Asian Transplantation Week 2023

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Session Title : Biology of organoids

Lessons from Lung Organoids to Deliver on Disease Modeling and Regenerative Therapy

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Organoids have emerged as a pivotal model system in pulmonary research, significantly expanding our capacity for physiologically relevant preclinical models by enabling the establishment of organoid cultures directly from patient tissues. In recent years, there has been remarkable progress in characterizing and refining in vitro lung culture systems.

In this presentation, we will delve into several pivotal questions within the field. We will explore the extent to which in vitro models faithfully recapitulate the tissue of origin, their ability to represent diverse patient cohorts, and their capacity to capture the intricacies of patient-specific variations. We advocate for a comprehensive approach that includes deeper characterization of these models using cutting-edge single-cell technologies, the development of more expansive and diverse organoid biobanks, and continued efforts to standardize culture media. Furthermore, we will address the impact of tissue mechanics alterations in the context of lung diseases and discuss strategies for targeting these alterations in in vitro models to pave the way for novel therapeutic interventions.