

| OMB APPROVAL | |
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| OMB Number: | 3235-0287 |
| Expires: | December 31, 2014 |
| Estimated average burden hours per response | 0.5 |

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

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

| | | |
|--|---|---|
| 1. Name and Address of Reporting Person * WAN MARK A <hr/> (Last) (First) (Middle) 3200 ALPINE ROAD <hr/> (Street) PORTOLA VALLEY CA 94028 <hr/> (City) (State) (Zip) | 2. Issuer Name and Ticker or Trading Symbol ACELRX PHARMACEUTICALS INC [ACRX] | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director <input checked="" type="checkbox"/> 10% Owner Officer (give title below) Other (specify below) |
| | 3. Date of Earliest Transaction (Month/Day/Year) 05/29/2012 | |
| | 4. If Amendment, Date of Original Filed (Month/Day/Year) 05/31/2012 | |

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) | | 4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | | | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Indirect Beneficial Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|------------|--------|---|--|---|
| | | | Code | V | Amount | (A) or (D) | Price | | | |
| Common Stock | 05/29/2012 | | P | | 67,543 | A | \$ 3.4 | 3,704,712 | I | See Footnote (1) ⁽¹⁾ |
| Common Stock | 05/29/2012 | | P | | 3,631 | A | \$ 3.4 | 199,174 | I | See Footnote (2) ⁽²⁾ |
| Common Stock | 05/29/2012 | | P | | 208,911 | A | \$ 3.4 | 3,958,829 | I | See Footnote (3) ⁽³⁾ |
| Common Stock | 05/29/2012 | | P | | 4,613 | A | \$ 3.4 | 87,408 | I | See Footnote (4) ⁽⁴⁾ |

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

| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if any (Month/Day/Year) | 4. Transaction Code (Instr. 8) | | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5) | | 6. Date Exercisable and Expiration Date (Month/Day/Year) | | 7. Title and Amount of Underlying Securities (Instr. 3 and 4) | | 8. Price of Derivative Security (Instr. 5) | 9. Number of Derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4) | 10. Ownership Form of Derivative Security: Direct (D) or Indirect (I) (Instr. 4) | 11. Nature of Indirect Beneficial Ownership (Instr. 4) |
|--|--|--------------------------------------|--|--------------------------------|---|---|-----|--|-----------------|---|----------------------------|--|--|--|--|
| | | | | Code | V | (A) | (D) | Date Exercisable | Expiration Date | Title | Amount or Number of Shares | | | | |
| Warrant to purchase Common Stock | \$ 3.4 | 05/29/2012 | | P | | 60,789 | | 11/29/2012 | 11/29/2017 | Common Stock | 60,789 | \$ 0.125 | 60,789 | I | See Footnote (1) ⁽¹⁾ |
| Warrant to purchase Common Stock | \$ 3.4 | 05/29/2012 | | P | | 3,268 | | 11/29/2012 | 11/29/2017 | Common Stock | 3,268 | \$ 0.125 | 3,268 | I | See Footnote (2) ⁽²⁾ |
| Warrant to purchase Common Stock | \$ 3.4 | 05/29/2012 | | P | | 188,020 | | 11/29/2012 | 11/29/2017 | Common Stock | 188,020 | \$ 0.125 | 188,020 | I | See Footnote (3) ⁽³⁾ |
| Warrant to purchase Common Stock | \$ 3.4 | 05/29/2012 | | P | | 4,151 | | 11/29/2012 | 11/29/2017 | Common Stock | 4,151 | \$ 0.125 | 4,151 | I | See Footnote (4) ⁽⁴⁾ |

1. Name and Address of Reporting Person *

WAN MARK A

(Last) (First) (Middle)

3200 ALPINE ROAD

(Street)

PORTOLA VALLEY CA 94028

(City) (State) (Zip)

1. Name and Address of Reporting Person *

JAEGER WILFRED E

(Last) (First) (Middle)

