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): March 24, 2011

ACELRX PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

DELAWARE	**001-35068**	**41-2193603**
(State of incorporation)	**(Commission File No.)**	**(IRS Employer Identification No.)**

575 Chesapeake Drive
Redwood City, CA 94063
(Address of principal executive offices and zip code)

Registrant's telephone number, including area code: (650) 216-3500

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 (see General Instruction A.2. below):

☐ 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))

ITEM 2.02 RESULTS OF OPERATIONS AND FINANCIAL CONDITION.

On March 24, 2011, AcelRx Pharmaceuticals, Inc. issued a press release announcing its financial results for the year ended December 31, 2010. A copy of the press release is furnished as Exhibit 99.1 to this report.

The information in this Item 2.02 and in the press release furnished as Exhibit 99.1 to this current report shall not be deemed to be "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities of that Section or Sections 11 and 12(a)(2) of the Securities Act of 1933, as amended. The information contained in this Item 2.02 and in the press release furnished as Exhibit 99.1 to this current report shall not be incorporated by reference into any filing with the U.S. Securities and Exchange Commission made by AcelRx Pharmaceuticals, Inc., whether made before or after the date hereof, regardless of any general incorporation language in such filing.

ITEM 9.01 FINANCIAL STATEMENTS AND EXHIBITS.

(d) Exhibits.

Exhibit Number	Description
99.1	Press Release dated March 24, 2011

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.

Date: March 24, 2011

ACELRX PHARMACEUTICALS, INC.

By: /s/ James H. Welch
James H. Welch
Chief Financial Officer

INDEX TO EXHIBITS

Exhibit Number	Description
99.1	Press Release dated March 24, 2011

Exhibit 99.1

FOR IMMEDIATE RELEASE

AcelRx Pharmaceuticals Reports Fourth Quarter and Full-Year 2010 Financial Results

Plans to Initiate the Phase 3 Program for Lead Product Candidate ARX-01 in Second Half of 2011;
IPO Completed

REDWOOD CITY, Calif., March 24, 2011 – AcelRx Pharmaceuticals, Inc. (Nasdaq: ACRX), ("AcelRx"), a specialty pharmaceutical company focused on the development and commercialization of innovative therapies for the treatment of acute or breakthrough pain, today reported financial results for the fourth quarter and year ended December 31, 2010.

Net loss for the fourth quarter of 2010 was $3.5 million, or $5.23 per common share, compared with a net loss of $3.7 million, or $6.05 per common share, for the fourth quarter of 2009. Net loss for the year ended December 31, 2010 was $14.3 million, or $21.84 per common share, compared to a net loss of $20.1 million, or $34.93 per common share, for the year ended December 31, 2009.

Research and development expenses for the twelve and three months ended December 31, 2010 totaled $8.2 million and $1.9 million, compared to $15.5 million and $2.3 million for the twelve and three months ended December 31, 2009. General and administrative expenses were $4.0 million and $1.0 million for the year and quarter ended December 31, 2010, compared to $3.5 million and $1.0 million for the year and quarter ended December 31, 2009.

As of December 31, 2010, AcelRx had cash, cash equivalents and short-term investments of $3.7 million, compared to $12.5 million as of December 31, 2009. On February 16, 2011, AcelRx closed its initial public offering of 8.0 million shares of common stock resulting in net proceeds to AcelRx of $35.6 million. We intend to utilize these funds primarily for advancement of our lead program, our hospital-based, patient-controlled analgesia (PCA) product, the Sufentanil NanoTab PCA System (ARX-01).

"We are pleased with our progress towards initiating the Phase 3 program for ARX-01 in acute post-operative pain," said Richard King, President and Chief Executive Officer of AcelRx. "We anticipate initiating enrollment in the first Phase 3 study of ARX-01, an abdominal surgery efficacy study, in the second half of 2011. Further, we anticipate starting our second Phase 3 study, a head-to-head trial comparing ARX-01 to the current standard of care, intravenous (IV) PCA morphine, in early 2012. Top-line data from both trials is expected in the first half of 2012."

"ARX-01 is a preprogrammed, handheld, sublingual PCA system delivering the high therapeutic index opioid, sufentanil, that has been designed to address the need for effective and well tolerated post-operative pain control in the hospital setting, and to overcome the deficiencies of the current standard of care, IV PCA. The 2010 Decision Resources Acute Pain Report projects that the post-operative pain market for the United States, Europe and Japan will reach $6.5 billion in 2018. We believe that ARX-01 has the opportunity to become the new standard of care for patient-controlled management of moderate-to-severe post-operative pain," said Mr. King.

Financial Outlook

AcelRx anticipates that research and development expenses will increase over the next several years as AcelRx seeks to complete the Phase 3 development of ARX-01 and subsequently advance the development of its other product candidates for cancer breakthrough pain and mild sedation for painful procedures in a physician's office, ARX-02 and ARX-03. AcelRx does not intend to initiate the third ARX-01 Phase 3 study, an efficacy study in orthopedic hip and knee replacement surgeries, nor advance the development of ARX-02 and ARX-03 until additional funding is obtained. Additionally, AcelRx anticipates increases in general and administrative expenses due to costs associated with operating as a public company.

AcelRx believes its current cash, cash equivalents and short-term investments, including initial public offering net proceeds of $35.6 million, are sufficient to fund operations through at least the second quarter of 2012.

About AcelRx Pharmaceuticals, Inc.

