

**EvolMet Laboratory offers a spot for a PhD FPU fellowship to work
on the molecular basis of insect metamorphosis.**

Summary:

Insects have undergone radical evolution in their development since their origination from arthropod ancestors, such that three types of metamorphosis have emerged: ametaboly, hemimetaboly and holometaboly. These three forms of metamorphosis represent an evolving sequence from the primitive ametabolous (direct-developing) to hemimetabolous (incomplete metamorphosis) to the most derived holometabolous type of metamorphosis (complete metamorphosis). However, the molecular nature of the changes underlying the appearance of Holometaboly remains a puzzling problem in evolutionary and developmental biology.

Therefore, our project aims to unveil the molecular mechanisms that controls metamorphosis. To answer this question we combine endocrinology, genetics, cell signaling and biochemistry applied to different model organisms such as *Drosophila*, *Tribolium* and *Thermobia*. With this approach we aim to achieve an integrated knowledge of the molecular relationship among the metamorphic network composed of three different genes, Kr-h1, E93 and Br-C, as well as identify other genes and signaling pathways involved in the process. Altogether our research will provide insights in understanding metamorphosis and its evolution from ametaboly, hemimetaboly towards holometaboly.

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