

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

SCHEDULE 13G

Under the Securities Exchange Act of 1934

(Amendment No. __)*

X4 Pharmaceuticals, Inc.

(Name of Issuer)

Common Stock

(Title of Class of Securities)

98420X103

(CUSIP Number)

April 12, 2019

(Date of Event which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

Rule 13d-1(b)

Rule 13d-1(c)

Rule 13d-1(d)

* 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 the disclosures provided in a prior cover page.

The information required in 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).

CUSIP NO. 98420X103

| | |
|----|--|
| 1 | Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only) Cormorant Global Healthcare Master Fund, LP |
| 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 | Citizenship or Place of Organization. Cayman Islands |
| | 5 Sole Voting Power 0 shares |
| | 6 Shared Voting Power Number of Shares Beneficially Owned by Each Reporting Person With |
| | 7 Sole Dispositive Power 0 shares |
| | 8 Shared Dispositive Power 747,218 shares |
| | Refer to Item 4 below. |
| 9 | Aggregate Amount Beneficially Owned by Each Reporting Person 747,218 shares Refer to Item 4 below. |
| 10 | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/> N/A |
| 11 | Percent of Class Represented by Amount in Row (9)* 5.93% Refer to Item 4 below. |
| 12 | Type of Reporting Person (See Instructions) PN (Partnership) |

CUSIP NO. 98420X103

| | |
|----|--|
| 1 | Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only) |
| | Cormorant Global Healthcare GP, LLC |
| 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 | Citizenship or Place of Organization. |
| | Delaware |
| | 5 Sole Voting Power |
| | 0 shares |
| | 6 Shared Voting Power |
| | 747,218 shares |
| | Number of Shares Beneficially Owned by Each Reporting Person With |
| | Refer to Item 4 below. |
| | 7 Sole Dispositive Power |
| | 0 shares |
| | 8 Shared Dispositive Power |
| | 747,218 shares |
| | Refer to Item 4 below. |
| 9 | Aggregate Amount Beneficially Owned by Each Reporting Person |
| | 747,218 shares |
| | Refer to Item 4 below. |
| 10 | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) |
| | <input type="checkbox"/> N/A |
| 11 | Percent of Class Represented by Amount in Row (9)* |
| | 5.93% |
| | Refer to Item 4 below. |
| 12 | Type of Reporting Person (See Instructions) |
| | OO (Limited Liability Company) |

CUSIP NO. 98420X103

| | |
|----|--|
| 1 | Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only) Cormorant Private Healthcare Fund I, LP |
| 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 | Citizenship or Place of Organization. Delaware |
| | 5 Sole Voting Power 0 shares |
| | 6 Shared Voting Power Number of Shares Beneficially Owned by Each Reporting Person With 114,379 shares |
| | 7 Sole Dispositive Power Refer to Item 4 below. |
| | 8 Shared Dispositive Power 0 shares 114,379 shares Refer to Item 4 below. |
| 9 | Aggregate Amount Beneficially Owned by Each Reporting Person 114,379 shares Refer to Item 4 below. |
| 10 | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/> N/A |
| 11 | Percent of Class Represented by Amount in Row (9)* 0.92% Refer to Item 4 below. |
| 12 | Type of Reporting Person (See Instructions) PN (Partnership) |

CUSIP NO. 98420X103

| | |
|----|--|
| 1 | Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only) |
| | Cormorant Private Healthcare GP, LLC |
| 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 | Citizenship or Place of Organization. |
| | Delaware |
| | 5 Sole Voting Power |
| | 0 shares |
| | 6 Shared Voting Power |
| | 114,379 shares |
| | Number of Shares Beneficially Owned by Each Reporting Person With |
| | Refer to Item 4 below. |
| | 7 Sole Dispositive Power |
| | 0 shares |
| | 8 Shared Dispositive Power |
| | 114,379 shares |
| | Refer to Item 4 below. |
| 9 | Aggregate Amount Beneficially Owned by Each Reporting Person |
| | 114,379 shares |
| | Refer to Item 4 below. |
| 10 | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) |
| | <input type="checkbox"/> N/A |
| 11 | Percent of Class Represented by Amount in Row (9)* |
| | 0.92% |
| | Refer to Item 4 below. |
| 12 | Type of Reporting Person (See Instructions) |
| | OO (Limited Liability Company) |

CUSIP NO. 98420X103

| | |
|----|--|
| 1 | Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only) |
| | Cormorant Asset Management, LP |
| 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 | Citizenship or Place of Organization. |
| | Delaware |
| | 5 Sole Voting Power |
| | 0 shares |
| | 6 Shared Voting Power |
| | 940,387 shares |
| | Refer to Item 4 below. |
| | 7 Sole Dispositive Power |
| | 0 shares |
| | 8 Shared Dispositive Power |
| | 940,387 shares |
| | Refer to Item 4 below. |
| 9 | Aggregate Amount Beneficially Owned by Each Reporting Person |
| | 940,387 shares |
| | Refer to Item 4 below. |
| 10 | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) |
| | <input type="checkbox"/> N/A |
| 11 | Percent of Class Represented by Amount in Row (9)* |
| | 7.45% |
| | Refer to Item 4 below. |
| 12 | Type of Reporting Person (See Instructions) |
| | PN (Partnership) |

