ORGANOVO HOLDINGS, INC.
Form S-1
June 13, 2012
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As filed with the Securities and Exchange Commission on June 13, 2012

Registration No. 333-

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

For the Quarterly Period Ended March 31, 2012

FORM S-1

REGISTRATION STATEMENT

UNDER

THE SECURITIES ACT OF 1933

ORGANOVO HOLDINGS, INC.

(Exact name of registrant as specified in its charter)

Delaware	2836	27-1488943
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

5871 Oberlin Drive, Suite 150,

San Diego, California 92121

Phone: (858) 550-9994

(Address, including zip code, and telephone number, including area code, of registrant s principal executive offices)

Keith Murphy

Chairman, Chief Executive Officer and President

5871 Oberlin Drive, Suite 150,

San Diego, California 92121

Phone: (858) 550-9994

(Name, address, including zip code, and telephone number, including area code of agent for service)

Copies to:

Jeff C. Thacker, Esq.

DLA Piper LLP (US)

4365 Executive Drive, Suite 1100

San Diego, California 92121

Tel: (858) 677-1400

Fax: (858) 677-1401

Approximate date of commencement of proposed sale to public: As soon as practicable after the effectiveness of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. x

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ¨

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ¨

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ¨

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.

Large accelerated filer ¨	Accelerated filer ¨
Non-accelerated filer ¨	Smaller reporting company x

Calculation of Registration Fee

Title of Each Class of Securities to be Registered	Amount to be Registered (1)	Proposed Maximum Offering Price Per Unit	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, $0.001 par value per share (2)	15,247,987	$5.24(3)	$79,899,452(3)	$9,157(3)
Common Stock, $0.001 par value per share (4)	15,247,987	$1.00(6)	$15,247,987(6)	$1,748 (6)
Common Stock, $0.001 par value per share (5)	1,500,000	$1.00(6)	$1,500,000(6)	$172 (6)
Total	31,995,974	N/A	$96,647,439	$11,077

(1) In the event of a stock split, stock dividend or similar transaction involving our common stock, the number of shares registered shall automatically be increased to cover the additional shares of common stock issuable pursuant to Rule 416 under the Securities Act of 1933, as amended.

(2) Represents shares of common stock issued to the selling security holders in the registrant s private placement (the Offering) of units consisting of (i) one share of the registrant s common stock and (ii) one warrant to purchase one share of the registrant s common stock at an exercise price of $1.00 per share (the Units). Closings of the Offering occurred on each of February 8, 2012 (the Initial Closing), February 29, 2012 and March 16, 2012. Also represents shares of common stock issued to certain of the selling security holders on the date of the Initial Closing of the Offering in connection with the conversion of the registrant s $1,500,000 in principal amount of 6% convertible promissory notes due March 31, 2012 (the Bridge Notes) into 1,525,387 Units.

(3) Fee calculated in accordance with Rule 457(c) of the Securities Act based on the average of the high and low price for our common stock on the OTCQB as of June 11, 2012.

(4) Represents shares of common stock issuable upon the exercise of warrants issued to the selling security holders in the Offering of Units and shares of common stock issuable upon the exercise of warrants issued to certain of the selling security holders on the date of the Initial Closing of the Offering in connection with the conversion of the Bridge Notes into 1,525,387 Units.

(5) Represents shares of common stock issuable upon the exercise of warrants issued to certain selling security holders in connection with the original issuance of the registrant s Bridge Notes that were converted into 1,500,000 new warrants on the date of the Initial Closing, each exercisable at a price of $1.00 per share of the registrant s common stock.

(6) Fee calculated in accordance with Rule 457(g), based upon the highest exercise price of the warrants held by the selling security holders at the time of registration.

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(A) OF THE SECURITIES ACT, OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE SECURITIES AND EXCHANGE COMMISSION, ACTING PURSUANT TO SAID SECTION 8(A), MAY DETERMINE.

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The information in this prospectus is not complete and may be changed. The selling security holders may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED JUNE 13, 2012

PRELIMINARY PROSPECTUS

ORGANOVO HOLDINGS, INC.

