

The Institute of Evolutionary Biology seeks a PhD student

The Institute of Evolutionary Biology (IBE) is a joint Institute of the Spanish National Research Council (CSIC) and Pompeu Fabra University (UPF), located in Barcelona. IBE's research is focused on the processes and mechanisms that generate biodiversity and on understanding the genetic basis of evolution. The IBE is part of the Barcelona Biomedical Research Park (PRBB), a stimulating international research environment with state-of-the-art facilities.

The Microbial Ecology and Evolution Lab: Our research at the Microbial Ecology and Evolution Lab (delcampolab.com) focuses on animal symbionts and the impact of global warming on the microbiomes of benthic marine animals. We employ wet and dry lab techniques, including experiments and bioinformatics analysis, to achieve broad research goals. We have developed methods to study the protists communities of animals, overcoming previous limitations for the incorporation of protists into microbiome studies. Also, we use single-cell approaches to explore the ecological interactions and evolutionary histories of hosts and their microbial symbionts. Our work also investigates the effects of ocean warming on the microbiomes of benthic marine animals, focusing on corals, to understand how environmental changes impact the composition and function of this symbiosis.

Project description: Corals face threats from ocean acidification and heat waves due to the climate crisis. Coral reefs and coralligenous habitats are biodiversity hotspots that provide ecosystem services and coastal protection. Losing corals would severely impact biodiversity and coastal communities' livelihoods. The coral holobiont, consisting of corals and their microbiome, influences the host's evolution, physiology, and ecological functions. While zooxanthellae (Symbiodiniaceae) are well-studied, the role of other protists has been neglected. Protists contribute significant hidden genomic diversity in microbial habitats, including coral holobionts. Ignoring this diversity limits our understanding of protists' functions in corals and their impact on resilience to climate change. Our preliminary data reveal three times more coral protist symbiont diversity than previously reported, and that their community composition can predict coral responses to heat stress. The CORALPROS project aims to describe the morphological and genomic diversity of protists in the coral holobiont and map their distribution using advanced techniques. Including protists in coral holobiont studies will transform our understanding of host-microbe interactions, impacting our knowledge of coral responses to climate change.

Specific Tasks

- Collection of coral samples
- Microbiome sequencing and analysis
- Fluorescence In Situ Hybridization of coral samples
- Transcriptome/genome sequencing, assembly and analysis
- Isolation and characterization of protists using microscopy and genomics.

Requirements

- Master's degree in biology or related field
- Experience with light microscopy and standard molecular biology techniques (microbial culture using sterile technique, PCR, cloning, DNA and RNA isolation, sequencing, etc.)
- Curious, self-motivated, organized and highly team-oriented

Project PID2023-152522NB-I00

funded by:

What do we offer?

A fully-funded four-year PhD position.

Starting date: between 1 January 2025 and 1 March 2025

Salary: first year: around 19.000 € gross salary; second, third and fourth years: around 23.500 € gross salary

Location: Mediterranean Marine and Environmental Research Center (CMIMA), Passeig Marítim de la Barceloneta 37-49, Barcelona, Spain

Application process

Application deadline: 10 September, 2024

Interested candidates should e-mail Javier del Campo (idelcampo@ibe.upf-csic.es) with the subject line “PhD student position” and (1) their CV, (2) a motivation letter describing their interest in the project, and (3) contact information from two potential references.

We are committed to promoting equity in academia. Persons from groups that have been historically excluded from academia are strongly encouraged to apply.