

# New method creates liver bioscaffolds with intact ECM for reseeded and transplantation

13 October 2017



Credit: Mary Ann Liebert, Inc., publishers

Researchers have reported a method for successfully removing the cellular material from whole human livers while retaining the organ's three-dimensional structure and extracellular matrix (ECM) components. They further demonstrated the feasibility of reseeded these liver scaffolds with human cells, providing proof-of-concept for a nondestructive decellularization approach to generating bioengineered liver grafts for transplantation. The study is published in *Stem Cells and Development*.

Luc van der Laan, Jeroen de Jonge, and colleagues from Erasmus MC-University Medical Center, Rotterdam, The Netherlands, coauthored the article entitled "Decellularization of Whole Human Liver Grafts Using Controlled Perfusion for Transplantable Organ Bioscaffolds". They describe a decellularization protocol carried out by controlled machine perfusion that uses non-iogenic detergents to remove the existing [liver cells](#), leaving intact the ECM, which is critically important for successful reseeded of the liver scaffold and eventual organ regeneration. The researchers showed that while the protocol completely removed cellular DNA and RNA, it left a bioscaffold that was non-toxic for newly introduced cells and maintained the anatomical characteristics of the native liver's microvascular and biliary drainage networks.

"The shortage of available transplant donors for patients with end stage liver disease makes clear the need for alternate therapeutic modalities. Here, the researchers present proof of concept for the successful decellularization and subsequent recellularization of the human [liver](#)," says Editor-in-Chief Graham C. Parker, PhD, The Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine, Detroit, MI.

**More information:** Monique M.A. Verstegen et al, Decellularization of Whole Human Liver Grafts Using Controlled Perfusion for Transplantable Organ Bioscaffolds, *Stem Cells and Development* (2017). [DOI: 10.1089/scd.2017.0095](https://doi.org/10.1089/scd.2017.0095)

Provided by Mary Ann Liebert, Inc

APA citation: New method creates liver bioscaffolds with intact ECM for reseeding and transplantation (2017, October 13) retrieved 22 September 2022 from <https://medicalxpress.com/news/2017-10-method-liver-bioscaffolds-intact-ecm.html>

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