PhD position in molecular genetics to study the impact of gut microbiota on host behavior and physiology

Research Group "Host pathogen interactions in the Drosophila model"


IBDM (UMR 7288) • Parc Scientifique de Luminy • 13288 Marseille Cedex 9 • France

We are looking for a highly motivated student to work on the impact that gut associated bacteria can exert on the behavior and the physiology of their eukaryotic host. To tackle this human relevant issue, we are taking advantage of the powerful genetic tools available in the Drosophila model and the relative simplicity of its gut microbiota. It is well admitted that gut-associated bacteria can impact host homeostasis by releasing metabolites. In two recent publications, (Kurz et al, Elife, 2017: Charroux et al, Cell Host Microbe, 2018, In press) our lab has shown that bacteria-derived peptidoglycan can cross the gut epithelium and reach the insect blood where it interferes with various cell types (neuron...) and organs (fat body, ovaries, brain...) function (behavior changes, organ wasting...). As a PhD student, you will use the newest genome editing technologies (Crispr...), genetic tools and latest imaging microscopy technics to dissect the precise cellular and molecular mechanisms of the dialog that exist between gut-resident bacteria and some specific cells of the host. Recent results showing that mice deficient in peptidoglycan-sensing proteins exhibit social behavioral alterations suggest that the mechanisms that we study in Drosophila also exist in mammals. This project will be performed in collaboration with the laboratories of Dr. Marion-Poll (Gif-Yvette), expert in chemosensory mechanisms in fly and of Dr. Boneca (Pasteur institute, Paris) microbiologist, expert of peptidoglycan sensing and signaling in mice. The research will be performed in the Institute of Developmental Biology of Marseille (IBDM), an internationally recognized interdisciplinary research center and a very stimulating scientific environment. (http://www.ibdm.univ-mrs.fr/)

Please send your application, including a motivation letter, your CV, a description of your research interests, and contact information for two references to Julien.royet@univ-amu.fr


Charroux et al. Cell Host and Microbe. 2018. Local and systemic immune responses to microbiota are respectively controlled by cytosolic and secreted peptidoglycan degrading enzymes in Drosophila. In press.