

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

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

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

| OMB APPROVAL | |
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| 1. Name and Address of Reporting Person* <u>Westphal Christoph H</u> (Last) (First) (Middle) <u>C/O FLEX PHARMA, INC.</u> <u>800 BOYLSTON STREET</u> (Street) <u>BOSTON MA 02199</u> (City) (State) (Zip) | 2. Issuer Name and Ticker or Trading Symbol <u>Flex Pharma, Inc. [FLKS]</u> | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director <input checked="" type="checkbox"/> 10% Owner <input checked="" type="checkbox"/> Officer (give title below) <input type="checkbox"/> Other (specify below) <p style="text-align: center;"><u>President and CEO</u></p> |
| | 3. Date of Earliest Transaction (Month/Day/Year) <u>05/27/2016</u> | |
| | 4. If Amendment, Date of Original Filed (Month/Day/Year) | |
| | | 6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person <input type="checkbox"/> Form filed by More than One Reporting Person |

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 | 05/27/2016 | | P | | 17,300 | A | \$12.68 ⁽¹⁾ | 3,153,861 | I | See notes ⁽²⁾⁽³⁾ |
| Common Stock | 05/31/2016 | | P | | 5,000 | A | \$12.66 ⁽⁴⁾ | 3,158,861 | I | See notes ⁽³⁾⁽⁵⁾ |
| Common Stock | | | | | | | | 3,925,248 | D | |

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 Securities Underlying Derivative Security (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: Direct (D) or Indirect (I) (Instr. 4) | 11. Nature of Indirect Beneficial Ownership (Instr. 4) |
|--|--|--------------------------------------|--|--------------------------------|---|--|-----|--|-----------------|---|--|--|---|--|
| | | | | Code | V | (A) | (D) | Date Exercisable | Expiration Date | | | | | |

Explanation of Responses:

- The price in Column 4 is a weighted average purchase price. The prices actually received ranged from \$12.54 to \$12.80. The reporting person will provide to the Issuer, any security holder of the Issuer, or the SEC staff, upon request, information regarding the number of shares purchased at each price within the range.
- On May 27, 2016, Longwood Fund III, L.P. ("Longwood Fund III") purchased 17,300 shares of common stock of the Issuer (the "Common Shares"). Following such purchase, Longwood Fund III owned 456,597 Common Shares and Longwood Fund II, L.P. ("Longwood Fund II") owned 2,697,264 Common Shares.
- Longwood Fund II GP, LLC is the ultimate General Partner of Longwood Fund II and Longwood Fund III GP, LLC is the ultimate General Partner of Longwood Fund III. Christoph Westphal, M.D., Ph.D., Richard Aldrich and Michelle Dipp, M.D., Ph.D. (collectively, the "Managers") are managers of Longwood Fund II GP, LLC and Longwood Fund III GP, LLC, and, as such, may be deemed to have shared voting and dispositive power with respect to the Issuer's securities held by Longwood Fund II and Longwood Fund III (the "Longwood Shares"). Each of the Managers disclaims beneficial ownership of the Longwood Shares, except to the extent of their respective pecuniary interest therein, and the inclusion of these shares in this report shall not be deemed an admission of beneficial ownership of the shares for purposes of Section 16 or for any other purpose.
- The price in Column 4 is a weighted average purchase price. The prices actually received ranged from \$12.41 to \$13.00. The reporting person will provide to the Issuer, any security holder of the Issuer, or the SEC staff, upon request, information regarding the number of shares purchased at each price within the range.
- On May 31, 2016, Longwood Fund III purchased 5,000 Common Shares. Following such purchase, Longwood Fund III owned 461,597 Common Shares and Longwood Fund II owned 2,697,264 Common Shares.

Remarks:

/s/ Robert Hadfield, Attorney-in-Fact 06/01/2016

** 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.