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 December 31, 2013

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 **(State or other jurisdiction of incorporation or organization)**	**27-1488943** **(I.R.S. Employer Identification No.)**
6275 Nancy Ridge Drive, Suite 110, San Diego, CA 92121 **(Address of principal executive offices and zip code)**	**(858) 224-1000** **(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, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer," and "smaller reporting 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	☐

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 February 1, 2014, a total of 77,816,787 shares of the Registrant's Common Stock, $0.001 par value, were outstanding.

Organovo Holdings, Inc.

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PART I. FINANCIAL INFORMATION

PART II. OTHER INFORMATION

Organovo Holdings, Inc.
(A development stage company)
Condensed Consolidated Balance Sheets
(in thousands except per share data)

	December 31, 2013 (Unaudited)	March 31, 2013 (Audited)
Assets		
Current Assets		
Cash and cash equivalents	$ 49,818	$ 15,628
Grant receivable	7	101
Inventory	82	88
Prepaid expenses and other current assets	622	327
Total current assets	50,529	16,144
Fixed assets—Net	915	1,045
Restricted cash	79	88
Other assets—Net	92	98
Total assets	$ 51,615	$ 17,375
Liabilities and Stockholders' Equity		
Current Liabilities		
Accounts payable	$ 311	$ 641
Accrued expenses	1,559	780
Deferred revenue	15	53
Capital lease obligation	10	10
Warrant liabilities	1,006	6,898
Total current liabilities	2,901	8,382
Deferred revenue, net of current portion	5	9
Capital lease obligation, net of current portion	8	15
Total liabilities	$ 2,914	$ 8,406
Commitments and Contingencies (Note 5)		
Stockholders' Equity		
Common stock, $0.001 par value; 150,000,000 shares authorized, 77,424,956 and 64,686,919 shares issued and outstanding at December 31, 2013 and March 31, 2013, respectively	77	65
Additional paid-in capital	134,355	75,269
Deficit accumulated during the development stage	(85,731)	(66,365)
Total stockholders' equity	48,701	8,969
Total Liabilities and Stockholders' Equity	$ 51,615	$ 17,375

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

Organovo Holdings, Inc.
(A development stage company)
Unaudited Condensed Consolidated Statements of Operations
(in thousands except per share data)

	Three Months Ended December 31, 2013	Three Months Ended December 31, 2012	Nine Months Ended December 31, 2013	Nine Months Ended December 31, 2012	Period from April 19, 2007 (Inception) Through December 31, 2013
Revenues					
Product	$ —	$ —	$ —	$ —	$ 224
Collaborations	97	282	214	915	2,110
Grants	38	67	50	162	993
Total Revenues	135	349	264	1,077	3,327
Cost of product revenue	—	—	—	—	134
Selling, general, and administrative expenses	2,402	2,141	8,807	6,178	21,346
Research and development expenses	2,359	1,130	5,420	2,889	13,502
Loss from Operations	(4,626)	(2,922)	(13,963)	(7,990)	(31,655)
Other Income (Expense)					
Fair value of warrant liabilities in excess of proceeds received	—	—	—	—	(19,019)
Change in fair value of warrant liabilities	(586)	(4,740)	(5,397)	3,575	(27,369)
Financing transaction costs in excess of proceeds received	—	—	—	—	(2,130)
Loss on inducement to exercise warrants	—	(1,904)	—	(1,904)	(1,904)
Gain (loss) on disposal of fixed assets	—	—	(4)	(158)	(162)
Interest expense	—	—	(13)	—	(3,484)
Interest income	4	2	11	5	22
Other income (expense)	—	—	—	—	(30)
Total Other Income (Expense)	(582)	(6,642)	(5,403)	1,518	(54,076)
Net loss	$ (5,208)	$ (9,564)	$ (19,366)	$ (6,472)	$ (85,731)
Net loss per common share—basic and diluted	$ (0.07)	$ (0.20)	$ (0.27)	$ (0.14)	
Weighted average shares used in computing net loss per common share—basic and diluted	77,235,976	48,428,186	71,606,724	45,224,906	

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

Organovo Holdings, Inc.
(A development stage company)
Unaudited Condensed Consolidated Statements of Stockholders' Equity (Deficit) (in thousands)

Period from April 19, 2007 (Inception) through December 31, 2013

	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Deficit Accumulated During the Development Stage	Total
Balance at inception (April 19, 2007)	—	$ —	$ —	$ —	$ —
Issuance of common stock	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	—
Net loss	—	—	—	—	—
Balance at December 31, 2007	—	$ —	$ —	$ —	$ —
Issuance of common stock to founders	1,730	2	(2)	—	—
Issuance of restricted common stock	12,628	12	(12)	—	—
Stock-based compensation expense	—	—	2	—	2
Net loss	—	—	—	(98)	(98)
Balance at December 31, 2008	**14,358**	**$ 14**	**$ (12)**	**$ (98)**	**$ (96)**
Issuance of restricted common stock	130	—	—	—	—
Stock-based compensation expense	—	—	2	—	2
Net loss	—	—	—	(872)	(872)
Balance at December 31, 2009	**14,488**	**$ 14**	**$ (10)**	**$ (970)**	**$ (966)**
Issuance of restricted common stock	219	—	—	—	—
Stock-based compensation expense	—	—	4	—	4
Net loss	—	—	—	(1,339)	(1,339)
Balance at December 31, 2010	**14,707**	**$ 14**	**$ (6)**	**$ (2,309)**	**$ (2,301)**
Issuance of common stock through conversion of notes payable	7,677	8	3,482	—	3,490
Issuance of restricted common stock	61	—	—	—	—
Warrants issued with convertible notes and conversion of notes	—	—	1,111	—	1,111
Beneficial conversion feature of convertible notes payable	—	—	239	—	239
Stock-based compensation expense	—	—	9	—	9
Net loss	—	—	—	(4,383)	(4,383)
Balance at December 31, 2011	**22,445**	**$ 22**	**$ 4,835**	**$ (6,692)**	**$ (1,835)**
Issuance of common stock in connection with the merger	6,000	6	(6)	—	—
Issuance of common stock through private placements in connection with the merger	13,723	14	13,709	—	13,723
Costs associated with the merger	—	—	(13,723)	—	(13,723)
Issuance of common stock through conversion of notes payable and accrued interest in connection with the merger	1,525	2	1,524	—	1,526
Issuance of warrants to consultants	—	—	890	—	890
Issuance of common stock from warrant exercises, net	13,424	14	10,977	—	10,991
Warrant liability removed due to exercise of warrants	—	—	23,321	—	23,321
Stock option exercises	224	—	18	—	18
Issuance of restricted common stock	1,380	1	(1)	—	—
Restricted stock forfeitures	(186)	—	—	—	—
Stock-based compensation expense	—	—	1,435	—	1,435
Loss on inducement to exercise warrants	—	—	1,904	—	1,904
Net loss	—	—	—	(43,553)	(43,553)
Balance at December 31, 2012	**58,535**	**$ 59**	**$ 44,883**	**$ (50,245)**	**$ (5,303)**
Issuance of common stock from warrant exercises, net	6,131	6	3,718	—	3,724
Issuance of restricted common stock	55	—	—	—	—
Restricted stock forfeitures	(34)	—	—	—	—
Stock-based compensation expense	—	—	848	—	848
Expense related to modification of warrants	—	—	65	—	65
Warrant liability removed due to exercises of warrants	—	—	23,869	—	23,869
Warrant liability reclassified to equity	—	—	1,886	—	1,886
Net loss	—	—	—	(16,120)	(16,120)
Balance at March 31, 2013	**64,687**	**$ 65**	**$ 75,269**	**$ (66,365)**	**$ 8,969**
Issuance of warrants to consultant	—	—	452	—	452
Issuance of common stock from warrant exercises, net	2,404	2	933	—	935
Warrant liability removed due to exercises of warrants	—	—	10,522	—	10,522
Warrant liability reclassified to equity	—	—	767	—	767
Stock option exercises	84	—	195	—	195
Issuance of restricted common stock	60	—	—	—	—
Restricted stock forfeitures/adjustment	(160)	—	—	—	—
Stock-based compensation expense	—	—	2,840	—	2,840
Expense related to modification of warrants	—	—	12	—	12
Issuance of common stock from public offering	10,350	10	43,365		43,375
Net loss	—	—		(19,366)	(19,366)
Balance at December 31, 2013	**77,425**	**$ 77**	**$134,355**	**$ (85,731)**	**$ 48,701**

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

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

	Nine Months Ended December 31, 2013	Nine Months Ended December 31, 2012	Period from April 19, 2007 (Inception) Through December 31, 2013
Cash Flows From Operating Activities			
Net loss	$ (19,366)	$ (6,472)	$ (85,731)
Adjustments to reconcile net loss to net cash used in operating activities:			
Amortization of deferred financing costs	—	—	438
Loss on disposal of fixed assets	4	158	162
Depreciation and amortization	288	178	719
Amortization of debt discount	—	—	2,084
Interest accrued on convertible notes payable	—	—	495
Fair value of warrant liabilities in excess of proceeds	—	—	19,019
Change in fair value of warrant liabilities	5,397	(3,575)	27,369
Loss on inducement to exercise warrants	—	1,904	1,904
Expense associated with warrant modification	12	—	77
Stock-based compensation	2,840	1,431	5,140
Amortization of warrants issued for services	182	556	999
Warrants issued in connection with exchange agreement	—	—	528
Increase (decrease) in cash resulting from changes in:		—	
Grants receivable	94	(162)	(7)
Inventory	6	(414)	(745)
Prepaid expenses and other assets	(25)	(36)	(280)
Accounts payable	(330)	(16)	311
Accrued expenses	779	580	1,559
Deferred revenue	(42)	(269)	20
Net cash used in operating activities	(10,161)	(6,137)	(25,939)
Cash Flows From Investing Activities			
Deposits released from restriction (restricted cash deposits)	9	(50)	(79)
Purchases of fixed assets	(156)	(351)	(1,077)
Purchases of intangible assets	—	—	(114)
Net cash used in investing activities	(147)	(401)	(1,270)
Cash Flows From Financing Activities			
Proceeds from issuance of convertible notes payable	—	—	4,630
Proceeds from issuance of common stock and exercise of warrants, net	44,310	10,991	72,748
Proceeds from exercise of stock options	195	18	213
Proceeds from issuance of related party notes payable	—	—	250
Principal payments on capital lease obligation	(7)	(7)	(16)
Repayment of related party notes payable	—	—	(250)
Repayment of convertible notes and interest payable	—	—	(110)
Deferred financing costs	—	—	(438)
Net cash provided by financing activities	44,498	11,002	77,027
Net Increase in Cash and Cash Equivalents	34,190	4,464	49,818
Cash and Cash Equivalents at Beginning of Period	15,628	10,353	—
Cash and Cash Equivalents at End of Period	$ 49,818	$ 14,817	$ 49,818
Supplemental Disclosure of Cash Flow Information:			
Interest	$ —	$ —	$ 10
Income Taxes	$ —	$ —	$ 3

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

Supplemental Disclosure of Noncash Investing and Financing Activities ($ in thousands):

During the nine months ended December 31, 2013, the warrant liability was reduced by approximately $10,522 as a result of warrant exercises and $767 for warrants reclassified as equity instruments.

During the period from inception through December 31, 2013, the Company issued certain convertible notes payable that included warrants. The related beneficial conversion feature, valued at $824 was classified as an equity instrument and recorded as a discount to the carrying value of the related debt. The warrants, valued at approximately $1,260, were recorded as a warrant liability and recorded as a discount to the carrying value related to debt.

During the period from inception through December 31, 2013, the Company issued 9,202,215 shares of common stock to note holders for the conversion of Convertible Notes with a principal balance totaling $4,530 and accrued interest totaling $485.

The Company issued warrants, valued at approximately $32,743, in connection with the Reverse Merger and the Private Placement during 2012. The warrants were recognized as a derivative liability.

During the period from inception through December 31, 2013, the Company purchased equipment valued at $34 through a capital lease.

During the nine months ended December 31, 2013, the Company issued 75,000 warrants to purchase shares of its common stock for consulting services. The warrants were valued at approximately $404. During the period from inception through December 31, 2013, the Company issued 725,000 warrants to purchase shares of its common stock for consulting services. The warrants were valued at approximately $1,294.

During the period from inception through December 31, 2013, the warrant liability was reduced by $57,712 as a result of warrant exercises and $2,653 for warrants reclassified as equity instruments.

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

Organovo Holdings, Inc.
(A development stage company)

Notes to Unaudited Condensed Consolidated Financial Statements

1. Change in Fiscal Year End

On March 31, 2013, the Board of Directors of the Company (the "Board") approved a change in the Company's fiscal year end from December 31st to March 31st. As a result of this change, the Company filed a Transition Report on Form 10-KT for the three-month transition period ended March 31, 2013. References to any of the Company's fiscal years mean the fiscal year ending March 31st of that calendar year.

2. 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 subsidiary Organovo, Inc. The Company is developing and commercializing functional three-dimensional (3D) 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.

As of December 31, 2013, the Company has devoted substantially all of its efforts to product development, raising capital and building infrastructure. The Company has not realized significant revenues from its planned principal operations. Accordingly, the Company is considered to be in the development stage.

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 (deficit) and cash flows in accordance with generally accepted accounting principles ("GAAP"). The balance sheet at March 31, 2013 is derived from the 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 (deficit) and cash flows. These financial statements should be read in conjunction with the financial statements included in the Company's Transition Report filed on Form 10-KT for the transition period ended March 31, 2013 filed with the Securities and Exchange Commission (the "SEC") on May 24, 2013. Operating results for interim periods are not necessarily indicative of operating results for the Company's fiscal year ending March 31, 2014.

Reverse merger transaction

On February 8, 2012, Organovo, Inc., a privately held Delaware corporation, merged with and into Organovo Acquisition Corp., a wholly-owned subsidiary of Organovo Holdings, Inc., a publicly traded Delaware corporation, 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 the business of Organovo, Inc., and will continue the existing business operations of Organovo, Inc.

Simultaneously with the Merger, on February 8, 2012 (the "closing date"), all of the issued and outstanding shares of Organovo, Inc.'s common stock converted, on a 1 for 1 basis, into shares of the Company's common stock, par value $0.001 per share. Also, on the closing date, all of the issued and outstanding options to purchase shares of Organovo, Inc.'s common stock and other outstanding warrants to purchase Organovo, Inc.'s common stock, and all of the issued and outstanding bridge warrants to purchase shares of Organovo, Inc.'s common stock, converted on a 1 for 1 basis, into options, warrants and new bridge warrants to purchase shares of the Company's common stock.

Immediately following the consummation of the Merger: (i) the former security holders of Organovo, Inc. common stock had an approximate 75% voting interest in the Company and the Company stockholders retained an approximate 25% voting interest, (ii) the former executive management team of Organovo, Inc. remained as the only continuing executive management team for the Company, and (iii) the Company's ongoing operations consist solely of the ongoing operations of Organovo, Inc. Based primarily on these factors, the Merger was accounted for as a reverse merger and a recapitalization in accordance with GAAP. As a result, these financial statements reflect the historical results of Organovo, Inc. prior to the Merger, and the combined results of the Company following the Merger. The par value of Organovo, Inc. common stock immediately prior to the Merger was $0.0001 per share. The par value subsequent to the Merger is $0.001 per share, and therefore the historical results of Organovo, Inc. prior to the Merger have been retroactively adjusted to affect the change in par value.

In connection with three separate closings of a private placement transaction completed in connection with the Merger (the "Private Placement"), the Company received gross proceeds of approximately $5.0 million, $1.8 million and $6.9 million on closings on February 8, 2012, February 29, 2012 and March 16, 2012, respectively. In 2011, the Company received $1.5 million from the purchase of 6% convertible notes which were automatically converted into 1,500,000 shares of common stock, plus 25,387 shares for accrued interest of $25,387 on the principal, on February 8, 2012.

The cash transaction costs related to the Merger were approximately $2.1 million.

Before the Merger, Organovo Holdings' Board of Directors and stockholders adopted the 2012 Equity Incentive Plan (the "2012 Plan"). In addition, Organovo Holdings assumed and adopted Organovo, Inc.'s 2008 Equity Incentive Plan.

NYSE:MKT Listing

On July 9, 2013, the Company announced that its common stock had been approved to list on the NYSE:MKT. Shares began trading on the New York Stock Exchange on July 11, 2013 under the symbol "ONVO". Prior to that time, the Company's shares were quoted on the OTC QX.

Liquidity

As of December 31, 2013, the Company had an accumulated deficit of approximately $85.7 million. The Company also had negative cash flows from operations of approximately $10.2 million during the nine months ended December 31, 2013.

In August of 2013, the Company raised net proceeds of approximately $43.4 million through the sale of 10,350,000 shares of its common stock in a public offering (see Note 4).

In addition, in November 2013, the Company entered into an equity distribution agreement with an investment banking firm. Under the terms of the distribution agreement, the Company may offer and sell up to 4,000,000 shares of its common stock, from time to time, through the investment bank in "at the market" offerings, as defined by the SEC, and pursuant to the Company's effective shelf registration statement previously filed with the SEC. As of the three months ended December 31, 2013, the Company had not sold any shares under the distribution agreement.

Through December 31, 2013, the Company has financed its operations primarily through the sale of convertible notes, the private placement of equity securities, the public offering of common stock, and through revenue derived from grants or collaborative research agreements. 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.

The Company cannot predict with certainty when, if ever, it will require additional capital to further fund the product 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 degenerating tissues and organs. The Company intends to cover its future operating expenses through cash on hand, and from revenue derived from grants and collaborative research agreements. However, the Company cannot provide assurance that it will not require additional funding in the future. In addition, the Company cannot be sure that additional financing will be available if and when needed, or that, if available, financing will be obtained on terms favorable to the Company and its stockholders. Having insufficient funds may require the Company to delay, scale back, or eliminate some or all of its development programs or relinquish rights to its technology on less favorable terms than it would otherwise choose. Failure to obtain adequate financing could eventually adversely affect the Company's ability to operate as a going concern.

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 computing the valuation of warrants, revenue recognized under the proportional performance model, the valuation of stock-based compensation expense, and the valuation allowance on deferred tax assets.

Financial instruments

For certain of the Company's financial instruments, including cash and cash equivalents, grants receivable, inventory, prepaid expenses and other current assets, accounts payable, accrued expenses, deferred revenue and capital lease obligations, the carrying amounts are generally considered to be representative of their respective fair values because of the short-term nature of those instruments.

Cash and cash equivalents

The Company considers all highly liquid investments with original maturities of 90 days or less to be cash equivalents.

Derivative financial instruments

The Company does not use derivative instruments to hedge exposures to cash flow, market or foreign currency.

The Company reviews the terms of convertible debt and equity instruments it issues to determine whether there are derivative instruments, including an embedded conversion option that is required to be bifurcated and accounted for separately as a derivative financial instrument. In circumstances where a host instrument contains more than one embedded derivative instrument, including a conversion option, that is required to be bifurcated, the bifurcated derivative instruments are accounted for as a single, compound derivative instrument. Also, in connection with the sale of convertible debt and equity instruments, the Company may issue freestanding warrants that may, depending on their terms, be accounted for as derivative instrument liabilities, rather than as equity.

Derivative instruments are initially recorded at fair value and are then revalued at each reporting date with changes in the fair value reported as non-operating income or expense. When the convertible debt or equity instruments contain embedded derivative instruments that are to be bifurcated and accounted for as liabilities, the total proceeds allocated to the convertible host instruments are first allocated to the fair value of all the bifurcated derivative instruments. The remaining proceeds, if any, are then allocated to the convertible instruments themselves, usually resulting in those instruments being recorded at a discount from their face value.

The discount from the face value of the convertible debt, together with the stated interest on the instrument, is amortized over the life of the instrument through periodic charges to interest expense, using the effective interest method.

Restricted cash

As of December 31, 2013 and March 31, 2013, the Company had approximately $78,800 and $88,300, respectively, of restricted cash deposited with a financial institution. The entire $78,800 as of December 31, 2013 and $38,300 of the balance as of March 31, 2013 is held in certificates of deposit to support a letter of credit agreement related to the facility lease entered into during 2012. In December 2013, the lease was amended to increase the rented area by 15,268 square feet, and as such, the Company was required to increase the amount held in certificates of deposit to support the increased letter of credit as required by the lease amendment. The additional $50,000 included in the March 31, 2013 balance represents funds held by a financial institution as a guarantee for the Company's commercial credit cards. These funds were released from restriction during the nine months ended December 31, 2013 as a result of the Company transferring its credit card program to a different financial institution.

Grant receivable

Grant receivable as of December 31, 2013 represents the amount due under a private research grant that began in October 2013. Grant receivable as of December 31, 2012 represents the amount due from the National Institutes of Health ("NIH") under a research grant that concluded in April 2013. The Company considers the grants receivable to be fully collectible; and accordingly, no allowance for doubtful amounts has been established. If amounts become uncollectible, they are charged to operations.

Inventory

Inventories are stated at the lower of the cost or market (first-in, first-out). Inventory at December 31, 2013 and March 31, 2013 consisted of approximately $82,000 and $88,000 in raw materials, respectively.

The Company provides inventory allowances based on excess or obsolete inventories determined based on anticipated use in the final product. There was no obsolete inventory reserve as of December 31, 2013 or March 31, 2013.

Fixed assets and depreciation

Property and equipment are carried at cost. Expenditures that extend the life of the asset are capitalized and depreciated. Depreciation and amortization are provided using the straight-line method over the estimated useful lives of the related assets or, in the case of leasehold improvements, over the lesser of the useful life of the related asset or the lease term. The estimated useful lives of the fixed assets range between two and five years.

Impairment of long-lived assets

In accordance with authoritative guidance, the Company reviews its long-lived assets, including property and equipment and other assets, for impairment whenever events or changes in circumstances indicate that the carrying amounts of the assets may not be fully recoverable. To determine recoverability of its long-lived assets, the Company evaluates whether future undiscounted net cash flows will be less than the carrying amount of the assets and adjusts the carrying amount of its assets to fair value. Management has determined that no impairment of long-lived assets occurred in the period from inception through December 31, 2013.

