ANNOUNCEMENT: Interested members of the University Community are invited to attend the Final Oral Examination for the Degree of Master of Science of

Amanda Poole

of the Department of Molecular and Cellular Biology

on Tuesday, September 13, 2016 at 1:30 p.m. in SSC 1511

Thesis Title: Kinetic characterization of VopT, a mono-ADP-ribosyltransferase toxin from Vibrio parahaemolyticus

Examination Committee: Dr. A. Bendall, Dept. of Molecular and Cellular Biology (Chair)
Dr. R. Merrill, Dept. of Molecular and Cellular Biology
Dr. D. Josephy, Dept. of Molecular and Cellular Biology
Dr. J. Dawson, Dept. of Molecular and Cellular Biology

ABSTRACT

Amanda Poole B.Sc. (Hons.) Advisor: Dr. Rod Merrill

Pathogenic bacteria cause many human infections, and most employ virulence factors that cause cell or tissue damage in the host. One important virulence factor group is the mono-ADP-ribosyltransferase (mART) family. *Vibrio parahaemolyticus* is a pathogenic bacterium that encodes a virulence factor, VopT, a mART toxin. VopT modifies Ras, a small GTPase involved in cell signaling, leading to intestinal epithelial tissue damage. VopT is classified as an ExoS-like toxin as it requires the binding of a 14-3-3 protein for activation and shares high sequence identity to other ExoS-like members. Glycohydrolase activities were assessed for wild-type and catalytic variants, the first inhibitors of VopT were identified with IC$_{50}$ values between 4 and 45 µM, and an ExoT homology model was produced that provides insight into the FAS-dependent activity of VopT. Characterization of VopT has increased our understanding of mART enzymes and may lead to the development of effective therapeutic compounds.

CURRICULUM VITAE:
Amanda received her B.Sc. in Honours Biochemistry from the University of Waterloo in June of 2014. She began her graduate studies in the lab of Dr. Rod Merrill in September of 2014.

Publications: