



Denver

CHEMISTRY

Spring 2023
SEMINAR SERIES



11am – noon
May 5th
NC 1130

Russell P. Bowler, MD, Ph.D.

Department of Medicine
National Jewish Health

“Dysregulation of sphingolipid metabolism and other metabolomic features in Chronic Obstructive Pulmonary Disease (COPD) Patients”

The World Health Organization estimates that Chronic Obstructive Pulmonary Disease (COPD) will be the third leading cause of death worldwide in 2030. While most COPD patients have a long history of exposure to inhaled cigarette smoke or poor air quality, the major of people with these exposures do not develop COPD and those who do develop COPD have heterogenous subtypes such as emphysema, airflow obstruction, or airway inflammation. Our laboratory has used metabolomic, proteomic, and genomic studies in blood and lung to identify the molecular features associated with increased risk and progression of COPD phenotypes. We have identified several important pathways such as those in sphingolipid metabolism, antioxidant defenses, and damage-associated molecular patterns (DAMP). These findings suggest that COPD has both pleomorphic clinical features and molecular basis and that precision diagnostic and treatment strategies are needed to improve treatment outcomes.