



***Announcement:***

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

**HAYLEY THORPE**

**on Monday, November 19, 2018 at 9:30 a.m. in SSC 2315**

**Thesis Title:** The RNA-binding protein hnRNP Q regulates dendritic morphogenesis and synapse number in cortical neurons

**Examination Committee:**

Dr. G. van der Merwe, Dept. of Molecular and Cellular Biology (Exam Chair)  
Dr. J. Vessey, Dept. of Molecular and Cellular Biology  
Dr. N. Jones, Dept. of Molecular and Cellular Biology  
Dr. J. Lalonde, Dept. of Molecular and Cellular Biology

**Advisory Committee:**

Dr. J. Vessey (Adv)  
Dr. N. Jones  
Dr. S. Ryan

**Abstract:** Heterogeneous nuclear ribonucleoproteins (hnRNP) constitute a family of RNA-binding proteins (RBP) capable of regulating mRNA dynamics and protein translation. Mutations in one such protein, hnRNP Q, were recently identified as a potential cause of human intellectual disorders. This protein is highly expressed in the neocortex during peak neurogenic periods and is suggested to be a mediator of neurogenesis and facets of interneuronal connectivity, including dendritogenesis and synaptogenesis. This research aimed to identify a role for hnRNP Q in the maturation of newborn cortical neurons by knocking down hnRNP Q in vitro and analyzing dendritic complexity and synaptic density. Dendritic complexity as evaluated by Sholl analysis was increased in hnRNP Q-depleted neurons and these neurons also demonstrated lower synapse density relative to control neurons. This suggests that hnRNP Q is critical to neuron development and morphogenesis, and aberrant hnRNP Q expression could result in intellectual disorders in humans.

**Curriculum Vitae:** Hayley obtained her Bachelor of Science in Neuroscience (Hons.) at Dalhousie University in 2015, and then began her M.Sc., with a specialization in Neuroscience, in the lab of Dr. John Vessey in the fall of 2016.

**Awards:** Ontario Graduate Scholarship (2017-2018); Graduate Tuition Scholarship (2016-2018)