15,247,987 shares of Common Stock

16,747,987 shares of Common Stock issuable upon the exercise of Warrants

This prospectus relates to the resale by certain selling security holders of Organovo Holdings, Inc. of up to 31,995,974 shares of our common stock in connection with the resale of:

- up to 15,247,987 shares of our common stock which were issued in our private placement (the Offering) of units consisting of (i) one share of our common stock and (ii) one warrant to purchase one share of our common stock at an exercise price of $1.00 per share (the Units), with closings of the Offering occurring on each of February 8, 2012 (the Initial Closing), February 29, 2012 and March 16, 2012 and shares of common stock issued to certain of the selling security holders on the date of the Initial Closing of the Offering in connection with the conversion of our $1,500,000 in principal amount of 6% convertible promissory notes due March 31, 2012 (the Bridge Notes) into 1,525,387 Units;

- up to 15,247,987 shares of our common stock issuable upon the exercise of warrants issued to the selling security holders in our Offering of Units (excluding warrants issued to our placement agents in the Offering) and shares of common stock issuable upon the exercise of warrants issued to certain of the selling security holders on the date of the Initial Closing of the Offering in connection with the conversion of the Bridge Notes into 1,525,387 Units; and

- up to 1,500,000 shares of our common stock issuable upon the exercise of warrants issued to certain selling security holders in connection with the original issuance of our Bridge Notes that where converted into 1,500,000 new warrants on the date of the Initial Closing, each exercisable at a price of $1.00 per share of our common stock.

The selling security holders may offer to sell the shares of common stock being offered in this prospectus at fixed prices, at prevailing market prices at the time of sale, at varying prices, or at negotiated prices. We do not know when or in what amount the selling security holders may offer the securities for sale. The selling security holders may sell any, all or none of the securities offered by this prospectus.

We will not receive proceeds from the sale of shares by the selling security holders. Any proceeds received by us from the exercise of warrants by the selling security holders will be used for general corporate purposes. The selling security holders and any brokers executing sell orders on behalf of the selling security holders may be deemed to be underwriters within the meaning of the Securities Act of 1933, as amended (the Securities Act). Commissions received by a broker executing sell orders may be deemed to be underwriting commissions under the Securities Act.

Our common stock is traded on the OTCQB under the symbol ONVO. On June 11, 2012, the closing sale price of our common stock on the OTCQB was $5.48 per share.

Investing in our securities involves significant risks. See Risk Factors beginning on page 6.

We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. You should read the entire prospectus and any amendments or supplements carefully before you make your investment decision.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of the prospectus is , 2012.

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ORGANOVO HOLDINGS, INC. HAS NOT REGISTERED THE SHARES OF COMMON STOCK THAT MAY BE SOLD BY THE SELLING SECURITY HOLDERS UNDER THE SECURITIES LAWS OF ANY STATE. SELLING SECURITY HOLDERS, AND ANY BROKERS OR DEALERS, EFFECTING TRANSACTIONS IN THE SHARES SHOULD CONFIRM THAT THE SHARES HAVE BEEN REGISTERED UNDER THE SECURITIES LAWS OF THE STATE OR STATES IN WHICH SALES OF THE SHARES OCCUR AS OF THE TIME OF SUCH SALES, OR THAT THERE IS AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES LAWS OF SUCH STATES.

THIS PROSPECTUS IS NOT AN OFFER TO SELL ANY SECURITIES OTHER THAN THE SHARES OF COMMON STOCK FOR SALE BY THE SELLING SECURITY HOLDERS. THIS PROSPECTUS IS NOT AN OFFER TO SELL SECURITIES IN ANY CIRCUMSTANCES IN WHICH SUCH AN OFFER IS UNLAWFUL.

You should rely only on the information contained in this prospectus. Neither we nor the selling security holders have authorized anyone to provide you with information that is different from that contained in this prospectus. We and the selling security holders take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We. If anyone provides you with different information, you should not rely on it. Neither we nor the selling security holders are making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information contained in this prospectus is accurate only as of the date on the front cover of this prospectus. Neither the delivery of this prospectus nor any sale made in connection with this prospectus shall, under any circumstances, create any implication that there has been no change in our affairs since the date of this prospectus or that the information contained by reference to this prospectus is correct as of any time after its date.

