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

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of Earliest Event Reported): February 12, 2011

ADVENTRX Pharmaceuticals, Inc.

(Exact name of registrant as specified in its charter)

Delaware	001-32157	84-1318182
(State or other jurisdiction of incorporation)	(Commission File Number)	(I.R.S. Employer Identification No.)
12390 El Camino Real, Suite 150, San Diego, California		92130
(Address of principal executive offices)		(Zip Code)

Registrant's telephone number, including area code: 858-552-0866

Not Applicable

Former name or former address, if changed since last report

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

[ ] Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
[ ] Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
[ ] Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
[ ] Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

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Item 1.01 Entry into a Material Definitive Agreement.

Merger Agreement

On February 12, 2011, ADVENTRX Pharmaceuticals, Inc. (the "Company"), entered into an Agreement and Plan of Merger (the "Merger Agreement") with SRX Acquisition Corporation, a Delaware corporation and direct, wholly owned subsidiary of the Company ("Merger Sub"), Synthrx, Inc. a Delaware corporation ("Target") and, solely with respect to Sections 2 and 8 of the Merger Agreement, an individual who is a principal stockholder of Target (the "Stockholders' Agent"). The Merger Agreement provides that at the effective time of the Merger (the "Effective Time") Merger Sub will be merged with and into Target (the "Merger"), with Target continuing as the surviving corporation and a wholly owned subsidiary of the Company.

Under the terms of the Merger Agreement, at the Effective Time, each outstanding share of Target common stock (other than shares held by stockholders of Target who have properly demanded appraisal rights for their shares in accordance with Delaware law) will be co nverted into the right to receive from the Company, in the aggregate:

(i) one million (1,000,000) shares (the "Fully Vested Shares") of Company common stock, issued at the Effective Time, of which two hundred thousand (200,000) Fully Vested Shares shall be deposited in escrow (the "Closing Escrow Amount") to indemnify the Company against breaches of representations and warranties;

(ii) one million nine hundred thirty eight thousand seven hundred seventy three (1,938,773) shares of Company common stock, issued at the Effective Time (the "Subject to Vesting Shares"), which Subject to Vesting Shares are subject to various repurchase rights by the Company and fully vest, subject to reduction upon certain events, upon achievement of the First Milestone (defined below);

(iii) up to one million (1,000,000) shares of Company common stock (the "First Milestone Shares"), issued upon achievement of the First Milestone (the "First Milestone Payment"); provided, however, that in the event the Firs t Milestone is achieved prior to the first anniversary of the closing of the Merger, twenty percent (20%) of the First Milestone Payment shall be deposited in escrow (the "First Milestone Escrow Amount," and together with the Closing Escrow Amount, the "Escrow Amount"). The "First Milestone" shall mean the dosing of the first patient in a phase 3 clinical study carried out pursuant to a protocol that is mutually agreed to by Target and the Company; provided, however, that the number of evaluable patients planned to target statistical significance with a p value of 0.01 in the primary endpoint shall not exceed 250 (unless otherwise mutually agreed) (the "First Protocol"). In the event that the U.S. Food and Drug Administration ("FDA") indicates that a single phase 3 clinical study will not be adequate to support approval of a new drug application covering the use of purified poloxamer 188 for the treatment of sickle cell crisis in children (the "P188 NDA"), "First Milestone" shall mean the dosing of the fir st patient in a phase 3 clinical study carried out pursuant to a protocol that (a) is mutually agreed to by Target and the Company as such and (b) describes a phase 3 clinical study that the FDA has indicated may be sufficient, with the phase 3 clinical study described in the First Protocol, to support approval of the P188 NDA.

(iv) three million eight hundred thirty nine thousand four hundred (3,839,400) shares of Company common stock (the "Second Milestone Shares"), issued upon achievement of the Second Milestone (the "Second Milestone Payment"). The "Second Milestone" shall mean the acceptance for review of the P188 NDA by the FDA; and

(v) eight million six hundred thirty eight thousand six hundred fifty (8,638,650) shares of Company common stock (the "Third Milestone Shares," and together with the First Milestone Shares and the Second Milestone Shares, the "Milestone Shares"), issued upon achievement of the Third Milestone (the "Third Milestone Payment," and together with the First Milesto ne Payment and the Second Milestone Payment, the "Milestone Payments"). The "Third Milestone" shall mean the approval by the FDA of the P188 NDA.

