Department of Molecular and Cellular Biology

Graduate Seminar MCB*7500

Friday, May 26, 2017 in SSC 2315@ 12 noon

presented by:

Caitlin Sande

(Faculty Advisor: C. Whitfield)

"A high-throughput approach for the discovery of novel CPS biosynthesis components and the construction of genetic network maps"

Many Gram-negative bacteria contain a thick polysaccharide coat called a capsule. Capsular polysaccharides (CPS) are large polymers firmly attached to the cell surface and play important roles in virulence and cell survival. CPSs are grouped by biochemical and genetic properties and differ in their assembly pathways. Group 2 CPS from *E. coli* is synthesized via an ABC transporter-dependent pathway that is shared with other important human pathogens. The biosynthetic machinery is well-defined, though regulatory features and intersections of this pathway with other cellular processes are not. High-throughput approaches have proven useful for the unbiased identification of genetic interactions within the cell, though they have not been performed with capsular strains. I propose this approach has the potential to identify novel components of the CPS biosynthesis pathway and its global connectivity and regulation. This project may uncover new therapeutic targets in this important group of capsular pathogens.