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Registration No. 333-228209



1,230,158 Shares

Common Stock

The selling stockholders of Millendo Therapeutics, Inc., formerly known as "OvaScience, Inc." ("we," "us" or the "Company") listed beginning on page 13 may offer and resell up to 1,230,158 shares of Company common stock, par value \$0.001 per share ("Company Common Stock") under this prospectus. The selling stockholders have acquired these shares pursuant to a Stock Purchase Agreement, dated November 1, 2018 (as amended from time to time, the "Purchase Agreement"), by and among the Company, the private company then known as Millendo Therapeutics, Inc. ("Private Millendo") and the investors listed therein (the "Investors").

On August 9, 2018, the Company announced that it had entered into an Agreement and Plan of Merger and Reorganization, as may be amended from time to time (the "Merger Agreement"), pursuant to which a wholly owned subsidiary of the Company would merge with and into Private Millendo, with Private Millendo surviving as a wholly owned subsidiary of the Company (the "Merger"). On December 7, 2018, the Merger was consummated. At the closing of the Merger (the "Effective Time"), each share of Private Millendo common stock, par value \$0.001 per share ("Private Millendo Common Stock") (excluding certain shares to be cancelled pursuant to the Merger Agreement, and shares held by stockholders who have exercised and perfected appraisal rights or dissenters' rights), outstanding immediately prior to the Effective Time was converted into the right to receive shares of Company Common Stock equal to an exchange ratio of 0.0744, as further discussed in the Merger Agreement (the "Exchange Ratio"). On December 6, 2018, in connection with, and prior to the completion of, the Merger, the Company effected a 1-for-15 reverse stock split of Company Common Stock (the "Reverse Stock Split"), and immediately following the Merger, the Company changed its name to "Millendo Therapeutics, Inc." Following the completion of the Merger, the business to be conducted by the Company will become primarily the business conducted by Private Millendo, which is a biopharmaceutical company focused on developing novel treatments for orphan endocrine diseases.

Pursuant to the terms of the Purchase Agreement, the Investors purchased shares of Company Common Stock for an aggregate purchase price of approximately \$20.0 million as part of a private placement financing (the "Post-Closing Financing"). The consummation of the Post-Closing Financing and the other transactions contemplated by the Purchase Agreement were conditioned upon the satisfaction of the conditions set forth in the Purchase Agreement. Following the closing of the Merger, on December 7, 2018, the Company and the Investors completed the Post-Closing Financing and the Company issued and sold an aggregate of 1,230,158 shares of Company Common Stock to the Investors. Under the terms of the Post-Closing Financing, the shares issued to the Investors in the Post-Closing Financing (the "Shares") were issued pursuant to an exemption from the registration requirements of the Securities Act of 1933, as amended. The resale of the Shares by the Investors are being offered for resale under this prospectus.

The selling stockholders (which term as used herein includes their respective donees, transferees or other successors in interest) may sell these shares through public or private transactions at market prices prevailing at the time of sale or at negotiated prices. We will not receive any proceeds from the sale of the shares by the selling stockholders. In addition, the selling stockholders may sell or otherwise dispose of the shares of Company Common Stock offered by this prospectus from time to time on terms to be determined at the time of sale through ordinary brokerage transactions or through any other means described in this prospectus under "Plan of Distribution."

Until October 31, 2018, the Company Common Stock was listed on The Nasdaq Global Market under the symbol "OVAS"; effective October 31, 2018, the listing of the Company Common Stock was transferred to The Nasdaq Capital Market under the symbol "OVAS." In connection with the Merger, we filed an initial listing application with The Nasdaq Capital Market pursuant to Nasdaq's rules for companies conducting a business combination that results in a change of control. On December 10, 2018, the Company Common Stock commenced trading on The Nasdaq Capital Market, on a post-Reverse Stock Split adjusted basis, under the ticker symbol MLND. The last reported sale price of Company Common Stock on December 19, 2018 was \$8.81 per share.

The prices at which the selling stockholders may sell all or a portion of the shares will be determined by the prevailing market price for the shares or in negotiated transactions. You are urged to obtain current market quotations for the Company Common Stock.