Fair value measurement

Financial assets and liabilities are measured at fair value, which is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The following is a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value:

- Level 1 — Quoted prices in active markets for identical assets or liabilities.
- Level 2 — Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The Company has issued warrants, of which some are 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 uses Level 3 inputs 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 (see Note 3). The Company's derivative liabilities are adjusted to reflect estimated fair value at each period end, with any decrease or increase in the estimated fair value being recorded in other income or expense accordingly, as adjustments to the fair value of derivative liabilities. Various factors are considered in the pricing models the Company uses to value the warrants, including the Company's current stock price, the remaining life of the warrants, the volatility of the Company's stock price, and the risk-free interest rate. Future changes in these factors will have a significant impact on the computed fair value of the warrant liability. As such, the Company expects future changes in the fair value of the warrants to continue to vary significantly from quarter to quarter.

The estimated fair values of the liabilities measured on a recurring basis are as follows:

	Fair Value Measurements at December 31 and March 31, 2013 (in thousands):			
	Balance at December 31, 2013	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)
Warrant liability	$ 1,006	—	—	$ 1,006
	Balance at March 31, 2013	**Quoted Prices in Active Markets (Level 1)**	**Significant Other Observable Inputs (Level 2)**	**Significant Other Unobservable Inputs (Level 3)**
Warrant liability	$ 6,898	—	—	$ 6,898

The following table presents the activity for liabilities measured at estimated fair value using unobservable inputs for 2012 through December 31, 2013:

Fair Value Measurements Using Significant Unobservable Inputs (Level 3)

	Warrant Derivative Liability ($000's)
Balance at December 31, 2011	$ 1,267
Issuances	32,742
Adjustments to estimated fair value	9,931
Warrant liability removal due to settlements	(23,321)
Balance at December 31, 2012	$ 20,619
Issuances	—
Adjustments to estimated fair value	12,034
Warrant liability removal due to settlements	(23,869)
Warrant liability reclassified to equity	(1,886)
Balance at March 31, 2013	$ 6,898
Issuances	—
Adjustments to estimated fair value	5,397
Warrant liability removal due to settlements	(10,522)
Warrant liability reclassified to equity	(767)
Balance at December 31, 2013	$ 1,006

Research and development

Research and development expenses, including direct and allocated expenses, consist of independent research and development costs, as well as costs associated with sponsored research and development. Research and development costs are expensed as incurred.

Income taxes

Deferred income taxes are recognized for the tax consequences in future years for differences between the tax basis of assets and liabilities and their financial reporting amounts at each year end based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized. Income tax expense is the combination of the tax payable for the year and the change during the year in deferred tax assets and liabilities.

Revenue recognition

The Company's revenues are derived from collaborative research agreements, grants from the NIH, U.S. Treasury Department and private not-for-profit organizations, as well as the sale of Bioprinter related products and services, and license agreements.

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 December 31, 2013 and March 31, 2013, the Company had approximately $20,000 and $62,000, respectively, in deferred revenue related to its collaborative research programs.

Product Revenue

The Company recognizes product revenue at the time of shipment to the customer, provided all other revenue recognition criteria have been met. The Company recognizes product revenues upon shipment to distributors, provided that (i) the price is substantially fixed or determinable at the time of sale; (ii) the distributor's obligation to pay the Company is not contingent upon resale of the products; (iii) title and risk of loss passes to the distributor at the time of shipment; (iv) the distributor has economic substance apart from that provided by the Company; (v) the Company has no significant obligation to the distributor to bring about the resale of the products; and (vi) future returns can be reasonably estimated. For any sales that do not meet all of the above criteria, revenue is deferred until all such criteria have been met.

Research and Development Revenue Under Collaborative Agreements

The Company's collaboration revenue consists of license and collaboration agreements that contain multiple elements, including 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 hours are incurred. The Company performs services as specified in each respective agreement on a best-efforts basis, and is reimbursed based on labor hours incurred on each contract. 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, based on total labor hours incurred relative to total labor hours estimated under the contract.

In December 2010, the Company entered into a 12 month research contract agreement with a third party, whereby the Company was engaged to perform research and development services on a fixed-fee basis for approximately $600,000. Based on the proportional performance criteria, total revenue recognized on the contract from inception through December 31, 2013 was approximately $600,000.

In October 2011, the Company entered into a research contract agreement with a third party, whereby the Company is performing research and development services on a fixed-fee basis for $1,365,000. The agreement included an initial payment to the Company of approximately $239,000 with remaining payments expected to occur over a twenty-one month period. On November 27, 2012, the agreement was amended to include additional research and development services up to an additional $135,000, bringing the total potential contract value to $1,500,000. The third party ultimately elected to have only $40,000 of these additional research and development services performed by the Company, resulting in a total contract value of $1,405,000. The amendment extended the original contract (which runs concurrently) from twenty-one months to twenty-eight months. The Company recorded approximately $59,000 and $207,000 of revenue related to the research contract in recognition of the proportional performance achieved, for the three months ended December 31, 2013 and 2012, respectively and $174,000 and $765,000 of revenue for the nine months ended December 31, 2013 and 2012, respectively. Total revenue recognized on the contract from inception through December 31, 2013 was $1,395,000.

Revenue Arrangements with Multiple Deliverables

The Company occasionally enters into 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.

The Company recognizes revenue for delivered elements only when it determines there are no uncertainties regarding customer acceptance. 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 expects to periodically receive 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.

Grant Revenues

During 2010, the U.S. Treasury awarded the Company two one-time grants totaling approximately $397,000 for investments in qualifying therapeutic discovery projects under section 48D of the Internal Revenue Code. The grants cover reimbursement for qualifying expenses incurred by the Company in 2010 and 2009. The proceeds from these grants are classified in “Revenues — Grants” for the period from inception through December 31, 2013.

During 2012, 2010 and 2009, the NIH awarded the Company three research grants totaling approximately $558,000. Revenues from the NIH grants are based upon internal and subcontractor costs incurred that are specifically covered by the grants, and where applicable, an additional facilities and administrative rate that provides funding for overhead expenses. These revenues are recognized when expenses have been incurred by subcontractors and as the Company incurs internal expenses that are related to the grants. Revenue recognized under these grants was approximately $0 and $67,000, for the three months ended December 31, 2013 and 2012, respectively, and $12,000 and $162,000 for the nine months ended December 31, 2013 and 2012, respectively. Total revenue recorded under these grants from inception through December 31, 2013 was approximately $558,000.

During 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 $38,000 and $0, for the three months ended December 31, 2013 and 2012, respectively, and $38,000 and $0 for the nine months ended December 31, 2013 and 2012, respectively. Total revenue recorded under this grant from inception through December 31, 2013 was approximately $38,000.

Stock-based compensation

The Company accounts for stock-based compensation in accordance with the Financial Accounting Standards Board’s ASC Topic 718, *Compensation — Stock Compensation,* which establishes accounting for equity instruments exchanged for employee services. Under such provisions, stock-based compensation cost is measured at the grant date, based on the calculated fair value of the award, and is recognized as an expense, under the straight-line method, over the employee’s requisite service period (generally the vesting period of the equity grant).

The Company accounts for equity instruments, including restricted stock or stock options, issued to non-employees in accordance with authoritative guidance for equity based payments to non-employees. Stock options issued to non-employees are accounted for at their estimated fair value determined using the Black-Scholes option-pricing model. The fair value of options granted to non-employees is re-measured as they vest, and the resulting increase in value, if any, is recognized as expense during the period the related services are rendered. Restricted stock issued to non-employees is accounted for at its estimated fair value as it vests.

Comprehensive income (loss)

Comprehensive income (loss) is defined as the change in equity during a period from transactions and other events and circumstances from non-owner sources. The Company is required to record all components of comprehensive income (loss) in the financial statements in the period in which they are recognized. Net income (loss) and other comprehensive income (loss), including unrealized gains and losses on investments, are reported, net of their related tax effect, to arrive at comprehensive income (loss). For the three and nine months ended December 31, 2013 and 2012, respectively, and for the period April 19, 2007 (inception) through December 31, 2013, the comprehensive loss was equal to the net loss.

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, 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 nine months ended December 31, 2013 or 2012, as the Company reported a net loss for each respective period and the effect would have been anti-dilutive.

3. Derivative Liability

During 2012, in connection with the reverse Merger and the three offerings under the Private Placement, the Company issued 21,347,182 five-year warrants to purchase the Company's common stock. In October and November 2011, the Company issued 1,500,000 five-year warrants in connection with Convertible Notes. The exercise price of the warrants is protected against down-round financing throughout the term of the warrant. Pursuant to ASC 815-15 and ASC 815-40, the fair value of the warrants of approximately $32.7 million and $1.3 million in 2012 and 2011, respectively, was recorded as a derivative liability on the issuance dates.

The Company revalues the warrants as of the end of each reporting period, and the estimated fair value of the outstanding warrant liabilities was approximately $1.0 million and $6.9 million, as of December 31, 2013 and March 31, 2013, respectively. The changes in fair value of the derivative liabilities for the three months ended December 31, 2013 and 2012 were increases of approximately $0.6 million and $4.8 million, respectively, and are included in other expense in the statement of operations. The changes in fair value of the derivative liabilities for the nine months ended December 31, 2013 and 2012 were an increase of approximately $5.4 million and a decrease of approximately $3.6 million, respectively.

During the three months ended December 31, 2013 and 2012, 60,176 and 11,241,762 warrants, respectively, that were classified as derivative liabilities were exercised. During the nine months ended December 31, 2013 and 2012, 1,878,104 and 13,010,237 warrants, respectively, that were classified as derivative liabilities were exercised. The warrants were revalued as of the settlement dates, and the change in fair value was recognized to earnings. In addition, during the nine months ended December 31, 2013, the Company entered into amendment agreements with certain of the warrant holders, which removed the down-round pricing protection provisions, resulting in 269,657 of these warrants being reclassified from liability instruments to equity instruments. The Company also recognized a reduction in the warrant liability based on the fair value as of the settlement date for the warrants exercised and as of the modification date for the warrants that were amended, with a corresponding increase in additional paid-in capital.

The derivative liabilities were valued at the closing dates of the Private Placement and the end of each reporting period using a Monte Carlo valuation model with the following assumptions:

	December 31, 2013	March 31, 2013	December 31, 2012
Closing price per share of common stock	$ 11.07	$ 3.68	$ 2.60
Exercise price per share	$ 1.00	$ 1.00	$ 1.00
Expected volatility	82.3%	88.8%	92.9%
Risk-free interest rate	0.78%	0.57%	0.54%
Dividend yield	—	—	—
Remaining expected term of underlying securities (years)	3.20	3.88	4.16

In addition, as of the valuation dates, management assessed the probabilities of future financing assumptions in the Monte Carlo valuation models. Management also applied a discount for lack of marketability to the valuation of the derivative liabilities based on such trading restrictions due to certain of the shares not being registered.

4. Stockholders' Equity

Common stock

A shelf registration statement on Form S-3 (File No. 333-189995), or shelf, was filed 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, 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. This shelf was declared effective by the SEC on July 26, 2013.

On August 2, 2013, the Company, entered into an Underwriting Agreement (the "Underwriting Agreement") with Lazard Capital Markets LLC, acting as representative of the underwriters named in the Underwriting Agreement (the "Underwriters") and joint book-runner with Oppenheimer & Co. Inc., relating to the issuance and sale of 10,350,000 shares of the Company's common stock, which includes the issuance and sale of 1,350,000 shares pursuant to an overallotment option exercised by the Underwriters on August 5, 2013. JMP Securities LLC and Maxim Group LLC each acted as co-managers for the offering. The price to the public in the Offering was $4.50 per share, and the Underwriters purchased the shares from the Company pursuant to the Underwriting Agreement at a price of $4.23 per share. The net proceeds to the Company from the Offering were approximately $43.4 million, after deducting underwriting discounts and commissions and other offering expenses of $3.2 million payable by the Company, including the Underwriters' exercise of the overallotment option. The transactions contemplated by the Underwriting Agreement closed on August 7, 2013.

The Underwriting Agreement contained customary representations, warranties and agreements by the Company, customary conditions to closing, indemnification obligations of the Company and the Underwriters, including for liabilities under the Securities Act, other obligations of the parties and termination provisions.

The representations, warranties and covenants contained in the Underwriting Agreement were made only for purposes of the Underwriting Agreement as of specific dates indicated therein, were solely for the benefit of the parties to the Underwriting Agreement, and may be subject to limitations agreed upon by the parties, including being qualified by confidential disclosures exchanged between the parties in connection with the execution of the Underwriting Agreement.

In November 2013, the Company entered into an equity distribution agreement with an investment banking firm. Under the terms of the distribution agreement, the Company may offer and sell up to 4,000,000 shares of its common stock, from time to time, through the investment bank in “at the market” offerings, as defined by the SEC, and pursuant to the Company’s effective shelf registration statement previously filed with the SEC. As of the three months ended December 31, 2013, the Company had not sold any shares under the distribution agreement (see Note 7).

In addition, during the three months ended December 31, 2013 and 2012, the Company issued 533,533 and 11,612,791 shares of common stock, respectively, upon the exercise of warrants. During the nine months ended December 31, 2013 and 2012, the Company issued 2,404,519 and 13,423,622 shares of common stock, respectively, upon the exercise of warrants.

Restricted stock awards

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 were issued under the 2008 Plan during 2012 or the nine months ended December 31, 2013, and the Company does not intend to issue any additional shares from the 2008 Plan in the future.

From 2008 through December 31, 2011, the Company issued a total of 1,258,934 shares of restricted common stock to various employees, advisors, and consultants of the Company. Of those shares, 1,086,662 were issued under the 2008 Plan and the remaining 172,272 shares were issued outside the plan.

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. In August 2013, the Board of Directors of the Company approved an amendment to the 2012 Plan to increase the number of shares of common stock that may be issued under the 2012 Plan by 5,000,000 shares, for an aggregate of 11,553,986 shares issuable under the 2012 Plan. The 2012 Plan terminates ten years after its adoption.

There were 1,380,000 shares of restricted stock issued during the three and nine months ended December 31, 2012, respectively.

During the nine months ended December 31, 2013, the Company issued an aggregate of 60,000 restricted stock units with immediate vesting to a consultant.

During the three months ended December 31, 2013 and 2012, there were 3,703 and 9,021 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 8,750 and 21,250 restricted stock units, respectively. During the nine months ended December 31, 2013 and 2012, there were 164,243 and 89,674 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 305,000 and 211,250 restricted stock units, 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.

A summary of the Company's restricted stock award activity for 2012 through December 31, 2013 is as follows:

	Number of Shares
Unvested at December 31, 2011	1,111,295
Granted	1,380,000
Vested	(1,143,735)
Canceled / forfeited	(185,516)
Unvested at December 31, 2012	1,162,044
Granted	55,000
Vested	(196,612)
Canceled / forfeited	(34,690)
Unvested at March 31, 2013	985,742
Granted	60,000
Vested	(365,000)
Canceled / forfeited	—
Unvested at December 31, 2013	680,742

The fair value of each restricted common stock award is recognized as stock-based compensation expense over the vesting term of the award. The Company recorded restricted stock-based compensation expense in operating expenses for employees and non-employees of approximately $681,000 and $834,000 for the nine months ended December 31, 2013 and 2012, respectively. The Company recorded restricted share-based compensation expense of approximately $1,837,000 for the period from April 19, 2007 (inception) through December 31, 2013. Share-based compensation expense included in research and development was $12,000 and $82,000 for the nine months ended December 31, 2013 and 2012, respectively. Share-based compensation expense included in general and administrative expense was $669,000 and $750,000 for the nine months ended December 31, 2013 and 2012, respectively.

As of December 31, 2013, total unrecognized restricted stock-based compensation expense was approximately $883,000, which will be recognized over a weighted average period of 1.7 years.

Stock options

Under the 2008 Plan, on October 12, 2011, the Company granted an officer incentive stock options to purchase 896,256 shares of common stock at an exercise price of $0.08 per share, a quarter of which vested on the one year anniversary of employment, in May 2012, and the remaining options are vesting ratably over the remaining 36 month term. Other than this grant, the Company does not intend to issue any additional shares under the 2008 Plan.

Under the 2012 Plan, 91,203 and 296,833 incentive stock options were issued during the three months ended December 31, 2013 and 2012, respectively, and 372,243 and 1,829,394 incentive stock options were issued during the nine months ended December 31, 2013 and 2012, respectively, at various exercise prices. The stock options generally 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, and the remainder vesting ratably over the remaining 36 month terms. The Company issued 293,500 and 124,000 non-qualified options during the nine months ended December 31, 2013 and 2012 respectively, which vest on the one year anniversary of the grant date or quarterly over three years.

A summary of the Company's stock option activity for 2012 through December 31, 2013 is as follows:

	Options Outstanding	Weighted-Average Exercise Price	Aggregate Intrinsic Value
Outstanding at December 31, 2011	896,256	$ 0.08	—
Options granted	2,023,394	$ 1.95	
Options canceled	(5,000)	$ 2.25	
Options exercised	(224,064)	$ 0.08	$ 564,641
Outstanding at December 31, 2012	2,690,586	$ 1.48	$3,041,476
Options granted	927,981	$ 3.93	

	Options Outstanding	Weighted-Average Exercise Price	Aggregate Intrinsic Value
Options canceled	—	—	
Options exercised	—	—	—
Outstanding at March 31, 2013	3,618,567	$ 2.11	$ 5,909,154
Options granted	665,743	$ 5.32	
Options canceled	(18,455)	3.31	
Options exercised	(83,801)	$ 2.33	$ 732,521
Outstanding at December 31, 2013	4,182,054	$ 2.62	$35,346,304
Vested and Exercisable at December 31, 2013	1,400,169	$ 1.95	$14,259,010

The weighted-average remaining contractual term of options exercisable and outstanding at December 31, 2013 was approximately 8.5 years and 8.7 years, respectively.

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 December 31, 2013	Three Months Ended December 31, 2012	Nine Months Ended December 31, 2013	Nine Months Ended December 31, 2012
Dividend yield	—	—	—	—
Volatility	82.3%	96.2%	83.9%	90.8%
Risk-free interest rate	0.78%	0.89%	0.82%	1.04%
Expected life of options	6.00 years	6.05 years	6.00 years	6.04 years
Weighted average grant date fair value	$ 5.54	$ 2.39	$ 4.00	$ 1.52

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, 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 the 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 total stock option-based compensation recorded as operating expense was approximately $2,160,000 and $598,000 for the nine months ended December 31, 2013 and 2012, respectively. The Company recorded stock-based compensation expense of approximately $3,139,000 for the period from April 19, 2007 (inception) through December 31, 2013. Expense included in research and development was $262,000 and $113,000 for the nine months ended December 31, 2013 and 2012, respectively. Expense included in general and administrative was $1,898,000 and $485,000 for the nine months ended December 31, 2013 and 2012, respectively.

The total unrecognized compensation cost related to unvested stock option grants as of December 31, 2013 was approximately $5,241,000 and the weighted average period over which these grants are expected to vest is 2.8 years.

Warrants

During the three months ended December 31, 2013 and 2012, 450,176 and 220,000 warrants, respectively, were exercised through a cashless exercise provision for issuance of 383,403 and 121,279 shares of common stock, respectively. During the nine months ended December 31, 2013 and 2012, 2,485,233 and 272,500 warrants, respectively, were exercised through a cashless exercise provision for issuance of 2,010,889 and 163,635 shares of common stock, respectively. During the three and nine months ended December 31, 2013, 150,130 and 393,630 warrants, respectively, were exercised at prices ranging from $1.00 to $3.24 for total proceeds of $284,696 and $935,876, respectively, and during the three and nine months ended December 31, 2012, 11,491,512 and 13,259,987 warrants, respectively, were exercised at prices of $0.80 and $1.00 for total proceeds of $9,562,776 and $11,331,251, respectively.

In December 2012, the Company consummated a warrant tender offer to the holders of outstanding warrants to purchase approximately 14.5 million shares of the Company's common stock. In accordance with the tender offer, for those warrant holders that elected to participate, this resulted in a reduction of the exercise price of the warrants from $1.00 per share to $0.80 per share of common stock in cash, shortened the exercise period of the warrants so that they expired concurrently with the tender offer, and removed the price-based anti-dilution provisions contained in the warrants. The Company completed the tender offer on December 21, 2012, resulting in approximately 9.6 million warrants being exercised for gross proceeds of approximately $7,700,000. In connection with the transaction, the Company recognized an expense for the inducement to exercise the warrants of approximately $1,900,000. The Company also incurred approximately $400,000 in placement agent fees, legal costs, and other related fees, which have been recognized as an offset to the proceeds received from the warrant exercises.

60,176 and 11,241,762 of the warrants exercised during the three months ended December 31, 2013 and 2012, and 1,878,104 and 13,010,237 of the warrants exercised during the nine months ended December 31, 2013 and 2012, respectively, were derivative liabilities and were valued at the settlement date. For the three months ended December 31, 2013 and 2012, and the nine months ended December 31, 2013 and 2012, respectively, approximately $375,000, $19,593,000, $10,522,000 and $23,321,000 of the warrant liability was removed due to the exercise of warrants. (See Note 3).

During March 2013, the Company entered into amendment agreements for 600,065 warrants to purchase common stock which reduced the exercise price of the warrants from $1.00 to $0.90, extended the exercise term to five years from the effective date of the amendment, and removed the down-round price protection provision of the warrant agreement related to the adjustment of exercise price upon issuance of additional shares of common stock. As a result of the removal of the down-round price protection provision, the warrants were reclassified from liability to equity instruments at their fair value. The Company determined the incremental expense associated with the modification based on the fair value of the awards prior to and subsequent to the modification. The fair value of the awards subsequent to modification was calculated using the Black-Scholes model. The incremental expense associated with the modification of approximately $65,000 was recognized as interest expense for the three months ended March 31, 2013.

During April 2013, the Company entered into amendment agreements for 269,657 warrants to purchase common stock which reduced the exercise price of the warrants from $1.00 to $0.85 and removed the down-round price protection provision of the warrant agreement related to the adjustment of exercise price upon issuance of additional shares of common stock. As a result of the removal of the down-round price protection provision, the warrants were reclassified from liability to equity instruments at their fair value of $767,000. The Company determined the incremental expense associated with the modification based on the fair value of the awards prior to and subsequent to the modification. The fair value of the awards subsequent to modification was calculated using the Black-Scholes model. The incremental expense associated with the modification of approximately $12,000 was recognized as interest expense for the nine months ended December 31, 2013.

