



COLLEGE of
BIOLOGICAL SCIENCE
DEPARTMENT OF MOLECULAR
AND CELLULAR BIOLOGY

MCB Seminar Speaker Series

2017-2018



Wed. March 7th, 2018
SSC 2315 @ 10:30 am

Dr. Annette Nassuth

Molecular and Cellular Biology,
University of Guelph

“Do grapes SCREAM for frost tolerance?”

Extreme temperatures and drought are major stresses that affect the distribution of plants in nature and limit plant productivity in agriculture. Climate change brings with it an increase in such stress conditions. How plants adapt to various abiotic stresses is a fundamental biological question, and improving plant stress tolerance is critical for maintaining or improving agricultural productivity required for food security. Stress tolerance is especially important for perennial plants because damage incurred during one year will also negatively affect performance and yield in subsequent years and thus have considerable economic impact for several years. For example, the grape industry in Ontario suffered up to 50% of crop loss in recent years due to winter injury. It has been suggested that the perception of low temperatures in the fall initiates a series of events, collectively referred to as cold acclimation, that lead to increased frost tolerance. Transcription factors which regulate key steps in this process have been identified for the model plant *Arabidopsis thaliana*. Their expression and activity was found to be tightly regulated to minimize negative effects on plant development. Interestingly, a protein called ICE (Inducer of CBF (CRT Binding Factor) Expression) not only has a function in the frost tolerance pathway but also in the formation of stomata (ICE was called SCREAM in these stomatal studies), openings that regulate the loss of water from leaves and thereby affect drought tolerance. This seminar will present findings on the cold tolerance ICE-CBF pathway and the stomatal development pathway in the frost tolerant wild grape *Vitis riparia*. The possibility of examining stomata in grape leaves as a proxy for frost tolerance, to aid the selection of new wine grape cultivars for Ontario, will be discussed.

“A GREAT OPPORTUNITY TO HEAR LEADING RESEARCHERS IN THE SCIENTIFIC COMMUNITY DISCUSS THEIR WORK”

* ALL WELCOME TO ATTEND *

* COFFEE, TEA AND TIMBITS *

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