CHINESE-AMERICAN LUNG ASSOCIATION

2020 CALA Happy Friday Seminar

July 17th, 2020

Join Zoom Meeting:
https://arizona.zoom.us/j/97032505774 (Password: 654321)
Time: EST 10:30 am; PST: 7:30 am; Beijing time: 10:30 pm

Zinc Metabolic Defect of Aging Alveolar Progenitors in IPF

ABSTRACT: Idiopathic pulmonary fibrosis (IPF) is a fatal form of interstitial lung disease and aging has been identified as a risk factor to the disease. We recently reported that there was a significant loss of alveolar progenitors (AEC2s) in the lungs of patients with IPF. In our current study, we performed single cell RNA-seq of AEC2s from patients with IPF and healthy donors as well as AEC2s from old and young mouse lungs with bleomycin injury. We identified a defect of zinc metabolism in AEC2s from IPF lungs and bleomycin-injured old mouse lungs. We further demonstrated that a specific zinc transporter ZIP8 is associated with AEC2 renewal through sirtuin signaling in aging and in IPF. Targeted deletion of Zip8 in murine AEC2 compartment leads to reduced AEC2 renewal capacity, and impaired AEC2 recovery after bleomycin injury. In summary, we have identified novel metabolic defects of AEC2s during aging and in IPF which contribute to the pathogenesis of lung fibrosis. Therapeutic strategies to restore critical components of these metabolic programs could improve AEC2 progenitor activity and mitigate ongoing fibrogenesis.

Carol Jiurong Liang

Assistant professor

Cedars-Sinai Medical Center