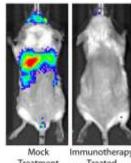
The Warawa laboratory COBRE project focuses on understanding the interaction between a biodefense pathogen, Burkholderia pseudomallei, and its preferred replicative niche, the mammalian lung. We have previously developed a lung-specific model of melioidosis in mice which allows us to study a disease process which progresses into a lethal septicemia, mimicking the moribund endpoint of human melioidosis. It is in this clinically-relevant model that we have begun to develop an immunomodulatory therapeutic which provides complete protection against a lethal B. pseudomallei challenge, and treated mice protected from the initial challenge achieve a memory immunity which protects them from rechallenge with no additional treatment. These preliminary findings provide a tantalizing novel modality therapy for B. pseudomallei which is resistant to numerous classes of antibiotics. Our studies will characterize the mechanism for the immunomodulation challenge by characterizing the native and treatment-based host response to infection. Furthermore, B. pseudomallei is a facultative intracellular pathogen which can grow within cultured phagocytes, but whose in vivo replicative niche has not been identified. We will characterize which cells facilitate the intracellular growth cycle of B. pseudomallei to identify how these host-pathogen interactions are affected by immunomodulatory therapeutic, and we will also begin to characterize how B. pseudomallei manipulates the host response away from an effective Th1 response in favor of a less effective Th17 response.



Treatment

Treated