
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

SCHEDULE 13D

UNDER THE SECURITIES EXCHANGE ACT OF 1934
(Amendment No. 4)

Idera Pharmaceuticals, Inc.

(Name of Issuer)

Common Stock, par value \$0.001 per share

(Title of Class of Securities)

45168K405

(CUSIP number)

Alexandra A. Toohy
Chief Financial Officer
Baker Bros. Advisors LP
860 Washington Street, 3rd Floor
New York, NY 10014
(212) 339-5690

(Name, address and telephone number of person authorized to receive notices and communications)

June 4, 2019

(Date of event which requires filing of this statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of Rule 13d-1(e), 13d-1(f) or 13d-1(g), check the following box .

(Continued on the following pages)

(Page 1 of 9 Pages)

*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

| | | | |
|--|---|---------------------------------------|--|
| 1. | NAMES OF REPORTING PERSONS Baker Bros. Advisors LP | | |
| 2. | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP* (a) <input type="checkbox"/> (b) <input type="checkbox"/> | | |
| 3. | SEC USE ONLY | | |
| 4. | SOURCE OF FUNDS* OO | | |
| 5. | CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/> | | |
| 6. | CITIZENSHIP OR PLACE OF ORGANIZATION Delaware | | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 7. | SOLE VOTING POWER: 4,898,847 (1) | |
| | 8. | SHARED VOTING POWER: 0 | |
| | 9. | SOLE DISPOSITIVE POWER: 4,898,847 (1) | |
| | 10. | SHARED DISPOSITIVE POWER: 0 | |
| 11. | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON: 4,898,847 (1) | | |
| 12. | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES* <input type="checkbox"/> | | |
| 13. | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 17.4% (1)(2) | | |
| 14. | TYPE OF REPORTING PERSON* IA, PN | | |

(1) Includes 27,031 shares of the common stock of Idera Pharmaceuticals, Inc. (the "Issuer") underlying options directly held by Julian C. Baker, a managing member of Baker Bros. Advisors (GP) LLC (the "Adviser GP") and 27,760 shares of the common stock of the Issuer underlying options directly held by Dr. Kelvin M. Neu, a full-time employee of the Adviser.

(2) Based on 28,021,756 shares of the Issuer's common stock outstanding as of April 30, 2019 as reported in the Issuer's in the Issuer's 10-Q filed with the Securities and Exchange Commission (the "SEC") on May 2, 2019.

| | | | |
|--|---|---------------------------------------|--|
| 1. | NAMES OF REPORTING PERSONS Baker Bros. Advisors (GP) LLC | | |
| 2. | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP* (a) <input type="checkbox"/> (b) <input type="checkbox"/> | | |
| 3. | SEC USE ONLY | | |
| 4. | SOURCE OF FUNDS* OO | | |
| 5. | CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/> | | |
| 6. | CITIZENSHIP OR PLACE OF ORGANIZATION Delaware | | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 7. | SOLE VOTING POWER: 4,898,847 (1) | |
| | 8. | SHARED VOTING POWER: 0 | |
| | 9. | SOLE DISPOSITIVE POWER: 4,898,847 (1) | |
| | 10. | SHARED DISPOSITIVE POWER: 0 | |
| 11. | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON: 4,898,847 (1) | | |
| 12. | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES* <input type="checkbox"/> | | |
| 13. | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 17.4% (1)(2) | | |
| 14. | TYPE OF REPORTING PERSON* HC, OO | | |

- (1) Includes 27,031 shares of the common stock of the Issuer underlying options directly held by Julian C. Baker, a managing member of the Adviser GP and 27,760 shares of the common stock of the Issuer underlying options directly held by Dr. Kelvin M. Neu, a full-time employee of the Adviser.
- (2) Based on 28,021,756 shares of the Issuer's common stock outstanding as of April 30, 2019 as reported in the Issuer's in the Issuer's 10-Q filed with the SEC on May 2, 2019.

