UC RIVERSIDE
School of Medicine
DIVISION OF BIOMEDICAL SCIENCES

The Graduate Program in Biomedical Sciences is proud to announce the

Ph.D. Dissertation Defense of

KEZIYAH YISRAEL GAYLE

Biomedical Sciences Ph.D. Candidate in the Lo Lab

Dr. David Lo, Chairperson

"Pulmonary Inflammation, Aerosol Exposure, and Health Impacts."

There is an alarmingly high prevalence of respiratory disease in the underprivileged, minority communities residing around California's Salton Sea. My thesis studies aimed to understand this high incidence of asthma in the region by generating in-vivo mouse exposure studies. We noted that lung inflammation induced by aerosol exposures to dust material collected from the region matched characteristics of bacterial lipopolysaccharide (LPS)/endotoxin exposure, identifying this component as the likely trigger. We gathered data on LPS concentrations and other environmental factors in addition to performing a clinical symptom survey across the region; colocalization analysis is consistent with a model in which nutrient-driven growth of bacteria in Salton Sea leads to endotoxin entrainment in dust, promoting lung inflammation in nearby residents. Additionally, my thesis studies aimed to understand the mechanisms of airway remodeling by studying Transforming Growth Factor Beta 1 (TGF-β), a key contributor in asthmatic disease progression. Airway remodeling (AWR) is a complex molecular process that leads to irreversible structural changes to the lung tissue of patients suffering from chronic respiratory illnesses such as asthma. By using a TGF-β receptor antagonist drug, Vactosertib, I investigated the ability of TGF-β signaling inhibition to mitigate AWR, and we identified potential promise of this drug in mitigating inflammation and fibrosis in our murine model. Ultimately, my thesis work highlights the complex interplay between environmental exposures and immune responses in pulmonary health as well as targeted therapy for severe cases of respiratory disease.

Monday, July 22nd, 2024
10:00 AM (PST)
School of Medicine Education II Building, Room 205
Join via Zoom:
https://ucr.zoom.us/j/95963041167?pwd=9bf8Xe9O87EbTI6JBEyUo4zlSYRid2.1