CUSIP NO. 98420X103

| | |
|----|--|
| 1 | Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only) |
| | Bihua Chen |
| 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 | Citizenship or Place of Organization. |
| | United States |
| | 5 Sole Voting Power |
| | 0 shares |
| | 6 Shared Voting Power |
| | 940,387 shares |
| | Number of Shares Beneficially Owned by Each Reporting Person With |
| | Refer to Item 4 below. |
| | 7 Sole Dispositive Power |
| | 0 shares |
| | 8 Shared Dispositive Power |
| | 940,387 shares |
| | Refer to Item 4 below. |
| 9 | Aggregate Amount Beneficially Owned by Each Reporting Person |
| | 940,387 shares |
| | Refer to Item 4 below. |
| 10 | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) |
| | <input type="checkbox"/> N/A |
| 11 | Percent of Class Represented by Amount in Row (9)* |
| | 7.45% |
| | Refer to Item 4 below. |
| 12 | Type of Reporting Person (See Instructions) |
| | IN (Individual) |

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Item 1.

- (a) Name of Issuer
X4 Pharmaceuticals, Inc.
- (b) Address of Issuer's Principal Executive Offices
955 Massachusetts Avenue, 4th Floor, Cambridge, Massachusetts 02139

Item 2.

- (a) Name of Person Filing
Cormorant Global Healthcare Master Fund, LP
Cormorant Global Healthcare GP, LLC
Cormorant Private Healthcare Fund I, LP
Cormorant Private Healthcare GP, LLC
Cormorant Asset Management, LP
Bihua Chen
 - (b) Address of Principal Business Office or, if none, Residence
200 Clarendon Street, 52nd Floor
Boston, MA 02116
 - (c) Citizenship
Cormorant Global Healthcare Master Fund, LP - Cayman Islands
Cormorant Global Healthcare GP, LLC - Delaware
Cormorant Private Healthcare Fund I, LP - Delaware
Cormorant Private Healthcare GP, LLC - Delaware
Cormorant Asset Management, LP - Delaware
Bihua Chen - United States
 - (d) Title of Class of Securities
Common Stock
 - (e) CUSIP Number
98420X103
-

Item 3. If this statement is filed pursuant to §§240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:

- (a) Broker or dealer registered under section 15 of the Act (15 U.S.C. 78o).
- (b) Bank as defined in section 3(a)(6) of the Act (15 U.S.C. 78c).
- (c) Insurance Company as defined in Section 3(a)(19) of the Act
- (d) Investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C. 80a-8).
- (e) An investment adviser in accordance with §240.13d-1(b)(1)(ii)(E);
- (f) An employee benefit plan or endowment fund in accordance with §240.13d-1(b)(1)(ii)(F);
- (g) A parent holding company or control person in accordance with § 240.13d-1(b)(1)(ii)(G);
- (h) A savings associations as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813);
- (i) A church plan that is excluded from the definition of an investment company under section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3);
- (j) A non-U.S. institution in accordance with §240.13d-1(b)(1)(ii)(J);
- (k) Group, in accordance with §240.13d-1(b)(1)(ii)(K).

Item 4. Ownership***

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- (a) Amount Beneficially Owned***
 - Cormorant Global Healthcare Master Fund, LP – 747,218 shares
 - Cormorant Global Healthcare GP, LLC – 747,218 shares
 - Cormorant Private Healthcare Fund I, LP – 114,379 shares
 - Cormorant Private Healthcare GP, LLC – 114,379 shares
 - Cormorant Asset Management, LP – 940,387 shares
 - Bihua Chen – 940,387 shares

 - (b) Percent of Class
 - Cormorant Global Healthcare Master Fund, LP – 5.93%
 - Cormorant Global Healthcare GP, LLC – 5.93%
 - Cormorant Private Healthcare Fund I, LP – 0.92%
 - Cormorant Private Healthcare GP, LLC – 0.92%
 - Cormorant Asset Management, LP – 7.45%
 - Bihua Chen – 7.45%
-

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(c) Number of shares as to which such person has:

(i) sole power to vote or to direct the vote

Cormorant Global Healthcare Master Fund, LP - 0 shares
Cormorant Global Healthcare GP, LLC - 0 shares
Cormorant Private Healthcare Fund I, LP - 0 shares
Cormorant Private Healthcare GP, LLC - 0 shares
Cormorant Asset Management, LP - 0 shares
Bihua Chen - 0 shares

(ii) shared power to vote or to direct the vote

Cormorant Global Healthcare Master Fund, LP - 747,218 shares
Cormorant Global Healthcare GP, LLC - 747,218 shares
Cormorant Private Healthcare Fund I, LP - 114,379 shares
Cormorant Private Healthcare GP, LLC - 114,379 shares
Cormorant Asset Management, LP - 940,387 shares
Bihua Chen - 940,387 shares