| | | | |
|--|---|---------------------------------------|--|
| 1. | NAMES OF REPORTING PERSONS Felix J. Baker | | |
| 2. | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP* (a) <input type="checkbox"/> (b) <input type="checkbox"/> | | |
| 3. | SEC USE ONLY | | |
| 4. | SOURCE OF FUNDS* OO | | |
| 5. | CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/> | | |
| 6. | CITIZENSHIP OR PLACE OF ORGANIZATION United States | | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 7. | SOLE VOTING POWER: 4,898,847 (1) | |
| | 8. | SHARED VOTING POWER: | |
| | 9. | SOLE DISPOSITIVE POWER: 4,898,847 (1) | |
| | 10. | SHARED DISPOSITIVE POWER: | |
| 11. | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON: 4,898,847 (1) | | |
| 12. | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES* <input type="checkbox"/> | | |
| 13. | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 17.4% (1)(2) | | |
| 14. | TYPE OF REPORTING PERSON* IN, HC | | |

- (1) Includes 27,031 shares of the common stock of the Issuer underlying options directly held by Julian C. Baker, a managing member of the Adviser GP and 27,760 shares of the common stock of the Issuer underlying options directly held by Dr. Kelvin M. Neu, a full-time employee of the Adviser.
- (2) Based on 28,021,756 shares of the Issuer's common stock outstanding as of April 30, 2019 as reported in the Issuer's in the Issuer's 10-Q filed with the SEC on May 2, 2019.

| | | | |
|--|---|---------------------------------------|--|
| 1. | NAMES OF REPORTING PERSONS Julian C. Baker | | |
| 2. | CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP* (a) <input type="checkbox"/> (b) <input type="checkbox"/> | | |
| 3. | SEC USE ONLY | | |
| 4. | SOURCE OF FUNDS* OO | | |
| 5. | CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) <input type="checkbox"/> | | |
| 6. | CITIZENSHIP OR PLACE OF ORGANIZATION United States | | |
| NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH | 7. | SOLE VOTING POWER: 4,898,847 (1) | |
| | 8. | SHARED VOTING POWER | |
| | 9. | SOLE DISPOSITIVE POWER: 4,898,847 (1) | |
| | 10. | SHARED DISPOSITIVE POWER: | |
| 11. | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON: 4,898,847 (1) | | |
| 12. | CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES* <input type="checkbox"/> | | |
| 13. | PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 17.4% (1)(2) | | |
| 14. | TYPE OF REPORTING PERSON* IN, HC | | |

- (1) Includes 27,031 shares of the common stock of the Issuer underlying options directly held by Julian C. Baker, a managing member of the Adviser GP and 27,760 shares of the common stock of the Issuer underlying options directly held by Dr. Kelvin M. Neu, a full-time employee of the Adviser.
- (2) Based on 28,021,756 shares of the Issuer's common stock outstanding as of April 30, 2019 as reported in the Issuer's in the Issuer's 10-Q filed with the SEC on May 2, 2019.

Amendment No. 4 to Schedule 13D

This Amendment No. 4 to Schedule 13D amends and supplements the previously filed Schedules 13D filed by Baker Bros. Advisors LP (the “Adviser”), Baker Bros. Advisors (GP), LLC (the “Adviser GP”), Julian C. Baker and Felix J. Baker (collectively the “Reporting Persons”). Except as supplemented herein, such statements, as heretofore amended and supplemented, remain in full force and effect.

The Adviser GP is the sole general partner of the Adviser. Pursuant to the management agreements, as amended, among the Adviser, Baker Brothers Life Sciences, L.P. (“Life Sciences”), 14159, L.P. (“14159”), and 667, L.P. (“667”, and together with Life Sciences and 14159, the “Funds”) and their respective general partners, the Funds respective general partners relinquished to the Adviser all discretion and authority with respect to the investment and voting power of the securities held by the Funds, and thus the Adviser has complete and unlimited discretion and authority with respect to the Funds’ investments and voting power over investments.

