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

Chelsea Coumoundouros

of the Department of Molecular and Cellular Biology
on Tuesday, November 29, 2016 at 1:00 p.m. in SSC 1511

Thesis Title: Investigating the Oligomeric State of Osmoregulatory Transporter ProP of Escherichia coli and its Functional Consequences

Examination Committee:

Dr. J. Vessey, Dept. of Molecular and Cellular Biology (Chair)
Dr. J. Wood, Dept. of Molecular and Cellular Biology
Dr. C. Whitfield, Dept. of Molecular and Cellular Biology
Dr. G. Harauz, Dept. of Molecular and Cellular Biology

ABSTRACT:

Chelsea Coumoundouros B.Sc. (Hons.) Advisor: Dr. Janet Wood

ProP, an osmoregulatory transporter found in E. coli, is responsible for the accumulation of osmolytes in response to hyperosmotic stress. ProP is able to dimerize through the formation of a C-terminal coiled coil and the oligomeric state of ProP may play a role in ProP function. The effects of detergents, particularly n-dodecyl-β-D-maltoside, on the oligomeric state of ProP were studied using blue native polyacrylamide gel electrophoresis and laser induced liquid bead ion desorption mass spectrometry. These techniques showed that ProP is primarily monomeric in vitro, implying that ProP studied in proteoliposomes may also exist, at least in part, as a monomer. The functional significance of ProP dimerization was probed by attempting to observe a dominant negative effect in vivo. In vivo work suggested ProP may not require dimerization to be active and future work will probe the same effect in vitro.

CURRICULUM VITAE:

Chelsea obtained her Bachelor of Science (Hons.) in Biochemistry from the University of Guelph in 2014, then began her M.Sc. in the lab of Dr. Janet Wood in September 2014.

Awards:

Publications: