



Marie Curie PhD fellowship

### **Molecular profiling of cells during regeneration: cell diversity and evolution across phyla**

A 3-year PhD fellowship in evolutionary developmental biology and genomics is available in the lab of Michalis Averof, at the Institut de Génétique Fonctionnelle de Lyon (IGFL) in France. The fellowship is funded by the Marie Curie ITN programme EvoCELL.

Some animals have the ability to regenerate parts of their body (limbs, tail, internal organs) after severe injury. However the molecular and cellular mechanisms underlying the regeneration of such complex organs are still poorly understood. The project will investigate cell differentiation during leg regeneration in the crustacean *Parhyale hawaiiensis*, an emerging model for limb regeneration. The PhD fellow will determine the spectrum of cell types present in *Parhyale* limbs, their molecular profiles, and whether that diversity of cell types is fully restored after regeneration. In collaboration with other teams of the EvoCELL network, s/he will compare the transcriptional profiles of diverse cells types across phyla, in an effort to identify the evolutionary origins and conserved molecular signatures of progenitor cells.

The student will be trained in various technologies to analyze limb regeneration in *Parhyale* and compare it to regeneration in other species. S/he will use single-cell transcriptomics to establish the exhaustive repertoire of cell types prior to, during and after regeneration. S/he will participate in all steps of the experiment: dissociate limb cells, prepare libraries and computationally analyze the data. The fellow will also be trained in transgenesis, confocal microscopy and in situ hybridization in order to validate the identity of the detected cell populations and use markers to follow the fate of those cells during regeneration. This work will involve short periods of training/research in the laboratories of other EvoCELL partners and collaborators, and participation in yearly meetings and practical courses organized by the network, to take full advantage of the wide range of expertise available in EvoCELL.

The host lab (<https://averof-lab.org>) is based in the IGFL – an institute co-founded by the École Normale Supérieure de Lyon and the CNRS, whose scientific focus lies at the interface of developmental biology, functional genomics and evolution (<http://igfl.ens-lyon.fr/>). The lab's working language is English. The fellow will be co-supervised by Michalis Averof and Mathilde Paris.

Applicants should have a Masters degree or equivalent (e.g. a 5-year university degree) to be eligible to embark on a PhD at the École Normale Supérieure de Lyon. To be eligible for the fellowship, candidates must be within the first four years of their research career and not hold a doctoral degree. Candidates of all nationalities may apply, but they must not have resided or carried out their main activity (work, studies, etc.) in France for more than 12 months in the 3 years immediately prior to their appointment (short stays such as holidays or compulsory national service are not taken into account).

The suggested starting date for the PhD is October 1, 2018.

Applicants should send a short letter of interest and CV to [michalis.averof@ens-lyon.fr](mailto:michalis.averof@ens-lyon.fr), and ask two referees to send recommendation letters to the same electronic address. The closing date for applications is February 2, 2018.