During the year ended December 31, 2012, the Company entered into four agreements with consultants for services. In connection with the agreements, the Company issued a total of 650,000 warrants to purchase common stock, at prices ranging from $1.70 to $3.24, with lives ranging from two to five years, to be earned over service periods of up to six months. The fair value of the warrants was estimated to be approximately $890,000, which was recognized as a prepaid asset and was amortized over the term of the consulting agreements. These warrants were classified as equity instruments because they do not contain any anti-dilution provisions. The Black-Scholes model, using volatility rates ranging from 79.8% to 103.8% and risk-free interest rate factors ranging from 0.24% to 0.63%, were used to determine the value. The value has been amortized over the term of the agreements. The Company recognized approximately $72,000 and $890,000 during the nine months ended December 31, 2013 and for the period from April 19, 2007 (inception) through December 31, 2013, respectively, related to these services.

Additionally, during November 2013 the Company entered into an agreement with a consultant for services. In connection with the agreement, the Company issued 75,000 warrants to purchase common stock, at a price of $7.36, with a life of five years, to be earned over a twelve month service period. The fair value of the warrants was estimated to be approximately $404,000, which was recognized as a prepaid asset and is being amortized over the term of the consulting agreement. These warrants were classified as equity instruments because they do not contain any anti-dilution provisions. The Black-Scholes model, using a volatility rate of 96.90% and a risk-free interest rate factor of 0.60%, was used to determine the value. The Company recognized approximately $62,000 during the three and nine months ended December 31, 2013 and for the period from April 19, 2007 (inception) through December 31, 2013, respectively, related to these services.

The following table summarizes warrant activity for 2012 through December 31, 2013:

	Warrants	Weighted-Average Exercise Price
Balance at December 31, 2011	2,909,750	$ 1.00
Granted	21,997,182	$ 1.04
Exercised	(13,532,487)	$ 0.84
Balance at December 31, 2012	11,374,445	$ 1.08
Granted	—	—
Exercised	(7,090,556)	$ 1.01
Balance at March 31, 2013	4,283,889	$ 1.17
Granted	112,500	$ 7.36
Exercised	(2,878,863)	$ 1.22
Balance at December 31, 2013	1,517,526	$ 1.61

The warrants outstanding at December 31, 2013 are immediately exercisable at prices between $0.85 and $7.36 per share, and have a weighted average remaining term of approximately 2.86 years.

Common stock reserved for future issuance

Common stock reserved for future issuance consisted of the following at December 31, 2013:

Common stock warrants outstanding	1,517,526
Common stock options outstanding under the 2008 Plan	672,192
Common stock options outstanding and reserved under the 2012 Plan	9,580,572
Total	11,770,290

5. Commitments and Contingencies

Operating leases

The Company leases office and laboratory space under a non-cancelable operating lease which was entered into in February 2012 and amended in December 2013, with the future minimum lease payments from the lease included below. The Company records rent expense on a straight-line basis over the life of the lease and records the excess of expense over the amounts paid as deferred rent. Deferred rent is included in accrued expenses in the condensed consolidated balance sheets.

Rent expense was approximately $112,000 and $109,000 for the three months ended December 31, 2013 and 2012, respectively, $322,000 and $266,000 for the nine months ended December 31, 2013 and 2012, respectively, and $1,078,000 for the period from April 19, 2007 (inception) through December 31, 2013.

On February 27, 2012, the Company entered into a facilities lease at 6275 Nancy Ridge Drive (the "Original Lease"), San Diego, CA 92121, with occupancy as of July 15, 2012. The base rent under the lease was approximately $38,800 per month with 3% annual escalators. The lease term was 48 months with an option for the Company to extend the lease at the end of the lease term.

On December 5, 2013, the Company entered into a First Amendment (the "Amendment") to the Original Lease, together with the Amendment, (the "Amended Lease"). Pursuant to the Amendment, the Company expanded the size of its facility by approximately 15,268 square feet (the "Expansion Premises") from approximately 15,539 square feet (the "Original Premises") for a total of approximately 30,807 square feet. The Amended Lease provides for base rent (i) on the Original Premises to continue at approximately $38,800 per month, with annual escalators, until August 1, 2016, at which point the base rent shall be payable at the same rate per rentable square foot as the Expansion Premises and (ii) on the Expansion Premises of approximately $38,934 per month, with 3% annual escalators, not to commence until two months after the earlier of (A) the date that the landlord delivers possession of the Expansion Premises to the Company with the work in the Expansion Lab Premises (as defined in the Amendment) substantially complete and (B) the date the landlord could have delivered the Expansion Premises with the work in the Expansion Lab Premises (as defined in the Amendment) substantially complete but for certain delays of the Company. Additionally, the Company has a right of first refusal on adjacent additional premises of approximately 14,500 square feet. The term of the Amended Lease expires on the seven-year anniversary of the earlier of (A) the date that the landlord delivers possession of the Expansion Premises to the Company and (B) the date the landlord could have delivered the Expansion Premises but for certain delays of the Company (the "Expansion Premises Commencement Date"). The target Expansion Premises Commencement Date is September 1, 2014. The Company also has the option to terminate the Amended Lease on the 5-year anniversary of the Expansion Premises Commencement Date. The Company intends for the Expansion Premises to contain office, laboratory, and clean room areas.

Future minimum rental payments required under operating leases that have initial or remaining non-cancelable lease terms in excess of one year as of December 31, 2013, are as follows (in thousands):

Fiscal year ended March 31, 2014	$ 121
Fiscal year ended March 31, 2015	766
Fiscal year ended March 31, 2016	981
Fiscal year ended March 31, 2017	986
Fiscal year ended March 31, 2018	1,004
Thereafter	3,473
Total	$7,331

Legal Matters

In addition to commitments and obligations in the ordinary course of business, the Company is subject 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. An estimated loss contingency is accrued in its financial statements if it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. 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. The amount of ultimate loss may differ from these estimates. It is possible that cash flows or results of operations could be materially affected in any particular period by the unfavorable resolution of one or more of these contingencies. Whether any losses finally determined in any claim, action, investigation or proceeding could reasonably have a material effect on the Company's business, financial condition, results of operations or cash flows will depend on a number of variables, including: the timing and amount of such losses; the structure and type of any remedies; the monetary significance any such losses, damages or remedies may have on our condensed consolidated financial statements; and the unique facts and circumstances of the particular matter that may give rise to additional factors.

Spencer Trask Matter. On June 28, 2013, the Company filed a lawsuit for declaratory relief in the Supreme Court for the State of New York (case # 652305/2013) against Spencer Trask Ventures, Inc. ("STV" or "Spencer Trask") in connection with a Warrant Solicitation Agency Agreement (the "WSAA") that the Company entered into with STV in February 2013 (the "New York Action"). In the New York Action, the Company is seeking a declaration that the WSAA remains a valid and enforceable agreement. Over the course of several weeks in February 2013, Organovo and STV, through their respective attorneys, negotiated the WSAA pursuant to which the Company engaged STV as the Company's warrant solicitation agent in connection with the Company's efforts to solicit the exercise of outstanding Organovo warrants during the first quarter of 2013. STV's President signed the WSAA on behalf of STV, and the Company's CEO executed the agreement on behalf of Organovo. Spencer Trask provided services to the Company pursuant to the WSAA, and the Company has paid STV for those services.

The Company's dispute with Spencer Trask arose in March 2013 after the Company approached Spencer Trask about exercising its outstanding warrants to help the Company qualify for up-listing its common stock on the NYSE:MKT. Previously, Spencer Trask had not asserted any claims for additional compensation as a result of the warrant tender offer the Company completed in December 2012. In March 2013, the Company received two demand letters from STV, and a demand for arbitration notice in June 2013. In the first demand letter, STV alleges that it is entitled to compensation (including a cash fee and warrants to purchase common stock) as a result of the warrant tender offer the Company completed in December 2012 and as a result of the notice of warrant redemption the Company completed in March 2013. In the second letter, STV alleges it is entitled to damages because the Company allegedly violated confidentiality provisions in the Placement Agency Agreement (the "PAA") the Company had previously entered into with STV in December 2012 in connection with the private placement financings the Company completed in February and March 2012 (the "Private Placements"), by contacting the warrant holders who participated in the warrant tender offer. In response, on June 28, 2013, the Company filed a lawsuit for declaratory relief in the Supreme Court for the State of New York against STV. The Company's tender offer was made to warrant holders of record relating to warrants already owned by them and whose identity was public information via a Registration Statement on Form S-1 the Company was required to file to register the resale of the shares underlying their warrants. For these and other reasons, including applicability of the WSAA, the Company believes STV is not entitled to compensation under the PAA and there was no violation of confidentiality. The Company received notice on August 5, 2013 that STV had filed its arbitration demand with the arbitrator (the “Arbitration”). In July, 2013, the Company filed a motion to stay the arbitration pending determination of the New York Action. In January 2014, the New York Court stayed the New York Action, finding that the arbitrator should determine in the first instance which disputes between the Company and Spencer Trask should proceed in the Arbitration and which disputes between the Company and Spencer Trask should proceed in the New York Court.

The Company believes that the assertions made against it by STV are without merit and the Company intends to continue to vigorously defend against the claims made by STV. The Company has not established a loss contingency accrual for these claims because any potential liability is not probable or estimable. Nonetheless, an unfavorable resolution of these claims could have a material adverse effect on the Company’s business, liquidity or financial condition in the reporting period in which such resolution occurs.

Other Legal Matters. In addition to the matter described above, the Company is subject to normal and routine litigation in the ordinary course of business. The Company has not accrued any loss contingencies for such matters. The Company intends to defend itself in any such matters and does not currently believe that the outcome of such matters will have a material adverse effect on its business, liquidity or financial position.

6. 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 in San Diego. 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.

7. Subsequent Events

On January 2, 2014, the Company sold 280,000 shares of its common stock in an “at the market offering” under its distribution agreement with an investment banking firm (see Note 4), for net proceeds of approximately $3,018,000.

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

The following management's discussion and analysis should be read in conjunction with the Company's historical consolidated financial statements and the related notes thereto included in our Transition Report filed on Form 10-KT for the transition period ended March 31, 2013. The management's discussion and analysis contains forward-looking statements, such as statements of 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 ("will," "may," "could," "should," etc.), or similar expressions, identify certain of these forward-looking statements. These forward-looking statements are subject to risks and uncertainties including those under "Risk Factors" in Item 1A of our Form 10-KT, that could cause actual results or events to differ materially from those expressed or implied by the forward-looking statements in this quarterly report. The Company's actual results and the timing of events could differ materially from those anticipated in these forward-looking statements as a result of several factors. 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 subsidiary Organovo, Inc.

The condensed consolidated financial statements included in this Form 10-Q have been prepared in accordance with 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 our transition period ended March 31, 2013, filed with the SEC on Form 10-KT on May 24, 2013 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

Organovo, Inc. was founded in Delaware in April 2007. Activities since Organovo, Inc.'s inception through December 31, 2013 were devoted primarily to developing functional three-dimensional (3D) 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.

On February 8, 2012, Organovo, Inc., a privately held Delaware corporation, merged with and into Organovo Acquisition Corp., a wholly-owned subsidiary of Organovo Holdings, Inc., 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 the business of Organovo, Inc., and will continue the existing business operations of Organovo, Inc.

As of December 31, 2013, Organovo, Inc. has devoted substantially all of its efforts to product development, raising capital and building infrastructure. Organovo, Inc. has not, as of that date, realized significant revenues from its planned principal operations. Accordingly, the Company is considered to be in the development stage.

Critical Accounting Policies, Estimates, and Judgments

Our financial statements are prepared in accordance with accounting principles that are generally accepted in the United States. 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, share-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 Transition Report on Form 10-KT for the transition period ended March 31, 2013, filed with the Securities and Exchange Commission (the “SEC”) on May 24, 2013.

Results of Operations

Comparison of the three months ended December 31, 2013 and 2012

Revenues

For the three months ended December 31, 2013, total revenues of $0.1 million were $0.2 million or 67% below the approximately $0.3 million in revenues for the same period in 2012. Collaborative research revenues for the three months ended December 31, 2013 of less than $0.1 million decreased $0.2 million or 67% from the same period of prior year of approximately $0.3 million in revenues. This decrease reflects declining activity under an existing collaborative agreement and the conclusion of a previous collaborative research agreement during the three months ended December 31, 2012, partially offset by increasing revenue contributions from three recently signed agreements.

Operating Expenses

Overview

Operating expenses increased approximately $1.5 million or 45% in the three months ended December 31, 2013 over the same period in 2012, from approximately $3.3 million in 2012 to $4.8 million in 2013. Most significantly, relative to the same period in the prior year, the Company invested in building its research, development and administrative staff, increasing its headcount from twenty-nine full-time employees as of December 31, 2012 to thirty-nine full-time employees as of December 31, 2013. This resulted in an increase in staffing expenses of approximately $0.4 million or 34% over the same period in 2012. In addition, share-based compensation expense increased $0.6 million for the three months ended December 31, 2013 due to additional grants during the year and a significant increase in the Company’s stock price from December 31, 2012 to December 31, 2013. Finally, the Company has increased its investment in developing enhancements to its Bioprinting technology.

Research and Development Expenses

For the three months ended December 31, 2013, research and development expenses increased by approximately $1.2 million or 109% over the same period in 2012, as the Company increased its research staff to support its obligations under certain collaborative research agreements and to expand its product development efforts in preparation for research-derived revenues. Full-time research and development staffing increased from nineteen full-time employees as of December 31, 2012 to twenty-six full-time employees as of December 31, 2013. In addition to the increase in payroll and benefits expense of approximately $0.2 million resulting from increased staffing levels, the Company increased its spending on lab equipment, supplies and contracted services in proportion to its increased research activities. In addition, the Company has invested additional resources to advance its Bioprinting technology during the period.

General and Administrative Expenses

For the three months ended December 31, 2013, general and administrative expenses were approximately $2.4 million, an increase of $0.3 million or 14%, over expenses in the same period of 2012 of approximately $2.1 million. Share-based compensation increased $0.5 million due to additional grants and increasing stock prices from December 31, 2012 to December 31, 2013. Staffing expense increased $0.2 million due to an increase in administrative headcount from ten full-time employees to thirteen full-time employees to provide strategic infrastructure in developing collaborative relationships and preparation for commercialization of research-derived product introductions. These increases were partially offset by a decrease in consulting costs due to more vendor warrants established at fair value and amortized to expense during the three months ended December 31, 2012, as well as lower reliance on contracted services during the three months ended December 31, 2013 as certain activities were brought in-house with the increase in administrative headcount.

Other Income (Expense)

The approximate $6.1 million decrease in other expense for the three month period ending December 31, 2013 compared to the same period of the prior year, was primarily related to the change in fair value associated with the warrants issued in our 2012 Private Placement. During the first quarter of calendar 2012, we issued warrants to purchase 6,099,195 shares of our common stock to the placement agent and warrants to purchase 15,247,987 shares of our common stock to investors in the Private Placement. The warrants issued to the placement agent and Private Placement investors were determined to be derivative liabilities as a result of the anti-dilution provisions in the warrant agreements that may result in an adjustment to the warrant exercise price. As a result of increasing stock prices during the three months ended December 31, 2012, the fair value of the derivative liability increased, resulting in the recognition of other expense of approximately $4.7 million. The majority of the underlying warrants have been exercised prior to December 31, 2013 or modified and reclassified as equity instruments. The increase in the fair value of the warrant liability during the three months ended December 31, 2013 was $0.6 million, which was recognized to other expense during the period. The Company will continue to revalue the derivative liability at each balance sheet date until the securities to which the derivative liabilities relate are exercised or expire. In addition, the Company completed a warrant tender offer in December 2012 to amend certain outstanding warrants to include a reduction of the exercise price of the warrants from $1.00 per share to $0.80 per share of common stock. In connection with the transaction, the Company recognized an expense for the inducement to exercise the warrants of approximately $1.9 million.

Comparison of the nine months ended December 31, 2013 and 2012

Revenues

For the nine months ended December 31, 2013, total revenues of approximately $0.3 million were $0.8 million or 73% below the approximately $1.1 million in revenues for the same period in 2012. Collaborative research revenues for the nine months ended December 31, 2013 of approximately $0.2 million decreased $0.7 million or 78% from the same period of prior year of approximately $0.9 million in revenues. This decrease reflects declining activity under an existing collaborative agreement and the conclusion of a previous collaborative research agreement during the three months ended December 31, 2012, partially offset by increasing revenue contributions from three recently signed agreements.

Operating Expenses

Overview

Operating expenses increased approximately $5.1 million or 56% in the nine months ended December 31, 2013 over the same period in 2012, from approximately $9.1 million in 2012 to $14.2 million in 2013. Most significantly, relative to the same period in the prior year, the Company invested in building its research, development and administrative staff, increasing its headcount from twenty-nine full-time employees as of December 31, 2012 to thirty-nine full-time employees as of December 31, 2013. This resulted in an increase in staffing expenses of approximately $2.2 million or 67% over the same period in 2012. In addition, stock-based compensation increased approximately $1.4 million from $1.4 million to $2.8 million for the same period due to the increase in grants for additional staffing, common stock granted to consultants and the increase in expense due to the fair value increase from exercise prices that have risen with the underlying stock price. Costs associated with being a public company increased approximately $0.7 million due to additional SEC financial reporting, corporate governance, audit and listing fees, including the Company's up-listing to the NYSE:MKT and raising additional capital through a public offering during the nine months ended December 31, 2013. Lab supplies, equipment and contracted services increased $0.9 million due to an increase in ongoing research activities as well as increased investment in developing enhancements to the Company's Bioprinting technology.

Research and Development Expenses

For the nine months ended December 31, 2013, research and development expenses increased by approximately $2.5 million or 86% over the same period in 2012, as the Company significantly increased its research staff to support its obligations under certain collaborative research agreements and to expand product development efforts in preparation for research-derived revenues. Full-time research and development staffing increased from nineteen full-time employees as of December 31, 2012 to twenty-six full-time employees as of December 31, 2013. In addition to the $0.8 million in incremental payroll and benefits resulting from increased staffing levels, the Company increased its spending on lab equipment, supplies and contracted services in proportion to its increased research activities. In addition, the Company has invested additional resources to advance its Bioprinting technology during the period.

General and Administrative Expenses

For the nine months ended December 31, 2013, general and administrative expenses were approximately $8.8 million, an increase of $2.6 million or 42% over expenses in the same period of 2012 of approximately $6.2 million. Increased staffing expense of $0.7 million was due to the headcount increase from ten full-time employees to thirteen full-time employees to provide strategic infrastructure in developing collaborative relationships and preparation for commercialization of research-derived product introductions. In addition, the nine months ended December 31, 2013 included $0.7 million more in payroll taxes related to the vesting of restricted stock units the Company previously granted to certain of its executives. Stock-based compensation costs also increased $1.3 million due to the increase in grants for new staff, common stock granted to consultants and the increase in expense due to the fair value increases that have risen with the underlying stock price. The remainder of the increase in general and administrative expense is primarily due to additional SEC financial reporting, corporate governance, audit and listing fees, including the Company up-listing to the NYSE:MKT and raising additional capital through a public offering during the nine months ended December 31, 2013.

Other Income (Expense)

The approximate $6.9 million decrease in other income (expense) for the nine month period ending December 31, 2013 compared to the same period of the prior year, was primarily related to the change in fair value of the warrants issued in our 2012 Private Placement. During the first quarter of calendar 2012, the Company issued warrants to purchase 6,099,195 shares of its common stock to the placement agent and warrants to purchase 15,247,987 shares of our common stock to investors in the Private Placement. The warrants issued to the placement agent and Private Placement investors were determined to be derivative liabilities as a result of the anti-dilution provisions in the warrant agreements that may result in an adjustment to the warrant exercise price. As a result of decreasing stock prices during the nine months ended December 31, 2012, the fair value of the derivative liability decreased by $3.6 million, which was recorded as other income. As a result of increasing stock prices during the nine months ended December 31, 2013, the fair value of the derivative liability increased by $5.4 million, resulting in a charge to other expense. The majority of the underlying warrants have been exercised prior to December 31, 2013 or modified and reclassified as equity instruments. The Company will continue to revalue the derivative liability at each balance sheet date until the securities to which the derivative liabilities relate are exercised or expire. In addition, the Company completed a warrant tender offer in December 2012 to amend certain of its warrants to include a reduction of the exercise price of the warrants from $1.00 per share to $0.80 per share of common stock. In connection with the transaction, the Company recognized an expense for the inducement to exercise the warrants of approximately $1.9 million during the nine months ended December 31, 2012. Finally, the Company disposed of property, plant and equipment during the nine months ended December 31, 2012, resulting in a loss on disposal of $0.2 million, while there were no significant disposals during the nine months ended December 31, 2013.

Financial Condition, Liquidity and Capital Resources

Since its inception, the Company has primarily devoted its efforts to research and development, business planning, raising capital, recruiting management and technical staff, and acquiring operating assets. Accordingly, the Company is considered to be in the development stage.

Since inception, the Company incurred negative cash flows from operations. As of December 31, 2013, the Company had cash and cash equivalents of approximately $49.8 million and an accumulated deficit of $85.7 million. The Company also had negative cash flow from operations of $10.2 million during the nine months ended December 31, 2013. At March 31, 2013, the Company had cash and cash equivalents of approximately $15.6 million and an accumulated deficit of $66.4 million.

At December 31, 2013, the Company had total current assets of approximately $50.5 million and current liabilities of approximately $2.9 million, resulting in working capital of $47.6 million. At March 31, 2013, we had total current assets of approximately $16.1 million and current liabilities of approximately $8.4 million, resulting in working capital of $7.7 million.

Net cash used by operating activities for the nine months ended December 31, 2013 was approximately $10.2 million as compared to $6.1 million used in operating activities for the nine months ended December 31, 2012. This $4.1 million increase in cash usage can be attributed to a $0.8 million decrease in revenue and a $5.2 million increase in operating expenses, partially offset by an overall increase of $1.1 million of non-cash expenses included in operations, including share-based compensation, depreciation and amortization, and a $0.8 million decrease in working capital.

Net cash used in investing activities was approximately $0.1 million and $0.4 million for the nine months ended December 31, 2013 and December 31, 2012, respectively.

Net cash provided by financing activities increased from approximately $11.0 million provided during the nine months ended December 31, 2012 to $44.5 million provided during the nine months ended December 31, 2013. This increase was primarily due to the inclusion of $43.4 million in net proceeds from the issuance of common stock in the nine months ended December 31, 2013.

We believe our cash and cash equivalents on hand as of December 31, 2013, together with amounts to be received from our collaborative research agreements, should be sufficient to fund our ongoing operations as currently planned for at least the next twelve months. Through December 31, 2013, we have financed our operations primarily through the sale of convertible notes, the private placement of equity securities, the sale of common stock through a public offering, and from revenue derived from grants or collaborative research agreements.

