

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

SCHEDULE 13D

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

Idera Pharmaceuticals, Inc.

(Name of Issuer)

Common Stock, par value \$0.001 per share

(Title of Class of Securities)

45168K306

(CUSIP number)

Alexandra A. Toohey
Chief Financial Officer
Baker Bros. Advisors LP
667 Madison Avenue, 21st Floor
New York, NY 10065
(212) 339-5690

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

October 7, 2016

(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 12 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: 10,487,314 (1) | |
| | 8. | SHARED VOTING POWER: 0 | |
| | 9. | SOLE DISPOSITIVE POWER: 10,487,314 (1) | |
| | 10. | SHARED DISPOSITIVE POWER: 0 | |
| 11. | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON: 10,487,314 (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) 7.2% (1)(2) | | |
| 14. | TYPE OF REPORTING PERSON* IA, PN | | |

- (1) Includes 107,500 shares of the common stock of Idera Pharmaceuticals, Inc. (the "Issuer") underlying options directly held by Julian C. Baker, a principal of Baker Bros. Advisors LP ("the Adviser"), and 107,500 shares of the common stock of the Issuer underlying options directly held by Dr. Kelvin M. Neu, an employee of the Adviser.
- (2) Based on 146,338,744 shares of the Issuer's common stock that will be outstanding following the offering described in the Issuer's Prospectus Supplement filed with the Securities and Exchange Commission (the "SEC") on October 7, 2016.

| | | | |
|--|---|--|--|
| 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: 10,487,314 (1) | |
| | 8. | SHARED VOTING POWER: 0 | |
| | 9. | SOLE DISPOSITIVE POWER: 10,487,314 (1) | |
| | 10. | SHARED DISPOSITIVE POWER: 0 | |
| 11. | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON: 10,487,314 (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) 7.2% (1)(2) | | |
| 14. | TYPE OF REPORTING PERSON* HC, OO | | |

- (1) Includes 107,500 shares of the common stock of the Issuer underlying options directly held by Julian C. Baker, a principal of the Adviser, and 107,500 shares of the common stock of the Issuer underlying options directly held by Dr. Kelvin M. Neu, an employee of the Adviser.
- (2) Based on 146,338,744 shares of the Issuer's common stock that will be outstanding following the offering described in the Issuer's Prospectus Supplement filed with the SEC on October 7, 2016.

| | | | |
|--|---|--|--|
| 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: 10,487,314 (1) | |
| | 8. | SHARED VOTING POWER: | |
| | 9. | SOLE DISPOSITIVE POWER: 10,487,314 (1) | |
| | 10. | SHARED DISPOSITIVE POWER: | |
| 11. | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON: 10,487,314 (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) 7.2% (1)(2) | | |
| 14. | TYPE OF REPORTING PERSON* IN, HC | | |

- (1) Includes 107,500 shares of the common stock of the Issuer underlying options directly held by Julian C. Baker, a principal of the Adviser, and 107,500 shares of the common stock of the Issuer underlying options directly held by Dr. Kelvin M. Neu, an employee of the Adviser.
- (2) Based on 146,338,744 shares of the Issuer's common stock that will be outstanding following the offering described in the Issuer's Prospectus Supplement filed with the SEC on October 7, 2016.

| | | | |
|--|---|--|--|
| 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: 10,487,314 (1) | |
| | 8. | SHARED VOTING POWER | |
| | 9. | SOLE DISPOSITIVE POWER: 10,487,314 (1) | |
| | 10. | SHARED DISPOSITIVE POWER: | |
| 11. | AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON: 10,487,314 (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) 7.2% (1)(2) | | |
| 14. | TYPE OF REPORTING PERSON* IN, HC | | |

- (1) Includes 107,500 shares of the common stock of the Issuer underlying options directly held by Julian C. Baker, a principal of the Adviser, and 107,500 shares of the common stock of the Issuer underlying options directly held by Dr. Kelvin M. Neu, an employee of the Adviser.
- (2) Based on 146,338,744 shares of the Issuer's common stock that will be outstanding following the offering described in the Issuer's Prospectus Supplement filed with the SEC on October 7, 2016.

Schedule 13D

ITEM 1. Security and Issuer.

