Biology Seminar

12:30 - 1:30 pm
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BGS 0165

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Molecular insights into plant immune systems under climate change

Worsening plant disease epidemics due to global climate change pose serious threats to natural and agricultural ecosystems. Our warming climate impacts diverse aspects of plant biology, including immune signaling and disease resistance. However, a detailed mechanistic understanding of warm temperature-modulated immunity and defence responses has only started to emerge. This seminar will focus on the elevated temperature-vulnerable pathway mediated by the plant hormone salicylic acid (SA), which is central to defences against various pathogens and pests. We have recently identified a novel thermosensitive mechanism governing SA biosynthesis and resulting plant disease resistance. Specifically, high temperatures suppress the *in planta* phase separation of immunity-activated biomolecular condensates that control the transcription of master immune regulatory genes. We then leveraged this rate-limiting transcriptional node to genetically strengthen plant immune systems. Taken together, our discovery potentially lays a broadly applicable genetic roadmap to developing disease-resistant and climate-resilient plants for our warming world.