We cannot predict with certainty when, if ever, we will require additional capital to further fund the product development and commercialization of our 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. We intend to cover our future operating expenses through cash on hand, and from revenue derived from grants and collaborative research agreements. However, we cannot provide assurance that we will not require additional funding in the future. In addition, we cannot be sure that additional financing will be available if and when needed, or that, if available, financing will be obtained on terms favorable to us and 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.

As of December 31, 2013, the Company had 77,424,956 total issued and outstanding shares of Common Stock, and five year warrants for the opportunity to purchase an additional 1,203,656 shares of Common Stock at exercise prices between $0.85 and $1.00 per share and 313,870 warrants with terms between two and five years and exercise prices between $2.21 and $7.36 per share. If all warrants were exercised on a cash basis, the Company would realize approximately $2.4 million additional gross proceeds.

In addition, in November 2013, the Company entered into an equity distribution agreement with an investment banking firm. Under the terms of the distribution agreement, the Company may offer and sell up to 4,000,000 shares of its common stock, from time to time, through the investment bank in "at the market" offerings, as defined by the SEC, and pursuant to the Company's effective shelf registration statement previously filed with the SEC. As of the three months ended December 31, 2013, the Company had not sold any shares under the distribution agreement.

The 2008 Equity Incentive Plan provides for the issuance of up to 896,256 shares of our outstanding Common Stock and the 2012 Equity Incentive Plan, as amended, provides for the issuance of up to 11,553,986 shares, or approximately 16% of our outstanding Common Stock, to executive officers, directors, advisory board members, employees and consultants. In aggregate, issued and outstanding common stock, shares underlying outstanding warrants, and shares reserved for the 2008 and 2012 incentive plans total 89,195,246 shares of common stock as of December 31, 2013.

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.

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 commercial paper and 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 foreign currency or other derivative financial instruments.

Item 4. Controls and Procedures

Disclosure Controls and Procedures

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 effective in ensuring that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that the information required to be disclosed by us in such reports is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

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 5 of the Notes to the Unaudited Condensed Consolidated Financial Statements within this December 31, 2013 Form 10-Q for a further discussion of our legal proceedings.

Item 1A. RISK FACTORS

In evaluating us and 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 the Company's Transition Report on Form 10-KT for the transition period ended March 31, 2013, filed with the Securities and Exchange Commission (the "SEC") on May 24, 2013. There have been no material changes from the risk factors as previously disclosed in our Transition Report. Any of the risks discussed in this Quarterly Report on Form 10-Q or any of the risks disclosed in our Form 10-KT, 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

On February 3, 2014, the Company's Board of Directors (the "Board"), based on a recommendation from the Compensation Committee, approved an amendment to the 2012 Equity Incentive Plan ("Amendment No. 1") to provide for accelerated vesting of outstanding equity awards if the employee ceases to be a service provider to the Company as a result of the employee's death or disability. Amendment No. 1 applies to all outstanding equity awards held by the Company's employees, including its executive officers, and will apply to all future equity awards issued to the Company's employees, unless the Board or the Compensation Committee determine otherwise. In order for an equity award to be eligible for accelerated vesting, the employee's death or disability must occur more than 90 days after the date the equity award is issued to that employee. With respect to performance based equity awards, an employee will vest at target levels upon the employee's death or disability.

Amendment No. 1 is filed as Exhibit 10.3 to this Quarterly Report on Form 10-Q and is incorporated herein by reference. The foregoing description of Amendment No. 1 is qualified in its entirety by reference to Exhibit 10.3.

Item 6. EXHIBITS

(a) 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 Bridge Promissory Note of Organovo, Inc. (incorporated by reference from Exhibit 4.2 to the Company's Current Report on Form 8-K, as filed with the SEC on February 13, 2012)
4.3	Form of Warrant of Organovo, Inc. issued to former holders of Organovo, Inc. promissory notes (incorporated by reference from Exhibit 4.3 to the Company's Current Report on Form 8-K, as filed with the SEC on February 13, 2012)
4.4	Form of Investor Warrant of Organovo Holdings, Inc. (incorporated by reference from Exhibit 4.4 to the Company's Current Report on Form 8-K, as filed with the SEC on February 13, 2012)
4.5	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)
4.6	Form of Warrant of Organovo, Inc. ($1.00 exercise price) issued to Selling Agent (incorporated by reference from Exhibit 4.2(ii) to the Company's Current Report on Form 8-K, as filed with the SEC on March 19, 2012)
4.7	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)
4.8	Form of Warrant of Organovo Holdings, Inc. issued to former holders of Organovo, Inc. promissory notes (incorporated by reference from Exhibit 4.5 to the Company's Current Report on Form 8-K, as filed with the SEC on February 13, 2012)
4.9	Form of New Bridge Warrant (incorporated by reference from Exhibit 4.6 to the Company's Current Report on Form 8-K, as filed with the SEC on February 13, 2012)
10.1	Equity Distribution Agreement, dated November 27, 2013, between Organovo Holdings, Inc. and JMP Securities LLC. (incorporated by reference from Exhibit 10.1 to the Company's Current Report on Form 8-K, as filed with the SEC on November 27, 2013)

Exhibit No.	Description
10.2	First Amendment to Lease, dated December 4, 2013, by and between Organovo, Inc. and ARE-SD Region No. 25, LLC.*
10.3	Amendment No. 2 to the 2012 Equity Incentive Plan, effective as of February 3, 2014.*
10.4	Form of Executive Incentive Award Agreement under the 2012 Equity Incentive Plan.*
10.5	Forms of Executive Restricted Stock Unit Grant Notice and Restricted Stock Unit Agreement under the 2012 Equity Incentive Plan.*
10.6	Forms of Performance Based Restricted Stock Grant Notice and Performance Based Restricted Stock Unit Agreement under the 2012 Equity Incentive Plan.*
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	Certifications pursuant to 18 U.S.C. Section 1350.*
101†	Interactive Data File*

* Filed herewith.

† XBRL (Extensible Business Reporting Language) information included herewith is furnished and not filed or a part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act of 1933, as amended, is deemed not filed for purposes of Section 18 of the Securities and Exchange Act of 1934, as amended, and otherwise is not subject to liability under those sections.

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: February 6, 2014

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

/s/ Barry Michaels
Name: Barry Michaels
Title: Chief Financial Officer and Secretary
(Principal Financial and Accounting Officer)

Exhibit 10.2

FIRST AMENDMENT TO LEASE

THIS FIRST AMENDMENT TO LEASE (this "**First Amendment**") is made as of December 4, 2013, by and between **ARE-SD REGION NO. 25, LLC**, a Delaware limited liability company ("**Landlord**"), and **ORGANOVO, INC.**, a Delaware corporation ("**Tenant**").

RECITALS

A. Landlord and Tenant are now parties to that certain Lease Agreement dated as of February 27, 2012 (the "**Lease**"). Pursuant to the Lease, Tenant leases certain premises consisting of approximately 15,539 rentable square feet ("**Original Premises**") in a building located at 6275 Nancy Ridge Drive, San Diego, California ("**Building**"). The Original Premises are more particularly described in the Lease. Capitalized terms used herein without definition shall have the meanings defined for such terms in the Lease.

B. Landlord and Tenant desire, subject to the terms and conditions set forth below, to amend the Lease to, among other things, (i) expand the size of the Original Premises by adding approximately 15,268 rentable square feet of space in the Building commonly known as Suite 120, and (ii) extend the Base Term of the Lease.

NOW, THEREFORE, in consideration of the foregoing Recitals, which are incorporated herein by this reference, the mutual promises and conditions contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree as follows:

1. Expansion Premises. In addition to the Original Premises, commencing on the Expansion Premises Commencement Date (as defined below), Landlord leases to Tenant, and Tenant leases from Landlord, that certain portion of the Building known as Suite 120, containing approximately 15,268 rentable square feet, as shown on **Exhibit A** attached hereto (the "**Expansion Premises**"), consisting of (i) office space ("**Expansion Office Premises**") and (ii) laboratory space ("**Expansion Lab Premises**").

2. Delivery. Landlord shall use reasonable efforts to deliver the Expansion Premises to Tenant on or before the Target Expansion Premises Commencement Date with Landlord's Work in the Expansion Lab Premises Substantially Completed ("**Deliver**"). If Landlord fails to timely Deliver the Expansion Premises, Landlord shall not be liable to Tenant for any loss or damage resulting therefrom, and this First Amendment shall not be void or voidable. As used herein, the terms "**Landlord's Work**" and "**Substantially Completed**" shall have the meanings set forth for such terms in the work letter attached to this First Amendment as **Exhibit B** ("**Expansion Lab Premises Work Letter**").

The "**Expansion Premises Commencement Date**" shall be the earlier of: (i) the date Landlord Delivers the Expansion Premises to Tenant; or (ii) the date Landlord could have Delivered the Expansion Premises but for Tenant Delays (as defined in the Expansion Lab Premises Work Letter). The "**Target Expansion Premises Commencement Date**" is September 1, 2014. The "**Expansion Premises Rent Commencement Date**" shall be the date that is 2 months after the earlier of: (i) the date Landlord Delivers the Expansion Premises to Tenant with Landlord's Work in the Expansion Lab Premises Substantially Completed; or (ii) the date Landlord could have Delivered the Expansion Premises to Tenant with Landlord's Work in the Expansion Lab Premises Substantially Completed but for Tenant Delays (as defined in the Expansion

Lab Premises Work Letter). Upon request of Landlord, Tenant shall execute and deliver a written acknowledgment of the Expansion Premises Commencement Date, the Expansion Premises Rent Commencement Date and the expiration date of the Lease in a form substantially similar to the form of the "Acknowledgement of Commencement Date" attached to the Lease as **Exhibit D**; provided, however, Tenant's failure to execute and deliver such acknowledgment shall not affect Landlord's rights hereunder.

Notwithstanding anything to the contrary contained herein, Landlord shall provide Tenant access to and Tenant shall commence using the Expansion Office Premises for office purposes only as of the date that is 1 business day after the mutual execution and delivery of this First Amendment by the parties ("**Access Date**"). Tenant's access to and use of the Expansion Office Premises before the Expansion Premises Commencement Date pursuant to the immediately preceding sentence shall be subject to all of the terms and conditions of this Lease including, without limitation, the obligation to pay Operating Expenses pursuant to Section 6 of this First Amendment, but excluding the obligation to pay Base Rent. Tenant acknowledges that Landlord shall require access to the Expansion Lab Portion of the Expansion Premises, which is not fully demised from the Expansion Office Premises, in order to complete Landlord's Work. Landlord and its contractors and agents shall have the right to enter the Expansion Lab Premises to complete Landlord's Work. Tenant acknowledges that Landlord's completion of Landlord's Work in the Expansion Lab Premises may adversely affect Tenant's use and occupancy of the Expansion Office Premises. Tenant waives all claims against Landlord in connection with Landlord's Work including, without limitation, claims for rent abatement.

For the period of 90 consecutive days after the Access Date, Landlord shall, at its sole cost and expense (which shall not constitute an Operating Expense), be responsible for any repairs that are required to be made to the Building Systems serving the Expansion Office Premises, unless Tenant or any Tenant Party was responsible for the cause of such repair, in which case Tenant shall pay the cost.

For the period of 90 consecutive days after the Expansion Premises Commencement Date, Landlord shall, at its sole cost and expense (which shall not constitute an Operating Expense), be responsible for any repairs that are required to be made to the Building Systems serving the Expansion Lab Premises, unless Tenant or any Tenant Party was responsible for the cause of such repair, in which case Tenant shall pay the cost.

For the period of 90 consecutive days after the Access Date, Tenant shall not be responsible for Tenant's Share of Operating Expenses of Building and Tenant's Share of Operating Expenses of Project with respect to the Expansion Premises (i.e., 33.41% with respect to Tenant's Share of Operating Expenses of Building and 14.07% with respect to Tenant Share of Operating Expenses of Project) for any repairs that are required to be made to the structure and/or roof of the Building, provided, however, that Tenant shall pay the cost of such repair if Tenant or any Tenant Party was responsible for the cause of such repair.

Except as set forth in this First Amendment: (i) Tenant shall accept the Expansion Office Premises in their condition as of the Access Date, subject to all applicable Legal Requirements; (ii) Tenant shall accept the Expansion Lab Premises in their condition as of the Expansion Premises Commencement Date, subject to all applicable Legal

Requirements; (iii) Landlord shall have no obligation for any defects in the Expansion Premises; (iv) Tenant's taking possession of the Expansion Office Premises shall be conclusive evidence that Tenant accepts the Expansion Office Premises and that the Expansion Office Premises were in good condition at the time possession was taken; and (v) Tenant's taking possession of the Expansion Lab Premises shall be conclusive evidence that Tenant accepts the Expansion Lab Premises and that the Expansion Lab Premises were in good condition at the time possession was taken.

Tenant agrees and acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the condition of all or any portion of the Expansion Premises, and/or the suitability of the Expansion Premises for the conduct of Tenant's business, and Tenant waives any implied warranty that the Expansion Premises are suitable for the Permitted Use.

3. **<u>Definition of Premises</u>**. Commencing on the Expansion Premises Commencement Date, the defined term "Premises" on page 1 of the Lease shall be deleted in its entirety and replaced with the following:

"**Premises**: That portion of the Building containing approximately 30,807 rentable square feet, consisting of (i) that portion of the Building commonly known as Suite 110, containing approximately 15,539 rentable square feet (the "**Original Premises**"), and (ii) that portion of the Building commonly known as Suite 120, containing approximately 15,268 rentable square feet (the "**Expansion Premises**"), all as determined by Landlord, as shown on **Exhibit A**."

As of the Expansion Premises Commencement Date, **Exhibit A** to the Lease shall be amended to include the Expansion Premises as shown on **Exhibit A** attached to this First Amendment.

4. **<u>Rentable Area of Premises</u>**. Commencing on the Expansion Premises Commencement Date, the defined term "**Rentable Area of Premises**" on page 1 of the Lease shall be deleted in its entirety and replaced with the following:

"**Rentable Area of Premises**: Approximately 30,807 square feet"

5. **<u>Base Rent</u>**.

a. **Original Premises**. Tenant shall continue to pay Base Rent for the Original Premises as provided for in the Lease through July 31, 2016. Commencing on August 1, 2016, Tenant shall commence paying Base Rent for the Original Premises at the same rate per rentable square foot of the Premises then payable under the Lease with respect to the Expansion Premises. Base Rent payable for the Original Premises shall be increased on August 1, 2017, and on each subsequent August 1st during the Base Term (each, an "**Original Premises Adjustment Date**") by multiplying the Base Rent payable with respect to the Original Premises immediately before such Original Premises Adjustment Date by 3% (the "**Rent Adjustment Percentage**") and adding the resulting amount to the Base Rent payable with respect to the Original Premises immediately before such Original Premises Adjustment Date.

b. **Expansion Premises**. Commencing on the Expansion Premises Rent Commencement Date, Tenant shall pay Base Rent for the Expansion Premises at the rate of $2.55 per rentable square foot of the Expansion Premises per month. Base Rent payable for the Expansion Premises shall be increased on each annual anniversary of the Expansion Premises Rent Commencement Date during the Base Term (each, an "**Expansion Premises Adjustment Date**") by multiplying the Base Rent payable with respect to the Expansion Premises immediately before such Expansion Premises Adjustment Date by the Rent Adjustment Percentage and adding the resulting about to the Base Rent payable with respect to the Expansion Premises immediately before such Expansion Premises Adjustment Date.

c. **TI Allowance Adjustments**. Landlord shall, subject to the terms of the Expansion Premises Work Letter, make available to Tenant the Additional Tenant Improvement Allowance (as defined in the Expansion Premises Work Letter) for the construction of Tenant Improvements (as defined in the Expansion Premises Work Letter) in the Expansion Premises. In addition to Base Rent, commencing on the Expansion Premises Rent Commencement Date, Tenant shall pay, concurrently with Base Rent, the amount necessary to fully amortize the portion of the Additional Tenant Improvement Allowance actually funded by Landlord, if any, in equal monthly payments with interest at a rate of 9% per annum over the remainder of the Base Term ("**TI Rent**"). The Additional Tenant Improvement Allowance shall only be available for use by Tenant as part of the construction of the Tenant Improvements (as defined in the Expansion Premises Work Letter) in accordance with the terms of the Expansion Premises Work Letter, and Tenant shall have no right thereafter to use any undisbursed portion thereof.

6. **Tenant's Share**. Commencing on the Expansion Premises Commencement Date, the defined terms "**Tenant's Share of Building**" and "**Tenant's Share of Project**" on page 1 of the Lease shall be deleted in their entirety and replaced with the following:

"**Tenant's Share of Building**: 67.41%"

"**Tenant's Share of Project**: 28.39%"

Notwithstanding anything to the contrary contained in the Lease, in addition to Tenant's payment of Operating Expenses with respect to the Original Premises, Tenant shall be required to pay Operating Expenses (including all Utilities) with respect to the Expansion Office Premises for the period commencing on the Access Date through the Expansion Premises Commencement Date (during which time the parties agree that Tenant's Share of Building shall be 50.71% and Tenant's Share of Project shall be 21.36%). Tenant shall commence paying Operating Expenses (including all Utilities) with respect to entire Expansion Premises commencing on the Expansion Premises Commencement Date. Notwithstanding anything to the contrary contained herein, at all times (i) following the Access Date with respect to the Expansion Office Premises, and (ii) following the Expansion Premises Commencement Date with respect to the Expansion Lab Premises, Tenant shall be responsible for obtaining and paying for its own janitorial services with respect to the Expansion Office Premises and Expansion Lab Premises, respectively.

7. **Security Deposit**. Commencing on the date of this First Amendment, the defined term "**Security Deposit**" on Page 1 of the Lease is deleted in its entirely and replaced with the following:

"**Security Deposit**: $78,750.20"

Landlord currently holds a Security Deposit of $38,290.00 under the Lease. Concurrently with Tenant's delivery of a signed original of this First Amendment to Landlord, Tenant shall deliver to Landlord an amended Letter of Credit which increases the amount of the existing Letter of Credit being held by Landlord to $78,750.20 or an additional Letter of Credit in the amount of $40,460.20.

8. **Base Term**. Commencing on the Expansion Premises Commencement Date, the defined term "**Base Term**" on page 1 of the Lease is deleted in its entirety and replaced with the following:

"**Base Term**: Commencing (i) with respect to the Original Premises on the Commencement Date, and (ii) with respect to the Expansion Premises on the Expansion Premises Commencement Date, and ending with respect to the entire Premises on the date that is 84 months after the Expansion Premises Commencement Date."

9. **Right of First Refusal**. Commencing of the date of this First Amendment, Section 39 of the Lease is hereby deleted and replaced with the following:

"39. **Right to Expand**.

(a) Each time during the Base Term of the Lease that Landlord intends to agree to a written proposal or Landlord delivers a counter proposal which is accepted (the "**Pending Deal**") to lease the ROFR Space (as hereinafter defined) to a third party, Landlord shall deliver to Tenant written notice (the "**Pending Deal Notice**") of the existence of such Pending Deal. For purposes of this Section 39(a), "**ROFR Space**" shall mean that certain portion of the Building commonly known as Suite 100, containing approximately 14,503 rentable square feet, which is not occupied by a tenant or which is occupied by a then existing tenant and such tenant does not wish to renew (whether or not such tenant has a right to renew) its occupancy of such space. Tenant shall be entitled to exercise its right under this Section 39(a) only with respect to the entire ROFR Space described in such Pending Deal Notice ("**Identified Space**"). Within 3 days after Tenant's receipt of the Pending Deal Notice, Tenant shall deliver to Landlord written notice (the "**Space Acceptance Notice**") if Tenant elects to lease the Identified Space. Tenant's right to receive the Pending Deal Notice and election to lease or not lease the Identified Space pursuant to this Section 39(a) is hereinafter referred to as the "**Right of First Refusal**." If Tenant elects to lease the Identified Space by delivering the Space Acceptance Notice within the required 3 day period, Tenant shall be deemed to agree to lease the Identified Space on the same general terms and conditions as this Lease except that the terms of this Lease shall be modified to reflect the terms of the Pending Deal Notice for the rental of the Identified Space. Notwithstanding anything to the contrary contained herein, in no event shall the Work Letter or the Expansion Premises Work Letter apply to the Identified Space. Tenant acknowledges that the term of the Lease with respect to the Identified Space may not be co-terminous with the Term of the Lease with respect to the then-existing Premises. If Tenant fails to deliver a Space Acceptance Notice to Landlord within the required 3 day period, Tenant shall be deemed to have waived its rights under this Section 39(a) to lease the Identified Space pursuant to such Pending Deal Notice, and Landlord shall have the right to lease the Identified Space to the party subject to the Pending Deal Notice (or an affiliate of such party) on any terms and conditions acceptable to Landlord; provided, however, that in the event the economic terms as stated in the Pending Deal Notice are altered so as to reduce the Net Effective Rental Rate (as defined below) by more than ten percent (10%), Landlord will again be obligated to offer the Identified Space to Tenant on such revised terms and Tenant will have 3 days to deliver the Space Acceptance Notice as set forth above. The term "**Net Effective Rental Rate**" shall mean the rental rate, as adjusted to reflect the value of any free rent, tenant improvement allowance or similar monetary concessions. If Landlord fails to enter into a lease for the Identified Space with the party subject to the Pending Deal Notice within 6 months after Landlord's delivery of the Pending Deal Notice to Tenant, Tenant's Right of First Refusal shall be restored.

(b) **Amended Lease**. If: (i) Tenant fails to timely deliver a Space Acceptance Notice, or (ii) after the expiration of a period of 10 days after Landlord's delivery to Tenant of a lease amendment for Tenant's lease of the Identified Space, no lease amendment for the Identified Space acceptable to both parties each in their sole and absolute discretion has been executed, Tenant shall be deemed to have waived its right to lease such Identified Space (subject to the terms of Section 39(a) above).

(c) **Exceptions**. Notwithstanding the above, the Right of First Refusal shall, at Landlord's option, not be in effect and may not be exercised by Tenant:

(i) during any period of time that Tenant is in Default under any provision of this Lease;

(ii) during any period that Tenant occupies less than 100% of the Premises (which, after the Expansion Premises Commencement Date shall include the Expansion Premises); or

(iii) if Tenant has been in Default under any provision of the Lease 3 or more times, whether or not the defaults are cured, during the 12 month period prior to the date on which Tenant seeks to exercise the Right of First Refusal.

