

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
WASHINGTON, D.C. 20549

Amendment No. 1
to

**FORM S-3
REGISTRATION STATEMENT**
UNDER
THE SECURITIES ACT OF 1933

IDERA PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

04-3072298
(I.R.S. Employer
Identification No.)

505 Eagleview Blvd., Suite 212
Exton, Pennsylvania 19341
(484) 348-1600

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Vincent J. Milano
President and Chief Executive Officer
Idera Pharmaceuticals, Inc.
505 Eagleview Blvd., Suite 212
Exton, Pennsylvania 19341
(484) 348-1600

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copy to:

Joanne R. Soslow
Morgan, Lewis & Bockius LLP
1701 Market Street
Philadelphia, PA
(215) 963-5000

Approximate date of commencement of proposed sale to the public: From time to time after the effective date of this registration statement.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act of 1933, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act of 1933, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act of 1933, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act of 1933, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

The information in this prospectus is not complete and may be changed. The selling stockholder named in this prospectus may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and the selling stockholder named in this prospectus are not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to completion, dated May 18, 2021

PROSPECTUS

IDERA PHARMACEUTICALS, INC.

4,120,878 SHARES OF COMMON STOCK

This prospectus relates to the possible resale from time to time of up to 4,120,878 shares of common stock of Idera Pharmaceuticals, Inc., including 3,407,412 shares of common stock that are issuable upon the exercise of certain outstanding warrants to purchase common stock by the selling stockholder identified in this prospectus. We will not receive any proceeds from the sale of the shares offered by this prospectus.

We have agreed to bear all of the expenses incurred in connection with the registration of these shares. The selling stockholder will pay or assume brokerage commissions and similar charges incurred for the sale of shares of our common stock.

The selling stockholder identified in this prospectus, or their respective pledgees, donees, transferees or other successors-in-interest, may offer the shares from time to time through public or private transactions at prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices. See "Plan of Distribution" beginning on page 13.

Our common stock is listed on the Nasdaq Capital Market under the symbol "IDRA." On May 17, 2021, the closing sale price of our common stock on the Nasdaq Capital Market was \$1.05 per share. You are urged to obtain current market quotations for our common stock.

Investing in our common stock involves a high degree of risk. See "[Risk Factors](#)" beginning on page 3 of this prospectus and in the documents incorporated by reference in this prospectus for a discussion of the factors you should carefully consider before deciding to purchase these securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is _____, 2021.

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We have not authorized anyone to provide you with information different from that contained or incorporated by reference in this prospectus. The selling stockholder is offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of common stock.

PROSPECTUS SUMMARY

This summary highlights important features of this offering and the information included or incorporated by reference in this prospectus. This summary may not contain all of the information that is important to you. You should read the entire prospectus carefully, including “Risk Factors,” before deciding to invest in our common stock.

Idera Pharmaceuticals, Inc.

We are a clinical-stage biopharmaceutical company with a business strategy focused on the clinical development, and ultimately the commercialization, of drug candidates for both oncology and rare disease indications characterized by small, well-defined patient populations with serious unmet medical needs. Our current focus is on our Toll-like receptor (“TLR”) agonist, tilsotolimod (IMO-2125), for oncology. We are currently seeking to develop and commercialize targeted therapies on our own. To the extent we seek to develop drug candidates for broader disease indications, we have entered into and may explore additional collaborative alliances to support development and commercialization.

TLRs are key receptors of the immune system and play a role in innate and adaptive immunity. As a result, we believe TLRs are potential therapeutic targets for the treatment of a broad range of diseases. Using our chemistry-based platform, we designed both TLR agonists and antagonists to act by modulating the activity of targeted TLRs. A TLR agonist is a compound that stimulates an immune response through the targeted TLR. A TLR antagonist is a compound that inhibits an immune response by blocking the targeted TLR.

Our current TLR-targeted clinical-stage drug candidate, tilsotolimod, is an agonist of TLR9. We are currently developing tilsotolimod, via intratumoral injection, for the treatment of anti-PD1 refractory metastatic melanoma in combination with ipilimumab, an anti-CTLA4 antibody marketed as Yervoy® by Bristol Myers Squibb Company (“BMS”) in a Phase 3 registration trial. During the first quarter of 2021, we announced that ILLUMINATE-301, the Company’s pivotal registration trial of tilsotolimod in combination with ipilimumab versus ipilimumab alone in patients with anti-PD-1 refractory advanced melanoma, did not meet its primary endpoint of objective response rate (“ORR”). We are evaluating our next steps regarding continuation of the trial toward its overall survival (“OS”) endpoint, which includes evaluating the full data set when it is available. Although the primary endpoint of ORR was not met, if the study continues and reaches a positive OS outcome, we would expect to discuss with regulatory authorities a potential path forward in this indication.

We are also evaluating intratumoral tilsotolimod in combination with nivolumab, an anti-PD1 antibody marketed as Opdivo® by BMS, and ipilimumab for the treatment of multiple solid tumors in a multicohort Phase 2 trial.

Recent Developments

In April 2021, following the announcement that ILLUMINATE-301 did not meet its primary endpoint of ORR, we decided to implement a reduction in force, which is expected to affect approximately 50% of our workforce by May 31, 2021. The decision was made in order to align our workforce to our needs in light of the topline data results from ILLUMINATE-301’s ORR endpoint as we evaluate next steps regarding continuation of the trial toward its OS endpoint and explore other business development activities. In connection with these actions, we incurred one-time termination costs in connection with the reduction in workforce during April 2021, which includes severance, benefits and related costs, of approximately \$0.7 million. We currently expect to incur an additional \$0.2 million in such costs through the balance of the second quarter of 2021.