Investing in Company Common Stock is highly speculative and involves a significant degree of risk. See "Risk Factors" beginning on page 10 of this prospectus for a discussion of information that should be considered before making a decision to purchase Company Common Stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of the disclosures in this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is December 20, 2018.



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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we have filed with the Securities and Exchange Commission (the "SEC") pursuant to which the selling stockholders named herein may, from time to time, offer and sell or otherwise dispose of the shares of our common stock covered by this prospectus. You should not assume that the information contained in this prospectus is accurate on any date subsequent to the date set forth on the front cover of this prospectus or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus is delivered or shares of common stock are sold or otherwise disposed of on a later date. It is important for you to read and consider all information contained in this prospectus, including the documents incorporated by reference therein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you under the captions "Where You Can Find Additional Information" and "Information Incorporated by Reference" in this prospectus.

We have not authorized any dealer, salesman or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus. This prospectus does not constitute an offer to sell or the solicitation of an offer to buy any of our shares of common stock other than the shares of our common stock covered hereby, nor does this prospectus constitute an offer to sell or the solicitation of an offer to buy any securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. Persons who come into possession of this prospectus in jurisdictions outside the United States are required to inform themselves about, and to observe, any restrictions as to the offering and the distribution of this prospectus applicable to those jurisdictions.

Unless we have indicated otherwise, or the context otherwise requires, references in this prospectus supplement and the accompanying prospectus to "the Company," "we," "us" and "our" refer to Millendo Therapeutics, Inc., formerly known as "OvaScience, Inc." and its subsidiaries.

INFORMATION INCORPORATED BY REFERENCE

We are allowed to incorporate by reference information contained in documents that we file with the SEC. This means that we can disclose important information to you by referring you to those documents and that the information in this prospectus is not complete and you should read the information incorporated by reference for more detail. Information in this prospectus supersedes information incorporated by reference that we filed with the Commission prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus.

We incorporate by reference the documents listed below and any future filings we will make with the SEC under Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (i) after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of such registration statement, and (ii) from the date of this prospectus but prior to the termination of the offering of the securities covered by this prospectus (other than Current Reports or portions thereof furnished under Item 2.02 or 7.01 of Form 8-K):

- Our proxy statement filed on Schedule 14A dated November 5, 2018 in connection with the Company's special meeting of stockholders;
- The supplements to our proxy statement filed on Schedule 14A dated November 19, 2018 and November 30, 2018 in connection with the Company's special meeting of stockholders;
- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2017;
- Our proxy statement on Schedule 14A filed on April 30, 2018 in connection with the Company's annual meeting of stockholders;
- Our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2018, June 30, 2018 and September 30, 2018;
- Our Current Reports on Form 8-K and 8-K/A filed with the SEC on January 3, 2018, January 8, 2018, February 1, 2018, March 15, 2018, May 3, 2018, June 26, 2018, August 9, 2018, November 1, 2018, November 19, 2018, November 26, 2018, November 30, 2018, December 6, 2018 and December 13, 2018 (other than any portions thereof deemed furnished and not filed); and
- The description of our common stock set forth in the registration statement on Form 8-A registering our common stock under Section 12 of the Exchange Act, which was filed with the Commission on April 25, 2013, including any amendments or reports filed for purposes of updating such description.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, a copy of any or all of the information that is incorporated by reference in this prospectus but not delivered with this prospectus, including exhibits that are specifically incorporated by reference in such documents. You may request a copy of such documents, which will be provided to you at no cost, by writing or telephoning us at the following address or telephone number:

Millendo Therapeutics, Inc.
301 N. Main Street
Suite 100
Ann Arbor, MI 48104
(734) 845-9000

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone to provide you with different information. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front of this

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document. Any statement contained in a document incorporated in this prospectus will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus modifies or supersedes that statement. Any statement that is modified or superseded will not constitute a part of this prospectus, except as modified or superseded.

Copies of the documents incorporated by reference may also be found on our website at www.millendo.com. Except with respect to the documents expressly incorporated by reference above which are accessible at our website, the information contained on our website is not a part of, and should not be construed as being incorporated by reference into, this prospectus.