In this prospectus, Organovo, the Company, we, us, and our refer to Organovo Holdings, Inc., a Delaware corporation, unless the context otherwise requires.

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FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements as that term is defined in the Private Securities Litigation Reform Act of 1995. These statements relate to anticipated future events, future results of operations or future financial performance. These forward-looking statements include, but are not limited to, statements relating to our ability to raise sufficient capital to finance our planned operations, market acceptance of our technology and product offerings, our ability to attract and retain key personnel, our ability to protect our intellectual property, and estimates of our cash expenditures for the next 12 to 36 months. In some cases, you can identify forward-looking statements by terminology such as may, might, will, should, intends, expects, plans, goals, projects, anticipates, believes, estimates, predicts, potential, or co these terms or other comparable terminology.

These forward-looking statements are only predictions, are uncertain and involve substantial known and unknown risks, uncertainties and other factors which may cause our (or our industry s) actual results, levels of activity or performance to be materially different from any future results, levels of activity or performance expressed or implied by these forward-looking statements. The Risk Factors section of this prospectus sets forth detailed risks, uncertainties and cautionary statements regarding our business and these forward-looking statements.

We cannot guarantee future results, levels of activity or performance. You should not place undue reliance on these forward-looking statements, which speak only as of the date that they were made. These cautionary statements should be considered with any written or oral forward-looking statements that we may issue in the future. Except as required by applicable law, including the securities laws of the United States, we do not intend to update any of the forward-looking statements to conform these statements to reflect actual results, later events or circumstances or to reflect the occurrence of unanticipated events.

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PROSPECTUS SUMMARY

The following summary highlights selected information contained in this prospectus. Because it is a summary, it does not contain all of the information you should consider before making an investment decision. Before making an investment decision, you should read the entire prospectus carefully, including the Risk Factors section, the financial statements, and the notes to the financial statements.

Overview

We have developed and are commercializing a platform technology for the generation of 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. We intend to introduce a paradigm shift in the approach to the generation of three-dimensional human tissues, by creation of constructs in 3D that have the potential to replicate native human biology. We can improve on previous technologies by moving away from monolayer 2D cell cultures and by enabling all or part of the tissues we create to be constructed solely of cells. We believe our expertise in printing small-diameter, fully cellular human blood vessels *in vitro* provides a strong foundation upon which other tissues can be built to replicate human biology and human disease. We believe that our broad and exclusive commercial rights to patented and patent-pending 3D bioprinting technology, combined with strengths in engineering and biology, put us in an ideal position to provide a wide array of products for use in research, drug discovery and regenerative medicine therapies.

Our foundational proprietary technology derives from research led by Dr. Gabor Forgacs, a Professor of Biophysics at the University of Missouri. We have a broad portfolio of intellectual property rights covering principles, enabling instrumentation applications and methods of cell based printing, including exclusive licenses to certain patented and patent pending technologies from the University of Missouri-Columbia and Clemson University, and outright ownership of six pending patent applications (the patents and patent rights described in this paragraph are sometimes collectively referred to as the Intellectual Property Rights). See Description of Business Intellectual Property . We believe that our portfolio of Intellectual Property Rights provides a strong and defensible market position for the commercialization of 3D bioprinting technology.

We believe we have the potential to build and maintain a sustainable business by leveraging our core technology platform across a variety of applications. As part of our business strategy we intend to pursue collaboration agreements with drug development companies that will allow us to further develop our 3D bioprinting technology and the potential uses of the cellular structures and tissues that can be produced with our technology. We also plan to develop research products with our 3D bioprinting technology that can be offered to third parties involved in drug discovery. We currently have collaborative research agreements currently in effect with Pfizer, Inc. (Pfizer) and United Therapeutic Corporation (Unither). As of March 31, 2012, we have also secured five federal grants in the aggregate amount of approximately $955,000 including Small Business Innovation Research grants and developed the NovoGen MMX Bioprinter (our first-generation 3D bioprinter) within two and one half years of opening our first facilities. We believe these corporate achievements provide strong validation for the commercial viability of our technology.

