PhD DEFENSE

TEMASEK LIFESCIENCES LABORATORY



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The Auditorium

**Scan for address*

All Are Welcome!

Signalling and transcriptional responses to calcium deficiency in *Marchantia polymorpha*

Calcium (Ca) functions as a structural component in the cell wall and as a signalling messenger. Ca deficiency causes necrotic disorders including tipburn and blossom end rot. How plant cells signal and respond transcriptionally to the stress is largely unknown. With the use of *Marchantia polymorpha* together with a customized phenotyping system, and transcriptomics and pharmacological approaches, I discovered the potential roles of a signalling molecule, the G protein β subunit (Mp*GPB1*) in mediating Ca deficiency responses through phenylpropanoid and reactive oxygen species (ROS) metabolic pathways. Further time-series transcriptomic analyses under Ca deficiency identified transcription factors WRKYs and C2H2 as important regulators of Ca deficiency that function downstream of *GPB1*. Interspecies comparisons suggested that the molecular mechanisms to combat Ca deficiency are largely conserved between the bryophyte and flowering plants.