The information incorporated herein by reference includes information about Private Millendo. Following the Effective Time, the business of Private Millendo will continue as the business of the Company. Additionally, it was determined that Private Millendo was the accounting acquirer in the Merger, based upon the terms of the Merger Agreement and other factors including: (i) holders of Private Millendo stock and other persons holding securities convertible, exercisable or exchangeable directly or indirectly for Private Millendo Common Stock, excluding the selling stockholders named herein, owned approximately 80.7% of the Company immediately following the Effective Time, (ii) Private Millendo holds the majority (seven of eight) of board seats of the combined company and (iii) Private Millendo's management holds all key positions in the management of the combined company. Because of these factors, the Company has incorporated by reference to information about the Private Millendo business and operations into this prospectus.

PROSPECTUS SUMMARY

This summary description about us and our business highlights selected information contained elsewhere in this prospectus or incorporated by reference into this prospectus. It does not contain all the information you should consider before investing in our securities. Important information is incorporated by reference into this prospectus. To understand this offering fully, you should read carefully the entire prospectus, including "Risk Factors" and "Cautionary Note Regarding Forward-Looking Statements", together with the additional information described under "Information Incorporated By Reference".

ABOUT MILLENDO THERAPEUTICS, INC.

Millendo Therapeutics, Inc.

Millendo Therapeutics, Inc.
301 N. Main Street
Suite 100
Ann Arbor, MI 48104
(734) 845-9000

Millendo is a late-stage biopharmaceutical company focused on developing novel treatments for orphan endocrine diseases where current therapies do not exist or are insufficient. The endocrine system is a collection of glands that secrete hormones into the blood stream to regulate a number of functions, including appetite, metabolism, growth, development and reproduction. Diseases of the endocrine system can cause multiple and varied symptoms, including appetite dysregulation, metabolic dysfunction, obesity, cardiovascular disease, menstrual irregularity, excessive facial and body hair growth, and infertility.

Millendo is currently advancing two product candidates to treat three indications. Millendo's most advanced product candidate, livoletide (AZP-531), is a potential treatment for Prader-Willi syndrome, or PWS, a rare and complex genetic endocrine disease characterized by hyperphagia, or insatiable hunger, that contributes to serious complications, a significant burden on patients and caregivers and early mortality. In a randomized, double-blind, placebo-controlled Phase 2 clinical trial in 47 patients with PWS, Millendo observed that administration of livoletide once daily was associated with a clinically meaningful improvement in hyperphagia, as well as a reduction in appetite. In a pre-specified analysis of 38 PWS patients from the Phase 2 trial, Millendo observed a larger and statistically significant decrease in hyperphagia following administration of livoletide as compared to placebo. Millendo expects to initiate a pivotal Phase 2b/3 clinical trial of livoletide in PWS patients in the first quarter of 2019, with results expected in the first half of 2020. Millendo is also developing nevanimibe (ATR-101) with a primary focus on treating patients with classic congenital adrenal hyperplasia, or CAH, a rare, monogenic adrenal disease that requires lifelong treatment with exogenous cortisol, often at high doses. These chronic high doses of cortisol can result in side effects that include diabetes, obesity, hypertension and psychological problems. When on suboptimal doses of cortisol, female CAH patients can experience male-pattern hair growth, male physical characteristics, infertility and menstrual irregularity, and male CAH patients can experience testicular atrophy, infertility and testicular tumors, making it difficult for physicians to appropriately treat CAH without causing adverse consequences. Millendo recently reported results from its Phase 2 clinical trial of nevanimibe in patients with CAH and initiated a Phase 2b trial in the third quarter of 2018. Millendo is also investigating nevanimibe in a Phase 2 clinical trial for the treatment of patients with endogenous Cushing's syndrome, or CS, a rare endocrine disease characterized by excessive cortisol production from the adrenal glands.

