McGill

Department of Anatomy and Cell Biology

Seminar Series

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Hosted by: Natalie Zeytuni, Ph.D.

Wednesday, September 28, 2022
11:30 am -12:30 pm
Room 1/12 - Strathcona Anatomy and Dentistry Building

"Cancer cells hijack RNA processing to transform the cell architecture inside and out"

The eukaryotic translation initiation factor eIF4E is elevated in many cancers and targeting it correlates to clinical benefit in early-stage clinical trials in acute myeloid leukemia (AML). eIF4E acts in several steps in RNA processing which allows it to not only amplify DNA signals from the transcriptome through increased nuclear RNA export (and thus increased cytoplasmic availability) and translation efficiency (more ribosomes per transcripts) of selected transcript as well as re-writes specific RNA messages via altered splicing and alternative polyadenylation. Through these pathways eIF4E can drive biochemical pathways that drive its oncogenic potential. For example, it drives large scale alterations to the cell surface architecture such as leading to coating eIF4E in the glycosaminoglycan hyaluronan which is required for eIF4E-dependent cell motility. We tie eIF4E's role in post-transcriptional control with its capacity to promote migration and invasion in AML and other models. We use a combination of cell, molecular, biochemical and structural methods for these studies.