

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

AMENDMENT NO. 1 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 10 4

(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

Fax: (858) 677-1401

**CALCULATION OF FILING FEE:**

Transaction valuation<sup>(1)</sup>

\$34,100,681

Amount of filing fee<sup>(1)(2)</sup>

\$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)

This Amendment No. 1 (this “Amendment No. 1”) amends and supplements the Tender Offer Statement on Schedule TO filed with the Securities and Exchange Commission (the “SEC”) on November 16, 2012 (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; (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. On November 23, 2012, the Company filed a Current Report on Form 8-K with the SEC that included a presentation regarding the Company made available by the Company to investors. This Current Report is filed as Exhibit (a)(5)(I) to the Schedule TO.

Pursuant to Rule 12b-15 under the Securities and Exchange Act of 1934, as amended, this Amendment No. 1 amends and restates only the items of the Schedule TO that are being amended and restated hereby, and unaffected items and exhibits in the Schedule TO are not included herein. This Amendment No. 1 should be read in conjunction with the Schedule TO and the related Offering Materials, as the same may be further amended or supplemented hereafter and filed with the SEC.

## Item 12. EXHIBITS.

“Item 12 Exhibits” to the Schedule TO is amended and restated as follows:

The following are attached as exhibits to this Schedule TO:

- (a) (1)(A)\* Letter to Holders of Original Warrants
- (1)(B)\* Offer to Amend and Exercise
- (1)(C)\* Form of Election to Participate and Exercise Warrant
- (1)(D)\* Form of Notice of Withdrawal
- (1)(E)\* Form of Bridge Amended Warrant
- (1)(F)\* Form of Investor Amended Warrant
- (1)(G)\* Form of Private Amended Warrant
- (5)(A)\* Current Report on Form 8-K/A containing audited financial statements for the fiscal years ended December 31, 2011 and 2010 (as filed with the SEC on May 11, 2012 and incorporated herein by reference)
- (5)(B)\* Report on Form 10-Q for the quarter ended March 31, 2012 (as filed with the SEC on May 15, 2012 and incorporated herein by reference)
- (5)(C)\* Report on Form 10-Q for the quarter ended June 30, 2012 (as filed with the SEC on August 14, 2012 and incorporated herein by reference)
- (5)(D)\* Report on Form 10-Q for the quarter ended September 30, 2012 (as filed with the SEC on November 13, 2012 and incorporated herein by reference)
- (5)(E)\* Form of Bridge Warrant of Organovo, Inc. (incorporated by reference to Exhibit 4.1 to the Company’s Current Report on Form 8-K, as filed with the SEC on February 13, 2012)
- (5)(F)\* Form of Investor Warrant of Organovo Holdings, Inc. (incorporated by reference to Exhibit 4.4 to the Company’s Current Report on Form 8-K, as filed with the SEC on February 13, 2012)
- (5)(G)\* Form of Private Warrant of Organovo Holdings, Inc. (incorporated by reference to Exhibit 4.3 to the Company’s Current Report on Form 8-K, as filed with the SEC on February 13, 2012)
- (5)(H)\* Registration Statement on Form S-1 (File No. 333-182101), which registers the resale of the shares of common stock underlying the Original Warrants (as declared effective and filed with the SEC on July 6, 2012 and incorporated herein by reference)

(5)(I) Current Report on Form 8-K containing an investor presentation regarding the Company (as filed with the SEC on November 23, 2012 and incorporated herein by reference)

(b) Not applicable.

(d) (1)\* Warrant Agent Agreement, dated November 13, 2012, by and between the Company and Aegis Capital Corp.

(2)\* Registration Rights Agreement, by and between Organovo Holdings, Inc. and the investors in the offering (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, as filed with the SEC on March 16, 2012).

(g) None.

(h) None.

\*Previously filed

**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: November 23, 2012