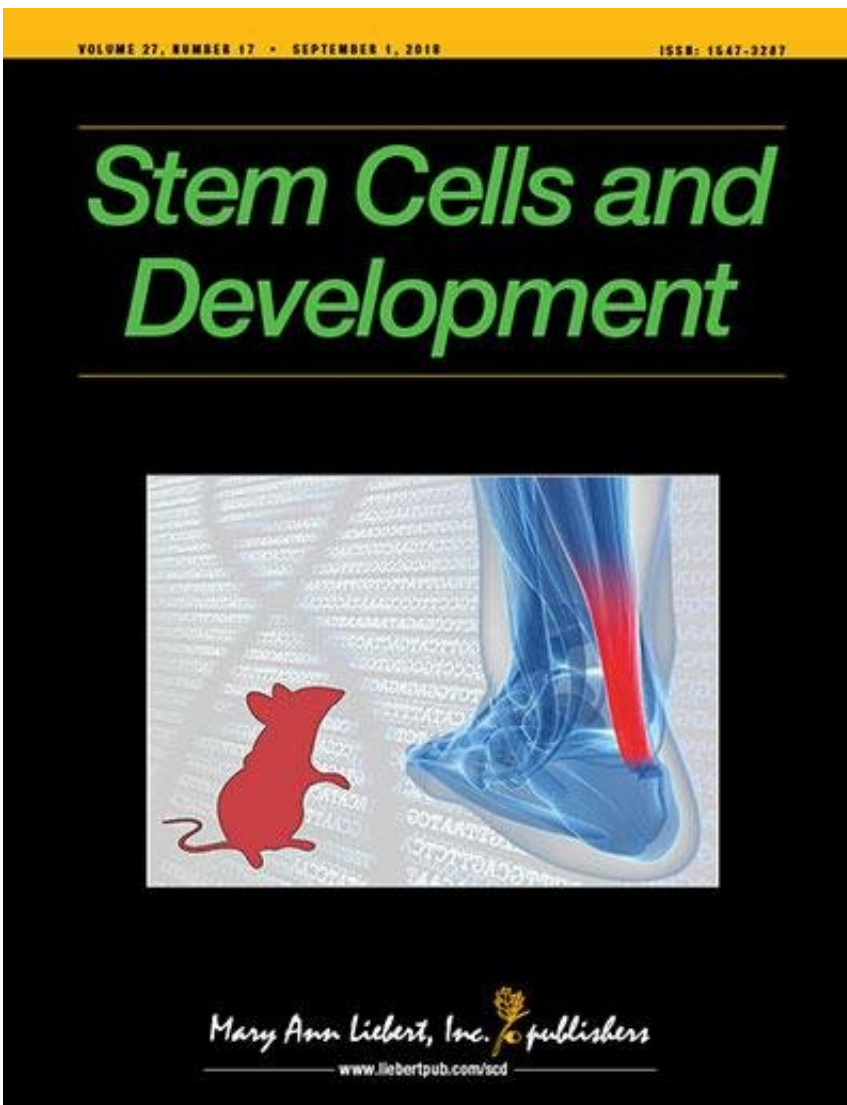


# Engrafted stem cell-derived lung organoids that model human lung development

September 11 2018

---



Credit: Mary Ann Liebert, Inc., publishers

Researchers have now grown lung organoids from human embryonic stem cells (hESCs) that, after implantation in mice, can develop mature alveolar type 1 (AT1) and AT2 cells and architecture approximating that of human lungs. The strategy is the first to generate both lung distal progenitor cells and mature AT1-like cells. The study is published in *Stem Cells and Development*.

Ling Yin, Zhili Rong, and colleagues from the Cancer Research Institute of Southern Medical University, Guangzhou, China, present their research in an article titled "Long-Term Engraftment Promotes Differentiation of Alveolar Epithelial Cells from Human Embryonic Stem Cells Derived Lung Organoids". The authors prepared lung organoids by providing hESCs with a specific set of differentiation-inducing growth factors and chemical inhibitors and then embedding these cells in Matrigel. After different growth periods from ~3-6 weeks, formed organoids were engrafted into immunocompromised mice to assess further differentiation. The authors studied these organoids after short-term (21 d) or long-term (~100 d) engraftment and identified a progression from abundant progenitor cell types to more completely differentiated and mature AT1 and AT2 cells as the duration of in vitro differentiation and engraftment increased, thus providing a model of human lung development.

"Using a relatively inexpensive protocol, the authors demonstrate human lung organoids derived from human [pluripotent stem cells](#) can generate mature alveolar type I and II -like [cells](#) after four months transplantation in a murine renal capsule model," says Editor-in-Chief Graham C. Parker, Ph.D., The Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine, Detroit, MI.

**More information:** Yong Chen et al, Long-Term Engraftment Promotes Differentiation of Alveolar Epithelial Cells from Human Embryonic Stem Cell Derived Lung Organoids, *Stem Cells and*

*Development* (2018). [DOI: 10.1089/scd.2018.0042](https://doi.org/10.1089/scd.2018.0042)

Provided by Mary Ann Liebert, Inc

Citation: Engrafted stem cell-derived lung organoids that model human lung development (2018, September 11) retrieved 25 April 2024 from <https://medicalxpress.com/news/2018-09-engrafted-stem-cell-derived-lung-organoids.html>

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.