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November 16, 2018

**VIA EDGAR & OVERNIGHT MAIL**

Securities and Exchange Commission  
Division of Corporation Finance  
100 F Street, N.E. Washington, D.C. 20549  
Attention: Office of Healthcare and Insurance

**Re: OvaScience, Inc.  
Registration Statement on Form S-3  
Filed November 6, 2018  
File No. 333-228209 (the "Registration Statement")**

Ladies and Gentlemen:

We are submitting this letter on behalf of OvaScience, Inc. (the "**Company**") and Millendo Therapeutics, Inc. ("**Millendo**") in response to comments from the staff (the "**Staff**") of the Securities and Exchange Commission (the "**Commission**") received by letter dated November 15, 2018 (the "**Comment Letter**") from the Division of Corporation Finance, Office of Healthcare and Insurance, to Christopher A. Kroeger, M.D., M.B.A., President and Chief Executive Officer of the Company, relating to the above-referenced Registration Statement.

For reference, we have set forth below in italics the Staff's comment set forth in the Comment Letter. The response below is based on information provided to Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. by representatives of the Company and Millendo.

***Comment 1:** It appears that Section 5 of the Stock Purchase Agreement provides that the purchaser has the option to waive Millendo's and OvaScience's obligations. Additionally, the Explanatory Note in the registration statement indicating that you expect this registration statement to become effective promptly after the closing of the post-closing financing appears to imply a waiver of the Section 5.5 condition that the resale registration statement shall have been declared effective by the SEC. Therefore, it does not appear that you have a valid exemption under Section 4(2) of the Securities Act of 1933. You may withdraw the registration statement and refile it once the shares are outstanding or amend the investment agreement to remove the investors' ability to waive any of the closing conditions and refile your registration statement. For guidance, refer to Securities Act Sections Compliance & Disclosure Interpretation 139.11.*

**Response 1:** The Company respectfully acknowledges the Staff's comments. As to the language in the Explanatory Note, the Company notes that the first sentence of the third paragraph was included in error and proposes to delete such sentence and replace it with the following: "OvaScience expects this registration statement to become effective prior to the Effective Time of the Merger."

As to the Staff's comment regarding the purchaser's control over the closing conditions in the Stock Purchase Agreement, we respectfully disagree with the Staff's assessment. Section 5 of the Purchase Agreement contains customary closing conditions relating to the "bringdown" of

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OvaScience's and Millendo's representations and warranties and covenants, satisfaction of consents and filings, the consummation of the Merger between the parties and the effectiveness of the registration statement on Form S-3. The Securities Act Compliance and Disclosure Interpretation 139.11 to which you have referred us provides (in pertinent part):

*"...a company will be permitted to register the resale of securities prior to their issuance if the company has completed a Section 4(2)-exempt sale of the securities... to the investor, and the investor is at market risk at the time of filing of the resale registration statement. The investor must be irrevocably bound to purchase a set number of securities for a set purchase price that is not based on market price or a fluctuating ratio.... There can be no conditions to closing that are within an investor's control or that an investor can cause not to be satisfied. For example, closing conditions in capital formation transactions relating to the market price of the company's securities or the investor's satisfactory completion of its due diligence on the company are unacceptable conditions. The closing of the private placement of the unissued securities must occur within a short time after the effectiveness of the resale registration statement."*

The Company believes that it has satisfied these criteria. The guidance requires that the purchaser be "at market risk" and "irrevocably bound" to consummate the investment transaction. The closing conditions must not be "within an investor's control" and there can be no closing conditions "that an investor can cause not to be satisfied." The closing conditions contained within the Stock Purchase Agreement comply with these requirements. The Company and Millendo have to satisfy certain conditions as a condition to the obligation of the purchaser to make its investment in OvaScience and these conditions are fully outside of the purchaser's control. If the conditions are satisfied, the purchaser is irrevocably bound to make the investment at the price they committed to in the Stock Purchase Agreement.

If for any reason, the Company is unable to satisfy the closing conditions, only then does the purchaser's option to waive a condition come into play. At that point, the purchaser may decide not to proceed with its investment, or waive the relevant condition. That formulation makes logical sense. As long as the issuer complies with its side of the bargain, the investor is irrevocably bound. Only once the issuer fails to comply with the closing conditions (and therefore its side of the bargain), does the investor have the right to abandon the transaction or waive the non-compliance. The right to waive standard closing conditions does not mean that the investor is not irrevocably bound if the closing conditions are met. Put differently, the fact that the investor may decide to close even if the conditions (that the investor has no control over) are not met does not undermine the fact that the investor must close if the conditions are met.

The SEC's guidance provides examples that explain the type of impermissible "control" about which the SEC is concerned — such as a condition that requires a particular market price to be met or maintained, or that gives the investor a "walk-away" right if it is not satisfied with due diligence results. Those are only two examples, but they indicate that the impermissible level and kind of investor control from which the SEC's concern is derived relate to the satisfaction of the condition itself (i.e., that the purchaser cannot cause a condition not to be met, such that purchaser would not actually be "irrevocably bound" to make the investment), not a potential *waiver* of a standard condition outside of the investor's control if the issuer was unable to satisfy the condition.

The purchaser's right to waive standard closing conditions and proceed with a closing notwithstanding the failure to satisfy a condition is a common market feature in PIPE agreements and fundraising transactions of all types. There is a fundamental, qualitative difference between a

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closing condition that is within an investor's discretion to control (such as satisfaction with results of due diligence) and a right to waive a closing condition that is not within an investor's discretion to control (such as the closing of a merger). We believe that a waiver right over a closing condition does not constitute a bar to the ability of the Company to have its registration statement declared effective prior to the issuance of these shares.

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We hope that the above response will be acceptable to the Staff. Please do not hesitate to call me or William C. Hicks of this firm at (617) 542-6000 with any comments or questions regarding this letter. We thank you for your time and attention.

Sincerely,

/s/ Megan N. Gates

Megan N. Gates

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cc:

Securities and Exchange Commission

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