Organovo and Its Customers Present Data Supporting 3D Bioprinted Liver and Kidney Tissues for Drug Toxicity Testing

March 13, 2017

SAN DIEGO, March 13, 2017 (GLOBE NEWSWIRE) -- Organovo Holdings, Inc. (NASDAQ:ONVO) ("Organovo"), a three-dimensional biology company focused on delivering scientific and medical breakthroughs using its 3D bioprinting technology, today announced eight presentations at the Society of Toxicology's ("SOT") 56th Annual Meeting and ToxExpo, March 12–16, 2017, in Baltimore. These presentations demonstrate the broad applicability of Organovo's ExVive ™ 3D Bioprinted Human Liver and Kidney Tissues for the assessment of drug safety and the detection of multiple clinically-relevant modes of liver injury and kidney toxicity. In addition, Organovo has been invited to speak at a scientific symposium on next-generation models for toxicology.

"We're pleased by the strong early feedback on our newest product, the ExVive Human Kidney Tissue, and the ongoing uptake and validation of ExVive Human Liver Tissue by our customers and partners," said Dr. Sharon Presnell, chief scientific officer, Organovo. "The commercial launch of our kidney proximal tubule model, in addition to our recent peer-reviewed publication highlighting its potential to become a key preclinical model for *in vitro* kidney toxicity testing, demonstrates our commitment to delivering novel tissue models using our platform technology. We are expanding our portfolio by adding new tissues and by validating the use of our existing tissues across a broader set of applications. The unique ability of our human liver model to reveal mechanisms of action for drug-induced livery injury ("DILI") and model key aspects of chronic, progressive liver diseases such as fibrosis continues to put us at the forefront of *in vitro* human tissue modeling."

"Our powerful and versatile technology platform delivers 3D bioprinted tissues that provide an accurate, predictive and reproducible model of human liver and kidney biology for preclinical toxicity testing," said Paul Gallant, general manager, Organovo. "Customer adoption of our NovoView Preclinical Safety Services for hepatoxicity testing continues to be strong, with a growing list of applications and use cases driving market adoption including investigative toxicology, evaluation of different compound modalities and fibrosis modeling for drug discovery. The demand for our drug safety testing services has been growing since its introduction, and long-term market adoption is expected to be robust given the significant gap it closes against traditional preclinical models. At this year's SOT Annual Meeting, we will build on our sales momentum by continuing to show that our 3D bioprinted tissues effectively model *in vivo* composition and physiology."

The presented data supports the use of the ExVive Human Liver and Kidney Tissue Models in:

- Differentiating high-risk compounds from low-risk to evaluate the multiple pathways and mechanisms of DILI.
- Identifying the metabolite-driven tox mechanisms of compounds such as acetaminophen in a concentration- and dose-dependent manner, thereby modeling tissue-level clinical outcomes *in vitro*.
- Characterizing the role of Kupffer cells (KCs) in modulating the outcome of drug-induced liver fibrosis.
- Demonstrating sustained metabolic capacity over time in terms of metabolic enzyme expression, metabolite formation, and gene expression levels to assess slow developing DILI toxicities.
- Illustrating the multiple mechanisms of nephrotoxicity to evaluate the progression and subsequent recovery of tissue-level injury.
- Assessing the expression, polarized localization and function of renal transporters involved in drug-induced renal toxicity.

In addition, the Colgate-Palmolive Award for Student Research Training in Alternative Methods, which is supported by Organovo, will be presented to a doctoral candidate to study the dose-dependent impact of an environmental toxin and the underlying mechanisms using ExVive Human Liver Tissue.

