

SL01 How Host Parasite Coevolution Forged the *Drosophila* Immune System?

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The application of *Drosophila* genetics has generated insights into insect immunity and uncovered general principles of animal host defense. These studies have shown that *Drosophila* has multiple defense “modules” that can be deployed in a coordinated response against distinct pathogens. Today, *Drosophila* can be considered as having one of the best-characterized host defense systems among the metazoan. Until recently, a detailed understanding of the fly immune response was hampered by the difficulty of generating loss-of-function mutations as well as the technological limits of the RNAi approach. The Cas9/CRISPR revolution offers new opportunities to revisit in a systematic manner *Drosophila* immunity. At the interface between large-scale genomic studies that lack resolution and individual gene analysis that lack breadth, our laboratory has undertaken a meso-scale ‘skilled’ analysis of immune modules, notably by addressing the individual and overlapping function of large immune gene family. This seminar will provide an overview of the *Drosophila* immune responses underlining new insights recently gained in the laboratory. Similarities and differences with the vertebrate immune system will be discussed.