

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, \$0.001 par value per share
(Title of Class of Securities)

98420X103
(CUSIP Number)

June 30, 2022, December 31, 2022 and December 31, 2023
(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)

(Page 1 of 12 Pages)

*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).

1	NAME OF REPORTING PERSON Acorn Bioventures, L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER 0
	6	SHARED VOTING POWER 8,205,816 shares of Common Stock (including 5,159,344 shares of Common Stock issuable upon exercise of warrants)*
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 8,205,816 shares of Common Stock (including 5,159,344 shares of Common Stock issuable upon exercise of warrants)*
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 8,205,816 shares of Common Stock (including 5,159,344 shares of Common Stock issuable upon exercise of warrants)*	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 4.8%*	
12	TYPE OF REPORTING PERSON PN	

*The information set forth on this cover page reflects information as of December 31, 2023. As of June 30, 2022, this Reporting Person may have been deemed to beneficially own up to 3,092,198 shares of Common Stock (including up to 352,473 shares of Common Stock issuable upon exercise of warrants), representing 4.5% of the outstanding shares of Common Stock as of such time. As of December 31, 2022, this Reporting Person may have been deemed to beneficially own up to 6,060,421 shares of Common Stock (including up to 3,013,949 shares of Common Stock issuable upon exercise of warrants), representing 4.9% of the outstanding shares of Common Stock as of such time.

1	NAME OF REPORTING PERSON Acorn Capital Advisors GP, LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER 0
	6	SHARED VOTING POWER 8,205,816 shares of Common Stock (including 5,159,344 shares of Common Stock issuable upon exercise of warrants)*
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 8,205,816 shares of Common Stock (including 5,159,344 shares of Common Stock issuable upon exercise of warrants)*
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 8,205,816 shares of Common Stock (including 5,159,344 shares of Common Stock issuable upon exercise of warrants)*	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 4.8%*	
12	TYPE OF REPORTING PERSON OO	

*The information set forth on this cover page reflects information as of December 31, 2023. As of June 30, 2022, this Reporting Person may have been deemed to beneficially own up to 3,092,198 shares of Common Stock (including up to 352,473 shares of Common Stock issuable upon exercise of warrants), representing 4.5% of the outstanding shares of Common Stock as of such time. As of December 31, 2022, this Reporting Person may have been deemed to beneficially own up to 6,060,421 shares of Common Stock (including up to 3,013,949 shares of Common Stock issuable upon exercise of warrants), representing 4.9% of the outstanding shares of Common Stock as of such time.

1	NAME OF REPORTING PERSON Acorn Bioventures 2 L.P.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER 0
	6	SHARED VOTING POWER 11,388,738 shares of Common Stock (including 7,124,560 shares of Common Stock issuable upon exercise of warrants)*
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 11,388,738 shares of Common Stock (including 7,124,560 shares of Common Stock issuable upon exercise of warrants)*
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 11,388,738 shares of Common Stock (including 7,124,560 shares of Common Stock issuable upon exercise of warrants)*	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 6.5%*	
12	TYPE OF REPORTING PERSON PN	

*The information set forth on this cover page reflects information as of December 31, 2023. As of June 30, 2022, this Reporting Person may have been deemed to beneficially own up to 4,135,905 shares of Common Stock (including up to 352,473 shares of Common Stock issuable upon exercise of warrants), representing 6.0% of the outstanding shares of Common Stock as of such time. As of December 31, 2022, this Reporting Person may have been deemed to beneficially own up to 8,426,298 shares of Common Stock (including up to 4,162,120 shares of Common Stock issuable upon exercise of warrants), representing 6.7% of the outstanding shares of Common Stock as of such time.

1	NAME OF REPORTING PERSON Acorn Capital Advisors GP 2, LLC	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER 0
	6	SHARED VOTING POWER 11,388,738 shares of Common Stock (including 7,124,560 shares of Common Stock issuable upon exercise of warrants)*
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 11,388,738 shares of Common Stock (including 7,124,560 shares of Common Stock issuable upon exercise of warrants)*
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 11,388,738 shares of Common Stock (including 7,124,560 shares of Common Stock issuable upon exercise of warrants)*	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 6.5*	
12	TYPE OF REPORTING PERSON OO	

*The information set forth on this cover page reflects information as of December 31, 2023. As of June 30, 2022, this Reporting Person may have been deemed to beneficially own up to 4,135,905 shares of Common Stock (including up to 352,473 shares of Common Stock issuable upon exercise of warrants), representing 6.0% of the outstanding shares of Common Stock as of such time. As of December 31, 2022, this Reporting Person may have been deemed to beneficially own up to 8,426,298 shares of Common Stock (including up to 4,162,120 shares of Common Stock issuable upon exercise of warrants), representing 6.7% of the outstanding shares of Common Stock as of such time.