In addition to evaluating a potential path forward for tilsotolimod for the treatment of anti-PD1 refractory metastatic melanoma, we are actively evaluating other novel therapeutic assets, including developmental and potentially commercial-stage assets, which may represent an opportunity to expand our pipeline.

Corporate Information

Our executive offices are located at 505 Eagleview Boulevard, Suite 212, Exton, Pennsylvania 19341, our telephone number is (484) 348-1600 and our Internet address is www.iderapharma.com. The information on our website is not incorporated by reference in this prospectus and should not be considered to be part of this prospectus. Our website address is included in this prospectus as an inactive technical reference only. Unless the context otherwise requires, references in this prospectus to “Idera Pharmaceuticals,” “we,” “us,” and “our” refer to Idera Pharmaceuticals, Inc.

Idera® and IMO® are our trademarks. All other trademarks and service marks appearing in this registration statement are the property of their respective owners.

The Offering

Common stock offered by selling stockholder

4,120,878 shares

Use of proceeds

We will not receive any proceeds from the sale of shares in this offering. However, we may receive the proceeds from any exercise of the Second Closing Warrants (as defined herein). See the section of this prospectus titled "Use of Proceeds."

Nasdaq Capital Market symbol

"IDRA"

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described in this prospectus, including the risk factors set forth in the documents and reports filed with the Securities and Exchange Commission, or the SEC, that are incorporated by reference herein, such as the risk factors under the heading “Risk Factors” in our most recent Annual Report on Form 10-K and Quarterly Report on Form 10-Q on file with the SEC, each of which are incorporated by reference in this prospectus, before purchasing our common stock. If any of these risks actually occurs, our business, financial condition or results of operations would likely suffer, possibly materially. In that case, the trading price of our common stock could fall, and you may lose all or part of the money you paid to buy our common stock.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents we incorporate by reference contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. All statements, other than statements of historical fact, included or incorporated in this prospectus regarding our strategy, future operations, clinical trials, collaborations, intellectual property, cash resources, financial position, future revenues, projected costs, prospects, plans, and objectives of management are forward-looking statements. The words “believes,” “anticipates,” “estimates,” “plans,” “expects,” “intends,” “may,” “could,” “should,” “potential,” “likely,” “projects,” “continue,” “will,” “schedule,” “would,” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We cannot guarantee that we actually will achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. These forward-looking statements involve known and unknown risks, uncertainties, and other factors, which may be beyond our control, and which may cause our actual results, performance, or achievements to be materially different from future results, performance, or achievements expressed or implied by such forward-looking statements. There are a number of important factors that could cause our actual results to differ materially from those indicated or implied by forward-looking statements. See “Risk Factors” in this prospectus, our [Annual Report on Form 10-K for the year ended December 31, 2020](#) and our [Quarterly Report on Form 10-Q for the three months ended March 31, 2021](#) for more information. These factors and the other cautionary statements made in this prospectus and the documents we incorporate by reference should be read as being applicable to all related forward-looking statements whenever they appear in this prospectus and the documents we incorporate by reference. In addition, any forward-looking statements represent our estimates only as of the date that this prospectus is filed with the SEC and should not be relied upon as representing our estimates as of any subsequent date. We do not assume any obligation to update any forward-looking statements. We disclaim any intention or obligation to update or revise any forward-looking statement, whether as a result of new information, future events or otherwise, except as may be required by law.

USE OF PROCEEDS

We will not receive any proceeds from the sale of the shares offered pursuant to this prospectus. The selling stockholder will receive all of the proceeds from the sale of the shares of common stock offered by this prospectus. For information about the selling stockholder, see "Selling Stockholder." Upon the exercise of all of the Second Closing Warrants for 4,050,937 shares of common stock by payment of cash, we will receive aggregate gross proceeds of approximately \$3.75 million.

The selling stockholder will pay any underwriting discounts and commissions and expenses incurred by the selling stockholder for brokerage, accounting, tax or legal services or any other expenses incurred by the selling stockholder in disposing of the shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including all registration and filing fees and fees and expenses of our counsel and accountants.

SELLING STOCKHOLDER

The table below sets forth, to our knowledge, information concerning the beneficial ownership of shares of our common stock by the selling stockholder as of April 30, 2021.

The information in the table below with respect to the selling stockholder has been obtained from the selling stockholder. When we refer to the “selling stockholder” in this prospectus, we mean the selling stockholder listed in the table below as offering shares, as well as their respective pledgees, donees, transferees or other successors-in-interest who may hold any of the selling stockholder’s interest.

We do not know if, when or in what amounts the selling stockholder may offer their shares for sale. The selling stockholder may sell some, all or none of the shares offered by this prospectus. Because the number of shares the selling stockholder may offer and sell is not presently known, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of shares that will be held by each selling stockholder after completion of this offering. This table, however, presents the maximum number of shares of common stock that the selling stockholder may offer pursuant to this prospectus and the number of shares of common stock that would be beneficially owned after the sale of the maximum number of shares of common stock by each selling stockholder.

