Online Proceedings

Poster Session 1

Balcony, Easel 86

12:00 PM to 1:30 PM

Studying *Arabidopsis* Hormone Interaction Pathways with Genetic Crosses

Wei Xiang (Vincent) Liu, Senior, Biology (General), Medical Technology
Mentor: Jodi Lilley
Mentor: Jennifer Nemhauser, Biology

Plants sense and respond to changes in their environment. For example, elongation of the embryonic stem ensures seedlings reach light after they germinate. This critical stage in a plant's life is highly regulated by hormones, including gibberellic acid (GA) and brassinosteroids (BRs). Using the model system *Arabidopsisthaliana*, we discovered GA and BRs interact to control stem elongation during early development. We found that treating seedlings with both hormones resulted in a synergistic growth response during some phases of development but not others. We are exploring the genetic basis of this response using seedlings mutant in different aspects of their GA and BR pathways. For example, *DWF4ox* seedlings overexpress a gene that encodes a BR biosynthetic enzyme. These seedlings make more BRs and have an enhanced growth response. DELLAs (RGA and GAI) repress growth and are degraded by GA. Seedlings that have reduced DELLA (*rga gai*) function also have enhanced growth. We are testing the growth responses of the *DWF4ox rga gai* triple mutant looking at hypocotyl elongation rates. By using these and other mutants that have compromised GA and BR pathways we hope to better understand the molecular mechanism of the interaction between these two hormones.

Poster Session 2

Commons East, Easel 71

2:00 PM to 3:30 PM

Is SPATULA Required for Brassinosteroid Pathway During Growth in *Arapbidopsis*?

Keng Min (Danny) Liang, Junior, Biochemistry
Mentor: Jodi Lilley
Mentor: Jennifer Nemhauser, Biology

Plants use hormone-signaling pathways to regulate growth and development. Brassinosteroids (BRs) are critical plant hormones that regulate growth such as the elongation of the embryonic stem. We study the specific mechanism of this process by testing the hormone-induced growth responses of both wild type and mutant Arabidopsis seedlings. We are testing whether growth repressor SPATULA is involved in BR growth response. We hypothesized that the growth repressor SPATULA is downstream of the BR pathway. To test this hypothesis, we acquired mutants that lack SPATULA function. After confirming the genotype of the mutants by PCR, we used a high-resolution camera to observe growth throughout early development in response to hormone treatments. Data is recorded by the camera over the course of 132 hours. The images are then analyzed and growth rates are calculated. Using these data, we determined if SPATULA is involved in the BR growth response.