose of these shares.
	10. Shared Dispositive Power See response to row 9.
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 300,571
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>
13.	Percent of Class Represented by Amount in Row (11) 2.4%
14.	Type of Reporting Person (See Instructions) PN

1.	Names of Reporting Persons. Polaris Venture Partners Entrepreneurs' Fund V, L.P. ("PVPE V")	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3.	SEC Use Only	
4.	Source of Funds (See Instructions) WC	
5.	Check if Disclosure of Legal Proceedings is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power 5,858 shares of Common Stock, except that (i) PVM V, the general partner of PVPE V, may be deemed to have sole power to vote these shares, and (ii) Flint, a managing member of PVM V, may be deemed to have shared power to vote these shares, and McGuire, a managing member of PVM V, may be deemed to have shared power to vote these shares.
	8.	Shared Voting Power See response to row 7.
	9.	Sole Dispositive Power 5,858 shares of Common Stock, except that (i) PVM V, the general partner of PVPE V, may be deemed to have sole power to dispose of these shares, and (ii) Flint, a managing member of PVM V, may be deemed to have shared power to dispose of these shares, and McGuire, a managing member of PVM V, may be deemed to have shared power to dispose of these shares.
	10.	Shared Dispositive Power See response to Row 9.
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 5,858	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11) 0.0%	
14.	Type of Reporting Person (See Instructions) PN	

1.	Names of Reporting Persons. Polaris Venture Partners Founders' Fund V, L.P. ("PVPPF V")	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3.	SEC Use Only	
4.	Source of Funds (See Instructions) WC	
5.	Check if Disclosure of Legal Proceedings is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power 2,058 shares of Common Stock except that (i) PVM V, the general partner of PVPPF V, may be deemed to have sole power to vote these shares, and (ii) Flint, a managing member of PVM V, may be deemed to have shared power to vote these shares, and McGuire a managing member of PVM V, may be deemed to have shared power to vote these shares.
	8.	Shared Voting Power See response to row 7.
	9.	Sole Dispositive Power 2,058 shares of Common Stock, except that (i) PVM V, the general partner of PVPPF V, may be deemed to have sole power to dispose of these shares, and (ii) Flint, a managing member of PVM V, may be deemed to have shared power to dispose of these shares, and McGuire, a managing member of PVM V, may be deemed to have shared power to dispose of these shares.
	10.	Shared Dispositive Power See response to Row 9.
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 2,058	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11) 0.0%	
14.	Type of Reporting Person (See Instructions) PN	

1.	Names of Reporting Persons. Polaris Venture Partners Special Founders' Fund V, L.P. ("PVPSFF V")	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3.	SEC Use Only	
4.	Source of Funds (See Instructions) WC	
5.	Check if Disclosure of Legal Proceedings is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power 3,005 shares of Common Stock, except that (i) PVM V, the general partner of PVPSFF V, may be deemed to have sole power to vote these shares, and (ii) Flint, a managing member of PVM V, may be deemed to have shared power to vote these shares, and McGuire, a managing member of PVM V, may be deemed to have shared power to vote these shares.
	8.	Shared Voting Power See response to row 7.
	9.	Sole Dispositive Power 3,005 shares of Common Stock, except that (i) PVM V, the general partner of PVPSFF V, may be deemed to have sole power to dispose of these shares, and (ii) Flint, a managing member of PVM V, may be deemed to have shared power to dispose of these shares, and McGuire, a managing member of PVM V, may be deemed to have shared power to dispose of these shares.
	10.	Shared Dispositive Power See response to row 9.
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 3,005	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11) 0.0%	
14.	Type of Reporting Person (See Instructions) PN	

