
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):

September 1, 2009

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.)

6725 Mesa Ridge Road, Suite 100, San Diego,
California

92121

(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.

On September 1, 2009, ADVENTRX Pharmaceuticals, Inc. (the "Company") entered into that certain Third Amendment to Rights Agreement, dated August 26, 2009 (the "Amendment"), with the Icahn Purchasers (as defined in the Amendment). The Amendment modified that certain Rights Agreement, with an effective date of July 27, 2005, as previously amended (the "Agreement"), among the Company and the Purchasers (as defined in the Agreement) pursuant to which the Company agreed to set the authorized number of directors constituting the Board at six and to not change such number, except as set forth in the Agreement. Pursuant to the Amendment, in the event a director resigns from the Board and any resulting vacancy is not filled by a majority of the Board directors then in office, which majority includes the Purchaser Designee (as defined in the Rights Agreement), if there is then a Purchaser Designee, the Board may decrease the authorized number of Board directors to the number of Board directors then in office (including for this purpose the appointment of a director to fill any vacancy resulting from such resignation) and, from time to time, the Board may increase the number of authorized Board directors provided that any vacancy created by such an increase is filled by a majority of the Board directors then in office, which majority includes the Purchaser Designee, if there is then a Purchaser Designee. A complete copy of the Amendment is filed herewith as Exhibit 10.1 and incorporated herein by reference.

The Icahn Purchasers beneficially own approximately 6.7% of the Company's outstanding common stock and Alexander J. Denner, Ph.D., a member of the Board, is affiliated with the Icahn Purchasers and currently is the Purchaser Designee.

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.

September 1, 2009

By: */s/ Patrick Keran*

*Name: Patrick Keran
Title: Vice President, Legal*

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<u>Exhibit No.</u>	<u>Description</u>
10.1	Third Amendment to Rights Agreement, dated August 26, 2009

THIRD AMENDMENT TO RIGHTS AGREEMENT

This Third Amendment to Rights Agreement (this "Amendment") is entered into effective as of August 26, 2009 (the "Effective Date") by and between ADVENTRX Pharmaceuticals, Inc., a Delaware corporation (the "Company"), and Icahn Partners LP, Icahn Partners Master Fund LP and High River Limited Partnership (collectively, the "Icahn Purchasers").

WHEREAS, the Company, the Icahn Purchasers and Viking Global Equities LP and VGE III Portfolio Ltd. (collectively, the "Viking Purchasers" and, together with the Icahn Purchasers, the "Purchasers") are parties to that certain Rights Agreement, with an effective date of July 27, 2005, as amended (the "Rights Agreement"), pursuant to which the Company agreed to set the authorized number of directors constituting the Company's board of directors at 6 and to not change such number, except as set forth in the Rights Agreement;

WHEREAS, pursuant to Section 6.2 of the Rights Agreement, any term of the Rights Agreement may be amended with the written consent of the Company and the Icahn Purchasers;

NOW, THEREFORE, in consideration of both the foregoing premises and the terms and conditions set forth below, the Company and the Icahn Purchasers hereby agree as follows:

1. Board of Directors. The first sentence of Section 4 of the Rights Agreement is hereby amended and restated to read in its entirety as follows:

"Effective promptly following the Closing, the Company shall set the authorized number of Board directors at six and the Company shall appoint a person suggested by the Purchasers which at the time own a majority of the Purchased Shares (the "Purchaser Designee") to the vacancy so created; provided, however, that such person, if anyone other than Mr. Carl Icahn, would not subject the Company to making any disclosures under Item 401(f) of SEC Regulation S-K in any proxy statement (the "Criteria"); provided, further, that, in the event a director resigns from the Board and any resulting vacancy is not filled by a majority of the Board directors then in office, which majority includes the Purchaser Designee, if there is then a Purchaser Designee, the Board may decrease the authorized number of Board directors to the number of Board directors then in office (including for this purpose the appointment of a director to fill any vacancy resulting from such resignation); provided, further, that, from time to time, the Board may increase the number of authorized Board directors provided that any vacancy created by such an increase is filled by a majority of the Board directors then in office, which majority includes the Purchaser Designee, if there is then a Purchaser Designee."

2. Conflicts. Except to the extent amended herein, the Rights Agreement remains in full force and effect.

3. Governing Law. This Amendment will be governed by and construed in accordance with the laws of the State of New York applicable to agreements made and to be fully performed therein.

[Signature page follows]

IN WITNESS WHEREOF, the Company and the Icahn Purchasers have executed this Third Amendment to Rights Agreement effective as of the Effective Date.

COMPANY:	ADVENTRX PHARMACEUTICALS, INC.
	By: /s/ Patrick Keran
	Name: Patrick Keran
	Title: Vice President, Legal
ICAHN PURCHASERS:	ICAHN PARTNERS LP
	By: /s/ [illegible]
	(Authorized Signatory)

ICAHN PARTNERS MASTER FUND LP

By: _____ /s/ [illegible]
(Authorized Signatory)

HIGH RIVER LIMITED PARTNERSHIP

By: Hooper Investments LLC, its general partner

By: Barbery Corp, its member

By: _____ /s/ [illegible]

(Authorized Signatory)