UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

Form 10-Q

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended September 30, 2017

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission File Number 001-35996

Organovo Holdings, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**27-1488943**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
6275 Nancy Ridge Drive, Suite 110, San Diego, CA 92121	**(858) 224-1000**
(Address of principal executive offices and zip code)	**(Registrant's telephone number, including area code)**

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	☐	Accelerated filer	☒
Non-accelerated filer	☐ (Do not check if a smaller reporting company)	Smaller reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of November 1, 2017, a total of 106,923,570 shares of the registrant's Common Stock, $0.001 par value, were outstanding.

ORGANOVO HOLDINGS, INC.

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PART I—FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Organovo Holdings, Inc.
Condensed Consolidated Balance Sheets
(in thousands except for share data)

	September 30, 2017 (Unaudited)	March 31, 2017 (Audited)
Assets		
Current Assets		
Cash and cash equivalents	$ 50,732	$ 62,751
Accounts receivable	1,033	647
Grant receivable	149	-
Inventory, net	496	550
Prepaid expenses and other current assets	934	1,144
Total current assets	53,344	65,092
Fixed assets, net	3,255	3,840
Restricted cash	127	127
Other assets, net	185	121
Total assets	$ 56,911	$ 69,180
Liabilities and Stockholders' Equity		
Current Liabilities		
Accounts payable	$ 477	$ 1,171
Accrued expenses	2,821	4,101
Deferred revenue	654	582
Deferred rent	173	157
Total current liabilities	4,125	6,011
Deferred revenue, net of current portion	67	58
Deferred rent, net of current portion	661	749
Total liabilities	4,853	6,818
Commitments and Contingencies (Note 4)		
Stockholders' Equity		
Common stock, $0.001 par value; 150,000,000 shares authorized, 106,904,525 and 104,551,466 shares issued and outstanding at September 30, 2017 and March 31, 2017, respectively	107	104
Additional paid-in capital	270,842	261,586
Accumulated deficit	(218,880)	(199,317)
Accumulated other comprehensive income (loss)	(11)	(11)
Total stockholders' equity	52,058	62,362
Total Liabilities and Stockholders' Equity	$ 56,911	$ 69,180

The accompanying notes are an integral part of these condensed consolidated financial statements.

Organovo Holdings, Inc.
Unaudited Condensed Consolidated Statements of Operations and Other Comprehensive Loss
(in thousands except share and per share data)

	Three Months Ended September 30, 2017	Three Months Ended September 30, 2016	Six Months Ended September 30, 2017	Six Months Ended September 30, 2016
Revenues				
Products and services	$ 946	$ 1,023	$ 1,890	$ 1,697
Collaborations and licenses	260	345	306	557
Grants	149	8	149	12
Total Revenues	1,355	1,376	2,345	2,266
Cost of revenues	254	393	555	561
Research and development expenses	4,944	4,544	9,977	8,987
Selling, general, and administrative expenses	5,736	5,918	11,592	10,974
Total costs and expenses	10,934	10,855	22,124	20,522
Loss from Operations	(9,579)	(9,479)	(19,779)	(18,256)
Other Income (Expense)				
Change in fair value of warrant liabilities	—	—	—	(5)
Interest income	118	37	216	74
Total Other Income (Expense)	118	37	216	69
Income Tax Expense	—	—	—	(22)
Net Loss	$ (9,461)	$ (9,442)	$ (19,563)	$ (18,209)
Currency Translation Adjustment	$ —	$ (7)	$ (11)	$ (7)
Comprehensive Loss	$ (9,461)	$ (9,449)	$ (19,574)	$ (18,216)
Net loss per common share—basic and diluted	$ (0.09)	$ (0.10)	$ (0.19)	$ (0.20)
Weighted average shares used in computing net loss per common share—basic and diluted	106,297,699	93,185,400	105,497,939	92,790,850

The accompanying notes are an integral part of these condensed consolidated financial statements.

Organovo Holdings, Inc.
Unaudited Condensed Consolidated Statements of Cash Flows
(in thousands)

	Six Months Ended September 30, 2017	Six Months Ended September 30, 2016
Cash Flows From Operating Activities		
Net loss	$ (19,563)	$ (18,209)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	647	502
Change in fair value of warrant liabilities	—	5
Stock-based compensation	4,350	3,522
Increase (decrease) in cash resulting from changes in:		
Accounts receivable	(386)	(347)
Grants receivable	(149)	—
Inventory	54	(111)
Prepaid expenses and other assets	210	80
Accounts payable	(694)	(33)
Accrued expenses	(1,280)	381
Deferred rent	(72)	(68)
Deferred revenue	81	(631)
Net cash used in operating activities	(16,802)	(14,909)
Cash Flows From Investing Activities		
Purchases of fixed assets	(56)	(452)
Purchases of intangible assets	(70)	—
Net cash used in investing activities	(126)	(452)
Cash Flows From Financing Activities		
Proceeds from issuance of common stock and exercise of warrants, net	4,084	4,500
Proceeds from exercise of stock options	825	500
Net cash provided by financing activities	4,909	5,000
Effect of currency exchange rate changes on cash and cash equivalents	—	(7)
Net (Decrease) in Cash and Cash Equivalents	(12,019)	(10,368)
Cash and Cash Equivalents at Beginning of Period	62,751	62,091
Cash and Cash Equivalents at End of Period	$ 50,732	$ 51,723
Supplemental Disclosure of Cash Flow Information:		
Interest paid	$ —	$ —
Income taxes paid	$ —	$ 22

The accompanying notes are an integral part of these condensed consolidated financial statements.

Note 1. Description of Business and Summary of Significant Accounting Policies

Nature of operations and basis of presentation

References in these notes to the unaudited condensed consolidated financial statements to "Organovo Holdings, Inc.," "Organovo Holdings," "we," "us," "our," "the Company" and "our Company" refer to Organovo Holdings, Inc. and its consolidated subsidiaries. Our consolidated financial statements include the accounts of the Company as well as its wholly-owned subsidiaries, with all material intercompany accounts and transactions eliminated in consolidation. In December 2014, we established a wholly-owned subsidiary, Samsara Sciences, Inc., to focus on the acquisition of qualified cells in support of our commercial and research endeavors. In September 2015, we established another wholly-owned subsidiary in the United Kingdom, Organovo U.K., Ltd., for the primary purpose of establishing a sales presence in Europe.

Since its inception, the Company has devoted its efforts primarily to developing and commercializing a platform technology and functional human tissues that can be employed in drug discovery and development, biological research, and as therapeutic implants for the treatment of damaged or degenerating tissues and organs. The Company has also focused efforts on raising capital and building infrastructure. In November 2014, the Company announced the commercial release of its first product, the ExVive™ Human Liver Tissue for use in toxicology and other drug testing. In September 2016, the Company announced that it had begun commercial contracting for services relating to its second product, the ExVive™ Human Kidney tissue.

The Company's activities are subject to significant risks and uncertainties including failing to successfully develop products and services based on its technology and to achieve the market acceptance necessary to generate sufficient revenues to support its operations and to achieve and sustain profitability.

The accompanying interim condensed consolidated financial statements have been prepared by the Company, without audit, in accordance with the instructions to Form 10-Q and, therefore, do not necessarily include all information and footnotes necessary for a fair statement of its financial position, results of operations, stockholders' equity and cash flows in accordance with generally accepted accounting principles ("GAAP"). The balance sheet at March 31, 2017 is derived from the Company's audited balance sheet at that date.

In the opinion of management, the unaudited financial information for the interim periods presented reflects all adjustments, which are only normal and recurring, necessary for a fair statement of the Company's financial position, results of operations, stockholders' equity and cash flows. These financial statements should be read in conjunction with the financial statements included in the Company's Annual Report on Form 10-K for the year ended March 31, 2017, filed with the Securities and Exchange Commission (the "SEC") on June 7, 2017. Operating results for interim periods are not necessarily indicative of operating results for the Company's fiscal year ending March 31, 2018.

Liquidity

As of September 30, 2017, the Company had cash and cash equivalents of approximately $50.7 million and an accumulated deficit of approximately $218.9 million. The Company also had negative cash flows from operations of approximately $16.8 million during the six months ended September 30, 2017.

Through September 30, 2017, the Company has financed its operations primarily through the sale of convertible notes, the private placement of equity securities, the sale of common stock through public and at-the-market ("ATM") offerings, and through revenue derived from product and research service-based agreements, collaborative research agreements, grants, and licenses. During the six months ended September 30, 2017, the Company issued 1,538,217 shares of its common stock through its ATM facility and received net proceeds of approximately $4.0 million.

On October 25, 2016, the Company closed the issuance and sale of 10,065,000 shares of its common stock in an underwritten public offering. The Company received net proceeds of approximately $25.7 million in the offering, after deducting underwriting discounts and commissions and the Company's expenses. Based on its current operating plan and available cash resources, the Company has sufficient resources to fund its business for at least the next twelve months from the financial statement issuance date.

The Company will need additional capital to further fund the development and commercialization of its human tissues that can be employed in drug discovery and development, biological research, and as therapeutic implants for the treatment of damaged or diseased tissues and organs. The Company intends to cover its future operating expenses through cash on hand, through revenue derived from research service agreements, product sales, collaborative research agreements, grants and royalty payments, and through the issuance of additional equity or debt securities. Depending on market conditions, we cannot be sure that additional financing will be available when needed or that, if available, financing will be obtained on terms favorable to us or to our stockholders.