Notwithstanding anything set forth above, in the event that the issuance of the Milestone Shares (x) would violate federal or state securities laws or the listing standards of any national securities exchange to which the Company is subject at the time of such issuance, or (y) the Company is unable to obtain affirmative vote of the holders of a majority of the Company's common stock approving the issuance of the Milestone Shares or before December 31, 2011, the Company shall make the applicable Milestone Payments, or portion thereof, in cash based on the product of (x) the number of shares of Company common stock issuable upon achievement of an applicable milestone and (y) the daily volume weighted average of actual closing prices measured in hundredths of cents of Company common stock on the NYSE Amex, or such other national securities exchange on which the Company's common stock is then listed, for the ten consecutive trading days immediately prior to the applicable Milestone Payment. Any Milestone Payment made in cash will be payable in quarterly installments and, if the Second Milestone Payment or the Third Milestone Payment must be made in cash, such payments will be payable at a rate of 35% of net sales of intravenous injection products in which a purified form of poloxamer 188 is an active ingredient.

The parties have made customary representations, warranties and covenants in the Merger Agreement, including among other things, covenants (a) for Target to conduct its business in the ordinary course between the date of the Merger Agreement and the Effective Time; (b) that Target will solicit stockholder consents to approve and adopt the Merger Agreement and the transactions contemplated thereby; (c) that Target will not directly or indirectly through any officer, director, representative or agent: (i) solicit proposals relating t o alternative transactions; (ii) engage or participate in negotiations or discussions concerning an alternative transaction; or (iii) agree to, enter into, accept or approve any alternative transaction; (d) that the Company will, at its next annual meeting of stockholders, or, in its discretion, at a special meeting of stockholders prior to its next annual meeting, submit for stockholder approval a proposal to authorize the issuance of the Milestone Shares; (e) that the Company will, immediately following the closing of the Merger, appoint an individual proposed by Target to the Company's board of directors, (f) that the Company will prepare and file with the Securities and Exchange Commission as soon as reasonably practicable, but in no event later than one hundred twenty (120) days following the Effective Time, a re-sale registration statement on Form S-3 with respect to the Fully Vested Shares, Subject to Vesting Shares and the Milestone Shares (the "Registration Statement"); (g) that the Company w ill use commercially reasonable best efforts (i) to request a meeting with the FDA to occur within nine (9) months of the closing of the Merger for the purpose of discussing clinical development and regulatory approval of a target product and (ii) during the one (1) year period following the closing of the Merger, to conduct certain activities related to Target's business; provided, the aggregate cost of such activities does not exceed $1.5 million; (h) that the Company will use commercially reasonable efforts until the earlier of achievement of the Third Milestone or the date that is four (4) years after February 12, 2011 to develop a product; and (i) until the earlier of the achievement of the Third Milestone and the date that is four (4) years following February 12, 2011, the Company will not consummate a change of control with a third party that involves all or substantially all of Target's assets, except (x) in connection with an Exempt Transaction (as defined below) or (y) with the writte n consent of Target, which consent shall not be unreasonably withheld, conditioned or delayed. An "Exempt Transaction" is a change of control that closes prior to achievement of the Third Milestone in which the acquiror agrees in writing to submit the P188 NDA to the FDA for FDA approval (or, if there are unexpected safety or regulatory issues, to conduct activities to address or resolve such issues) until the earlier of (x) the date that, beginning at the Effective Time and thereafter, the aggregate expenditure related to the program involving the product candidate on which the P188 NDA is to be based is at least $15,000,000 and (y) the fourth anniversary of the Effective Time; provided, however, such acquiror shall be relieved of such obligations under certain specified conditions.

Pursuant to the Merger Agreement, the Company, on the one hand, and the stockholders of Target on the other, will indemnify and hold the other harmless as a

result of the breach of the representations, warranties and c ovenants in the Merger Agreement. To provide a fund for payment to the Company in respect of its indemnification rights, the Escrow Amount will be held in escrow for 12 months following the closing of the Merger. Subject to certain limited exceptions, no claim for indemnification of losses by the Company shall be made unless the aggregate amount of losses exceeds $25,000, in which case the Company shall be entitled to seek compensation for all losses without regard to such limitation. Subject to certain exceptions, the Merger Agreement provides for a maximum limit on indemnification by the stockholders of Target equal to the Escrow Amount, plus 100% of the applicable Milestone Payments that have not yet been paid. The consummation of the Merger is subject to certain customary conditions, including, without limitation, (a) the approval of the Merger Agreement and the transactions contemplated thereunder by Target's stockholders; (b) the absence of any legal prohibitions on the closing of the Mer ger; (c) subject to certain exceptions, the continued accuracy of the Company's and Target's representations and warranties as of the Effective Time; (d) the absence of any circumstance or event since the date of the Merger Agreement that has had or would reasonably be expected to have, individually or in the aggregate, a material adverse effect on Target; (e) delivery by Target of its audited financial statements for fiscal years 2009 and 2010; (f) obtaining required governmental consents; and (g) the Company having obtained a waiver of participation rights under that certain Rights Agreement, dated July 27, 2005.

