

Predocctoral position, MELIS-UPF Chemical Biology Research Group

Group Leader: Marta Barniol Xicota

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Research project title

Metabolic enzymes as new targets for breast and drug-resistant cancers

Research project summary

Aberrant lipid metabolism and altered plasma membrane composition are hallmarks of cancer that affect cell proliferation and response to therapeutics. In addition, mounting evidence points to certain fatty acids as key players in metastasis. Despite this, the underlying molecular mechanism through which lipid dysregulation drives cancer progression remains poorly understood.

We will develop **activity assays, new chemical tools and inhibitors for key enzymes involved in lipid metabolism** with the goal to characterize their **roles in breast and drug-resistant cancers**. In the long run, we aim to use the tools prepared in this project as **prognostic biomarkers and in cancer therapeutics**. This project has the potential to identify novel therapeutic targets to treat breast cancer and drug-resistant forms of the disease.

This is a highly interdisciplinary project in the area of chemical biology where a wide range of skills and technologies will be employed, including:

- Phage display to develop chemical probes and inhibitors
- Activity assay development for metabolic enzymes
- Native nanodisc technology to study membrane enzymes

Preferred background of candidates

We are a young and dynamic group looking for a motivated and curious PhD student with an interest in metabolic enzymes and chemical biology to be part of our team.

The candidates should have a degree in the field of Sciences including, but not limited to biotechnology, biomedical sciences, chemistry, pharmacy, biotechnology, biochemistry and/or medicine.

A strong academic record is a plus.

Experience in molecular biology (bacterial and cell culture, phage display) will be highly appreciated, and synthetic chemistry and/or molecular modelling skills will be positively evaluated.

Contract, training and advantages

The selected candidate will have a UPF predoctoral contract for 4 years and will be registered in the Spanish Social Security System, which provides health and occupational insurance coverage.

The PhD programme in Biomedicine of UPF has been certified by the ANECA, and in October 2011 it was awarded the "Mention towards Excellence". Since the academic year 2012-13, the PhD Programme in Biomedicine follows the latest regulations for doctoral studies in Spain, the so-called Royal Decree (RD)



99/2011, which were introduced to comply with the guidelines and recommendations of the European Higher Education Area (EHEA) on doctoral studies. The contents of this doctoral programme have been verified by the Catalan Agency for Quality Assessment and Accreditation with a qualification "Quality Label towards Excellence" (2018).

The PhD programme, all of whose activities are carried out in English, attracts every year a large number of international students. These activities aim at preparing students to become independent researchers pursuing a scientific career. Fellows will have access to a wide range of academic activities, as well as ad hoc training in scientific skills, and access to the PRBB Intervals programme, an interdisciplinary education programme for professionals working in the PRBB.

Application

Please send the following documents to Dr. Barniol (marta.barniol@upf.edu):

- CV
- Motivation letter
- Contact details of two references (name, position, institution, email)

Calendar

Deadline to send applications: June 15, 2023, at 17 h CET.

The selected candidate is expected to start their contract in September 2023.