1.	Names of Reporting Persons. Polaris Venture Management Co. V, L.L.C. ("PVM V")	
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3.	SEC Use Only	
4.	Source of Funds (See Instructions) AF	
5.	Check if Disclosure of Legal Proceedings is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>	
6.	Citizenship or Place of Organization Delaware	
Number of Shares Beneficially Owned by Each Reporting Person With	7.	Sole Voting Power  311,492 shares, of which (a) 300,571 shares are directly owned by PVP V, (b) 5,858 shares are directly owned by PVPE V, (c) 2,058 shares are directly owned by PVPFF V, and (d) 3,005 shares are directly owned by PVPSFF V, except that Flint, a managing member of PVM V, the general partner of each of PVP V, PVPE V, PVPFF V and PVPSFF V, may be deemed to have shared power to vote PVP V's, PVPE V's, PVPFF V's and PVPSFF V's shares (collectively, the "Fund V Shares"), and McGuire, a managing member of PVM V, may be deemed to have shared power to vote these shares.
	8.	Shared Voting Power  See response to row 7.
	9.	Sole Dispositive Power  311,492 shares, of which (a) 300,571 shares are directly owned by PVP V, (b) 5,858 shares are directly owned by PVPE V, (c) 2,058 shares are directly owned by PVPFF V, and (d) 3,005 shares are directly owned by PVPSFF V, except that Flint, a managing member of PVM V, the general partner of each of PVP V, PVPE V, PVPFF V and PVPSFF V, may be deemed to have shared power to dispose of the Fund V Shares, and McGuire, a managing member of PVM V, may be deemed to have shared power to dispose of these shares.
	10.	Shared Dispositive Power  See response to row 9.
11.	Aggregate Amount Beneficially Owned by Each Reporting Person  311,492	
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>	
13.	Percent of Class Represented by Amount in Row (11)  2.5%	
14.	Type of Reporting Person (See Instructions)  OO	

1.	Names of Reporting Persons. Jonathan A. Flint
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>
3.	SEC Use Only
4.	Source of Funds (See Instructions) AF
5.	Check if Disclosure of Legal Proceedings is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>
6.	Citizenship or Place of Organization USA
Number of Shares Beneficially Owned by Each Reporting Person With	7. Sole Voting Power 311,492 shares, of which (a) 300,571 shares are directly owned by PVP V, (b) 5,858 shares are directly owned by PVPE V, (c) 2,058 shares are directly owned by PVPFF V, and (d) 3,005 shares are directly owned by PVPSFF V, except that PVM V, the general partner of PVP V, PVPE V, PVPFF V and PVPSFF V, may be deemed to have sole power to vote the Fund V Shares, and McGuire, a managing member of PVM V, may be deemed to have shared power to vote the Fund V Shares.
	8. Shared Voting Power See response to row 7.
	9. Sole Dispositive Power 311,492 shares, of which (a) 300,571 shares are directly owned by PVP V, (b) 5,858 shares are directly owned by PVPE V, (c) 2,058 shares are directly owned by PVPFF V, and (d) 3,005 shares are directly owned by PVPSFF V, except that PVM V, the general partner of PVP V, PVPE V, PVPFF V and PVPSFF V, maybe deemed to have sole power to dispose of the Fund V Shares, and McGuire, a managing member of PVM V, may be deemed to have shared power to dispose of the Fund V Shares.
	10. Shared Dispositive Power See response to row 9.
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 311,492
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>
13.	Percent of Class Represented by Amount in Row (11) 2.5%
14.	Type of Reporting Person (See Instructions) IN

1.	Names of Reporting Persons. Terrance G. McGuire
2.	Check the Appropriate Box if a Member of a Group (See Instructions) (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>
3.	SEC Use Only
4.	Source of Funds (See Instructions) AF
5.	Check if Disclosure of Legal Proceedings is Required Pursuant to Items 2(d) or 2(e) <input type="checkbox"/>
6.	Citizenship or Place of Organization USA
Number of Shares Beneficially Owned by Each Reporting Person With	7. Sole Voting Power 311,492 shares, of which (a) 300,571 shares are directly owned by PVP V, (b) 5,858 shares are directly owned by PVPE V, (c) 2,058 shares are directly owned by PVPFF V, and (d) 3,005 shares are directly owned by PVPSFF V, except that PVM V, the general partner of PVP V, PVPE V, PVPFF V and PVPSFF V, may be deemed to have sole power to vote the Fund V Shares, and Flint, a managing member of PVM V, may be deemed to have shared power to vote the Fund V Shares.
	8. Shared Voting Power See response to row 7.
	9. Sole Dispositive Power 311,492 shares, of which (a) 300,571 shares are directly owned by PVP V, (b) 5,858 shares are directly owned by PVPE V, (c) 2,058 shares are directly owned by PVPFF V, and (d) 3,005 shares are directly owned by PVPSFF V, except that PVM V, the general partner of PVP V, PVPE V, PVPFF V and PVPSFF V, may be deemed to have sole power to dispose of the Fund V Shares, and Flint, a managing member of PVM V, may be deemed to have shared power to dispose of the Fund V Shares.
	10. Shared Dispositive Power See response to row 9.
11.	Aggregate Amount Beneficially Owned by Each Reporting Person 311,492
12.	Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions) <input type="checkbox"/>
13.	Percent of Class Represented by Amount in Row (11) 2.5%
14.	Type of Reporting Person (See Instructions) IN