Beneficial ownership is determined in accordance with the rules of the SEC and includes voting or investment power with respect to shares. Unless otherwise indicated below, to our knowledge, each selling stockholder named in the table has sole voting and investment power with respect to the shares of common stock beneficially owned by it. The inclusion of any shares in this table does not constitute an admission of beneficial ownership for any selling stockholder named below. This table does not include certain shares of our common stock held by affiliates of the selling stockholder. The selling stockholder may hold a pecuniary interest in such additional shares.

Name of Selling Stockholder	1		2	3	4	
	Shares of Common Stock Beneficially Owned Prior to Offering		Shares of Common Stock Underlying Warrants Prior to Offering	Shares of Common Stock Being Offered	Shares of Common Stock to be Beneficially Owned After Offering	
	Number	Percentage	Number	Number	Percentage	
Entities affiliated with Pillar Invest Corporation	8,482,268(2)	16.93%(1)	2,523,799(3)	4,120,878(4)	6,855,189	13.03%

- (1) Based on 50,033,297 shares of our common stock outstanding on April 30, 2021.
- (2) The reported beneficial ownership amount includes shares beneficially owned by Pillar Invest Corporation (“Pillar GP”) and its affiliates and consists of (i) 2,304,180 shares of common stock held by Pillar Pharmaceuticals 6, L.P. (“Pillar 6”), (ii) 5,733,795 shares of common stock held by Pillar Partners Foundation, L.P. (“Pillar Foundation”), (iii) 58,183 shares of common stock (including exercisable options within 60 days of July 31, 2020) held by Mr. Youssef El Zein, and (iv) 386,110 shares of common stock held directly by Messrs. Umari and El Zein, and Messrs. Umari and El Zein expressly disclaim beneficial ownership of any shares of common stock held directly by Messrs. Umari and El Zein, and Messrs. Umari and El Zein expressly disclaim beneficial ownership of any shares of common stock held directly by Pillar 6 and Pillar Foundation and indirectly by Pillar GP. Pillar has sole dispositive power and sole voting power over all shares beneficially owned. The amount also includes 643,525 and 883,613 shares of Common Stock that were issued upon the exercise of Pre-Funded Warrants on January 20, 2021 and April 1, 2021.
- (3) In the Second Closing (defined below) pursuant to the April 2020 Private Placement (defined below), we issued Pre-Funded Warrants (defined below) to purchase 2,677,311 shares of common stock and Common Warrants (defined below and, collectively with the Pre-Funded Warrants, the “Second Closing Warrants”) to purchase 1,373,626 shares of common stock, and all such warrant shares are Registrable Securities as defined in the Registration Rights Agreement (defined below). The exercise of the Pre-Funded Warrants and Common Warrants is subject to the “Beneficial Ownership Limitation,” under which such exercise is limited to the extent that immediately prior to or after giving effect to such exercise, Pillar GP, together with its affiliates and other attribution parties, would own more than 19.99% of the total number of shares of common stock then issued and outstanding, and cannot be included in Column 1.
- (4) Represents the sum of (i) 69,941 Shares (defined below), (ii) 1,527,138 shares of common stock that were issued upon exercise of Pre-Funded Warrants, (iii) 1,150,173 shares of common stock issuable upon exercise of the Pre-Funded Warrants, and (iv) 1,373,626 shares of common stock issuable upon exercise of the Common Warrants.

Registration Rights Agreement

On April 7, 2020, we entered into a Securities Purchase Agreement (the “Securities Purchase Agreement”) with the selling stockholder, providing for a private placement transaction (the “April 2020 Private Placement”) exempt from the registration requirements of the Securities Act, pursuant to which we issued and sold, for \$5.0 million of aggregate consideration, 3,039,514 shares of common stock and warrants exercisable for 3,039,514 shares of common stock at an exercise price of \$2.28 per share. Pursuant to the Securities Purchase Agreement, we also agreed to issue and sell to the selling stockholder, for \$5.0 million of aggregate consideration (the “Second Closing”), (i) 2,747,252 shares of common stock or pre-funded warrants to purchase shares of common stock to the extent that purchasing such shares of common stock would cause the Purchaser to beneficially own in excess of 19.99% of the total number of shares of common stock outstanding post transaction, and (ii) warrants to purchase up to 1,373,626 shares of Common Stock (the “Common Warrants”). On December 9, 2020, we received from Pillar Foundation a notice that it or affiliated entities intended to consummate the Second Closing. Pursuant to the Securities Purchase Agreement and the Amendment, on December 11, 2020 at the Second Closing, we issued and sold to the selling stockholder (i) 69,941 shares (the “Shares”) of common stock, (ii) pre-funded warrants to purchase 2,677,311 shares of common stock (the “Pre-Funded Warrants”), at an exercise price of \$0.01 per share, and (iii) warrants to purchase 1,373,626 shares of common stock (the “Common Warrants”), at an exercise price of \$2.71 per share. Each Second Closing Share and the associated 0.5 Common Warrant had a combined purchase price of \$1.82 and each Pre-Funded Warrant and the 0.5 associated Common Warrant will have a combined purchase price of \$1.81. Each combined purchase price includes \$0.125 for each share of Common Stock underlying each Common Warrant.

The Pre-Funded Warrants issuable pursuant to the Securities Purchase Agreement are exercisable at any time or times, provided that the selling stockholder will be prohibited, subject to certain exceptions, from exercising a Pre-Funded Warrant for shares of common stock to the extent that the selling stockholder would beneficially own in excess of the Beneficial Ownership Limitation, which percentage may be changed at the selling stockholder's election to a lower percentage at any time or to a higher percentage not to exceed 19.99% upon 61 days' notice to us. The Pre-Funded Warrants do not have an expiration date.

