

Postdoctoral position at the Evolutionary and Functional Genomics LAB.

The Institute of Evolutionary Biology (IBE) is a joint Institute of the Spanish National Research Council (CSIC) and the Pompeu Fabra University (UPF) located in Barcelona city. IBE research is focused on the processes and mechanisms that generate biodiversity and on understanding the genetic basis of evolution. The IBE is a member of the Barcelona Biomedical Research Park (PRBB).

Description Group/Unit

Research at the Evolutionary and Functional Genomics lab focuses on understanding how organisms adapt to the environments. Towards this end, we combine *omic* approaches with detailed molecular and phenotypic analyses to identify and characterize adaptive mutations. <http://gonzalezlab.eu>

Research Project

The postdoctoral researcher will work on a project that aims at understanding the genetic basis of urban adaptation in *Anopheles* mosquitoes (BFU2017-82937-P, MINECO/AEI/FEDER, EU).

Identifying the genomic basis of environmental adaptation is a growing field of research. Advances in whole genome sequencing and other high-throughput technologies allow us to identify and characterize the genes and traits more relevant for environmental adaptation. Most of our knowledge so far comes from the analysis of one type of genetic variant: single nucleotide polymorphisms (SNPs). Other types of variants such as transposable element insertions, that are complex mutations likely to play a role in adaptation, are largely ignored. Our laboratory is at the forefront of the research aimed at elucidating the contribution of transposable to adaptation. We are experts in population genomics, transposable element dynamics, and in the detection of signatures of natural selection. In this project, we will apply our proven expertise in these research fields to elucidate the role of transposable elements in adaptation in *Anopheles*.

Adaptation to urban environments in *Anopheles* mosquitoes is highly relevant because it has direct consequences for the ability of these mosquitoes to transmit malaria. We are using the latest technological advances in long-read sequencing techniques to generate new reference genomes that allow us to *de novo* annotate transposable elements in these genomes. We will then use state-of-the-art methodologies to look for signatures of selection both in SNPs and in transposable element insertions to get a comprehensive picture of urban adaptation in *Anopheles*.

Duties

The postdoctoral researcher will be responsible for the analysis of patterns of demography and selection in natural populations of *Anopheles* mosquitoes in the context of urban adaptation. Among others, the tasks involved in the postdoctoral research project will be identifying signatures of selective sweeps, identifying evidence of population differentiation, and looking for associations between genetic and environmental variables in the genome sequences of several natural *Anopheles* populations.

Candidate requisites

A PhD in Evolutionary Biology or a related field, good organizational skills, and good writing skills are required. Previous professional experience will be considered.

What do we offer?

We offer a full-time contract. Salary will depend on the experience of the candidate. The candidate will join a research team of three postdoctoral researchers and three PhD students. The lab also offers extensive networking opportunities as we are co-leading the European Drosophila population Genomics Consortium (droseu.net) that brings together 61 research labs across 27 countries, and the Spanish excellence network in Adaptation Genomics (adaptnet.es).

Application process

Please send your CV (including the contacts of potential references) and a brief letter of motivation to: josefa.gonzalez@ibe.upf-csic.es. Please include "Urban adaptation position" in the subject of your e-mail.

Application deadline: 15th June 2020.