### SCHEDULE 13D

This Amendment No. 1 (“Amendment No. 1”) amends and supplements the Schedule 13D originally filed with the Securities and Exchange Commission (the “SEC”) on November 29, 2017 by the Reporting Persons (the “Schedule 13D”) with respect to shares of common stock, par value \$0.001 per share, of the Issuer (“Common Stock”) beneficially owned by the Reporting Persons. This Amendment No. 1 is being filed to report that the Reporting Persons have ceased to be the beneficial owner of more than 5% of the class of securities. Except as amended or supplemented in this Amendment No. 1, all other information in the Schedule 13D is as set forth in the Schedule 13D. Information given in response to each item shall be deemed incorporated by reference in all other items, as applicable. Capitalized terms used herein but not defined shall have the meanings ascribed thereto in the Schedule 13D.

The following Items of the Schedule 13D are hereby amended as follows:

#### Item 1. Security and Issuer.

This statement on Schedule 13D relates to the Common Stock, \$0.001 par value per share (the “Common Stock”), of X4 Pharmaceuticals, Inc. (the “Issuer”). The Issuer’s principal executive office is located at 955 Massachusetts Avenue, 4<sup>th</sup> Floor, Cambridge, MA 02139.

#### Item 2. Identity and Background.

(a) This Amendment No. 1 is being filed on behalf of each of the following persons pursuant to Rule 13d-1(k) of Regulation D-G under the Securities Exchange Act of 1934, as amended (the “Exchange Act”): Polaris Venture Partners V, L.P. (“PVP V”), Polaris Venture Partners Entrepreneurs’ Fund V, L.P. (“PVPE V”), Polaris Venture Partners Founders’ Fund V, L.P. (“PVPFF V”), Polaris Venture Partners Special Founders’ Fund, L.P. (“PVPSFF V”), Polaris Venture Management Co. V, L.L.C. (“PVM V”), Jonathan A. Flint (“Flint”), and Terrance G. McGuire (“McGuire”) (collectively, the “Reporting Persons”). The Reporting Persons are making this single, joint filing because they may be deemed to constitute a “group” within the meaning of Section 13(d)(3) of the Exchange Act. The agreement between the Reporting Persons to file as a group (the “Joint Filing Agreement”) is attached hereto as Exhibit A.

(c) Flint and McGuire are the managing members of PVM V.

#### Item 5. Interest in Securities of the Issuer.

The information below and reported in row 13 in each of the cover pages hereto is based on a total of 12,480,778 shares of Common Stock outstanding as of April 29, 2019 as reported on the Issuer’s Proxy Statement filed with the Securities and Exchange Commission on May 22, 2019.

(a) PVP V beneficially owns 300,571 shares of Common Stock, or approximately 2.4% of the Common Stock outstanding. PVPE V beneficially owns 5,858 shares of Common Stock, or approximately 0.0% of the Common Stock outstanding. PVPFF V beneficially owns 2,058 shares of Common Stock, or approximately 0.0% of the Common Stock outstanding. PVPSFF V beneficially owns 3,005 shares of Common Stock, or approximately 0.0% of the Common Stock outstanding. PVM V, as the general partner of each of PVP V, PVPE V, PVPFF V and PVPSFF V, may be deemed to indirectly beneficially own the securities owned by each of PVP V, PVPE V, PVPFF V and PVPSFF V, respectively, or 2.5% of the Common Stock outstanding.