(iii) sole power to dispose or to direct the disposition of

Cormorant Global Healthcare Master Fund, LP - 0 shares
Cormorant Global Healthcare GP, LLC - 0 shares
Cormorant Private Healthcare Fund I, LP - 0 shares
Cormorant Private Healthcare GP, LLC - 0 shares
Cormorant Asset Management, LP - 0 shares
Bihua Chen - 0 shares

(iv) shared power to dispose or to direct the disposition of

Cormorant Global Healthcare Master Fund, LP - 747,218 shares
Cormorant Global Healthcare GP, LLC - 747,218 shares
Cormorant Private Healthcare Fund I, LP - 114,379 shares
Cormorant Private Healthcare GP, LLC - 114,379 shares
Cormorant Asset Management, LP - 940,387 shares
Bihua Chen - 940,387 shares

*** Shares reported herein for Cormorant Asset Management, LP represent shares which are beneficially by Cormorant Global Healthcare Master Fund, LP (the "Master Fund") and Cormorant Private Healthcare Fund I, LP ("Fund I"), as reported herein, and a managed account (the "Account"). Cormorant Global Healthcare GP, LLC and Cormorant Private Healthcare GP, LLC serve as the general partners of the Master Fund and Fund I, respectively. Cormorant Asset Management, LP serves as the investment manager to the Master Fund, Fund I and the Account. Bihua Chen serves as the managing member of Cormorant Global Healthcare GP, LLC, Cormorant Private Healthcare GP, LLC and the general partner of Cormorant Asset Management, LP. Each of the Reporting Persons disclaims beneficial ownership of the shares reported herein except to the extent of its or his pecuniary interest therein.

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Item 5. Ownership of Five Percent or Less of a Class

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following [].

Item 6. Ownership of More than Five Percent on Behalf of Another Person

Not applicable.

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company

Not applicable.

Item 8. Identification and Classification of Members of the Group

Not applicable.

Item 9. Notice of Dissolution of Group

Not applicable.

Item 10. Certification

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

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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.

April 22, 2019

CORMORANT GLOBAL HEALTHCARE MASTER FUND, LP

By: Cormorant Global Healthcare GP, LLC
its General Partner

By: /s/ Bihua Chen
Bihua Chen, Managing Member

CORMORANT GLOBAL HEALTHCARE GP, LLC

By: /s/ Bihua Chen
Bihua Chen, Managing Member

CORMORANT PRIVATE HEALTHCARE FUND I, LP

By: Cormorant Global Healthcare GP, LLC
its General Partner

By: /s/ Bihua Chen
Bihua Chen, Managing Member

CORMORANT PRIVATE HEALTHCARE GP, LLC

By: /s/ Bihua Chen
Bihua Chen, Managing Member

CORMORANT ASSET MANAGEMENT, LP

By: Cormorant Asset Management GP, LLC
its General Partner

By: /s/ Bihua Chen
Bihua Chen, Managing Member

/s/ Bihua Chen
Bihua Chen

JOINT FILING AGREEMENT

This Joint Filing Agreement, dated as of April 22, 2019, is by and among Cormorant Global Healthcare Master Fund, LP, Cormorant Global Healthcare GP, LLC, Cormorant Private Healthcare Fund I, LP, Cormorant Private Healthcare GP, LLC, Cormorant Asset Management, LP and Bihua Chen (collectively, the "Filers").

Each of the Filers may be required to file with the United States Securities and Exchange Commission a statement on Schedule 13D and/or 13G with respect to shares of Common Stock of X4 Pharmaceuticals, Inc. beneficially owned by them from time to time.

Pursuant to and in accordance with Rule 13(d)(1)(k) promulgated under the Securities Exchange Act of 1934, as amended, the Filers hereby agree to file a single statement on Schedule 13D and/or 13G (and any amendments thereto) on behalf of each of the Filers, and hereby further agree to file this Joint Filing Agreement as an exhibit to such statement, as required by such rule.

This Joint Filing Agreement may be terminated by any of the Filers upon written notice or such lesser period of notice as the Filers may mutually agree.

Executed and delivered as of the date first above written.

CORMORANT GLOBAL HEALTHCARE MASTER FUND, LP
By: Cormorant Global Healthcare GP, LLC
its General Partner

By: /s/ Bihua Chen
Bihua Chen, Managing Member

CORMORANT GLOBAL HEALTHCARE GP, LLC

By: /s/ Bihua Chen
Bihua Chen, Managing Member

CORMORANT PRIVATE HEALTHCARE FUND I, LP
By: Cormorant Global Healthcare GP, LLC
its General Partner

By: /s/ Bihua Chen
Bihua Chen, Managing Member

CORMORANT PRIVATE HEALTHCARE GP, LLC

By: /s/ Bihua Chen
Bihua Chen, Managing Member

CORMORANT ASSET MANAGEMENT, LP
By: Cormorant Asset Management GP, LLC
its General Partner

By: /s/ Bihua Chen
Bihua Chen, Managing Member

/s/ Bihua Chen
Bihua Chen