UNIVERSITY of GUELPH

COLLEGE of BIOLOGICAL SCIENCE

DEPARTMENT OF MOLECULAR AND CELLULAR BIOLOGY

MCB Seminar SPEAKER SERIES

2024-2025

OCT. 16 WED 10 30 AM

Summerlee Science Complex
SSC 2315

Dr. Christop Benning

Professor, Director of MSU-DOE Plant Research Lab, Michigan State University

Chloroplast Lipids as Stress Mitigators and Sensors

Whenever photosynthetic organisms are confronted with adverse conditions, the photosynthetic electron transport reactions can become imbalanced and consequently, toxic side products are formed mainly in the form of different reactive oxygen species (ROS). Aside from the proteins and pigments of the electron transport chain, the thylakoid membrane lipids are first to experience damaging effects of ROS. Thus, it seems reasonable to hypothesize that products of the reactions between ROS and membrane lipids and their turnover are sensed to adjust the rate of photosynthetic electron transport to current conditions. I will discuss work in progress to test this hypothesis and present an overview of the roles lipids play in stress mitigation in the chloroplast.

Christoph Benning has been working for over 30 years on different aspects of lipid metabolism in photosynthetic organisms. His lab discovered and studies proteins involved in the biosynthesis of polar lipids of the photosynthetic membrane, the exchange of membrane lipid precursors between the ER and the chloroplast envelope membranes and the respective contact sites, and proteins involved in lipid remodeling as adaption to abiotic stresses. His lab discovered a transcription factor governing the biosynthesis of storage lipids in plant embryos and used it for biotechnological applications. The Benning lab has also applied genomic and genetic approaches to identify key regulatory factors and enzymes required for triacylglycerol biosynthesis, lipid droplet formation, and lipid turnover in microalgae.

All welcome to attend
Light refreshments will be served

More information on MCB's website:
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