As of March 31, 2012, we had devoted substantially all of our efforts to product development, raising capital and building infrastructure. We did not, as of that date, realize significant revenues from our planned principal operations. Accordingly, we are considered to be in the development stage.

The Technology

Our technology is centered around a core 3D bioprinting method, represented by our bioprinting instrument, the NovoGen MMX Bioprinter . The 3D bioprinting technology enables a wide array of tissue compositions and architectures to be created, using combinations of cellular bio-ink (building blocks comprised solely of cells), hydrogel (building blocks comprised of biocompatible gels), or hybrid bio-ink (building blocks comprised of a mixture of cells and material such as hydrogel). A key distinguishing feature of our bioprinting platform is the ability to generate three-dimensional constructs that have all or some of their components comprised entirely of cells. The fully-cellular feature of our technology enables architecturally- and compositionally-defined 3D human tissues to be generated for *in vitro* use in drug discovery and development to potentially replicate the functional biology of a solid, fully cellular tissue. Furthermore, fully cellular constructs may offer specific advantages for regenerative medicine applications where bioactive cells are required and three-dimensional configuration is necessary, such as augmenting or replacing functional mass in tissues and organs that have sustained acute or chronic damage.

We plan to develop research products with our 3D bioprinting technology that can be offered to third parties involved in drug discovery. We intend to deliver the following products to the market:

Three-dimensional models of human tissue for utilization in traditional absorption, distribution, metabolism, excretion (ADME) / toxicology (TOX) / and drug metabolism and pharmacokinetics (DMPK) testing in drug development.

Specific models of human biology or pathophysiology, in the form of three-dimensional human tissues, and for use in drug discovery, development, and delivery.

Three-dimensional human tissues for use as therapeutic regenerative medicine products, such as blood vessels for bypass grafting, nerve grafts for nerve damage repair and cardiac patches for treatment of heart disease.

3D bioprinters for use in medical research.

A portfolio of consumables for use in 3D bioprinting.

As part of our business strategy we intend to pursue collaboration agreements with drug development companies that will allow us to further develop our 3D bioprinting technology and the potential uses of the cellular structures and tissues that can be produced with our technology. We currently have a collaborative research agreement with Pfizer to develop specific three-dimensional tissue models. We are engaged in the development of specific 3D human tissues to aid Pfizer in discovery of successful therapies in two areas of interest. In addition, in October 2011, we entered into a research agreement with Unither to establish and conduct a research program to discover treatments for pulmonary hypertension using our NovoGen MMX Bioprinter technology.

Market Opportunity

We believe that our bioprinting technology is uniquely positioned to provide three-dimensional human tissues for use in drug discovery and development as well as a broad array of tissues suitable for therapeutic use in regenerative medicine applications. While there are rapid-prototyping printers currently available that build three-dimensional structures out of polymers (often used for prototyping of plastic parts for tools or devices), these instruments are not specifically designed or intended for use with purely cellular inks in building biologic tissues and we do not believe that the firms working on these instruments have the required biology expertise to create tissues using these instruments at this time. There are multiple markets addressable by our technology platform:

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1) Specialized Models for Drug Discovery and Development: Our NovoGen MMX Bioprinter can produce highly specialized three-dimensional human tissues that can be utilized to model a specific tissue physiology or pathophysiology. Our bioprinting technology has demonstrated the ability to create human blood vessel constructs, and to create fully human tissue containing capillary structures. These capabilities are anticipated to broaden the scope and scale of 3D tissues that can be generated, and to facilitate the development of disease models in such areas as cardiovascular disease, oncology, and fibrosis.

