

Title - Intimin Likely Used to Cause Disease During Competition with Commensal *Escherichia coli*

Program of Study – Microbiology

Presentation Type – **Choose one of the following:** PowerPoint

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Category – **Choose one of the following:** Experimental (Applied)

Abstract:

The intimin gene in the Locus of Enterocyte Effacement (LEE) island of pathogenicity is the primary attachment mechanism in *Citrobacter rodentium*. Intimin is a bacterial adhesion that attaches to the epithelial wall of the intestine. An intimin deletion mutant bacteria, denoted delta is used to study colonization in the mouse gastrointestinal tract, and to quantify bacterial population abundances in the mouse gut. Additionally, *Citrobacter rodentium* is an attaching/effacing pathogen, and a useful murine model in understanding Enterohemorrhagic *Escherichia coli* infection in humans. *E. coli* and *C. rodentium* cause gastroenteritis in humans and mice, respectively. *C. rodentium* is a murine pathogen commonly used to model gastrointestinal disease. Results have shown intimin and *C. rodentium* useful in causing disease during competition with commensal *E. coli*. By studying the mechanisms and genes involved in pathogenic adhesion in *C. rodentium*, it will be easier to find out a cure or a stop for illness cause by the before mentioned *E. coli* strains like Crohn’s disease, ulcerative colitis and colonic tumorigenesis.

Christian Worldview Integration:

Scripture teaches that all things were initially created “very good” (Genesis 1:31). Man’s sin brought imperfection into the original created order, resulting in disease and death. We are

called by Christ to be merciful, and help alleviate the suffering of others (Luke 10:30-37). My objective is to use *C. rodentium* as a model for studying gastrointestinal disease, and use the knowledge gained to alleviate the suffering of those stricken with these illnesses. In this way, I will meet my Lord's call to help those who cannot help themselves.