The Common Warrants issuable pursuant to the Securities Purchase Agreement are exercisable at any time or times, provided that the selling stockholder will be prohibited, subject to certain exceptions, from exercising a Common Warrant for shares of common stock to the extent that the selling stockholder would beneficially own in excess of the Beneficial Ownership Limitation, which percentage may be changed at the selling stockholder's election to a lower percentage at any time or to a higher percentage not to exceed 19.99% upon 61 days' notice to us. The Common Warrants will expire three years from the date of issuance.

The securities issued and sold in connection with the April 2020 Private Placement were offered pursuant to the exemption provided in Section 4(a)(2) under the Securities Act. The selling stockholder is either (i) an "accredited investor" as defined in Rule 501(a)(1), (a)(2), (a)(3), (a)(7) or (a)(8) under the Securities Act or (ii) a "qualified institutional buyer" as defined in Rule 144A(a) under the Securities Act.

In addition, concurrently with the execution of the Securities Purchase Agreement, we entered into a registration rights agreement (the "Registration Rights Agreement") with the selling stockholder, pursuant to which we agreed, following demand by the selling stockholder to file with the SEC a Registration Statement on Form S-3 covering the resale of all of the Registrable Securities as defined in the Registration Rights Agreement as promptly as reasonably practicable following such demand, and in any event within 60 days of such demand. On December 11, 2020, we entered into an amendment (the "Amendment") to the Securities Purchase Agreement and the Registration Rights Agreement (defined below), principally to enable Pillar 6 to participate in the Second Closing.

The registration statement, of which this prospectus is a part, has been filed in accordance with the Registration Rights Agreement and the Amendment.

The foregoing summary description of the Registration Rights Agreement and the Amendment does not purport to be complete and is qualified in its entirety by reference to the full text of such agreement, which was filed as an exhibit to our Current Report on Form 8-K, filed on April 7, 2020, and is incorporated by reference herein.

DESCRIPTION OF CAPITAL STOCK

The following description of our capital stock is intended as a summary only and therefore is not a complete description of our capital stock. This description is based upon, and is qualified by reference to, our certificate of incorporation and our bylaws, each as amended from time to time, and by applicable provisions of Delaware corporate law. You should read our certificate of incorporation and bylaws, which are filed as exhibits to the registration statement of which this prospectus forms a part, for the provisions that are important to you.

Common Stock

We are authorized to issue 140,000,000 shares of common stock, \$0.001 par value per share. As of April 30, 2021, there were 50,033,297 shares of common stock outstanding.

Annual Meeting. Annual meetings of our stockholders are held on the date designated in accordance with our bylaws. Written notice must be mailed to each stockholder entitled to vote not less than ten nor more than 60 days before the date of the meeting. The presence in person or by proxy of the holders of record of a majority of our issued and outstanding shares entitled to vote at such meeting constitutes a quorum for the transaction of business at meetings of the stockholders. Special meetings of the stockholders may be called for any purpose by the board of directors, the chief executive officer or, if the office of chief executive officer is vacant, our president.

Voting Rights. For all matters submitted to a vote of stockholders, each holder of common stock is entitled to one vote for each share held. Our common stock does not have cumulative voting rights.

Dividends. If our board of directors declares a dividend, holders of common stock will receive payments from our funds that are legally available to pay dividends. However, this dividend right is subject to any preferential dividend rights that we have granted or may grant with respect to our preferred stock.

Liquidation, Dissolution or Winding-Up. Upon our liquidation, dissolution or winding-up, the holders of the common stock will be entitled to share equally in all assets available for distribution to stockholders, subject to preferences that may apply to shares of preferred stock outstanding at that time. The amount available for common stockholders is calculated after payment of liabilities.

Other Rights and Restrictions. Holders of our common stock do not have preemptive rights, and they have no right to convert their common stock into any other securities. Our common stock is not subject to redemption by us. The rights, preferences and privileges of common stockholders are subject to the rights of the stockholders of any series of preferred stock that are issued and outstanding or that we may issue in the future. Our certificate of incorporation and bylaws do not restrict the ability of a holder of common stock to transfer his or her shares of common stock.

Put Right. Pursuant to the terms of a unit purchase agreement dated as of May 5, 1998, we issued and sold a total of 149,960 shares of common stock, which we refer to as the put shares, at a price of \$128.00 per share. Under the terms of the unit purchase agreement, the initial purchasers, which we refer to as the put holders, of the put shares have the right, which we refer to as the put right, to require us to repurchase the put shares. The put right may not be exercised by any put holder unless all of the following occur:

- we liquidate, dissolve or wind up our affairs pursuant to applicable bankruptcy law, whether voluntarily or involuntarily,
- all of our indebtedness and obligations, including without limitation the indebtedness under our outstanding notes, has been paid in full, and
- all rights of the holders of any series or class of capital stock ranking prior and senior to the common stock with respect to liquidation, including without limitation the series A convertible preferred stock, have been satisfied in full.

We may terminate the put right upon written notice to the put holders if the closing sales price of our common stock exceeds \$256.00 per share for the 20 consecutive trading days prior to the date of notice of termination. Because the put right is not transferable, in the event that a put holder has transferred put shares since May 5, 1998, the put right with respect to those shares has terminated. As a consequence of the put right, in the event we are liquidated, holders of shares of common stock that do not have put rights with respect to such shares may receive smaller distributions per share upon our liquidation than if there were no put rights outstanding.