3200 ALPINE DRIVE

(Street)

PORTOLA VALLEY CA 94028

(City) (State) (Zip)

1. Name and Address of Reporting Person *

THREE ARCH PARTNERS III LP

(Last) (First) (Middle)

3200 ALPINE DRIVE

(Street)

PORTOLA VALLEY CA 94028

(City) (State) (Zip)

1. Name and Address of Reporting Person *

THREE ARCH ASSOCIATES III LP

(Last) (First) (Middle)

3200 ALPINE ROAD

(Street)
 PORTOLA VALLEY CA 94028

(City) (State) (Zip)

1. Name and Address of Reporting Person *
 THREE ARCH PARTNERS IV LP

(Last) (First) (Middle)
 3200 ALPINE ROAD

(Street)
 PORTOLA VALLEY CA 94028

(City) (State) (Zip)

1. Name and Address of Reporting Person *
 THREE ARCH ASSOCIATES IV LP

(Last) (First) (Middle)
 3200 ALPINE ROAD

(Street)
 PORTOLA VALLEY CA 94028

(City) (State) (Zip)

Explanation of Responses:

1. The shares are held by Three Arch Partners III, L.P. ("TAP III"). Three Arch Management III, L.L.C. ("TAM III"), the general partner of TAP III, has sole voting and dispositive power with respect to the securities held by TAP III. Mark A. Wan and Wilfred Jaeger, the managing members of TAM III, share the voting and dispositive power with respect to the shares hld by TAP III. Such persons and entities disclaim beneficial ownership of the shares held by TAP III except to the extent of any pecuniary interest therein.
2. The shares are held by Three Arch Associates III, L.P. ("TAA III"). TAM III, the general partner of TAA III, has sole voting and dispositive power with respect to the securities held by TAA III. Mark A. Wan and Wilfred Jaeger, the managing members of TAM III, share the voting and dispositive power with respect to the shares hld by TAA III. Such persons and entities disclaim beneficial ownership of the shares held by TAA III except to the extent of any pecuniary interest therein.
3. The shares are held by Three Arch Partners IV, L.P. ("TAP IV"). Three Arch Management IV, L.L.C. ("TAM IV"), the general partner of TAP IV, has sole voting and dispositive power with respect to the securities held by TAP IV. Mark A. Wan and Wilfred Jaeger, the managing members of TAM IV, share the voting and dispositive power with respect to the shares hld by TAP IV. Such persons and entities disclaim beneficial ownership of the shares held by TAP IV except to the extent of any pecuniary interest therein.
4. The shares are held by Three Arch Associates IV, L.P. ("TAA IV"). TAM IV, the general partner of TAA IV, has sole voting and dispositive power with respect to the securities held by TAA IV. Mark A. Wan and Wilfred Jaeger, the managing members of TAM IV, share the voting and dispositive power with respect to the shares hld by TAA IV. Such persons and entities disclaim beneficial ownership of the shares held by TAA IV except to the extent of any pecuniary interest therein.

Remarks:

This is an amendment to the Form 4 filed on May 31, 2012, which inadvertently contained the incorrect EDGAR codes for Three Arch Partners IV, L.P. and Three Arch Associates IV, L.P. This amendment restates the same substantive information included in the previously filed Form 4 and contains the correct EDGAR codes for the reporting persons.

[/s/ Steve Agelopoulos,](#) [06/06/2012](#)
[Attorney-in-Fact](#)

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[Attorney-in-Fact](#)

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[/s/ Steve Agelopoulos,](#) [06/06/2012](#)
[Attorney-in-Fact](#)

[/s/ Steve Aaelopoulos,](#) [06/06/2012](#)

| | |
|-------------------------------------|-------------------|
| <u>Attorney-in-Fact</u> | <u>06/06/2012</u> |
| <u>/s/ Steve Agelopoulos.</u> | <u>06/06/2012</u> |
| <u>Attorney-in-Fact</u> | |
| ** 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 4(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.