Item 4. Purpose of the Transaction.

Item 4 of Amendment No. 4 is supplemented and superseded, as the case may be, as follows:

Dr. Kelvin M. Neu, a full-time employee of the Adviser resigned from the Board of Directors (the “Board”) of Idera Pharmaceuticals, Inc. (the “Issuer”) effective June 4, 2019. Julian C. Baker and Dr. Neu as compensation for their previous service on the Board, hold 9,246 and 20,720 shares of Common Stock, respectively and each hold options to purchase shares of Common Stock (“Stock Options”). Julian C. Baker holds 27,031 Stock Options, of which 27,031 are vested and Dr. Neu holds 27,760 Stock Options, of which 27,760 are vested.

The policy of the Funds and the Adviser does not permit managing members of the Adviser GP or full-time employees of the Adviser to receive compensation for serving as a director of the Issuer and the Funds are instead entitled to the pecuniary interest in the Stock Options or Common Stock received as director compensation. Julian C. Baker and Dr. Neu have no voting or dispositive power and no pecuniary interest in the Stock Options and Common Stock received as compensation for their previous service on the Board. Other than through their control of the Adviser, Felix J. Baker and Julian C. Baker have neither voting nor dispositive power and have no direct pecuniary interest in the Stock Options or Common Stock received as directors compensation held by Julian C. Baker and Dr. Neu.

The Adviser has voting and investment power over the Stock Options and Common Stock received as director compensation held by Julian C. Baker and Dr. Neu.

The Funds hold securities of the Issuer for investment purposes. The Reporting Persons or their affiliates may purchase additional securities or dispose of securities in varying amounts and at varying times depending upon the Reporting Persons’ continuing assessments of pertinent factors, including the availability of shares of Common Stock or other securities for purchase at particular price levels, the business prospects of the Issuer, other business investment opportunities, economic conditions, stock market conditions, money market conditions, the attitudes and actions of the Board and management of the Issuer, the availability and nature of opportunities to dispose of shares in the Issuer and other plans and requirements of the particular entities. The Reporting Persons may discuss items of mutual interest with the Issuer, which could include items in subparagraphs (a) through (j) of Item 4 of Schedule 13D.

Depending upon their assessments of the above factors, the Reporting Persons or their affiliates may change their present intentions as stated above and they may assess whether to make suggestions to the management of the Issuer regarding financing, and whether to acquire additional securities of the Issuer, including shares of Common Stock (by means of open market purchases, privately negotiated purchases, exercise of some or all of the Prefunded Warrants (as defined below), exercise of some or all of the Stock Options, or otherwise) or to dispose of some or all of the securities of the Issuer, including shares of Common Stock, under their control.

Except as otherwise disclosed herein, at the present time, the Reporting Persons do not have any plans or proposals with respect to any extraordinary corporate transaction involving the Issuer including, without limitation, those matters described in subparagraphs (a) through (j) of Item 4 of Amendment No. 4.

ITEM 5. Interest in Securities of the Issuer.

The disclosure in Item 4 is incorporated by reference herein.

(a) and (b) Items 7 through 11 and 13 of each of the cover pages of this Amendment No. 4 are incorporated herein by reference. Set forth below is the aggregate number of shares of Common Stock directly held by each of the Funds, which may be deemed to be indirectly beneficially owned by the Reporting Persons, as well as shares of Common Stock that may be acquired upon exercise of certain warrants to purchase shares of Common Stock at an exercise price of \$0.08 per share that expire on May 7, 2020 (“May 2020 Warrants”), certain warrants to purchase shares of Common Stock at an exercise price of \$0.08 per share that expire on September 30, 2020 (“September 2020 Warrants”) and certain warrants to purchase shares of Common Stock at an exercise price of \$0.08 per share that expire on February 10, 2021 (“2021 Warrants”, and together with the May 2020 Warrants, and September 2020 Warrants, the “Prefunded Warrants”) by the Funds, subject to the limitation on exercise described below.

