Reducing Salmonella and Campylobacter Contamination of Poultry

Poultry products are the major reservoir and are the most commonly implicated foods for both Campylobacter and Salmonella infections in humans. The contaminated chicken products cause a huge economic loss to poultry industry in Canada.

The goal of this proposal is to reduce the load of both *Campylobacter jejuni* and *Salmonella enterica serovar Typhimurium (S. typhimurium*) in the digestive tract of chickens using different methods.

1. Garlic-derived organosulfur compounds will be identified and the treatment to either chicken house or chickens with the microencapsulated sulfur compounds will reduce the numbers of broilers colonized with C. jejuni and Salmonella.
2. A *de novo* approach will be developed to identify lactobacilli with probiotic activity to decrease or reduce the load of C. jejuni and S. typhimurium in the intestines of chickens.
3. They will construct an engineered Lactobacillus bacteria strain that displays immunogenic epitopes of C. jejuni and S. typhimurium colonization associated proteins. This vaccine strain will stimulate the production of protective antibodies, resulting in a reduction in pathogen colonization.

These developed intervention strategies will be important to reduce the occurrence of both Campylobacter and Salmonella in chickens.

The major purpose to apply for funding is to re-open the UBC Avian Research Center and start building up poultry safety research activity at UBC.

They will not be applying for patents for any technology developed in this research project. Chicken growers will be able to use the vaccine without a royalty charge.