

*E. coli* that contain one or more of the shiga toxin genes are characterized as Shiga toxin-producing *E. coli* (STEC) and are potential human pathogens. STEC infections can cause various illnesses such as mild to bloody diarrhea, hemorrhagic colitis (HC), hemorrhagic uremic syndrome (HUS) and can lead to death of individuals with compromised immune systems. STEC's have been recovered in the intestines of many domestic and wild animals, particularly ruminants. Transmission may occur via the fecal oral route leading to the contamination of foods. These STEC's can be classified by their O antigens into over 200 different O serogroups, which helps to facilitate laboratory procedures for clinical, environmental and food microbiological labs and provide better epidemiological data to control the spread of foodborne outbreaks. Although *E. coli* serogroup O157 remains the most common STEC in the U.S., many other STEC O serogroups may be equally hazardous but are largely ignored. Epidemiological studies suggest that 20-50% of STEC infections are caused by non-O157 STEC's, accounting for an estimated 37,000 illnesses annually. The number of STEC infections and illnesses may be severely underestimated, however, because many laboratories are not able to detect non-O157 STEC's. This project proposes to develop a method for detecting non-O157 STEC's and identify their O serogroups. PCR and Luminex fluorescent beads will allow for detection of genes unique to each O serogroup in a single multiplex assay. Successful implementation of this project will help prevent consumption of hazardous foods saving thousands of Californians from the physical, emotional and economic stresses of foodborne illness.