

Department of Molecular and Cellular Biology
Graduate Seminar MCB*6500

Friday, October 6, 2023 @12:00 p.m.

presented by:

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"Does cardiovascular dysfunction facilitate neurological disease phenotypes?"

Neurological disease accounts for a substantial proportion of disability and disease burden for individuals above the age of 65 in Canada and has been projected to double by 2031. Such diseases, including neuropsychiatric and neurodegenerative diseases, are notoriously difficult to treat. However, ongoing research has highlighted the potential of targeting disease risk factors as a preventative strategy to combat the development of disease. Specifically, cardiovascular disease (CVD) is of interest. The relationship between CVD and neurological disease is well-documented, especially regarding Alzheimer's disease (AD), the most common form of neurodegeneration. In fact, the majority of AD patients experience vascular pathology, with the disease frequently observed with comorbid vascular dementia. Additionally, hypertension is strongly associated with the development of AD. To date, fewer studies have evaluated the relationship between cardiovascular risk factors and other categories of neurological disease, such as Huntington's disease and Schizophrenia, however, there is some evidence to suggest that CVD and hypertension may also affect these disorders. Therefore, we will investigate the relationship between CVD and features of neurological disease in murine models; first, to determine if this relationship extends beyond AD-like pathology, and second, to determine how the induction of CVD influences behaviour/cognition and neurovasculature individually and combined with neurological disease. We hypothesize that the existence of CVD individually will disrupt the organization and function of cerebral vasculature leading to the gradual development of cognitive and behavioural deficits. Further, we hypothesize that when in combination with neurological disease, we will see the exacerbation of baseline disease symptoms.