Recent Events

On August 9, 2018, the Company announced that it had entered into an Agreement and Plan of Merger and Reorganization, as may be amended from time to time with the private company then known as Millendo Therapeutics, Inc. ("Private Millendo"), pursuant to which Merger Sub would merge with and into Private Millendo, with Private Millendo surviving as a wholly owned subsidiary of the Company (the "Merger"). The Merger closed on December 7, 2018. The shares (the "Shares") registered for resale on this registration statement were sold to the selling stockholders pursuant to a Stock Purchase Agreement, dated November 1, 2018 (as amended from time to time, the "Purchase Agreement"), by and among the Company, Private Millendo and the investors listed therein (the "Investors"). Pursuant to the terms of the Purchase Agreement, the Investors purchased shares of Company Common Stock for an aggregate purchase price of approximately \$20.0 million as part of a private placement financing (the "Post-Closing Financing"). The consummation of the Post-Closing Financing and the other transactions contemplated by the Purchase Agreement were conditioned upon the satisfaction of the conditions set forth in the Purchase Agreement. Following the closing of the Merger, on December 7, 2018, the Company and the Investors completed the Post-Closing Financing and the Company issued and sold an aggregate of 1,230,158 shares of Company Common Stock to the Investors. Under the terms of the Post-Closing Financing, the Shares issued in the Post-Closing Financing were issued pursuant to an exemption from the registration requirements of the Securities Act of 1933, as amended. The resale of the Shares by the Investors are being registered for resale on this registration statement.

Corporate Information

The Company was incorporated under the laws of the State of Delaware in April 2011 under the name Ovastem, Inc. and changed its name to OvaScience, Inc. in May 2011. Following the closing of the Merger, the Company changed its name to "Millendo Therapeutics, Inc." The Company's principal executive offices are located at 301 N. Main Street, Suite 100, Ann Arbor, MI 48104, and its telephone number is (734) 845-9000. The Company's website address is www.millendo.com. The information contained on, or that can be accessed through, the Company's website is not a part of this registration statement. The Company has included its website address in this registration statement solely as an inactive textual reference.

THE OFFERING

Shares of common stock that may be offered by the selling stockholders	Up to 1,230,158 shares.
Use of Proceeds	We will not receive any proceeds from the sale of the common stock by the selling stockholders.
Offering Price	The selling stockholders may sell all or a portion of their shares through public or private transactions at prevailing market prices or at privately negotiated prices.
Nasdaq Capital Market symbol	Until October 31, 2018, the Company Common Stock was listed on The Nasdaq Global Market under the symbol "OVAS"; effective October 31, 2018, the listing of the Company Common Stock was transferred to The Nasdaq Capital Market under the symbol "OVAS." In connection with the Merger, we filed an initial listing application with The Nasdaq Capital Market pursuant to Nasdaq's rules for companies conducting a business combination that results in a change of control. On December 10, 2018, the Company Common Stock commenced trading on The Nasdaq Capital Market, on a post-Reverse Stock Split adjusted basis, under the ticker symbol MLND. The last reported sale price of Company Common Stock on December 19, 2018 was \$8.81 per share.
Risk Factors	Investing in our common stock involves a high degree of risk. See "Risk Factors" below.

DESCRIPTION OF THE MERGER

On December 7, 2018, the Company completed its reverse merger with Private Millendo in accordance with the terms of the Agreement and Plan of Merger and Reorganization dated as of August 8, 2018, as amended on September 25, 2018 and November 1, 2018 (the "**Merger Agreement**"), by and among the Company, Private Millendo and Orion Merger Sub, Inc., a Delaware corporation and a wholly owned subsidiary of the Company ("**Merger Sub**"), pursuant to which, among other matters, Merger Sub merged with and into Private Millendo, with Private Millendo continuing as a wholly owned subsidiary of the Company and the surviving corporation of the merger (the "**Merger**"). On December 6, 2018, in connection with, and prior to the completion of, the Merger, the Company effected a 1-for-15 reverse stock split of its common stock (the "**Reverse Stock Split**"), and immediately following the Merger, the Company changed its name to "Millendo Therapeutics, Inc." Following the completion of the Merger, the business conducted by the Company became primarily the business conducted by Private Millendo, which is a biopharmaceutical company focused on developing novel treatments for orphan endocrine diseases.