2) Biological Research Tools: Absorption, distribution, metabolism, excretion (ADME) testing is used to determine which factors enhance or inhibit how a potential drug compound reaches the blood stream. Distribution of a compound can be affected by binding to plasma proteins; age, genetics, and other factors can influence metabolism of a compound; and the presence of certain disease states can have effects on excretion of a compound. Many companies perform ADME studies utilizing various cell-based assays or automated bioanalytical techniques. Drug metabolism and pharmacokinetics (DMPK) testing is a subset of ADME. Determining the DMPK properties of a drug helps the drug developer to understand its safety and efficacy. Toxicology (TOX) testing is a further requirement to determine the detrimental effects of a particular drug on specific tissues. We believe that the NovoGen MMX Bioprinter is positioned to deliver highly differentiated products for use in traditional cell-based ADME / TOX / DMPK studies. Products in this arena may replace or complement traditional cell-based assays that typically employ primary hepatocytes, intestinal cell lines, renal epithelial cells and cell lines grown in a traditional two-dimensional format. Importantly, the combination of tissue-like three-dimensionality and human cellular components is believed to provide an advantage over non-human animal systems toward predicting *in vivo* human outcomes.

3) Regenerative Medicine: The field of regenerative medicine is advancing via multiple strategic approaches in development and practice, including cell therapies and scaffold-based products (+/- cells). The architectural precision and flexibility of our technology may facilitate the optimization, development, and clinical use of three-dimensional tissue constructs. Importantly, our technology offers a next-generation strategy whereby three-dimensional structures can be generated without the use of scaffolding or biomaterial components. The ultimate goal is to enable fully cellular constructs to be generated in a configuration compatible with surgical modes of delivery, thereby enabling restoration of significant functional mass to a damaged tissue or organ.

We believe that our technology can capitalize, via strategic partnerships, on additional market opportunities in the provision of enabling tools for drug discovery and development as well as the discovery and development of therapeutic implants that augment or replace damaged tissues and organs. There are multiple short- and long-term revenue opportunities for us in these areas, including direct sales of 3D human tissue constructs for drug screening and development, licensing fees for commercial access to our technology, and royalties from product enablement, particularly in the area of therapeutic products for regenerative medicine.

Corporate Background

Real Estate Restoration and Rental, Inc. (RERR), our predecessor company, was incorporated in 2007 in the state of Nevada. On December 28, 2011, RERR entered into an Agreement and Plan of Merger pursuant to which RERR merged with its newly formed, wholly owned subsidiary, Organovo Holdings, Inc. (Merger Sub), a Nevada corporation (the RERR Merger). Upon the consummation of the RERR Merger, the separate existence of Merger Sub ceased and RERR, the surviving corporation in the RERR Merger, became known as Organovo Holdings, Inc. (Holdings-Nevada).

As permitted by Chapter 92A.180 of Nevada Revised Statutes, the sole purpose of the RERR Merger was to effect a change of RERR s name. Upon the filing of Articles of Merger with the Secretary of State of Nevada on December 28, 2011 to effect the RERR Merger, RERR s articles of incorporation were deemed amended to reflect the change in RERR s corporate name.

On January 30, 2012, Holdings-Nevada entered into an Agreement and Plan of Merger pursuant to which Holdings-Nevada merged with and into its newly formed, wholly owned subsidiary, Organovo Holdings, Inc. (Holdings-Delaware or Pubco), a Delaware corporation (the Reincorporation Merger). Upon the consummation of the Reincorporation Merger, the separate existence of Holdings-Nevada ceased and Holdings-Delaware was the surviving corporation in the Reincorporation Merger. The sole purpose of the Reincorporation Merger was to change the domicile of Pubco from Nevada to Delaware.

On February 8, 2012, Organovo Acquisition Corp. (Acquisition Corp.), a wholly-owned subsidiary of Pubco, merged (the Merger) with and into Organovo, Inc., a Delaware corporation (Organovo). Organovo was the surviving corporation of that Merger. As a result of the Merger, Pubco acquired the business of Organovo, and will continue the existing business operations of Organovo.

