

GDCB SEMINAR

Friday, Nov. 12, 2021 — 4:10 p.m.

1414 Molecular Biology Building

“The functions and signaling mechanisms of FERONIA receptor kinase in plant growth and stress responses”

Abstract: Plants are sessile and it's essential that they sense and decode the environmental conditions and reprogram their transcriptome and proteome for survival. Better understanding how plants respond to their environment can guide us in improving plant health and crop production. FERONIA (FER) is a plasma membrane-localized receptor kinase and regulates diverse biological processes. Over the past decade and half, extraordinary progress has been made in elucidating FERONIA family receptor kinase-mediated signaling pathway. The research efforts of ours and others have established FER as a critical regulator in plant growth and biotic and abiotic stress responses. Our previous work has demonstrated that FER is required for optimal plant growth and defense against bacterial pathogen, and loss-of-function *fer* mutant displayed stunted growth and hypersensitivity to bacterial pathogen infection. More recently, using integrated omic approach we have demonstrated that FER negatively regulates ER body formation, indole glucosinolate biosynthesis and autophagy, important biological processes involved in plant development and stress responses. We are currently using genetic, genomic, biochemical, molecular and cell biological approaches and network analysis to dissect the molecular interplay through which FERONIA receptor kinase regulates plant growth and stress tolerance in response to different environmental conditions. The long-term goal is to improve crop performance under adverse environmental conditions.

Host: Jeff Essner, genetics, development and cell biology professor



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