Based in Redwood City, CA, AcelRx Pharmaceuticals, Inc. (Nasdaq: ACRX) is a specialty pharmaceutical company focused on the development and commercialization of innovative therapies for the treatment of acute and breakthrough pain. AcelRx's lead product candidate, the ARX-01 Sufentanil NanoTab(TM) PCA System, which has completed Phase 2 clinical development, is designed to solve the problems associated with post-operative intravenous patient-controlled analgesia (IV PCA) which has been shown to cause harm to patients following surgery because of the side effects of morphine, the invasive IV route of delivery and the inherent potential for programming and delivery errors associated with the complexity of infusion pumps. AcelRx has two additional product candidates which have completed Phase 2 clinical development: ARX-02 for the treatment of cancer breakthrough pain, and ARX-03 for providing mild sedation, anxiety reduction and pain relief for patients undergoing painful procedures in a physician's office.

Forward Looking Statements

This press release contains forward-looking statements, including, but not limited to, statements related to AcelRx Pharmaceuticals' financial performance, clinical trial update and future financial performance, including 2011 financial outlook, and statements relating to the timing of the clinical trials and product candidate development. These forward-looking statements are based on the company's current expectations and inherently involve significant risks and uncertainties. AcelRx Pharmaceuticals' actual results and the timing of events could differ materially from those anticipated in such forward looking statements as a result of these risks and uncertainties, which include, without limitation, risks related to: the success, cost and timing of AcelRx Pharmaceutical's product development activities and clinical trials; its ability to obtain and maintain regulatory approval of its product candidates; its ability to obtain funding for its operations; its plans to research, develop and commercialize its product candidates; its ability to attract collaborators with development, regulatory and commercialization expertise; the accuracy of AcelRx Pharmaceutical's estimates regarding expenses, capital requirements and needs for financing; and other risks detailed in the "Risk Factors" and elsewhere in AcelRx Pharmaceuticals' Securities and Exchange Commission filings and reports, including its Registration Statement on Form S-1 (including a prospectus) and its Annual Report on Form 10-K for the year ended December 31, 2010, when it becomes available. AcelRx Pharmaceuticals undertakes no duty or obligation to update any forward-looking statements contained in this release as a result of new information, future events or changes in its expectations.

Contact:
Jim Welch
Chief Financial Officer
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Balance Sheets
(in thousands, except share and per share data)

	December 31, 2010	December 31, 2009
ASSETS		
CURRENT ASSETS:		
Cash and cash equivalents	$ 3,055	$ 7,150
Short-Term Investments	627	5,396
Prepaid expenses and other current assets	2,097	397
Total Current Assets	**$ 5,779**	**$ 12,943**
Property and equipment, net	800	1,280
Restricted cash	205	205
Other assets	46	63
TOTAL ASSETS	**$ 6,830**	**$ 14,491**
LIABILITIES & STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable	$ 543	$ 917
Accrued liabilities	859	369
Convertible notes (1)	6,805	—
Long-term debt, current portion	5,204	4,726
Total current liabilities	**$ 13,411**	**$ 6,012**
Deferred rent	245	425
Long-term debt, net of current portion	—	5,008
Call option liability	596	—
Convertible preferred stock warrant liability	2,529	169
TOTAL LIABILITIES	**$ 16,781**	**$ 11,614**
STOCKHOLDERS' EQUITY (DEFICIT):		
Convertible preferred stock, $0.001 par value - 46,736,123 shares authorized as of December 31, 2010 and 2009; 7,151,802 and 7,132,527 shares issued and outstanding as of December 31, 2010 and 2009	$ 55,941	$ 55,871
Common stock, $0.001 par value - 71,000,000 shares authorized as of December 31, 2010 and 2009; 674,353 and 620,116 shares issued and outstanding as of December 31, 2010 and 2009	3	3
Additional paid-in capital	2,668	1,224
Accumulated other comprehensive income (loss)	—	(2)
Deficit accumulated during the development stage	(68,563)	(54,219)
TOTAL STOCKHOLDERS' EQUITY (DEFICIT)	**$ (9,951)**	**$ 2,877**
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)	**$ 6,830**	**$ 14,491**

(1) The convertible debt balance is comprised of $8 million in convertible notes outstanding as of December 31, 2010 less $1.2 million in debt discount. The principal and the interest under these convertible notes were subsequently converted into common stock upon our initial public offering in February 2011.

Statements of Operations
(in thousands, except share and per share data)

	Three Months Ended December 31,		Year Ended December 31,	
	2010	2009	2010	2009
Operating Expenses:				
Research and development	$ 1,884	$ 2,322	$ 8,193	$ 15,502
General and administrative	960	1,019	3,993	3,529
Total operating expenses	**$ 2,844**	**$ 3,341**	**$ 12,186**	**$ 19,031**
Loss from operations	**($ 2,844)**	**($ 3,341)**	**($ 12,186)**	**($ 19,031)**
Interest income	2	0	4	33
Interest expense	(741)	(277)	(1,397)	(1,242)
Other income (expense), net	59	(79)	(765)	121
Net loss	**($ 3,524)**	**($ 3,697)**	**($ 14,344)**	**($ 20,119)**
Net loss per share of common stock, basic and diluted	**($ 5.23)**	**($ 6.05)**	**($ 21.84)**	**($ 34.93)**
Shares used in computing net loss per share of common stock, basic and diluted (1)	674,353	610,987	656,650	576,021

(1) Weighted-average number of common shares used in calculating net loss per common share - basic and diluted for the year ended December 31, 2010 excludes (i) the 8,000,000 shares of common stock issued in the initial public offering in February 2011, (ii) 8,555,713 shares of common stock resulting from the conversion of our convertible preferred stock to common shares upon the closing of the initial public offering, and (iii) the issuance of 2,141,684 shares of common stock resulting from the conversion of $8 million in convertible notes, and net exercise of the associated warrants. Following the initial public offering, the Company had 19,371,750 shares of common stock outstanding.