Under the terms of the Merger Agreement, the Company issued shares of its common stock to Private Millendo's stockholders, at an exchange ratio of 0.0744 shares of the Company Common Stock, after taking into account the Reverse Stock Split, for each share of Private Millendo common stock outstanding immediately prior to the Merger. The exchange ratio was determined through arm's-length negotiations between the Company and Private Millendo. The Company also assumed all of the stock options outstanding under the Private Millendo 2012 Equity Incentive Plan, as amended (the "**Private Millendo Plan**"), with such stock options henceforth representing the right to purchase a number of shares of Company Common Stock equal to 0.0744 multiplied by the number of shares of Private Millendo common stock previously represented by such options. The Company also assumed the Private Millendo Plan.

Immediately prior to the Merger, Private Millendo issued and sold an aggregate of approximately \$29.5 million of shares of Private Millendo common stock (the "**Pre-Closing Financing**") to certain existing stockholders of Private Millendo. The issuance of the shares of the Company Common Stock to the former stockholders of Private Millendo (other than shares of the Company Common Stock stock issued in exchange for the shares of Private Millendo common stock issued pursuant to the Pre-Closing Financing) was registered with the U.S. Securities and Exchange Commission on a Registration Statement on Form S-4, as amended.

The description of the Agreement and Plan of Merger and Reorganization dated as of August 8, 2018, as amended on September 25, 2018 and November 1, 2018 (the "**Merger Agreement**"), is not complete and is qualified in its entirety by reference to Merger Agreement, which has been filed as an annex to our proxy statement on Schedule 14A, filed with the SEC on November 5, 2018 and which is incorporated by reference herein. See "Where You Can Find Additional Information" and "Information Incorporated by Reference." The representations, warranties and covenants made by us in the Merger Agreement were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties thereto, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were made as of an earlier date. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

DESCRIPTION OF THE PRIVATE PLACEMENT

On November 1, 2018, the Company and Private Millendo entered into a Stock Purchase Agreement (as may be amended from time to time, the "Purchase Agreement") with certain investors (the "Investors"), which provided for the sale and issuance of shares (the "Shares") of Company Common Stock (the "Post-Closing Financing") for an aggregate purchase price of approximately \$20 million at a per share purchase price of (i) \$1.2096 *divided by* (ii) the Exchange Ratio. The consummation of the Post-Closing Financing and the other transactions contemplated by the Purchase Agreement were conditioned upon the satisfaction of the conditions set forth in the Purchase Agreement. Following the closing of the Merger, on December 7, 2018, the Company and the Investors completed the Post-Closing Financing and the Company issued and sold an aggregate of 1,230,158 shares of Company Common Stock to the Investors. Under the terms of the Post-Closing Financing, the Shares issued in the Post-Closing Financing were issued pursuant to an exemption from the registration requirements of the Securities Act of 1933, as amended. The resale of the Shares by the Investors are being registered for resale on this registration statement.

On November 28, 2018, the Company, Private Millendo and the Investors entered into the First Amendment to the Purchase Agreement (the "First Amendment to the Purchase Agreement"), pursuant to which the parties agreed to amend certain provisions of the Purchase Agreement that would have allowed the Investors to waive certain conditions to the closing of the Post-Closing Financing. The parties also amended the fee reimbursement provisions.

Concurrently with the execution of the Purchase Agreement, the Company entered into a Registration Rights Agreement (as may be amended from time to time, the "Registration Rights Agreement") with the Investors, pursuant to which the Company agreed to file, as promptly as reasonably possible after the execution of the Registration Rights Agreement, a registration statement (the "Resale Registration Shelf") with the SEC covering the resale of the shares sold to the Investors in the Post-Closing Financing and to use its reasonable best efforts to have the registration statement declared effective as promptly as practicable following the filing of the Resale Registration Shelf.

Under the Registration Rights Agreement, the Company also agreed to use its reasonable best efforts to maintain the effectiveness of the Resale Registration Shelf until the earliest of (a) the date as of which Investors may sell all of their securities covered by the Resale Registration Shelf without restriction pursuant to Rule 144 or (b) all Shares covered by the Resale Registration Shelf otherwise cease to be registrable securities, as defined in the Registration Rights Agreement.