Risks Associated with Our Business

Investing in our common stock involves substantial risk. Before participating in this offering, you should carefully consider all of the information in this prospectus, including the risks discussed in Risk Factors immediately following this summary. In particular:

We have a limited operating history and a history of operating losses, and expect to incur significant additional operating losses;

We need to secure additional financing to support our planned operations;

We are an early-stage company with an unproven business strategy and may never achieve commercialization of our research tools and therapeutic products or profitability;

Our success and our collaborators ability to sell therapeutic products will depend to a large extent upon reimbursement from health care insurance companies;

Our research tools are new and unproven and may not allow us or our collaborators to develop successful commercial products;

Our proprietary tissue creation technology, drug discovery and research tools are subject to the risks associated with new and rapidly evolving technologies.

The commercialization of therapeutic or other life science products developed using our research tools is subject to a variety of risks of failure inherent in their development or commercial viability, including the possibility that any such products will (i) fail to be found through the use of research tools; (ii) be found to be toxic or ineffective; (iii) fail to receive necessary regulatory approvals; (iv) be difficult or impossible to manufacture on a large scale; (v) be economically infeasible to market; (vi) fail to be developed prior to the successful marketing of similar products by competitors; or (vii) be impossible to market because they infringe the proprietary rights of third parties or compete with superior products marketed by third parties;

If we are unable to enter into or maintain strategic collaborations with third parties, we may have difficulty selling our research tools and therapeutic products and we may not generate sufficient revenue to achieve or maintain profitability; and

We cannot control our collaborators allocation of resources or the amount of time that our collaborators devote to developing our programs or potential products, which may have a material adverse effect on our business.

We will depend on our patent portfolio, our licensed technology and other trade secrets in the conduct of our business and must ensure that we do not violate the patent or intellectual property rights of others.

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Corporate Information

Our offices are located at 5871 Oberlin Drive, Suite 150, San Diego, California 92121. Our telephone number is (858) 550-9994. Our website can be found at www.organovo.com. The information contained in or that can be accessed through our website is not part of this prospectus.

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The Offering

Key Facts of the Offering

Common stock being offered by the selling security holders:	15,247,987
Total shares of common stock outstanding:[(1)]	43,693,241
Number of shares of common stock issuable upon the exercise of warrants held by the selling security holders registered on this prospectus:	16,747,987
Use of Proceeds:	We will not receive any of the proceeds from the sale of our shares by the selling security holders. Any proceeds received by us from the exercise of warrants by the selling security holders will be used for general corporate purposes.
OTCQB Symbol:	ONVO
Risk Factors:	Investing in our securities involves a high degree of risk and purchasers of our securities may lose their entire investment. See Risk Factors below and the other information included elsewhere in this prospectus for a discussion of factors you should carefully consider before deciding to invest our securities.

(1) The number of shares of our common stock outstanding is based on the number of shares of our common stock outstanding as of March 31, 2012, including the shares of common stock held by the selling security holders. This number does not include:

- 24,256,932 shares of common stock issuable upon exercise of outstanding warrants at a weighted average exercise price of $1.00 per share, including the warrants held by the selling security holders;
- 896,256 shares of common stock issuable upon exercise of outstanding options, at a weighted average exercise price of $0.08 per share, which were issued under our 2008 Equity Incentive Plan prior to this offering; and
- 6,553,986 shares of our common stock which remain available for grant and possible subsequent issuance under our 2012 Equity Incentive Plan.

Unless otherwise indicated, all information in this prospectus assumes that no options, warrants or shares of common stock were issued after March 31, 2012, and no outstanding options or warrants were exercised after March 31, 2012. In addition, unless otherwise indicated, all information in this prospectus assumes that the warrants issued in connection with this offering to the investors in the Units and our placement agents and financial advisor have not been exercised.

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Summary Financial Data

The following summary audited financial information for the fiscal years ended December 31, 2011 and 2010, includes balance sheet and statement of operations data derived from our audited financial statements included elsewhere in this prospectus. The financial information as of March 31, 2012, and for the three months ended March 31, 2012 and 2011 is derived from our unaudited condensed consolidated financial statements included elsewhere in this prospectus. The information contained in this table should be read in conjunction with Management s Discussion and Analysis of Financial Condition and Results of Operations and the financial statements and accompanying notes included in this prospectus. In the opinion of management, the unaudited interim financial statements have been prepared on the same basis as the audited financial statements and include all adjustments, consisting of only normal recurring adjustments, necessary for a fair presentation of our operating results and financial position for those periods and as of such dates. The results for any interim period are not necessarily indicative of the results that may be expected for a full year.

