

Lung Stem Cells and Their Dynamic Niche during Regeneration and Repair

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Numerous epithelial stem/progenitor cells have been identified and shown to play a role in lung homeostasis and lung injury repair, yet the diversity of lung mesenchymal cell types that influence epithelial regeneration is poorly defined. We used a combination of genetic lineage tracing, single cell RNA-seq and three-dimensional organoid co-culture approaches to identify the functional roles of critical stromal cell populations that control endogenous lung stem/progenitor cell populations and the key signalling pathways that operate between epithelial and stromal cells in vivo. Further characterization of stromal populations expressing Lgr5 and Lgr6 that mediate airway and/or alveolar injury response will be discussed. Studying stromal/niche cells and their crosstalk with lung stem/progenitor cells will be a key step toward the better understanding of lung stem cell-mediated epithelial homeostasis and related pulmonary disease.