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

Elisabeth Kell

of the Department of Molecular and Cellular Biology
on Tuesday, December 22, 2015 at 9:00 a.m. in SSC 1511

Thesis Title: Characterizing properties of bacterial outer membrane polysaccharide export (OPX) proteins

Examination Committee: Dr. S. Ryan, Dept. of Molecular and Cellular Biology (Chair)
Dr. C. Whitfield, Dept. of Molecular and Cellular Biology
Dr. C. Khursigara, Dept. of Molecular and Cellular Biology
Dr. E. Allen-Vercoe, Dept. of Molecular and Cellular Biology

ABSTRACT

Elisabeth Kell, B.Sc. (Hons.) Advisor: Dr. C. Whitfield

Many pathogenic bacteria produce capsules; virulence factors that hinder clearance by mammalian immune systems. Capsular polysaccharide (CPS) biosynthesis and export pathways of Gram-negative bacteria are classified by their assembly system; group 1 or 2 in *Escherichia coli*, which employ outer membrane polysaccharide export (OPX) proteins to translocate CPS to the cell surface. The only structurally characterized OPX protein is Wza from *E. coli* K30 (group 1). This research focused on characterization of OPX proteins from group 2 systems in *E. coli* K1 (KpsD) and *Salmonella enterica* serovar Typhi (VexA) with comparisons to Wza. All three OPX proteins localized to the outer membrane. KpsD behaved like a peripheral membrane protein and large amounts were found in the periplasm. Wza and VexA are lipoproteins and associated with LolA, a chaperone in the lipoprotein export pathway. These studies indicate different properties in OPX proteins are not exclusive to a particular pathway.

CURRICULUM VITAE:

Elisabeth graduated with an Honours BSc in Biology from Wilfrid Laurier University in 2013. She began her graduate program in the lab of Dr. Chris Whitfield in September of 2013 for her MSc in Molecular and Cellular Biology.

AWARDS:
Queen Elizabeth II Graduate Scholarship in Science and Technology - 2015