

Institute of Integrative Genome Biology Seminar

You are cordially invited to attend:

David Stern

Howard Hughes Medical Institute



Aphid Effector Proteins in Plant Gall Induction and Agriculture

Date: Friday, May 31st

Time: 12:00 - 1:00 pm

Location: Genomics Auditorium 1102

Abstract: Many species of arthropods produce effector molecules that induce abnormal plant organs, called galls, which the arthropods exploit for food and shelter. The identity of these effector molecules has long been mysterious. We identified a large family of rapidly evolving genes that encode novel “Bicycle” proteins, which aphids inject into plant cells during gall development. Genetic studies of natural populations implicate bicycle genes as the major proteins regulating gall development. Using a novel homology search algorithm, we identified bicycle genes in all aphid species and related taxa, suggesting that non-gall forming species, which include myriad crop pests, may use Bicycle proteins to regulate plant physiology and development. To test this hypothesis, we optimized CRISPR-Cas9 targeted mutagenesis in a pest aphid species and initiated genetic studies of Bicycle and other effector proteins. Our results may provide a new way to think about control of these crop pests