Department of Molecular and Cellular Biology

Graduate Seminar MCB*6500

Friday, October 9, 2020 @12:00 PM

presented by:

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"Investigating cannflavins as a novel inhibitor of TrkB signalling for treatment of glioblastoma multiforme"

Glioblastoma multiforme (GBM) is one of the most common and extremely invasive forms of brain cancer. The survival rate of GBM is less than a year and the current treatment, which consists of surgical removal followed by radiation and chemotherapy, only extends the patients survival a few months. Dysregulation of the receptor tyrosine kinase (RTK) tropomyosin receptor kinase B (TrkB) is commonly seen in GBM and leads to increased signalling of key downstream pathways that results in upregulation of GBM proliferation, survival, and migration. Molecules that target this receptor are currently in the spotlight for therapeutical development, and during a recent screening we have found that cannflavins can interfere with TrkB activation in cortical neurons. Cannflavins A and B are specialized metabolites of *Cannabis sativa* (*C. sativa*), and it's been found that these molecules can provide anti-inflammatory benefits more effective than aspirin. With our recent finding, it is hypothesized that Cannflavins A and B induce apoptosis in various GBM cell lines through inhibition of the TrkB pathway. To test this hypothesis, first I will determine cannflavins therapeutic effects against GBM cell viability, migration, and invasion using cell-based assays and human cerebral organoids. Next, I will elucidate the impact of cannflavins on the biology of GBM cells, including their influence on calcium signaling and other RTKs. Lastly, I will establish the pharmacokinetics and brain penetrability of cannflavins in a mouse model. This project will provide a foundation to pursue cannflavins as promising medicinal compounds for treatment against GBM and other cancers.

■ *MCB Brown Bag Seminar – online presentation*