As of April 30, 2021, we had repurchased or received documentation of the transfer of 49,993 put shares and 4,472 of the put shares continued to be held in the name of put holders. We cannot determine at this time what portion of the put rights of the remaining 95,494 put shares have terminated.

Transfer Agent and Registrar. Computershare Trust Company, N.A. is transfer agent and registrar for the common stock.

The Nasdaq Capital Market. Our common stock is listed on the Nasdaq Capital Market under the symbol "IDRA."

Preferred Stock

We are authorized to issue 5,000,000 shares of preferred stock, \$0.01 par value per share, of which 1,500,000 has been designated Series A convertible preferred stock, 277,921 has been designated Series B1 redeemable convertible preferred stock, 98,685 has been designated Series B2 redeemable convertible preferred stock, 82,814 has been designated Series B3 redeemable convertible preferred stock, 82,814 has been designated Series B4 redeemable convertible preferred stock. As of April 30, 2021, there were 655 shares of Series A preferred stock outstanding. No other shares of preferred stock were outstanding.

We are authorized to issue "blank check" preferred stock, which may be issued in one or more series upon authorization of our board of directors. Our board of directors is authorized to fix the designation of the series, the number of authorized shares of the series, dividend rights and terms, conversion rights, voting rights, redemption rights and terms, liquidation preferences and any other rights, powers, preferences and limitations applicable to each series of preferred stock. The authorized shares of our preferred stock are available for issuance without further action by our stockholders, unless such action is required by applicable law or the rules of any stock exchange on which our securities may be listed. If the approval of our stockholders is not required for the issuance of shares of our preferred stock, our board may determine not to seek stockholder approval.

A series of our preferred stock could, depending on the terms of such series, impede the completion of a merger, tender offer or other takeover attempt. Our board of directors will make any determination to issue such preferred shares based upon its judgment as to the best interests of our stockholders. Our directors, in so acting, could issue preferred stock having terms that could discourage an acquisition attempt through which an acquirer may be able to change the composition of our board of directors, including a tender offer or other transaction that some, or a majority, of our stockholders might believe to be in their best interests or in which stockholders might receive a premium for their stock over the then-current market price of the stock.

Effects of Authorized but Unissued Stock

We have shares of common stock and preferred stock available for future issuance without stockholder approval, subject to any limitations imposed by the listing standards of the Nasdaq Capital Market. We may utilize these additional shares for a variety of corporate purposes, including for future public offerings to raise additional capital, or facilitate corporate acquisitions or for payment as a dividend on our capital stock. The existence of unissued and unreserved common stock and preferred stock may enable our board of directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could have the effect of making it more difficult for a third party to acquire, or could discourage a third party from seeking to acquire, a controlling interest in our company by means of a merger, tender offer, proxy contest or otherwise. In addition, if we issue preferred stock, the issuance could adversely affect the voting power of holders of common stock, and the likelihood that such holders will receive dividend payments and payments upon liquidation.

Delaware Law and Specified Certificate of Incorporation and Bylaw Provisions

Staggered Board. Our certificate of incorporation and bylaws provide for the division of our board of directors into three classes as nearly equal in size as possible with staggered three-year terms. In addition, our certificate of incorporation and bylaws provide that directors may only be removed for cause and then only by the affirmative vote of the holders of two-thirds of the shares of our capital stock entitled to vote. Under our certificate of incorporation and bylaws, any vacancy on the board of directors, however occurring, including a vacancy resulting from an enlargement of the board, may only be filled by vote of a majority of the directors then in office. The classification of the board of directors and the limitations on the removal of directors and filling of vacancies could have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from acquiring, control of us.

Stockholder Action; Special Meeting of Stockholders. Our certificate of incorporation and bylaws provide that stockholders may take action only at a duly called annual or special meeting of stockholders and may not take action by written consent. Our certificate of incorporation and bylaws further provide that special meetings of our stockholders may be called only by a majority of the board of directors or by our chief executive officer or, if the office of chief executive officer is vacant, our president. In no event may our stockholders call a special meeting of stockholders.

Advance Notice Requirements for Stockholder Proposals and Director Nominations. Our bylaws provide that stockholders seeking to bring business before an annual meeting of stockholders, or to nominate candidates for election as directors at an annual meeting of stockholders, must meet specified procedural requirements. These provisions may preclude stockholders from bringing matters before an annual meeting of stockholders or from making nominations for directors at an annual or special meeting of stockholders.

Supermajority Votes Required. The Delaware General Corporation Law provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or bylaws, unless a corporation's certificate of incorporation or bylaws, as the case may be, requires a greater percentage. Our certificate of incorporation and bylaws require the affirmative vote of the holders of at least 75% of the shares of our capital stock issued and outstanding and entitled to vote to amend or repeal any of the provisions described in the prior three paragraphs.

Business Combinations. We are subject to Section 203 of the Delaware General Corporation Law. Subject to certain exceptions, Section 203 prevents a publicly held Delaware corporation from engaging in a "business combination" with any "interested stockholder" for three years following the date that such person became an interested stockholder, unless either the interested stockholder attained such status with the approval of our board of directors, the business combination is approved by our board of directors and stockholders in a prescribed manner or the interested stockholder acquired at least 85% of our outstanding voting stock in the transaction in which such person became an interested stockholder. A "business combination" includes, among other things, a merger or consolidation involving us and the "interested stockholder" and the sale of more than 10% of our assets. In general, an "interested stockholder" is any entity or person beneficially owning 15% or more of our outstanding voting stock and any entity or person affiliated with or controlling or controlled by such entity or person.

