



**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*

OWEN HEBB

On Monday, December 20, 2021 at 9:30 a.m. (online)

Thesis Title: **Effects of phosphatidylethanolamine binding protein floral repressors and their interactors on plant architecture**

Examination Committee:

Dr. Ray Lu, Dept. of Molecular and Cellular Biology (Exam Chair)

Dr. Joseph Colasanti, Dept. of Molecular and Cellular Biology

Dr. Annette Nassuth, Dept. of Molecular and Cellular Biology

Dr. Andrew Bendall, Dept. of Molecular and Cellular Biology

Advisory Committee:

Dr. Joseph Colasanti (Advisor)

Dr. Annette Nassuth

Dr. Ian Tetlow

Abstract: Flowering plants contain phosphatidylethanolamine binding proteins that either activate flowering or repress flowering. The balance of floral activators and floral repressors largely dictates plant architecture. Most floral activators are FT-like proteins and floral repressors are TFL1-like proteins, named for their sequence similarity to the Arabidopsis genes FLOWERING LOCUS T and TERMINAL FLOWER 1. Our lab has isolated an FT-like protein from sugarcane, ScFT2, that has strong floral repressor properties when expressed in Arabidopsis. Here the architectural effects of ScFT2 are investigated using a transgenic approach. Tissue specific promoters are used in Arabidopsis to determine ScFT2 localization and mobility to further understand how the gene is functioning. ScFT2 was found to also act as a floral repressor when expressed in tomato, a model plant for sympodial growth. Finally, specific proteins that may be involved with the function of floral repressors are identified using TFL1 in a yeast two hybrid screen.

Curriculum Vitae: Owen completed his Bachelor of Science in Plant Science with an area of emphasis in Plant Biotechnology at the University of Guelph in 2019. He began his Master of Science in Molecular and Cellular Biology in the lab of Dr. Joseph Colasanti in the Fall of the same year.