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

SCHEDULE 13D

Under the Securities Exchange Act of 1934

ARSANIS, INC.
(Name of Issuer)

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

042873109
(CUSIP Number)

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

Copies to:
John J. Cheney, Esq.
Daniel T. Kajunski, Esq.
John P. Condon, Esq.
Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C.
One Financial Center
Boston, MA 02111
(617) 542-6000

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

November 26, 2018
(Date of Event which Requires Filing of this Statement)

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 Rule 13d-1(e), 13d-1(f) or 13d-1(g), check the following box .

* 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).

SCHEDULE 13D

CUSIP No. 042873109

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY) X4 Pharmaceuticals, Inc.	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP* (a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS (See Instructions) OO	
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 State of Delaware	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 0
	8	SHARED VOTING POWER 6,941,221
	9	SOLE DISPOSITIVE POWER 0
	10	SHARED DISPOSITIVE POWER 0
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 6,941,221 (1)	
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 48.2% (2)	
14	TYPE OF REPORTING PERSON CO	

- (1) Beneficial ownership of the common stock, par value \$0.001 per share of Arsanis, Inc., a Delaware corporation (“Arsanis”), is being reported hereunder solely because the Reporting Person may be deemed to have beneficial ownership of such Arsanis common stock by virtue of the Support Agreements described in Item 4 of this Schedule 13D (the “Support Agreements”). Neither the filing of this Schedule 13D nor any of its contents shall be deemed to constitute an admission by the Reporting Person that it is the beneficial owner of any Arsanis common stock for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), or for any other purpose, and such beneficial ownership thereof is expressly disclaimed. The shares of Arsanis common stock over which the Reporting Person may be deemed to have shared voting power are comprised of 6,867,344 shares of Arsanis common stock and 73,877 shares subject to options to acquire shares of Arsanis common stock exercisable within 60 days of October 31, 2018 that are subject to the Support Agreements.
- (2) Based on 14,315,410 shares of common stock issued and outstanding as of October 31, 2018, as reported in Arsanis’ Quarterly Report on Form 10-Q for the quarter ended September 30, 2018, filed with Securities Exchange Commission on November 9, 2018.

Item 1. Security and Issuer

This statement on Schedule 13D relates to the common stock, \$0.001 par value per share, of Arsanis, Inc. (the “Issuer” or “Arsanis”). The principal executive office of the Issuer is located at 890 Winter Street, Suite 230, Waltham, Massachusetts 02451.

Item 2. Identity and Background

- (a)
This Schedule 13D is being filed on behalf of X4 Pharmaceuticals, Inc., a Delaware corporation (“X4” or the “Reporting Person”).
- (b)
The address of the principal business office of X4 is 955 Massachusetts Avenue, 4th Floor Cambridge, Massachusetts 02139.
- (c)
The principal business occupation of X4 is to discover, develop and commercialize novel therapies for the treatment of rare diseases, including primary immunodeficiencies and cancers.
- (d)–(e)–(f)

The directors and executive officers of X4, their respective business addresses and their respective countries of citizenship are set forth in Schedule A hereto. During the last five years, X4 has not, and to the best of X4’s knowledge, none of the persons listed on Schedule A attached hereto has, (i) been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors) or (ii) been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

Item 3. Source and Amount of Funds or Other Considerations

As an inducement for X4 to enter into the Merger Agreement described in Item 4 below and in consideration thereof, the officers, directors and certain stockholders of Arsanis holding approximately 48.2% of the outstanding shares of Arsanis entered into support agreements with X4 relating to the Merger (discussed in Item 4 below). In addition, these officers, directors and stockholders of Arsanis granted X4 an irrevocable proxy with respect to the Arsanis securities covered by the Support Agreements. X4 did not pay additional consideration to the officers, directors and stockholders of Arsanis in connection with the execution and delivery of the Support Agreements and thus no funds were used for such purpose.

References to, and descriptions of, the Merger, the Merger Agreement and the Support Agreements, as set forth herein, are qualified in their entirety by reference to the copies of the Merger Agreement and the Support Agreements included as Exhibits 1 and 2, respectively, to this Statement, which are incorporated by reference herein in their entirety where such references and descriptions appear.