Directors' Liability. Our certificate of incorporation limits the personal liability of directors for breach of fiduciary duty to the maximum extent permitted by the Delaware General Corporation Law and provides that no director will have personal liability to us or to our stockholders for monetary damages for breach of fiduciary duty as a director. However, these provisions do not eliminate or limit the liability of any of our directors:

- for any breach of the director's duty of loyalty to us or our stockholders
- for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law;
- for voting or assenting to unlawful payments of dividends, stock repurchases or other distributions; or
- for any transaction from which the director derived an improper personal benefit.

Exclusive Forum Provision. The Company's amended and restated bylaws ("Bylaws") provide, to the fullest extent permitted by law, that unless the Company consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for any (i) derivative action or proceeding brought on behalf of the Company, (ii) any action asserting a claim of breach of a fiduciary duty owed by any director, officer, other employee or stockholder of the Company to the Company or the Company's stockholders, (iii) any action arising pursuant to any provision of the DGCL, the Company's Certificate of Incorporation or the Bylaws, (iv) any action to interpret, apply, enforce or determine the validity of the Certificate of Incorporation or the Bylaws, (v) or any action asserting a claim governed by the internal affairs doctrine.

The exclusive forum provision in our Bylaws would not apply to claims brought under the Securities Exchange Act of 1934, as amended, or the Securities Act of 1933, as amended. To the extent the exclusive forum provision restricts the venue in which holders of our common stock may bring claims arising under the federal securities laws, there is uncertainty as to whether a court would enforce such provisions. Our exclusive forum provision shall not relieve the Company of its duties to comply with the federal securities laws and the rules and regulations thereunder, and our stockholders will not be deemed to have waived our compliance with these laws, rules and regulations.

PLAN OF DISTRIBUTION

The selling stockholder may offer and sell the shares covered by this prospectus from time to time. The term “selling stockholder” includes pledgees, donees, transferees or other successors-in-interest selling shares received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other non-sale related transfer. The selling stockholder will act independently of us in making decisions with respect to the timing, manner and size of each sale. Such sales may be made on one or more exchanges or in the over-the-counter market or otherwise, at prices and under terms then prevailing or at prices related to the then current market price or in negotiated transactions. Each selling stockholder may sell its shares by one or more of, or a combination of, the following methods:

- purchases by a broker-dealer as principal and resale by such broker-dealer for its own account pursuant to this prospectus;
- ordinary brokerage transactions and transactions in which the broker solicits purchasers;
- block trades in which the broker-dealer so engaged will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- an over-the-counter distribution;
- an exchange distribution in accordance with the rules of the applicable exchange;
- in privately negotiated transactions;
- an underwritten public offering;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- delivery of securities in settlement of short sales; and
- any other method permitted pursuant to applicable law.

In addition, any securities covered by this prospectus which qualify for sale pursuant to Rule 144 under the Securities Act may be sold under Rule 144 rather than under this prospectus.

In connection with distributions of the shares or otherwise, each selling stockholder is permitted to enter into hedging transactions with broker-dealers or other financial institutions. In connection with such permitted transactions, broker-dealers or other financial institutions may engage in short sales of the common stock in the course of hedging the positions they assume with a selling stockholder. Each selling stockholder may also sell the common stock short and redeliver the shares to close out such permitted short positions. Each selling stockholder may also enter into option or other transactions with broker-dealers or other financial institutions which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus, as supplemented or amended to reflect such transaction. Each selling stockholder may also pledge shares to a broker-dealer or other financial institution, and, upon a default, such broker-dealer or other financial institution, may effect sales of the pledged shares pursuant to this prospectus, as supplemented or amended to reflect such transaction.

In effecting sales, broker-dealers or agents engaged by a selling stockholder may arrange for other broker-dealers to participate. Broker-dealers or agents may receive commissions, discounts or concessions from the selling stockholder in amounts to be negotiated immediately prior to the sale.

In offering the shares covered by this prospectus, the selling stockholder and any broker-dealers who execute sales for the selling stockholder may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. Any profits realized by a selling stockholder and the compensation of any broker-dealers may be deemed to be underwriting discounts and commissions.

In order to comply with the securities laws of some states, if applicable, the shares must be sold in those states only through registered or licensed brokers or dealers. In addition, some states may restrict the selling stockholder from selling their respective shares unless such shares have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

We have advised the selling stockholder that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholder and their respective affiliates. In addition, we will make copies of this prospectus available to the selling stockholder for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholder may indemnify any broker-dealer that participates in transactions involving the sale of the shares against some liabilities, including liabilities arising under the Securities Act.

At the time a particular offer of shares is made, if required, we will distribute a prospectus supplement that will set forth the number of shares being offered and the terms of this offering, including the name of any underwriter, dealer or agent, the purchase price paid by any underwriter, any discount, commission and other item constituting compensation, any discount, commission or concession allowed or reallocated or paid to any dealer, and the proposed selling price to the public. In addition, we may amend or supplement this prospectus from time to time to describe a specific plan of distribution.

We have agreed to indemnify the selling stockholder against some liabilities, including some liabilities under the Securities Act.

