Instruction 1(b)

FORM 4

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

| | OIVIB APP |
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| STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP | OMB Number: |

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: 3235-028 | | | | | | | | | |
| Estimated average burden | | | | | | | | | |
| hours per response: | 0.5 | | | | | | | | |

| 1. Name and Address of Reporting Person* PIEN HOWARD H (Last) (First) (Middle) C/O IDERA PHARMACEUTICALS, INC. 505 EAGLEVIEW BLVD., SUITE 212 | | | | | 2. Issuer Name and Ticker or Trading Symbol IDERA PHARMACEUTICALS, INC. [IDRA] 3. Date of Earliest Transaction (Month/Day/Year) 09/18/2018 | | | | | | | (Che | elationship eck all applie C Directo Officer below) | cable) or (give title | g Pers | on(s) to Iss 10% Ov Other (s below) | vner | | |
|---|--|------------|----------------|---------|---|--|-----------|--------------------------------|---|---|-------------------|-----------------|---|--|----------------|--|---|---|--|
| (Street) EXTON (City) | PA | A tate) | 19341 (Zip) | | | 4. If Amendment, Date of Original Filed (Month/Day/Year) | | | | | | | Line | lividual or Joint/Group Filing (Check Applicable Form filed by One Reporting Person Form filed by More than One Reporting Person | | | | | |
| Table I - Non-Deriva 1. Title of Security (Instr. 3) 2. Transac Date (Month/Date) | | | | | ction 2A. Deemed Execution Date, | | | Code (Instr. 5) | | | | A) or | 5. Amou Securitie Beneficia | Amount of curities neficially ned Following | | : Direct r Indirect str. 4) | 7. Nature of Indirect Beneficial Ownership (Instr. 4) | | |
| Table II - Deriv | | | | Derivat | ive S | Seci | urities . | Acqı | | Code V Amount (A) or Price Transaction(s) (Instr. 3 and 4) red, Disposed of, or Beneficially Owned | | | | | | | | | |
| | | · | | | | | | | , option | | | | | | | | | | |
| 1. Title of Derivative Security (Instr. 3) | erivative Conversion Date Execution Date, Courity Or Exercise (Month/Day/Year) if any Courity Cour | | | ate, Ti | ransaction of ode (Instr. Derivative | | | ive es ed ed nstr. | 6. Date Exercisable and Expiration Date (Month/Day/Year) (Month/Day/Year) 7. Title and Ar of Securities Underlying Derivative Sec (Instr. 3 and 4 | | | urity | 8. Price of Derivative Security (Instr. 5) | 9. Number derivative Securities Beneficial Owned Following Reported Transactio (Instr. 4) | s S Illy | 10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | Beneficial Ownership (Instr. 4) | | |
| | | | | С | ode | v | (A) | (D) | Date Exercisabl | | xpiration vate | Title | or Nu of | nount mber ares | | | | | |
| Stock Option (Right to Buy) | \$7.99 | 09/18/2018 | | | A | | 23,000 | | (1) | 0 | 9/18/2028 | Common Stock | 23 | ,000 | \$0 | 23,000 | 0 | D | |

Explanation of Responses:

1. The option was granted under the Issuer's 2013 Stock Incentive Plan. The option vests and becomes exercisable over a three-year period commencing on September 18, 2018. Thirty-three percent (33%) of the underlying shares vest and become exercisable on September 18, 2019 (first anniversary of the date of grant) with the balance of the underlying shares vesting in eight equal quarterly installments over the remaining two years of the three-year period, subject to continued service with the Issuer. The option automatically becomes exercisable in full upon the occurrence of a change in control of the Issuer.

/s/ Howard H. Pien

09/20/2018

** 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.