



Announcement: The Department of Molecular and Cellular Biology, in the College of Biological Science, invites all interested members of the university community to attend the Final Oral Examination for the degree of **Master of Science** of

DENDRA HILLIER, on Wednesday, August 23, 2017 at 1:00 p.m. in SSC 2315
(Advisor: Dr. J. Vessey)

Thesis Title: Investigating the role of hnRNP-M in asymmetric neural precursor cell divisions in the developing cerebral cortex

Examination Committee:

Dr. A. Nassuth, Dept. of Molecular and Cellular Biology (Chair)
Dr. J. Vessey, Dept. of Molecular and Cellular Biology
Dr. D. Mosser, Dept. of Molecular and Cellular Biology
Dr. N. Jones, Dept. of Molecular and Cellular Biology

Abstract: The mature cortex carries out many complex cognitive functions in the brain, such as reasoning and conscious thought. During brain development the process of neurogenesis expands the cortex through asymmetric divisions of neural precursor cells (NPCs). Asymmetric divisions are carried out, in part, through concise control of RNA expression. This research sought to expose a role for RNA-binding protein hnRNP-M in asymmetrically dividing NPCs. hnRNP-M was shown to be expressed in the nucleus during mouse cortical development by both NPCs and neurons. *In vitro* knockdown studies revealed changes in cellular populations, favouring the creation of NPCs and thereby suggesting a role in differentiation. This data, combined with knowledge from the literature, suggests hnRNP-M may regulate important alternative splicing events during asymmetric divisions of NPCs. The elucidation of the role of hnRNP-M provides insight into the molecular basis of brain development, and could have clinical applications for neurodevelopmental disorders.

Curriculum Vitae: Dendra completed her Bachelor of Science (Honours) in Molecular Biology and Genetics at the University of Guelph in the summer of 2015, and then began her M.Sc. in the lab of Dr. John Vessey in September 2015.