The class of equity security to which this statement on Schedule 13D relates is the common stock, par value \$0.001 per share (the “Common Stock”) of Idera Pharmaceuticals, Inc., a corporation organized under the laws of the state of Delaware (the “Issuer”). The address of the principal executive offices of the Issuer is 167 Sidney Street, Cambridge, Massachusetts, 02139. Information given in response to each item shall be deemed incorporated by reference in all other items, as applicable.

The Reporting Persons (as defined below) are filing this Schedule 13D as they are no longer exempt from filing a Schedule 13D as a result of their acquisition of beneficial ownership of more than 2% of the outstanding shares of the Issuer’s Common Stock in a 12-month period resulting from their participation in an underwritten offering of Common Stock as described in Item 4 below.

ITEM 2. Identity and Background.

(a) The Reporting Persons are:

1. Baker Bros. Advisors LP (the “Adviser”)
2. Baker Bros. Advisors (GP) LLC (the “Adviser GP”)
3. Felix J. Baker
4. Julian C. Baker

(b) The business address of each of the Reporting Persons is:

c/o Baker Bros. Advisors LP
667 Madison Avenue, 21st Floor
New York, NY 10065

(c) The Adviser is an entity engaged in investment activities, and the Adviser GP is in the business of acting as its general partner and, through the Adviser, investment activities. The principal business of each of Julian C. Baker and Felix J. Baker is to serve as a managing member of the Adviser GP.

(d) and (e) During the past five years, none of the Reporting Persons nor any of the Funds (as defined below) has been (i) convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors) or (ii) a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

(f) The Adviser is a limited partnership organized under the laws of the State of Delaware. The Adviser GP is a limited liability company organized under the laws of the State of Delaware. The citizenship of each of Julian C. Baker and Felix J. Baker is the United States of America.

Item 3. Source and Amount of Funds or Other Consideration.

The disclosure in Item 4 below is incorporated herein by reference.

The securities of the Issuer purchased by the Funds (as defined below) reported herein were purchased with working capital of the Funds both in open market transactions directly with a broker-dealer, underwritten public offerings and in private transactions directly with the Issuer. The aggregate purchase price of the securities of the Issuer directly held by the Funds reported herein was approximately \$52,675,745.

The Reporting Persons may effect purchases of securities through margin accounts maintained for the Funds with brokers, which extend margin credit as and when required to open or carry positions in their margin accounts, subject to applicable federal margin regulations, stock exchange rules and such firms' credit policies. Positions in securities of the Issuer may be held in margin accounts and may be pledged as collateral security for the repayment of debit balances in such accounts.

Item 4. Purpose of the Transaction.

On October 7, 2016, the Issuer entered into an underwriting agreement with J.P. Morgan Securities LLC and Goldman, Sachs & Co., as representatives of the several underwriters listed on Schedule I thereto, related to a public offering (the "Offering") of 25,000,000 shares of the Issuer's Common Stock at a price to the public of \$2.00 per share. The Offering is expected to close on October 13, 2016.

Pursuant to the Offering, on October 7, 2016, 667, L.P. ("667") and Baker Brothers Life Sciences, L.P. ("Life Sciences", and together with 667, the "Purchasing Funds") purchased 321,404 shares of Common Stock and 2,928,596 shares of Common Stock, respectively, at the offering price of \$2.00 per share. The Purchasing Funds purchased the shares of the Issuer's Common Stock with their working capital.

667, Life Sciences, and 14159, L.P. ("14159", and together with Life Sciences and 667, the "Funds") hold securities of the Issuer previously purchased in private transactions directly with the Issuer, underwritten public offerings and open market transactions directly with a broker-dealer. All securities were purchased using the working capital of the Funds.

