FORM 4

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

| OMB APPRO | VAL |
|------------------------|-----------|
| OMB Number: | 3235-0287 |
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| 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/ | | | Ticker o | | | | INC | 2. [| (Check a | ll applic | r | | 10% C | wner |
|---|--|--|---|---------------------------------|------|----------------------|--|---------------------------------|---------------|-----------|-----------------|-----------------------------|--|--|----------------------|---|--|---|--|
| (Last) 667 MA | (Fi | st) (MENUE, 21ST FLO | Middle) | 3. Dat 01/02 | | | | Fransact | tion (M | lonth/D | ay/Year | -) | | | Officer below) | (give titl | e | Other below) | (specify |
| (Street) NEW YO | | | US 10065 Zip) | 4. If A | mei | ndm | nent, D | ate of C | Origina | l Filed (| (Month/I | Day/Ye | ear) | Line) | Form fil | led by C | ne Repo | (Check / rting Pers | |
| | | Tabl | e I - Non-Deriv | ative S | Sec | curi | ities | Acqui | red, | Dispo | sed c | of, or | Benefi | cially C | wned | | | | |
| 1. Title of S | Security (Ins | | 2. Transaction Date (Month/Day/Year | 2A. D Execu | een | ned n Da | ate, | 3. Transac Code (I 8) | ction | 4. Sec | urities / | Acquir | ed (A) or | 5. Amou Securition Benefici Owned Followin | nt of es ally | 6. Or Form (D) c | rect (I) | Indirec | re of t Beneficial hip (Instr. |
| | | | | | | | | Code | v | Amou | ınt d | (A) or (D) | Price | Reporte Transac (Instr. 3 | ion(s) | (iiisi | | | |
| Common | Stock | | 01/02/2015 | | | | | A | | 3,9 | 27 | A | \$4.9 | 190 | ,571 | | Ι | See footno | ote ⁽¹⁾⁽²⁾⁽⁵⁾⁽⁶⁾ |
| Common | Stock | | 01/02/2015 | | | | | A | | 3,9 | 27 | A | \$4.9 | 1,42: | 5,446 | | I | See footno | ote ⁽¹⁾⁽³⁾⁽⁵⁾⁽⁶⁾ |
| Common | Stock | | 01/02/2015 | | | | | A | | 3,9 | 27 | A | \$4.9 | 54, | 128 | | I | See footno | ote ⁽¹⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾ |
| | | Та | ble II - Derivat (e.g., pı | | | | | | | | | | | | ned | | | | |
| 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 (II 8) | tior | 5 o D S A (// D o (I | 5. Num of Derivati Securiti Acquire A) or Disposof (D) Instr. 3 | ber 6. Ex (M ies ed | Date E | | ble and | 7. Ti Amo Secu Und | tle and ount of urities erlying vative urity (Instr | 8. Prio of Deriva Secur (Instr. | ative Sity B 5) O FR | Numbe erivative ecurities eneficia wned ollowing eported ransactinstr. 4) | e Over Section Ove | vnership orm: rect (D) Indirect (Instr. | 11. Nature of Indirect Beneficial Ownership (Instr. 4) |
| | | | | Code | v | (4 | A) (I | Da D) Ex | ite ercisa | | piration ite | Title | Amour or Number of Shares | er | | | | | |
| l | nd Address o | f Reporting Person [*] | • | | | | | | | | | | | | | | | | |
| (Last) | | (First) ENUE, 21ST FLC | (Middle) | | | | | | | | | | | | | | | | |
| (Street) | 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 Addre | | |
|------------------------|--------------------|--------------------|
| (Last) 667 MADISION | (First) AVENUE 21S | (Middle) FFLOOR |
| (Street) | | |
| NEW YORK | NY | US 10065 |
| (City) | (State) | (Zip) |

Explanation of Responses:

- 1. 1,785 shares of common stock (the "Common Stock") issued to Julian C. Baker and 2,142 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 190,571 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 19,023 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 1,425,446 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 19,023 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 54,128 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.'s right to receive an allocation of a portion of the profits from 14159. Includes beneficial ownership of 19,023 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 3,927 shares. The 3,927 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 01/06/2015 **BAKER BROS. ADVISORS** LP Name: Scott L. Lessing 01/06/2015 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 01/06/2015 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 01/06/2015 Capital, L.P., GP to 14159, L.P. Name: Scott L. Lessing, Title: President /s/ Scott L. Lessing /s/ Felix J. Baker 01/06/2015

Baker Bros. Advisors, LP, Mgmt. Co. and Inv. Adviser to 667, L.P., pursuant to authority granted by Baker 01/06/2015 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

01/06/2015

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.