The descriptions of the Purchase Agreement, the First Amendment to the Purchase Agreement and the Registration Rights Agreement are not complete and are qualified in their entirety by reference to the Purchase Agreement, the First Amendment to the Purchase Agreement and the Registration Rights Agreement, each of which have been filed as an exhibit to the registration statement of which this prospectus is a part. See "Where You Can Find Additional Information" and "Information Incorporated by Reference." The representations, warranties and covenants made by us in such agreements were made solely for the benefit of the parties to such agreements, including, in some cases, for the purpose of allocating risk among the parties thereto, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were made as of an earlier date. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

RISK FACTORS

An investment in our common stock involves a high degree of risk. Prior to making a decision about investing in our common stock, you should carefully consider the risks, uncertainties and assumptions discussed under (i) the section entitled "Risk Factors," in our proxy statement on Schedule 14A, filed with the SEC on November 5, 2018 and (ii) Item 1A, "Risk Factors," in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 filed with the SEC on March 15, 2018, as updated by our subsequent filings with the SEC under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), which are incorporated herein by reference, together with the information in this prospectus and any other information incorporated by reference into this prospectus. See "Where You Can Find Additional Information" and "Information Incorporated by Reference." Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business, financial condition or results of operations. The occurrence of any of these known or unknown risks might cause you to lose all or part of your investment in our common stock.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This registration statement and the documents incorporated by reference into this registration statement contain forward-looking statements (including within the meaning of Section 21E of the United States Securities Exchange Act of 1934, as amended (the "Exchange Act"), and Section 27A of the Securities Act) concerning the Company, Private Millendo, the Merger and other matters. These statements may discuss goals, intentions and expectations as to future plans, trends, events, results of operations or financial condition, or otherwise, based on current beliefs of the management of the Company, as well as assumptions made by, and information currently available to, management. Forward-looking statements generally include statements that are predictive in nature and depend upon or refer to future events or conditions, and include words such as "may," "will," "should," "would," "expect," "plan," "believe," "intend," "look forward," and other similar expressions among others. Statements that are not historical facts are forward-looking statements. Forward-looking statements are based on current beliefs and assumptions that are subject to risks and uncertainties and are not guarantees of future performance. Actual results could differ materially from those contained in any forward-looking statement as a result of various factors, including, without limitation: risks related to the integration of the Company and Private Millendo following the Merger; risks related to our ability to correctly estimate our operating expenses and its expenses associated with the Merger; risks related to the changes in market price of the our Common Stock relative to the Exchange Ratio; our ability to protect our respective intellectual property rights; competitive responses to the Merger; unexpected costs, charges or expenses resulting from the Merger; potential adverse reactions or changes to business relationships resulting from the completion of the Merger; and legislative, regulatory, political and economic developments. The foregoing review of important factors that could cause actual events to differ from expectations should not be construed as exhaustive and should be read in conjunction with statements that are included herein and elsewhere. Except as required by applicable law, the Company undertakes no obligation to revise or update any forward-looking statement, or to make any other forward looking statements, whether as a result of new information, future events or otherwise.

For a discussion of the factors that may cause the Company, Private Millendo or the combined organization's actual results, performance or achievements to differ materially from any future results, performance or achievements expressed or implied in such forward-looking statements, or for a discussion of risks associated with the Merger on the business of the Company, Private Millendo and the combined organization, see (i) the section entitled "Risk Factors," in our proxy statement on Schedule 14A, filed with the SEC on November 5, 2018 and (ii) Item 1A, "Risk Factors," in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 filed with the SEC on March 15, 2018, as updated by our subsequent filings with the SEC under the Exchange Act.

Additional factors that could cause actual results to differ materially from those expressed in the forward-looking statements are discussed in reports filed with the SEC by the Company. See the section titled "*Where You Can Find More Information*" in this registration statement. There can be no assurance that the expected benefits of the Merger will be realized.

