

A novel hybrid polymer simplifies 3-D printing of scaffolds for tissue engineering

August 23 2016

A new study describes the development of a novel hybrid polymer suitable for producing 3D-printed scaffolds on which living cells can be seeded to create engineered tissues. The ability to use these hybrid polymer spools with easy-to-operate, commercial 3D printers is demonstrated in the study published in *3D Printing and Additive Manufacturing*.

Lucas Albrecht, Stephen Sawyer, and Pranav Soman, Syracuse University, NY, present the methods used to produce polycaprolactone-based polymers and to fabricate scaffolds using a Makerbot 3D Fused Deposition Modelling printer. In the article "Developing 3D Scaffolds in the Field of Tissue Engineering to Treat Complex Bone Defects," the researchers report how they overcame the challenges associated with creating composite polymer spools. The authors incorporated living cells mixed with gelatin hydrogels into the scaffolds and achieved high levels of cell survival. They discuss potential applications of these techniques, including [tissue engineering](#) to repair complex bone defects.

"The authors developed hybrid spools using the FDA-approved PCL polymer as the base material and mixing in poly-l-lactic acid or hydroxyapatite particles, and demonstrated the compatibility of these [hybrid polymer](#) spools with a readily accessible, commercial 3D printer to fabricate scaffolds capable of supporting the growth of live cells," says Editor-in-Chief Skylar Tibbits, Director, Self-Assembly Lab, MIT, and Founder & Principal, SJET LLC.

More information: Lucas D. Albrecht et al. Developing 3D Scaffolds in the Field of Tissue Engineering to Treat Complex Bone Defects, *3D Printing and Additive Manufacturing* (2016). [DOI: 10.1089/3dp.2016.0006](https://doi.org/10.1089/3dp.2016.0006)

Provided by Mary Ann Liebert, Inc., Publishers

Citation: A novel hybrid polymer simplifies 3-D printing of scaffolds for tissue engineering (2016, August 23) retrieved 20 March 2024 from <https://phys.org/news/2016-08-hybrid-polymer-d-scaffolds-tissue.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--