

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): March 5, 2015

ORGANOVO HOLDINGS, INC.

(Exact name of registrant as specified in its charter)

Commission File Number: 001-35996

Delaware

(State or other jurisdiction
of incorporation)

27-1488943

(I.R.S. Employer
Identification No.)

**6275 Nancy Ridge Dr.,
San Diego, California 92121**

(Address of principal executive offices, including zip code)

(858) 550-9994

(Registrant's telephone number, including area code)

(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 7.01 Regulation FD Disclosure.

On March 5, 2015, Keith Murphy, the President and Chief Executive Officer of Organovo Holdings, Inc. (the “Company”), will be participating in a live webcast presentation to investors via <http://RetailInvestorConferences.com>. During the webcast, Mr. Murphy intends to provide a business update, including an update on the commercial launch of the Company’s exVive3D Liver, Bioprinted Human Tissue and a discussion of the commercialization milestones for the Company’s 3D bioprinted kidney tissue. The presentation will take place at 12:15 p.m. Eastern Standard Time, and investors may access the presentation at <http://retailinvestorconferences.com> > click on red “register / watch event now” button.

The presentation will be a live, interactive online event where investors are invited to ask questions in real-time - both in the presentation hall as well as the Company’s “virtual trade booth.” A copy of the presentation slides is attached hereto as Exhibit 99.1. If attendees are not able to join the event live on the day of the conference, an on-demand archive will be available at <http://retailinvestorconferences.com> for 90 days.

The information furnished on this Form 8-K, including Exhibit 99.1, shall not be deemed “filed” for purposes of Section 18 of the Exchange Act or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference into any other filing under the Securities Act of 1933 or the Securities Exchange Act of 1934, except as expressly set forth by specific reference in such a filing.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	Description
99.1	Presentation Slides, dated March 5, 2015.

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 hereunto duly authorized.

ORGANOVO HOLDINGS, INC.

Date: March 5, 2015

/s/ Keith Murphy

Keith Murphy
Chief Executive Officer

Exhibit Index

Exhibit No.	Description
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99.1	Presentation Slides, dated March 5, 2015.
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The Organovo logo is positioned on the left side of the slide, featuring the word "organovo" in a lowercase, sans-serif font with a trademark symbol. The letter "o" is replaced by a stylized molecular structure. To the right of the logo are several decorative molecular graphics, including a large circular structure with a central blue circle and a ring of smaller white circles, and a smaller structure with a central blue circle and a ring of smaller white circles. The background is a gradient of blue and purple with a large, faint molecular structure on the right side.

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Changing the Shape of Medical Research and Practice

Keith Murphy

Chief Executive Officer

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FORWARD LOOKING STATEMENTS

The Company cautions you that the statements included in this presentation that are not a description of historical facts are forward-looking statements. Any forward-looking statements are based on our current expectations, but are subject to a number of risks and uncertainties. The factors that could cause our actual future results to differ materially from our current expectations include, but are not limited to, risks and uncertainties relating to the Company's ability to develop, market and sell products and services based on its technology; the expected benefits and efficacy of the Company's products, services and technology; the availability of substantial additional funding to support the Company's operations and business plan; the market acceptance of the Company's products, services and technology; the validity of the Company's intellectual property rights and the ability to protect those rights; and the Company's ability to achieve its business, research, product development, regulatory approval, marketing and distribution plans and strategies. These and other factors are identified and described in more detail in our filings with the SEC, including our Quarterly Report on Form 10-Q filed with the SEC on February 6, 2015. You should not place undue reliance on forward-looking statements, which speak only as of the date of this presentation. Except as required by applicable law, 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.