If any of these risks or uncertainties materialize or any of these assumptions prove incorrect, the results of operations of the Company, Private Millendo or the combined organization could differ materially from the forward-looking statements. All forward-looking statements in this registration statement are current only as of the date on which the statements were made. The Company and Private Millendo do not undertake any obligation to publicly update any forward-looking statement to reflect events or circumstances after the date on which any statement is made, the occurrence of unanticipated events or any new information that becomes available in the future.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale of the common stock by the selling stockholders named in this prospectus. All proceeds from the resale of the shares of our common stock offered by this prospectus will belong to the selling stockholders identified in this prospectus under "Selling Stockholders."

SELLING STOCKHOLDERS

This prospectus covers the resale by the selling stockholders identified below of up to 1,230,158 shares of our common stock that have been issued to the selling stockholders. The selling stockholders acquired our securities pursuant to the Post-Closing Financing following the closing of the Merger. See "Prospectus Summary—Description of the Merger" and "Prospectus Summary—Description of the Private Placement." We will not receive any proceeds from the resale of the common stock by the selling stockholders.

To our knowledge, none of the selling stockholders has been an officer or director of ours or any of our predecessors or affiliates within the past three years and no selling stockholder had a material relationship with the Company or any of its affiliates within the last three years. Our knowledge is based on information provided by the selling stockholders in connection with the filing of this prospectus.

The shares registered for resale on this registration statement were sold to the selling stockholders under the Purchase Agreement, pursuant to which the Investors agreed to purchase shares of Company Common Stock following the closing of the Merger. The table below sets forth information, to our knowledge, for the selling stockholders and other information regarding the beneficial ownership (as determined under Section 13(d) of the Exchange Act and the rules and regulations thereunder) of the shares of Company Common Stock that are held by the selling stockholders as of the closing of the Merger and the Post-Closing Financing on December 7, 2018.

The percentage of ownership is based on 12,914,312 shares of Company Common Stock outstanding upon the Closing, including the effect of the Reverse Stock Split, at a 1:15 ratio, and the Pre-Closing Financing, adjusted as required by the rules promulgated by the SEC to determine beneficial ownership. The following table and the related notes reflect a final Exchange Ratio of 0.0744 post-Reverse Stock Split shares of Company Common Stock, calculated in accordance with the Merger Agreement, and as described elsewhere in this prospectus.

The table and footnotes assume that the selling stockholders will sell all of the shares listed. However, because the selling stockholders may sell all or some of their shares under this prospectus from time to time, or in another permitted manner, we cannot assure you as to the actual number of shares that will be sold by the selling stockholders or that will be held by the selling stockholders after completion of any sales. We do not know how long the selling stockholders will hold the shares before selling them. The inclusion of any shares in this table does not constitute an admission of beneficial ownership by the persons named below. The selling stockholders listed below are sorted alphabetically by first name.

Information about the selling stockholders may change over time. Any changed information will be set forth in an amendment to the registration statement or supplement to this prospectus, to the extent required by law.

<u>Name of Selling Stockholder</u>	<u>Shares Beneficially Owned as of the date of this Prospectus</u>		<u>Shares Offered by this Prospectus</u>	<u>Shares Beneficially Owned After the Offering(2)</u>	
	<u>Number</u>	<u>Percent(1)</u>		<u>Number</u>	<u>Percent(1)</u>
Entities affiliated with Great Point Partners, LLC	1,230,158(3)	9.5%	12,914,312	—	*

* Less than 1%.

(1) Applicable percentage ownership is based on 12,914,312 shares of our common stock outstanding as of December 7, 2018, which includes shares issued by Private Millendo as part of the Pre-Closing Financing and by the Company in the Post-Closing Financing.

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- (2) Assumes the sale of all shares offered pursuant to this prospectus.
- (3) Consists of (i) 373,968 shares of common stock owned by Biomedical Value Fund, L.P. ("BVF"), (ii) 483,452 shares of common stock owned by Biomedical Offshore Value Fund, Ltd. ("BOVF") and (iii) 372,738 shares of common stock owned by GEF-SMA, L.P. ("GEF-SMA"). Great Point Partners, LLC ("Great Point") is the investment manager of each of BVF, BOVF and GEF-SMA.