	Organovo Holdings, Inc. For the Three Months Ended March 31, (unaudited)		Organovo Holdings, Inc. For the Year Ended December 31,	
Statement of Operations Data:	**2012**	**2011**	**2011**	**2010**
Revenues	$ 120,000	$ 200,789	$ 968,513	$ 603,412
Research and Development Expense	547,287	398,664	1,419,718	1,203,716
General and Administrative Expense	901,843	243,494	1,705,171	577,914
Income (loss) from Operations	(1,329,130)	(491,953)	(2,289,983)	(1,178,218)
Change in fair value of warrants	(13,505,819)		6,569	
Net Income (loss)	(37,080,582)	(546,585)	(4,383,262)	(1,338,694)
Income (loss) per Share	$ (1.17)	$ (0.04)	$ (0.02)	$ (0.09)

	Organovo Holdings, Inc. For the Three Months Ended March 31, (unaudited)	Organovo Holdings, Inc. For the Year Ended December 31,	
Balance Sheet Data:	**2012**	**2011**	**2010**
Working Capital	$ 9,723,755	$ (945,543)	$ (749,142)
Total Assets	11,240,550	1,408,832	760,398
Current Liabilities	1,110,948	1,975,748	1,173,258
Total Stockholders Equity (Deficit)	$ (37,385,108)	$ (1,833,785)	$ (2,300,360)

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RISK FACTORS

Any investment in our common stock involves a high degree of risk. You should consider carefully the following information about these risks, together with the other information contained in this prospectus, before you decide to buy our common stock. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our operations. If any of the following risks actually occur, our business would likely suffer and the trading price of our common stock could decline, and you may lose all or part of the money you paid to buy our common stock.

Risks related to our Business and our Industry

We have a limited operating history and a history of operating losses, and expect to incur significant additional operating losses.

We were incorporated in 2007, opened our laboratories in San Diego in January, 2009 and have only a limited operating history. Therefore, there is limited historical financial information upon which to base an evaluation of our performance. Our prospects must be considered in light of the uncertainties, risks, expenses, and difficulties frequently encountered by companies in their early stages of operations. We have generated operating losses since we began operations, including $1,338,694, $3,964,610 and $1,329,130 for the year ended December 31, 2010 and 2011 and the three months ended March 31, 2012, respectively, and as of March 31, 2012, we had an accumulated operating loss of $43,772,138. We expect to incur substantial additional operating expenses over the next several years as our research, development, and commercial activities increase. The amount of future losses and when, if ever, we will achieve profitability are uncertain. Our ability to generate revenue and achieve profitability will depend on, among other things, entering into customer relationships with strategic partners, successful completion of the preclinical and clinical development of our partners product candidates; obtaining necessary regulatory approvals by our partners or us from the FDA and international regulatory agencies; successful manufacturing, sales, and marketing arrangements; and raising sufficient funds to finance our activities. We might not succeed at any of these undertakings. If we are unsuccessful at some or all of these undertakings, our business, prospects, and results of operations may be materially adversely affected.

We will need to secure additional financing to support our planned operations.

We will require additional funds for our anticipated operations and if we are not successful in securing additional financing, we may be required to delay significantly, reduce the scope of or eliminate one or more of our research or development programs, downsize our general and administrative infrastructure, or seek alternative measures to avoid insolvency, including arrangements with collaborative partners or others that may require us to relinquish rights to certain of our technologies, product candidates or products.

We are an early-stage company with an unproven business strategy and may never achieve commercialization of our research tools and therapeutic products or profitability.

Our strategy of using our research tools for the collaborative development of therapeutic products is unproven. Our success will depend upon our ability to enter into additional collaboration agreements on favorable terms, to determine which research tools and therapeutic products have potential value, and to select an appropriate commercialization strategy for each research tool and potential therapeutic product we or our collaborators choose to pursue. If we are not successful in implementing our strategy to commercialize our research tools and potential therapeutic products, we may never achieve, maintain or increase profitability.

