

JOINT DEPARTMENTAL SEMINAR

Bridging the Gap: Unveiling the ER-Chloroplast Interface in Plant Cells



FEDERICA BRANDIZZI, PHD

Department of Plant Biology

Michigan State University

The endoplasmic reticulum (ER) is a pivotal organelle in eukaryotic cells, orchestrating protein synthesis, folding, and transport, while also contributing to lipid metabolism and calcium storage. In plants, the ER plays a vital role in growth and stress responses, supporting processes such as cell wall biosynthesis, hormone signaling, and pathogen defense. In humans, ER dysfunction is implicated in diseases like neurodegeneration, diabetes, and cancer, where protein misfolding disrupts cellular homeostasis. Understanding the ER's functions and its interactions with other cellular pathways is thus fundamental for advancing both human health and crop resilience.

In plants, the ER forms physical connections with other organelles at membrane contact sites (MCSs), facilitating communication and metabolic integration. Among these, ER-chloroplast interactions are critical for lipid biosynthesis, yet the molecular components mediating these interactions remain poorly understood. This talk will present the identification of a novel protein complex at ER-chloroplast MCSs in Arabidopsis. Our findings reveal that this plant-specific complex forms functional bridges between the ER and chloroplasts, playing a key role in maintaining lipid homeostasis and enhancing cellular resilience under stress conditions.

JANUARY 24. 2025

11.AM - RW432

LIVE STREAM LINK:

[HTTPS://CSB.UTORONTO.CA/LIVE-STREAM/](https://csb.utoronto.ca/live-stream/)