NYSE MKT: ONVO

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Organovo NovoGen MMX Bioprinter™



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Recent Accolades and Press Coverage

- Company named 2015 Technology Pioneer by the World Economic Forum (Davos, Switzerland)
- exVive3D™ Liver won the CONNECT 2014 Most Innovative Product award in its Life Sciences category
- exVive3D Liver named one of the Top 10 Innovations of 2014 by *The Scientist* magazine
- Company named one of the Top 10 Most Innovative Companies of 2015 in Health Care by *Fast Company* magazine

Recent media highlights:

- *Wall Street Journal*, Feb. 16, 2015
- CEO Interview, *CNBC*, Dec. 11, 2015



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Opportunity Matrix

Tissue Research Programs	Toxicology Assays (Product/Service)	Disease Models (Partnerships)	Simple Tissues for Therapy (Clinical)
Liver	✓	✓	✓
Lung		✓	✓
Kidney	✓	✓	✓
Cancer		✓	
Bone		✓	✓
Blood Vessel		✓	✓
Heart	✓	✓	✓
Skin	✓		✓

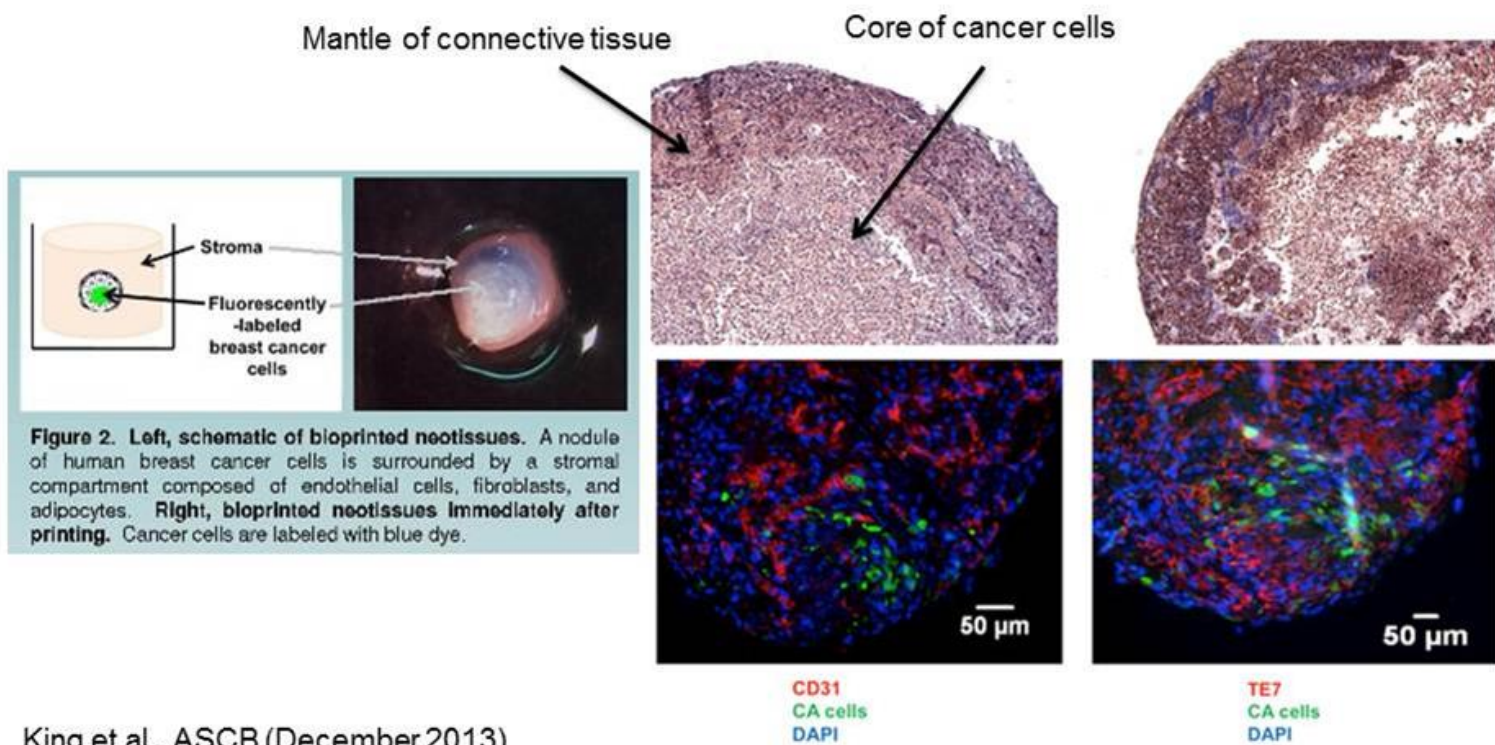
Opportunity Matrix

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Blood Vessel		✓	✓
Heart	✓	✓	✓
Skin	✓		✓

