

EXECUTIVE SUMMARY: *(State in layman's terms the application's broad, long-term objectives and specific aims, making reference to the potential public benefits of the project for California.)*

Inflammatory bowel diseases (IBD) comprise several intestinal inflammatory conditions including Crohn's Disease and Ulcerative Colitis that affect 50-100 per 100,000 of the population in California (approximately 80,000 individuals). Abnormalities of the immune system are especially implicated in these diseases, and the majority of treatments involve suppression of the immune system. Some affected individuals have a difference in the cells that produce antibodies to one of the major forms of self defense against intestinal microbes. The immature form of cells these cells are called plasmablasts, and those that migrate to the gut express a cell surface molecule termed alpha4beta7. We would like to test the hypothesis that IBD can be associated with elevated blood levels of alpha4beta7 plasmablast cells that change in response to the various types of therapies. To identify specific plasmablasts that migrate to the gut we will use hybridoma technology to produce an antibody that will specifically recognize the human gut homing receptor alpha4beta7. Using flow cytometry, we will then analyze peripheral blood from IBD patients before and after various treatments that suppress the immune system. The goal of this project is to understand the effect of commonly used therapies in IBD on the level of plasmablasts and how these changes relate to the response to therapy.