

Lay Summary:

Asthma is a chronic disease where different individuals have different degrees of inflammation in the lungs. Those with severe asthma are most often unresponsive to steroid therapy. Severe asthma patients typically have high levels of particular cells in the lungs called ‘neutrophils’ and ‘Th17 cells’. These cells secrete different molecules that promote the progression and persistence of inflammation. This study will focus on two such molecules LL-37 (secreted by neutrophils) and IL-17 (secreted by Th17 cells). The net effect of the interaction of these molecules in the process of lung inflammation is not understood. This project will study how these molecules interact and identify specific proteins in the lungs that are critical in the combinatorial effect of LL-37 and IL-17. The findings from this project have the potential to identify specific drug targets that can be used to develop new therapies especially for severe, steroid-unresponsive asthma.

Biography:

Anthony Altieri is a PhD Candidate in the Department of Immunology, University of Manitoba, in Dr. Neeloffer Mookherjee’s laboratory. Anthony’s interest in biomedical research started as an undergraduate Co-Op student in the Mookherjee lab, where he had the opportunity to work on research projects focused on immunomodulatory functions of host defense peptides in airway inflammation. During this time, he gained expertise in Systems Immunology, and used systems-level approaches to understand protein changes in the lungs in allergic asthma. His interest in the immunobiology of airway inflammation and asthma lead him to pursue his graduate studies in the Mookherjee lab. Anthony’s PhD research is focused on defining the biological activity of a human endogenous immunomodulatory host defence peptide, Cathelicidin LL-37, in neutrophilic airway inflammation which is a phenotype associated with steroid-unresponsive asthma. Upon completing his PhD, Anthony hopes to secure a high-impact post-doctoral fellowship and transition into an independent Principal Investigator at a Canadian university.