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Bone		✓	✓
Blood Vessel		✓	✓
Heart	✓	✓	✓
Skin	✓		✓

3D human breast tumor models have been bioprinted with defined multi-cellular composition and architecture



King et al., ASCB (December 2013)

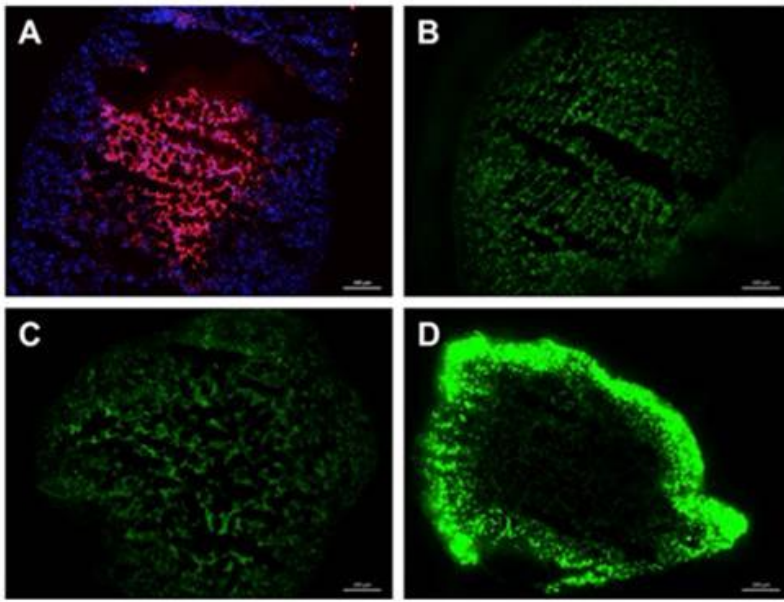
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3D Bioprinted tumors can reveal

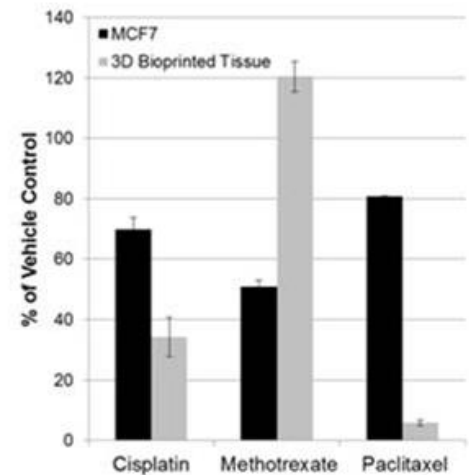
penetration, distribution, and effects of anti-tumor agents



- Small, hydrophilic compounds like methotrexate (C) and fluorescent dyes (B) penetrate deep into the tissues
- As expected, larger more lipophilic compounds like paclitaxel concentrate in the outer regions of the tissue (D)

Clear differential outcomes are noted in 3D Bioprinted tumors vs. 2D cultures

King et al., AACR (April 2014)



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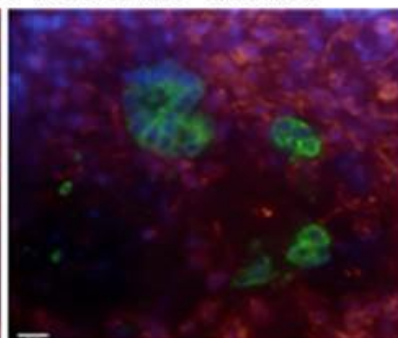
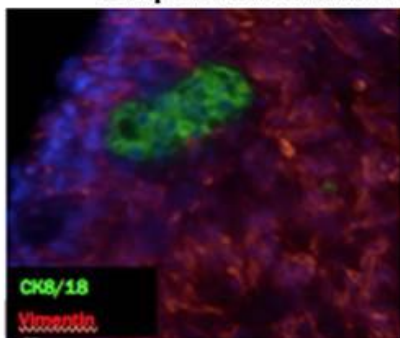
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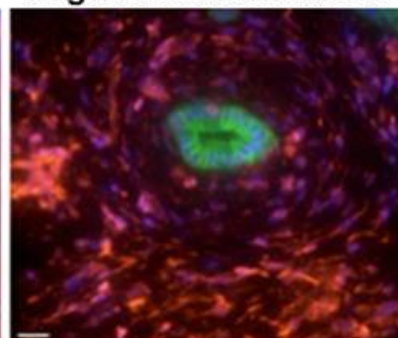
3D Bioprinted tumors can be generated

