

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

FORM S-4
POST-EFFECTIVE AMENDMENT NO. 1
TO REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

ACELRX PHARMACEUTICALS, INC.
(Exact name of registrant as specified in its charter)

Delaware
(State or Other Jurisdiction of
Incorporation or Organization)

2834
(Primary Standard Industrial
Classification Code Number)

41-2193603
(I.R.S. Employer
Identification Number)

351 Galveston Drive
Redwood City, CA 94063
(650) 216-3500
(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Raffi Asadorian
Chief Financial Officer
AcelRx Pharmaceuticals, Inc.
351 Galveston Drive
Redwood City, CA 94063
(650) 216-3500
(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

Copies to:

Mark B. Weeks, Esq.
Rama Padmanabhan, Esq.
Robert W. Phillips, Esq.
Cooley LLP
101 California St., 5th Fl
San Francisco, CA 94611
(415) 693-2000

Approximate date of commencement of proposed sale of the securities to the public: Not applicable.

If the securities being registered on this Form are to be offered in connection with the formation of a holding company and there is compliance with General Instruction G, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and “emerging growth company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer
Non-accelerated filer

Accelerated Filer
Smaller reporting company
Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

If applicable, place an X in the box to designate the appropriate rule provision relied upon in conducting this transaction:

Exchange Act Rule 13e-4(i) (Cross-Border Issuer Tender Offer)

Exchange Act Rule 14d-1(d) (Cross-Border Third-Party Tender Offer)

DEREGISTRATION OF SECURITIES

This Post-Effective Amendment No. 1 (the “Post-Effective Amendment”) relates to the Registration Statement on Form S-4 (File No. 333-237584) of AcelRx Pharmaceuticals, Inc. (the “Registrant”) filed with the Securities and Exchange Commission (the “SEC”) on April 6, 2020, as amended on April 21, 2020 (the “Registration Statement”), with respect to shares of common stock, par value \$0.001 per share, of the Registrant (the “Common Stock”). The Registration Statement was declared effective by the SEC on April 24, 2020. The shares of Common Stock were to be issued to holders of common stock, par value \$0.001 per share, of Tetrphase Pharmaceuticals, Inc., a Delaware corporation (“Tetrphase”), and holders of Tetrphase warrants upon the consummation of a business combination pursuant to the Agreement and Plan of Merger, dated as of March 15, 2020, by and among the Registrant, Consolidation Merger Sub, Inc., a Delaware corporation and an indirect wholly-owned subsidiary of the Registrant, and Tetrphase, as amended on May 27, 2020 and May 29, 2020 (the “Merger Agreement”).

On June 4, 2020 Tetrphase terminated the Merger Agreement pursuant to its terms. Accordingly, the Registrant has not, and will not, issue any of its shares of Common Stock registered under the Registration Statement.

In accordance with an undertaking made by the Registrant in the Registration Statement, the Registrant is filing this Post-Effective Amendment to deregister all shares of Common Stock previously registered.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant has duly caused this Post-Effective Amendment No. 1 to the Registration Statement on Form S-4 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Redwood City, State of California, on the 5th day of June, 2020.

ACELRX PHARMACEUTICALS, INC.

By: /s/ Vincent J. Angotti
Vincent J. Angotti
Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Post-Effective Amendment No. 1 to the Registration Statement on Form S-4 has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Vincent J. Angotti</u> Vincent J. Angotti	Chief Executive Officer and Director (<i>Principal Executive Officer</i>)	June 5, 2020
<u>/s/ Raffi Asadorian</u> Raffi Asadorian	Chief Financial Officer (<i>Principal Financial and Accounting Officer</i>)	June 5, 2020
<u>*</u> Adrian Adams	Chairman	June 5, 2020
<u>*</u> Pamela P. Palmer, M.D., Ph.D.	Director	June 5, 2020
<u>*</u> Mark G. Edwards	Director	June 5, 2020
<u>*</u> Stephen J. Hoffman, Ph.D., M.D.	Director	June 5, 2020
<u>*</u> Richard Afable, M.D.	Director	June 5, 2020
<u>*</u> Howard B. Rosen	Director	June 5, 2020
<u>*</u> Mark Wan	Director	June 5, 2020

*By: /s/ Vincent J. Angotti

Name: Vincent J. Angotti

Title: Attorney-in-fact