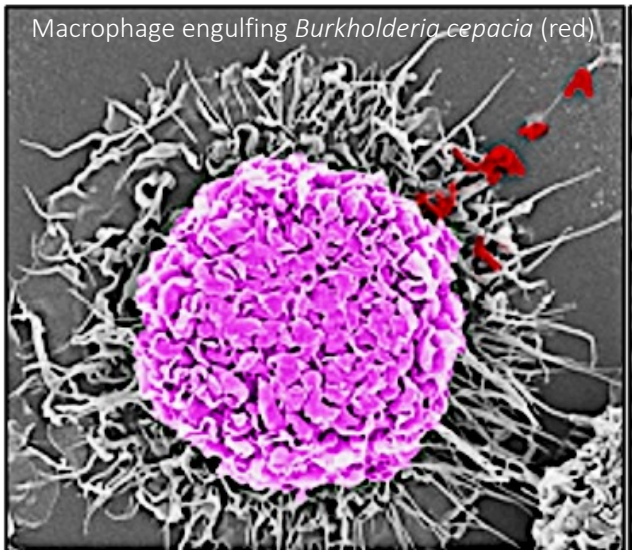
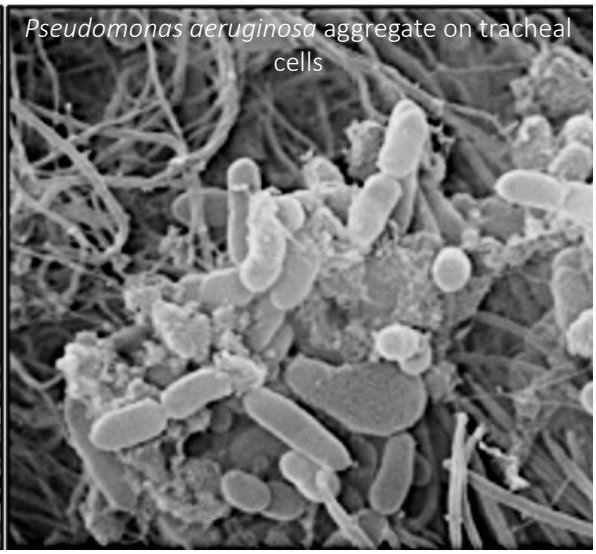
Course Offering – Spring 2025

Pathobiology of Cystic Fibrosis

A model for translational medicine

MEDMCIM 5600/6600 (3 Credit hours) T/Th 9:35-10:55am





Course Overview: Cystic fibrosis (CF) is an inherited life-threatening disease that affects mainly the lungs and digestive systems. This course delves into the fascinating history and evolving understanding of CF emphasizing the complexity of health and disease in people with CF. Learners will explore the genetics and basic physiology of the CF transmembrane conductance regulator (CFTR) ion channel and how faulty CFTR function significantly impacts health and pathology including, infection, inflammation, and immune cell function, and the likelihood of developing other health conditions such as diabetes and liver disease. Remarkably, while not cured, many scientific advancements have resulted in therapies that have dramatically improved the well-being and extended the life expectancy of many people with CF. Thus, CF serves as a model for strategies that aid the successful development of therapeutics for rare disorders. This interdisciplinary course will cover Genetics, Immunology, Microbial Pathogenesis, Pharmacology, and the many therapeutic approaches to treat CF.

Audience: Ideal for undergraduates interested in Medical School, Graduate School Studies in Microbiology and Immunology, and residents and clinicians seeking to update their understanding of CF.

Topics:

- History, diagnosis and clinical manifestations of CF as a multiorgan disease.
- Global recognition of CF as a disease that affects all racial/ethnic groups.
- Mechanistic insights into complex polymicrobial lung infections.
- Current treatments and experimental approaches for curing CF including gene therapy and stem cell strategies.

Format: Lectures, discussions, and journal club sessions. Learners will evaluate seminal research articles and explore cutting-edge science. Cystic Foundation funded Cure CF Columbus Research Development Program (C3RDP) clinicians and basic scientists will serve as instructors.

Course Directors: Dr. Dan Wozniak Daniel.wozniak@osumc.edu and Dr. Luanne Hall-Stoodley Luanne.Hall-Stoodley@osumc.edu