Announcement:

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

SARAH KIRSH

On Tuesday, July 12, 2022 at 1:30 p.m. (online)

Thesis Title: The pharmacological inhibition of the neuropeptide Y1 and Y5 receptors on proliferation, migration, and cell signaling in hypoxic breast carcinomas

Examination Committee:
Dr. Michael Emes, Dept. of Molecular and Cellular Biology (Exam Chair)
Dr. Jim Uniacke, Dept. of Molecular and Cellular Biology
Dr. Shaun Sanders, Dept. of Molecular and Cellular Biology
Dr. Jasmin Lalonde, Dept. of Molecular and Cellular Biology

Advisory Committee:
Dr. Jim Uniacke (Advisor)
Dr. Ray Lu
Dr. Shaun Sanders

Abstract: Neuropeptide Y (NPY) has been linked to the initiation and progression of breast cancer. NPY activates six G-protein coupled receptors (GPCRs) in breast cancer, of which, NPY1R and NPY5R are the most biologically significant. Activation of these receptors by peptide binding impacts tumour proliferation, migration, invasion, and angiogenesis, especially in hypoxia. Here we show that the use of NPY1R and NPY5R antagonists in MDA-MB-231 and MCF7 breast cancer lines can inhibit hallmarks of cancer and that NPYRs are associated with hypoxic regions in tumour samples. These overlaps correlated with adverse outcomes. Breast cancer is the second most common cancer, with more than 1.3 million people diagnosed each year. Therefore, a greater understanding of how NPY1R and NPY5R antagonists impact breast cancer cell migration, proliferation, invasion, and formation, with a focus on hypoxia, will be an asset in the development of novel therapeutics for breast carcinomas.

Curriculum Vitae: Sarah completed her B.Sc. (Hons.) in Biochemistry (Co-op) at the University of Guelph in Fall 2019. She then began her M.Sc in Molecular and Cellular Biology in Fall 2020 under the supervision of Dr. Jim Uniacke.

Awards: Graduate Tuition Scholarship (2020) & Ontario Graduate Scholarship (2021).