(d) **Termination**. The Right of First Refusal shall, at Landlord's option, terminate and be of no further force or effect even after Tenant's due and timely exercise of the Right of First Refusal, if, after such exercise, but prior to the commencement date of the lease of such Identified Space, (i) Tenant fails to timely cure any default by Tenant under the Lease; or (ii) Tenant has Defaulted 3 or more times during the period from the date of the exercise of the Right of First Refusal to the date of the commencement of the lease of the Identified Space, whether or not such Defaults are cured.

(e) **Rights Personal**. The Right of First Refusal is personal to Tenant and is not assignable without Landlord's consent, which may be granted or withheld in Landlord's sole discretion separate and apart from any consent by Landlord to an assignment of Tenant's interest in the Lease, except that they may be assigned to any Permitted Assignment of this Lease.

(f) **No Extensions**. The period of time within which the Right of First Refusal may be exercised shall not be extended or enlarged by reason of Tenant's inability to exercise the Right of First Refusal."

10. **Signage**. In addition to the signage provided for in Section 38 of the Lease, Tenant shall have the non-exclusive right to display an additional Building-top sign above the Expansion Premises in a location reasonably acceptable to Landlord and Tenant ("**Additional Building Sign**"). Tenant acknowledges that the Additional Building Sign including, without limitation, the location, size, color and type, shall be subject to Landlord's prior written approval, which shall not be unreasonably withheld and shall be consistent with Landlord's signage program at the Project and applicable Legal Requirements. In no event shall Tenant be entitled to more that Tenant's pro rata share of any signage. Tenant shall be responsible, at Tenant's sole cost and expense, for the installation of the Additional Building Sign, for the maintenance of the Additional Building Sign and for the removal of the Additional Building Sign at the expiration or earlier termination of the Lease and for the repair of all damage resulting from such removal.

11. **Early Termination Right**. Tenant shall have the right, subject to the provisions of this Section 11, to terminate the Lease ("**Termination Right**") with respect to the entire Premises only as of last day of the 60th month after the Expansion Premises Commencement Date ("**Early Termination Date**"), so long as Tenant delivers to Landlord (i) on or before that date that is 9 months prior to the Early Termination Date, a written notice ("**Termination Notice**"), of its election to exercise its Termination Right, and (ii) concurrent with Tenant's delivery to Landlord of the Termination Notice delivers, (a) a payment of $500,000, and (b) an amount equal to the then- current outstanding unamortized TI Rent (collectively, the "**Early Termination Payment**"). If Tenant timely and properly exercises the Termination Right, Tenant shall vacate the Premises and deliver possession thereof to Landlord in the condition required by the terms of this Lease on or before the Early Termination Date and Tenant shall have no further obligations under this Lease except for those accruing prior to the Early Termination Date and those which, pursuant to the terms of the Lease, survive the expiration or early termination of the Lease. In the event that (x) Tenant does not deliver to Landlord the Termination Notice and the Early Termination Payment within the time period provided in this paragraph, or (y) Tenant exercises its Right of First Refusal under Section 39 of the Lease, Tenant shall be deemed to have waived its Termination Right and the provisions of this Section 11 shall have no further force or effect.

12. **Community Center Amenities**.

a. **Generally**. Subject to the provisions of this Section 12, Landlord's affiliate, ARE-SD Region No. 17, LLC, a Delaware limited liability company ("**Torreyana Landlord**") may construct amenities at the property owned by Torreyana Landlord located at 10996 Torreyana Road, San Diego, California ("**Torreyana Project**"), which include, without limitation, shared conference facilities ("**Shared Conference Facilities**"), a fitness center and restaurant (collectively, the "**Amenities**") for non-exclusive use by (a) Tenant, (b) other tenants of the Project, (c) Landlord, (d) the tenants of Torreyana Landlord, (e) Torreyana Landlord, (e) other affiliates of Landlord, Torreyana Landlord and Alexandria Real Estate Equities, Inc. ("**ARE**"), (f) the tenants of such other affiliates of Landlord, Torreyana Landlord and ARE, and (g) any other parties permitted by Torreyana Landlord (collectively, "**Users**"). Landlord, Torreyana Landlord, ARE, and all affiliates of Landlord, Torreyana and ARE may be referred to collectively herein as the "**ARE Parties**." Notwithstanding anything to the contrary contained herein, Tenant acknowledges and agrees that (i) Torreyana Landlord is in the preliminary phase of design and development of the Amenities and does not currently have and may not be able to obtain the governmental approvals necessary for the development and construction of the Amenities, and (ii) Torreyana Landlord's construction of the Amenities is subject to, among other things, Torreyana Landlord's ability to obtain, on terms and conditions acceptable to Torreyana Landlord in its sole and absolute discretion, all of the governmental approvals to permit the design and construction of the Amenities, and the availability of materials and labor and all other conditions outside of Torreyana Landlord's reasonable control. Torreyana Landlord shall have the sole right to determine all matters related to the Amenities including, without limitation, relating to the design and construction thereof. Tenant acknowledges and agrees that Landlord has not made any representations or warranties regarding the development of any of the Amenities and that Tenant is not entering into this First Amendment relying on the construction and completion of the Amenities or with an expectation that the Amenities will ever be constructed.

b. **License**. Following the delivery of written notice from Landlord to Tenant that the Amenities are available for use by Tenant ("**Amenity Availability Notice**"), if at all, and so long as the Torreyana Project and the Project continue to be owned by affiliates of ARE, Tenant shall have the non-exclusive right to use the available Amenities in common with other Users pursuant to the terms of this Section 12; provided, however, that Landlord will issue to Tenant only 40 passes for the use of the fitness center at the Torreyana Project by employees of Tenant, plus, upon written notice to Landlord, Tenant shall be entitled to a maximum of 40 additional passes for the fitness center at a cost of $60 per pass per month, subject to annual adjustments, as reasonably determined by Landlord. If Landlord delivers an Amenity Availability Notice to Tenant, Tenant shall, upon the date ("**Amenities Commencement Date**") set forth in the Amenity Availability Notice, commence paying Landlord a fixed fee during the Base Term equal to $0.04 per rentable square foot of the Expansion Premises per month ("**Amenities Fee**"), which Amenities Fee shall by payable on the first day of each month during the Term so long as Tenant has the right to use the Amenities, whether or not Tenant elects to use any or all of the Amenities. The Amenities Fee shall be increased annually on each anniversary of the Expansion Premises Rent Commencement Date by the Rent Adjustment Percentage. Tenant acknowledges and agrees that if Tenant expands the Premises pursuant to Section 39 of the Lease, after the Amenities Commencement Date, Tenant shall be required to pay a per rentable square foot Amenities Fee with respect to each Identified Premises (as defined in Section 39) equal the per square foot Amenities Fee then being paid by Tenant with respect to the Expansion Premises and, if Tenant exercises its Right of First Refusal of the Lease with respect to the entire ROFR Space, Tenant shall be entitled to an additional 40 passes for the use of the fitness center by an additional 40 employees of Tenant. If Tenant expands into Identified Space under Section 39 which consists of less than the entire ROFR space, Tenant shall be entitled to its proportionate share of passes for the use of the fitness center based on the rentable square footage of such Identified Space. With respect to any Extension Term exercised by Tenant, Landlord may impose a market fee in connection with the Amenities.

c. **Shared Conference Facilities**. Use by Tenant of the Shared Conference Facilities and restaurant at the Torreyana Project shall be in common with other Users with scheduling procedures reasonably determined by Torreyana Landlord. Torreyana Landlord reserves the right to exercise its reasonable discretion in the event of conflicting scheduling requests among Users.

Any vendors engaged by Tenant in connection with Tenant's use of the Shared Conference Facilities shall be professional licensed vendors. Torreyana Landlord shall have the right to approve any vendors utilized by Tenant in connection with Tenant's use of the Shared Conference Facilities. Prior to any entry by any such vendor onto the Torreyana Project, Tenant shall deliver to Landlord a copy of the contract between Tenant and such vendor and certificates of insurance from such vendor evidencing industry standard commercial general liability, automotive liability, and workers' compensation insurance. Tenant shall cause all such vendors utilized by Tenant to provide a certificate of insurance naming Landlord, ARE, and Torreyana Landlord as additional insureds under the vendor's liability policies. Notwithstanding the foregoing, Tenant shall be required to use the food service operator used by Torreyana Landlord at the Torreyana Project for any food service or catered events held by Tenant in the Shared Conference Facilities.

Tenant shall, at Tenant's sole cost and expense, (i) be responsible for the set-up of the Shared Conference Facilities in connection with Tenant's use (including, without limitation ensuring that Tenant has a sufficient number of chairs and tables and the appropriate equipment), and (ii) surrender the Shared Conference Facilities after each time that Tenant uses the Shared Conference Facilities free of Tenant's personal property, in substantially the same set up and same condition as received, subject to casualty, and free of any debris and trash. If Tenant fails to restore and surrender the Shared Conference Facilities as required by sub-section (ii) of the immediately preceding sentence, such failure shall constitute a "**Shared Facilities Default**." Each time that Landlord reasonably determines that Tenant has committed a Shared Facilities Default, Tenant shall be required to pay Landlord a penalty within 5 days after notice from Landlord of such Shared Facilities Default. The penalty payable by Tenant in connection with the first Shared Facilities Default shall be $200. The penalty payable shall increase by $50 for each subsequent Shared Facilities Default (for the avoidance of doubt, the penalty shall be $250 for the second Shared Facilities Default, shall be $300 for the third Shared Facilities Default, etc.). In addition to the foregoing, Tenant shall be responsible for reimbursing Torreyana Landlord or Landlord, as applicable, for all costs expended by Torreyana Landlord or Landlord, as applicable, in repairing any damage to the Shared Conference Facilities, the Amenities, or the Torreyana Project caused by Tenant or any Tenant Related Party. The provisions of this Section 12(c) shall survive the expiration or earlier termination of this Lease.

d. **Rules and Regulations**. Tenant shall be solely responsible for paying any and all food services operators and any other third party vendors providing services to Tenant at the Torreyana Project. Tenant shall use the Amenities (including, without limitation, the Shared Conference Facilities) in compliance with all applicable Legal Requirements and any rules and regulations imposed by Torreyana Landlord or Landlord from time to time and in a manner that will not interfere with the rights of other Users. The use of Amenities other than the Shared Conference Facilities by employees of Tenant shall be in accordance with the terms and conditions of the standard licenses, indemnification and waiver agreement required by Torreyana Landlord or the operator of the Amenities to be executed by all persons wishing to use such Amenities. Neither Torreyana Landlord nor Landlord (nor, if applicable, any other affiliate of Landlord) shall have any liability or obligation for the breach of any rules or regulations by other Users with respect to the Amenities. Tenant shall not make any alterations, additions, or improvements of any kind to the Shared Conference Facilities, the Amenities or the Torreyana Project.

Tenant acknowledges and agrees that Torreyana Landlord shall have the right at any time and from time to time to reconfigure, relocate, modify or remove any of the Amenities at the Torreyana Project and/or to revise, expand or discontinue any of the services (if any) provided in connection with the Amenities.

e. **Waiver of Liability and Indemnification**. Tenant warrants that it will use reasonable care to prevent damage to property and injury to persons while on the Torreyana Project. Tenant waives any claims it or any Tenant Parties may have against any ARE Parties relating to, arising out of or in connection with the Amenities and any entry by Tenant and/or any Tenant Parties onto the Torreyana Project, and Tenant releases and exculpates all ARE Parties from any liability relating to, arising out of or in connection with the Amenities and any entry by Tenant and/or any Tenant Parties onto the Torreyana Project. Tenant hereby agrees to indemnify, defend, and hold harmless the ARE Parties from any claim of damage to property or injury to person relating to, arising out of or in connection with (i) the use of the Amenities by Tenant or any Tenant Parties, and (ii) any entry by Tenant and/or any Tenant Parties onto the Torreyana Project, except to the extent caused by the gross negligence or willful misconduct of any ARE Party. The provisions of this Section 12 shall survive the expiration or earlier termination of the Lease.

f. **Insurance**. As of the Amenities Commencement Date, Tenant shall cause Torreyana Landlord to be named as an additional insured under the commercial general liability policy of insurance that Tenant is required to maintain pursuant to Section 17 of the Lease.

13. **Right to Extend**. Section 40 of the Lease is hereby deleted and is null and void and of no further force or effect.

14. **Brokers**. Landlord and Tenant each represents and warrants that it has not dealt with any broker, agent or other person (collectively, "**Broker**") in connection with the transaction reflected in this First Amendment and that no Broker brought about this transaction, other than Cushman & Wakefield, Inc. Landlord and Tenant each hereby agrees to indemnify and hold the other harmless from and against any claims by any Broker claiming a commission or other form of compensation by virtue of having dealt with Tenant or Landlord, as applicable, with regard to this leasing transaction.

15. **Miscellaneous**.

a. This First Amendment is the entire agreement between the parties with respect to the subject matter hereof and supersedes all prior and contemporaneous oral and written agreements and discussions. This First Amendment may be amended only by an agreement in writing, signed by the parties hereto.

b. This First Amendment is binding upon and shall inure to the benefit of the parties hereto, and their respective successors and assigns.

c. This First Amendment may be executed in any number of counterparts, each of which shall be deemed an original, but all of which when taken together shall constitute one and the same instrument. The signature page of any counterpart may be detached therefrom without impairing the legal effect of the signature(s) thereon provided such signature page is attached to any other counterpart identical thereto except having additional signature pages executed by other parties to this First Amendment attached thereto.

d. Except as amended and/or modified by this First Amendment, the Lease is hereby ratified and confirmed and all other terms of the Lease shall remain in full force and effect, unaltered and unchanged by this First Amendment. In the event of any conflict between the provisions of this First Amendment and the provisions of the Lease, the provisions of this First Amendment shall prevail. Whether or not specifically amended by this First Amendment, all of the terms and provisions of the Lease are hereby amended to the extent necessary to give effect to the purpose and intent of this First Amendment.

[Signatures are on the next page.]

IN WITNESS WHEREOF, the parties hereto have executed this First Amendment as of the day and year first above written.

TENANT:

ORGANOVO, INC.
a Delaware corporation

By: /s/ Keith Murphy
Its: Chief Executive Officer

LANDLORD:

ARE-SD REGION NO. 25, LLC
a Delaware limited liability company

By: ALEXANDRIA REAL ESTATE EQUITIES, L.P., a Delaware limited partnership, managing member

By: ARE-QRS CORP., a Maryland corporation, general partner

By: /s/ Gary Dean
Its: Vice President, Legal Affairs

EXHIBIT A

The Expansion Premises

EXHIBIT B

Expansion Lab Premises Work Letter

THIS EXPANSION LAB PREMISES WORK LETTER (this "**Expansion Lab Premises Work Letter**") is incorporated into that certain Lease Agreement dated as of December 4, 2013 and between **ARE-SD REGION NO. 25, LLC**, a Delaware limited liability company ("**Landlord**"), and **ORGANOVO, INC.**, a Delaware corporation ("**Tenant**"), as amended by that certain First Amendment to Lease of even date herewith (as amended, the "**Lease**"). Any initially capitalized terms used but not defined herein shall have the meanings given them in the Lease.

1. **General Requirements.**

(a) **Tenant's Authorized Representative**. Tenant designates Keith Murphy and Craig Halberstadt (either such individual acting alone, "**Tenant's Representative**") as the only persons authorized to act for Tenant pursuant to this Expansion Lab Premises Work Letter. Landlord shall not be obligated to respond to or act upon any request, approval, inquiry or other communication ("**Communication**") from or on behalf of Tenant in connection with this Expansion Lab Premises Work Letter unless such Communication is in writing from Tenant's Representative. Tenant may change either Tenant's Representative at any time upon not less than 5 business days advance written notice to Landlord.

(b) **Landlord's Authorized Representative**. Landlord designates Brian Smith, Jen Gardner and Dan Ryan (either such individual acting alone, "**Landlord's Representative**") as the only persons authorized to act for Landlord pursuant to this Expansion Lab Premises Work Letter. Tenant shall not be obligated to respond to or act upon any request, approval, inquiry or other Communication from or on behalf of Landlord in connection with this Expansion Lab Premises Work Letter unless such Communication is in writing from Landlord's Representative. Landlord may change either Landlord's Representative at any time upon not less than 5 business days advance written notice to Tenant.

(c) **Architects, Consultants and Contractors**. Landlord and Tenant hereby acknowledge and agree that: (i) the general contractor and any subcontractors for the Tenant Improvements shall be selected by Landlord, subject to Tenant's approval, which approval shall not be unreasonably withheld, conditioned or delayed, and (ii) Gensler shall be the architect (the "**TI Architect**") for the Tenant Improvements.

2. **Tenant Improvements.**

(a) **Tenant Improvements Defined**. As used herein, "**Tenant Improvements**" shall mean all improvements to the Expansion Lab Premises of a fixed and permanent nature as shown on the TI Construction Drawings, as defined in Section 2(c) below. Other than Landlord's Work (as defined in Section 3(a) below, Landlord shall not have any obligation whatsoever with respect to the finishing of the Expansion Lab Premises for Tenant's use and occupancy.

(b) **Tenant's Space Plans**. Tenant shall deliver to Landlord and the TI Architect schematic drawings and outline specifications (the "**TI Design Drawings**") detailing Tenant's requirements for the Tenant Improvements within 15 business days of the date hereof. Not more than 10 days thereafter, Landlord shall deliver to Tenant the written objections, questions or comments of Landlord and the TI Architect with regard to the TI Design Drawings. Tenant shall cause the TI Design Drawings to be revised to address such written comments and shall resubmit said drawings to Landlord for approval within 10 days thereafter. Such process shall continue until Landlord has approved the TI Design Drawings.

(c) **Working Drawings**. Not later than 10 business days following the approval of the TI Design Drawings, Landlord shall cause the TI Architect to prepare and deliver to Tenant for review and comment construction plans, specifications and drawings for the Tenant Improvements ("**TI Construction Drawings**"), which TI Construction Drawings shall be prepared substantially in accordance with the TI Design Drawings. Tenant shall be solely responsible for ensuring that the TI Construction Drawings reflect Tenant's requirements for the Tenant Improvements. Tenant shall deliver its written comments on the TI Construction Drawings to Landlord not later than 10 business days after Tenant's receipt of the same; provided, however, that Tenant may not disapprove any matter that is consistent with the TI Design Drawings without submitting a Change Request. Landlord and the TI Architect shall consider all such comments in good faith and shall, within 10 business days after receipt, notify Tenant how Landlord proposes to respond to such comments, but Tenant's review rights pursuant to the foregoing sentence shall not delay the design or construction schedule for the Tenant Improvements. Any disputes in connection with such comments shall be resolved in accordance with Section 2(d) hereof. Provided that the design reflected in the TI Construction Drawings is consistent with the TI Design Drawings, Tenant shall approve the TI Construction Drawings submitted by Landlord, unless Tenant submits a Change Request. Once approved by Tenant, subject to the provisions of Section 4 below, Landlord shall not materially modify the TI Construction Drawings except as may be reasonably required in connection with the issuance of the TI Permit (as defined in Section 3(b) below).

(d) **Approval and Completion**. It is hereby acknowledged by Landlord and Tenant that the TI Construction Drawings must be completed and approved not later than January 31, 2014, in order for the Landlord's Work to be Substantially Complete by the Target Expansion Premises Commencement Date (as defined in the First Amendment). Upon any dispute regarding the design of the Tenant Improvements, which is not settled within 10 business days after notice of such dispute is delivered by one party to the other, Tenant may make the final decision regarding the design of the Tenant Improvements, provided (i) Tenant acts reasonably and such final decision is either consistent with or a compromise between Landlord's and Tenant's positions with respect to such dispute, (ii) that all costs and expenses resulting from any such decision by Tenant shall be payable out of the TI Fund (as defined in Section 5(d) below), and (iii) Tenant's decision will not affect the base Building, structural components of the Building or any Building systems. Any changes to the TI Construction Drawings following Landlord's and Tenant's approval of same requested by Tenant shall be processed as provided in Section 4 hereof.

3. **Performance of Landlord's Work.**

(a) **Definition of Landlord's Work**. As used herein, "**Landlord's Work**" shall mean the work of constructing the Tenant Improvements.

(b) **Commencement and Permitting**. Landlord shall commence construction of the Tenant Improvements upon obtaining a building permit (the "**TI Permit**") authorizing the construction of the Tenant Improvements consistent with the TI Construction Drawings approved by Tenant. The cost of obtaining the TI Permit shall be payable from the TI Fund. Tenant shall assist Landlord in obtaining the TI Permit. If any Governmental Authority having jurisdiction over the construction of Landlord's Work or any portion thereof shall impose terms or conditions upon the construction thereof that: (i) are inconsistent with Landlord's obligations hereunder, (ii) increase the cost of constructing Landlord's Work, or (iii) will materially delay the construction of Landlord's Work, Landlord and Tenant shall reasonably and in good faith seek means by which to mitigate or eliminate any such adverse terms and conditions.

(c) **Completion of Landlord's Work**. Landlord shall substantially complete or cause to be substantially completed Landlord's Work in a good and workmanlike manner, in accordance with the TI Permit subject, in each case, to Minor Variations and normal "punch list" items of a non-material nature that do not interfere with the use of the Expansion Lab Premises ("**Substantial Completion**" or "**Substantially Complete**"). Upon Substantial Completion of Landlord's Work, Landlord shall require the TI Architect and the general contractor to execute and deliver, for the benefit of Tenant and Landlord, a Certificate of Substantial Completion in the form of the American Institute of Architects ("**AIA**") document G704. For purposes of this Expansion Lab Premises Work Letter, "**Minor Variations**" shall mean any modifications reasonably required: (i) to comply with all applicable Legal Requirements and/or to obtain or to comply with any required permit (including the TI Permit); (ii) to comply with any request by Tenant for modifications to Landlord's Work; (iii) to comport with good design, engineering, and construction practices that are not material; or (iv) to make reasonable adjustments for field deviations or conditions encountered during the construction of Landlord's Work.

(d) **Selection of Materials**. Where more than one type of material or structure is indicated on the TI Construction Drawings approved by Landlord and Tenant, the option will be selected at Landlord's sole and absolute subjective discretion. As to all building materials and equipment that Landlord is obligated to supply under this Expansion Lab Premises Work Letter, Landlord shall select the manufacturer thereof in its sole and absolute subjective discretion.

