

Characterizing human IL-9 producing T helper memory cells and their role in human anti-melanoma immunity

Project summary

Human T helper (T_H) cells are crucial mediators of the immune system with distinct T_H cell subsets exerting distinct functions in health and disease. Interleukin 9 (IL-9) producing T_H9 cells are a novel subset of T_H cells, which mediate superior anti-tumor immunity in mouse models of melanoma. Hence, T_H9 cells have entered the limelight for novel T cell-based immunotherapies in cancer. However, their identity and function in humans remain largely unknown. We therefore aim to extend our preliminary work and comprehensively define the surface phenotype of T_H9 cells. This will enable us to isolate live T_H9 cells and investigate their effector functions, phenotypic stability, and genetic regulation. Based on these findings, we will analyze the role of T_H9 cells in human anti-tumor immunity by monitoring the immune response in melanoma patients undergoing novel and highly effective immunotherapies. A better understanding of T_H9 cells will guide innovative T cell based tumor immunotherapies.