

| OMB APPROVAL                                |                   |
|---|-------------------|
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**INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES**

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

|  |  |   |   |
|--|--|---|---|
| <b>1. Name and Address of Reporting Person*</b><br>SCHRECK THOMAS A<br><hr/> (Last) (First) (Middle)<br>C/O ACELRX PHARMACEUTICALS, INC., 575 CHESAPEAKE DRIVE<br><hr/> (Street)<br>REDWOOD CA 94063<br>CITY<br><hr/> (City) (State) (Zip) | <b>2. Date of Event Requiring Statement (Month/Day/Year)</b><br>02/10/2011 | <b>3. Issuer Name and Ticker or Trading Symbol</b><br>ACELRX PHARMACEUTICALS INC [ACRX]   |   |
|  |  | <b>4. Relationship of Reporting Person(s) to Issuer</b><br>(Check all applicable)<br><input checked="" type="checkbox"/> Director 10% Owner<br>Officer (give title below) Other (specify below) | <b>5. If Amendment, Date of Original Filed (Month/Day/Year)</b><br><br><b>6. Individual or Joint/Group Filing (Check Applicable Line)</b><br><input checked="" type="checkbox"/> Form filed by One Reporting Person<br>Form filed by More than One Reporting Person |

| Table I - Non-Derivative Securities Beneficially Owned |  |  |   |
|--|--|--|---|
| 1. Title of Security (Instr. 4)                        | 2. Amount of Securities Owned (Instr. 4) | 3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5) | 4. Nature of Indirect Beneficial Ownership (Instr. 5) |
| Common Stock   | 257,651 <sup>(1)</sup> <sup>(2)</sup>    | D  |   |
| Common Stock   | 2,550 <sup>(1)</sup> <sup>(2)</sup>      | I  | See Footnote <sup>(3)</sup>                           |

**Table II - Derivative Securities Beneficially Owned**  
(e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative Security (Instr. 4) | 2. Date Exercisable and Expiration Date (Month/Day/Year) |                 | 3. Title and Amount of Securities Underlying Derivative Security (Instr. 4) |   | 4. Conversion or Exercise Price of Derivative Security | 5. Ownership Form: Direct (D) or Indirect (I) (Instr. 5) | 6. Nature of Indirect Beneficial Ownership (Instr. 5) |
|--|--|-----------------|---|---|--|--|---|
|  | Date Exercisable   | Expiration Date | Title   | Amount or Number of Shares <sup>M</sup> |  |  |   |
| Series A Convertible Preferred Stock       | (4)  | (5)             | Common Stock  | 30,605 <sup>(1)</sup>                   | \$ <sup>(4) (6)</sup>                                  | D  |   |
| Series A Convertible Preferred Stock       | (4)  | (5)             | Common Stock  | 10,201 <sup>(1)</sup>                   | \$ <sup>(4) (7)</sup>                                  | I  | See Footnote <sup>(3)</sup>                           |
| Stock Option (Right to Buy)                | (8)  | 04/03/2017      | Common Stock  | 18,750 <sup>(1)</sup>                   | \$ 1.32 <sup>(1)</sup>                                 | D  |   |
| Stock Option (Right to Buy)                | (9)  | 08/14/2018      | Common Stock  | 37,500 <sup>(1)</sup>                   | \$ 4 <sup>(1)</sup>                                    | D  |   |
| Stock Option (Right to Buy)                | (10)   | 07/01/2019      | Common Stock  | 25,000 <sup>(1)</sup>                   | \$ 5.52 <sup>(1)</sup>                                 | D  |   |
| Stock Option (Right to Buy)                | (10)   | 07/01/2019      | Common Stock  | 25,000 <sup>(1)</sup>                   | \$ 5.52 <sup>(1)</sup>                                 | D  |   |
| Stock Option (Right to Buy)                | (10)   | 06/15/2020      | Common Stock  | 218,750 <sup>(1)</sup>                  | \$ 2.56 <sup>(1)</sup>                                 | D  |   |

**Explanation of Responses:**

1. Reflects a 1-for-4 reverse stock split of the Company's issued an outstanding securities effective January 28, 2011.
2. The shares are fully vested.
3. The shares are held in trust for Mr. Schreck's children. Mr. Schreck disclaims beneficial ownership of the shares.
4. Immediately convertible into shares of the Issuer's common stock.
5. The shares have no expiration date.
6. The shares will automatically convert into 41,800 shares of the Issuer's common stock immediately prior to the closing of the Issuer's initial public offering.
7. The shares will automatically convert into 13,932 shares of the Issuer's common stock immediately prior to the closing of the Issuer's initial public offering.
8. The shares subject to the option vest as follows: 1/4 of the shares subject to the option vest on December 31, 2007 with the remaining shares subject to the option vesting on an equal monthly basis over the following 36 months.
9. The shares subject to the option vest as follows: 1/4 of the shares subject to the option vest on December 31, 2008 with the remaining shares subject to the option vesting on an equal monthly basis over the following 36 months.
10. The shares subject to the option vest as follows: 1/2 of the shares subject to the option vest on December 31, 2010 with the remaining shares subject to the option vesting on an equal monthly basis over the following 24 months.

/s/ Carter J. King, Attorney-  
in-fact

02/10/2011

\*\* Signature of Reporting  
Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

\* If the form is filed by more than one reporting person, see Instruction 5(b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

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

POWER OF ATTORNEY

Know all by these presents, that the undersigned hereby constitutes and appoints each of Richard King, James Welch, Carter King and Mark Weeks, or either of them signing singly, and with full power of substitution, the undersigned's true and lawful attorney-in-fact to:

- (1) prepare, execute in the undersigned's name and on the undersigned's behalf, and submit to the U.S. Securities and Exchange Commission (the "SEC") a Form ID, including amendments thereto and any other documents necessary or appropriate to obtain codes and passwords enabling the undersigned to make electronic filings with the SEC of reports required by Section 16(a) of the Securities Exchange Act of 1934 or any rule or regulation of the SEC;
- (2) execute for and on behalf of the undersigned, in the undersigned's capacity as an officer, director and/or more than 10% stockholder of AcelRx Pharmaceuticals, Inc. (the "Company"), Forms 3, 4, and 5 in accordance with Section 16(a) of the Securities Exchange Act of 1934 and the rules thereunder;
- (3) do and perform any and all acts for and on behalf of the undersigned which may be necessary or desirable to complete and execute any such Form 3, 4, or 5, complete and execute any amendment or amendments thereto, and timely file such form with the SEC and any stock exchange or similar authority; and
- (4) take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required by, the undersigned, it being understood that the documents executed by such attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

The undersigned hereby grants to each such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as the undersigned might or could do if personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact, or such attorney-in-fact's substitute or substitutes, shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. The undersigned acknowledges that the foregoing attorneys-in-fact, in serving in such capacity at the request of the undersigned, are not assuming, nor is the Company assuming, any of the undersigned's responsibilities to comply with Section 16 of the Securities Exchange Act of 1934.

This Power of Attorney shall remain in full force and effect until the undersigned is no longer required to file Forms 3, 4, and 5 with respect to the undersigned's holdings of and transactions in securities issued by the Company, unless earlier revoked by the undersigned in a signed writing delivered to the foregoing attorneys-in-fact. This Power of Attorney supersedes any prior power of attorney granted by the undersigned with respect to Forms 3, 4, and 5.

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed as of this 25th day of January, 2011.

/s/ Thomas Schreck