We have agreed with the selling stockholder to cause the registration statement of which this prospectus constitutes a part to remain effective until such time as all of the shares covered by this prospectus have been sold or may be sold freely without limitations or restrictions as to volume or manner of sale pursuant to Rule 144 under the Securities Act.

LEGAL MATTERS

The validity of the shares offered by this prospectus has been passed upon by Morgan, Lewis & Bockius LLP, Philadelphia, Pennsylvania.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our financial statements included in our [Annual Report on Form 10-K for the year ended December 31, 2020](#), as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. Copies of certain information filed by us with the SEC are also available on our website at <http://www.iderapharma.com>. Our website is not a part of this prospectus and is not incorporated by reference in this prospectus.

This prospectus is part of a registration statement we filed with the SEC. This prospectus omits some information contained in the registration statement in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information about us and the securities we are offering. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference in this prospectus is considered to be part of this prospectus. Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded. This prospectus incorporates by reference the documents listed below and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (in each case, other than those documents or the portions of those documents not deemed to be filed) between the date of the initial registration statement and the effectiveness of the registration statement and following the effectiveness of the registration statement until the offering of the securities under the registration statement is terminated or completed:

- (1) [Our Annual Report on Form 10-K for the year ended December 31, 2020 filed on March 1, 2021](#), including the information specifically incorporated by reference into the Annual Report on Form 10-K from [our definitive proxy statement on Schedule 14A for the 2021 Annual Meeting of the Stockholders](#).
- (2) [Our Quarterly Report on Form 10-Q for the three months ended March 31, 2021 filed on April 29, 2021](#).
- (3) [Our Current Reports on Form 8-K filed on January 5, 2021](#) and [March 18, 2021](#).
- (4) The description of our common stock contained in our Registration Statement on Form 8-A filed on [December 4, 2003](#), as amended on [August 17, 2007](#) and as further amended on [December 7, 2007](#), including any amendments or reports filed for the purpose of updating such description.

You may request a copy of these documents, which will be provided to you at no cost, by writing or telephoning us using the following contact information below. We will provide copies of the exhibits to these filings only if they are specifically incorporated by reference in these filings.

Idera Pharmaceuticals, Inc.
505 Eagleview Blvd., Suite 212
Exton, Pennsylvania 19341
Attention: Investor Relations
(484) 348-1600

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth the various expenses to be incurred in connection with the sale and distribution of the securities being registered hereby, all of which will be borne by Idera Pharmaceuticals (except any underwriting discounts and commissions and expenses incurred by the selling stockholder for brokerage, accounting, tax or legal services or any other expenses incurred by the selling stockholder in disposing of the shares). All amounts shown are estimates except the SEC registration fee.

SEC registration fee (1)	\$ 1,919.74
Legal fees and expenses	\$ 20,000.00
Accounting fees and expenses	\$ 10,000.00
Miscellaneous expenses	\$ 5,000.00
Total expenses	<u>\$ 36,919.74</u>

(1) Previously paid.

Item 15. Indemnification of Directors and Officers.

Section 102 of the Delaware General Corporation Law allows a corporation to eliminate the personal liability of directors of a corporation to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit.

Section 145 of the Delaware General Corporation Law provides that a corporation has the power to indemnify a director, officer, employee or agent of the corporation and certain other persons serving at the request of the corporation in related capacities against amounts paid and expenses incurred in connection with an action or proceeding to which he is or is threatened to be made a party by reason of such position, if such person shall have acted in good faith and in a manner he reasonably believed to be in, or not opposed to, the best interests of the corporation, and, in any criminal proceeding, if such person had no reasonable cause to believe his conduct was unlawful; provided that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the adjudicating court determines that such indemnification is proper under the circumstances.

Article EIGHTH of the registrant's Restated Certificate of Incorporation, as amended (the "Certificate of Incorporation") provides that no director of the registrant shall be personally liable for any monetary damages for any breach of fiduciary duty as a director, except to the extent that the Delaware General Corporation Law prohibits the elimination or limitation of liability of directors for breach of fiduciary duty.

Article NINTH of the Certificate of Incorporation provides that a director or officer of the registrant (a) shall be indemnified by the registrant against all expenses (including attorneys' fees), judgments, fines and amounts paid in settlement incurred in connection with any litigation or other legal proceeding (other than an action by or in the right of the registrant) brought against him by virtue of his position as a director or officer of the registrant if he acted in good faith and in a manner he reasonably believed to be in, or not opposed to, the best interests of the registrant, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful and (b) shall be indemnified by the registrant against all expense (including attorneys' fees) and amounts paid in settlement incurred in connection with any action by or in the right of the registrant brought against him by virtue of his position as a director or officer of the registrant if he acted in good faith and in a manner he reasonably believed to be in, or not opposed to, the best interests of the registrant, except that no indemnification shall be made with respect to any matter as to which such person shall have been adjudged to be liable to the registrant, unless a court determines that, despite such adjudication but in view of all of the circumstances, he is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that a director or officer has been successful, on the merits or otherwise, including, without limitation, the dismissal of an action without prejudice, he is required to be indemnified by the registrant against all expenses (including attorneys' fees) incurred in connection therewith. Expenses shall be advanced to a director or officer at his request, provided that he undertakes to repay the amount advanced if it is ultimately determined that he is not entitled to indemnification for such expenses.