Having insufficient funds may require us to delay, scale back, or eliminate some or all of our development programs or relinquish rights to our technology on less favorable terms than we would otherwise choose. Failure to obtain adequate financing could eventually adversely affect our ability to operate as a going concern. If we raise additional funds from the issuance of equity securities, substantial dilution to our existing stockholders would likely result. If we raise additional funds by incurring debt financing, the terms of the debt may involve significant cash payment obligations as well as covenants and specific financial ratios that may restrict our ability to operate our business.

Use of estimates

The preparation of the financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates. Significant estimates used in preparing the condensed consolidated financial statements include those assumed in revenue recognized under the proportional performance model, the valuation of stock-based compensation expense, and the valuation allowance on deferred tax assets.

Fair value measurement

The Company had issued warrants, of which some were classified as derivative liabilities as a result of the terms in the warrants that provide for down-round protection in the event of a dilutive issuance. The Company used Level 3 inputs (unobservable inputs that are supported by little or no market activity, and that are significant to the fair value of the assets or liabilities) for its valuation methodology for the warrant derivative liabilities. The estimated fair values were determined using a Monte Carlo option pricing model based on various assumptions. The Company's derivative liabilities were adjusted to reflect estimated fair value at each period end, with any increase or decrease in the estimated fair value being recorded in other income or expense accordingly, as adjustments to the fair value of the derivative liabilities. Various factors are considered in the pricing models the Company used to value the warrants, including the Company's current stock price, the remaining life of the warrant, the volatility of the Company's stock price, and the risk-free interest rate. The remaining warrants expired as of March 31, 2017 and were removed from the Balance Sheet. The Company does not have any financial assets or liabilities measured on a fair value basis as of September 30, 2017 or March 31, 2017.

Revenue recognition

The Company's revenues are derived from research service agreements, product sales, and collaborative research agreements with pharmaceutical and biotechnology companies, as well as grants and license-payments from the National Institutes of Health ("NIH"), U.S. Treasury Department, academic institutions, and private not-for-profit organizations.

The Company recognizes revenue when the following criteria have been met: (i) persuasive evidence of an arrangement exists; (ii) services have been rendered or product has been delivered; (iii) price to the customer is fixed and determinable; and (iv) collection of the underlying receivable is reasonably assured.

Billings to customers or payments received from customers are included in deferred revenue on the balance sheet until all revenue recognition criteria are met. As of September 30, 2017 and March 31, 2017, the Company had approximately $721,000 and $640,000, respectively, in deferred revenue related to its grants and royalty payments, collaborative research programs and research service agreements.

Revenue arrangements with multiple deliverables

The Company follows ASC 605-25 *Revenue Recognition – Multiple-Element Arrangements* for revenue arrangements that contain multiple deliverables. Judgment is required to properly identify the accounting units of the multiple deliverable transactions and to determine the manner in which revenue should be allocated among the accounting units. Moreover, judgment is used in interpreting the commercial terms and determining when all criteria of revenue recognition have been met for each deliverable in order for revenue recognition to occur in the appropriate accounting period. For multiple deliverable agreements, consideration is allocated at the inception of the agreement to all deliverables based on their relative selling price. The relative selling price for each deliverable is determined using vendor-specific objective evidence ("VSOE") of selling price or third-party evidence of selling price if VSOE does not exist. If neither VSOE nor third-party evidence of selling price exists, the Company uses its best estimate of the selling price for the deliverable.

While changes in the allocation of the arrangement consideration between the units of accounting will not affect the amount of total revenue recognized for a particular sales arrangement, any material changes in these allocations could impact the timing of revenue recognition, which could affect the Company's results of operations.

The Company periodically receives license fees for non-exclusive research licensing associated with funded research projects. License fees under these arrangements are recognized over the term of the contract or development period as it has been determined that such licenses do not have stand-alone value.

Revenue from research service agreements

For research service agreements that contain only a single or primary deliverable, the Company defers any up-front fees collected from customers, and recognizes revenue for the delivered element only when it determines there are no uncertainties regarding customer acceptance. For agreements that contain multiple deliverables, the Company follows ASC 605-25 as described above.

Research and development revenue under collaborative agreements

The Company's collaboration revenue consists of license and collaboration agreements that contain multiple elements, which may include non-refundable up-front fees, payments for reimbursement of third-party research costs, payments for ongoing research, payments associated with achieving specific development milestones and royalties based on specified percentages of net product sales, if any. The Company considers a variety of factors in determining the appropriate method of revenue recognition under these arrangements, such as whether the elements are separable, whether there are determinable fair values and whether there is a unique earnings process associated with each element of a contract.

The Company recognizes revenue from research funding under collaboration agreements when earned on a "proportional performance" basis as research services are provided or substantive milestones are achieved. We recognize revenue that is contingent upon the achievement of a substantive milestone in its entirety in the period in which the milestone is achieved. A milestone is considered substantive when the consideration payable to us for the milestone (i) is consistent with our performance necessary to achieve the milestone or the increase in value to the collaboration resulting from our performance, (ii) relates solely to our past performance and (iii) is reasonable relative to all of the other deliverables and payments within the arrangement. In making this assessment, we consider all facts and circumstances relevant to the arrangement, including factors such as the risks that must be overcome to achieve the milestone, the level of effort and investment required to achieve the milestone and whether any portion of the milestone consideration is related to future performance or deliverables.

The Company initially defers revenue for any amounts billed or payments received in advance of the services being performed, and recognizes revenue pursuant to the related pattern of performance, using the appropriate method of revenue recognition based on its analysis of the related contractual element(s).

In November 2014, the Company entered into a collaborative non-exclusive research affiliation with a university medical school and a non-profit medical charity, under which the Company received a one-time grant from the charity towards the placement of a NovoGen Bioprinter at the university for the purpose of developing bioprinted tissues for surgical transplantation research. The Company has recorded $0 and $12,500 for the three months ended September 30, 2017 and 2016 and $0 and $25,000 for the six months ended September 30, 2017 and 2016, respectively, in revenue related to this collaboration in recognition of the proportional performance achieved.

In April 2015, the Company entered into a research collaboration agreement with a third party to develop custom tissue models for fixed fees. Based on the proportional performance achieved under this agreement, $150,000 in collaboration revenue was recorded for the three and six months ended September 30, 2017, and $0 collaboration revenue was recorded for the three and six months ended

September 30, 2016. Approximately $620,000 in collaboration revenue has been recognized to date under this agreement as of September 30, 2017.

Also in April 2015, the Company entered into a multi-year research agreement with a third party to develop multiple custom tissue models for use in drug development. No collaboration revenue was recorded under this agreement during the three and six months ended September 30, 2017. Approximately $332,000 and $533,000 were recorded as revenue in recognition of the proportional performance achieved under this agreement during the three and six months ended September 30, 2016, respectively.

In June 2016, the Company announced it had entered into another collaborative non-exclusive research affiliation with a university medical school and a non-profit medical charity, under which the Company received a one-time grant from the charity towards the placement of a NovoGen Bioprinter at the university for the purpose of developing bioprinted tissues for skeletal disease research. The Company received an up-front payment in June 2016, which was initially recorded as deferred revenue. Revenue of $18,000 and $35,000 has been recorded under this agreement during the three and six months ended September 30, 2017, respectively. No revenue was recorded under this agreement as of September 30, 2016.

In December 2016, the Company signed another collaborative non-exclusive research affiliation with a university medical school and a non-profit medical charity, under which the Company received a one-time grant from the charity towards the placement of a NovoGen Bioprinter at the university for the purpose of developing an architecturally correct kidney for potential therapeutic applications. The Company received an up-front payment in January and March of 2017, which has been recorded as deferred revenue. Revenue of $9,000 and $19,000 has been recorded under this agreement for the three and six months ended September 30, 2017, respectively.

In April 2017, the Company signed a collaborative non-exclusive research affiliation with a university, under which the Company received a one-time non-refundable payment toward the placement of a NovoGen Bioprinter at the university for the purpose of specific research projects mutually agreed by the university and the Company in the field of volumetric muscle loss. The Company received an up-front payment in May of 2017, which has been recorded as deferred revenue. Revenue of approximately $14,000 has been recorded under this agreement for the three and six months ended September 30, 2017, beginning subsequent to the installation of the printer in July 2017. In addition, during April 2017, the Company signed a Non-exclusive Patent License agreement with the university including an annual fee of $75,000 for each of the two years for the license to the Company Patents for research use limited to the field of volumetric muscle loss. The Company received the first annual payment of $75,000 in April of 2017, which has been recorded as deferred revenue. Revenue of $18,750 and $37,500 has been recorded under this agreement for the three and six months ended September 30, 2017.

In September 2017, the Company entered into an agreement with a company, under which the Company received a one-time non-refundable payment of $50,000 for limited use of a Company Patent in reference to four bioprinters developed and placed at research and academic facilities. The Company has recorded $50,000 for the three months and six months ended September 30, 2017.

Product revenue

The Company recognizes product revenue at the time of shipment to the customer, provided all other revenue recognition criteria have been met.