PLAN OF DISTRIBUTION

The selling stockholders, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

The selling stockholders may use any one or more of the following methods when disposing of shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales effected after the date the registration statement of which this Prospectus is a part is declared effective by the SEC;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted by applicable law.

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus. The selling stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of our common stock or interests therein, the selling stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The selling stockholders may also sell shares of our common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The selling stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities 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).

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The aggregate proceeds to the selling stockholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering. Upon any exercise of the warrants by payment of cash, however, we will receive the exercise price of the warrants.

The selling stockholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act of 1933, provided that they meet the criteria and conform to the requirements of that rule.

The selling stockholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be "underwriters" within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling stockholders who are "underwriters" within the meaning of Section 2(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of our common stock to be sold, the names of the selling stockholders, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the common stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling stockholders 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 stockholders and their affiliates. In addition, to the extent applicable we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We will pay all expenses of the registration of the shares of common stock pursuant to the registration rights agreement, including, without limitation, Securities and Exchange Commission filing fees and expenses of compliance with state securities or "blue sky" laws; *provided, however*, that each selling stockholder will pay all underwriting discounts and selling commissions, if any and any related legal expenses incurred by it. We will indemnify the selling stockholders against certain liabilities, including some liabilities under the Securities Act, in accordance with the registration rights agreement, or the selling stockholders will be entitled to contribution. We may be indemnified by the selling stockholders against civil liabilities, including liabilities under the Securities Act, that may arise from any written information furnished to us by the selling stockholders specifically for use in this prospectus, in accordance with the related registration rights agreement, or we may be entitled to contribution.

We have agreed with the selling stockholders to keep the registration statement of which this prospectus constitutes a part effective until the earlier of (1) such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement or (2) the date on which all of the shares may be sold without restriction pursuant to Rule 144 of the Securities Act.

LEGAL MATTERS

The validity of the shares of common stock offered in this prospectus has been passed upon for us by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts.

EXPERTS

The consolidated financial statements of OvaScience, Inc. appearing in OvaScience, Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2017, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their report thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

The consolidated financial statements of Millendo Therapeutics, Inc. as of December 31, 2017 and 2016 and for each of the years then ended that are incorporated by reference in this prospectus and elsewhere in this registration statement have been audited by Ernst & Young LLP, independent auditors, as set forth in their report thereon (which contains an explanatory paragraph describing conditions that raise substantial doubt about the Company's ability to continue as a going concern as described in Note 1 to the consolidated financial statements), included therein, and incorporated herein by reference. Such financial statements are incorporated herein in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

The financial statements of Millendo Therapeutics SAS, which comprise the balance sheet as of December 31, 2016 and the related statements of income and cash flows for the year then ended, and the balance sheet as of December 19, 2017 and the related statements of income and cash flows for the period from January 1 to December 19, 2017, and the related notes to the financial statements that are incorporated by reference in this prospectus and elsewhere in this registration statement have been audited by RSM Rhône-Alpes, as set forth in their report thereon, included therein, and incorporated herein by reference. Such financial statements are incorporated by reference herein in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We are subject to the information requirements of the Exchange Act and we therefore file periodic reports, proxy statements and other information with the SEC relating to our business, financial statements and other matters. The SEC maintains a web site that contains reports, proxy and information statements and other information regarding issuers like us that file electronically with the SEC. The address of the SEC's web site is <http://www.sec.gov>.

This prospectus constitutes part of a registration statement filed under the Securities Act with respect to the shares of common stock covered hereby. As permitted by the SEC's rules, this prospectus omits some of the information, exhibits and undertakings included in the registration statement. You may read and copy the information omitted from this prospectus but contained in the registration statement, as well as the periodic reports and other information we file with the SEC, at the web site of the SEC referred to above. You may also access our filings with the SEC on our web site, which is located at <http://www.millendo.com>. The information contained on our web site is not part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Statements contained in this prospectus as to the contents of any contract or other document are not necessarily complete, and in each instance we refer you to the copy of the contract or other document filed or incorporated by reference as an exhibit to the registration statement or as an exhibit to our Exchange Act filings, each such statement being qualified in all respects by such reference.

1,230,158 Shares

Common Stock

PROSPECTUS
