FORM 4

obligations may continue. See

Instruction 1(b).

Check this box if no longer subject to Section 16. Form 4 or Form 5

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

| STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP |
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OMB APPROVAL OMB Number: Estimated average burden hours per response: 0.5

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

| 1. Name and Address of Reporting Person* Westphal Christoph H | | | | | | 2. Issuer Name and Ticker or Trading Symbol Flex Pharma, Inc. [FLKS] | | | | | | | | | k all app Dired | ctor | | X 10% | Owner | |
|---|---|--|------------------------|---|-------------------------------|--|--------|---|---------------|--------------------------------|------------------------|---|--|-------------------------------------|--|--|---|---|---|--|
| (Last) (First) (Middle) C/O FLEX PHARMA, INC. 800 BOYLSTON STREET | | | | | | 3. Date of Earliest Transaction (Month/Day/Year) 07/27/2015 | | | | | | | | X | X Officer (give title below) Other (specific below) President and CEO | | | | | |
| (Street) BOSTON MA 02199 (City) (State) (Zip) | | | | | - 4. li | 4. If Amendment, Date of Original Filed (Month/Day/Year) | | | | | | | | 6. Ind Line) X | Forn Forn | al or Joint/Group Filing (Check Applicable Form filed by One Reporting Person Form filed by More than One Reporting Person | | | | |
| (City) | (51 | | Zip) e I - N | lon-Deriv | /ative | Sec | uritie | s Ac | auire | ed. Di | isposed o | f. or B | enefic | ially | Owne | ed | | | | |
| 1. Title of Security (Instr. 3) 2. Transaction Date (Month/Day/Y | | | | ion | 2A. Deemed Execution Date, | | | 3. Transaction Code (Instr. 8) | | 4. Securities Disposed Of | d (A) or | 5. Amount of Securities Beneficially Owned Followin | | unt of les ially Following | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | | 7. Nature of Indirect Beneficial Ownership | | | |
| | | | | | | | | | Code | v | Amount | (A) or (D) | Price | | Reported Transaction(s) (Instr. 3 and 4) | | | | (Instr. 4) | |
| Common Stock 07/27/201 | | | | | 015 | .5 | | P ⁽¹⁾ | | 691 | A | \$16.07 |)792 3,9 | | 08,355 | | D | | | |
| Common Stock | | | | | | | | | | | | | | | 2,69 | 97,264 | | I | By Longwood Fund II. L.P. ⁽²⁾ | |
| | | Та | ıble II | | | | | | | | posed of, convertib | | | | wned | | | <u>'</u> | | |
| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | Executif any | 3A. Deemed Execution Date, if any (Month/Day/Year) | | 4. Transaction Code (Instr. B) | | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | | te Exer ration D th/Day/ | | 7. Title and Amount of Securities Underlying Derivative Security (Instr. and 4) | | De Se (In: | Price of rivative curity str. 5) | 9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s (Instr. 4) | у | 10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4 | Beneficial Ownership (Instr. 4) | |
| | | | | | Code | V | (A) | (D) | Date Exerc | cisable | Expiration Date | Title | Amount or Number of Shares | | | | | | | |

Explanation of Responses:

2. Longwood Fund II GP, LLC is the ultimate General Partner of Longwood Fund II, L.P. 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, as such, may be deemed to have shared voting and dispositive power with respect to the issuer's securities held by Longwood Fund II, L.P. (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.

Remarks:

/s/ Robert Hadfield, Attorneyin-Fact

07/27/2015

** 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.

 $^{1. \} The purchase reported in this Form 4 was effected pursuant to a Rule 10b5-1 trading plan adopted on February 17, 2015.$