As our commercial sales increase, we expect to establish a reserve for estimated product returns that will be recorded as a reduction to revenue. This reserve will be maintained to account for future return of products sold in the current period. The reserve will be reviewed quarterly and will be estimated based on an analysis of our historical experience related to product returns.

Grant revenue

During August 2013, the Company was awarded a research grant by a private, not-for-profit organization for up to $251,700, contingent on go/no-go decisions made by the grantor at the completion of each stage of research as outlined in the grant award. Revenues from the grant are based upon internal costs incurred that are specifically covered by the grant, plus an additional rate that provides funding for overhead expenses. Revenue is recognized when the Company incurs expenses that are related to the grant. Revenue recognized under this grant was approximately $0 and $8,000 for each of the three months ended September 30, 2017 and 2016 and $0 and $12,000 for each of the six months ended September 30, 2017 and 2016, respectively. The Company has completed its obligations under this agreement as of March 31, 2017.

During July 2017, the NIH awarded the Company a research grant totaling approximately $1,657,000. The grant provides for fixed payments based on the achievement of certain milestones. Revenue is recognized upon completion of substantive milestones. Revenue recognized under this grant was approximately $149,000 for the three and six months ended September 30, 2017.

Cost of revenues

The Company reported $0.3 million and $0.6 million in cost of revenues for the three and six months ended September 30, 2017, respectively. The Company reported $0.4 million and $0.6 million in cost of revenues for the three and six months ended September 30, 2016, respectively. This captures our costs related to manufacturing and delivering our product and service revenue.

Net loss per share

Basic and diluted net loss per share has been computed using the weighted-average number of shares of common stock outstanding during the period. The weighted-average number of shares used to compute diluted loss per share excludes any assumed exercise of stock options and warrants, shares reserved for purchase under the Company's 2016 Employee Stock Purchase Plan ("ESPP"), the assumed release of restriction of restricted stock units, and shares subject to repurchase as the effect would be anti-dilutive. No dilutive effect was calculated for the three and six months ended September 30, 2017 or 2016, as the Company reported a net loss for each respective period and the effect would have been anti-dilutive.

Common stock equivalents excluded from computing diluted net loss per share were approximately 15.4 million at September 30, 2017, and 13.2 million at September 30, 2016.

Note 2. Stockholders' Equity

Stock-based compensation expense and valuation information

Stock-based compensation expense for all stock awards consists of the following (in thousands):

	Three Months Ended September 30, 2017	Three Months Ended September 30, 2016	Six Months Ended September 30, 2017	Six Months Ended September 30, 2016
Research and development	$ 384	$ 379	$ 715	$ 787
General and administrative	$ 1,914	$ 1,714	$ 3,635	$ 2,735
Total	$ 2,298	$ 2,093	$ 4,350	$ 3,522

The total unrecognized compensation cost related to unvested stock option grants as of September 30, 2017 was approximately $10,527,000 and the weighted average period over which these grants are expected to vest is 2.43 years.

The total unrecognized compensation cost related to unvested restricted stock units (not including performance-based restricted stock units) as of September 30, 2017 was approximately $7,027,000, which will be recognized over a weighted average period of 3.18 years.

The total unrecognized compensation cost related to unvested performance-based restricted stock units as of September 30, 2017 was approximately $378,000 which will be recognized over a weighted average period of 2.16 years.

As of September 30, 2017, there was no unrecognized stock-based compensation expense for restricted stock awards.

The total unrecognized stock-based compensation cost related to unvested ESPP shares as of September 30, 2017 was approximately $25,000, which will be recognized over a period of 5 months.

The Company calculates the grant date fair value of all stock-based awards in determining the stock-based compensation expense. Stock-based awards include (i) stock options, (ii) restricted stock awards, (iii) restricted stock units, and (iv) rights to purchase stock under the 2016 Employee Stock Purchase Plan.

The Company uses the Black-Scholes valuation model to calculate the fair value of stock options. Stock-based compensation expense is recognized over the vesting period using the straight-line method. The fair value of stock options was estimated at the grant date using the following weighted average assumptions:

	Three Months Ended September 30, 2017	Three Months Ended September 30, 2016	Six Months Ended September 30, 2017	Six Months Ended September 30, 2016
Dividend yield	—	—	—	—
Volatility	70.97%	72.28%	76.85%	72.04%
Risk-free interest rate	1.78%	1.07%	1.81%	1.1%
Expected life of options	6.00 years	6.00 years	6.00 years	6.00 years
Weighted average grant date fair value	$ 1.25	$ 2.57	$ 1.73	$ 2.44

The assumed dividend yield was based on the Company's expectation of not paying dividends in the foreseeable future. Due to the Company's limited historical data as an early-stage commercial business, the estimated volatility incorporates the historical and implied volatility of comparable companies whose share prices are publicly available. The risk-free interest rate assumption was based on U.S. Treasury rates. The weighted average expected life of options was estimated using the average of the contractual term and the weighted average vesting term of the options. Certain options granted to consultants are subject to variable accounting treatment and are required to be revalued until vested.

The fair value of each restricted stock unit and performance-based restricted stock unit is recognized as stock-based compensation expense over the vesting term of the award. The fair value is based on the closing stock price on the date of the grant.

The fair value of each restricted stock award is recognized as stock-based compensation expense over the vesting term of the award. The fair value is based on the closing stock price on the date of the grant.

The Company uses the Black-Scholes valuation model to calculate the fair value of shares issued pursuant to the Company's ESPP. Stock-based compensation expense is recognized over the purchase period using the straight-line method. The fair value of ESPP shares was estimated at the purchase period commencement date using the following assumptions:

	Three Months Ended September 30, 2017	Three Months Ended September 30, 2016	Six Months Ended September 30, 2017	Six Months Ended September 30, 2016
Dividend yield	—	—	—	—
Volatility	43.03 - 74.70%	72.89%	43.03 - 74.70%	72.89%
Risk-free interest rate	0.79 - 1.10%	0.47%	0.79 - 1.10%	0.47%
Expected term	6 months	6 months	6 months	6 months
Weighted average grant date fair value	$0.52 - $1.04	$1.22	$0.52 - $1.04	$1.22

The assumed dividend yield was based on the Company's expectation of not paying dividends in the foreseeable future. For the first full year of ESPP offering periods, beginning September 1, 2016, due to the Company's limited historical data as an early-stage commercial business, the estimated volatility incorporates the historical and implied volatility of comparable companies whose share prices are publicly available. As of September 1, 2017 and the beginning of the second year of ESPP offering periods, the Company is using our Company-specific volatility rate. The risk-free interest rate assumption was based on U.S. Treasury rates. The expected life is the 6-month purchase period.

Preferred stock

The Company is authorized to issue 25,000,000 shares of preferred stock. There are no shares of preferred stock currently outstanding, and the Company has no current plans to issue shares of preferred stock.

Common stock

In May 2008, the Board of Directors of the Company approved the 2008 Equity Incentive Plan (the "2008 Plan"). The 2008 Plan authorized the issuance of up to 1,521,584 common shares for awards of incentive stock options, non-statutory stock options, restricted stock awards, restricted stock award units, and stock appreciation rights. The 2008 Plan terminates on July 1, 2018. No shares have been issued under the 2008 Plan since 2011, and the Company does not intend to issue any additional shares from the 2008 Plan in the future.

In January 2012, the Board of Directors of the Company approved the 2012 Equity Incentive Plan (the "2012 Plan"). The 2012 Plan authorized the issuance of up to 6,553,986 shares of common stock for awards of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock, restricted stock units, performance units, performance shares, and other stock or cash awards. The Board of Directors and stockholders of the Company approved an amendment to the 2012 Plan in August 2013 to increase the number of shares of common stock that may be issued under the 2012 Plan by 5,000,000 shares. In addition, the Board of Directors and stockholders of the Company approved an amendment to the 2012 Plan in August 2015 to further increase the number of shares of common stock that may be issued under the 2012 Plan by 6,000,000 shares, bringing the aggregate shares issuable under the 2012 Plan to 17,553,986. The 2012 Plan as amended and restated became effective on August 20, 2015 and terminates ten years after such date. As of September 30, 2017, 2,117,682 shares remain available for issuance under the 2012 Plan.

On April 24, 2017, the Company filed a Registration Statement on Form S-8 with the SEC authorizing the issuance of 2,297,034 shares of the Company's common stock, pursuant to the terms of an Inducement Award Stock Option Agreement and an Inducement Award Performance-Based Restricted Stock Unit Agreement (collectively, the "Inducement Award Agreements").

The Company filed a shelf registration statement on Form S-3 (File No. 333-189995), or the 2013 Shelf, with the SEC on July 17, 2013 authorizing the offer and sale in one or more offerings of up to $100,000,000 in aggregate of common stock, preferred stock, debt securities, or warrants to purchase common stock, preferred stock or debt securities, or any combination of the foregoing, either individually or as units comprised of one or more of the other securities. The 2013 Shelf was declared effective by the SEC on July 26, 2013 and was terminated in 2016.

A shelf registration statement on Form S-3 (File No. 333-202382), or the 2015 shelf, was filed with the SEC on February 27, 2015 authorizing the offer and sale in one or more offerings of up to $190,000,000 in aggregate of common stock, preferred stock, debt securities, warrants to purchase common stock, preferred stock or debt securities, or any combination of the foregoing, either individually or as units comprised of one or more of the other securities. The 2015 shelf was declared effective by the SEC on March 17, 2015.

