Three year PhD scholarship position

As part of the ANR funded project TEMIT (Transposable Elements and antiviral iMmunITy), we are proposing a 3-year PhD fellowship starting in September 2020.

The project aims at investigating the interplay between the control of genomic parasites known as transposable elements (TEs) and the host immune response to viral infections, through RNA interference pathways, in insects. We have already gathered data showing that viral infection affects TE transcript amounts via modulations of the piRNA and siRNA repertoires in a Drosophila system. The present projects aims at understanding the underlying mechanisms and the extent of the phenomenon in nature. In addition, this will allow us to clarify the involvement of viral infections as new key stimuli for TE mobilization and thus genetic diversification. Finally, these data will allow to explore different evolutionary scenarios regarding potential benefits to the host, the virus or the TEs.

To fulfill these scientific objectives, the selected candidate will explore the reciprocal impacts of viral infection on TE activity and vice versa, using a set of diverse viruses and Drosophila strains (either mutant lab strains or wild-type strains collected from the field). The selected candidate will perform infection experiments, and measure fly mortality kinetics. She/he will also perform molecular biology experiments to analyze the immune response and TE activity (RNA extraction, small RNA extraction, RT-qPCR). Finally, she/he will produce RNA-seq and small RNA-seq data sets that she/he will analysis using bio-informatic tools and statistical processing (R software).

We are looking for a meticulous, well-organized and creative person, with a background and interest in genomics and/or evolution of interactions. Skills in bio-informatics would be an advantage.

The PhD student will be supervised by Marie Fablet (Associate Professor, LBBE UMR CNRS 5558, Université Lyon 1) in the « Genetics and Evolution of Interactions » group. The group has a long-term experience in TE dynamics and evolution, especially in Drosophila species. The group gathers know-hows in molecular biology, population genetics and bio-informatics specifically dedicated to TE biology. LBBE displays all necessary facilities for fly rearing and molecular biology experiments, in association with DTAMB (Development of Techniques and Molecular Analysis for Biodiversity, University Lyon 1 http://www.dtamb.univ-lyon1.fr), and powerful computing resources, in association with PRABI (Pôle Rhone-Alpin de Bio-Informatique, http://www.prabi.fr). In addition, the group has established a long-term collaboration with Séverine Chambeyron (DR CNRS, IGH, Montpellier), for her acknowledged expertise in Drosophila genetics and small RNA biology.

Please send a CV and cover letter as well as contact details of at least two referees to Marie Fablet (marie.fablet@univ-lyon1.fr).