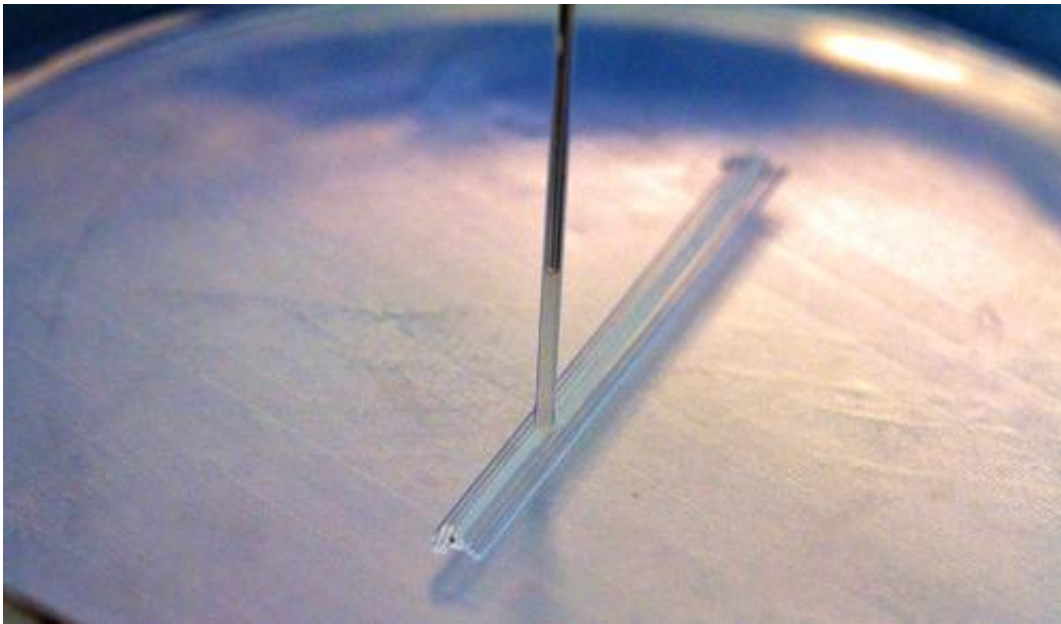


Yale joins with leader in 3-D organ printing to transform transplants

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Layer-by-layer bioprinting of a blood vessel. Credit: Organovo

Researchers at Yale School of Medicine's Department of Surgery and Yale School of Engineering & Applied Science have joined forces with a leading three-dimensional biology company to develop 3D printed tissues for transplant research.

As the number of donors for vital tissue and [organ transplants](#) decreases worldwide and the demand for transplants increases, 3D bioprinting technology offers a solution to a long-standing and growing problem.

"This field may provide a unique and new opportunity where we can print 3D organs that can supplement or replace the shortage of organs out there worldwide," said John Geibel, M.D., vice chair and director of surgical research at Yale School of Medicine.

Research in 3D organ printing, also known as tissue engineering, is designed to address key challenges to tissue and organ transplantation. Three-dimensional organs could shorten the amount of time patients have to wait for much-needed organs, such as the liver and kidneys, as well as transplantable tissues, including blood vessels, lung and bone.

The technology could also eliminate or reduce the need for immunosuppressive drugs, which can cause severe side effects, since the transplanted cells would be drawn from the patient's own body.

While the printing and use of 3D tissues and organs in actual transplants has not yet occurred on any real scale, the field is advancing rapidly. In the short term, Geibel explained, 3D organ printing could first be employed to develop organ "assist" programs, in which a bioprinted organ could be used to support a failing organ while the patient awaits a full transplant.

Provided by Yale University

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