

## **Predocctoral Grant Offer FPI (Ministerio de Ciencia, Innovación y Universidades)**

### **Project Description**

**Cutting-edge research on Protein Homeostasis in the Barrio Lab:** Do you want to make a difference by studying **rare disease** mechanisms? In the Barrio Lab, we explore the complex world of protein homeostasis, specifically focusing on how ubiquitin pathway dysregulation can contribute to many rare disorders. Our team employs state-of-the-art biochemistry, genetics, and cell biology, including biotin-based proximity interactions and mass spectrometry, targeted protein degradation, gene editing, CRISPR, confocal microscopy, cloning, etc. Our goal is to unravel the mystery of selectivity for E3 ligases and deubiquitinases, paving the way for innovative therapies.

In the Barrio Lab, we leverage our expertise in biotin-based approaches to identify interactors and substrates of enzymes modified by ubiquitin-like molecules. Our research is dedicated to uncovering the substrates and interactors of enzymes mutated in various rare diseases. Additionally, we investigate the complex interplay between E3 ligases and deubiquitinases in Townes-Brocks Syndrome, a disorder characterized by digit/limb abnormalities, sensorineural deafness, and renal defects (e.g. polycystic kidneys) due to defects in cilia function.

By joining our team, you will contribute to groundbreaking research that aims to translate scientific discoveries into therapeutic solutions for these rare and challenging diseases. If you are a PhD candidate eager to make a meaningful impact, we invite you to explore the exciting opportunities at Barrio Lab.

### **Brief Description of the Centre/Research Group**

The laboratory of Dr. Barrio (ORCID: 0000-0002-9663-0669; Researcher ID: F-8712-2011) studies posttranslational modifications during development and in diseases. The work of the laboratory (primarily driven by PhD candidates) has greatly contributed to the understanding of the molecular mechanisms underlying Townes Brock Syndrome and to the development of tools required to study the regulation of protein homeostasis by the ubiquitin-like family.

The Barrio Lab offers a creative and collaborative atmosphere, with numerous internal and international collaborations. More information on Barrio's Laboratory: <https://www.rosabarriolab.es/>. We are located at CIC bioGUNE (Bilbao, Spain), an institute dedicated to biomedical research, funded in 2004 and that was awarded as a Severo Ochoa Centre of Excellence. CIC bioGUNE offers state of the art equipment and installations, including technological platforms in genomics, proteomics and structural biology. More information on CIC bioGUNE: <https://www.cicbiogune.es/>

### **Applications. Documents to be submitted and deadlines**

Candidates should have a degree in Biology, Biotechnology, Biochemistry, Biomedicine or similar and a Master that allows her/him to access to a doctorate program. Candidates should provide a letter of interest, an updated CV including grades from degree and master, and the names/contact details of two reference persons, along with a motivation letter (1 page).

Submission should be done through page: <https://www.cicbiogune.es/job-offer-detail?id=31234>

**Deadline for submissions is September 28<sup>th</sup>, 2024.**