

FPI International PhD call 2024

The offer:

We offer a 4-year PhD position in the field of medicinal chemistry/chemical biology. This position is fully funded by the Spanish National Research Agency through the project PID2023-148652NA-I00 *Proyectos Generación de Conocimiento*. Stipend and conditions are those determined by the Spanish Agency.

How to apply:

You can contact Dr. Marta Barniol-Xicota (marta.barniol@upf.edu) and apply through the [link to official call](#): <https://www.upf.edu/web/phdfunding> **Deadline: 21st October**

Research project title:

Novel chemical probes and inhibitors to unravel the therapeutic potential of human rhomboid proteases. (CHEM-RHOM)

Research project summary:

Intramembrane proteases cleave their substrates within the hydrophobic lipid bilayer. The serine subclass of intramembrane proteases are termed Rhomboids, from which four are secretases (RHBDL1-4). Among these RHBDL4 has been linked to proliferative malignancies such as breast cancer. However, its potential as therapeutic targets remains unexplored to date.

The goal of this PhD project is to **explore RHBDL4 therapeutic potential and contribute to investigating RHBDL3 biological function**, by developing small molecule inhibitors and fluorogenic peptide substrates, as well as employing innovative chemical biology approaches. Specifically, the project is directed to answer the following questions:

- 1) Does RHBDL4 have potential as breast cancer therapeutic target?
- 2) Can we prove RHBDL3 proteolysis using a novel fluorogenic substrate?

This project has the potential to validate 2 new therapeutic targets for aggressive breast cancer (triple negative breast cancer) and metastasis and will open the door to research endeavors revolving RHBDL3. This is a **highly interdisciplinary project in the area of medicinal chemistry/ chemical biology** where a wide range of skills and technologies will be employed, including: Solid and liquid phase chemistry, phage display to develop chemical probes and inhibitors, activity assay development, native nanodisc technology to study membrane enzymes.

Preferred background of candidates:

- The candidates should have a degree in the field of sciences including, but not limited to: chemistry, pharmacy, biotechnology, biomedical sciences, biochemistry and/or medicine.
- Strong academic record is a plus but not a requirement.
- Experience in synthetic chemistry and/or molecular biology (bacterial and cell culture, phage display) will be highly valued.

Information about our research group:

PI: Marta Barniol-Xicota. Lab of Chemical Biology & Peptide Theranostics

Labwebsite: <https://www.barniolxicotalab.com/> & <https://www.upf.edu/web/chembio>