Department of Molecular and Cellular Biology

Graduate Seminar MCB*6500

Friday, Feb. 2, 2018 in SSC 1511 @ 12 noon

presented by:

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(Advisor: B. Meng)

"Construction of a full-length clone based on *Grapevine rupestris stem pitting-associated virus* strain Syrah and development of expression/VIGS vectors for *Vitis vinifera*"

Grapevines are an important and emerging crop in Canada; as such, there is increasing concern regarding their production and health. One particular group of grapevine pathogens that has a profound effect on quality and yield are viruses. *Grapevine rupestris stem pitting-associated virus* (GRSPaV) is a single-stranded, positive-sense RNA virus of the genus *Foveavirus* in the family *Betaflexiviridae* and is the suspected etiological agent of the Rugose Stem Pitting, Syrah Decline, and Grapevine Vein Necrosis diseases. Grapevines are often infected with multiple viruses, which complicates attributing symptoms and diseases to specific viruses. This has restricted development of treatment strategies and delayed fundamental understanding of how these viruses function. Additionally, different strains of GRSPaV demonstrate different pathogenic capabilities. Full-length infectious clone (FLC) of these strains can be used to clarify these disease associations by producing singular infections in grapevines, which can be measured and monitored. A strategy for constructing an FLC of GRSPaV strain Syrah is presented, which will be used as the basis for a GFP expression vector to produce proteins in herbaceous and woody plants. A virus-induced silencing (VIGS) vector based on GRSPaV-SY will also be constructed to assess its ability to silence host plant genes. These vectors are very valuable to commercial industries that wish to improve grapevine varieties and to research industries that wish to better understand fundamental biology of grapevines and grapevine viruses.