

ADVENTRX PHARMACEUTICALS, INC.

- 11,283 shares of 4.25660% Series D Convertible Preferred Stock
- Warrants to Purchase up to 792,000 shares of Common Stock
- 3,192,000 shares of Common Stock Underlying the Convertible Preferred Stock and the Warrants

This prospectus supplement should be read in conjunction with the prospectus dated October 6, 2009, prospectus supplement No. 1 dated November 10, 2009, prospectus supplement No. 2 dated January 4, 2010, prospectus supplement No. 3 dated January 4, 2010, prospectus supplement No. 4 dated February 11, 2010, prospectus supplement No. 5 dated March 1, 2010 and prospectus supplement No. 6 dated April 1, 2010 (collectively, the "Prospectus"), which is to be delivered with this prospectus supplement. This prospectus supplement updates the information in the Prospectus. If there is any inconsistency between the information in the Prospectus and this prospectus supplement, you should rely on the information in this prospectus supplement.

Pursuant to the Prospectus, we offered up to \$11,283,000 of our 4.25660% Series D Convertible Preferred Stock, or 11,283 shares based on a stated value of \$1,000 per share, and warrants to purchase up to 792,000 shares of our common stock. Delivery of the convertible preferred stock and warrants was made on or about October 9, 2009. In addition, pursuant to the Prospectus, 3,192,000 shares of our common stock issuable upon conversion of the convertible preferred stock and exercise of the warrants were registered to permit their issuance by us to the purchasers of our convertible preferred stock and warrants. As of the date of this prospectus supplement, all 11,283 shares of the convertible preferred stock have been converted into our common stock. We did not receive any additional proceeds in connection with the issuance of shares of our common stock upon conversion of the convertible preferred stock, and, other than the exercise price to be received upon exercise of the warrants, we will not receive any additional proceeds in connection with the issuance of shares of our common stock upon exercise of the warrants.

This prospectus supplement includes the following documents, as filed by us with the Securities and Exchange Commission:

- Our Current Report on Form 8-K filed on April 26, 2010.
- Our Current Report on Form 8-K filed on April 27, 2010.

Investing in our securities involves a high degree of risk. Before buying any of our securities, you should read the discussion of material risks of investing in our securities in "Risk Factors" beginning on page 6 of the prospectus dated October 6, 2009, as updated by "Risk Factors" beginning on page 15 of our annual report on Form 10-K included in prospectus supplement No. 6.

You should rely only on the information contained in the Prospectus, any free writing prospectus prepared by us or on our behalf and this prospectus supplement. We have not authorized anyone to provide you with different or additional information. If anyone provides you with different or additional information, you should not rely on it.

Our common stock is listed on the NYSE Amex under the symbol "ANX." The last reported sale price of our common stock on the NYSE Amex on April 23, 2010 was \$4.6275 per share (on a split-adjusted basis). All common stock share and per share amounts in this prospectus supplement have been adjusted to reflect the effect of the 1-for-25 reverse split of our common stock, which was effected on April 23, 2010. We do not intend to list the convertible preferred stock or warrants on any securities exchange.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of the Prospectus or this prospectus supplement. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is April 27, 2010.

**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): April 23, 2010

ADVENTRX Pharmaceuticals, Inc.

(Exact name of registrant as specified in its charter)

Delaware

(State or other Jurisdiction of
Incorporation)

001-32157

(Commission File Number)

84-1318182

(IRS Employer Identification No.)

6725 Mesa Ridge Road, Suite 100

San Diego, CA

(Address of Principal Executive Offices)

92121

(Zip Code)

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

N/A

(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 5.03. Amendments to Articles of Incorporation or Bylaws; Change in Fiscal Year.