In December 2014, the Company entered into an equity offering sales agreement, or the 2014 Sales Agreement, with an investment banking firm. Under the terms of the distribution agreement, the Company could offer and sell up to $30,000,000 of its shares of common stock, from time to time, through the investment bank in at-the-market offerings, as defined by the SEC, and pursuant to the 2013 Shelf.

On July 20, 2016, the Company filed a prospectus supplement to move the remaining $26.6 million of common stock that previously could have been sold pursuant to the 2014 Sales Agreement under the 2013 Shelf to the 2015 Shelf, which does not expire until March 17, 2018. On that same date, the Company filed a post-effective amendment to the 2013 Shelf de-registering all remaining securities that could have been offered by the Company pursuant to the 2013 Shelf. During the three and six months ended September 30, 2017, the Company issued 398,728 and 1,538,217 shares of common stock, respectively, for net proceeds of $1.0 million and $4.0 million, respectively, in at-the-market offerings under the 2014 Sales Agreement. During the three and six months ended September 30, 2016, the Company issued 997,181 shares of common stock for net proceeds of $4.5 million. As of September 30, 2017, the Company has sold an aggregate of 3,535,398 shares of common stock in at-the-market offerings under the 2014 Sales Agreement, with net proceeds of approximately $14.8 million. Based on sales through September 30, 2017, the Company can sell an additional $17.8 million of shares pursuant to the 2014 Sales Agreement under the 2015 Shelf. The Company intends to use the net proceeds raised through any at-the-market sales for general corporate purposes, including research and development, the commercialization of the Company's products, general administrative expenses, and working capital and capital expenditures.

On June 23, 2015, the Company closed the public offering of 10,838,750 shares of its common stock (the "2015 Offering"), which included the full exercise of the underwriters' over-allotment. The 2015 Offering was effected pursuant to an Underwriting Agreement

(the “2015 Underwriting Agreement”), dated June 18, 2015, with Jefferies LLC and Piper Jaffray & Co. (the “Representatives”), acting as representatives of the underwriters named in the 2015 Underwriting Agreement. The price to the public in the 2015 Offering was $4.25 per share, and the Underwriters agreed to purchase the shares from the Company pursuant to the 2015 Underwriting Agreement at a price of $3.995 per share. The net proceeds to the Company from the 2015 Offering were approximately $43.1 million, after deducting underwriting discounts and commissions and expenses payable by the Company. The 2015 Offering was made pursuant to the 2015 Shelf.

On October 25, 2016, the Company closed the public offering of 10,065,000 shares (the “2016 Offering”) of its common stock, which included partial exercise of the underwriters’ over-allotment. The 2016 Offering was effected pursuant to an Underwriting Agreement (the “2016 Underwriting Agreement”), dated October 20, 2016, with Jefferies LLC (the “Representative”), acting as representative of the underwriters named in the 2016 Underwriting Agreement. The price to the public in the 2016 Offering was $2.75 per share, and the underwriters purchased the shares from the Company pursuant to the 2016 Underwriting Agreement at a price of $2.585 per share. The net proceeds to the Company from the 2016 Offering were approximately $25.7 million after deducting underwriting discounts and commissions and expenses payable by the Company. The 2016 Offering was made pursuant to the 2015 Shelf.

During the three months ended September 30, 2017 and 2016, the Company issued 0 and 123,104 shares of common stock upon the exercise of 0 and 160,000 warrants, respectively. During the six months ended September 30, 2017 and 2016, the Company issued 0 and 123,104 shares of common stock up on the exercise of 0 and 160,000 warrants, respectively.

During the three months ended September 30, 2017 and 2016, the Company issued 500,000 and 206,266 shares of common stock upon the exercise of 500,000 and 206,266 stock options, respectively. During the six months ended September 30, 2017 and 2016, the Company issued 500,000 and 206,266 shares of common stock upon the exercise of 500,000 and 206,266 stock options, respectively.

Restricted stock awards

During the three months ended September 30, 2017 and 2016, there were 0 and 0 shares of restricted stock, respectively, cancelled related to shares of common stock returned to the Company, at the option of the holders, to cover the tax liability related to the vesting of 0 and 0 restricted stock awards, respectively. During the six months ended September 30, 2017 and 2016, there were 0 and 2,259 shares of restricted stock, respectively, cancelled related to shares of common stock returned to the Company, at the option of the holders, to cover the tax liability related to the vesting of 0 and 6,250 restricted stock awards, respectively. Upon the return of the common stock, an equal number of stock options with immediate vesting were granted to the individuals at the vesting date market value strike price.

Restricted stock units

During the three and six months ended September 30, 2017, the Company issued restricted stock units for an aggregate of 7,000 and 1,869,078 shares of common stock, respectively, to its employees and directors. These shares of common stock will be issued upon vesting of the restricted stock units. Vesting generally occurs (i) on the one-year anniversary of the grant date, (ii) quarterly over a three-year period, (iii) quarterly over a four-year period, (iv) over a four-year period, with 25% vesting on the one-year anniversary of the vesting commencement date and the remainder vesting ratably on a quarterly basis over the next twelve quarters, or (v) over a three-year period with 50% vesting on the two-year anniversary of the vesting commencement date and 50% vesting on the three-year anniversary of the vesting commencement date.

A summary of the Company’s restricted stock unit (not including performance-based restricted stock units) activity from March 31, 2017 through September 30, 2017 is as follows:

	Number of Shares		Weighted Average Price
Unvested at March 31, 2017	1,178,114	$	3.57
Granted	1,869,078	$	2.66
Vested	(263,594)	$	3.45
Cancelled / forfeited	(154,924)	$	3.04
Unvested at September 30, 2017	2,628,674	$	2.96

Performance-based restricted stock units

On April 24, 2017, in connection with the appointment of a new CEO, the Company allocated 208,822 Performance-Based Restricted Stock Units outside of the 2012 Plan. The Company intends for these to be “inducement awards” within the meaning of NASDAQ Marketplace Rule 5635(c)(4). While outside the Company’s 2012 Plan, the terms and conditions of these awards are consistent with

awards granted to the Company's executive officers pursuant to the 2012 Plan. On August 23, 2017, the Board of Directors formally approved the vesting criteria for the Performance-Based Restricted Stock Units ("PBRSUs") allocated by the Company on April 24, 2017. The units are divided into five separate tranches each with independent vesting criteria. The first four tranches have performance criteria related to annual revenue goals with measurement at the end of fiscal year 2018 (20 percent), fiscal year 2019 (20 percent), fiscal year 2020 (20 percent), and fiscal year 2021 (20 percent). The fifth tranche has a performance metric related to a path to profitability goal measured as Negative Adjusted EBITDA achievable at any point between the grant date and the end of fiscal year 2020 (20 percent). The number of units that ultimately vest for each tranche will range from 0 percent to 120 percent of the target amount, not to exceed 208,822 in aggregate. As of September 30, 2017, no tranches had vested and 100% of current year tranches are expected to vest.

The grant date fair values of the tranches are collectively $393,000 of which one-fifth is being recognized over each tranches' service period. The Company began recording stock-based compensation expense for these tranches after the August 23, 2017 grant date when the financial performance goals were established and approved. As of September 30, 2017, PBRSUs from the fiscal year 2018 tranche and the Negative Adjusted EBITDA tranche have begun vesting and are expected to vest in the amount of 83,530 shares.

A summary of the Company's performance-based restricted stock unit activity from March 31, 2017 through September 30, 2017 is as follows:

	Number of Shares	Weighted Average Price
Unvested at March 31, 2017	—	$ —
Granted	208,822	$ 1.88
Vested	—	$ —
Cancelled / forfeited	—	$ —
Unvested at September 30, 2017	208,822	$ 1.88

Stock options

Under the 2012 Plan, 260,000 and 1,386,500 stock options were issued during the three months ended September 30, 2017 and 2016, respectively, and 2,366,812 and 1,803,140 stock options were issued during the six months ended September 30, 2017 and 2016, respectively, at various exercise prices based on the closing market price of the Company's common stock on the date of the grant. The stock options generally vest (i) on the one-year anniversary of the grant date, (ii) quarterly over a three-year period, or (iii) over a four-year period with a quarter vesting on either the one year anniversary of employment or the one year anniversary of the vesting commencement date, and the remainder vesting ratably over the remaining 36 month terms. Stock options can also vest immediately at the grant date or vest after one full year.

On April 24, 2017, in connection with the appointment of a new CEO, the Company granted 2,088,212 stock options outside of the 2012 Plan. The Company intends for these to be "inducement grants" within the meaning of NASDAQ Marketplace Rule 5635(c)(4). While granted outside the Company's 2012 Plan, the terms and conditions of these awards are consistent with awards granted to the Company's executive officers pursuant to the 2012 Plan. These stock options vest over a four-year period with a quarter vesting on either the one year anniversary of employment or the one year anniversary of the vesting commencement date.

A summary of the Company's stock option activity from March 31, 2017 to September 30, 2017 is as follows:

	Options Outstanding	Weighted-Average Exercise Price	Aggregate Intrinsic Value
Outstanding at March 31, 2017	10,956,201	$ 4.63	$ 4,876,437
Options granted	2,366,812	$ 2.65	$ —
Options cancelled / forfeited	(493,050)	$ 4.41	$ —
Options exercised	(500,000)	$ 1.65	$ 235,000
Outstanding at September 30, 2017	12,329,963	$ 4.38	$ 1,812,776
Vested and Exercisable at September 30, 2017	7,265,871	$ 4.92	$ 1,723,601

The weighted-average remaining contractual term of options exercisable and outstanding at September 30, 2017 was approximately 6 years.

