In food processing environments, contaminating bacteria typically reside in polymicrobial biofilms. Most of the biofilm biomass is composed of extracellular polymeric substances (EPS) that are secreted by the members of the biofilm community. This mode of growth is advantageous to bacteria as it confers enhanced resistance to environmental stressors, including chemical disinfectants. Bacteriophages are the most abundant biological entities in the biosphere and replicate in the presence of susceptible hosts. Some phages encode depolymerases, enzymes that degrade EPS. The combined EPS degrading and bactericidal activity of some phages make them potentially useful for biocontrol of biofilms harbouring pathogenic foodborne bacteria.

*Listeria monocytogenes* is a ubiquitous saprophytic bacterium that can cause invasive listeriosis, a disease with a high case fatality rate. *L. monocytogenes* persist in biofilms, which are a source of contamination of food with the bacterium.

I hypothesize that implementing a cocktail of phages encoding depolymerases during sanitation procedures will inactivate and/or reduce the numbers of *Listeria* spp and degrade *Listeria*-containing biofilm in food processing environments. To test this hypothesis, broad host range lytic phages encoding depolymerases will be isolated and characterized. Community culture will be performed to develop a biofilm such as would occur in food processing environments. Phage-bacteria interactions will be studied in planktonic and biofilm growth modes using a combination of transcriptomics, proteomics, and imaging techniques. Together, these approaches should provide information about the process of phage infection of sessile bacteria while capturing the spatial heterogeneity of biofilms.