from patient tumor cells

Bioprinted Human Pancreatic Tumors



Original Patient Tumor



Patient pancreatic ductal adenocarcinoma (PDAC)-derived cells and pancreatic stellate cells were bioprinted into 3D structures (A, B) reminiscent of the parent tumor (C) and maintained *in vitro* for 10 days. Cancer cells are labeled with CK8/18 (Green) and surrounding fibroblasts with Vimentin (Red).

**presented by Dr. Rosalie Sears (OHSU), AACR (2014)*

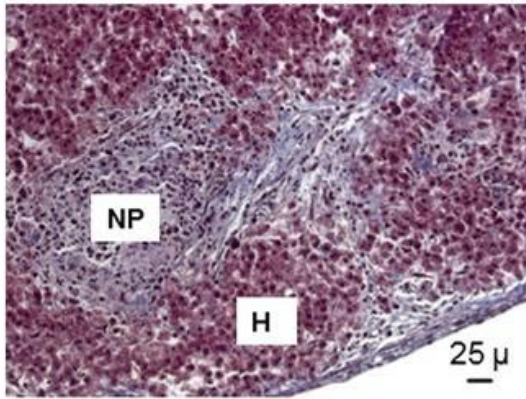
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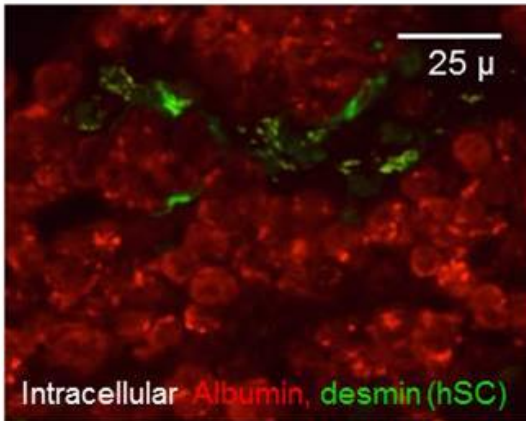
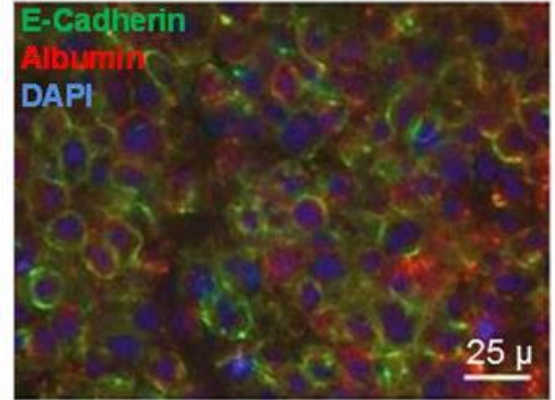
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ONVO 3D Liver tissues have native tissue-like features



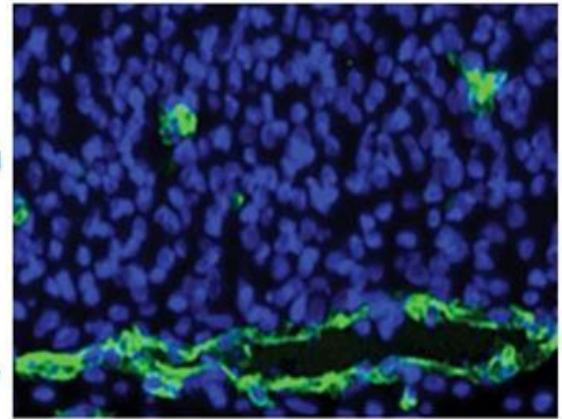
Defined compartments of Hepatocytes (H) and non-parenchymal (NP) cells