1	NAME OF REPORTING PERSON Anders Hove	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (a) <input type="checkbox"/> (b) <input checked="" type="checkbox"/>	
3	SEC USE ONLY	
4	CITIZENSHIP OR PLACE OF ORGANIZATION United States of America	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	5	SOLE VOTING POWER 0
	6	SHARED VOTING POWER 17,755,869 shares of Common Stock (including 10,445,219 shares of Common Stock issuable upon exercise of warrants)*
	7	SOLE DISPOSITIVE POWER 0
	8	SHARED DISPOSITIVE POWER 17,755,869 shares of Common Stock (including 10,445,219 shares of Common Stock issuable upon exercise of warrants)*
9	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 17,755,869 shares of Common Stock (including 10,445,219 shares of Common Stock issuable upon exercise of warrants)*	
10	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
11	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 9.99%*	
12	TYPE OF REPORTING PERSON IN	

*The information set forth on this cover page reflects information as of December 31, 2023. As of June 30, 2022, this Reporting Person may have been deemed to beneficially own up to 6,875,630 shares of Common Stock (including up to 352,473 shares of Common Stock issuable upon exercise of warrants), representing 9.99% of the outstanding shares of Common Stock as of such time. As of December 31, 2022, this Reporting Person may have been deemed to beneficially own up to 12,621,950 shares of Common Stock (including up to 5,311,300 shares of Common Stock issuable upon exercise of warrants), representing 9.99% of the outstanding shares of Common Stock as of such time.

Item 1(a). Name of Issuer.

X4 Pharmaceuticals, Inc. (the "Issuer")

Item 1(b). Address of Issuer's Principal Executive Offices.

61 North Beacon Street, 4th Floor
Boston, Massachusetts 02134

Item 2(a). Name of Person Filing.

This statement is filed by:

- (i) Acorn Bioventures, L.P. ("Acorn");
- (ii) Acorn Capital Advisors GP, LLC ("Acorn GP"), which is the sole general partner of Acorn;
- (iii) Acorn Bioventures 2, L.P. ("Acorn 2");
- (iv) Acorn Capital Advisors GP 2, LLC ("Acorn GP 2"), which is the sole general partner of Acorn 2; and
- (v) Anders Hove ("Hove or "Manager").

The foregoing persons are hereinafter sometimes collectively referred to as the "Reporting Persons."

The filing of this statement should not be construed as an admission that any of the foregoing persons or any Reporting Person is, for the purposes of Section 13 of the Act, the beneficial owner of the shares of Common Stock reported herein.

Item 2(b). Address of Principal Business Office.

The address of the principal business office of each of the Reporting Persons is 420 Lexington Avenue, Suite 2626, New York, New York 10170

Item 2(c). Place of Organization.

Acorn is a Delaware limited partnership. Acorn GP is a Delaware limited liability company. Acorn 2 is a Delaware limited partnership. Acorn GP 2 is a Delaware limited liability company. Hove is a citizen of the United States of America.

Item 2(d). Title of Class of Securities.

Common stock, \$0.001 par value per share (the "Common Stock")

Item 2(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 (15 U.S.C. 78c);
- (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 association 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).

If filing as a non-U.S. institution in accordance with Rule 13d-1(b)(1)(ii)(J), please specify the type of institution: _____

Item 4. Ownership.

The information required by Items 4(a) – (c) is set forth in Rows (5) – (11) of the cover page for each Reporting Person hereto and is incorporated herein by reference for each Reporting Person.

The percentages set forth herein as of December 31, 2023 are calculated based upon 167,291,209 shares of Common Stock outstanding as of November 7, 2023 as reported in the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2023 and filed with the Securities and Exchange Commission on November 9, 2023, and assumes the exercise of the reported warrants.

The percentages set forth herein as of June 30, 2022 are calculated based upon 68,472,659, which is the sum of (i) 30,823,573 shares of Common Stock outstanding as of May 9, 2022 as reported in the Company's Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2022 and filed with the Securities and Exchange Commission on May 12, 2022 and (ii) 37,649,086 shares of Common Stock issued in the Company's private placement described in the Company's Current Report on Form 8-K filed with the Securities and Exchange Commission on July 1, 2022, and assumes the exercise of the reported warrants subject to the 9.99% Blocker (as defined below).

