McGill

Department of Anatomy and Cell Biology

Seminar Series

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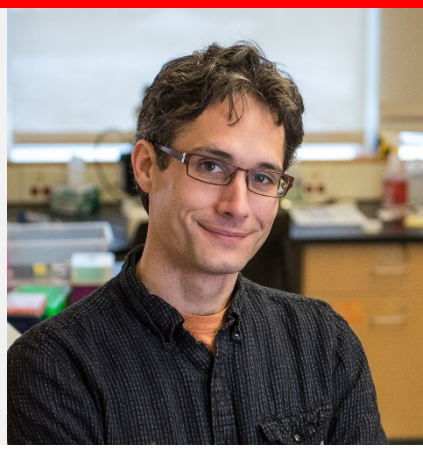
Hosted by: Dr. Susanne Bechstedt



Wednesday, March 13, 2019

11:30 am

Room 2/36
Strathcona Anatomy Building
3640 University Street

"The role of ribosomal protein composition in selective translation of longevity genes under dietary restriction."

Dietary restriction (DR) is the most robust intervention known to extend longevity across a plethora of model organisms. Understanding how DR alters gene expression to invoke pro-longevity pathways is pivotal to developing new anti-aging therapies in humans. Previously, we characterized the gene expression occurring on both the transcriptional and translational levels under DR in *C. elegans* and revealed that many genes with inputs to longevity were regulated on the level of translation, not transcription. To elucidate this mechanism, our recent work has been focused on determining how ribosomal composition changes under DR and how those changes affect which transcripts are selected for translation and which are not. We have shown that the abundance of some ribosomal proteins is altered by DR and that their knockdown during adulthood under well-fed conditions affects aging. For example, loss of *rpl-7A* and *rpl-22* and *rps-13* is pro-longevity while other knockdowns are anti-longevity or have no effect. Preliminary analysis of the gene expression changes upon knockdown of *rpl-7A* and *rpl-22* indicates that their loss promotes translational fidelity and prevents expression of developmental genes.