Tight junctions between healthy hepatocytes



Close association of hepatocytes and stellate cells

Well-formed micro-vascular structures with lumens



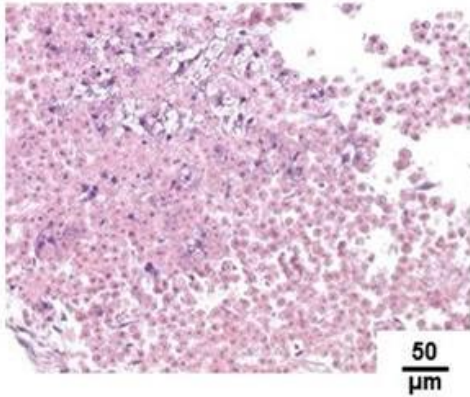
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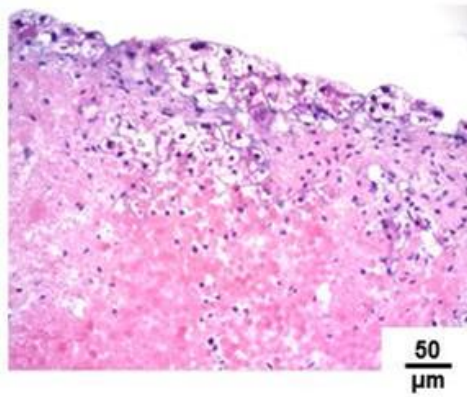
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ONVO exVive3D™ Liver can detect patterns of damage histologically

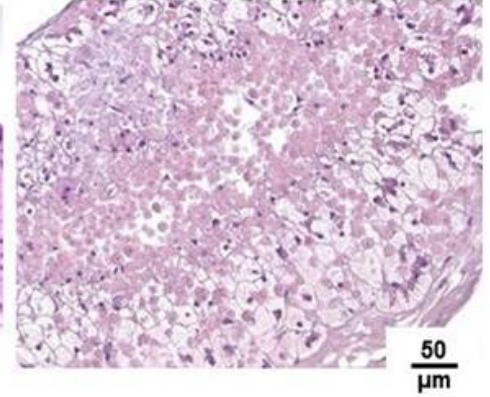
Disruption of cell adhesion



Necrosis

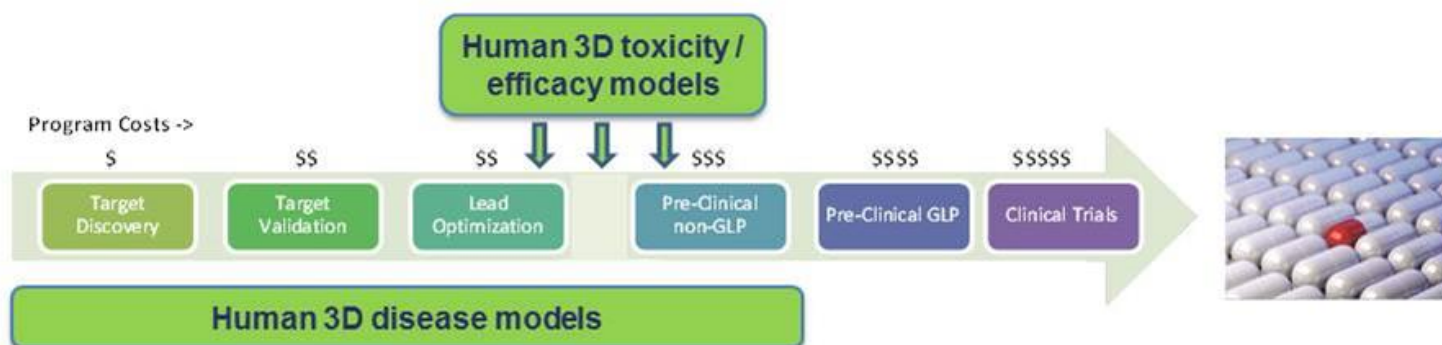


Steatosis



- *Non-alcoholic steatohepatitis (NASH / fatty liver disease) is one of the biggest areas of current research in pharma drug discovery*

