

PhD in Evolutionary Cell Biophysics (Barcelona)

Have you ever wondered how organisms that do not control body temperature are able to preserve their molecular systems in the face of global warming? **The group of Oriol Gallego (UPF) opens a 4-year PhD position to investigate the physical principles that underlie the adaptation of molecular systems in cells exposed to climate change.** The student will contribute to **develop an advanced imaging pipeline** to obtain quantitative measurements in non-conventional yeast species isolated from high-altitude mountains. Some of the imaging techniques employed are Single Molecule Localization Microscopy (SMLM), particle tracking and cryo-electron tomography (cryo-ET). Together with bioinformaticians in the lab, measurements will be integrated using machine learning and data modelling.

We now have the computational and gene-editing power to enter in a new era in biological imaging. For instance, our lab pioneered cell engineering and advanced live-cell imaging to resolve molecular architectures *in vivo* with up to 2 nm precision (Picco *et al*, 2017, Cell; Irastorza-Azcarate *et al*, 2019, Structure; Hernández *et al*, 2024, NAR GAB). In collaboration with the groups of Daniel Castaño-Díez (Biofisika Institute, Spain) and Alex de Marco (NYSBC, USA), we have received a HFSP grant to continue pushing the limits of microscopy to investigate molecular systems *in situ*. **We are looking for a student willing to join us in implementing these advanced imaging tools in the search for new biology. The PhD student will develop culturing and gene-editing approaches that allow us to perform structural cell biology in unexplored fungi species. The student will extract mechanistic insight from advanced microscopy data, aiming to uncover the physical principles of cellular adaptation to environmental fluctuations associated with climate change.**

The student will join an international team (the group currently hosts 10 researchers from 6 different countries) developing imaging techniques at the frontier between cell biology and physics. Our lab is located at the PRBB, one of the strongest scientific campuses in south Europe with state-of-the-art research facilities.

If you are interested, please send a short cover letter, your CV and the contact details of 2 referees to recruitment.melis@upf.edu (please indicate “Application to PhD in Evolutionary Cell Biophysics” in the subject)

Deadline: until the position is filled or 10th August 2024

Starting date: October 2024 - early January 2025

Requirements

- BSc or MSc in biology, biomedicine, microbiology, biotechnology, or related disciplines.
- Excellent track-record of Graduate and Master degrees is highly valued ($\geq 8/10$ GPA for Spanish students).
- Minimum 1 year expertise working in a wetlab.
- Expertise with yeast or eukaryotic microorganisms is a plus.
- Expertise in computer programming (Python, R, Matlab or Fiji) is a plus.
- Expertise in SMLM, particle tracking or cryo-EM/cryo-ET will be valued, although it is not a requirement.