

Organovo Announces First Delivery of 3D Liver Tissue to Key Opinion Leader

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SAN DIEGO, Jan. 29, 2014 /PRNewswire/ -- Organovo Holdings, Inc. (NYSE MKT: ONVO) ("Organovo"), a three-dimensional biology company focused on delivering breakthrough 3D bioprinting technology, today announced that it has performed its first 3D Liver tissue delivery.

The achievement marks the delivery of Organovo's 3D Liver tissue to a laboratory outside of the company to a key opinion leader (KOL) for experimentation, and marks the achievement of a milestone along the pathway to commercial launch of its 3D liver tissue product. Organovo achieved the milestone ahead of its April 2014 target date. Key opinion leaders are generally experts, in this case top research scientists, in a particular field whose opinions and publications will influence practice. Organovo expects KOLs to make recommendations on improvements to the tissue before launch and to influence peers through their reporting of their research results at conferences and through peer reviewed publications.

"This is an important milestone for Organovo R&D," said Organovo Chief Technology Officer and Executive Vice President of Research and Development Dr. Sharon Presnell. "In developing these tissues, we have gone through a careful set of research studies involving many individual tissues, and greatly increased our ability to produce them. By the end of January, we expect to have bioprinted nearly four hundred 3D Liver tissues during the month."

Organovo also introduced updated guidance on the timing of its product launch. Organovo had planned to launch its 3D Liver tissue product by the end of December 2014. It now expects to commence the commercial launch and start generating revenue through a services model prior to December 2014. "As pharmaceutical and biotechnology companies move to continue to outsource their R&D efforts," explained Keith Murphy, Organovo's chief executive officer, "our ability to deliver a service offering in addition to products will be critical to meet their needs and to enter the \$7B preclinical research services market." The company anticipates that preclinical toxicology testing services can command prices in the high tens of thousands of dollars per compound for standard screening for liver alone.

Organovo's 3D Liver tissues exhibit several key features that remain stable over time:

- Tissue-like cellular density;
- Multi-layered architecture with multiple cell types positioned relative to one another, reaching up to 500 microns thickness, with tissues comprised of up to 20 cell layers;
- Albumin production 5-9 times greater than matched 2D controls, suggesting superior functionality;
- Stable albumin production for over 40 days, fibrinogen and transferrin production, and inducible cytochrome P450 enzymatic activities, including CYP 1A2 and CYP 3A4;
- Cholesterol biosynthesis, which has been demonstrated for the first time in a multi-cellular 3D human liver system in vitro;
- Evidence of the formation of tight junctions in the liver tissues, demonstrated by cadherin and claudin staining by day 3 of tissue formation; and
- Demonstration of appropriate response to hepatotoxic insults from acetaminophen, acetaminophen in combination with ethanol, and diclofenac.

Organovo plans to release additional data in 2014 on its 3D Kidney tissues and breast cancer tissues now in development. In December, Organovo demonstrated that its NovoGen bioprinted breast cancer tissues retain compartmentalized structures with interaction between stromal and cancer cells, along with formation of endothelial networks and differentiation of adipocytes. NovoGen 3D bioprinted constructs were demonstrated to be less susceptible to tamoxifen-induced toxicity than isolated 2D cancer cells when treated with the same dose of tamoxifen for the same duration, highlighting the potential utility of this model in identifying superior drugs with greater toxicity against complex, multicellular 3D tumor models.

Organovo also reminded investors of the continued availability of Organovo's December 5, 2013 online presentation. Organovo's Chairman and Chief Executive Officer, Keith Murphy, presented in a live interactive online forum that was a recorded event. The online content that can be accessed consists of a 30 min presentation as well as the text of a Q&A session that followed.

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The Company also reminded investors of its [guidance](#) to investors regarding "Short and Distort" articles.

About Organovo Holdings, Inc.

Organovo designs and creates functional, three-dimensional human tissues for medical research and therapeutic applications. The Company is collaborating with pharmaceutical and academic partners to develop human biological disease models in three dimensions. These 3D human tissues have the potential to accelerate the drug discovery process, enabling treatments to be developed faster and at lower cost. In addition to numerous scientific publications, the Company's technology has been featured in The Wall Street Journal, Time Magazine, and The Economist. Organovo is changing the shape of medical research and practice. Learn more at www.organovo.com.

Safe Harbor State

Any statements contained in this press release that do not describe historical facts may constitute forward-looking statements as that term is defined in the Private Securities Litigation Reform Act of 1995. Any forward-looking statements contained herein are based on current expectations, but are subject to a number of risks and uncertainties. The factors that could cause actual future results to differ materially from current expectations include, but are not limited to, risks and uncertainties relating to the Company's ability to develop, market and sell products based on its technology; the expected benefits and efficacy of the Company's products and technology; the timing of commercial launch and the market acceptance and potential for the Company's products, and the risks related to the Company's 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 the prospectus supplement that we filed with the SEC on November 27, 2013 and the transition report on Form 10-KT for the period ended March 31, 2013 that we filed with the SEC on May 24, 2013 and our other filings with the Securities and Exchange Commission. 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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