Organovo 3D bioprinted tissues have the potential to address gaps in pharma discovery



We believe our 3D bioprinted tissues:

- Enable better predictive, physiologically relevant in vitro modeling
- Fill the gap between in vitro and in vivo preclinical research
- De-risk total discovery program costs by enabling decision points further upstream
- Provide disease modeling applications across the pre-clinical drug discovery workflow

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Business Case History

- Aurora / Vertex

- Aurora and Vertex merged
- Aurora's screening capability helped build Vertex's cystic fibrosis franchise



- Abgenix / Medarex

- Each developed antibodies for partners during early days
- Each moved to develop 50:50 shared drugs and then wholly owned drugs over time

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Blood Vessel		✓	✓
Heart	✓	✓	✓
Skin	✓		✓

3D Liver in Detail – Timelines for Tox Product

- **Scientific proof of concept**
 - April 2013 ✓
- **Functional Validation**
 - Testing against known drugs
 - December 2013 ✓
- **Delivery to KOLs**
 - Alpha and beta testing
 - April 2014 ✓ (January '14)
- **Product launch**
 - Before the end of 2014 ✓ (November '14)
 - Announced contracts for early customers April 2014



Development and launch of exVive3D™ Kidney

- **Scientific proof of concept**
 - April 2015
- **Functional Validation**
 - December 2015
- **Beta Testing**
 - May 2016
- **Product launch**
 - By end of Q3 2016 (calendar)



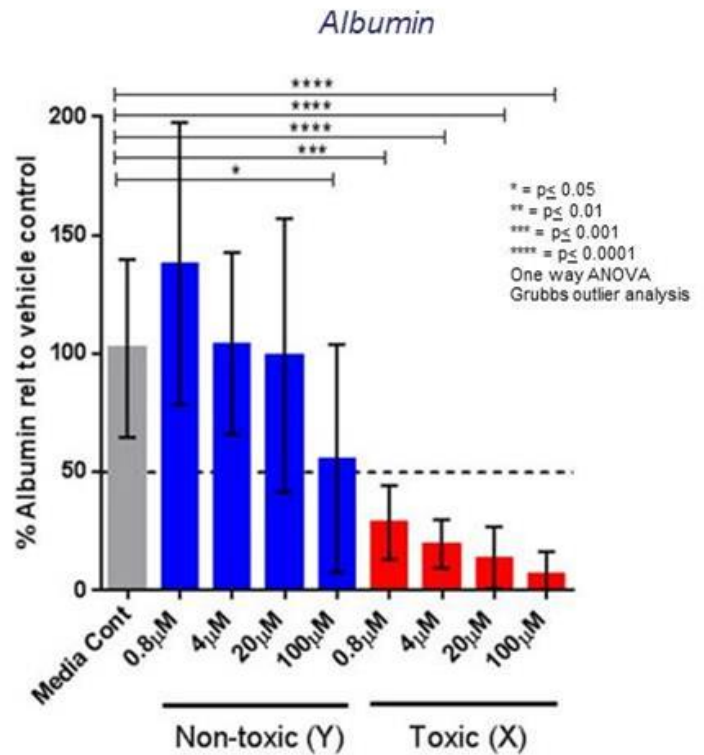
Addressable Markets for In Vitro Tissue

	Liver Toxicology	Kidney Toxicology	Skin Toxicology
Customer opportunity	6,500	6,500	tbd
Contracts/year	1.3	1.3	tbd
Average contract	\$150,000*	\$250,000	tbd
TAM	\$1.3B	\$2.1B	tbd

* Validated by existing contract activity. All other information is based on Company research.

