



DIVISION OF
CORPORATION FINANCE

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

May 31, 2011

Patrick L. Keran
President and Chief Operating Officer
Adventrx Pharmaceuticals, Inc.
12390 El Camino Real, Suite 150
San Diego, California 92130

**Re: Adventrx Pharmaceuticals, Inc.
Registration Statement on Form S-3
Filed May 13, 2011
File No. 333-174203**

Dear Mr. Keran:

We have limited our review of your registration statement to the resolution of your pending confidential treatment request filed on April 12, 2011 and the issues we have addressed in our comment.

Please respond to this letter by providing the requested information. Where you do not believe our comment applies to your facts and circumstances, please tell us why in your response.

After reviewing the information you provide in response to this comment, we may have additional comments.

1. We note that, in addition to 662,078 shares of Adventrx common stock issued to the selling stockholders pursuant to the terms of the Merger Agreement with SynthRx, you are attempting to register the resale of the following shares:
 - a. 200,000 shares of common stock currently held in escrow;
 - b. 1,938,773 shares of common stock that are subject to vesting and may be repurchased by Adventrx under certain circumstances; and
 - c. 13,478,050 shares of common stock that are issuable upon the achievement of certain performance milestones.

With respect to the first tranche of shares above, please provide your legal analysis why Question 216.09 of the Compliance and Disclosure Interpretations for Securities Act Forms should not be applied in this case or amend your registration statement to

remove the 200,000 escrow shares from registration consistent with General Instruction I.B.3.

Similarly, please provide your legal analysis why the remaining two tranches of shares above are ripe for registration. We note that you are attempting to register the resale of such shares by the selling shareholders, yet (i) the ability of the shareholders to transfer the 1,938,773 is subject to vesting, which may never occur; and (ii) the other 13,478,050 shares have not yet been issued and may never be outstanding if the performance milestones set forth in the Merger Agreement do not occur.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comment, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

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You may contact Johnny Gharib at (202) 551-3170, Daniel Greenspan at (202) 551-3623 or me at (202) 551-3715 with any questions.

Sincerely,

Jeffrey Riedler
Assistant Director

cc: Michael S. Kagnoff
DLA Piper LLP
4365 Executive Drive, Suite 1100
San Diego, CA 92122