

**NON-TECHNICAL ABSTRACT:** (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.)

The re-emergence of bacterial pathogens as a significant threat to public health has led to an increased awareness of food safety. One of the most common food-borne pathogens is *Listeria monocytogenes*, a bacteria found to contaminate a variety of raw and processed foods including vegetables, meats, and dairy products. *Listeria* infection can result in a variety of illnesses ranging in severity from fever and nausea to meningitis and fetal miscarriage. It has been found that lactic acid bacteria, common food-borne bacteria that are non-pathogenic, produce small proteins that kill *Listeria*. The project outlined in this proposal focuses on preparing mutant proteins that will allow us to elucidate the roles of key features of these molecules that allow them to target and kill other competing bacteria such as *Listeria*. This work can aid in the development of these molecules as both potent and safe drugs and food preservatives for fighting and preventing human diseases.