Indemnification is required to be made unless the registrant determines that the applicable standard of conduct required for indemnification has not been met. In the event of a determination by the registrant that the director or officer did not meet the applicable standard of conduct required for indemnification, or if the registrant fails to make an indemnification payment within 60 days after such payment is claimed by such person, such person is permitted to petition the court to make an independent determination as to whether such person is entitled to indemnification. As a condition precedent to the right of indemnification, the director or officer must give the registrant notice of the action for which indemnity is sought and the registrant has the right to participate in such action or assume the defense thereof.

Article NINTH of the Certificate of Incorporation further provides that the indemnification provided therein is not exclusive, and provides that in the event that the Delaware General Corporation Law is amended to expand the indemnification permitted to directors or officers the registrant must indemnify those persons to the full extent permitted by such law as so amended.

The registrant has obtained directors and officers insurance for the benefit of its directors and its officers.

The registrant has entered into indemnification agreements with its directors and officers. In general, these agreements provide that the registrant will indemnify the director or officer to the fullest extent permitted by law for claims arising in his or her capacity as a director or officer of the registrant or in connection with their service at the registrant's request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that a director or officer makes a claim for indemnification and establish certain presumptions that are favorable to the director or officer.

Item 16. Exhibits

The exhibits to this registration statement are listed in the Exhibit Index to this registration statement and are incorporated herein by reference.

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933, as amended (the "Securities Act");
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of this registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in this registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
 - (iii) To include any material information with respect to the plan of distribution not previously disclosed in this registration statement or any material change to such information in this registration statement;

provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), that are incorporated by reference in this registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of this registration statement.

- (2) That, for the purposes of determining any liability under the Securities Act, each post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at the time shall be deemed to be the initial *bona fide* offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act to any purchaser, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A (§230.430A of this chapter), shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.
- (5) The undersigned Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in this registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (6) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the indemnification provisions described herein, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

EXHIBIT INDEX

<u>EXHIBIT NUMBER</u>	<u>DESCRIPTION</u>
<u>4.1</u>	<u>Restated Certificate of Incorporation of the Registrant, as amended (incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q filed on August 2, 2018)</u>
<u>4.2</u>	<u>Certificate of Amendment to Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on May 18, 2020)</u>
<u>4.3</u>	<u>Amended and Restated By-laws of the Registrant (incorporated by reference to Exhibit 3.2 to the Registrant's Annual Report on Form 10-K filed on March 7, 2018)</u>
<u>4.4</u>	<u>Registration Rights Agreement, dated April 7, 2020, among the Registrant and the Selling Stockholder named therein (incorporated by reference to Exhibit 4.3 to the Registrant's Current Report on Form 8-K filed on April 7, 2020)</u>
<u>4.5</u>	<u>Amendment to the Securities Purchase Agreement and Registration Rights Agreement, dated December 11, 2020, by and among Idera Pharmaceuticals, Inc., Pillar Partners Foundation, L.P. and Pillar Pharmaceuticals 6, L.P. (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on December 15, 2020)</u>
<u>5.1**</u>	<u>Opinion of Morgan, Lewis & Bockius LLP</u>
<u>23.1*</u>	<u>Consent of Ernst & Young LLP</u>
<u>23.2**</u>	<u>Consent of Morgan, Lewis & Bockius LLP (included in Exhibit 5.1 filed herewith)</u>
<u>24.1**</u>	<u>Power of Attorney (included on the signature page of this registration statement)</u>

* Filed herewith.

** Previously filed.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Exton, Commonwealth of Pennsylvania, on May 18, 2021.

IDERA PHARMACEUTICALS, INC.

By: /s/ VINCENT J. MILANO

Vincent J. Milano

President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ VINCENT J. MILANO</u> Vincent J. Milano	President, Chief Executive Officer and Director (Principal Executive Officer)	May 18, 2021
<u>/s/ JOHN J. KIRBY</u> John J. Kirby	Chief Financial Officer (Principal Financial and Accounting Officer)	May 18, 2021
<u>/s/ JAMES A. GERAGHTY*</u> James A. Geraghty	Chairman of the Board of Directors	May 18, 2021
<u>/s/ CRISTINA CSIMMA*</u> Cristina Csimma, Pharm.D., M.H.P.	Director	May 18, 2021
<u>/s/ MICHAEL DOUGHERTY*</u> Michael Dougherty	Director	May 18, 2021
<u>/s/ MARK GOLDBERG*</u> Mark Goldberg, M.D.	Director	May 18, 2021
<u>/s/ MAXINE GOWEN*</u> Maxine Gowen, Ph.D.	Director	May 18, 2021
<u>/s/ CAROL A. SCHAFFER*</u> Carol A. Schaffer	Director	May 18, 2021

* The undersigned by signing his name hereto signs and executed this Amendment No. 1 to Registration Statement on Form S-3 pursuant to the Powers of Attorney executed by the above named signatories and previously filed with the Commission on March 3, 2021.

By: /s/ VINCENT J. MILANO

Name: Vincent J. Milano

Attorney-in-Fact

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption "Experts" in Amendment No. 1 to the Registration Statement (Form S-3 No. 333-253804) and related Prospectus of Idera Pharmaceuticals, Inc. for the registration of 4,120,878 shares of its common stock and to the incorporation by reference therein of our report dated March 1, 2021, with respect to the financial statements of Idera Pharmaceuticals, Inc., included in its Annual Report (Form 10-K) for the year ended December 31, 2020, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Philadelphia, Pennsylvania
March 18, 2021