Julian C. Baker, a principal of the Adviser, and Dr. Kelvin M. Neu, an employee of the Adviser, have served on the Board of Directors of the Issuer (the "Board") since March 2014, as representatives of the Funds. Dr. Neu serves as Chairman of the Compensation Committee. Julian C. Baker and Dr. Neu hold 32,809 and 43,096 shares of Common Stock, respectively, received as compensation for service on the Board. Of such shares, 3,417 shares were granted to Julian C. Baker and 4,882 shares were granted to Dr. Neu on October 3, 2016, in lieu of directors retainer fees of \$8,750 and \$12,500, respectively. Additionally, Julian C. Baker and Dr. Neu each hold options to purchase shares of Common Stock ("Stock Options") received for their service on the Board. Each of Julian C. Baker and Dr. Neu holds 175,000 Stock Options as detailed below:

Julian C. Baker Stock Options

| Date of Grant | Quantity | Exercise Price | Vesting Terms | Expiration Date |
|---------------|----------------|----------------|--|-----------------|
| 3/10/2014 | 30,000 | \$ 5.82 | 12 equal quarterly installments over 3 years with the first installment vesting June 10, 2014 | 3/10/2024 |
| 3/17/2014 | 40,000 | \$ 6.06 | 12 equal quarterly installments over 3 years with the first installment vesting June 17, 2014 | 3/17/2024 |
| 6/9/2014 | 35,000 | \$ 3.25 | 12 equal quarterly installments over 3 years with the first installment vesting September 9, 2014 | 6/9/2024 |
| 6/8/2015 | 35,000 | \$ 3.59 | 12 equal quarterly installments over 3 years with the first installment vesting September 9, 2015 | 6/8/2025 |
| 6/13/2016 | 35,000 | \$ 1.44 | 1/3 vest after 1 year, remainder vest in 8 equal quarterly installments after the 1st anniversary date | 6/13/2026 |
| | <u>175,000</u> | | | |

Dr. Neu Stock Options

| Date of Grant | Quantity | Exercise Price | Vesting Terms | Expiration Date |
|---------------|----------------|----------------|--|-----------------|
| 3/10/2014 | 30,000 | \$ 5.82 | 12 equal quarterly installments over 3 years with the first installment vesting June 10, 2014 | 3/10/2024 |
| 3/17/2014 | 40,000 | \$ 6.06 | 12 equal quarterly installments over 3 years with the first installment vesting June 17, 2014 | 3/17/2024 |
| 6/9/2014 | 35,000 | \$ 3.25 | 12 equal quarterly installments over 3 years with the first installment vesting September 9, 2014 | 6/9/2024 |
| 6/8/2015 | 35,000 | \$ 3.59 | 12 equal quarterly installments over 3 years with the first installment vesting September 9, 2015 | 6/8/2025 |
| 6/13/2016 | 35,000 | \$ 1.44 | 1/3 vest after 1 year, remainder vest in 8 equal quarterly installments after the 1st anniversary date | 6/13/2026 |
| | <u>175,000</u> | | | |

Of the stock options disclosed above 107,500 Stock Options held by Julian C. Baker and 107,500 Stock Options held by Dr. Neu are vested or will vest within 60 days hereof.

The policy of the Funds and the Adviser does not permit principals or employees of the Adviser to receive compensation for serving as a Directors of the Issuer and the Funds are instead entitled to the pecuniary interest in the Stock Options or shares of 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 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.

Baker Bros. Advisors LP 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 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 Schedule 13D.

ITEM 5. Interest in Securities of the Issuer.

(a) and (b) Items 7 through 11 and 13 of each of the cover pages of this Schedule 13D are incorporated herein by reference.

Set forth below is the aggregate number of shares of Common Stock directly held by each of the 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 \$0.47 per share that expire on May 7, 2018 ("2018 Warrants"), certain warrants to purchase shares of Common Stock at an exercise price of \$0.01 per share that expire on May 7, 2020 ("May 2020 Warrants"), certain warrants to purchase shares of Common Stock at an exercise price of \$0.01 per share that expire on September 25, 2020 ("September 2020 Warrants") and certain warrants to purchase shares of Common Stock at an exercise price of \$0.01 per share that expire on February 10, 2021 ("2021 Warrants", and together with the 2018 Warrants, May 2020 Warrants, and September 2020 Warrants, the "Warrants") by the Funds, subject to the limitation on exercise described below. The information set forth below is based upon 146,338,744 shares of Common Stock that will be outstanding following the Offering as described in the Issuer's Prospectus Supplement filed with the Securities and Exchange Commission on October 7, 2016.

