FORM 4

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

| OMB APPROVAL | | | | | | |
|-----------------------|-----------|--|--|--|--|--|
| OMB Number: | 3235-0287 | | | | | |
| Estimated average bur | den | | | | | |
| 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 or Section 30(h) of the Investment Company Act of 1940

| | nd Address o | f Reporting Person | | | R/ | | | | | ding Symbol | <u>5, IN</u> | IC. | | 5. Relationshi (Check all app X Direct | olicat ctor | ole) | 1 | 0% O | wner |
|---|---|--|---|---------------------------------|---|-------------------------------------|--------|---------------------------------|--------------|---------------------------------------|--|-------|--|--|----------------------|--|-------------|-------------|-----------------------------------|
| (Last) (First) (Middle) 667 MADISON AVENUE, 21ST FLOOR | | | | | 3. Date of Earliest Transaction (Month/Day/Year) 07/01/2015 | | | | | | | | Officer (give title Other (specify below) below) | | | | | | |
| (Street) NEW YO | | | US 10065 | 4. If A | me | ndme | ent, D | ate of C | rigina | ıl Filed (Monti | h/Day | /Yea | | | n filed | nt/Group Fi I by One Re I by More th | porting | g Pers | on |
| | | Tabl | e I - Non-Deriv | ative S | Sec | curi | ties | Acqui | red, | Disposed | of, | or E | Benefic | ially Owne | ed | | | | |
| 1. Title of S | Security (Ins | | 2. Transaction Date (Month/Day/Year | 2A. De | een | ned n Dat | ite, | 3. Transac Code (Ir 8) | tion | 4. Securities Disposed O and 5) | s Acq | uired | d (A) or r. 3, 4 | 5. Amount of Securities Beneficially Owned Following | | 6. Owners Form: Dire (D) or Indirect (I) (Instr. 4) | ect In O | wnersl | e of Beneficial nip (Instr. |
| | | | | | | | | Code | v | Amount | (A) or (D) | F | Price | Reported Transaction(s (Instr. 3 and | | (111511. 4) | | | |
| Common | Stock | | 07/01/2015 | | | | | A | | 5,260 | A | | \$3.66 | 636,225 | ; | I | | ee ootno | te ⁽¹⁾⁽²⁾⁽⁵⁾⁽⁶⁾ |
| Common | Stock | | 07/01/2015 | | | | | A | | 5,260 | A | | \$3.66 | 6,334,58 | 5 | I | | ee ootno | te ⁽¹⁾⁽³⁾⁽⁵⁾⁽⁶⁾ |
| Common | Stock | | 07/01/2015 | | | | | A | | 5,260 | A | | \$3.66 | 64,858 | | I | | ee ootno | te ⁽¹⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾ |
| | | Та | ble II - Derivat (e.g., pi | | | | | | | isposed o s, conver | | | | | | | | | |
| 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. Transac Code (Ir 8) | tio | 5. Of D Sc A (A D | . Num | ber 6. Explications (Market) | Date E | | cercisable and 7. Title and 8. Price 9. Number of n Date Amount of of derivative | | vative urities eficially ned owing orted nsaction(s) | 10. Owner Form: Direct or Ind (I) (Ins 4) | ship (D) irect | 11. Nature of Indirect Beneficial Ownership (Instr. 4) | | | |
| | | | | Code | v | (A | A) (I | Da D) Exc | te ercisa | Expiration | | itle | Amount or Number of Shares | | | | | | |
| l | nd Address o | f Reporting Person | • | | | | | | | | | | | | | | | | |
| (Last) 667 MAI | | (First) ENUE, 21ST FLO | (Middle) | | | | | | | | | | | | | | | | |
| (Street) NEW YO | ORK | NY | US 10065 | | | | | | | | | | | | | | | | |
| (City) | | (State) | (Zip) | | | | | | | | | | | | | | | | |

