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December 4, 2012

Division of Corporation Finance  
U.S. Securities and Exchange Commission  
100 F Street, NE  
Washington, D.C. 20549  
Attn: David L. Orlic, Esq.  
Special Counsel – Office of Mergers and Acquisitions

Re: Organovo Holdings, Inc.  
Tender Offer Statement on Schedule TO  
Filed on November 16, 2012  
File No. 005-86817

Ladies and Gentlemen:

This letter responds to the letter of the staff (the “*Staff*”) of the Securities and Exchange Commission (the “*Commission*”), dated November 28, 2012, to Mr. Keith Murphy, Chief Executive Officer and President of Organovo Holdings, Inc. (the “*Company*”), regarding the Tender Offer Statement on Schedule TO, File No. 005-86817 (the “*Schedule TO*”), filed by the Company with the Commission on November 16, 2012. All capitalized terms not specifically defined herein shall have the meaning assigned to such terms as set forth in the Schedule TO.

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 also have enclosed a copy of Amendment No. 2 to the Schedule TO (the “*Amended Schedule TO*”).

#### **General**

**1. We note that the offer is limited to persons who are accredited investors. Please provide an analysis as to Rule 13e-4(f)(8)(i), which requires that the offer be open to all security holders.**

In response to the Staff’s comments, the Company is not limiting the offer to accredited investors and has revised the Amended Schedule TO accordingly. The Company issued the Original Warrants in private placement transactions in reliance on the exemption from registration provided by Rule 506 of Regulation D under the Securities Act of 1933 (the “*Securities Act*”) inasmuch as these previous private placement transactions occurred without any form of general solicitation or general advertising. The holders of the Original Warrants previously represented to the Company that they were “accredited investors” in connection with the transactions in which such holders acquired the Original Warrants in 2011 and 2012. As such, the Company anticipates that the holders of the Original Warrants will continue to qualify as accredited investors, unless their status has changed since their prior transaction with the Company.

The Company intends to rely on Section 4(2) of the Securities Act, and Rule 506 promulgated thereunder, as an exemption for its offer to amend the Original Warrants. The Company has implemented the Offer to Amend and Exercise without any form of general solicitation or general advertising. In addition, the Company intends to provide the following in the Amended Schedule TO:

a) The Company will continue to require the holders of the Original Warrants to complete an accredited investor questionnaire, although the holder will not be required to be an accredited investor in order to participate in the Offer to Amend and Exercise;



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b) The Company has revised the Election to Participate and Exercise Warrant to enable the Company to determine whether any holder who is not an accredited investor either alone or with the holder's purchaser representatives has such knowledge and experience in financial and business matters that he is capable of evaluating the merits and risks of the prospective investment.

c) The Company has included in the Offer to Amend and Exercise a new disclosure document titled "Supplemental Company Information," which includes all of the information required by Rule 502 of Regulation D. In addition, the Company has incorporated its Form 10 information filed pursuant to its Current Report on Form 8-K/A dated May 11, 2012, and all information contained in any reports or documents required to be filed under Sections 13(a), 14(a), 14(c) and 15(d) of the Securities Exchange Act of 1934 as amended. As a result, the Company has met the requirement to deliver to non-accredited investors the information required by Rule 502(b)(2)(ii) of Regulation D, thereby still satisfying the requirements of Rule 506 in the event any of the eligible warrant holders have ceased to be *accredited investors* within the meaning of Rule 501 under Regulation D.

d) The Company has amended the conditions of the Offer to Amend and Exercise to provide that such Offer is subject to the Company having a valid securities exemption under the Securities Act for the Company's offer to amend the Original Warrants.

As stated above, based on their prior representations, the Company anticipates that each of the holders of the Original Warrants are accredited investors, and that the Offer to Amended and Exercise will qualify for an exemption from registration under the Securities Act.

**2. Please provide the disclosure required by Item 1004(a)(1)(viii) of Regulation M-A regarding the manner in which securities will be accepted for payment.**

In response to the Staff's comment, the Company has revised the Amended Schedule TO to provide the manner in which securities will be accepted for payment as required by Item 1004(a)(1)(viii).

**Lock-Up Period, page 24**

**3. Disclosure indicates that security holders may not sell shares issuable in the offer for a period of time commencing on the exercise date and ending on the later of twenty days after exercise or five business days after the expiration date. This suggests that warrants can be exercised at the revised exercise price prior to the expiration date. Please confirm and disclose that this is not the case, or advise how this is consistent with Rule 14e-1(a).**

In response to the Staff's comment, the Company has revised the Amended Schedule TO to clarify that the Amended Warrants cannot be exercised at the revised exercise price prior to the expiration date. The Company also has clarified the application of the lock-up period to the exercised Amended Warrants.

**4. Please confirm and disclose that you will issue common stock upon the exercise of the warrants promptly, rather than "prior to the expiration of a holder's Lock-Up Period" as disclosed on page 1. See Rule 14e-1(c).**

In response to the Staff's comment, the Company has revised the Amended Schedule TO to provide that the Company will issue the common stock upon the exercise of the Amended Warrants promptly.