| Holder | Shares of Common Stock | 2018 Warrants | May 2020 Warrants | September 2020 Warrants | 2021 Warrants |
|------------------------------------|------------------------------|---------------|----------------------|----------------------------|---------------|
| 667, L.P. | 927,876 | 2,250,846 | 1,752,291 | 465,230 | 172,406 |
| Baker Brothers Life Sciences, L.P. | 9,233,428 | 17,626,445 | 13,722,245 | 3,620,051 | 1,938,274 |
| 14159, L.P. | 35,105 | 439,036 | 341,791 | 90,694 | 48,070 |
| Total | 10,196,409 | 20,316,327 | 15,816,327 | 4,175,975 | 2,158,750 |

The 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. 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.

The foregoing descriptions of the 2018 Warrants, the May 2020 Warrants, the September 2020 Warrants and the 2021 Warrants do not purport to be complete and are qualified in their entirety by reference to the full texts of the 2018 Warrants, the May 2020 Warrants, the September 2020 Warrants and the 2021 Warrants, the form of which are incorporated by reference as Exhibits 99.2, 99.3, 99.4 and 99.5, respectively, and are incorporated herein by reference.

Pursuant to management agreements, as amended, among the Adviser, the Funds, and their respective general partners, the Adviser has complete and unlimited discretion and authority with respect to the Funds' investments and voting power over investments.

The Adviser GP, Felix J. Baker and Julian C. Baker as principals 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 Schedule 13D 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 principals 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) The disclosure regarding the purchase of Common Stock of the Issuer in the Offering and the the disclosure regarding the shares of Common Stock granted to Julian C. Baker and Dr. Neu on October 3, 2016, described in Item 4 are incorporated by reference herein. Except as described in this Schedule 13D, 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.

ITEM 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer.

The disclosure regarding the Warrants contained in Item 5 is incorporated herein by reference.

The form of the 2018 Warrants is incorporated by reference as Exhibit 99.2 to this Schedule 13D and is incorporated herein by reference.

The form of the May 2020 Warrants is incorporated by reference as Exhibit 99.3 to this Schedule 13D and is incorporated herein by reference.

The form of the September 2020 Warrants is incorporated by reference as Exhibit 99.4 to this Schedule 13D and is incorporated herein by reference.

The form of the 2021 Warrants is incorporated by reference as Exhibit 99.5 to this Schedule 13D and is incorporated herein by reference.

ITEM 7. Material to Be Filed as Exhibits.

| Exhibit | Description |
|----------------|--|
| 99.1 | Agreement Regarding the Joint Filing of Schedule 13D by and among the Reporting Persons. |
| 99.2 | Form of 2018 Warrants (incorporated by reference to Exhibit 10.3 to the Issuer's Quarterly Report on Form 10-Q, filed with the SEC on May 15, 2013). |
| 99.3 | Form of May 2020 Warrants (incorporated by reference to Exhibit 10.5 to the Issuer's Quarterly Report on Form 10-Q, filed with the SEC on May 15, 2013). |
| 99.4 | Form of September 2020 Warrants (incorporated by reference to Exhibit 4.1 to the Issuer's Current Report on Form 8-K, filed with the SEC on September 26, 2013). |
| 99.5 | Form of 2021 Warrants (incorporated by reference to Exhibit 4.1 to the Issuer's Current Report on Form 8-K, filed with the SEC on February 5, 2014). |

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.

October 11, 2016

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

JOINT FILING AGREEMENT

In accordance with Rule 13d-1(k)(1) under the Securities Exchange Act of 1934, as amended, the persons named below agree to the joint filing on behalf of each of them of a Statement on Schedule 13D (including additional amendments thereto) with respect to the shares of Common Stock, par value \$0.001 per share, of Idera Pharmaceuticals, Inc. This Joint Filing Agreement shall be filed as an Exhibit to such Statement. The undersigned acknowledge that each shall be responsible for the timely filing of any amendments to such joint filing and for the completeness and accuracy of the information concerning him or it contained herein and therein, but shall not be responsible for the completeness and accuracy of the information concerning the others.

This Agreement may be executed in any number of counterparts, each of which shall be deemed an original.

EXECUTED as of this 11th day of October, 2016

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