Employee Stock Purchase Plan

In June 2016, our Board of Directors adopted, and in August 2016 stockholders subsequently approved, the 2016 Employee Stock Purchase Plan. We reserved 1,500,000 shares of common stock for issuance thereunder. The ESPP permits employees after five months of service to purchase common stock through payroll deductions, limited to 15 percent of each employee's compensation up to the lower of $25,000 or 10,000 shares per employee per year. Shares under the ESPP are purchased at 85 percent of the fair market value at the lower of (i) the closing price on the first trading day of the six-month purchase period or (ii) the closing price on the last trading day of the six-month purchase period. The initial offering period commenced in September 2016. At September 30, 2017, there were 1,372,960 shares available for purchase under the ESPP.

Warrants

During the three and six months ended September 30, 2017, there were no warrant exercises. During the three and six months ended September 30, 2016, 160,000 warrants were exercised through a cashless exercise provision in exchange for the issuance of 123,104 shares of common stock.

The following table summarizes warrant activity for the six months ended September 30, 2017:

	Warrants		Weighted-Average Exercise Price
Balance at March 31, 2017	221,370	$	7.16
Granted	—	$	—
Exercised	—	$	—
Cancelled	—	$	—
Balance at September 30, 2017	221,370	$	7.16

The warrants outstanding at September 30, 2017 are exercisable at prices between $2.28 and $7.62 per share, and have a weighted average remaining term of approximately 1.36 years.

Common stock reserved for future issuance

Common stock reserved for future issuance consisted of the following at September 30, 2017:

Common stock warrants outstanding	221,370
Common stock options outstanding under the 2008 Plan	622,192
Common stock options outstanding and reserved under the 2012 Plan	11,737,241
Common stock reserved under the 2016 Employee Stock Purchase Plan	1,372,960
Restricted stock units outstanding under the 2012 Plan	2,628,674
Common stock options outstanding and reserved under the Inducement Awards	2,088,212
Restricted stock units outstanding under the Inducement Awards	208,822
Total at September 30, 2017	18,879,471

Note 3. Commitments and Contingencies

Operating leases

The Company leases laboratory and office space in San Diego, California under two non-cancelable leases as described below.

Since July 2012, the Company has leased its main facilities at 6275 Nancy Ridge Drive, San Diego, California 92121. The lease, as amended in 2013, 2015 and 2016, consists of approximately 45,580 rentable square feet containing laboratory, clean room and office space. Monthly rental payments are currently approximately $120,000 per month with 3% annual escalators. The lease term for 14,685 of the total rentable square footage expires on December 15, 2018, with the remainder of the rentable square footage expiring on September 1, 2021 with the Company having an option to terminate this lease on or after September 1, 2019.

On January 9, 2015, the Company entered into an agreement to lease a second facility consisting of 5,803 rentable square feet of office and lab space located at 6310 Nancy Ridge Drive, San Diego, California 92121. The term of the lease is 36 months, beginning on February 1, 2015 and ending on January 31, 2018, with monthly rental payments of approximately $12,000 commencing on April 1, 2015. In addition, there are annual rent escalations of 3% on each 12-month anniversary of the lease commencement date.

In addition to these two leases, the Company leased a third facility from February 1, 2016 through January 31, 2017, consisting of 12,088 rentable square feet of office space located at 6166 Nancy Ridge Drive, San Diego, California 92121 with a monthly rent of $15,000.

The Company records rent expense on a straight-line basis over the life of the leases and records the excess of expense over the amounts paid as deferred rent. In addition, one of the leases provides for certain improvements made for the Company's benefit to be funded by the landlord. Such costs, totaling approximately $518,000 to date, have been capitalized as fixed assets and included in deferred rent.

Rent expense was approximately $365,000 and $302,000 for the three months ended September 30, 2017 and 2016, respectively, and $731,000 and $605,000 for the six months ended September 30, 2017 and 2016, respectively.

Future minimum rental payments required under operating leases that have initial or remaining non-cancelable lease terms in excess of one year as of September 30, 2017, are as follows (in thousands):

Fiscal year ended March 31, 2018	794
Fiscal year ended March 31, 2019	1,465
Fiscal year ended March 31, 2020	1,073
Fiscal year ended March 31, 2021	1,104
Fiscal year ended March 31, 2022	467
Thereafter	—
Total	4,903

Legal Matters

In addition to commitments and obligations in the ordinary course of business, the Company may be subject, from time to time, to various claims and pending and potential legal actions arising out of the normal conduct of its business. The Company assesses contingencies to determine the degree of probability and range of possible loss for potential accrual in its financial statements. Because litigation is inherently unpredictable and unfavorable resolutions could occur, assessing litigation contingencies is highly subjective and requires judgments about future events. When evaluating contingencies, the Company may be unable to provide a meaningful estimate due to a number of factors, including the procedural status of the matter in question, the presence of complex or novel legal theories, and/or the ongoing discovery and development of information important to the matters. In addition, damage amounts claimed in litigation against it may be unsupported, exaggerated or unrelated to possible outcomes, and as such are not meaningful indicators of its potential liability.

The Company regularly reviews contingencies to determine the adequacy of its accruals and related disclosures. During the period presented, the Company has not recorded any accrual for loss contingencies associated with such claims or legal proceedings; determined that an unfavorable outcome is probable or reasonably possible; or determined that the amount or range of any possible loss is reasonably estimable. However, the outcome of legal proceedings and claims brought against the Company is subject to significant uncertainty. Therefore, although management considers the likelihood of such an outcome to be remote, if one or more of these legal matters were resolved against the Company in a reporting period, the Company's consolidated financial statements for that reporting period could be materially adversely affected.

Note 4. Concentrations

Credit risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of temporary cash investments. The Company maintains cash balances at various financial institutions primarily located within the United States. Accounts at these institutions are secured by the Federal Deposit Insurance Corporation. Balances may exceed federally insured limits. The Company has not experienced losses in such accounts, and management believes that the Company is not exposed to any significant credit risk with respect to its cash and cash equivalents.

The Company is also potentially subject to concentrations of credit risk in its revenues and accounts receivable. Because it is in the early commercial stage, the Company's revenues to date have been derived from a relatively small number of customers and collaborators. However, the Company has not historically experienced any accounts receivable write-downs and management does not believe significant credit risk exists as of September 30, 2017.

Note 5. Related Parties

The Company has entered into two agreements with related parties in the ordinary course of its business and on terms and conditions it believes are as fair as those it offers and receives from independent third parties. Each agreement was ratified by the Company's Board of Directors or a committee thereof pursuant to its related party transaction policy. In August 2017, the Company entered into a services agreement with Cirius Tx, Inc., an entity for which Robert Baltera, Jr., a director of the Company, serves as Chief Executive Officer. Under this agreement, the Company has provided ExVive™ Liver Tissue Services for Cirius amounting to $50,000 in the three and six months ended September 30, 2017. The agreement contains another $44,000 of ExVive™ Liver Tissue Services to be completed in the third quarter of fiscal 2018.

In November 2017, the Company entered into a collaboration agreement with Viscient Biosciences, an entity which Keith Murphy, a former director and Chief Executive Officer of the Company, serves as Chief Executive Officer. Under this agreement, the parties intend to develop a custom research platform for studying liver disease. The Company expects the platform to expand its current service portfolio for compound screening in disease models, which aids the drug discovery work for other customers. Viscient intends to target early discovery work for non-alcoholic fatty liver disease ("NAFLD") and non-alcoholic steatohepatitis ("NASH"). Under this agreement, the Company will provide research services to Viscient amounting to $287,000 to be completed in fiscal 2018. For the three and six months ended September 30, 2017, this contract had no financial impact.

Note 6. Recent Accounting Pronouncements

In May 2014, the FASB issued Accounting Standards Update ("ASU") No. 2014-09, Revenue from Contracts with Customers, which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The standard will replace most existing revenue recognition guidance in U.S. GAAP when it becomes effective. The new standard was originally effective for public companies for annual reporting periods beginning after December 15, 2016, with no early application permitted. In August 2015, the FASB issued ASU No. 2015-14 that defers by one year the effective date for all entities, with application permitted as of the original effective date. The updated standard becomes effective for us on April 1, 2018, with early adoption permitted as of April 1, 2017. The standard permits the use of either the retrospective or cumulative effect transition method. We are evaluating the effect that this update will have on our consolidated financial statements and related disclosures. We have not yet selected a transition method nor have we determined the effect of this updated standard on our ongoing financial reporting. We do not have plans to adopt this standard prior to the effective date.

In February 2016, the FASB issued ASU 2016-02, Leases, which requires an entity to recognize lease assets and lease liabilities on the balance sheet for leases with terms of more than 12 months and to disclose key information about leasing arrangements. This new guidance is effective for us on April 1, 2019, with early adoption permitted in any interim or annual period. The Company is currently evaluating the impact that this guidance will have on its financial statements and related disclosures.

