UNIVERSITY of GUELPH

COLLEGE of BIOLOGICAL SCIENCE

DEPARTMENT OF MOLECULAR AND CELLULAR BIOLOGY

Announcement:

All interested members of the university community are invited to attend the Final Oral Examination for the degree of ***Master of Science*** *of*

KYLE LANTEIGNE-WILKINS

On Friday, August 25, 2023 at 9:30 a.m. (SSC 2315)

Thesis Title: **Construction of a full-length infectious cDNA clone for Grapevine rupestris stem pitting-associated virus strain Pinot Noir**

Examination Committee:

Dr. Michael Emes, Dept. of Molecular and Cellular Biology (Exam Chair)
Dr. Baozhong Meng, Dept. of Molecular and Cellular Biology
Dr. Ian Tetlow, Dept. of Molecular and Cellular Biology
Dr. Joseph Colasanti, Dept. of Molecular and Cellular Biology

Advisory Committee:

Dr. Baozhong Meng (Advisor)
Dr. Jaideep Mathur
Dr. Ian Tetlow

Abstract: Grapevines are one of humanity's most historic and important crops for their use in wine, grape, and raisin production. Grapevine rupestris stem pitting-associated virus (GRSPaV) is a single-stranded, positive sense RNA virus that is consistently detected in vineyards worldwide at very high incidence rates. GRSPaV has been etiologically associated with many grapevines diseases, such as rupestris stem pitting, Syrah decline, and grapevine vein necrosis. However, the prevalence of GRSPaV in combination with the fact that grapevines are most often co-infected with multiple different viruses makes establishing any causal relationships between virus and disease difficult. A full-length infectious cDNA clone would help elucidate grapevine disease etiology by allowing for singular infections of healthy un-infected plants. Synthetic biology was used to create a GRSPaV clone for the PN (Pinot Noir) strain, which proved to be infectious in Nicotiana benthamiana as well as Vitis vinifera, demonstrated through epifluorescence microscopy, western blotting, and RT-PCR. ORF6 was also shown to express a protein product whose function is currently unknown.

Curriculum Vitae: Kyle completed his Bachelor of Science (Hons.) in Biotechnology with a minor in Chemistry at the University of Toronto in June 2020. He began his Master of Science program in Molecular and Cellular Biology in Dr. Meng's lab in September 2020.