

Lung cell phenotype reverts when seeded onto decellularized lung matrix

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Credit: Mary Ann Liebert, Inc., publishers

Researchers seeded type II lung epithelial cells into a decellularized lung



matrix to study their function and report the unexpected finding that instead of differentiating into type I lung cells, they instead transitioned to become mesenchymal cells, as would occur in wound healing. The design and results of this study and its implications for the development of protocols and cell culture environments to support the growth of functional lung tissue are presented in an article in *Tissue Engineering, Part A*.

Elizabeth Calle and coauthors from Yale University and Yale University School of Medicine, New Haven, CT and University of North Carolina, Chapel Hill, NC, emphasize the effect that factors such as the use of one or more cell populations to seed a tissue matrix, the components of the growth medium, and the use of stimuli such as ventilation to achieve a physiologically appropriate environment can have on the growth and maturation of the <u>lung tissue</u>.

In the article "Fate of Distal Lung Epithelium Cultured in a Decellularized Lung Extracellular Matrix" the authors describe the type II lung epithelial cells isolated from rats and seeded onto decellularized rat lung scaffolds as having migratory, contractile, and matrix-secreting properties after one week, which is atypical of epithelial cells. The cells also had increased expression of markers consistent with mesenchymal cell types. In contrast, the authors report that this type of epithelial-tomesenchymal transition did not occur when mixed populations of rat cells were seeded on the same scaffold using the same media.

"Scientists reseeding tissue-specific cells onto decellularized extracellular matrices derived from their tissue of origin should be aware that tissue-specific differentiation states should not be assumed to be constant," says Peter C. Johnson, MD, Vice President, Research and Development and Medical Affairs, Vancive Medical Technologies and President and CEO, Scintellix, LLC, Raleigh, NC. "Appropriate testing of cellular markers after reseeding will be essential to characterize the



true fate of replaced cells."

More information: The article is available free on the <u>*Tissue</u>* <u>*Engineering*</u> website until June 16, 2015.</u>

Provided by Mary Ann Liebert, Inc

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