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FORM 4

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

| Check this box if no longer subject to |
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| 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 or Section 30(h) of the Investment Company Act of 1940

OMB APPROVAL OMB Number: 3235-0287 Estimated average burden

| Estimated average burden hours per response: | 0.5 |
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| nouis per response. | 0.5 |

| | ss of Reporting Perso | n* | 2. Issuer Name and Ticker or Trading Symbol Flex Pharma, Inc. [FLKS] | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) | | | | | |
|--------------------|-----------------------|-------|--|---|---|---|-----------------------|--|--|
| Longwood Fu | <u>1110 11, L.P.</u> | | , L _ J | | Director | Х | 10% Owner | | |
| | | | 3. Date of Earliest Transaction (Month/Day/Year) 03/11/2016 | | Officer (give title below) | | Other (specify below) | | |
| | N SIKEEI | | 4. If Amendment, Date of Original Filed (Month/Day/Year) | 6. Individual or Joint/Group Filing (Check Applicable Line) | | | | | |
| (Street) BOSTON | MA | 02199 | | X | Form filed by One Form filed by More Person | • | 0 | | |
| (City) | (State) | (Zip) | | | | | | | |

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) | Transaction Code (Instr. | | 4. Securities A Disposed Of (5) | | | Securities Beneficially | 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 | Transaction(s) (Instr. 3 and 4) | | (iiisti: 4) |
| Common Stock | 03/11/2016 | | Р | | 89,680(1) | Α | \$7 | 2,786,944 | D ⁽²⁾⁽³⁾ | |

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. Transa Code (8) | | 5. Nur of Deriv Secur Acqu (A) or Dispo of (D) (Instr and 5 | ative rities ired osed . 3, 4 | 6. Date Exercisable and Expiration Date (Month/Day/Year) | | Expiration Date Amount of | | | 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 | Title | Amount or Number of Shares | | | | |

Explanation of Responses:

1. On March 11, 2016, Longwood Fund III, L.P. ("Longwood Fund III") purchased 89,680 shares of Common Stock of the Issuer (the "Common Shares")

2. Longwood Fund III owns 89,680 Common Shares and Longwood Fund II, L.P. ("Longwood Fund II") owns 2,697,264 Common Shares.

3. 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.

Remarks:

<u>/s/ Robert Hadfield, Attorney-</u> <u>03/15/2016</u> <u>03/15/2016</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.