Item 4. Purpose of Transaction

(a) and (b)

Pursuant to the Support Agreements, dated as of November 26, 2018, among X4 and certain officers, directors and stockholders of Arsanis (collectively, the “Stockholders”) (the “Support Agreements”), X4 may be deemed to be the beneficial owner of 6,941,221 shares of Arsanis common stock (collectively, the “Subject Shares”). X4 and the Stockholders entered into the Support Agreements as a material inducement for X4 to enter into the Agreement and Plan of Merger, dated as of November 26, 2018 (the “Merger Agreement”), by and among Arsanis, Artemis AC Corp., a Delaware corporation and a wholly owned subsidiary of Arsanis (“Merger Sub”), and X4.

Upon the terms and subject to the satisfaction of the conditions described in the Merger Agreement, including approval of the transaction by X4’s stockholders and Arsanis’s stockholders, Merger Sub will be merged with and into X4 (the “Merger”), with X4 surviving the Merger as a wholly-owned subsidiary of Arsanis.

The Support Agreements were entered into as a condition to the willingness of X4 to enter into the Merger Agreement and to increase the likelihood that the approval of Arsanis’s stockholders required in connection with the Merger will be obtained. Pursuant to the terms of the Support Agreements, any shares of capital stock of Arsanis acquired by any Stockholder after the date of the Support Agreements or owned by the Stockholders prior to the termination of the Support Agreements will be subject to the Support Agreements. Accordingly, any such acquisition of shares of capital stock of Arsanis by any Stockholder may result in X4 being deemed to acquire beneficial ownership of additional securities of Arsanis.

Pursuant to the Support Agreements, the Stockholders, with respect to the Subject Shares (and any additional shares of capital stock of Arsanis acquired by any Stockholder after the date of the Support Agreements or owned by the Stockholders prior to the termination of the Support Agreements), have agreed, among other things, to vote all of the shares of Arsanis held by them in favor of the issuance of shares of Arsanis common stock in connection with the Merger and the adoption of the Merger Agreement and against any acquisition proposal.

Further, as part of the Support Agreements, each Stockholder has entered into an irrevocable proxy thereby irrevocably appointing X4 as the attorney-in-fact and proxy for and on behalf of the Stockholder (the “Attorneys”), to, in certain events, vote and exercise all voting and related rights (to the full extent that the Stockholder is entitled to do so) with respect to all of the shares of capital stock of Arsanis that now are or hereafter may be beneficially owned by the Stockholder, and any and all other shares or securities of Arsanis issued or issuable in respect thereof on or after the date hereof in accordance with the terms of the irrevocable proxy.

In exercising its right to vote the Subject Shares as the sole and exclusive attorneys and proxies of the Stockholders, the Attorneys’ rights are limited to voting the Subject Shares, or granting a consent or approval with respect to the Subject Shares: in favor of the issuance of shares of Arsanis common stock in connection with the Merger and the adoption of the Merger Agreement and against any acquisition proposal. The Stockholders may vote the Subject Shares on all other matters.

The Support Agreements and irrevocable proxies expire upon the earlier of (i) the approval of the Merger, or (ii) the termination of the Merger Agreement.

(c)

Not Applicable.

(d)

Following the Merger, X4's President and Chief Executive Officer, Paula Ragan, Ph.D., is expected to be Arsanis's President and Chief Executive Officer, and X4's Chief Financial Officer, Adam Mostafa, is expected to be Arsanis's Chief Financial Officer. Additionally, following the Merger, the board of directors of Arsanis will consist of seven (7) seats and will be comprised of five (5) representatives of X4, including the chairman, and two (2) representatives of Arsanis.

(e)

Other than as a result of the Merger described in this Item 4 above, not applicable.

(f)

Not Applicable.

(g)

Following the consummation of the Merger, the Certificate of Incorporation of Arsanis is expected to be amended to cause its name to be changed to "X4 Pharmaceuticals, Inc."

(h)

Not Applicable.

(i)

Not Applicable.

(j)

Other than as described above, X4 currently has no plans or proposals that relate to, or may result in, any of the matters listed in Items 4(a) – (i) of Schedule 13D (although X4 reserves the right to develop such plans).