| Last) 667 MADISON | (First) AVENUE, 21ST | (Middle) |
|---------------------------------|--|-------------------|
| Street) NEW YORK | NY | US 10065 |
| City) | (State) | (Zip) |
| | ess of Reporting Per ers Life Scier | |
| Last) 667 MADISON | (First) AVENUE, 21ST | (Middle) FLOOR |
| Street) NEW YORK | NY | US 10065 |
| City) | (State) | (Zip) |
| . Name and Addre 14159, L.P. | ss of Reporting Per | son* |
| Last) 667 MADISION | (First) AVENUE, 21ST | (Middle) FLOOR |
| Street) NEW YORK | NY | US 10065 |
| City) | (State) | (Zip) |
| Name and Addre | ss of Reporting Per | son* |
| Last) | (First) AVENUE, 21ST | (Middle) |
| Street) NEW YORK | NY | US 10065 |
| City) | (State) | (Zip) |
| Name and Addre | ss of Reporting Per | son* |
| Last) 667 MADISON | (First) AVENUE 21ST I | (Middle) |
| Street) | NY | US 10065 |
| NEW YORK | | |

| 1. Name and Address of Reporting Person* Baker Bros. Advisors (GP) LLC | | | | | | |
|---|-------------|----------|--|--|--|--|
| (Last) | (First) | (Middle) | | | | |
| 667 MADISION (Street) | AVENUE 21ST | FLOOR | | | | |
| NEW YORK | NY | US 10065 | | | | |
| (City) | (State) | (Zip) | | | | |

Explanation of Responses:

- 1. 2,391 shares of common stock (the "Common Stock") issued to Julian C. Baker and 2,869 shares of Common Stock issued to Dr. Kelvin M. Neu, respectively, a principal and an employee of Baker Bros. Advisors LP (the "Adviser") pursuant to the Issuer's 2013 Stock Incentive Plan (the "Stock Incentive Plan") in lieu of director retainer fees of \$8,750 and \$10,500, respectively. The shares of Common Stock are fully vested. Julian C. Baker and Dr. Neu serve on the Issuer's Board of Directors (the "Board") as representatives of the Funds (as defined below). Dr. Neu also serves on the Compensation Committee of the Board for which he receives additional director retainer fees. Pursuant to the policies of the Adviser, Julian C. Baker and Dr. Neu do not have any right to the pecuniary interest in the Issuer's securities issued in lieu of director retainer fees and the Funds (as defined below)are entitled to an indirect proportionate pecuniary interest in the securities issued in lieu of director fees. 667, L.P. ("14159", and together with 667, and Life Sciences, the "Funds") each owns an indirect proportionate pecuniary interest in the shares of Common Stock. Solely as a result of their ownership interest in the general partners of the Funds, Felix J. Baker and Julian C. Baker may be deemed to have an indirect pecuniary interest in the shares of Common Stock issued in lieu of director retainer fees (ie. no direct pecuniary interest).
- 2. As a result of Felix J. Baker's and Julian C. Baker's ownership interest in Baker Biotech Capital (GP), LLC, Felix J. Baker and Julian C. Baker may be deemed to have an indirect pecuniary interest in 636,225 shares of common stock of the Issuer beneficially owned by 667, a limited partnership of which the sole general partner is Baker Biotech Capital, L.P., a limited partnership of which the sole general partner is Baker Biotech Capital (GP),LLC, due to Baker Biotech Capital, L.P. is right to receive an allocation of a portion of the profits from 667. Includes beneficial ownership of 29,753 shares issued pursuant to the Stock Incentive Plan in lieu of director retainer fees, of which the fund may be deemed to own a portion.
- 3. As a result of Felix J. Baker's and Julian C. Baker's ownership interest in Baker Brothers Life Sciences Capital (GP), LLC, Felix J. Baker and Julian C. Baker may be deemed to have an indirect pecuniary interest 6,334,585 shares of common stock of the Issuer beneficially owned by Life Sciences, a limited partnership of which the sole general partner is Baker Brothers Life Sciences Capital, L.P., a limited partnership of which the sole general partner is Baker Brothers Life Sciences Capital, L.P.'s right to receive an allocation of a portion of the profits from Life Sciences. Includes beneficial ownership of 29,753 shares issued pursuant to the Stock Incentive Plan in lieu of director retainer fees, of which the fund may be deemed to own a portion.
- 4. As a result of Felix J. Baker's and Julian C. Baker's ownership interest in 14159 Capital (GP), LLC, Felix J. Baker and Julian C. Baker may be deemed to have an indirect pecuniary interest in 64,858 shares of common stock of the Issuer beneficially owned by 14159, a limited partnership of which the sole general partner is 14159 Capital, L.P., a limited partnership of which the sole general partner is 14159 Capital, L.P., a limited partnership of which the sole general partner is 14159 Capital, L.P., a limited partnership of 29,753 shares issued pursuant to the Stock Incentive Plan in lieu of director retainer fees, of which the fund may be deemed to own a portion.
- 5. The Adviser serves as the Investment Adviser to the Funds. In connection with the services provided by the Adviser, the Adviser receives an asset-based management fee that does not confer any pecuniary interest in the securities held by the Funds. Baker Bros. Advisors (GP) LLC (the "Adviser GP") is the Adviser's sole general partner. Julian C. Baker and Felix J. Baker are principals of the Adviser GP. The Adviser has complete and unlimited discretion and authority with respect to the investment and voting power of the securities held by the Funds. The general partners of the Funds relinquished to the Adviser all discretion and authority with respect to the investment and voting power of the securities held by the Funds. Julian C. Baker, Felix J. Baker, the Adviser GP and the Adviser disclaim beneficial ownership of the securities held directly by the Funds except to the extent of their pecuniary interest therein, and this report shall not be deemed an admission that any of Julian C. Baker, Felix J. Baker, the Adviser GP or the Adviser is a beneficial owner of such securities for purposes of Section 16 or any other purpose.
- 6. The disclosure of the grant of Common Stock reported on this form is the sum of two grants totaling 5,260 shares. The 5,260 shares are reported for each limited partnership as each has an indirect pecuniary interest.

