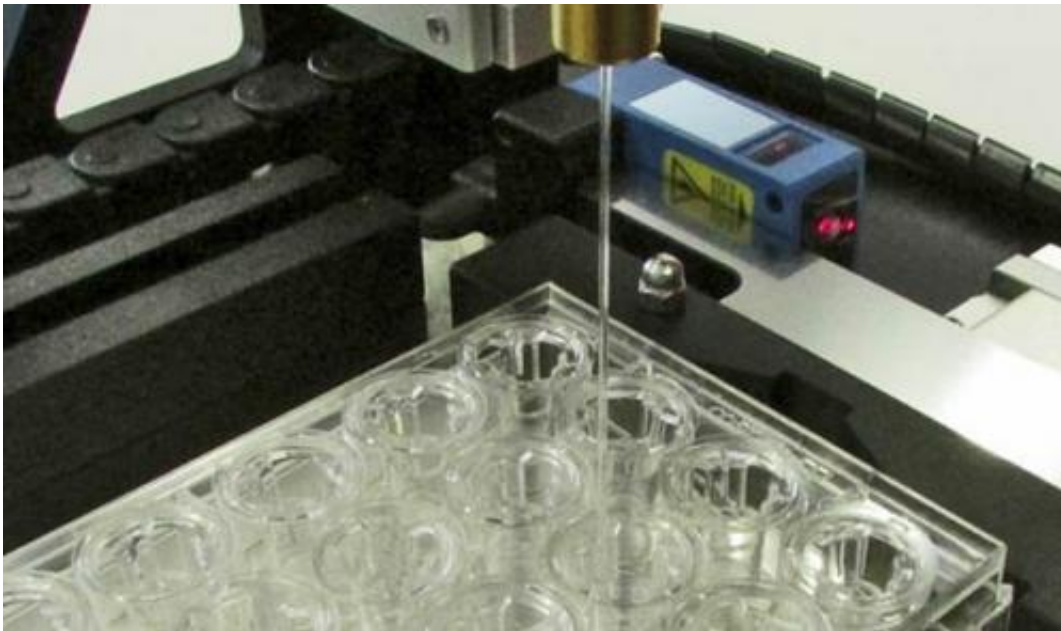


Organovo announces ability to print 3D human liver tissue

April 24 2013, by Bob Yirka



The NovoGen Bioprinter fabricating tissue into a 24-well plate.

(Medical Xpress)—Organovo Holdings, Inc., a company that designs and creates functional human tissue has announced at this year's Experimental Biology Conference that it has developed a 3D printing technique that is able to produce small samples of human liver tissue. They claim their new process allows for printing 500 micron thick liver tissue, amounting to 20 cell layers, which is able to produce cholesterol and some of the enzymes produced by the natural liver. The liver samples produced, the company said, can be used by researchers looking

to test the efficacy of new drugs designed to treat liver diseases or to test side effects on the liver of drugs created for other purposes.

Currently, companies that develop drugs to treat [liver disease](#) must rely on 2D tissue samples, which most admit are not optimal. For that reason, many drugs that pass such tests eventually fail trials in live patients. As a result, pharmaceutical companies have been eager to find a better replacement.

The process of creating human tissue is one still very much under development. Researchers use various chemicals to coax cells taken from real livers and stem cells to grow tissue that resembles the real thing. Unfortunately, until now, the tissues that result have been just single layers of cells, which flatten when placed in a [Petri dish](#). And while such tissue does generally produce some of the same enzymes as real livers, allowing researchers to see what impact a drug has, most are not near the level of a real liver—the samples also generally only live for a couple of days. In contrast, the new samples printed by Organovo, the company claims, can live for as long as five days or more.

[Chief Technology Officer](#) for the company, Sharon Presnell explained to those at the conference that Organovo's 3D printing process involves printing out two different types of [liver cells](#)—hepatocytes and stellates—along with the linings of [blood cells](#). The result is tissue that the company claims looks, feels and in many ways, behaves just like real human liver tissue. They say it can produce albumin, cholesterol and cytochrome P450s (enzymes that metabolize drugs)—and because of that is much better suited for testing new drugs. She added that the new [3D printing](#) process marks another step towards the creation of full-size human livers for implanting in people to replace those that have failed, and even went so far as to predict that such technology will come to pass in her lifetime.

More information: [Press release](#)

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