The presentations are as follows:

Scientific Symposium

Title:	**Utilization of Bioprinted Human Liver Tissues for Toxicology Applications and Disease Modeling**
Date:	March 13, 11:10 a.m. - 11:45 a.m. ET, Ballroom II
Presenter:	Rhiannon Hardwick, Ph.D., Organovo

Exhibitor-Hosted Sessions

Title:	**Simplifying the Complex: Using 3D Bioprinted Kidney Tissue to Unravel the Intricate Mechanisms of Drug-Induced Nephrotoxicity**
Date:	March 13, 4:30 p.m. - 5:30 p.m. ET, Room 340
Presenter:	Deborah G. Nguyen, Ph.D., Organovo

Title:	**The Advantages of ExVive™ 3D Bioprinted Liver Tissue in Elucidating Clinically Relevant Mechanisms of Drug-Induced Hepatoxicity**
Date:	March 15, 1:30 p.m. - 2:30 p.m. ET, Room 340
Presenters:	Sharon Collins Presnell, Ph.D., Organovo
	Leah M. Norona, Doctoral Candidate, The University of North Carolina at Chapel Hill

Poster Presentations

Title:	**Utilization of the ExVive Human Liver Tissue Model to Assess Drug-Induced Liver Injury Across a Diverse Set of Chemical Classes**
Presenter:	Candace M. Crogan-Grundy, Ph.D., Organovo
Poster:	1246: Poster Board - P406

Title:	**Utilization of the ExVive Human Kidney Tissue Model of Proximal Tubule to Assess Nephrotoxicity Across a Diverse Set of Chemical Classes**
Presenter:	J. William Higgins, Organovo
Poster:	1804: Poster Board – P344

Title:	**Mechanistic Study of Acetaminophen-Induced Liver Injury Using a 3D Bioprinted Human Liver Tissue Model**
Presenter:	Masato Ohbuchi, Ph.D., Astellas Pharma Inc.
Poster:	1653: Poster Board – P105

Title:	**3D Bioprinted Human Liver: Metabolic and Transcriptional Characterization**
Presenter:	Andreas Baudy, Ph.D., Merck & Co., Inc.
Poster:	3274: Poster Board – P243

Title:	**Temporal Characterization of a 3D Bioprinted Model May Provide New Insight into Events Underlying Fibrotic Liver Injury**
Presenter:	Leah M. Norona, Doctoral Candidate, The University of North Carolina at Chapel Hill
Poster:	3373: Poster Board - P344

Exhibit Booth: March 13-15, 9:15 a.m. - 4:30 p.m. ET, Booth 2057, CC Exhibit Hall

About Organovo Holdings, Inc.
Organovo designs and creates functional, three-dimensional human tissues for use in medical research and therapeutic applications. The Company develops 3D human tissue models through internal development and in collaboration with pharmaceutical, academic and other partners. Organovo's 3D human tissues have the potential to accelerate the drug discovery process, enabling treatments to be developed faster and at lower cost. The Company's ExVive Human Liver and Kidney Tissues are used in toxicology and other preclinical drug testing. The Company also actively conducts early research on specific tissues for therapeutic use in direct surgical applications. In addition to numerous scientific publications, the Company's technology has been featured in The Wall Street Journal, Time Magazine, The Economist, Forbes, and numerous other media outlets. Organovo is changing the shape of life science research and transforming medical care. Learn more at www.organovo.com.

Forward-Looking Statements
Any statements contained in this press release that do not describe historical facts 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 the Company's 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 and services based on its technology; the expected benefits and efficacy of the Company's products, services and technology; the Company's ability to successfully complete studies and provide the technical information required to support market acceptance of its products, services and technology, on a timely basis or at all; the Company's business, research, product development, regulatory approval, marketing and distribution plans and strategies, including its use of third party distributors; the Company's ability to successfully complete the contracts and recognize the revenue represented by the contracts included in its previously reported total contract bookings and secure additional contracted collaborative relationships; the final results of the Company's preclinical studies may be different from the Company's studies or interim preclinical data results and may not support further clinical development of its therapeutic tissues; the Company may not successfully complete the required preclinical and clinical trials required to obtain regulatory approval for its therapeutic tissues on a timely basis or at all; and the Company's ability to meet its fiscal year 2017 outlook and/or its long-range outlook. These and other factors are identified and described in more detail in the Company's filings with the SEC, including its Annual Report on Form 10-K filed with the SEC on June 9, 2016 and its Quarterly Report on Form 10-Q filed with the SEC on February 9, 2017. 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 the Company may issue in the future. Except as required by applicable law, including the securities laws of the United States, the Company does 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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