NSF | cropps Center for Research on Programmable Plant Systems

IMAGING SYSTEMIC SIGNALING AND DEFENSE IN PLANTS

A TOUCHY SUBJECT

APRIL 11

2-3 PM EDT

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ABSTRACT

Plants are highly sensitive to their environment, with local stimuli such as herbivore damage to a leaf or touch stimulation leading to plant-wide responses. We are beginning to define the molecular mechanisms whereby these local signals are generated and propagated. When stimulated by abiotic stresses, waves of calcium propagate through the plant to trigger distant responses. We now have evidence for a signaling network where channels of the glutamate receptor-like and the cyclic nucelotide gated families are required to transmit the signal. However, touch signaling appears to also use elements of the jasmonic acid signaling system, but in novel ways. The seminar will show real-time imaging of these responses in action and how the touch and wounding systems can interact to control defense of the plant.

ABOUT THE SPEAKER

Simon Gilroy conducted his Ph.D. and a postdoc in Edinburgh, Scotland with Tony Trewavas before moving to a postdoc in Berkeley with Russell Jones, focusing on calcium as a signal and developing tools to visualize its dynamics. A faculty member at Penn State for 14 years, he joined the Botany Department at the University of Wisconsin-Madison in 2007. His research program is now split between twp main questions. Primarily, how plants sense and respond to environmental stresses, with research concentrating on responses to touch, flooding and wounding and the molecular networks that integrate these responses across the plant. The other research thrust is answering very similar questions but focused on NASA-related work on how these systems operate during spaceflight.

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