Under the Merger Agreement, each of the Company and Target has certain rights to terminate the Merger Agreement and the Merger, including (a) by either party, if the Merger has not been consummated on or prior to May 2, 2011, subject to certain exceptions; (b) by mutual written consent; (c) by the Company, if the required Target stockholder approval is not obtained; (d) by e ither party, if a court of competent jurisdiction or other governmental authority shall have issued a nonappealable final order, decree or ruling or taken any other action, in each case having the effect of permanently restraining, enjoining or otherwise prohibiting the Merger, subject to certain exceptions; or (e) by either party, if there has been a breach of any representation, warranty, covenant or agreement on the part of the other party set forth in this Agreement, which breach (i) causes certain closing conditions to not be met and (ii) shall not have been cured within ten (10) business days following receipt by the breaching party of written notice of such breach from the other party.

Voting and Transfer Restriction Agreement

On February 12, 2011, in connection with the Merger Agreement, the Company, each of the stockholders of Target and, solely with respect to Section 3(c) thereof, the Stockholders' Agent, entered into a voting and transfer restriction agreement (the "Voting a nd Transfer Agreement"). The Voting and Transfer Agreement shall commence on the Effective Time. Pursuant to the terms and conditions of the Voting and Transfer Agreement, each Target stockholder agrees to vote all shares of Company common stock then beneficially owned by such Target stockholder with respect to every action or approval by written consent of the stockholders of the Company in such manner as directed by the Company. Notwithstanding the foregoing, until the earlier of: (i) achievement of the Third Milestone and (ii) the four (4) year anniversary of the closing of the Merger, each Target stockholder shall be permitted to vote any shares of Company common stock that he, she or it beneficially owns in such Target stockholder's sole discretion solely with respect to a change of control that involves the transfer of Target's assets to a third party and in which at least eighty percent (80%) of the consideration received by the Company (or its stockholders) is non-contingent and paid in cash.

The Voting and Transfer Agreement also provides that no shares of Company common stock that are (i) subject to vesting in accordance with the terms of the Merger Agreement and/or (ii) that have been deposited in escrow may be transferred until such shares have vested and/or are released from escrow, as applicable (and upon such vesting or release, as applicable, such shares shall be referred to as the "Transferable Shares"). Target's stockholders shall be permitted to transfer any Transferable Shares to an affiliate or pursuant to any private resale transactions or series of transactions undertaken in compliance with the Securities Act of 1933, as amended (the "Securities Act"), any rules and regulations promulgated thereunder, and any applicable state securities laws; provided, however, that such transferee shall be or shall have become a party to the Voting and Transfer Agreement and shall have agreed in writing to be bound by all of the terms and conditions thereof.

The Vot ing and Transfer Agreement also provides that upon the effectiveness of (x) the Registration Statement or (y) upon such Transferrable Shares becoming freely transferable to the public in compliance with Rule 144 promulgated under the Securities Act, Target's stockholders, as a group, shall have the right to transfer on each trading day on any eligible market such aggregate number of Transferable Shares equal to or less than ten percent (10%) of the average daily trading volume of the Company's common stock. In addition, upon the effectiveness of (x) the Registration Statement, or (y) upon such Transferrable Shares becoming freely transferable to the public in compliance with Rule 144 promulgated under the Securities Act, Target's stockholders, as a group, shall have the right, exercisable not more than once in any twelve (12)-month period, to transfer Transferable Shares on any eligible market in an amount equal to, in the aggregate, five (5) times the average daily trading volume of th e Company's common stock.

Item 3.02 Unregistered Sales of Equity Securities.

The information set forth in Item 1.01 of this report related to the potential issuance of shares of the Company's common stock is hereby incorporated by reference under this Item 3.02.

Item 8.01 Other Events.

On February 14, 2011, the Company issued a press release announcing the signing of the Merger Agreement. A copy of the press release is attached hereto as Exhibit 99.1 and is incorporated herein by reference.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

The list of exhibits called for by this Item is incorporated by reference to the Exhibit Index filed with this report.

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

ADVENTRX Pharmaceuticals, Inc.