Our success and our collaborators ability to sell therapeutic products will depend to a large extent upon reimbursement from health care insurance companies.

Our success may depend, in part, on the extent to which reimbursement for the costs of therapeutic products and related treatments will be available from third-party payers such as government health administration authorities, private health insurers, managed care programs, and other organizations. Over the past decade, the cost of health care has risen significantly, and there have been numerous proposals by legislators, regulators, and third-party health care payers to curb these costs. Some of these proposals have involved limitations on the amount of reimbursement for certain products. Similar federal or state health care legislation may be adopted in the future and any products that we or our collaborators seek to commercialize may not be considered cost-effective. Adequate third-party insurance coverage may not be available for us or our collaborative partners to establish and maintain price levels that are sufficient for realization of an appropriate return on investment in product development.

Our research tools are new and unproven and may not allow us or our collaborators to develop successful commercial products

Our research tools involve new and unproven approaches. We have not proven that our research tools will enable us or our collaborators to identify therapeutic products with commercial potential, or to develop or commercialize such therapeutic products. Even if we or our collaborators are successful in identifying therapeutic products based on discoveries made using our research tools, we or our collaborators may not be able to discover or develop commercially viable products. To date, no one has developed or commercialized any therapeutic or other life science product based on our research tools. If our research tools do not assist in the discovery and development of such therapeutic products, our current and potential collaborators may lose confidence in us and our research tools and our business may suffer as a result.

If our collaborators, licensees and customers do not successfully develop or commercialize therapeutic or other life science products using our research tools, we may not generate revenues from those customers. In addition, we may experience unforeseen technical complications, unrecognized defects and limitations in the productions of our research tools. These complications could materially delay or limit the use of those tools, substantially increase the anticipated cost of manufacturing them or prevent us from implementing research projects at high efficiency levels.

Our products and services are subject to the risks associated with new and rapidly evolving technologies.

Our proprietary tissue creation technology, drug discovery and research tools are subject to the risks associated with new, rapidly evolving technologies. In addition, the process of developing new technologies and products is complex, and if we are unable to develop enhancements to, and new features for, our existing products or acceptable new products that keep pace with technological developments or industry standards, our products may become obsolete, less marketable and less competitive.

The commercialization of therapeutic or other life science products developed using our research tools is subject to a variety of risks.

Development of therapeutic and other life science products based on our or our collaborators use of our technologies will be subject to risks of failure inherent in their development or commercial viability. These risks include the possibility that any such products will:

fail to be found through the use of research tools;

be found to be toxic;

be found to be ineffective;

fail to receive necessary regulatory approvals;

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be difficult or impossible to manufacture on a large scale;

be economically infeasible to market;

fail to be developed prior to the successful marketing of similar products by competitors; or

be impossible to market because they infringe the proprietary rights of third parties or compete with superior products marketed by third parties.

We expect that our drug discovery collaborative partners or other clients that utilize our research tools will be required to submit their research for regulatory review in order to proceed with human testing of drug candidates. This review by the FDA and other regulatory agencies may result in timeline setbacks or complete rejection of an application to begin human studies, such as an Investigative New Drug (IND) application. Should our collaborative partners or other clients face such setbacks, we would be at risk of not being paid if there were agreed upon milestone and royalty payments. The risks of non-approval for our partners or other clients will include the inherent risks of unfavorable regulator opinion of a drug candidate s safety or efficacy, as well as the risk that the data generated by our platform technology is not found to be suitable to support the safety or efficacy of the drug. In addition, our platform technology is subject to the requirements of Good Laboratory Practice (GLP) to provide suitable data for INDs and other regulatory filings; no regulatory review of data from this platform has yet been conducted and there is no guarantee that our technology will be acceptable under GLP.

If we are unable to enter into or maintain strategic collaborations with third parties, we may have difficulty selling our research tools and therapeutic products and we may not generate sufficient revenue to achieve or maintain profitability.