

Anthony Orvedahl

I am an Instructor in the Division of Infectious Diseases in the Department of Pediatrics at the Washington University School of Medicine in St. Louis. My research interests are in the regulation of host inflammatory responses, specifically how cellular homeostasis is maintained under stress to achieve optimal immunity. My work with co-mentors, Dr. Herbert "Skip" Virgin and Dr. Gary Silverman, specifically seeks to understand how autophagy -- a process in which cellular contents are delivered lysosomes for degradation -- promotes cell survival during cytokine responses. We found using genome-wide CRISPR screening that autophagy genes protect myeloid cells against cell death triggered by IFN-gamma. This cell death process also requires the TNF cytokine and mediators downstream of TNF-receptor such as RIPK1 and CASP8. Moreover, mice that lack autophagy genes in their myeloid cells succumb more readily to TNF-induced shock. Current efforts are aimed at deciphering the mechanism of cell death in vitro and in vivo, and, since TNF is insufficient on it's own to induced death, evaluating novel IFNgamma induced mediators in this system. My clinical interests in Pediatric Infectious Diseases relate to emerging viral infections, immunocompromised patients, and sepsis.

In my free time I enjoy spending time with my wife and 4- year old son, cooking and bike riding, visiting the many restaurants, museums, and attractions in the St. Louis area, and traveling to new places.