| Holder | Shares of Common Stock | May 2020 Warrants | September 2020 Warrants | 2021 Warrants |
|------------------------------------|------------------------|-------------------|-------------------------|----------------|
| 667, L.P. | 496,758 | 219,036 | 58,154 | 21,551 |
| Baker Brothers Life Sciences, L.P. | 4,258,065 | 1,715,281 | 452,506 | 242,284 |
| 14159, L.P. | 59,267 | 42,724 | 11,337 | 6,009 |
| Total | <u>4,814,090</u> | <u>1,977,041</u> | <u>521,997</u> | <u>269,844</u> |

The Prefunded Warrants are only exercisable to the extent that after giving effect to such exercise the holders thereof and their affiliates would beneficially own, for purposes of Rule 13d-3 under the Securities Exchange Act of 1934, as amended, no more than 4.999% of the outstanding shares of Common Stock of the Issuer (“Beneficial Ownership Limitation”). As a result of this restriction, the number of shares that may be issued upon exercise of the Warrants by the above holders may change depending upon changes in the outstanding shares of Common Stock. For the Prefunded Warrants by written notice to the Issuer, the Funds may from time to time waive the Beneficial Ownership Limitation applicable to that Fund in order to change the Beneficial Ownership Limitation. Any such waiver will not be effective until the 61st day after such notice is delivered to the Issuer. As the result of any such waiver the Beneficial Ownership Limitation cannot exceed 19.99%.

The Adviser GP, Felix J. Baker and Julian C. Baker as managing members of the Adviser GP, and the Adviser may be deemed to be beneficial owners of securities of the Issuer directly held by the Funds, and may be deemed to have the power to vote or direct the vote of and the power to dispose or direct the disposition of such securities.

The Reporting Persons disclaim beneficial ownership of the securities held by each of the Funds, and this Amendment No. 4 shall not be deemed an admission that the Reporting Persons are the beneficial owners of such securities for purposes of Section 13(d) or for any other purpose.

The Adviser GP, and Felix J. Baker and Julian C. Baker as managing members of the Adviser GP, may be deemed to have the power to vote or direct the vote of and the power to dispose or direct the disposition of the Stock Options held by Julian C. Baker and Dr. Neu.

(c) Except as described in this Amendment No. 4, none of the Reporting Persons has effected any transaction in the securities of the Issuer during the past 60 days.

(d) Certain securities of the Issuer are held directly by 667, a limited partnership the sole general partner of which is Baker Biotech Capital, L.P., a limited partnership the sole general partner of which is Baker Biotech Capital (GP), LLC. Julian C. Baker and Felix J. Baker are the controlling members of Baker Biotech Capital (GP), LLC.

Certain securities of the Issuer are held directly by Life Sciences, a limited partnership the sole general partner of which is Baker Brothers Life Sciences Capital, L.P., a limited partnership the sole general partner of which is Baker Brothers Life Sciences Capital (GP), LLC. Julian C. Baker and Felix J. Baker are the controlling members of Baker Brothers Life Sciences Capital (GP), LLC.

Certain securities of the Issuer are held directly by 14159, a limited partnership the sole general partner of which is 14159 Capital, L.P., a limited partnership the sole general partner of which is 14159 Capital (GP), LLC. Julian C. Baker and Felix J. Baker are the controlling members of 14159 Capital (GP), LLC.

(e) Not applicable.

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

June 6, 2019

BAKER BROS. ADVISORS LP

By: Baker Bros. Advisors (GP) LLC, its general partner

By: /s/ Scott L. Lessing
Name: Scott L. Lessing
Title: President

BAKER BROS. ADVISORS (GP) LLC

By: /s/ Scott L. Lessing
Name: Scott L. Lessing
Title: President

/s/ Julian C. Baker
Julian C. Baker

/s/ Felix J. Baker
Felix J. Baker