On April 23, 2010, ADVENTRX Pharmaceuticals, Inc. (the “Company”) filed a Certificate of Amendment to its Amended and Restated Certificate of Incorporation (the “Certificate of Amendment”) with the Secretary of State of the State of Delaware to effect the previously announced 1-for-25 reverse split of its common stock (the “Reverse Stock Split”). The Reverse Stock Split became effective as of 4:01 p.m. Eastern Daylight Time on April 23, 2010 (the “Effective Time”).

As a result of the Reverse Stock Split, each twenty-five shares of the Company’s common stock, par value \$0.001 per share, issued and outstanding immediately prior to the Effective Time was automatically reclassified as and changed into one share of the Company’s common stock, par value \$0.001 per share. No fractional shares will be issued in connection with the Reverse Stock Split. Stockholders who are entitled to fractional shares will receive a cash payment in lieu of receiving fractional shares (after taking into account and aggregating all shares of the Company’s common stock then held by such stockholder) equal to the fractional share interest multiplied by \$4.6275 (the per share closing price of the Company’s common stock (on a post-split basis) as last reported on the NYSE Amex on April 23, 2010).

A copy of the Certificate of Amendment is attached to this current report as Exhibit 3.1 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.

SIGNATURE

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.

Dated: April 26, 2010

By: /s/ Patrick Keran

Name: Patrick Keran

Title: President and Chief Operating Officer

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>
3.1	Certificate of Amendment to the Amended and Restated Certificate of Incorporation of ADVENTRX Pharmaceuticals, Inc.

**CERTIFICATE OF AMENDMENT
TO THE
AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
ADVENTRX PHARMACEUTICALS, INC.**

Pursuant to Sections 228 and 242 of
the General Corporation Law of the
State of Delaware

ADVENTRX PHARMACEUTICALS, INC., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the "Corporation"), does hereby certify as follows:

FIRST: That the Board of Directors of the Corporation has determined that it is in the best interests of the Corporation and its stockholders to effect a reverse stock split of the Corporation's issued and outstanding Common Stock at a ratio that is not less than 2:1 nor greater than 50:1, with the final ratio to be selected by the Board of Directors in its discretion (the "Reverse Split"). To this end, the Board of Directors has duly adopted resolutions (i) authorizing the Corporation to execute and file with the Secretary of State of the State of Delaware an amendment of the Corporation's Amended and Restated Certificate of Incorporation to effect the Reverse Split; and (ii) declaring such amendment to be advisable for the Corporation and its stockholders.

SECOND: That the stockholders of the Corporation have authorized and approved the amendment in accordance with Section 216 of the Delaware General Corporation Law.

THIRD: That the amendment was duly adopted in accordance with the provisions of Section 242 of the Delaware General Corporation Law by the Board of Directors and stockholders of the Corporation.

FOURTH: That the capital of the Corporation shall not be reduced under or by reason of said amendment.

FIFTH: That upon the effectiveness of this Certificate of Amendment to the Amended and Restated Certificate of Incorporation, Section (A) of Article IV of the Amended and Restated Certificate of Incorporation shall be amended such that the following paragraph shall be added as the second paragraph of section (A) of Article IV immediately following the first paragraph of such section, as such section has been amended as of such date:

"Upon the close of trading on the NYSE Amex on the date the Corporation files this Certificate of Amendment with the Secretary of State of the State of Delaware (the "Effective Time"), each twenty-five (25) shares of the Common Stock, par value \$0.001 per share, of the Corporation issued and outstanding or held in treasury at the Effective Time shall be reclassified as and changed into one (1) share of Common Stock, par value \$0.001 per share, of the Corporation, without any action by the holders thereof. In lieu of any fractional shares to which a holder of shares of Common Stock of the Corporation would be otherwise entitled, the Corporation shall pay in cash, without interest, an amount equal to such fractional interest (after taking into account and aggregating all shares of Common Stock then held by such holder) multiplied by the closing price of the Common Stock as last reported on the NYSE Amex on the day of the Effective Time (determined on a post-split basis)."

