

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

**AMENDMENT NO. 4 TO
SCHEDULE TO
TENDER OFFER STATEMENT UNDER SECTION 14(d)(1) OR 13(e)(1)
OF THE SECURITIES EXCHANGE ACT OF 1934**

ORGANOVO HOLDINGS, INC.

(Name of Subject Company (Issuer) and Filing Person (Offeror))

WARRANTS TO PURCHASE COMMON STOCK
(Title of Class of Securities)
68620A 104
(CUSIP Number of Common Stock Underlying Warrants)

Keith Murphy
Chief Executive Officer and President
6275 Nancy Ridge Drive
San Diego, California 92121
Phone: (858) 550-9994

(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications on Behalf of Filing Person)

WITH COPY TO:

Jeff Thacker, Esq.
DLA Piper LLP (US)
4365 Executive Drive, Suite 1100
San Diego, California 92121
Tel: (858) 677-1400
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CALCULATION OF FILING FEE:

Transaction valuation(1)	Amount of filing fee(1)(2)
\$34,100,681	\$4,652

- (1) Estimated for purposes of calculating the amount of the filing fee only. An offer to amend and exercise warrants to purchase an aggregate of 14,510,928 shares of common stock (the "Offer to Amend and Exercise"), including: (i) outstanding warrants to purchase 1,500,000 shares of the Company's common stock issued to investors participating in the Company's bridge financing completed in November 2011; (ii) outstanding warrants to purchase 11,653,678 shares of the Company's common stock issued to investors participating in the Company's private placement financings closed on February 8, 2012, February 29, 2012 and March 16, 2012; and (iii) outstanding warrants to purchase 1,357,250 shares of the Company's common stock issued to investors in the Company's private placement transactions completed in 2011. The transaction value is calculated pursuant to Rule 0-11 using \$2.35 per share of common stock, which represents the average of the high and low sales price of the common stock on November 13, 2012.
- (2) Calculated by multiplying the transaction value by 0.0001364.

- Check the box if any part of the fee is offset as provided by Rule 0-11(a)(2) and identify the filing with which the offsetting fee was previously paid. Identify the previous filing by registration statement number or the Form or Schedule and the date of its filing.

Amount Previously Paid: \$4,652
Form or Registration Number: 005-86817

Filing Party: Organovo Holdings, Inc.
Date Filed: November 16, 2012

- Check the box if the filing relates solely to preliminary communications made before the commencement of a tender offer.

Check the appropriate boxes below to designate any transactions to which the statement relates:

- third party tender offer subject to Rule 14d-1.
 issuer tender offer subject to Rule 13e-4.
 going private transaction subject to Rule 13e-3.
 amendment to Schedule 13D under Rule 13d-2.

Check the following box if the filing is a final amendment reporting the results of a tender offer:

The alphabetical subsections used in the Item responses below correspond to the alphabetical subsections of the applicable items of Regulation M-A promulgated under the federal securities laws.

If applicable, check the appropriate box(es) below to designate the appropriate note provision(s):

- Rule 13e-4(i) (Cross-Border Issuer Tender Offer)
 Rule 14d-1(d) (Cross-Border Third-Party Tender Offer)

Explanatory Note

This Amendment No. 4 (this “Amendment No. 4”) amends and supplements the Tender Offer Statement on Schedule TO originally filed with the Securities and Exchange Commission (the “SEC”) on November 16, 2012 (the “Original Schedule TO”), as previously amended by Amendment No. 1 filed with the SEC on November 23, 2012 (“Amendment No. 1”), Amendment No. 2 filed with the SEC on December 5, 2012 (“Amendment No. 2”) and Amendment No. 3 filed with the SEC on December 17, 2012 (“Amendment No. 3” and together with the Original Schedule TO and Amendment Nos. 1 and 2, the “Schedule TO”) relating to an offer by Organovo Holdings, Inc. (the “Company”) to amend warrants to purchase an aggregate of 14,510,928 shares of common stock, including: (i) outstanding warrants to purchase 1,500,000 shares of the Company’s common stock issued to investors participating in the Company’s bridge financing completed in November 2011 (the “Bridge Warrants”); (ii) outstanding warrants to purchase 11,653,678 shares of the Company’s common stock issued to investors participating in the Company’s private placement financings closed on February 8, 2012, February 29, 2012 and March 16, 2012 (the “Investor Warrants”); and (iii) outstanding warrants to purchase 1,357,250 shares of the Company’s common stock issued to investors in the Company’s private placement transactions completed in 2011 (the “Private Warrants”, and collectively with the Bridge Warrants and the Investor Warrants, the “Original Warrants”), upon the terms and subject to the conditions set forth in the Offer To Amend and Exercise Warrants to Purchase Common Stock, dated November 16 2012, and as amended and supplemented by Amendment No. 1, Amendment No. 2, Amendment No. 3 and this Amendment No. 4, and filed as Exhibit (a)(1)(B) to the Schedule TO (the “Offer to Amend and Exercise”).

This is the final amendment to the Schedule TO and is being filed to report the results of the Offer to Amend and Exercise. The following information is filed pursuant to Rule 13e-4(c) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Except as otherwise set forth below, the information included in the Schedule TO, as amended by this Amendment No. 4, remains unchanged and is incorporated by reference herein as relevant to the items in this Amendment No. 4.

Pursuant to Rule 12b-15 under the Exchange Act, this Amendment No. 4 amends and supplements only the items of the Schedule TO that are being amended and supplemented, and unaffected items and exhibits are not included herein.

Item 4. TERMS OF TRANSACTION

Item 4 of the Schedule TO is hereby amended and supplemented by adding the following:

The Offer to Amend and Exercise expired at 5:00 p.m. Pacific Time on December 21, 2012. Pursuant to the Offer to Amend and Exercise, an aggregate of 9,578,344 Original Warrants were tendered by their holders and were amended and exercised in connection therewith for an aggregate exercise price of approximately \$7.7 million, including the following: 502,500 Bridge Warrants; 8,606,094 Investor Warrants; and 469,750 Private Warrants. Such tendered Original Warrants represent approximately 66.0% of the Company’s outstanding Original Warrants as of November 16, 2012.

SIGNATURE

After due inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

ORGANOVO HOLDINGS, INC.

By: /s/ Keith Murphy
Name: Keith Murphy
Title: Chief Executive Officer and President
(Principal Executive Officer)

Date: December 28, 2012