TITLE: T cell memory to respiratory virus infection

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RESEARCH PROJECT DESCRIPTION (brief overview of background, hypothesis, methods, role of medical student, funding and relevant publications -- SHOULD NOT EXCEED ~ 250 WORDS)

The lung is a major portal of entry for many devastating human pathogens including over 200 known respiratory viruses. Therefore, it is critical to develop vaccines that specifically induce long-lasting protective immunity in the respiratory tract. A significant hurdle in the development of mucosal vaccines is our poor understanding of cell-mediated immunity in the lung. This proposal is focused on investigations related to two central themes aimed at enhancing our knowledge of how T cells contribute to protective and pathogenic responses following viral infections of the respiratory tract.

1. To investigate how the initial interaction between distinct T cell subsets and lung resident antigen presenting cells influences the immunodominance hierarchies of effector/memory T cells as well as their persistence and functionality.
2. To identify specific molecules required for efficient generation, maintenance, and recall responses of each memory population in the lung, and how these cells can be effectively generated and maintained by vaccination strategies.