



May 4, 2016

VIA EDGAR

Securities and Exchange Commission
Division of Corporate Finance
100 F Street, N.E.
Washington, D.C. 20549

Attention: Suzanne Hayes, Assistant Director

Re: OvaScience, Inc.
Registration Statement on Form S-3
File No. 333-209778
Request for Acceleration

Ladies and Gentlemen:

Pursuant to Rule 461 of Regulation C promulgated under the Securities Act of 1933, as amended, OvaScience, Inc. (the "Registrant") hereby requests acceleration of the effective date of its Registration Statement on Form S-3 (File No. 333-209778) (the "Registration Statement"), so that it may become effective at 5:00 p.m. (Washington, D.C. time) on Thursday, May 5, 2016, or as soon thereafter as practicable.

The Registrant hereby acknowledges that:

- (i) should the U.S. Securities and Exchange Commission (the "Commission") or the staff, acting pursuant to delegated authority, declare the Registration Statement effective, it does not foreclose the Commission from taking any action with respect to the Registration Statement;
- (ii) the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the Registration Statement effective, does not relieve the Registrant from its full responsibility for the adequacy and accuracy of the disclosure in the Registration Statement; and
- (iii) the Registrant may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

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Please call William C. Hicks (617-542-6000) of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., counsel to the Company, with any comments or questions regarding this matter.

Very truly yours,

OvaScience, Inc.

By: /s/ Jeffrey Young
Jeffrey Young
Chief Financial Officer

cc: Securities and Exchange Commission
Dorman Yale
Joseph McCann
