Invetech

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News

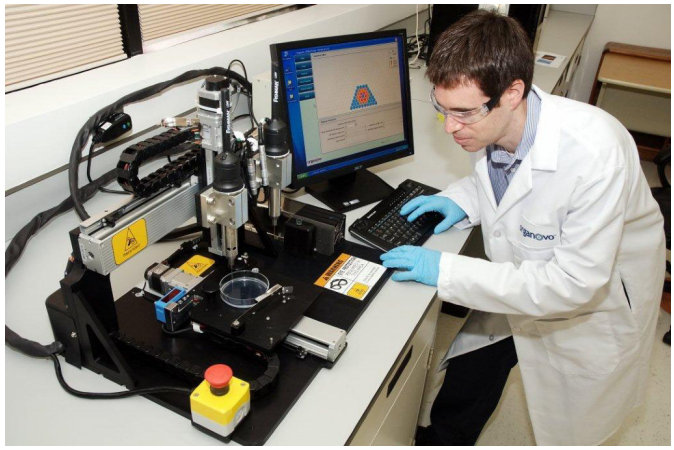
Invetech delivers Organovo's first commercial 3D Bio-Printer for manufacturing human tissue and organs

(San Diego, Calif., and Melbourne, Australia – Dec. 1, 2009) – Invetech, an innovator in new product development and custom automation for the biomedical, industrial and consumer markets, today announced that it has delivered the world's first production model 3D bio-printer to Organovo, developers of the proprietary NovoGen bioprinting technology. Organovo will supply the units to research institutions investigating human tissue repair and organ replacement.

Dr. Fred Davis, president of Invetech, which has offices in San Diego and Melbourne, said, "Building human organs cell-by-cell was considered science fiction not that long ago. Through this clever combination of technology and science we have helped Organovo develop an instrument that will improve people's lives, making the regenerative medicine that Organovo provides accessible to people around the world."

Keith Murphy, CEO of Organovo, based in San Diego, said the units represent a breakthrough because they provide for the first time a flexible technology platform for organizations working on many different types of tissue construction and organ replacement.

"Scientists and engineers can use the 3D bio printers to enable placing cells of almost any type into a desired pattern in 3D," said Murphy. "Researchers can place liver cells on a preformed scaffold, support kidney cells with a co-printed scaffold, or form adjacent layers of epithelial and stromal soft tissue that grow into a mature tooth. Ultimately the idea would be for surgeons to have tissue on demand for various uses, and the best way to do that is get a number of bio-printers into the hands of researchers and give them the ability to make three dimensional tissues on demand."



Scott Dorman, engineer at Organovo, prints human tissues from a patient's cells for use in creating new blood vessels. (Photo by Jack Smith)

The 3D bio-printers include an intuitive software interface that allows engineers to build a model of the tissue construct before the printer commences the physical constructions of the organs cell-by-cell using automated, laser-calibrated print heads.

To help them develop the 3D bio-printers, Organovo selected Invetech in May 2009 as their technology development partner. "We selected Invetech because of their capabilities for sophisticated engineering and automation, cultural fit as a long term partner and their consideration towards protecting Organovo's bioprinting IP and maximizing our commercial return on the program. They have good processes for product development and project management, and it was apparent that project execution would be handled very well. Invetech really offered the best overall package." said Mr. Murphy.

Invetech was asked to design and develop a highly integrated, extremely reliable and simple to use 3D bio-printer system which could then be transferred to manufacture and commercial sale. Because of its history with precision design, robotics and manufacturing products, Invetech was able to combine prior art with new ideas to come up with a development plan that met Organovo's budget and design goals. The process advanced smoothly and on schedule with Invetech teams in Melbourne and its San Diego office, not far from the Organovo office.

The printer, developed by Invetech, fits inside a standard biosafety cabinet for sterile use. It includes two print heads, one for placing human cells, and the other for placing a hydrogel, scaffold, or support matrix. One of the most complex challenges in the development of the printer was being able to repeatedly position the capillary tip, attached to the print head, to within microns. This was essential to ensure that the cells are placed in exactly the right position. Invetech developed a computer controlled, laser-based calibration system to achieve the required repeatability.

Invetech plans to ship a number of 3D bio-printers to Organovo during 2010 and 2011 as a part of the instrument development program. Organovo will be placing the printers globally with researchers in centers of excellence for medical research.

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About Invetech:

Invetech has been creating breakthrough products and custom automation systems for more than 30 years. With more than 200 staff, and experience drawn from over 5,000 projects, Invetech delivers product design and development, contract manufacturing and custom automation services to a range of global market sectors including diagnostics, life sciences, medical devices, cleantech, industrial and consumer products. Operating out of locations in North America, Europe and Asia Pacific, our clients range from start-ups to multi-nationals.

About Organovo:

Organovo is a regenerative medicine company focused on delivering breakthrough human tissue printing technology and creating tissue on demand for research and surgical applications. The company's NovoGen three-dimensional printing technology is a platform that works across all tissue and cell types. Organovo is helping physicians and researchers fulfill the promise of regenerative medicine by overcoming critical problems in cardiovascular medicine, medical research, and transplant medicine. Organovo technology leads the way in solving complex medical problems with one overarching goal: to benefit the health and lives of our patients. http://www.organovo.com

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