

April 28, 2011

Via Edgarlink and Facsimile

Mr. Jeffrey Riedler
Assistant Director
Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, DC 20549

RE: ADVENTRX Pharmaceuticals, Inc.
Registration Statement on Form S-1
Post-effective amendment no. 2
Filed March 10, 2011
File No. 333-160778

Dear Mr. Riedler:

This letter responds to the comments contained in your letter to ADVENTRX Pharmaceuticals, Inc. (the "Company," "we" or "us"), dated March 14, 2011, regarding our post-effective amendment no. 2 (File No. 333-160778) filed on March 10, 2011 ("Post-Effective Amendment No. 2"). For your convenience, we have repeated each of your comments and set forth our response immediately after each comment. Our responses below should not be interpreted as an admission by us of any deficiency with respect to Post-Effective Amendment No.2.

Post-effective amendment

General

- 1. We note your post-effective amendment consists of a two-page prospectus supplement, the incorporation by reference of your most recent Form 10-K and Form 8-Ks, and advice to potential investors that they should read, in conjunction with the aforementioned documents, ten additional prospectus supplements. Instead of referring to prospectus supplements, please revise the post-effective amendment to actually provide the information requested by Items 3-10 to the extent the information requested by these items is still applicable and not already included in the Form 10-K incorporated by reference.***
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ADVENTRX response: On April 28, 2011, we filed post-effective amendment no. 3 to the registration statements on Form S-1 (File No. 333-160778 and File No. 333-162361) (“Post-Effective Amendment No. 3”). The prospectus supplement included in Post-Effective Amendment No. 3 does not include reference to or advise potential investors to read prospectus supplements no. 1 — 11.

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2. ***We note your post-effective amendment incorporates by reference information from your annual report on Form 10-K for the year ended December 31, 2010. This filing does not contain information in Part III that is required by Form 10-K. Prior to requesting acceleration of effectiveness of the subject post-effective amendment, please amend your Form 10-K filing to include Part III information or file the definitive proxy statement to incorporate this information into your filing.***

ADVENTRX response: On April 28, 2011, we filed a definitive proxy statement pursuant to Regulation 14(a) promulgated under the Securities Exchange Act of 1934, which includes the Part III information that is required by Form 10-K. Such Part III information is incorporated by reference into our annual report on Form 10-K for the year ended December 31, 2010.

Pursuant to Rules 460 and 461 under the Securities Act of 1933, as amended, the Company hereby requests acceleration of Post-Effective Amendment No. 3, so that it will become effective at 9:00 a.m., Eastern Daylight Time, on Friday, April 29, 2011, or as soon thereafter as reasonably practicable, or at such later time as the Company may request by telephone to the Commission. The Company hereby authorizes both Michael Kagnoff and Larry Nishnick of DLA Piper LLP (US), counsel for the Company, to make such request on the Company’s behalf.

The Company hereby acknowledges that: (i) 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; (ii) 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 (iii) 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.

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Thank you for your assistance. If you should have any questions, please call Larry Nishnick of DLA Piper LLP (US) at (858) 677-1414.

Very truly yours,

ADVENTRX Pharmaceuticals, Inc.

By: /s/ Patrick L. Keran
Patrick L. Keran
President and Chief Operating Officer

cc: John L. Krug, Senior Counsel, SEC
Michael S. Kagnoff, DLA Piper LLP (US)
Larry W. Nishnick, DLA Piper LLP (US)