

PhD in Biochemistry and structural biology in cryo-tolerant fungi (Barcelona)

How microscopic organisms, with fundamental roles in ecology, grow in the ice of North pole and the peaks of Himalaya? That is particularly surprising for eukaryotes, such as fungi, who rely on a dynamic membrane system that becomes stiffer at cold temperatures. And yet some fungi can grow down to -3°C , but they die if the environmental temperature rises too much. How will these organisms preserve their membrane dynamics functional in the face of global warming? **The group of Oriol Gallego (UPF) opens a 4-year biochemist PhD position to investigate the structural and biophysical features of protein machines in cryo-tolerant fungi growing in near-freezing environments (cryosphere).** The student will develop protein purification strategies in non-model organisms to characterize the impact of temperature to protein structure, folding, protein-protein interactions and other biophysical parameters. Gene editing, mass spectroscopy and advanced microscopy (fluorescence microscopy and cryo-electron microscopy) will be used to perform functional studies.

We are looking for a student willing to push the biochemical characterization of the exocytic machinery, a protein network that controls plasma membrane homeostasis in all eukaryotes. The exocytic machinery is essential for the survival of eukaryotes (from human to fungi) but poorly understood at the mechanistic level. The student will extract mechanistic insight from biochemical and biophysical data. In collaboration with computational biologists, he/she will uncover the molecular features that control the adaptation of eukaryotic microorganisms to environmental fluctuations associated with climate change. The project might include field trips to isolate yeast species from high-altitude mountains.

The student will join an international team (the group currently hosts 9 researchers from 6 different countries) developing imaging techniques at the frontier between cell biology and structural biology (Puig-Tintó *et al*, 2026, Cell; Picco *et al*, 2017, Cell). Our lab is located at the PRBB, one of the leading scientific campuses in southern 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 2-3 referees to oriol.gallego@upf.edu (please indicate “Application to PhD in Biochemistry” in the subject)

Deadline: until the position is filled or end of February 2026

Starting date: Spring-Summer 2026

What we are looking for:

- BSc or MSc in biology, chemistry, biochemistry, or related disciplines.
- Minimum 1 year expertise working in a wetlab.
- Expertise with yeast or eukaryotic microorganisms, computer programming (Python, R, Matlab or Fiji), protein expression and purification will be valued, but it is not required.
- Excellent track-record is required ($\geq 8/10$ GPA for Spanish students).