“Characterizing the action of TolA as a klebicin import factor in Klebsiella pneumoniae”

Bacteriocins are a class of bacterial toxins that inhibit growth of a narrow range of bacteria with no collateral effects. I will investigate bacteriocins that target Klebsiella pneumoniae, klebicins, to gain a better understanding of how the Tol-Pal pathway is exploited by this class of bacteriocin to enter bacterial cells. I will first construct a strain of K. pneumoniae lacking tolA. I will then use a variety of assays, including mass spectrometry-based proteomics to characterize this new strain. Finally, I will compare the susceptibility of the mutant and wild type strains to selected klebicins that utilize the Tol-Pal pathway to infiltrate the cell. The long-term goal of my research is to understand the effects of physiological host conditions that can reduce TolA expression in K. pneumoniae, leading to reduced susceptibility to klebicins. Bacteriocins have been proposed as an alternative to antibiotics and my research will help in understanding their viability for clinical use.