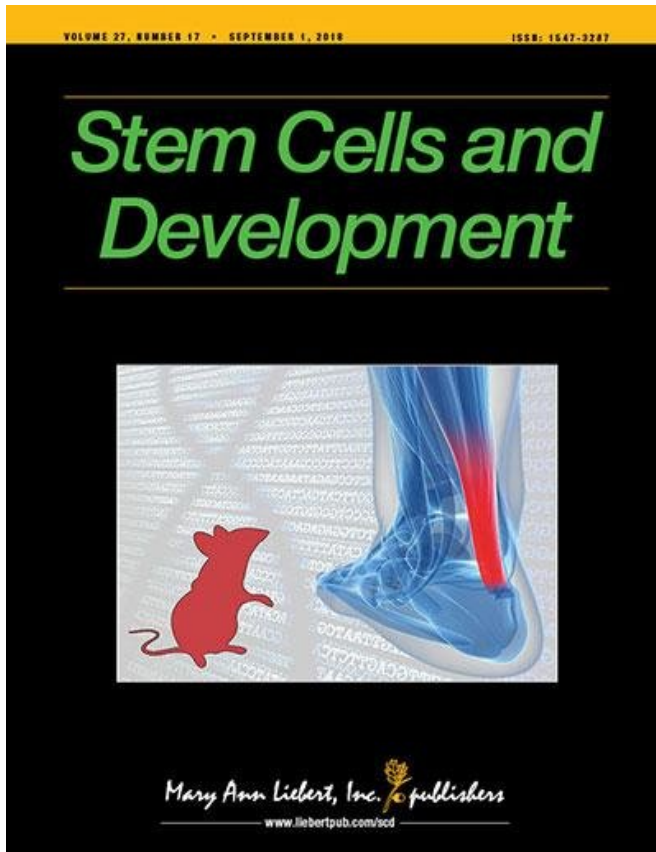


Engrafted stem cell-derived lung organoids that model human lung development

11 September 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

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