(e) The Reporting Persons have ceased to be the beneficial owner of more than 5% of the class of securities due to dilution resulting from a merger of Arsanis, Inc. and the Issuer on March 13, 2019.

#### Item 7. Material to be Filed as Exhibits.

Exhibit A – Joint Filing Agreement

**SIGNATURE**

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: July 17, 2019

POLARIS VENTURE PARTNERS V, L.P.

By: Polaris Venture Management Co. V, L.L.C.

By: /s/ Harold Friedman

Name: Harold Friedman

Title Chief Financial Officer

POLARIS VENTURE PARTNERS  
ENTREPRENEURS' FUND V, L.P.

By: Polaris Venture Management Co. V, L.L.C.

By: /s/ Harold Friedman

Name: Harold Friedman

Title Chief Financial Officer

POLARIS VENTURE PARTNERS  
FOUNDERS' FUND V, L.P.

By: Polaris Venture Management Co. V, L.L.C.

By: /s/ Harold Friedman

Name: Harold Friedman

Title Chief Financial Officer

POLARIS VENTURE PARTNERS SPECIAL  
FOUNDERS' FUND V, L.P.

By: Polaris Venture Management Co. V, L.L.C.

By: /s/ Harold Friedman

Name: Harold Friedman

Title Chief Financial Officer

POLARIS VENTURE MANAGEMENT CO. V, L.L.C.

By: /s/ Harold Friedman  
Name: Harold Friedman  
Title Chief Financial Officer

JONATHAN A. FLINT

By: \*  
Jonathan A. Flint

TERRANCE G. MCGUIRE

By: \*  
Terrance G. McGuire

\*By: /s/ Harold Friedman  
Name: Harold Friedman  
Attorney-in-Fact

[This Schedule 13D was executed pursuant to a Power of Attorney. Note that copies of the applicable Powers of Attorney are already on file with the appropriate agencies.]

**Exhibit A**

AGREEMENT REGARDING THE JOINT FILING OF  
SCHEDULE 13D

The undersigned, being duly authorized thereunto, hereby execute this agreement as an exhibit to this Schedule 13D to evidence the agreement of the below-named parties, in accordance with the rules promulgated pursuant to the Securities Exchange Act of 1934, to file this Schedule jointly on behalf of each such party.

Date: July 17, 2019

POLARIS VENTURE PARTNERS V, L.P.

By: Polaris Venture Management Co. V, L.L.C.

By: /s/ Harold Friedman

Name: Harold Friedman

Title Chief Financial Officer

POLARIS VENTURE PARTNERS  
ENTREPRENEURS' FUND V, L.P.

By: Polaris Venture Management Co. V, L.L.C.

By: /s/ Harold Friedman

Name: Harold Friedman

Title Chief Financial Officer

POLARIS VENTURE PARTNERS  
FOUNDERS' FUND V, L.P.

By: Polaris Venture Management Co. V, L.L.C.

By: /s/ Harold Friedman

Name: Harold Friedman

Title Chief Financial Officer

POLARIS VENTURE PARTNERS SPECIAL  
FOUNDERS' FUND V, L.P.

By: Polaris Venture Management Co. V, L.L.C.

By: /s/ Harold Friedman

Name: Harold Friedman

Title Chief Financial Officer

POLARIS VENTURE MANAGEMENT CO.  
V, L.L.C.

By: /s/ Harold Friedman  
Name: Harold Friedman  
Title Chief Financial Officer

JONATHAN A. FLINT

By: \*  
Jonathan A. Flint

TERRANCE G. MCGUIRE

By: \*  
Terrance G. McGuire

\*By: /s/ Harold Friedman  
Name: Harold Friedman  
Attorney-in-Fact

[This Schedule 13D was executed pursuant to a Power of Attorney. Note that copies of the applicable Powers of Attorney are already on file with the appropriate agencies.]