



DLA Piper LLP (US)
4365 Executive Drive, Suite 1100
San Diego, California 92121-2133
www.dlapiper.com

Jeffrey C. Thacker
jeff.thacker@dlapiper.com
T 858.638.6728
F 858.638.5128

May 10, 2012

Division of Corporation Finance
U.S. Securities & Exchange Commission
100 F Street, NE
Washington, D.C. 20549

Attention: Mr. Jeffrey Riedler
Ms. Jennifer Riegel
Ms. Keira Ino
Mr. Gustavo Rodriguez
Mr. Michael Rosenthal

Re: Organovo Holdings, Inc.
Form 8-K/A
Filed March 30, 2012
File No. 333-169928

Ladies and Gentlemen:

This letter responds to the letter of the staff (the "Staff") of the Securities and Exchange Commission (the "Commission"), dated April 18, 2012 to Keith Murphy, Chairman of the Board, Chief Executive Officer and President of Organovo Holdings, Inc. (the "Company") regarding the Amendment No. 1 to Current Report on Form 8-K/A, File No. 000-54621, filed by the Company with the Commission on March 30, 2012.

This letter sets forth the comments of the Staff in the comment letter (numbered in accordance with the comment letter) and, following each comment, sets forth the Company's response. We are enclosing a copy of Amendment No. 2 to Form 8-K (the "Amended Form 8-K").

Financial Statements for the Period Ended September 30, 2011

1. Summary of Significant Accounting Policies

Revenue Arrangements with Multiple Deliverables, page F-12

1. Please revise your disclosure to describe how you recognize license revenues when the license is granted as a part of a research and development collaboration agreement.

RESPONSE: In response to the Staff's comment, the Company has revised its disclosure to describe how it recognizes revenues when the license is granted as part of a research and development collaboration agreement.

4. Derivative Liability, page F-14

2. Please revise your disclosure to clarify whether the down-round protection of the warrants' exercise price applies under all circumstances. Otherwise, describe the situations to which the down-round protection is limited to. Furthermore, disclose how the exercise price will be adjusted for this provision.



Division of Corporation Finance
Attention: Mr. Michael Rosenthal
May 10, 2012
Page Two

RESPONSE: In response to the Staff's comment, the Company has revised its disclosure to clarify the circumstances under which the down-round protection of the warrants' exercise price applies and has disclosed how the exercise price will be adjusted for this provision.

8. Licensing Agreements, page F-20

3. Please tell us where you disclosed the amount of prior patent costs that you are required to reimburse under the licensing agreements as previously requested under comment 10.

RESPONSE: In response to the Staff's comment, the Company has disclosed the amount of prior patent costs that it is required to reimburse under the licensing agreements. Such disclosure is found under Note 8—Licensing Agreements and Research Contracts to the audited Financial Statements of the Company included in the Amended Form 8-K.

ACKNOWLEDGMENT

As requested by the Staff, the Company hereby acknowledges that:

- the Company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the Company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Very truly yours,

DLA Piper LLP (US)

/s/ Jeffrey C. Thacker

Jeffrey C. Thacker
Partner

WEST\229903774.3