Remarks:

Remarks: Julian C. Baker and Dr. Kevin M. Neu, respectively, a principal and an employee of Baker Bros. Advisors LP (the "Advisor") are directors of Idera Pharmaceuticals, Inc. ("the Issuer"). By virtue of their representation on the Board of Directors of the Issuer, for purposes of Section 16 of the Securities Exchange Act of 1934, as amended, the reporting persons are deemed directors by deputization of the Issuer.

/s/ Julian C. Baker 07/06/2015 **BAKER BROS. ADVISORS** LP Name: Scott L. Lessing 07/06/2015 Title: President /s/ Scott L. Lessing Baker Bros. Advisors LP, Mgmt. Co. and Inv. Adviser to BAKER BROTHERS LIFE SCIENCES, L.P., pursuant to authority granted by Baker 07/06/2015 Brothers Life Sciences Capital, L.P., GP to Baker Brothers Life Sciences, L.P. Name: Scott L. Lessing, Title: President/s/ Baker Bros. Advisors LP, Mgmt. Co. and Inv. Adviser to 14159, L.P., pursuant to authority granted by 14159 07/06/2015 Capital, L.P., GP to 14159, L.P. Name: Scott L. Lessing, Title: President /s/ Scott L. Lessing /s/ Felix J. Baker 07/06/2015

Baker Bros. Advisors, LP, Mgmt. Co. and Inv. Adviser to 667, L.P., pursuant to authority granted by Baker 07/06/2015 Biotech Capital, L.P., GP to 667, L.P. Name: Scott L. Lessing, Title: President /s/ Scott L. Lessing By: Baker Bros. Advisors (GP) LLC Name: Scott L. Lessing

07/06/2015

Lessing

** Signature of Reporting Person Date

Title: President /s/ Scott L.

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.