February 14, 2011

By: /s/ Patrick L. Keran

Name: Patrick L. Keran
Title: President and Chief Operating Officer

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Exhibit Index

Exhibit No.	Description
99.1	Press release, dated February 14, 2011

ADVENTRX SIGNS DEFINITIVE AGREEMENT TO ACQUIRE SYNTHRX INC.

- **All-stock transaction (assuming stockholder approval)**
- **Over 95% of merger consideration based on milestone achievement**
- **Over 75% of merger consideration based on NDA acceptance/approval**
- **Conference call to discuss pending acquisition today at 8:30 am ET**

SAN DIEGO (February 14, 2011) – ADVENTRX Pharmaceuticals, Inc. (NYSE Amex: ANX) today announced that it has entered into a definitive agreement to acquire SynthRx, Inc. (SynthRx), a private biotechnology company developing a purified form of a rheologic and antithrombotic agent, poloxamer 188 (188).

“The acquisition of SynthRx will be a transformative event for ADVENTRX, adding another late-stage asset to our pipeline,” stated Brian M. Culley, Chief Executive Officer of ADVENTRX. “The all-stock, milestone-based deal structure is a win for ADVENTRX and its stockholders in that it allows us to retain our cash for development activities and, other than a modest upfront equity payment, ensures we pay only as the 188 program achieves success. I’m pleased that we would have the data from the planned phase 3 study in-hand while having paid less than 25% of the total deal consideration.”

“The 188 program will fit well with our existing assets and provide several exciting development opportunities. We would plan to meet with the FDA later this year to reach agreement on a protocol for a pivotal phase 3 study for the treatment of sickle cell crisis in a pediatric population, for which 188 has orphan drug designation. Sickle cell patients are an under-served population suffering from an excruciatingly painful condition with limited palliative options. Beyond sickle cell, we believe 188 has clinical benefits in other acute events related to microvascular-flow abnormalities, such as heart attack, stroke and hemorrhagic shock,” Mr. Culley continued.

Under the terms of the all-stock transaction, SynthRx would become a wholly-owned subsidiary of ADVENTRX in exchange for shares of ADVENTRX common stock representing, in the aggregate, an approximately 4% ownership stake in ADVENTRX. SynthRx stakeholders also would be entitled to receive additional shares of common stock upon successful achievement of development milestones consisting of dosing the first patient in a phase 3 clinical study, acceptance by the U.S. Food and Drug Administration (FDA) of a New Drug Application (NDA) and approval by the FDA of an NDA. If all milestones are achieved without reduction, the number of shares issued in connection with the acquisition would, in the aggregate, represent an approximately 40% ownership stake in ADVENTRX (based on currently outstanding shares plus shares issued in connection with the acquisition). Of the total number of shares issuable, more than 75% are based on NDA acceptance and approval.

If ADVENTRX’s stockholders do not approve the issuance of the milestone-related shares as required by NYSE Amex listing standards, ADVENTRX expects to pay SynthRx’s stakeholders in cash the value of the shares it otherwise would have issued, with the NDA acceptance and NDA approval milestone payments payable based on net sales of 188 and all milestone payments payable in quarterly installments.

About Poloxamer 188

Poloxamer 188 is a nonionic block copolymer surfactant that is believed to adhere to hydrophobic surfaces that develop when cells are damaged. It has been shown to restore hydration lattices and minimize the cascade of adhesive, inflammatory and coagulation responses that cause adhesion of cells, impaired blood flow and tissue ischemia. Improving blood flow in the microvasculature may benefit patients with sickle cell disease in acute crisis, which is associated with microvascular occlusion. Formulations of 188 have been extensively studied in numerous clinical trials, including a 2,950-patient, randomized, controlled study in acute myocardial infarction.

SynthRx’s lead product candidate, a purified form of poloxamer 188, is an investigational product intended to treat micro-vascular disorders. Purified poloxamer 188 has been evaluated in multiple clinical studies, including a 255-patient, randomized, double-blind, placebo-controlled phase 3 study in patients with sickle cell disease in acute vaso-occlusive crisis. The FDA has granted orphan drug designation for poloxamer 188 for the treatment of sickle cell crisis.

About Sickle Cell Disease and Sickle Cell Crisis

Sickle cell disease (SCD) or sickle cell anemia (SCA) is a genetic, autosomal, recessive blood disorder characterized by red blood cells that assume an abnormal, rigid, sickle shape. This sickling is caused by an abnormality in the hemoglobin molecule found in red blood cells which carry oxygen throughout the body. Sickled red blood cells cannot pass through capillaries and may occlude capillaries and small blood vessels. This blockage can cause a wide range of serious and life-threatening conditions, including chronic hemolytic anemia, chronic pain and acute painful crisis, stroke, acute chest syndrome, as well as cumulative damage to tissues and organs.