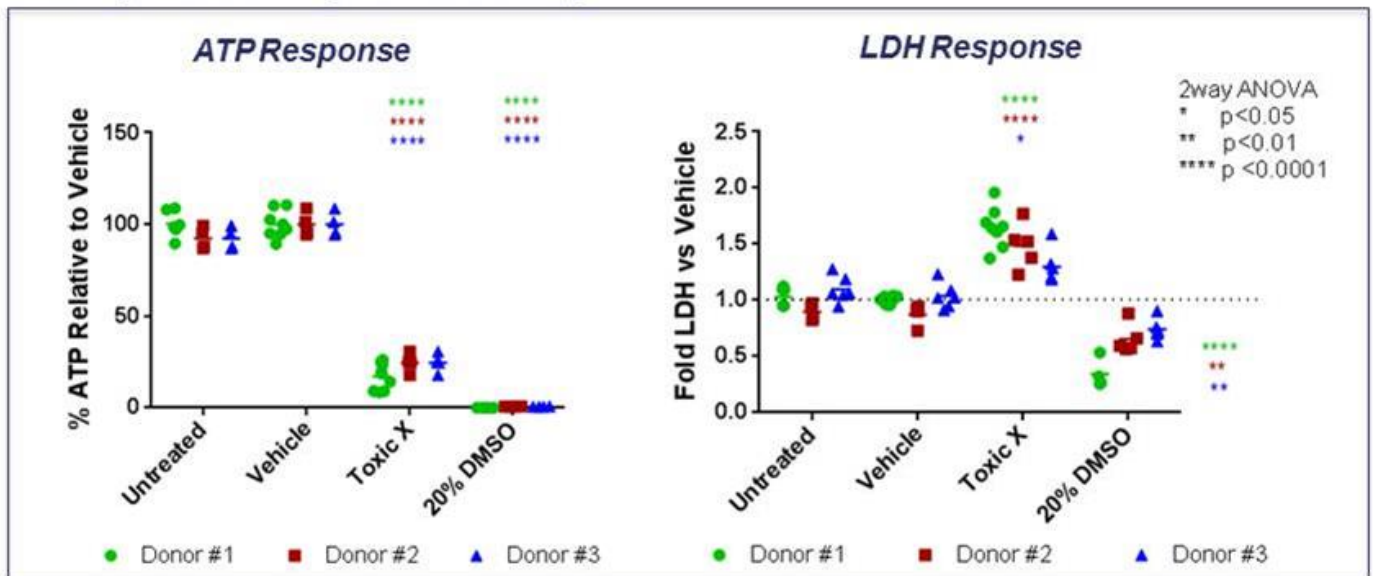
ONVO 3D Liver responds selectively to liver toxicant

- 3D liver tissues were exposed to compounds daily for seven days
- Toxic compound X exhibits statistically significant, dose dependent decreases in Albumin compared to non-toxic, *structurally related* compound Y in bioprinted liver tissues



ONVO 3D Liver detects injury across multiple cell donors

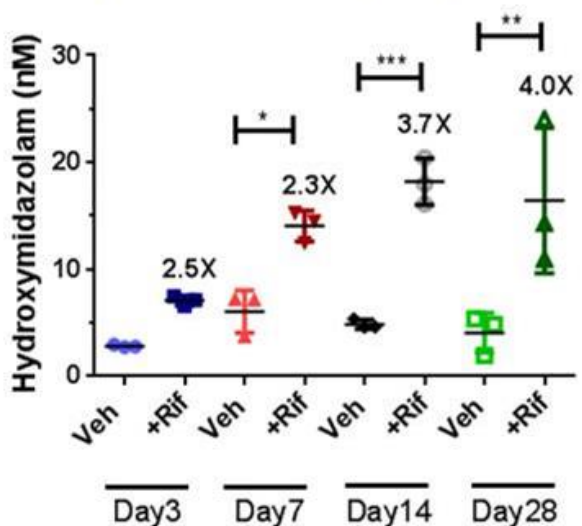
- 3D liver tissues with hepatocytes from 3 different donors were exposed to compounds daily for seven days