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**Section 9. Withdrawal Rights, page 25**

**5. Disclosure indicates that a security holder may not withdraw an election to participate following the expiration date. Please revise to disclose the date certain after which a security holder may in fact withdraw securities if not yet accepted for payment. See Rule 13e-4(f)(2)(ii).**

In response to the Staff's comment, the Company has revised the Amended Schedule TO to disclose the date certain (i.e., 40 business days from the commencement of the Offer to Amend and Exercise) after which a holder of Original Warrants may in fact withdraw its Election to Participate and Exercise if the Company has not accepted payment.

**6. Disclosure indicates that, if a security holder withdraws prior to the expiration date, you will return the tendered warrants and cash within 5 business days. Please advise how you determined that this is consistent with Rule 14e-1(c).**

In response to the Staff's comment, the Company has revised the Amended Schedule TO to provide that if the holder of an Original Warrant withdraws prior to the expiration date, the Company will promptly return the Original Warrants and the cash paid by the holder to the Company

**Section 10. Registration of Warrant Shares, page 26**

**7. Disclosure indicates that the offer will not affect the Registration Statement on Form S-1 (File No. 333-182101) for holders named as selling shareholders in the registration statement. Please provide an analysis supporting this conclusion.**

In response to the Staff's comment, the Company has revised the Amended Schedule TO to provide that following the completion of the Offer to Amend and Exercise, the Company will file a prospectus supplement pursuant to Rule 424(b)(3) to the prospectus included in the Registration Statement on Form S-1 (File No. 333-182101) (the "**Registration Statement**") to reflect the substantive changes from the information currently set forth in such prospectus as a result of the Offer to Amend and Exercise.

The Company supplementally advises the Staff that the Company does not believe it is required to file a post-effective amendment to the Registration Statement prior to its use by the listed selling stockholders therein for the following reasons:

a) The Registration Statement relates solely to the resale of shares of common stock acquired by the selling stockholders upon the exercise of their warrants. The Registration Statement does not register the warrants or the exercise of the warrants by the holders thereof. The Company issued the warrants in private transactions exempt from the registration requirements of the Securities Act. The Company has and will continue to rely on the exemption from the registration requirements provided by Section 4(2) of the Securities Act, and the rules and regulations promulgated thereunder, for issuances of common stock upon exercise of the warrants. Similarly, the



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Company is relying on the exemption from the registration requirements provided by Section 4(2) of the Securities Act, and the rules and regulations promulgated thereunder, for the offer to amend the Original Warrants and the issuance of common stock upon exercise of the Amended Warrants.

b) In the Offer to Amend and Exercise, the Company is not increasing the number of shares of common stock that may be resold by the selling stockholders listed for resale in the Registration Statement.

c) The Offer to Amend and Exercise does not alter the rights, preferences or privileges of the Company's common stock, or affect the rights, preferences or privileges of the purchasers of common stock who acquire their shares of common stock pursuant to resales conducted in accordance with the Registration Statement.

d) As part of the Offer to Amend and Exercise, the Company is requiring the exercise of the Amended Warrants. As a result, no Amended Warrants will be in existence after completion of the Offer to Amend and Exercise. The Original Warrants will remain in full force and effect, as originally issued, for holders that elect not to participate in the Offer to Amend and Exercise.

**Section 11. Trading Market and Price Range of Common Stock, page 26**

**8. Please provide the disclosure required by Item 1002(c) of Regulation M-A for the warrants, or state that there is no established trading market for the warrants.**

In response to the Staff's comment, the Company has revised the Amended Schedule TO to state there is no established trading market for the Original Warrants or the Amended Warrants.

**Section 15. Financial Information Regarding the Company, page 30**

**9. Given that financial information required by Item 10 of Schedule TO has been incorporated by reference into the schedule, summary financial information, as described in Item 1010(c) of Regulation M-A, including the ratio of earnings to fixed charges, and pro forma information if material, must be disseminated to security holders. See Instruction 6 to Item 10 of Schedule TO and Interpretation I.H.7 in the July 2001 Interim Supplement to Publicly Available Telephone Interpretations, available on our website. Please disseminate this information to security holders.**

In response to the Staff's comment, the Company has revised the Schedule TO to include the financial information required by Items 1010(a) and (b) of Regulation M-A. The Company has not included a ratio of earnings to fixed charges because it has no outstanding debt obligations as of September 30, 2012.

**10. Please provide pro forma information pursuant to Item 1010(b) of Regulation M-A, and a brief statement as to the accounting treatment of the transaction pursuant to Item 1004(a)(1)(xi) of Regulation M-A, or advise why you believe that this information is not material.**



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In response to the Staff's comment, the Company has revised the Schedule TO to include the pro forma financial information required by Item 1010(b) of Regulation M-A and a statement as to the accounting treatment of the transaction pursuant to Item 1004(a)(1)(xi) of Regulation M-A.

**Acknowledgement:**

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. If you have any questions or require further information, please call me at (858) 638-6728.

If you have any questions or we can assist you in reviewing the Amended Schedule TO, please call me at (858) 638-6728.

Very truly yours,

**DLA Piper LLP (US)**

/s/ Jeffrey C. Thacker

Jeffrey C. Thacker  
Partner