(e) **Delivery of the Expansion Lab Premises**. When Landlord's Work is Substantially Complete, subject to the remaining terms and provisions of this Section 3(e), Tenant shall accept the Expansion Lab Premises. Tenant's taking possession and acceptance of the Expansion Lab Premises shall not constitute a waiver of: (i) any warranty with respect to workmanship (including installation of equipment) or material (exclusive of equipment provided directly by manufacturers), (ii) any non-compliance of Landlord's Work with applicable Legal Requirements, or (iii) any claim that Landlord's Work was not completed substantially in accordance with the TI Construction Drawings (subject to Minor Variations and such other changes as are permitted hereunder) (collectively, a "**Construction Defect**"). Tenant shall have one year after Substantial Completion within which to notify Landlord of any such Construction Defect discovered by Tenant, and Landlord shall use reasonable efforts to remedy or cause the responsible contractor to remedy any such Construction Defect within 30 days thereafter. Notwithstanding the foregoing, Landlord shall not be in default under the Lease if the applicable contractor, despite Landlord's reasonable efforts, fails to remedy such Construction Defect within such 30-day period, in which case Landlord shall have no further obligation with respect to such Construction Defect other than to cooperate, at no cost to Landlord, with Tenant should Tenant elect to pursue a claim against such contractor, provided that Tenant shall defend with counsel reasonably acceptable to Landlord, indemnify and hold Landlord harmless from and against any claims arising out of or in connection with any such claim.

Tenant shall be entitled to receive the benefit of all construction warranties and manufacturer's equipment warranties relating to equipment installed in the Expansion Lab Premises. If requested by Tenant, Landlord shall attempt to obtain extended warranties from manufacturers and suppliers of such equipment, but the cost of any such extended warranties shall be borne solely out of the TI Fund. Landlord shall promptly undertake and complete, or cause to be completed, all punch list items.

(f) **Expansion Premises Commencement Date Delay**. Except as otherwise provided in the Lease, Delivery of the Expansion Lab Premises shall occur when Landlord's Work has been Substantially Completed, except to the extent that completion of Landlord's Work shall have been actually delayed by any one or more of the following causes ("**Tenant Delay**"):

(i) Tenant's Representative was not available to give or receive any Communication or to take any other action required to be taken by Tenant hereunder;

(ii) Tenant's request for Change Requests (as defined in Section 4(a) below) whether or not any such Change Requests are actually performed;

(iii) Construction of any Change Requests;

(iv) Tenant's request for materials, finishes or installations requiring unusually long lead times;

(v) Tenant's delay in reviewing, revising or approving plans and specifications beyond the periods set forth herein;

(vi) Tenant's delay in providing information critical to the normal progression of the Project. Tenant shall provide such information as soon as reasonably possible, but in no event longer than one week after receipt of any request for such information from Landlord;

(vii) Tenant's delay in making payments to Landlord for Excess TI Costs (as defined in Section 5(d) below); or

(viii) Any other act or omission by Tenant or any Tenant Party (as defined in the Lease), or persons employed by any of such persons.

If Delivery is delayed for any of the foregoing reasons, then Landlord shall cause the TI Architect to certify the date on which the Tenant Improvements would have been Substantially Completed but for such Tenant Delay and such certified date shall be the date of Delivery.

4. **Changes**. Any changes requested by Tenant to the Tenant Improvements after the delivery and approval by Landlord of the TI Design Drawings shall be requested and instituted in accordance with the provisions of this Section 4 and shall be subject to the written approval of Landlord and the TI Architect, such approval not to be unreasonably withheld, conditioned or delayed.

(a) **Tenant's Request For Changes**. If Tenant shall request changes to the Tenant Improvements ("**Changes**"), Tenant shall request such Changes by notifying Landlord in writing in substantially the same form as the AIA standard change order form (a "**Change Request**"), which Change Request shall detail the nature and extent of any such Change. Such Change Request must be signed by Tenant's Representative. Landlord shall, before proceeding with any Change, use commercially reasonable efforts to respond to Tenant as soon as is reasonably possible with an estimate of: (i) the time it will take, and (ii) the architectural and engineering fees and costs that will be incurred, to analyze such Change Request (which costs shall be paid from the TI Fund to the extent actually incurred, whether or not such change is implemented). Landlord shall thereafter submit to Tenant in writing, within 5 business days of receipt of the Change Request (or such longer period of time as is reasonably required depending on the extent of the Change Request), an analysis of the additional cost or savings involved, including, without limitation, architectural and engineering costs and the period of time, if any, that the Change will extend the date on which Landlord's Work will be Substantially Complete. Any such delay in the completion of Landlord's Work caused by a Change, including any suspension of Landlord's Work while any such Change is being evaluated and/or designed, shall be Tenant Delay.

(b) **Implementation of Changes**. If Tenant: (i) approves in writing the cost or savings and the estimated extension in the time for completion of Landlord's Work, if any, and (ii) deposits with Landlord any Excess TI Costs required in connection with such Change, Landlord shall cause the approved Change to be instituted. Notwithstanding any approval or disapproval by Tenant of any estimate of the delay caused by such proposed Change, the TI Architect's determination of the amount of Tenant Delay in connection with such Change shall be final and binding on Landlord and Tenant.

5. **Costs.**

(a) **Budget For Tenant Improvements**. Before the commencement of construction of the Tenant Improvements, Landlord shall obtain a detailed breakdown by trade of the costs incurred or that will be incurred in connection with the design and construction of the Tenant Improvements (the "**Budget**"). The Budget shall be based upon the TI Construction Drawings approved by Tenant and shall include a payment to Landlord of administrative rent ("**Administrative Rent**") equal to 3% of the TI Costs for monitoring and inspecting the construction of the Tenant Improvements and Changes, which sum shall be payable from the TI Fund (as defined in Section 5(d). Administrative Rent shall include, without limitation, all out-of-pocket costs, expenses and fees incurred by or on behalf of Landlord arising from, out of, or in connection with monitoring the construction of the Tenant Improvements and Changes, and shall be payable out of the TI Fund. If the Budget is greater than the TI Allowance, Tenant shall deposit with Landlord the difference, in cash, prior to the commencement of construction of the Tenant Improvements or Changes, for disbursement by Landlord as described in Section 5(d).

(b) **TI Allowance**. Landlord shall provide to Tenant a tenant improvement allowance (collectively, the "**TI Allowance**") as follows:

(i) a "**Tenant Improvement Allowance**" in the maximum amount of $46.00 per rentable square foot in the Expansion Premises, or $702,328 in the aggregate, which is included in the Base Rent set forth in the Lease; and

(ii) an "**Additional Tenant Improvement Allowance**" in the maximum amount of $25.00 per rentable square foot in the Expansion Premises, or $381,700 in the aggregate, which shall, to the extent used, result in the payment of TI Rent as provided in Section 5.c. of the First Amendment.

Before commencing Tenant's Work (as defined in Section 6 below), Tenant shall notify Landlord how much Additional Tenant Improvement Allowance Tenant has elected to receive from Landlord. Such election shall be final and binding on Tenant, and may not thereafter be modified without Landlord's consent, which may be granted or withheld in Landlord's sole and absolute subjective discretion. The TI Allowance shall be disbursed in accordance with this Expansion Lab Premises Work Letter.

Tenant shall have no right to the use or benefit (including any reduction to or payment of Base Rent) of any portion of the TI Allowance not required for the construction of (i) the Tenant Improvements described in the TI Construction Drawings approved pursuant to Section 2(d) or (ii) any Changes pursuant to Section 4.

(c) **Costs Includable in TI Fund**. The TI Fund shall be used solely for the payment of design, permits and construction costs in connection with the construction of the Tenant Improvements, including, without limitation, the cost of electrical power and other utilities used in connection with the construction of the Tenant Improvements, the cost of preparing the TI Design Drawings and the TI Construction Drawings, all costs set forth in the Budget, including Landlord's Administrative Rent, Landlord's out-of-pocket expenses, costs resulting from Tenant Delays and the cost of Changes (collectively, "**TI Costs**"). Notwithstanding anything to the contrary contained herein, the TI Fund shall not be used to purchase any furniture, personal property or other non-Building system materials or equipment, including, but not limited to, Tenant's voice or data cabling, non-ducted biological safety cabinets and other scientific equipment not incorporated into the Tenant Improvements.

(d) **Excess TI Costs**. Landlord shall have no obligation to bear any portion of the cost of any of the Tenant Improvements except to the extent of the TI Allowance. If at any time the remaining TI Costs under the Budget exceed the remaining unexpended TI Allowance, Tenant shall deposit with Landlord, as a condition precedent to Landlord's obligation to complete the Tenant Improvements, 100% of the then current TI Cost in excess of the remaining TI Allowance ("**Excess TI Costs**"). If Tenant fails to deposit any Excess TI Costs with Landlord, Landlord shall have all of the rights and remedies set forth in the Lease for nonpayment of Rent (including, but not limited to, the right to interest at the Default Rate and the right to assess a late charge). For purposes of any litigation instituted with regard to such amounts, those amounts will be deemed Rent under the Lease. The TI Allowance and Excess TI Costs are herein referred to as the "**TI Fund**." Funds deposited by Tenant shall be the first disbursed to pay TI Costs. Notwithstanding anything to the contrary set forth in this Section 5(d), Tenant shall be fully and solely liable for TI Costs and the cost of Minor Variations in excess of the TI Allowance. If upon completion of the Tenant Improvements and the payment of all sums due in connection therewith there remains any undisbursed portion of the TI Fund, Tenant shall be entitled to such undisbursed TI Fund solely to the extent of any Excess TI Costs deposit Tenant has actually made with Landlord.

6. **Tenant Access.**

(a) **Tenant's Access Rights**. Landlord hereby agrees to permit Tenant access, at Tenant's sole risk and expense, to the Expansion Lab Premises (i) 7 days prior to the Expansion Premises Commencement Date to perform any work ("**Tenant's Work**") required by Tenant other than Landlord's Work, provided that such Tenant's Work is coordinated with the TI Architect and the general contractor, and complies with the Lease and all other reasonable restrictions and conditions Landlord may impose, and (ii) prior to the completion of Landlord's Work, to inspect and observe work in process; all such access shall be during normal business hours or at such other times as are reasonably designated by Landlord. Any entry by Tenant shall comply with all established safety practices of Landlord's contractor and Landlord until completion of Landlord's Work and acceptance thereof by Tenant.

(b) **No Interference**. Neither Tenant nor any Tenant Party (as defined in the Lease) shall interfere with the performance of Landlord's Work, nor with any inspections or issuance of final approvals by applicable Governmental Authorities, and upon any such interference, Landlord shall have the right to exclude Tenant and any Tenant Party from the Expansion Premises until Substantial Completion of Landlord's Work.

(c) **No Acceptance of Expansion Lab Premises**. The fact that Tenant may, with Landlord's consent, enter into the Expansion Lab Premises prior to the date Landlord's Work is Substantially Complete for the purpose of performing Tenant's Work shall not be deemed an acceptance by Tenant of possession of the Expansion Lab Premises, but in such event Tenant shall defend with counsel reasonably acceptable by Landlord, indemnify and hold Landlord harmless from and against any loss of or damage to Tenant's property, completed work, fixtures, equipment, materials or merchandise, and from liability for death of, or injury to, any person, caused by the act or omission of Tenant or any Tenant Party.

7. **Miscellaneous.**

(a) **Consents**. Whenever consent or approval of either party is required under this Expansion Lab Premises Work Letter, that party shall not unreasonably withhold, condition or delay such consent or approval, unless expressly set forth herein to the contrary.

(b) **Modification**. No modification, waiver or amendment of this Expansion Lab Premises Work Letter or of any of its conditions or provisions shall be binding upon Landlord or Tenant unless in writing signed by Landlord and Tenant.

AMENDMENT NO. 2 TO THE

2012 EQUITY INCENTIVE PLAN

This Amendment to the 2012 Equity Incentive Plan (the "Plan Amendment") of Organovo Holdings, Inc., a Delaware corporation (the "Company"), was approved by the Board of Directors of the Company, effective as of February 3, 2014.

1. Amendment of Section 6.d.iii. Section 6.d.iii. the Company's 2012 Equity Incentive Plan (the "Plan") is hereby amended and restated and replaced in its entirety with the following:

   "(iii) Disability of Participant. Unless otherwise specified in the Award Agreement, if a Participant ceases to be a Service Provider as a result of the Participant's Disability, the Participant will fully vest in and have the right to exercise all of his or her outstanding Options within such period of time as is specified in the Award Agreement (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement), provided, however, that the accelerated vesting shall only apply to Options granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's Disability. In the absence of a specified time in the Award Agreement, the Option will remain exercisable for six (6) months following the date a Participant ceases to be a Service Provider as a result of Participant's Disability. If a Participant's Award Agreement specifically provides that Participant will not fully vest in all of the Shares covered by the Option on the date Participant ceases to be a Service Provider as a result of Participant's Disability, the Shares covered by the unvested portion of the Option will revert to the Plan. If after Participant ceases to be a Service Provider as a result of Participant's Disability, Participant does not exercise his or her Option within the time specified herein, the Option will terminate, and the Shares covered by such Option will revert to the Plan."

2. Amendment of Section 6.d.iv. Section 6.d.iv. the Plan is hereby amended and restated and replaced in its entirety with the following:

   "(iv) Death of Participant. Unless otherwise specified in the Award Agreement, if a Participant dies while a Service Provider, the Participant's outstanding Options will fully vest and may be exercised within such period of time as is specified in the Award Agreement (but in no event later than the expiration of the term of such Option as set forth in the Award Agreement), by the Participant's designated beneficiary, provided such beneficiary has been designated prior to Participant's death in a form acceptable to the Administrator, provided, further, that the accelerated vesting shall only apply to Options granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's death. If no such beneficiary has been designated by the Participant, then such Option may be exercised by the personal representative of the Participant's estate or by the person(s) to whom the Option is transferred pursuant to the Participant's will or in accordance with the laws of descent and distribution. In the absence of a specified time in the Award Agreement, the Option will remain exercisable for six (6) months following Participant's death. If a Participant's Award Agreement specifically provides that Participant will not fully vest in all of the Shares covered by the Option if Participant dies while a Service Provider, the Shares covered by the unvested portion of the Option will continue to vest in accordance with the Award Agreement. If the Option is not so exercised within the time specified herein, the Option will terminate, and the Shares covered by such Option will revert to the Plan."

3. The following new Subsection (g) shall be added to the end of Section 7 of the Plan:

"(g) Death or Disability of Participant. Unless otherwise specified in the Award Agreement, if a Participant ceases to be a Service Provider as a result of the Participant's death or Disability, all of his or her outstanding Stock Appreciation Rights will fully vest and may be exercised within such period of time as is specified in the Award Agreement (but in no event later than the expiration of the term of such Stock Appreciation Rights as set forth in the Award Agreement) by the Participant or the Participant's designated beneficiary, provided such beneficiary has been designated prior to Participant's death in a form acceptable to the Administrator), provided, further, that the accelerated vesting shall only apply to Stock Appreciation Rights granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's death or Disability. If no such beneficiary has been designated by the Participant, then such Stock Appreciate Rights may be exercised by the personal representative of the Participant's estate or by the person(s) to whom the Stock Appreciation Right is transferred pursuant to the Participant's will or in accordance with the laws of descent and distribution. In the absence of a specified time in the Award Agreement, the Stock Appreciation Rights will remain exercisable for six (6) months following the date the Participant ceases to be a Service Provider as a result of Participant's death or Disability. If the Stock Appreciation Right is not so exercised within the time specified herein, the Stock Appreciation Right will terminate."

4. <u>Amendment of Section 8.e</u>. Section 8.e the Plan is hereby amended and restated and replaced in its entirety with the following:

"(e) Removal of Restrictions. Except as otherwise provided in this Section 8, Shares of Restricted Stock covered by each Restricted Stock grant made under the Plan will be released from escrow as soon as practicable after the last day of the Period of Restriction. The Administrator, in its discretion, may accelerate the time at which any restrictions will lapse or be removed. Unless otherwise specified in the Award Agreement, if a Participant ceases to be a Service Provider as a result of the Participant's death or Disability, all restrictions on his or her outstanding Restricted Stock, other than those that are Performance Shares (see Section 10 below), will automatically lapse or be removed), provided, however, that the accelerated vesting shall only apply to Restricted Stock granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's death or Disability."

5. Amendment of Section 9.b. Section 9.b the Plan is hereby amended and restated and replaced in its entirety with the following:

"(b) Vesting Criteria and Other Terms. The Administrator will set vesting criteria in its discretion, which, depending on the extent to which the criteria are met, will determine the number of Restricted Stock Units that will be paid out to the Participant. After the grant of Restricted Stock Units, the Administrator, in its sole discretion, may reduce or waive any restrictions for such Restricted Stock Units. Each Award of Restricted Stock Units will be evidenced by an Award Agreement that will specify the vesting criteria, and such other terms and conditions as the Administrator, in its sole discretion will determine. The Administrator, in its discretion, may accelerate the time at which any restrictions will lapse or be removed. Unless otherwise specified in the Award Agreement, if a Participant ceases to be a Service Provider as a result of the Participant's death or Disability, all restrictions on his or her outstanding Restricted Stock Units, other than those that are Performance Units (see Section 10 below), will automatically lapse or be removed), provided, however, that the accelerated vesting shall only apply to Restricted Stock Units granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's death or Disability."

6. Amendment of Section 10.c. Section 10.c. the Plan is hereby amended and restated and replaced in its entirety with the following:

"(c) Performance Objectives and Other Terms. The Administrator will set performance objectives or other vesting provisions. The Administrator may set vesting criteria based upon the achievement of Company-wide, business unit, or individual goals (including, but not limited to, continued employment), or any other basis determined by the Administrator in its discretion. Each Award of Performance Units/Shares will be evidenced by an Award Agreement that will specify the Performance Period, and such other terms and conditions as the Administrator, in its sole discretion, will determine. Unless otherwise specified in the Award Agreement, if a Participant ceases to be a Service Provider as a result of the Participant's death or Disability, all Performance Goals or other vesting criteria will be deemed achieved at target levels and all other terms and conditions met), provided, however, that the accelerated vesting shall only apply to Performance Units/Shares granted to the Participant at least 90 days before the Participant ceases to be a Service Provider as a result of Participant's death or Disability."

7. Effect of Plan Amendment. Except as expressly modified by this Plan Amendment, the Plan shall remain unmodified and in full force and effect.

EXHIBIT 10.4

ORGANOVO HOLDINGS, INC.
2012 EQUITY INCENTIVE PLAN

STOCK OPTION AWARD AGREEMENT
(EXECUTIVE)

Unless otherwise defined herein, the terms defined in the Organovo Holdings, Inc. 2012 Equity Incentive Plan (the "Plan") will have the same defined meanings in this Stock Option Award Agreement (the "Award Agreement").

I. NOTICE OF STOCK OPTION GRANT

Participant Name:

You have been granted an Option to purchase Common Stock of Organovo Holdings, Inc. (the "Company"), subject to the terms and conditions of the Plan and this Award Agreement, as follows:

Date of Grant	______________________________
Vesting Commencement Date	______________________________
Exercise Price per Share	$______________________________
Total Number of Shares Granted	______________________________
Total Exercise Price	$______________________________
Type of Option	______ Incentive Stock Option
	______ Nonstatutory Stock Option
Term/Expiration Date:	______________________________

Vesting and Exercise Schedule:

Subject to any acceleration provisions contained in the Plan or set forth below, this Option may be exercised and will vest, in whole or in part, in accordance with the following schedule: 25% of the option shares vest and become exercisable 12 months from the Vesting Start Date, and the remaining option shares vest and become exercisable on a quarterly basis over the next 12 quarters (for a total vesting period of 48 months from the Vesting Start Date).

Notwithstanding the foregoing, the portion of the Option Share that had not yet become vested and exercisable as of the date of termination of service shall immediately become 100% vested and exercisable if (1) the Participant's service with the Company terminates more than 90 days after the Grant Date due to the Participant's death or Disability (as defined in the Plan); or (2) the Participant's service with the Company is terminated either by the Company or its successor without Cause (as defined below) or by the Participant for Good Reason (as defined below) coincident with or within one year after a Change in Control.

"Cause" has the meaning specified in the Participant's written employment or service agreement with the Company as in effect at the time at issue or, in the absence of an applicable definition, means the Participant's (i) conviction of, or plea of nolo contendere to, a felony or crime involving moral turpitude; (ii) fraud on or misappropriation of any funds or property of the Company, any affiliate, customer or vendor; (iii) personal dishonesty, incompetence, willful misconduct, willful violation of any law, rule or regulation (other than minor traffic violations or similar offenses) or breach of fiduciary duty which involves personal profit; (iv) willful misconduct in connection with the Participant's duties or willful failure to perform the Participant's responsibilities in the best interests of the Company; (v) illegal use or distribution of drugs; (vi) violation of any Company rule, regulation, procedure or policy; or (vii) breach of any provision of any employment, non-disclosure, non-competition, non-solicitation or other similar agreement executed by the Participant for the benefit of the Company, all as determined by the Administrator, which determination shall be conclusive.

"Good Reason" has the meaning specified in the Participant's written employment or service agreement with the Company as in effect at the time at issue or, in the absence of an applicable definition, means the occurrence of any of the following without the Participant's consent: (i) a material diminution in the Participant's base salary; (ii) a material diminution in the Participant's authority, duties, or responsibilities; (iii) a material diminution in the authority, duties, or responsibilities of the supervisor to whom the Participant is required to report, including a requirement that the Participant report to a corporate officer or employee instead of the Board; (iv) a material diminution in the budget over which the Participant retains authority; (v) any requirement that the Participant relocate, by more than 50 miles, the principal location from which the Participant performs services for the Company as compared to such location immediately prior to the occurrence of the Change in Control; or (vi) any other action or inaction that constitutes a material breach by the Company of any agreement under which the Participant provides services.

Termination Period:

This Option will be exercisable for [three (3)] months after Participant ceases to be a Service Provider, unless such termination is due to Participant's death or Disability, in which case this Option will be exercisable for [twelve (12)] months after Participant ceases to be Service Provider. Notwithstanding the foregoing, in no event may this Option be exercised after the Term/Expiration Date as provided above and may be subject to earlier termination as provided in Section 15 of the Plan.

