

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

SCHEDULE 13G

Under the Securities Exchange Act of 1934

AcelRx Pharmaceuticals, Inc.

(Name of Issuer)

Common Stock

(Title of Class of Securities)

00444T100

(CUSIP Number)

December 7, 2012

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)
- Rule 13d-1(c)
- Rule 13d-1(d)

*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

Persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

SEC 1745 (12-02)

1.	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NO. OF ABOVE PERSONS (ENTITIES ONLY) PERCEPTIVE ADVISORS LLC			
2.	CHECK THE APPROPRIATE BOX IF A GROUP*		(a) <input type="checkbox"/> (b) <input type="checkbox"/>	
3.	SEC USE ONLY			
4.	CITIZENSHIP OR PLACE OF ORGANIZATION DELAWARE, UNITED STATES OF AMERICA			
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH:		5.	SOLE VOTING POWER	0
		6.	SHARED VOTING POWER	5,008,400
		7.	SOLE DISPOSITIVE POWER	0
		8.	SHARED DISPOSTIVE POWER	5,008,400
9.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON			5,008,400
10.	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS) <input type="checkbox"/>			
11.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)			14.25%
12.	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)			IA

13.	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NO. OF ABOVE PERSONS (ENTITIES ONLY) JOSEPH EDELMAN			
14.	CHECK THE APPROPRIATE BOX IF A GROUP*		(a) <input type="checkbox"/>	
			(b) <input type="checkbox"/>	
15.	SEC USE ONLY			
16.	CITIZENSHIP OR PLACE OF ORGANIZATION UNITED STATES OF AMERICA			
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH:		17.	SOLE VOTING POWER	0
		18.	SHARED VOTING POWER	5,008,400
		19.	SOLE DISPOSITIVE POWER	0
		20.	SHARED DISPOSTIVE POWER	5,008,400
21.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON			5,008,400
22.	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (SEE INSTRUCTIONS) <input type="checkbox"/>			
23.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)			14.25%
24.	TYPE OF REPORTING PERSON (SEE INSTRUCTIONS)			IN

CUSIP No. 00444T100	13G	Page 4 of 7 Pages
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Item 1.

- (a) Name of Issuer: **AcelRx Pharmaceuticals, Inc.**
- (b) Address of Issuer's Principal Executive Offices: **351 Galveston Drive
Redwood City, CA 94063**

Item 2.

- (a) Name of Person Filing: **This Schedule 13G (the "Schedule") is being filed with respect to shares of Common Stock (as defined below) of AcelRx Pharmaceuticals, Inc. (the "Issuer") which are beneficially owned by Perceptive Advisors LLC and Joseph Edelman (together, the "Reporting Persons"). See Item 4 below.**
- (b) Address of Principal Business Office or, if none, Residence: **499 Park Avenue, 25th Floor
New York, NY 10022**
- (c) Citizenship: **Perceptive Advisors LLC is a Delaware limited liability company and Joseph Edelman is a United States Citizen.**
- (d) Title of Class of Securities: **Common Stock**
- (e) CUSIP Number: **00444T100**

Item 3.

If this statement is filed pursuant to §§240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:

- (a) Broker or dealer registered under section 15 of the Act (15 U.S.C. 78o).
- (b) Bank as defined in section 3(a)(6) of the Act (15 U.S.C. 78c).
- (c) Insurance company as defined in section 3(a)(19) of the Act (15 U.S.C. 78c).
- (d) Investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C 80a-8).
- (e) An investment adviser in accordance with §240.13d-1(b)(1)(ii)(E);
- (f) An employee benefit plan or endowment fund in accordance with §240.13d-1(b)(1)(ii)(F);
- (g) A parent holding company or control person in accordance with § 240.13d-1(b)(1)(ii)(G);
- (h) A savings associations as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813);
- (i) A church plan that is excluded from the definition of an investment company under section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3);
- (j) Group, in accordance with §240.13d-1(b)(1)(ii)(J).

Item 4. Ownership.

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- | | | |
|-----|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (a) | Amount beneficially owned: | The Reporting Persons beneficially own a total of 5,008,400 shares of Common Stock held by a private investment fund to which Perceptive Advisors LLC serves as the investment manager. Mr. Edelman is the managing member of Perceptive Advisors LLC. |
| (b) | Percent of class: | The beneficial ownership of 14.25% is based on the sum of (i) the Issuer's 22,646,773 outstanding shares of Common Stock and (ii) the 12,500,000 shares of Common Stock of the Issuer that were issued in a public offering pursuant to an underwriting agreement dated December 6, 2012, both as disclosed on the Issuer's Form 8-K filed with the SEC on December 7, 2012. |
| (c) | Number of shares as to which the person has: | |
| | (i) Sole power to vote or to direct the vote: | 0 |
| | (ii) Shared power to vote or to direct the vote: | 5,008,400 |
| | (iii) Sole power to dispose or to direct the disposition of: | 0 |
| | (iv) Shared power to dispose or to direct the disposition of: | 5,008,400 |

Item 5 Ownership of Five Percent or Less of a Class

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following:

Item 6 Ownership of More Than Five Percent on Behalf of Another Person

The Fund described in Item 4 has the right to receive or the power to direct the receipt of dividends from, or the proceeds from, the sale of the securities held in its account. Filing of this statement by the Reporting Persons shall not be deemed an admission that they beneficially own the securities reported herein. The Reporting Persons expressly disclaim beneficial ownership of all securities reported herein.

Item 7. Identification and Classification of the Subsidiary which Acquired the Security Being Reported on by the Parent Holding Company or Control Person.

Not applicable.

Item 8. Identification and Classification of Members of the Group.

Not applicable.

Item 9. Notice of Dissolution of Group.

Not applicable.

Item 10. Certification

The following certification shall be included if the statement is filed pursuant to §240.13d-1(b):

- (a) By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were acquired and are held in the ordinary course of business and were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.
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SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

December 13, 2012

Date

PERCEPTIVE ADVISORS LLC

/s/ Joseph Edelman

Signature

Joseph Edelman/Managing Member

Name/Title

December 13, 2012

Date

/s/ Joseph Edelman

Signature

Joseph Edelman

Name/Title

The original statement shall be signed by each person on whose behalf the statement is filed or his authorized representative. If the statement is signed on behalf of a person by his authorized representative other than an executive officer or general partner of the filing person, evidence of the representative's authority to sign on behalf of such person shall be filed with the statement, provided, however, that a power of attorney for this purpose which is already on file with the Commission may be incorporated by reference. The name and any title of each person who signs the statement shall be typed or printed beneath his signature.

NOTE: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties for whom copies are to be sent.

Attention: Intentional misstatements or omissions of fact constitute Federal criminal violations (See 18 U.S.C. 1001)
