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第52回日本免疫学会学術集会 Evening Seminar E01

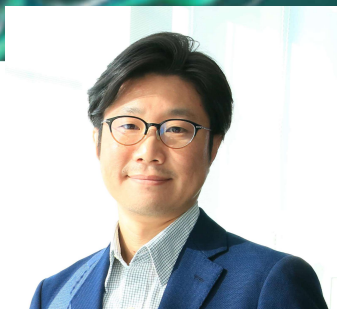
1日目 2024年1月17日（水）18:40-19:40

イブニングセミナー E01 Room D

《 幕張メッセ コンベンションホールD 》

演題：

Lung stem cell biology and disease



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要旨：

The lung tissue harbors various types of epithelial tissue stem cells that plays crucial roles in tissue homeostasis and regeneration from acute damage caused by inhaled chemical particles as well as virus/bacterial infections. Because of such important roles, functional disorder of tissue stem cells relates to respiratory diseases. In this evening seminar, I will introduce our current findings regarding two lung stem cells; airway basal cells and alveolar type II (AT2) cells.

1）Basal cells contribute to adult tissue regeneration by shifting from slow cycling to proliferating and subsequently back to slow cycling. Although sustained proliferation results in tumorigenesis, the molecular mechanisms regulating these transitions remain unknown. Using temporal single-cell transcriptomics of developing murine airway progenitors, we found that the TGF-β-Id2 axis commonly regulates the proliferation transitions in basal cells during development and regeneration, and its fine-tuning is critical for normal regeneration while avoiding basal cell hyperplasia.

2）Alveoli are the main locus of origin of pulmonary fibrosis, of which the molecular etiology has been extensively investigated. The mechanism regulating the profibrotic state of alveolar epithelial cells remains elusive. To clarify the causal relationship among epithelial injury and myofibroblast differentiation, we established an organoid-based lung fibrosis model using AT2 stem cell culture. We found that the core cellular system playing the central role in lung fibrogenesis. This model system is useful to investigate the initial induction of less-inflammatory lung fibrosis, including idiopathic pulmonary fibrosis.

■軽食 提供あり

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