



**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*

**JENNA KERRY**

**On Friday, December 10, 2021 at 9:30 a.m.** (online)

**Thesis Title:** Investigating the hypoxia-induced alternative splicing event of eukaryotic ribosomal protein S24

**Examination Committee:**

Dr. Jasmin Lalonde, Dept. of Molecular and Cellular Biology (Exam Chair)  
Dr. Jim Uniacke, Dept. of Molecular and Cellular Biology  
Dr. John Vessey, Dept. of Molecular and Cellular Biology  
Dr. Terry Van Raay, Dept. of Molecular and Cellular Biology

**Advisory Committee:**

Dr. Jim Uniacke (Advisor)  
Dr. John Vessey  
Dr. Andrew Bendall

**Abstract:** In response to hypoxia, eukaryotic cells have developed mechanisms that control gene expression in order to survive. Given that hypoxia is a characteristic of the tumour microenvironment, hypoxic stress response mechanisms provide tumour cells with survival benefits, thereby increasing oncogenic potential. One mechanism, that has been referred to as the 11th hallmark of cancer, is hypoxia-induced alternative splicing. Research has shown that hypoxia changes expression of splicing regulators which, as a result, changes alternative splicing patterns of cancer-associated genes and promotes metastatic disease. Recent data suggests that hypoxia influences alternative splicing of ribosomal protein mRNAs, and more specifically, a splicing event in ribosomal protein S24 that is induced in spheroids. Here, we show data that suggests that an alternative splicing in RPS24 is, in part, due to the hypoxia inducible factor response mechanism and possibly induction of autophagy, and that this response aids in survival during hypoxic stress.

**Curriculum Vitae:** Jenna completed her Bachelor of Science (Hons.) at University of Guelph in Winter 2019 and began her MSc in the lab of Dr. Jim Uniacke in the fall of the same year.