In March 2016, the FASB issued ASU 2016-09, Compensation-Stock Compensation (Topic 718), which requires an entity recognize excess tax benefits and deficiencies as income tax expense or benefit, the cash flows of which should be included as operating activity in the statement of cash flows. An entity is allowed to either continue accruing compensation cost based on expected forfeitures or to begin recognizing expense as forfeitures occur. In addition, an entity may withhold the maximum statutory tax, increasing the allowable cash settlement portion of awards. The cash paid by an employer when directly withholding shares for tax purposes should be included in the financing activity section of the statement of cash flows. This new guidance became effective for us on April 1, 2017. The requirements of ASU 2016-09 did not have a significant impact on our consolidated financial statements.

Note 7. Subsequent Events

On October 4, 2017, the Company announced a plan to restructure its business to better focus and align resources, reducing approximately 15 positions, or 13% of its overall workforce. The internal reorganization intends to improve operational efficiency, consolidate overlapping positions, and streamline the Company's management structure. As a result, the Company expects to record a restructuring charge in the fiscal third quarter of approximately $0.9 million, primarily related to employee severance and benefits costs. The actions associated with the restructuring announcement are anticipated to be complete by the end of fiscal third quarter 2018 with liabilities anticipated to be paid by the end of fiscal third quarter 2019.
In November 2017, the Company entered into a collaboration agreement with Viscient Biosciences, an entity which Keith Murphy, a former director and Chief Executive Officer of the Company, serves as Chief Executive Officer. See Note 5 for discussion of Related Parties.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following management's discussion and analysis of financial condition and results of operations should be read in conjunction with the Company's historical consolidated financial statements and the related notes thereto included in our Annual Report on Form 10-K for the fiscal year ended March 31, 2017. This discussion and analysis contains forward-looking statements, such as statements related to our plans, objectives, expectations and intentions. Any statements that are not statements of historical fact are forward-looking statements. When used, the words "believe," "plan," "intend," "anticipate," "target," "estimate," "expect" and the like, and/or future tense or conditional constructions such as "will," "may," "could," "should," or similar expressions, identify certain of these forward-looking statements. These forward-looking statements speak only as of the date of this Quarterly Report on Form 10-Q and are subject to risks and uncertainties, including those described in this Quarterly Report on Form 10-Q, as well as the risk factors disclosed in our Annual Report on the Form 10-K for the fiscal year ended March 31, 2017, filed with the Securities and Exchange Commission on June 7, 2017, that could cause our actual results or events to differ materially from those expressed or implied by such forward-looking statements. Except to the limited extent required by applicable law, the Company does not undertake any obligation to update forward-looking statements to reflect events or circumstances occurring after the date of this Quarterly Report.

Basis of Presentation

References in this section to "Organovo Holdings, Inc.," "Organovo Holdings," "we," "us," "our," "the Company" and "our Company" refer to Organovo Holdings, Inc. and its consolidated subsidiaries.

On February 8, 2012, Organovo, Inc., a privately held Delaware corporation, merged with and into Organovo Acquisition Corp., a wholly-owned subsidiary of the Company, with Organovo, Inc. surviving the merger as a wholly-owned subsidiary of the Company (the "Merger"). As a result of the Merger, the Company acquired and has continued the business of Organovo, Inc.

Organovo, Inc. was founded in Delaware in April 2007. Activities since Organovo, Inc.'s inception through September 30, 2017 have been devoted primarily to technology and product development, raising capital and building infrastructure.

In addition, in September 2015, we established a wholly-owned subsidiary, Organovo UK, Ltd., to establish a sales presence in Europe. As of September 30, 2017, there has been no significant activity related to this subsidiary.

In January 2016, we announced that our wholly-owned subsidiary, Samsara, commenced commercial operations. We formed Samsara to serve as a key source of certain of the primary human cells that we utilize in our products and services and in the development of therapeutic products. In addition to serving as one of our key suppliers, Samsara offers human cells for research use by life science customers, both directly and through distribution partners.

The condensed consolidated financial statements included in this Form 10-Q have been prepared in accordance with the Securities and Exchange Commission (the "SEC") instructions to Quarterly Reports on Form 10-Q. Accordingly, the condensed consolidated financial statements presented elsewhere in this Form 10-Q and discussed below are unaudited and do not contain all the information required by U.S. generally accepted accounting principles ("GAAP") to be included in a full set of financial statements. The audited financial statements for the year ended March 31, 2017, filed with the SEC on Form 10-K on June 7, 2017 include a summary of our significant accounting policies and should be read in conjunction with this Form 10-Q. In the opinion of management, all material adjustments necessary to present fairly the results of operations for such periods have been included in this Form 10-Q. All such adjustments are of a normal recurring nature. The results of operations for interim periods are not necessarily indicative of the results of operations for the entire year.

Overview

We are an early commercial stage company focused on developing and commercializing functional human tissues that can be employed in drug discovery and development, biological research, and as therapeutic implants for the treatment of damaged or diseased tissues and organs. We are advancing a paradigm shift in the generation of three-dimensional ("3D") human tissues, by utilizing our proprietary platform technology to create human tissue constructs in 3D that mimic native human tissue composition, architecture, and function. We leverage our unique 3D human tissue models to improve the current industry standard cell-based and animal model testing approaches to drug discovery and development by creating 3D tissues constructed solely of human cells. We believe our foundational approach to the 3D printing of living tissues, as disclosed in peer-reviewed scientific publications, and the continuous evolution of our core bioengineering technology platform combine to provide us with the opportunity to fill many critical gaps in commercially available human tissue modeling and tissue transplantation.

In November 2014, we announced the commercial release of our first product, the ExVive™ Human Liver Tissue for use in toxicology and other high-value drug profiling including compound screening in disease models. Initial revenues derived from the product have been and will continue to be predominantly through our fee-based research service model, which involves testing compounds provided to us for analysis by our customers. Prior to initiating the service, our technical staff assists customers in determining the extent of testing to be conducted utilizing our ExVive™ Human Liver Tissue. Testing may include the analysis of one or multiple compounds under various dosing and duration protocols to determine toxicity, metabolic and other effects of the test compounds on healthy or diseased tissue models. Projects may involve multiple deliverables which are clearly defined and based on pricing as stated in the related customer agreements.

In September 2016, we began commercial contracting for our second tissue service, the ExVive™ Human Kidney Tissue. This kidney proximal tubule model is a natural expansion of our preclinical product and service portfolio, allowing customers to study the effects of drug exposure on a key portion of the human kidney relevant to drug discovery and development.

In addition to our ExVive™ Human Liver Tissue and ExVive™ Human Kidney Tissue, we have entered into collaborative research agreements with pharmaceutical corporations and academic medical centers to develop new tissue models. We have also secured federal grants, including National Institute of Health grants, to support the development of our technology.

In October 2016, we announced our plan to develop 3D bioprinted human liver tissue for direct transplantation to patients. Our program to develop this therapeutic tissue is based on the achievement of promising results in early preclinical animal studies demonstrating engraftment, vascularization and sustained functionality of our bioprinted liver tissue, including stable detection of human liver-specific proteins and metabolic enzymes and a significant reduction in the pathologic hallmarks of certain target diseases. We are pursuing this opportunity with a formal preclinical development program.

We continuously engage in research and development to enhance our platform technology, to develop new product and service offerings and to pursue our therapeutic initiatives. Our research and development efforts include internal initiatives as well as collaborative development opportunities with third parties.

Critical Accounting Policies, Estimates, and Judgments

Our financial statements are prepared in accordance with GAAP. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. We continually evaluate our estimates and judgments, the most critical of which are those related to revenue recognition, valuation of long-lived assets and warrant liability, stock-based compensation and the timing of the achievement of collaboration milestones. We base our estimates and judgments on historical experience and other factors that we believe to be reasonable under the circumstances. Materially different results can occur as circumstances change and additional information becomes known. Besides the estimates identified above that are considered critical, we make many other accounting estimates in preparing our financial statements and related disclosures. All estimates, whether or not deemed critical, affect reported amounts of assets, liabilities, revenues and expenses, as well as disclosures of contingent assets and liabilities. These estimates and judgments are also based on historical experience and other factors that are believed to be reasonable under the circumstances. Materially different results can occur as circumstances change and additional information becomes known, even for estimates and judgments that are not deemed critical.

For further information, refer to the Company’s audited financial statements and notes thereto included in the Annual Report on Form 10-K for the year ended March 31, 2017, filed with the SEC on June 7, 2017.

Results of Operations

Comparison of the three months ended September 30, 2017 and 2016

Revenues

For the three months ended September 30, 2017, total revenue of $1.4 million was unchanged from the three months ended September 30, 2016. Product and service revenue of approximately $0.9 million for the three months ended September 30, 2017 decreased 10% from the prior-year period. This decrease was primarily driven by a less than $0.1 million reduction in contracts for our liver tissue toxicology research services, which was partially offset by an increase in contracts for our liver tissue disease modeling research services and sales of primary human cell and tissue products. Collaboration revenue and royalty revenue decreased less than $0.1 million as compared to the three months ended September 30, 2016 due to the absence of revenue from a collaboration agreement that was completed in fiscal 2017, which was offset by increased revenue from three new research collaboration and

limited technology access licensing agreements and two new non-exclusive patent license agreements. Grant revenue increased by more than $0.1 million for the three months ended September 30, 2017 due to the commencement of our NIH/SBIR NASH grant.