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to the Amended and Restated Certificate of Incorporation to be executed by Brian M. Culley, its Chief Executive Officer, this 23rd day of April, 2010.

ADVENTRX PHARMACEUTICALS, INC.

By: /s/ Brian M. Culley
Brian M. Culley
Chief Executive Officer

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

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Item 8.01. Other Events.

On April 27, 2010, ADVENTRX Pharmaceuticals, Inc. issued a press release announcing its plans to resubmit its new drug application for ANX-530 (vinorelbine injectable emulsion), or Exelbine™, to the U.S. Food and Drug Administration in the fourth quarter of 2010. 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.

SIGNATURE

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.

Dated: April 27, 2010

By: /s/ Patrick Keran

Name: Patrick Keran

Title: President and Chief Operating Officer

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>
99.1	Press Release, dated April 27, 2010



ADVENTRX TO RESUBMIT ANX-530 NDA IN THE FOURTH QUARTER OF 2010

SAN DIEGO (April 27, 2010) – ADVENTRX Pharmaceuticals, Inc. (NYSE Amex: ANX) today announced that, based on information received from the U.S. Food and Drug Administration (FDA), the Company plans to resubmit its New Drug Application (NDA) for ANX-530 (vinorelbine injectable emulsion), or Exelbine™, in the fourth quarter of 2010.

“We are pleased to have clarified with the FDA certain matters concerning the stability data necessary to file the Exelbine NDA,” said Brian M. Culley, Chief Executive Officer of ADVENTRX. “The studies that will generate the stability data from our intended commercial manufacturing site that the FDA wishes to see are ongoing, and we plan to resubmit the NDA in the fourth quarter of this year.”

ADVENTRX submitted an NDA for ANX-530 to the FDA in December 2009. The Company announced on March 1, 2010 that it had received a refusal-to-file letter from the FDA regarding that submission. In the letter, the FDA indicated that the data included in the December 2009 NDA submission from the intended commercial manufacturing site was insufficient to support a commercially-viable expiration dating period. The FDA identified only this one chemistry, manufacturing and controls (CMC) reason for the refusal to file. No clinical or nonclinical issues were identified.

About ADVENTRX Pharmaceuticals

ADVENTRX Pharmaceuticals is a specialty pharmaceutical company whose product candidates are designed to improve the performance of existing cancer treatments by addressing limitations associated principally with their safety and use. 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 involve risks and assumptions that, if they materialize or do not prove to be accurate, could cause ADVENTRX’s results to differ materially from historical results or those expressed or implied by such forward-looking statements. These risks and uncertainties include, but are not limited to: the risk that the FDA does not accept a resubmitted ANX-530 NDA for review, including as a result of identifying clinical or nonclinical reasons for a refusal-to-file or identifying currently unidentified CMC reasons for a refusal-to-file; the risk that future stability testing results are not consistent with prior results or are out-of-specification and do not support comparability between manufacturing sites; ADVENTRX’s dependence on the success of ANX-530, and increased uncertainty as to whether ANX-530 will receive regulatory approval or be commercialized successfully; the risk that the bioequivalence data and other information included in the ANX-530 NDA may not adequately support bioequivalence with Navelbine®; the potential that changes made in transferring the manufacturing process for ANX-530 may result in a lack of comparability between the commercial product and the material used in the bioequivalence trial, and that the FDA may require ADVENTRX to perform additional nonclinical, bioequivalence or clinical studies; the potential for the FDA to impose other requirements to be completed before or after approval of the ANX-530 NDA; the risk that ADVENTRX will pursue development activities at levels or on timelines, or will incur unexpected expenses, that shortens the period through which its operating funds will sustain it; the risk that ADVENTRX will be unable to raise sufficient additional capital to commercialize ANX-530, if an ANX-530 NDA is resubmitted, accepted for filing and ultimately approved; 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 these 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 on which it was made.

Company Contact:
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Brian Culley, Chief Executive Officer
858-552-0866

Investor Contact:
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