By Participant's signature and the signature of the Company's representative below, Participant and the Company agree that this Option is granted under and governed by the terms and conditions of the Plan and this Award Agreement, including the Terms and Conditions of Stock Option Grant, attached hereto as Exhibit A, all of which are made a part of this document. Participant has reviewed the Plan and this Award Agreement in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Award Agreement and fully understands all provisions of the Plan and Award Agreement. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator upon any questions relating to the Plan and Award Agreement. Participant further agrees to notify the Company upon any change in the residence address indicated below.

PARTICIPANT	ORGANOVO HOLDINGS, INC.
Signature	By
Print Name	Title

Residence Address:

EXHIBIT A

TERMS AND CONDITIONS OF STOCK OPTION GRANT

1. Grant of Option. The Company hereby grants to the Participant (the "Participant") named in the Stock Option Award Agreement ("Award Agreement") an option (the "Option") to purchase the number of Shares, as set forth in the Award Agreement, at the exercise price per share set forth in the Award Agreement (the "Exercise Price"), subject to all of the terms and conditions in this Award Agreement and the Organovo Holdings, Inc. 2012 Equity Incentive Plan (the "Plan"), which is incorporated herein by reference. Subject to Section 20 of the Plan, in the event of a conflict between the terms and conditions of the Plan and the terms and conditions of this Award Agreement, the terms and conditions of the Plan will prevail.

If designated in the Notice of Grant as an Incentive Stock Option ("ISO"), this Option is intended to qualify as an ISO under Section 422 of the Internal Revenue Code of 1986, as amended (the "Code"). However, if this Option is intended to be an ISO, to the extent that it exceeds the $100,000 rule of Code Section 422(d) it will be treated as a Nonstatutory Stock Option ("NSO"). Further, if for any reason this Option (or portion thereof) will not qualify as an ISO, then, to the extent of such nonqualification, such Option (or portion thereof) shall be regarded as a NSO granted under the Plan. In no event will the Administrator, the Company or any Parent or Subsidiary or any of their respective employees or directors have any liability to Participant (or any other person) due to the failure of the Option to qualify for any reason as an ISO.

2. Vesting Schedule. Except as provided in Section 3, the Option awarded by this Award Agreement will vest in accordance with the vesting provisions set forth in the Award Agreement. Shares scheduled to vest on a certain date or upon the occurrence of a certain condition will not vest in Participant in accordance with any of the provisions of this Award Agreement, unless Participant will have been continuously a Service Provider from the Date of Grant until the date such vesting occurs.

3. Administrator Discretion. The Administrator, in its discretion, may accelerate the vesting of the balance, or some lesser portion of the balance, of the unvested Option at any time, subject to the terms of the Plan. If so accelerated, such Option will be considered as having vested as of the date specified by the Administrator.

4. Exercise of Option.

(a) Right to Exercise. This Option may be exercised only within the term set out in the Award Agreement, and may be exercised during such term only in accordance with the Plan and the terms of this Award Agreement.

(b) Method of Exercise. This Option is exercisable by delivery of an exercise notice, in the form attached as Exhibit B (the "Exercise Notice") or in a manner and pursuant to such procedures as the Administrator may determine, which will state the election to exercise the Option, the number of Shares in respect of which the Option is being exercised (the "Exercised Shares"), and such other representations and agreements as may be required by the Company pursuant to the provisions of the Plan. The Exercise Notice will be completed by Participant and delivered to the Company. The Exercise Notice will be accompanied by payment of the aggregate Exercise Price as to all Exercised Shares together with any applicable tax withholding. This Option will be deemed to be exercised upon receipt by the Company of such fully executed Exercise Notice accompanied by such aggregate Exercise Price.

5. Method of Payment. Payment of the aggregate Exercise Price will be by any of the following, or a combination thereof, at the election of Participant.

(a) cash;

(b) check;

(c) consideration received by the Company under a formal cashless exercise program adopted by the Company in connection with the Plan; or

(d) surrender of other Shares which have a Fair Market Value on the date of surrender equal to the aggregate Exercise Price of the Exercised Shares, provided that accepting such Shares, in the sole discretion of the Administrator, will not result in any adverse accounting consequences to the Company.

6. Tax Obligations.

(a) Withholding Taxes. Notwithstanding any contrary provision of this Award Agreement, no certificate representing the Shares will be issued to Participant, unless and until satisfactory arrangements (as determined by the Administrator) will have been made by Participant with respect to the payment of income, employment and other taxes which the Company determines must be withheld with respect to such Shares. To the extent determined appropriate by the Company in its discretion, it will have the right (but not the obligation) to satisfy any tax withholding obligations by reducing the number of Shares otherwise deliverable to Participant. If Participant fails to make satisfactory arrangements for the payment of any required tax withholding obligations hereunder at the time of the Option exercise, Participant acknowledges and agrees that the Company may refuse to honor the exercise and refuse to deliver Shares if such withholding amounts are not delivered at the time of exercise.

(b) Notice of Disqualifying Disposition of ISO Shares. If the Option granted to Participant herein is an ISO, and if Participant sells or otherwise disposes of any of the Shares acquired pursuant to the ISO on or before the later of (i) the date two (2) years after the Date of Grant, or (ii) the date one (1) year after the date of exercise, Participant will immediately notify the Company in writing of such disposition. Participant agrees that Participant may be subject to income tax withholding by the Company on the compensation income recognized by Participant.

(c) Code Section 409A. Under Code Section 409A, an option that vests after December 31, 2004 (or that vested on or prior to such date but which was materially modified after October 3, 2004) that was granted with a per Share exercise price that is determined by the Internal Revenue Service (the “IRS”) to be less than the Fair Market Value of a Share on the date of grant (a “Discount Option”) may be considered “deferred compensation.” A Discount Option may result in (i) income recognition by Participant prior to the exercise of the option, (ii) an additional twenty percent (20%) federal income tax, and (iii) potential penalty and interest charges. The Discount Option may also result in additional state income, penalty and interest charges to the Participant. Participant acknowledges that the Company cannot and has not guaranteed that the IRS will agree that the per Share exercise price of this Option equals or exceeds the Fair Market Value of a Share on the Date of Grant in a later examination. Participant agrees that if the IRS determines that the Option was granted with a per Share exercise price that was less than the Fair Market Value of a Share on the date of grant, Participant will be solely responsible for Participant's costs related to such a determination.

7. Rights as Stockholder. Neither Participant nor any person claiming under or through Participant will have any of the rights or privileges of a stockholder of the Company in respect of any Shares deliverable hereunder unless and until certificates representing such Shares will have been issued, recorded on the records of the Company or its transfer agents or registrars, and delivered to Participant. After such issuance, recordation and delivery, Participant will have all the rights of a stockholder of the Company with respect to voting such Shares and receipt of dividends and distributions on such Shares.

8. No Guarantee of Continued Service. PARTICIPANT ACKNOWLEDGES AND AGREES THAT THE VESTING OF SHARES PURSUANT TO THE VESTING SCHEDULE HEREOF IS EARNED ONLY BY CONTINUING AS A SERVICE PROVIDER AT THE WILL OF THE COMPANY (OR THE PARENT OR SUBSIDIARY EMPLOYING OR RETAINING PARTICIPANT) AND NOT THROUGH THE ACT OF BEING HIRED, BEING GRANTED THE OPTION OR ACQUIRING SHARES HEREUNDER. PARTICIPANT FURTHER ACKNOWLEDGES AND AGREES THAT THIS AWARD AGREEMENT, THE TRANSACTIONS CONTEMPLATED HEREUNDER AND THE VESTING SCHEDULE SET FORTH HEREIN DO NOT CONSTITUTE AN EXPRESS OR IMPLIED PROMISE OF CONTINUED ENGAGEMENT AS A SERVICE PROVIDER FOR THE VESTING PERIOD, FOR ANY PERIOD, OR AT ALL, AND WILL NOT INTERFERE IN ANY WAY WITH PARTICIPANT'S RIGHT OR THE RIGHT OF THE COMPANY (OR THE PARENT OR SUBSIDIARY EMPLOYING OR RETAINING PARTICIPANT) TO TERMINATE PARTICIPANT'S RELATIONSHIP AS A SERVICE PROVIDER AT ANY TIME, WITH OR WITHOUT CAUSE.

9. Address for Notices. Any notice to be given to the Company under the terms of this Award Agreement will be addressed to the Company, in care of its Chief Financial Officer at Organovo Holdings, Inc., 6275 Nancy Ridge Dr., San Diego, CA 92121, or at such other address as the Company may hereafter designate in writing.

10. Non-Transferability of Option. This Option may not be transferred in any manner otherwise than by will or by the laws of descent or distribution and may be exercised during the lifetime of Participant only by Participant.

11. Binding Agreement. Subject to the limitation on the transferability of this grant contained herein, this Award Agreement will be binding upon and inure to the benefit of the heirs, legatees, legal representatives, successors and assigns of the parties hereto.

12. Additional Conditions to Issuance of Stock. If at any time the Company will determine, in its discretion, that the listing, registration or qualification of the Shares upon any securities exchange or under any state or federal law, or the consent or approval of any governmental regulatory authority is necessary or desirable as a condition to the issuance of Shares to Participant (or his or her estate), such issuance will not occur unless and until such listing, registration, qualification, consent or approval will have been effected or obtained free of any conditions not acceptable to the Company. The Company will make all reasonable efforts to meet the requirements of any such state or federal law or securities exchange and to obtain any such consent or approval of any such governmental authority. Assuming such compliance, for income tax purposes the Exercised Shares will be considered transferred to Participant on the date the Option is exercised with respect to such Exercised Shares.

13. Plan Governs. This Award Agreement is subject to all terms and provisions of the Plan. In the event of a conflict between one or more provisions of this Award Agreement and one or more provisions of the Plan, the provisions of the Plan will govern. Capitalized terms used and not defined in this Award Agreement will have the meaning set forth in the Plan.

14. Administrator Authority. The Administrator will have the power to interpret the Plan and this Award Agreement and to adopt such rules for the administration, interpretation and application of the Plan as are consistent therewith and to interpret or revoke any such rules (including, but not limited to, the determination of whether or not any Shares subject to the Option have vested). All actions taken and all interpretations and determinations made by the Administrator in good faith will be final and binding upon Participant, the Company and all other interested persons. No member of the Administrator will be personally liable for any action, determination or interpretation made in good faith with respect to the Plan or this Award Agreement.

15. Electronic Delivery. The Company may, in its sole discretion, decide to deliver any documents related to Options awarded under the Plan or future options that may be awarded under the Plan by electronic means or request Participant's consent to participate in the Plan by electronic means. Participant hereby consents to receive such documents by electronic delivery and agrees to participate in the Plan through any on-line or electronic system established and maintained by the Company or another third party designated by the Company.

16. Captions. Captions provided herein are for convenience only and are not to serve as a basis for interpretation or construction of this Award Agreement.

17. Agreement Severable. In the event that any provision in this Award Agreement will be held invalid or unenforceable, such provision will be severable from, and such invalidity or unenforceability will not be construed to have any effect on, the remaining provisions of this Award Agreement.

18. Modifications to the Agreement. This Award Agreement constitutes the entire understanding of the parties on the subjects covered. Participant expressly warrants that he or she is not accepting this Award Agreement in reliance on any promises, representations, or inducements other than those contained herein. Modifications to this Award Agreement or the Plan can be made only in an express written contract executed by a duly authorized officer of the Company. Notwithstanding anything to the contrary in the Plan or this Award Agreement, the Company reserves the right to revise this Award Agreement as it deems necessary or advisable, in its sole discretion and without the consent of Participant, to comply with Code Section 409A or to otherwise avoid imposition of any additional tax or income recognition under Code Section 409A in connection to this Option.

19. Amendment, Suspension or Termination of the Plan. By accepting this Award, Participant expressly warrants that he or she has received an Option under the Plan, and has received, read and understood a description of the Plan. Participant understands that the Plan is discretionary in nature and may be amended, suspended or terminated by the Company at any time.

20. Governing Law. This Award Agreement will be governed by the laws of the State of Delaware, without giving effect to the conflict of law principles thereof. For purposes of litigating any dispute that arises under this Option or this Award Agreement, the parties hereby submit to and consent to the jurisdiction of the State of Delaware, and agree that such litigation will be conducted in the state courts of the State of Delaware, or the federal courts for the United States for the District of Delaware, and no other courts, where this Option is made and/or to be performed.

21. Clawback Policy. Notwithstanding anything to the contrary in the Award Agreement, all Shares issued or issuable under this Award shall be subject to any clawback policy adopted by the Company from time to time (including, but not limited to, any policy adopted in accordance with the Dodd-Frank Wall Street Reform and Consumer Protection Act or other Applicable Laws), regardless of whether the policy is adopted after the date on which the Award Agreement is granted, the vesting of the Shares vest, or the exercise of the Award Agreement.

EXHIBIT B

ORGANOVO HOLDINGS, INC.

2012 EQUITY INCENTIVE PLAN

EXERCISE NOTICE

Organovo Holdings, Inc.
6275 Nancy Ridge Dr.
San Diego, CA 92121

Attention: Chief Financial Officer

1. Exercise of Option. Effective as of today, __________, ______, the undersigned ("Purchaser") hereby elects to purchase __________ shares (the "Shares") of the Common Stock of Organovo Holdings, Inc. (the "Company") under and pursuant to the 2012 Equity Incentive Plan (the "Plan") and the Stock Option Award Agreement dated ________ (the "Award Agreement"). The purchase price for the Shares will be $______, as required by the Award Agreement.

2. Delivery of Payment. Purchaser herewith delivers to the Company the full purchase price of the Shares and any required tax withholding to be paid in connection with the exercise of the Option.

3. Representations of Purchaser. Purchaser acknowledges that Purchaser has received, read and understood the Plan and the Award Agreement and agrees to abide by and be bound by their terms and conditions.

4. Rights as Stockholder. Until the issuance (as evidenced by the appropriate entry on the books of the Company or of a duly authorized transfer agent of the Company) of the Shares, no right to vote or receive dividends or any other rights as a stockholder will exist with respect to the Shares subject to the Option, notwithstanding the exercise of the Option. The Shares so acquired will be issued to Purchaser as soon as practicable after exercise of the Option. No adjustment will be made for a dividend or other right for which the record date is prior to the date of issuance, except as provided in Section 15 of the Plan.

5. Tax Consultation. Purchaser understands that Purchaser may suffer adverse tax consequences as a result of Purchaser's purchase or disposition of the Shares. Purchaser represents that Purchaser has consulted with any tax consultants Purchaser deems advisable in connection with the purchase or disposition of the Shares and that Purchaser is not relying on the Company for any tax advice.

6. Entire Agreement; Governing Law. The Plan and Award Agreement are incorporated herein by reference. This Exercise Notice, the Plan and the Award Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and Purchaser

with respect to the subject matter hereof, and may not be modified adversely to the Purchaser's interest except by means of a writing signed by the Company and Purchaser. This agreement is governed by the internal substantive laws, but not the choice of law rules, of the State of California.

Submitted by	Accepted by
PURCHASER	ORGANOVO HOLDINGS, INC.
______________________________	______________________________
Signature	By
______________________________	______________________________
Print Name	Title

Residence Address:

____

____

ORGANOVO HOLDINGS, INC.
2012 EQUITY INCENTIVE PLAN
RESTRICTED STOCK UNIT GRANT NOTICE
(EXECUTIVE)

[*Insert Name*] (the *"**Participant**"*) has been granted a Restricted Stock Unit Award (the *"**Award**"*) pursuant to the Organovo Holdings, Inc. 2012 Equity Incentive Plan (the *"**Plan**"*), consisting of one or more rights (each, a *"**Restricted Stock Unit**"*) subject to all of the terms and conditions as set forth in this Restricted Stock Unit Grant Notice, the Restricted Stock Unit Agreement (attached hereto) and the Plan, which are incorporated herein in their entirety.

Grant Date:	***[Insert Date]***
Number of Restricted Stock Units:	**[*Insert Number*]** shares of Common Stock
Vesting Date:	Except as otherwise specified below or in the Restricted Stock Unit Agreement, 25% of the Restricted Stock Units shall vest and become exercisable one year from [***insert vesting start date***] (the "***Initial Vesting Date***"), and the remaining 75% shall vest in equal quarterly installments over the next 12 quarters thereafter so long as your Service (as defined in the Restricted Stock Unit Agreement) is continuous from the Grant Date through the applicable Vesting Date. Notwithstanding the foregoing, the portion of this Award that had not yet become vested and exercisable as of the date of termination of service shall immediately become 100% vested and exercisable if (1) the Participant's service with the Company terminates more than 90 days after the Grant Date due to the Participant's death or Disability (as defined in the Plan); or (2) the Participant's service with the Company is terminated either by the Company or its successor without Cause (as defined below) or by the Participant for Good Reason (as defined below) coincident with or within one year after a Change in Control. "Cause" has the meaning specified in the Participant's written employment or service agreement with the Company as in effect at the time at issue or, in the absence of an applicable definition, means the Participant's (i) conviction of, or plea of nolo contendere to, a felony or crime involving moral turpitude; (ii) fraud on or misappropriation of any funds or property of the Company, any affiliate, customer or vendor; (iii) personal dishonesty, incompetence, willful misconduct, willful violation of any law, rule or regulation (other than minor traffic violations or similar offenses) or breach of fiduciary duty which involves personal profit; (iv) willful misconduct in connection with the Participant's duties or willful failure to perform the Participant's responsibilities in the best interests of the Company; (v) illegal use or distribution of drugs; (vi) violation of any Company rule, regulation, procedure or policy; or (vii) breach of any provision of any employment, non-disclosure, non-competition, non-solicitation or other similar agreement executed by the Participant for the benefit of the Company, all as determined by the Administrator, which determination shall be conclusive.

“Good Reason” has the meaning specified in the Participant’s written employment or service agreement with the Company as in effect at the time at issue or, in the absence of an applicable definition, means the occurrence of any of the following without the Participant’s consent: (i) a material diminution in the Participant’s base salary; (ii) a material diminution in the Participant’s authority, duties, or responsibilities; (iii) a material diminution in the authority, duties, or responsibilities of the supervisor to whom the Participant is required to report, including a requirement that the Participant report to a corporate officer or employee instead of the Board; (iv) a material diminution in the budget over which the Participant retains authority; (v) any requirement that the Participant relocate, by more than 50 miles, the principal location from which the Participant performs services for the Company as compared to such location immediately prior to the occurrence of the Change in Control; or (vi) any other action or inaction that constitutes a material breach by the Company of any agreement under which the Participant provides services.

By accepting this Award (in the form determined by the Company), you acknowledge receipt of, represent that you have read and understand, and agree to the terms of this Restricted Stock Unit Grant Notice, the Restricted Stock Unit Agreement attached hereto, and the Plan.

Participant has reviewed the Plan and this Award Agreement in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Award Agreement and fully understands all provisions of the Plan and Award Agreement. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator upon any questions relating to the Plan and Award Agreement. Participant further agrees to notify the Company upon any change in the residence address indicated below.

PARTICIPANT	ORGANOVO HOLDINGS, INC.
Signature	By
Print Name	Title

Residence Address:

ATTACHMENT: Restricted Stock Unit Agreement

ORGANOVO HOLDINGS, INC.
2012 EQUITY INCENTIVE PLAN
RESTRICTED STOCK UNIT AGREEMENT
(EXECUTIVE)

Pursuant to the Restricted Stock Unit Grant Notice (the "***Grant Notice***") and this Restricted Stock Unit Agreement (together, the "***Award Agreement***"), Organovo Holdings, Inc. (the "***Company***") has granted you an Award of Restricted Stock Units with respect to the number of Shares indicated in the Grant Notice. Capitalized terms not explicitly defined in the Award Agreement, but defined in the Organovo Holdings, Inc. 2012 Equity Incentive Plan (the "***Plan***"), have the same definitions as in the Plan.

The details of this Award are as follows:

1. SERVICE AND VESTING.

1.1 SERVICE. As provided in the Plan and notwithstanding any other provision of the Award Agreement, the Company reserves the right, in its sole discretion, to determine when your employment or service with the Company or any Parent, Subsidiary, or Affiliate of the Company, whether as an Employee, a Director or a Consultant ("***Service***"), has terminated, including in the event of any leave of absence or part-time Service.

1.2 VESTING. Your Restricted Stock Units shall vest on the Vesting Date(s) and in accordance with the vesting schedule specified in the Grant Notice. In the event of the termination of your Service for any reason, whether voluntary or involuntary, all unvested Restricted Stock Units shall be immediately forfeited without consideration, unless otherwise specified in the Grant Notice or a written agreement that specifies the terms of your Service.

2. SETTLEMENT OF THE RESTRICTED STOCK UNITS.

2.1 TIMING OF PAYMENT. Subject to the other terms of the Plan and the Award Agreement, any Restricted Stock Units that vest and become nonforfeitable in accordance with Section 1.2 shall be paid to you no later than 60 days after the date on which the Restricted Stock Units vest, except that any Restricted Stock Units that vest immediately before the effective date of a Change in Control shall be paid to you on the effective date of the Change in Control.

2.2 FORM OF PAYMENT. Except as otherwise provided in the Award Agreement, your vested Restricted Stock Units shall be paid in whole Shares.

2.3 TAX WITHHOLDING. You acknowledge that the Company and/or any Parent, Subsidiary, or Affiliate of the Company that employs you (the "***Employer***") may be subject to withholding tax obligations arising by reason of the vesting and/or payment of this Award. You authorize your Employer to satisfy the withholding tax obligations by one or a combination of the following methods: (a) paying cash, (b) having the Company withhold otherwise deliverable cash or Shares having a Fair Market Value equal to the minimum amount required to be withheld, (c) delivering to the Company already-owned Shares having a Fair Market Value equal to the amount required to be withheld, (d) selling a sufficient number of Shares otherwise deliverable to you through such means as the Administrator may determine in its sole discretion (whether through a broker or otherwise) equal to the amount required to be withheld, or (e) any other method allowed by the Plan or Applicable Laws. The Company has the option in its sole discretion to select the method(s) set form in (a) through (e) above for satisfying the withholding tax obligations, provided that if you notify the Company on a Vesting Date that you intend the Company to satisfy the withholding obligations by withholding a number of whole Shares as described in Section 2.3(b) on that Vesting Date, the Company is required to accept the Shares as full satisfaction for the withholding obligations on such Vesting Date in accordance with the terms of the Executive Incentive Award Agreement. If you elect to utilize Section 2.3(b) to satisfy the withholding tax obligations you shall be deemed to have been issued the full number of Shares subject to this Award, notwithstanding that a number of Shares is held back in order to satisfy the withholding obligations. The Company shall not be required to issue any Shares pursuant to the Award Agreement unless and until the withholding obligations are satisfied.

