UNIVERSITY of GUELPH

COLLEGE of BIOLOGICAL SCIENCE

DEPARTMENT OF MOLECULAR AND CELLULAR BIOLOGY

Announcement:

All interested members of the university community are invited to attend the Final Oral Examination for the degree of ***Master of Science*** *of*

CHRISTOPHER KUC

On Friday, December 7, 2018 at 1 p.m. in SSC 2315

Thesis Title: **Staufen 1 is dispensable for NPC self-renewal and neuronal differentiation but plays a role in anchoring NPCs to the ventricular zone during corticogenesis**

Examination Committee:

Dr. F. Brauer, Dept. of Molecular and Cellular Biology (Exam Chair)
Dr. J. Vessey, Dept. of Molecular and Cellular Biology
Dr. M. Coppolino, Dept. of Molecular and Cellular Biology
Dr. M. Perreault, Dept. of Molecular and Cellular Biology

Advisory Committee:

Dr. J. Vessey (Adv)
Dr. M. Coppolino
Dr. A. Bendall

Abstract: Cerebral cortex development relies on asymmetric divisions of neural precursor cells (NPCs) to produce a recurring NPC and a differentiated neuron. Asymmetric divisions are promoted by the differential localization of cell fate determinants between daughter cells. Staufen 1 (Stau1) is an RNA-binding protein known to localize mRNA in mature hippocampal neurons. However, its expression pattern and role in the developing mammalian cortex remains unknown. In this study, Stau1 mRNA and protein were found to be expressed in all cells examined and was temporally and spatially characterized across development. Upon shRNA-mediated knockdown of Stau1 in primary cortical cultures, NPCs retained the ability to self-renew and generate neurons despite the loss of Stau1 expression. This said, in vivo knockdown of Stau1 demonstrated that it may play a role in anchoring NPCs to the ventricular zone during cortical development.

Curriculum Vitae: Christopher obtained his Bachelor of Science (Hons.) from the University of Waterloo in June 2016, and then began his M.Sc. in the lab of Dr. John Vessey in the fall of the same year.

Awards: (2016-2017) Queen Elizabeth II Graduate Scholarship in Science & Technology

Publications: Kuc, C., Richard, D. J., Johnson, S., Bragg, L., Servos, M. R., Doxey, A. C., & Craig, P. M. (2017). Rainbow trout exposed to benzo[a]pyrene yields conserved microRNA binding sites in DNA methyltransferases across 500 million years of evolution. *Scientific reports*, *7*(1), 16843. doi:10.1038/s41598-017-17236-x.