Costs and Expenses

Cost of Revenues

Cost of product and service revenues, which reflects expenses related to manufacturing our products and delivering services was $0.3 million for the three months ended September 30, 2017, compared to $0.4 million for the three months ended September 30, 2016. The decrease was primarily due to an increase in the mix of sales of higher margin primary human cell and tissue products over the prior year period.

Research and Development Expenses

Research and development expenses were approximately $4.9 million, an increase of $0.4 million, or 9%, from the prior year period. The increase was primarily due to a $0.2 million increase in facility expenses and a $0.1 million increase in staffing expense due to increased salaries, which offset a small decrease in full-time research and development staff from an average of seventy-nine full-time employees for the three months ended September 30, 2016 to an average of seventy-eight full-time employees for the three months ended September 30, 2017.

Selling, General and Administrative Expenses

For the three months ended September 30, 2017, selling, general and administrative expenses were approximately $5.7 million, a decrease of $0.2 million, or 3%, over the prior year period of approximately $5.9 million. This decrease was largely due to a decrease in other corporate costs of $0.3 million and a decrease in facilities costs of $0.1 million, which more than offset a $0.2 million increase in share-based compensation expense over the prior year period. The Company's average selling, general and administrative headcount of thirty-six employees for the three months ended September 30, 2017 was unchanged from the prior year period.

Other Income (Expense)

Other income was approximately $0.1 million for the three months ended September 30, 2017, and consisted primarily of interest income. For the three months ended September 30, 2016, other income of less than $0.1 million consisted primarily of interest income. Interest income increased from the same period of fiscal 2017 due to higher average yields on short-term investment balances.

Comparison of the six months ended September 30, 2017 and 2016

Revenues

For the six months ended September 30, 2017, total revenue of $2.3 million was unchanged from the six months ended September 30, 2016. Product and service revenue of approximately $1.9 million for the six months ended September 30, 2017 increased 12% over the six months ended September 30, 2016. This increase was driven by an increase in sales of primary human cell and tissue products by our Samsara Sciences subsidiary and contracts for our liver tissue disease modeling research services, which more than offset the reduction in contracts for our liver tissue toxicology research services. Collaboration revenue decreased $0.3 million as compared to the six months ended September 30, 2016 due to the absence of revenues from a collaboration agreement that was completed in fiscal 2017. Grant revenue and royalty revenues each increased by $0.1 million in the six months ended September 30, 2017 due to the commencement of our NIH/SBIR NASH grant and 2 new license agreements during the fiscal 2018 period.

Costs and Expenses

Cost of Revenues

Cost of product and service revenues, which reflects expenses related to manufacturing our products and delivering services was $0.6 million for each of the six-month periods ended September 30, 2017 and 2016.

Research and Development Expenses

Research and development expenses were approximately $10.0 million for the six months ended September 30, 2017, an increase of $1.0 million, or 11%, from the prior year period. The increase was primarily due to a $0.4 million increase in facility

expenses, a $0.3 million increase in materials costs, a $0.1 million increase in consulting and outside services costs related to our therapeutic pre-clinical program and a $0.1 million increase in staffing expense due to an increase in salaries, which offset a small decrease in full-time research and development staff from an average of eighty full-time employees for the six months ended September 30, 2016 to an average of seventy-eight full-time employees for the six months ended September 30, 2017.

Selling, General and Administrative Expenses

For the six months ended September 30, 2017, selling, general and administrative expenses were approximately $11.6 million, an increase of $0.6 million, or 5%, over the prior year period. This increase was largely due to a $0.9 million increase in share-based compensation costs and a $0.3 million increase in staffing costs, which more than offset a decrease in other corporate costs of $0.4 million and a decrease in facilities costs of $0.2 million. The Company's average selling, general and administrative headcount was thirty-six employees in the first half of fiscal 2018 versus thirty-five employees in the prior year period.

Other Income (Expense)

Other income was approximately $0.2 million for the six months ended September 30, 2017, and consisted primarily of interest income. For the six months ended September 30, 2016, other income of $0.1 million consisted primarily of interest income. Interest income increased from the same period of fiscal 2017 due to higher average yields on short-term investment balances.

Financial Condition, Liquidity and Capital Resources

The Company has primarily devoted its efforts to technology and product development, raising capital and building infrastructure. In November 2014, the Company announced the full commercial release of its first product, the ExVive™ Human Liver Tissue for use in toxicology and other preclinical drug testing, and in September 2016, the Company began commercial contracting for our second tissue service, the ExVive™ Human Kidney Tissue. The Company has built a sales and marketing and research and development infrastructure to support the commercialization of research services for the ExVive™ Human Liver Tissue and the ExVive™ Human Kidney Tissue.

As of September 30, 2017, the Company had cash and cash equivalents of approximately $50.7 million and an accumulated deficit of $218.9 million. The Company also had negative cash flow from operations of $16.8 million during the six months ended September 30, 2017. At March 31, 2017, the Company had cash and cash equivalents of approximately $62.8 million and an accumulated deficit of $199.3 million.

At September 30, 2017, the Company had total current assets of approximately $53.3 million and current liabilities of approximately $4.1 million, resulting in working capital of $49.2 million. At March 31, 2017, the Company had total current assets of approximately $65.1 million and current liabilities of approximately $6.0 million, resulting in working capital of $59.1 million.

Net cash used by operating activities for the six months ended September 30, 2017 was approximately $16.8 million as compared to $14.9 million used in operating activities for the six months ended September 30, 2016. This $1.9 million increase in cash usage can be attributed primarily to a $1.5 million increase in working capital and an increase in cash operating expenses.

Net cash used in investing activities was approximately $0.1 million and $0.5 million for the six months ended September 30, 2017 and 2016, respectively. This decrease can be attributed to reduced capital spending, partially offset by investing in patent related intangible assets during the six months ended September 30, 2017.

Net cash provided by financing activities was approximately $4.9 million during the six months ended September 30, 2017 due primarily to the $4.1 million net proceeds raised from the sale of common stock in "at-the-market" offerings and approximately $0.8 million through stock option exercises. Net cash provided by financing activities was approximately $5.0 million during the six months ended September 30, 2016 due primarily to the Company net proceeds of $4.5 million through the sale of common stock in "at-the-market" offerings and approximately $0.5 million through stock option exercises. The Company intends to use these net proceeds for general corporate purposes, including research and development, the commercialization of our products, general administrative expenses, and working capital and capital expenditures.

Through September 30, 2017, we have financed our operations primarily through the sale of convertible notes, the private placement of equity securities, the sale of common stock through public and at-the-market ("ATM") offerings, and from revenue derived from grants and royalty payments, collaborative research agreements, product sales and research-based services. Based on our current operating plan and available cash resources, we have sufficient resources to fund our ongoing operations as currently planned for at least the next twelve months from the financial statement issuance date.

Our future capital needs will depend on the revenues we generate through our commercialization efforts and the resources we elect to spend to pursue our product development efforts and implement our business plan. As a result, we cannot predict with certainty when we may be required or otherwise elect to secure additional capital to fund our future operations and business plans.

We intend to cover our future operating expenses through cash on hand, revenue derived from research service agreements, product sales, grants and royalty payments, and collaborative research agreements and through the issuance of additional equity or debt securities. Depending on market conditions, we cannot be sure that additional financing will be available when needed or that, if available, financing will be obtained on terms favorable to us or to our stockholders.

The Company has an effective shelf registration statement on Form S-3 (File No. 333-202382), or the 2015 Shelf, that expires on March 17, 2018. As of September 30, 2017, the Company is authorized to offer and sell under the 2015 Shelf, in one or more offerings, common stock, preferred stock, debt securities, warrants to purchase common stock, preferred stock or debt securities, or any combination of the foregoing, either individually or units compromised one or more of the other securities. On July 20, 2016, the Company filed a prospectus supplement to the 2015 Shelf to move from an expiring shelf registration statement the remaining $26.6 million of common stock that previously could have been sold in ATM offerings pursuant to an equity offering sales agreement it had entered into with an investment banking firm in December 2014. During the six months ended September 30, 2017, the Company sold 1,538,217 shares of common stock in ATM offerings, with net proceeds of approximately $4.0 million, leaving an additional $17.8 million that can be raised through this ATM program.

Based on its use of the 2015 Shelf through September 30, 2017, the Company can offer an aggregate of $107.5 million in future offerings under the 2015 Shelf, including its ATM program.

Having insufficient funds may require us to delay, scale back, or eliminate some or all of our development programs or relinquish rights to our technology on less favorable terms than we would otherwise choose. Failure to obtain adequate financing could eventually adversely affect our ability to operate as a going concern. If we raise additional funds from the issuance of equity securities, substantial dilution to our existing stockholders would likely result. If we raise additional funds by incurring debt financing, the terms of the debt may involve significant cash payment obligations as well as covenants and specific financial ratios that may restrict our ability to operate our business.

As of September 30, 2017, the Company had 106,904,525 total issued and outstanding shares of common stock, and five-year warrants for the opportunity to purchase an additional 221,370 shares of common stock at exercise prices between $2.28 and $7.62 per share.

