

# ARMI EXTERNAL SEMINAR SERIES 2024



MONASH  
University



## “Mechanisms and Functions of Mitochondrial Derived Vesicles”

Prof Heidi M. McBride – McGill University

### Abstract

Mitochondria are central hubs of cellular metabolism and are tightly connected to signalling pathways. The dynamic plasticity of mitochondria to fuse, divide, and contact other organelles to flux metabolites is central to their function. To ensure bona fide functionality and signalling interconnectivity, diverse molecular mechanisms evolved. An ancient and long-overlooked mechanism is the generation of mitochondrial-derived vesicles (MDVs) that shuttle selected mitochondrial cargoes to target organelles. Just recently, we gained significant insight into the mechanisms and functions of MDV transport, ranging from their role in mitochondrial quality control to immune signalling, thus demonstrating unexpected and diverse physiological aspects of MDV transport. I will highlight the origin of MDVs, their biogenesis, and their cargo selection, and share some new work on the roles of MDVs in neurodegeneration.

### Bio

Dr. McBride is a Professor at McGill University in the Montreal Neurological Institute. Her work focuses on the molecular mechanisms and function of mitochondrial dynamics. The overarching theme is to understand the fundamental behaviour of the mitochondria, including fusion, fission and the generation of mitochondrial derived vesicles (MDVs). The overarching goal is to identify the molecular mechanisms of communication required to mediate cellular transitions, including metabolic, cell cycle, immune pathways and cell death transitions. Recent areas of research interest include mechanisms of mitochondrial contributions to neurodegeneration; the mechanisms of MDV formation and the role of the mitochondria as a unique signalling platform in the cell.



## EVENT DETAILS

### DATE:

3<sup>rd</sup> December 2024

### TIME:

1:30pm

### VENUE:

Room G19  
15 Innovation Walk  
Monash University  
Clayton Campus

### HOST:

Dr William Roman



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