3. TAX ADVICE. You represent, warrant and acknowledge that the Company and, if different, your Employer, has made no warranties or representations to you with respect to the income tax consequences of the transactions contemplated by the Award Agreement, and you are in no manner relying on the Company, your Employer or their representatives for an assessment of such tax consequences. YOU UNDERSTAND THAT THE TAX LAWS AND REGULATIONS ARE SUBJECT TO CHANGE. YOU SHOULD CONSULT YOUR OWN TAX ADVISOR REGARDING THE TAX TREATMENT OF ANY RESTRICTED STOCK UNITS. NOTHING STATED HEREIN IS INTENDED OR WRITTEN TO BE USED, AND CANNOT BE USED, FOR THE PURPOSE OF AVOIDING TAXPAYER PENALTIES.

4. Dividend Equivalents. Unless the Board determines otherwise, you are not entitled to receive any dividends or dividend equivalents relating to the Restricted Stock Units.

5. Securities Law Compliance. Notwithstanding anything to the contrary contained herein, no Shares shall be issued to you upon vesting of this Award unless the Shares are then registered under the Securities Act of 1933, as amended, or, if such Shares are not then so registered, the Company has determined that such vesting and issuance would be exempt from the registration requirements of the Securities Act. By accepting this Award, you agree not to sell any of the Shares received under this Award at a time when Applicable Laws or Company policies prohibit a sale.

6. Clawback Policy. Notwithstanding anything to the contrary in the Award Agreement, all Restricted Stock Units payable or Shares issued in settlement of this Award shall be subject to any clawback policy adopted by the Company from time to time (including, but not limited to, any policy adopted in accordance with the Dodd-Frank Wall Street Reform and Consumer Protection Act or other Applicable Laws), regardless of whether the policy is adopted after the date on which the Restricted Stock Units are granted, vest, or are settled by the issuance of Shares.

7. Transferability. Before the issuance of Shares in settlement of an Award, the Award shall not be subject in any manner to anticipation, alienation, sale, exchange, transfer, assignment, pledge, encumbrance, or garnishment by your creditors or by your beneficiary, except (i) transfer by will or by the laws of descent and distribution or (ii) transfer by written designation of a beneficiary, in a form acceptable to the Company, with such designation taking effect upon your death. All rights with respect to the Restricted Stock Units shall be exercisable during your lifetime only by you or your guardian or legal representative. Before actual payment of any vested Restricted Stock Units, such Restricted Stock Units shall represent an unsecured obligation of the Company, payable (if at all) only from the general assets of the Company.

8. Restricted Stock Units Not a Service Contract. This Award is not an employment or service contract and nothing in the Award Agreement or the Plan shall be deemed to create in any way whatsoever any obligation on your part to continue in the Service of the Company or any Parent, Subsidiary, or Affiliate of the Company, or of the Company or any Parent, Subsidiary, or Affiliate of the Company to continue your Service. In addition, nothing in your Award shall obligate the Company, its stockholders, Board, Officers or Employees to continue any relationship which you might have as a Director or Consultant for the Company.

9. Restrictive Legend. Shares issued pursuant to the vesting of the Restricted Stock Units may be subject to such restrictions upon the sale, pledge or other transfer of the Shares as the Company and the Company's counsel deem necessary under Applicable Laws or pursuant to the Award Agreement.

10. Representations, Warranties, Covenants, and Acknowledgments. You hereby agree that in the event the Company and the Company's counsel deem it necessary or advisable in the exercise of their discretion, the transfer or issuance of the Shares issued pursuant to the vesting of the Restricted Stock Units may be conditioned upon you making certain representations, warranties, and acknowledgments relating to compliance with applicable securities laws.

11. Voting and Other Rights. Subject to the terms of the Award Agreement, you shall not have any voting rights or any other rights and privileges of a shareholder of the Company unless and until Shares are issued upon payment of the Restricted Stock Units.

12. Code Section 409A. It is the intent that the vesting or the payment of the Restricted Stock Units as set forth in the Award Agreement shall qualify for exemption from the requirements of Code Section 409A, and any ambiguities herein shall be interpreted to so comply. The Company reserves the right, to the extent the Company deems necessary or advisable in its sole discretion, to unilaterally amend or modify the Award Agreement as may be necessary to ensure that all vesting or payments provided for under the Award Agreement are made in a manner that qualifies for exemption from Code Section 409A; provided, however, that the Company makes no representation that the vesting or payments of Restricted Stock Units provided for under the Award Agreement shall be exempt from Code Section 409A and makes no undertaking to preclude Code Section 409A from applying to the vesting or payments of Restricted Stock Units provided for under the Award Agreement.

13. Notices. Any notices provided for in the Award Agreement or the Plan shall be given in writing and shall be deemed effectively given upon receipt or, in the case of notices delivered by the Company to you, five days after deposit in the U.S. mail, postage prepaid, addressed to you at the last address you provided to the Company.

14. Applicable Law. The Award Agreement shall be governed by the laws of the State of Delaware as if the Award Agreement were between Delaware residents and as if it were entered into and to be performed entirely within the State of Delaware.

15. Arbitration. Any dispute or claim concerning any Restricted Stock Units granted (or not granted) pursuant to the Plan and any other disputes or claims relating to or arising out of the Plan shall be fully, finally and exclusively resolved by binding arbitration conducted by the American Arbitration Association pursuant to the commercial arbitration rules in San Diego, California. By accepting this Award, you and the Company waive your respective rights to have any such disputes or claims tried by a judge or jury.

16. Amendment. Your Award may be amended as provided in the Plan at any time, provided no such amendment may adversely affect this Award without your consent unless such amendment is necessary to comply with any Applicable Laws, or is contemplated in Section 12 hereof. No amendment or addition to the Award Agreement shall be effective unless in writing or in such electronic form as may be designated by the Company.

17. Governing Plan Document. Your Award is subject to the Award Agreement and all the provisions of the Plan, the provisions of which are hereby made a part of the Award Agreement, and is further subject to all interpretations, amendments, rules and regulations which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the provisions of the Award Agreement and those of the Plan, the provisions of the Plan shall control.

18. Severability. If any provision of the Award Agreement is held to be unenforceable for any reason, it shall be adjusted rather than voided, if possible, in order to achieve the intent of the parties to the extent possible. In any event, all other provisions of the Award Agreement shall be deemed valid and enforceable to the full extent possible.

19. Description of Electronic Delivery. The Plan documents, which may include but do not necessarily include: the Plan, the Award Agreement, and any reports of the Company provided generally to the Company's shareholders, may be delivered to you electronically. In addition, if permitted by the Company, you may deliver electronically the Grant Notice to the Company or to such third party involved in administering the Plan as the Company may designate from time to time. Such means of electronic delivery may include but do not necessarily include the delivery of a link to a Company intranet or the internet site of a third party involved in administering the Plan, the delivery of the document via electronic mail ("e-mail") or such other means of electronic delivery specified by the Company.

Exhibit 10.6

ORGANOVO HOLDINGS, INC.
2012 EQUITY INCENTIVE PLAN
RESTRICTED STOCK UNIT GRANT NOTICE
(PERFORMANCE BASED)

[*Insert Name*] (the *"**Participant**"*) has been granted a Restricted Stock Unit Award (the *"**Award**"*) pursuant to the Organovo Holdings, Inc. 2012 Equity Incentive Plan (the *"**Plan**"*), consisting of one or more rights (each, a *"**Restricted Stock Unit**"*) subject to all of the terms and conditions as set forth in this Restricted Stock Unit Grant Notice, the Restricted Stock Unit Agreement (attached hereto), and the Plan, which are incorporated herein in their entirety.

Grant Date:	***[Insert Date]***
Number of Restricted Stock Units:	***[Insert Number]*** shares of Common Stock
Vesting Dates:	Except as otherwise specified in the Restricted Stock Unit Agreement, the Restricted Stock Units shall vest on the date on which each of the following events occur: [***Add Performance Measures***] If any vesting event fails to occur by **[*Insert Date*]**, the portion of the Award that would have vested upon the occurrence of such event shall be immediately forfeited without consideration. The occurrence of a vesting event shall be determined in good faith in the sole discretion of the Administrator. Notwithstanding the foregoing, the portion of this Award that had not yet become vested and exercisable as of the date of termination of service shall immediately become 100% vested and exercisable if (1) the Participant's service with the Company is terminated more than 90 days after the Grant Date due to the Participant's death or Disability (as defined in the Plan); or (2) the Participant's service with the Company is terminated either by the Company or its successor without Cause (as defined below) or by the Participant for Good Reason (as defined below) coincident with or within one year after a Change in Control. "Cause" has the meaning specified in the Participant's written employment or service agreement with the Company as in effect at the time at issue or, in the absence of an applicable definition, means the Participant's (i) conviction of, or plea of nolo contendere to, a felony or crime involving moral turpitude; (ii) fraud on or misappropriation of any funds or property of the Company, any affiliate, customer or vendor; (iii) personal dishonesty, incompetence, willful misconduct, willful violation of any law, rule or regulation (other than minor traffic violations or similar offenses) or breach of fiduciary duty which involves personal profit; (iv) willful misconduct in connection with the Participant's duties or willful failure to perform the Participant's responsibilities in the best interests of the Company; (v) illegal use or distribution of drugs; (vi) violation of any Company rule, regulation, procedure or policy; or (vii) breach of any provision of any employment, non-disclosure, non-competition, non-solicitation or other similar agreement executed by the Participant for the benefit of the Company, all as determined by the Administrator, which determination shall be conclusive.

"Good Reason" has the meaning specified in the Participant's written employment or service agreement with the Company as in effect at the time at issue or, in the absence of an applicable definition, means the occurrence of any of the following without the Participant's consent: (i) a material diminution in the Participant's base salary; (ii) a material diminution in the Participant's authority, duties, or responsibilities; (iii) a material diminution in the authority, duties, or responsibilities of the supervisor to whom the Participant is required to report, including a requirement that the Participant report to a corporate officer or employee instead of the Board; (iv) a material diminution in the budget over which the Participant retains authority; (v) any requirement that the Participant relocate, by more than 50 miles, the principal location from which the Participant performs services for the Company as compared to such location immediately prior to the occurrence of the Change in Control; or (vi) any other action or inaction that constitutes a material breach by the Company of any agreement under which the Participant provides services.

By accepting this Award (in the form determined by the Company), you acknowledge receipt of, represent that you have read and understand, and agree to the terms of this Restricted Stock Unit Grant Notice, the Restricted Stock Unit Agreement attached hereto and the Plan.

Participant has reviewed the Plan and this Award Agreement in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Award Agreement and fully understands all provisions of the Plan and Award Agreement. Participant hereby agrees to accept as binding, conclusive and final all decisions or interpretations of the Administrator upon any questions relating to the Plan and Award Agreement. Participant further agrees to notify the Company upon any change in the residence address indicated below.

PARTICIPANT	ORGANOVO HOLDINGS, INC.
______________________________	______________________________
Signature	By
______________________________	______________________________
Print Name	Title
Residence Address:	
______________________________	
______________________________	

ATTACHMENT: Restricted Stock Unit Agreement

ORGANOVO HOLDINGS, INC.
2012 EQUITY INCENTIVE PLAN
RESTRICTED STOCK UNIT AGREEMENT
(PERFORMANCE BASED)

Pursuant to the Restricted Stock Unit Grant Notice (the "***Grant Notice***") and this Restricted Stock Unit Agreement (together, the "***Award Agreement***"), Organovo Holdings, Inc. (the "***Company***") has granted you an Award of Restricted Stock Units with respect to the number of Shares indicated in the Grant Notice. Capitalized terms not explicitly defined in the Award Agreement, but defined in the Organovo Holdings, Inc. 2012 Equity Incentive Plan (the "***Plan***"), have the same definitions as in the Plan.

The details of this Award are as follows:

1. SERVICE AND VESTING.

1.1 SERVICE. As provided in the Plan and notwithstanding any other provision of the Award Agreement, the Company reserves the right, in its sole discretion, to determine when your employment or service with the Company or any Parent, Subsidiary, or Affiliate of the Company, whether as an Employee, a Director or a Consultant ("***Service***"), has terminated, including in the event of any leave of absence or part-time Service.

1.2 VESTING. Your Restricted Stock Units shall vest on the Vesting Date(s) and in accordance with the vesting schedule specified in the Grant Notice. In the event of the termination of your Service for any reason, whether voluntary or involuntary, all unvested Restricted Stock Units shall be immediately forfeited without consideration, unless otherwise specified in the Grant Notice or a written agreement that specifies the terms of your Service.

2. SETTLEMENT OF THE RESTRICTED STOCK UNITS.

2.1 TIMING OF PAYMENT. Subject to the other terms of the Plan and the Award Agreement, any Restricted Stock Units that vest and become nonforfeitable in accordance with Section 1.2 shall be paid to you no later than 60 days after the date on which the Restricted Stock Units vest, except that any Restricted Stock Units that vest immediately before the effective date of a Change in Control shall be paid to you on the effective date of the Change in Control.

2.2 FORM OF PAYMENT. Except as otherwise provided in the Award Agreement, your vested Restricted Stock Units shall be paid in whole Shares.

2.3 TAX WITHHOLDING. You acknowledge that the Company and/or any Parent, Subsidiary, or Affiliate of the Company that employs you (the "***Employer***") may be subject to withholding tax obligations arising by reason of the vesting and/or payment of this Award. You authorize your Employer to satisfy the withholding tax obligations by one or a combination of the following methods: (a) paying cash, (b) having the Company withhold otherwise deliverable cash or Shares having a Fair Market Value equal to the minimum amount required to be withheld, (c) delivering to the Company already-owned Shares having a Fair Market Value equal to the amount required to be withheld, (d) selling a sufficient number of Shares otherwise deliverable to you through such means as the Administrator may determine in its sole discretion (whether through a broker or otherwise) equal to the amount required to be withheld, or (e) any other method allowed by the Plan or Applicable Laws. The Company has the option in its sole discretion to select the method(s) set form in (a) through (e) above for satisfying the withholding tax obligations, provided that if you notify the Company on a Vesting Date that you intend the Company to satisfy the withholding obligations by withholding a number of whole Shares as described in Section 2.3(b) on that Vesting Date, the Company is required to accept the Shares as full satisfaction for the withholding obligations on such Vesting Date in accordance with the terms of the Executive Incentive Award Agreement. If you elect to utilize Section 2.3(b) to satisfy the withholding tax obligations you shall be deemed to have been issued the full number of Shares subject to this Award, notwithstanding that a number of Shares is held back in order to satisfy the withholding obligations. The Company shall not be required to issue any Shares pursuant to the Award Agreement unless and until the withholding obligations are satisfied.

3. TAX ADVICE. You represent, warrant and acknowledge that the Company and, if different, your Employer, has made no warranties or representations to you with respect to the income tax consequences of the transactions contemplated by the Award Agreement, and you are in no manner relying on the Company, your Employer or their representatives for an assessment of such tax consequences. YOU UNDERSTAND THAT THE TAX LAWS AND REGULATIONS ARE SUBJECT TO CHANGE. YOU SHOULD CONSULT YOUR OWN TAX ADVISOR REGARDING THE TAX TREATMENT OF ANY RESTRICTED STOCK UNITS. NOTHING STATED HEREIN IS INTENDED OR WRITTEN TO BE USED, AND CANNOT BE USED, FOR THE PURPOSE OF AVOIDING TAXPAYER PENALTIES.

4. DIVIDEND EQUIVALENTS. Unless the Board determines otherwise, you are not entitled to receive any dividends or dividend equivalents relating to the Restricted Stock Units.

5. SECURITIES LAW COMPLIANCE. Notwithstanding anything to the contrary contained herein, no Shares shall be issued to you upon vesting of this Award unless the Shares are then registered under the Securities Act of 1933, as amended, or, if such Shares are not then so registered, the Company has determined that such vesting and issuance would be exempt from the registration requirements of the Securities Act. By accepting this Award, you agree not to sell any of the Shares received under this Award at a time when Applicable Laws or Company policies prohibit a sale.

6. Clawback Policy. Notwithstanding anything to the contrary in the Award Agreement, all Restricted Stock Units payable or Shares issued in settlement of this Award shall be subject to any clawback policy adopted by the Company from time to time (including, but not limited to, any policy adopted in accordance with the Dodd-Frank Wall Street Reform and Consumer Protection Act or other Applicable Laws), regardless of whether the policy is adopted after the date on which the Restricted Stock Units are granted, vest, or are settled by the issuance of Shares.

7. Transferability. Before the issuance of Shares in settlement of an Award, the Award shall not be subject in any manner to anticipation, alienation, sale, exchange, transfer, assignment, pledge, encumbrance, or garnishment by your creditors or by your beneficiary, except (i) transfer by will or by the laws of descent and distribution or (ii) transfer by written designation of a beneficiary, in a form acceptable to the Company, with such designation taking effect upon your death. All rights with respect to the Restricted Stock Units shall be exercisable during your lifetime only by you or your guardian or legal representative. Before actual payment of any vested Restricted Stock Units, such Restricted Stock Units shall represent an unsecured obligation of the Company, payable (if at all) only from the general assets of the Company.

8. Restricted Stock Units Not a Service Contract. This Award is not an employment or service contract and nothing in the Award Agreement or the Plan shall be deemed to create in any way whatsoever any obligation on your part to continue in the Service of the Company or any Parent, Subsidiary, or Affiliate of the Company, or of the Company or any Parent, Subsidiary, or Affiliate of the Company to continue your Service. In addition, nothing in your Award shall obligate the Company, its stockholders, Board, Officers or Employees to continue any relationship which you might have as a Director or Consultant for the Company.

9. Restrictive Legend. Shares issued pursuant to the vesting of the Restricted Stock Units may be subject to such restrictions upon the sale, pledge or other transfer of the Shares as the Company and the Company’s counsel deem necessary under Applicable Laws or pursuant to the Award Agreement.

10. Representations, Warranties, Covenants, and Acknowledgments. You hereby agree that in the event the Company and the Company’s counsel deem it necessary or advisable in the exercise of their discretion, the transfer or issuance of the Shares issued pursuant to the vesting of the Restricted Stock Units may be conditioned upon you making certain representations, warranties, and acknowledgments relating to compliance with applicable securities laws.

11. Voting and Other Rights. Subject to the terms of the Award Agreement, you shall not have any voting rights or any other rights and privileges of a shareholder of the Company unless and until Shares are issued upon payment of the Restricted Stock Units.

12. Code Section 409A. It is the intent that the vesting or the payment of the Restricted Stock Units as set forth in the Award Agreement shall qualify for exemption from the requirements of Code Section 409A, and any ambiguities herein shall be interpreted to so comply. The Company reserves the right, to the extent the Company deems necessary or advisable in its sole discretion, to unilaterally amend or modify the Award Agreement as may be necessary to ensure that all vesting or payments provided for under the Award Agreement are made in a manner that qualifies for exemption from Code Section 409A; provided, however, that the Company makes no representation that the vesting or payments of Restricted Stock Units provided for under the Award Agreement shall be exempt from Code Section 409A and makes no undertaking to preclude Code Section 409A from applying to the vesting or payments of Restricted Stock Units provided for under the Award Agreement.

13. Notices. Any notices provided for in the Award Agreement or the Plan shall be given in writing and shall be deemed effectively given upon receipt or, in the case of notices delivered by the Company to you, five days after deposit in the U.S. mail, postage prepaid, addressed to you at the last address you provided to the Company.

14. Applicable Law. The Award Agreement shall be governed by the laws of the State of Delaware as if the Award Agreement were between Delaware residents and as if it were entered into and to be performed entirely within the State of Delaware.

15. Arbitration. Any dispute or claim concerning any Restricted Stock Units granted (or not granted) pursuant to the Plan and any other disputes or claims relating to or arising out of the Plan shall be fully, finally and exclusively resolved by binding arbitration conducted by the American Arbitration Association pursuant to the commercial arbitration rules in San Diego, California. By accepting this Award, you and the Company waive your respective rights to have any such disputes or claims tried by a judge or jury.

16. Amendment. Your Award may be amended as provided in the Plan at any time, provided no such amendment may adversely affect this Award without your consent unless such amendment is necessary to comply with any Applicable Laws, or is contemplated in Section 12 hereof. No amendment or addition to the Award Agreement shall be effective unless in writing or in such electronic form as may be designated by the Company.

17. Governing Plan Document. Your Award is subject to the Award Agreement and all the provisions of the Plan, the provisions of which are hereby made a part of the Award Agreement, and is further subject to all interpretations, amendments, rules and regulations which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the provisions of the Award Agreement and those of the Plan, the provisions of the Plan shall control.

18. Severability. If any provision of the Award Agreement is held to be unenforceable for any reason, it shall be adjusted rather than voided, if possible, in order to achieve the intent of the parties to the extent possible. In any event, all other provisions of the Award Agreement shall be deemed valid and enforceable to the full extent possible.

19. Description of Electronic Delivery. The Plan documents, which may include but do not necessarily include: the Plan, the Award Agreement, and any reports of the Company provided generally to the Company's shareholders, may be delivered to you electronically. In addition, if permitted by the Company, you may deliver electronically the Grant Notice to the Company or to such third party involved in administering the Plan as the Company may designate from time to time. Such means of electronic delivery may include but do not necessarily include the delivery of a link to a Company intranet or the internet site of a third party involved in administering the Plan, the delivery of the document via electronic mail ("e-mail") or such other means of electronic delivery specified by the Company.

Exhibit 31.1

CERTIFICATION

I, Keith Murphy, 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 circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the 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 (the Registrant's fourth fiscal quarter in the case of an annual report) 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 officers 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.

Date: February 6, 2014

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

Exhibit 31.2

CERTIFICATION

I, Barry D. Michaels, 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 circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the 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 (the Registrant's fourth fiscal quarter in the case of an annual report) 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 officers 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.

Date: February 6, 2014

By: /s/ Barry D. Michaels

Barry D. Michaels
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350

In connection with the Quarterly Report of Organovo Holdings, Inc. (the "Corporation") on Form 10-Q for the period ended December 31, 2013 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Keith Murphy, President and Chief Executive Officer and I, Barry D. Michaels, Chief Financial Officer, of the Corporation, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to our knowledge:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Corporation.

Date: February 6, 2014

/s/ Keith Murphy
Keith Murphy
President and Chief Executive Officer

/s/ Barry D. Michaels
Barry D. Michaels
Chief 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.