In addition, the Company’s 2008 Equity Incentive Plan provides for the issuance of up to 896,256 shares of its outstanding common stock and the 2012 Equity Incentive Plan, as amended, provides for the issuance of up to 17,553,986 shares of its common stock, to executive officers, directors, advisory board members, employees and consultants. The Company has also issued time-based and performance-based inducement awards for up to 2,297,034 shares of its common stock. Additionally, 1,500,000 shares of common stock have been reserved for issuance under the 2016 Employee Stock Purchase Plan. In aggregate, issued and outstanding common stock, shares underlying outstanding warrants, and shares issuable under outstanding equity awards or reserved for future issuance under the 2008 and 2012 Equity Incentive Plans and the 2016 Employee Stock Purchase Plan total 125,783,996 shares of common stock as of September 30, 2017.

Off-Balance Sheet Arrangements

We have no off-balance sheet arrangements, including unrecorded derivative instruments that have or are reasonably likely to have a current or future material effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources. We have certain warrants and options outstanding but we do not expect to receive sufficient proceeds from the exercise of these instruments unless and until the underlying securities are registered, and/or all restrictions on trading, if any, are removed, and in either case the trading price of our common stock is significantly greater than the applicable exercise prices of the options and warrants.

Effect of Inflation and Changes in Prices

Management does not believe that inflation and changes in price will have a material effect on the Company’s operations.

Contractual Obligations

In the normal course of business, we enter into contracts and commitments that obligate us to make payments in the future. The table below sets forth our significant contractual obligations and related scheduled payments as of September 30, 2017 (in thousands):

	Total	2018	2019 to 2020	2021 to 2022	2023 and thereafter
Operating lease obligations (A)	$ 4,903	$ 794	$ 2,538	$ 1,571	$ —
Total	$ 4,903	$ 794	$ 2,538	$ 1,571	$ —

(A) Operating lease obligations are primarily comprised of remaining payments due under the Company's facility leases.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The primary objective of our investment activities is to preserve our capital for the purpose of funding our operations. To achieve these objectives, our investment policy allows us to maintain a portfolio of cash, cash equivalents, and short-term investments in a variety of securities, including money market funds. Our primary exposure to market risk is interest income sensitivity, which is affected by changes in the general level of U.S. interest rates, particularly because the majority of our investments are comprised of cash and cash equivalents. We currently do not hedge interest rate exposure. Due to the nature of our short-term investments, we believe that we are not subject to any material market risk exposure. We have limited foreign currency risk exposure as our business operates primarily in U.S. dollars. We do not have any significant foreign currency or other derivative financial instruments.

ITEM 4. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information required to be disclosed in our reports filed pursuant to the Securities Exchange Act of 1934, as amended (the "Exchange Act") is recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our principal executive officer and principal financial and accounting officer, as appropriate, to allow timely decisions regarding required disclosure.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) of the Exchange Act) as of the end of the period covered by this report. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures as of the end of the quarterly period covered by this report were designed and operating effectively.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act) that occurred during the fiscal quarter to which this report relates that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our Chief Executive Officer and our Chief Financial Officer, do not expect that our disclosure controls or our internal control over financial reporting will prevent or detect all error and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of controls effectiveness to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

PART II—OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

See Note 3 of the Notes to the Unaudited Condensed Consolidated Financial Statements within this Form 10-Q for a discussion of our legal proceedings and contingencies.

ITEM 1A. RISK FACTORS

In evaluating the Company and an investment in our common stock, we urge you to carefully consider the risks and other information in this Quarterly Report on Form 10-Q as well as the risk factors disclosed in our Annual Report on Form 10-K for the fiscal year ended March 31, 2017, filed with the Securities and Exchange Commission on June 7, 2017. There have been no material changes from the risk factors as previously disclosed in our Annual Report on Form 10-K. Any of the risks discussed in this Quarterly Report on Form 10-Q and in our Annual Report on Form 10-K, as well as additional risks and uncertainties not currently known to us or that we currently deem immaterial, could materially and adversely affect our results of operations or financial condition.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURE

Not applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

The following exhibit index shows those exhibits filed with this report and those incorporated herein by reference:

Exhibit No.	Description
2.1	Agreement and Plan of Merger and Reorganization, dated as of February 8, 2012, by and among Organovo Holdings, Inc. a Delaware corporation, Organovo Acquisition Corp., a Delaware corporation and Organovo, Inc., a Delaware corporation (incorporated by reference from Exhibit 2.1 to the Company's Current Report on Form 8-K, as filed with the SEC on February 13, 2012)
2.2	Certificate of Merger as filed with the Delaware Secretary of State effective February 8, 2012 (incorporated by reference from Exhibit 2.2 to the Company's Current Report on Form 8-K, as filed with the SEC on February 13, 2012)
2.3	Articles of Merger as filed with the Nevada Secretary of State effective December 28, 2011 (incorporated by reference from Exhibit 2.1 to the Company's Current Report on Form 8-K, as filed with the Securities and Exchange Commission (the "SEC") on February 3, 2012 (the "February 2012 Form 8-K")
2.4	Agreement and Plan of Merger, dated as of December 28, 2011, by and between Real Estate Restoration and Rental, Inc. and Organovo Holdings, Inc. (incorporated by reference from Exhibit 2.2 to the Company's Current Report on Form 8-K, as filed with the SEC on January 4, 2012)
2.5	Certificate of Merger as filed with the Delaware Secretary of State effective January 30, 2012 (incorporated by reference from Exhibit 2.3 to the February 2012 Form 8-K)
2.6	Agreement and Plan of Merger, dated as of January 30, 2012, by and between Organovo Holdings, Inc. (Nevada) and Organovo Holdings, Inc. (Delaware) (incorporated by reference from Exhibit 2.2 to the February 2012 Form 8-K)
2.7	Articles of Merger as filed with the Nevada Secretary of State effective January 30, 2012 (incorporated by reference from Exhibit 2.4 to the February 2012 Form 8-K)
3.1	Certificate of Incorporation of Organovo Holdings, Inc. (Delaware) (incorporated by reference from Exhibit 3.1 to the February 2012 Form 8-K)
3.2	Bylaws of Organovo Holdings, Inc. (Delaware) (incorporated by reference from Exhibit 3.2 to the February 2012 Form 8-K)
4.1	Form of Bridge Warrant of Organovo, Inc. (incorporated by reference from Exhibit 4.1 to the Company's Current Report on Form 8-K, as filed with the SEC on February 13, 2012)
4.2	Form of Warrant of Organovo Holdings, Inc. ($1.00 exercise price) issued to Placement Agent (incorporated by reference from Exhibit 4.2(i) to the Company's Current Report on Form 8-K, as filed with the SEC on March 19, 2012)
4.3	Form of Warrant of Organovo Holdings, Inc. ($1.00 exercise price) issued to Placement Agent in exchange for Organovo, Inc. warrant issued to Selling Agent (incorporated by reference from Exhibit 4.2(iii) to the Company's Current Report on Form 8-K, as filed with the SEC on March 19, 2012)
31.1	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.*
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.*
32.1	Certification pursuant to 18 U.S.C. Section 1350.*
101	Interactive Data File*

* Filed herewith.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ORGANOVO HOLDINGS, INC.

Date: November 9, 2017

By: */s/ Taylor Crouch*
Name: Taylor Crouch
Title: Chief Executive Officer and President
(Principal Executive Officer)

Date: November 9, 2017

By: */s/ Craig Kussman*
Name: Craig Kussman
Title: Chief Financial Officer
(Principal Financial Officer)

Exhibit 31.1

CERTIFICATION

I, Taylor Crouch, Chief Executive Officer and President of Organovo Holdings, Inc. (the "Registrant"), certify that:

1. I have reviewed this quarterly report on Form 10-Q of the Registrant;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the consolidated financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report;

4. The Registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the Registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the Registrant's internal control over financial reporting that occurred during the Registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the Registrant's internal control over financial reporting; and

5. The Registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant's auditors and the audit committee of the Registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant's internal control over financial reporting

Dated: November 9, 2017

/s/ Taylor Crouch
Taylor Crouch
Chief Executive Officer and President
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION

I, Craig Kussman, Chief Financial Officer of Organovo Holdings, Inc. (the "Registrant"), certify that:

1. I have reviewed this quarterly report on Form 10-Q of the Registrant;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the consolidated financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Registrant as of, and for, the periods presented in this report;

4. The Registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the Registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the Registrant's internal control over financial reporting that occurred during the Registrant's most recent fiscal quarter that has materially affected, or is reasonably likely to materially affect, the Registrant's internal control over financial reporting; and

5. The Registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Registrant's auditors and the audit committee of the Registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Registrant's internal control over financial reporting

Dated: November 9, 2017

/s/ Craig Kussman
Craig Kussman
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Organovo Holdings, Inc. (the "Company") for the period ended June 30, 2017, as filed with the Securities and Exchange Commission (the "Report"), I, Taylor Crouch, Chief Executive Officer and President and I, Craig Kussman, Chief Financial Officer of the Company hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- The information in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: November 9, 2017

/s/ Taylor Crouch
Taylor Crouch
Chief Executive Officer and President
(Principal Executive Officer)

/s/ Craig Kussman
Craig Kussman
Chief Financial Officer
(Principal Financial Officer)

A signed original of this written statement required by Section 906 has been provided to Organovo Holdings, Inc. and will be retained by Organovo Holdings, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission, and is not to be incorporated by reference into any filing of Organovo Holdings, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.