



PhD Candidate in Neurobiology and Pain

[The University of Barcelona \(UB\)](#) offers a vacant position for a **PhD Candidate** within the **Neurobiology of Pain** group of the [Institute of Neurosciences \(UBneuro\)](#).

Principal investigator: Gerard Callejo Martín

ABOUT THE PROJECT

Chronic pain in **rheumatoid arthritis (RA)** is a multifaceted and persistent issue, significantly impacting patients' quality of life. Even when the inflammation associated with RA is managed through modern therapies, many patients continue to experience pain that is not fully alleviated. This pain, which can affect both the joints and non-articular regions, is driven by complex mechanisms that go beyond simple inflammation. Our research focuses on unravelling these underlying processes to offer new insights into effective pain management.

One of the key elements in this chronic pain pathway is the **ASIC3 ion channel**, which is primarily expressed in peripheral sensory neurons. These neurons are responsible for detecting harmful stimuli and transmitting pain signals to the spinal cord and brain. The ASIC3 channel is particularly sensitive to changes in tissue acidity, a common feature in inflamed or damaged tissues, making it a central player in the sensation of pain, especially in conditions like RA.

Our project aims to understand how ASIC3 contributes to **pain sensitization**, a process where pain signals become amplified, leading to heightened sensitivity and discomfort even in the absence of further inflammatory damage. This phenomenon, known as **peripheral sensitization**, plays a critical role in the transition from acute to chronic pain, a hallmark of RA.

JOB DESCRIPTION

As a PhD candidate, you will be at the forefront of neurobiology research, gaining hands-on experience in state-of-the-art techniques. You will work closely with a team of experts and have access to:

- **Innovative Animal Models:** You'll use transgenic mice to investigate the role of ASIC3 specifically in peripheral sensory neurons using different technical approaches in a RA mouse model that closely mimics painful pathology in human RA patients. Moreover, the project will use human samples to study the role of ASIC3 in peripheral sensitization.
- **Advanced Molecular Techniques:** Including single-cell transcriptomics of mouse and human peripheral sensory neurons, electrophysiology and Ca²⁺ imaging, and behavioral assays in rodents to study neuronal function and pain response in RA.
- **Collaborative Environment:** Engage with a vibrant research group and benefit from collaborations with leading institutions in the field.



REQUIREMENTS

We are seeking a highly motivated candidate with a strong academic background and a passion for pain research. Ideal candidates will have:

- A degree in Biology, Neuroscience, Biomedicine, or related fields with high academic marks (GPA of 8.2/10 or higher).
- A strong interest in neurobiology and pain mechanisms.
- Experience in lab work, particularly in molecular biology or animal models, is an advantage.
- High level of spoken and written English (B2 or higher). Knowledge of Spanish or Catalan is useful but not essential.

EMPLOYMENT CONDITIONS

- Experience in a biomedical research laboratory, preferably neurosciences will be valued.
- Training in small animal experimentation

HOW TO APPLY

If you are excited about this opportunity and believe you are the right fit, we encourage you to apply! Please send your CV, cover letter, academic transcripts, and any other relevant documents to gerard.callejo@ub.edu.

DEADLINE

Applications are open until November 1st, 2024.

ABOUT UBneuro

The Institute of Neurosciences (UBneuro) was created under the premise to gather all research at the University of Barcelona that focused on a common goal: understanding the nervous system as a whole to give response to society challenges. Being one of the few institutes in the world that investigates the brain at every level, we're established as a frontrunner in international neuroscience research. Recognized with the prestigious María de Maeztu Excellence Unit accreditation, we house diverse research groups in neurobiology, neuropharmacology, pathophysiology, neurology, psychiatry, clinical psychology, neuropsychobiology, and cognitive neurosciences. Join us as we contribute to cutting-edge discoveries in neuroscience.

Additional information about the research group: <https://www.neurociencias.ub.edu/neurophysiology/>