- Toxic compound X continues to exhibit effects across multiple donors

exVive3D™ Human Liver: Proper CYP3A4 Metabolism is Conserved

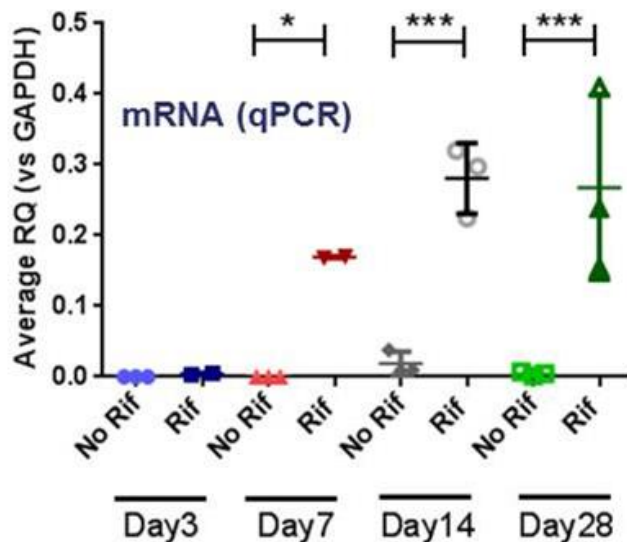
Proper metabolism of midazolam (formation of hydroxymidazolam)



Veh = vehicle only (control)
+Rif = with rifampicin

N=3
O: N=3
M: One way ANOVA
* Mult comparisons
* p<0.05
** p<0.01
*** p<0.001

CYP3A4 Activity sustained out to four week timepoint



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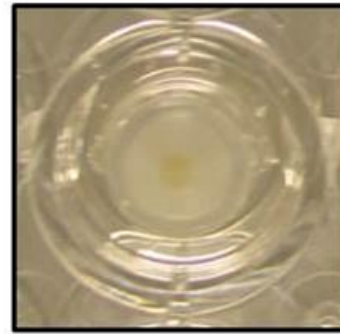
Reporting Progress on Liver

- Best tracking tool will be 10-Q and 10-K revenues
- Early quarters may not track linearly
- Revenue in current quarter from pre-launch contracts
- As we progress, may include market penetration info
 - For example, n of top 25 pharma companies
- Need to hit mid-single digit millions per year before assessing progress will be feasible

3D Liver in Detail – Business Models

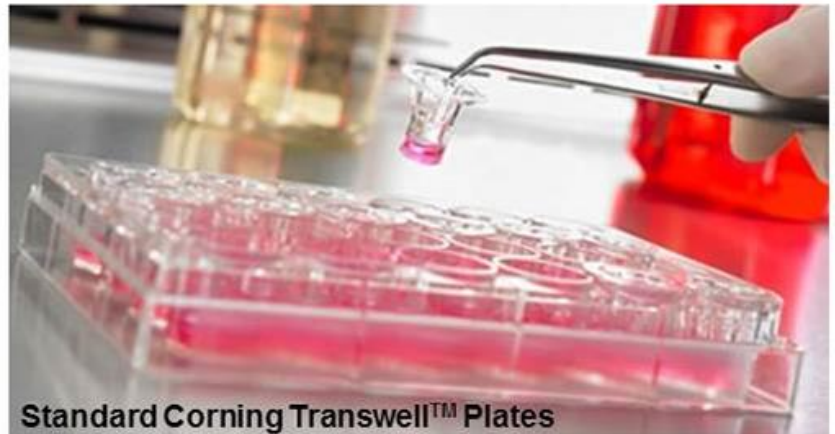
▪ Toxicology

- Product and service revenue
- 3D Liver well-based tissue
- Living cell-based assay



▪ Disease models

- Partner model
- Hepatitis C / infectivity
- Liver fibrosis
- NASH



Capitalization Picture

- **\$50M on hand at Dec. 31, 2014**
- **New shelf filing as of Feb. 27, 2015**
- **Will continue to seek right opportunities to capitalize new initiatives that can add to long term enterprise value**
- **Platform nature of 3D Bioprinting allows us to grow into new areas to grow overall opportunities**

Organovo Has Long Term Opportunity in Tissue Therapy

- **Tissue opportunities**
 - Direct surgical therapy for patients
 - Simple tissues in animal testing
 - Larger tissues through partnership

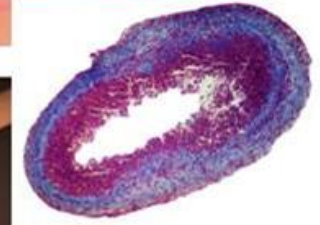


Yale University
School of Medicine



**METHUSELAH
FOUNDATION**
extending healthy human life

Simple and branched tubular structures



Tissue patches



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Website

<http://www.organovo.com>

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