The percentages set forth herein as of December 31, 2022 are calculated based upon 121,034,553 shares of Common Stock outstanding immediately after giving effect to the Company's underwritten offering that closed on December 9, 2022, as reported in the Company's Prospectus filed pursuant to Rule 424(b)(5) with the Securities and Exchange Commission on December 9, 2022, and assumes the exercise of the reported warrants subject to the 9.99% Blocker.

Pursuant to the terms of certain of the reported warrants, the Reporting Persons cannot exercise such warrants if the Reporting Persons would beneficially own, after such exercise, more than 9.99% of the outstanding shares of Common Stock (the "9.99% Blocker"). Pursuant to the terms of certain of the reported warrants, the Reporting Persons cannot exercise such warrants if the Reporting Persons would beneficially own, after such exercise, more than 4.99% of the outstanding shares of Common Stock (the "4.99% Blocker" and together with the 9.99% Blocker, the "Blockers"). The percentage and the number of shares of Common Stock set forth on the cover page and the footnote of the cover page for each Reporting Person give effect to the Blockers, except that such percentages and such numbers of shares of Common Stock in the cases of Acorn, Acorn GP, Acorn 2 and Acorn GP 2, each reflect the exercise of the full amount of warrants exercisable by all the Reporting Persons in the aggregate, however, the ability to exercise such warrants by any Reporting Person at any given time is subject to the Blockers which applies to the beneficial ownership of the Reporting Persons in the aggregate.

Acorn GP is the general partner of Acorn and may be deemed to beneficially own the shares of Common Stock beneficially owned by Acorn. Acorn GP 2 is the general partner of Acorn 2 and may be deemed to beneficially own the shares of Common Stock beneficially owned by Acorn 2.

The Manager, in his capacity as manager of each of Acorn GP and Acorn GP 2, may be deemed to beneficially own the shares beneficially owned by each of Acorn and Acorn 2.

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

Not applicable.

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 or Control Person.

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 each Reporting Person certifies that, to the best of his or its knowledge and belief, the securities referred to above were not acquired 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.

SIGNATURE

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

Date: February 14, 2024

ACORN BIOVENTURES, L.P.

By: ACORN CAPITAL ADVISORS GP, LLC, its General Partner

By: /s/ Anders Hove

Name: Anders Hove

Title: Manager

ACORN CAPITAL ADVISORS GP, LLC

By: /s/ Anders Hove

Name: Anders Hove

Title: Manager

ACORN BIOVENTURES 2, L.P.

By: ACORN CAPITAL ADVISORS GP 2, LLC, its General Partner

By: /s/ Anders Hove

Name: Anders Hove

Title: Manager

ACORN CAPITAL ADVISORS GP 2, LLC

By: /s/ Anders Hove

Name: Anders Hove

Title: Manager

ANDERS HOVE

/s/ Anders Hove

Exhibit A

JOINT FILING AGREEMENT

The undersigned acknowledge and agree that the foregoing statement on Schedule 13G is filed on behalf of each of the undersigned and that all subsequent amendments to this statement on Schedule 13G shall be filed on behalf of each of the undersigned without the necessity of filing additional joint filing agreements. The undersigned acknowledge that each shall be responsible for the timely filing of such amendments, and for the completeness and accuracy of the information concerning him or it contained herein and therein, but shall not be responsible for the completeness and accuracy of the information concerning the others, except to the extent that he or it knows or has reason to believe that such information is inaccurate.

Date: February 14, 2024

ACORN BIOVENTURES, L.P.

By: ACORN CAPITAL ADVISORS, GP LLC, its General Partner

By: /s/ Anders Hove

Name: Anders Hove

Title: Manager

ACORN CAPITAL ADVISORS GP, LLC

By: /s/ Anders Hove

Name: Anders Hove

Title: Manager

ACORN BIOVENTURES 2, L.P.

By: ACORN CAPITAL ADVISORS GP 2, LLC, its General Partner

By: /s/ Anders Hove

Name: Anders Hove

Title: Manager

ACORN CAPITAL ADVISORS GP 2, LLC

By: /s/ Anders Hove

Name: Anders Hove

Title: Manager

ANDERS HOVE

/s/ Anders Hove