CARNEGIE MELLON UNIVERSITY BME 2022 FALL SEMINAR SERIES

"The role of itaconate in host defense and resilience in intrapulmonary Klebsiella pneumoniae infection"



PRESENTED BY

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SCHEDULE

Porter Hall (PH) 100

Thursday, November 17, 2022 (10:15AM-11:15AM)

Gram negative bacteria are the most common pathogens implicated in nosocomial pneumonia in critically ill patients. Klebsiella pneumoniae (KP) in particular has grown in prominence worldwide with increasing prevalence of antibiotic resistance, hypervirulent strains, and invasive clinical syndromes. Immune mechanisms of host defense responsible for clearance of KP infection from the lung are largely unknown. Cis-aconitate decarboxylase 1 (ACOD1) is a mitochondrial enzyme robustly induced in human alveolar macrophages that catalyzes the production of itaconate. Itaconate has anti-inflammatory effects on macrophages, and ACOD1 polymorphisms disproportionately expressed in people of African descent are associated with increased itaconate production. The goal of this presentation is to define the role of ACOD1 in host defense in the lung during KP infection. This work will elucidate novel immune mechanisms that may be exploited to reduce mortality associated with this pathogen.