Patients with SCD experience an average life expectancy of approximately 40 years. According to the National Institutes of Health (NIH) and the Sickle Cell Disease Association of America (SCDAA), it is estimated that over 70,000 people have sickle cell disease and about 1,000 babies are born with the disease each year in the United States.

Vaso-occlusive crisis is caused by sickle-shaped red blood cells that obstruct capillaries and restrict blood flow to an organ, resulting in ischemia (restriction of blood supply), pain, necrosis, and often organ damage. The frequency, severity, and duration of these crises can vary considerably.

Conference Call Information

ADVENTRX will hold a conference call today at 8:30 am ET to discuss the potential acquisition. Interested parties may access the conference call by dialing (800) 860-2442 from the U.S. and (412) 858-4600 from outside the U.S. and requesting the ADVENTRX Pharmaceuticals Corporate Update Call. The webcast will be available live via the Internet by accessing the Investors section of ADVENTRX's website at http://ir.adventrx.com. Replays of the webcast will be available on the Company's website for 30 days and a phone replay will be available through February 19, 2011 by dialing (877) 344-7529 from the U.S. and (412) 317-0088 from outside the U.S. and entering conference reference number 448547.

About ADVENTRX Pharmaceuticals
ADVENTRX Pharmaceuticals is a specialty pharmaceutical company focused on acquiring, developing and commercializing proprietary product candidates principally for the treatment of cancer. More information can be found on the Company's web site at www.adventrx.com.

Forward Looking Statements
ADVENTRX cautions you that statements included in this press release that are not a description of historical facts are forward-looking statements that are based on ADVENTRX's current expectations and assumptions. Such forward-looking statements include, but are not limited to, statements regarding the form of consideration payable to SynthRx's stakeholders, development plans for 188, and 188's ability to demonstrate clinical benefits for patients suffering from sickle cell crisis and other microvascular-flow abnormalities. Actual events or results may differ materially from those expressed or implied by the forward-looking statements in this press release due to a number of risks and uncertainties, including, without limitation: the risk that ADVENTRX does not consummate its acquisition of SynthRx on a timely basis, or at all; the potential that ADVENTRX's stockholders do not approve the issuance of the milestone-related shares and ADVENTRX must pay the cash value of those shares, to the extent the milestones are achieved; the risk that ADVENTRX may not be able to integrate SynthRx's assets successfully into its operations or that it may incur unexpected costs and disruptions to its business as a result of such integration; the potential for the FDA to require ADVENTRX to perform additional nonclinical or clinical studies prior to initiating or following completion of the currently contemplated phase 3 clinical trial of 188 for the treatment of sickle cell crisis; the risk that subsequent nonclinical or clinical study results do not support the safety and efficacy or the commercial viability of 188 or any other product candidate developed using technology acquired from SynthRx; the risk that the neither the FDA nor any other regulatory agency approves a product based on 188 or any other product candidate developed using technology acquired from SynthRx on a timely basis, or at all; the potential for the out-of-pocket cost to ADVENTRX and the time required for development of 188 necessary to support an NDA submission are greater than ADVENTX's current expectations; the risk that 188 loses its orphan drug designation for the treatment of sickle cell crisis or that a third party's product candidate is shown to be clinically superior and is approved by the FDA during 188's market exclusivity period; the risk that individuals previously involved in the development of 188 will not assist ADVENTRX in further development of 188 and that ADVENTRX may be unable to retain the services of other qualified individuals on a timely basis, or at all; ADVENTRX's planned reliance on third parties to assist with its nonclinical and clinical studies, regulatory submissions, manufacturing and other important aspects of the 188 development program, if it consummates its acquisition of SynthRx, and the risk that FDA approval may be delayed if their performance is found to be substandard; the potential that ADVENTRX may require substantial additional funding in order to obtain FDA approval for and commercialize 188, and the risk that ADVENTRX may not be able to raise sufficient capital when needed, or at all; and other risks and uncertainties more fully described in ADVENTRX's press releases and periodic filings with the Securities and Exchange Commission. ADVENTRX's public filings with the Securities and Exchange Commission are available at www.sec.gov.

You are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date when made. ADVENTRX does not intend to revise or update any forward-looking statement set forth in this press release to reflect events or circumstances arising after the date hereof, except as may be required by law.

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