Item 5. Interest in Securities of the Issuer

(a) and (b)

As of the date hereof, the Reporting Person owns no shares of Arsanis common stock. For purposes of Rule 13d-3 under the Exchange Act ("Rule 13d-3"), however, as a result of entering into the Support Agreements, the Reporting Person may be deemed to possess shared voting power over, and therefore beneficially own for purposes of Rule 13d-3, the 6,941,221 shares of Arsanis common stock that are beneficially owned by the Stockholders. The 6,941,221 shares of Arsanis common stock over which the Reporting Person may be deemed to have shared voting power representing approximately 48.2% of the outstanding shares of Arsanis common stock and outstanding options to purchase Arsanis common stock beneficially owned. Notwithstanding the preceding, the Reporting Person hereby disclaims beneficial ownership of such shares of Arsanis common stock and this Schedule 13D shall not be construed as an admission that the Reporting Person is, for any or all purposes, the beneficial owner of the securities covered by this Schedule 13D.

(c)

Except as described in this Schedule 13D, there have been no transactions in the shares of common stock effected by the Reporting Person, or, to the best of the Reporting Person's knowledge, any person or entity identified on Schedule A hereto, during the last 60 days.

(d)

Other than the Stockholders identified in Item 3 party to the Support Agreements, to the best knowledge of the Reporting Person, neither the Reporting Person nor any of its respective directors and executive officers named in Schedule A hereto has or knows any other person who has the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, any Arsanis common stock beneficially owned by the Reporting Person.

(e)

Not applicable.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer

The information set forth under Items 3, 4 and 5 and the agreements set forth on the Exhibits attached hereto are incorporated herein by reference. Other than the Merger Agreement and the Support Agreements described above, to the best of the Reporting Person's knowledge, there are no contracts, arrangements, understandings or relationships (legal or otherwise) between the Reporting Person, or any Reporting Person subsidiary or any person listed on Schedule A hereto, and any person with respect to the securities of Arsanis, including, but not limited to, transfer or voting of any of the securities, finder's fees, joint ventures, loan or option arrangements, puts or calls, guarantees of profits, division of profits or loss, or the giving or withholding of proxies, including any securities pledged or otherwise subject to a contingency the occurrence of which would give another person voting power or investment power over such securities.

Item 7. Material to Be Filed as Exhibits

<u>Exhibit No.</u>	<u>Description</u>
1	Agreement and Plan of Merger, dated November 26, 2018, by and among Arsanis, Inc., Artemis AC Corp. and X4 Pharmaceuticals, Inc. (incorporated by reference to Exhibit 2.1 to the Current Report on Form 8-K filed by Arsanis, Inc. on November 26, 2018).
2	Form of Support Agreement, dated November 26, 2018, by and among Arsanis, Inc., X4 Pharmaceuticals, Inc. and certain stockholders of Arsanis, Inc. (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed by Arsanis, Inc. on November 26, 2018).

SIGNATURE

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

Date: December 6, 2018

X4 PHARMACEUTICALS, INC.

By: /s/ Paula Ragan, Ph.D.

Name: Paula Ragan, Ph.D.

Title: President and Chief Executive Officer

SCHEDULE A

DIRECTORS AND EXECUTIVE OFFICERS OF X4 PHARMACEUTICALS, INC.

The following is a list of the directors and executive officers of X4 Pharmaceuticals, Inc. ("X4"), setting forth the name, residence or business address, present position with X4 and present principal occupation or employment (along with the name of any corporation or other organization in which such employment is conducted). Unless otherwise indicated, all directors and officers listed below are citizens of the United States and employed by X4. The principal address of X4, and unless otherwise indicated below, the current business address for each individual listed below is 955 Massachusetts Avenue, 4th Floor Cambridge, Massachusetts 02139.

<u>Name of Directors</u>	<u>Present Principal Occupation</u>
Michael Wyzga	Chairman of the Board of Directors of X4 and Chief Financial Officer (Consultant) of Aura Biosciences, Inc.
Isaac Blech	Vice Chairman of Edge Therapeutics, Inc.
Gary J. Bridger, Ph.D.	Managing Director of Five Corners Capital Inc.
Michael Gilman, Ph.D.	Chief Executive Officer of Arrakis Therapeutics, Inc. and Obsidian Therapeutics, Inc.
Paula Ragan, Ph.D.	President and Chief Executive Officer of X4
Alan Walts, Ph.D.	Venture Partner at Advent Venture Partners
<u>Name of Executive Officers</u>	<u>Present Principal Occupation</u>
Paula Ragan, Ph.D.	President and Chief Executive Officer of X4
Adam Mostafa	Chief Financial Officer of X4
Kenneth Gorelick, M.D.	Interim Chief Medical Officer of X4