

INTERNAL / EXTERNAL CALL

The Institute

The **Santa Creu i Sant Pau Hospital Research Institute Foundation** is a scientific foundation which mission is to improve health and quality of life of the population, through the production and dissemination of scientific knowledge, training of researchers to an international standard, and promoting health innovation and the incorporation of medical advances in clinical practice and healthcare policies. Created in 1992, the institute was attached to the Autonomous University of Barcelona (UAB) in 2003, and since 2011 it is part of the Government of Catalonia's CERCA Programme.

For the Foundation, it is a priority to ensure that the most suitable candidate is hired to fill a job through an open, transparent and merit-based selection process (OTM-R). Following these guidelines, staff mobility, knowledge exchange and, ultimately, the increase in the quality of teaching and research will be enhanced. Faithful to our commitment to the European Union's human resources strategy, our institution's personnel selection and recruitment procedures are governed by a set of basic principles that guarantee equal access to employability for all. Therefore, the constitutional principles of equality, merit and ability are followed, respecting in all cases the national and international regulations in force in this area, specifically the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers (C&C). The principles of C&C are applicable to the recruitment of any personnel of the institution, regardless of their professional category. For this reason, our Foundation has obtained the recognition of "Excellence in R+D in Research" granted to the IIB Sant Pau, since 2015.



The **Santa Creu i Sant Pau Hospital Research Institute Foundation** needs to incorporate at the Molecular Physiology of the Synapse Group:

R1B- Predoctoral Researcher

About the Unit / Group:

The Molecular Physiology of the Synapse Laboratory was established in 2012 at the Sant Pau Research Institute in Barcelona and is led by Dr. Àlex Bayés (group website: www.molecular-synapse.org). Our goal is to understand how the synaptic proteome is organized and functions, particularly at excitatory synapses in the cortex and hippocampus. We study how this set of proteins regulates synaptic plasticity and, consequently, cognition and behavior. We also investigate how molecular alterations can lead to cognitive disorders such as intellectual disability and autism.

We apply Systems Biology approaches, combining mass spectrometry-based proteomics with bioinformatics analysis. In addition, we have recently acquired expertise in electroencephalographic (EEG) analyses. This has led us to conduct studies integrating proteomic and bioinformatic data with EEG data, with the aim of understanding how different patterns of brain activity modulate, in the medium and long term, the characteristics of the synaptic proteome and therefore its functional properties.

Another fundamental area of the group's research is the characterization of the molecular pathology of the synapse in cognitive disorders. We focus particularly on non-syndromic intellectual disability, as many of the genes involved in these disorders are located at the synapse. Within these neurodevelopmental disorders, we mainly investigate encephalopathy caused by SYNGAP1 deficiency.

The research project for which we are recruiting a predoctoral researcher aims to expand some of our most recent findings. On the one hand, we have identified Camk2 as a potential therapeutic target for SYNGAP1 deficiency and wish to study whether modulation of its activity may have beneficial effects on this neurodevelopmental disorder at the molecular, cellular, and behavioral levels. Secondly, we have demonstrated in affected individuals that SYNGAP1 deficiency significantly reduces a type of sleep-related brain wave known as sleep spindles, which play a key role in long-term memory and can be detected through EEG. The same phenotype is also observed in animal models of this neurodevelopmental disorder. Our proteomic studies in these animals suggest that the molecular mechanisms involved in synaptic stabilization, which are essential for the formation and maintenance of long-term memory, are severely altered as a consequence of the deficit in sleep spindles. (The manuscript containing these results is currently under review: "NREM Oscillations Mediate Sleep-Dependent Proteome Dynamics to Support Synaptic Stabilization", del Castillo-Berges et al.; available on bioRxiv). This could represent a relevant pathophysiological mechanism for this and other neurodevelopmental disorders.

The predoctoral researcher will be able to work on either of these two research lines, which aim to demonstrate the direct relationship between sleep spindle alterations and the observed proteomic changes. In addition, we aim to assess whether genetic restoration of

Syngap1 in adult animals can restore these brain waves and, if so, whether this recovery has a positive impact at both the proteomic and cognitive levels.

Most Relevant Publications – Last 15 Years

- del Castillo-Berges et al. bioRxiv, 2026
- Reig-Viader et al. Nature Communications, 2025
- Feuermann et al. Nature, 2025
- Trubetskoy et al. Nature, 2022
- Kilinc et al. eLife, 2022
- Koopmans et al. Neuron, 2019
- Ramos-Vicente et al. eLife, 2018
- Bayés et al. Nature Communications, 2017
- Kirov et al. Molecular Psychiatry, 2012
- Bayés et al. Nature Neuroscience, 2011
- Bayés et al. Nature Reviews Neuroscience, 2009

Essential requirements

- Minimum qualification required: Higher Education (University Degree)
- Be a PhD student enrolled and admitted to a doctoral programme
- Oral and written knowledge of the two official languages of Catalonia or, failing that, the successful candidate will have to demonstrate, or promise to obtain, within a period not exceeding one year, a correct knowledge of the two official languages of Catalonia.
- Intermediate level of English
- Intermediate knowledge of office tools (excel, word, power point, etc).

Skills will be valued

- Strong academic record.
- Intermediate or advanced English level, minimum B2.
- Academic or professional experience abroad.
- High level of motivation for basic and translational research.
- Research experience in biochemistry and molecular biology.
- Experience handling experimental animal models.
- Official accreditation to work with laboratory animals (A, B, C).
- Programming skills in R and/or Python.
- Ability to work independently and think autonomously and critically.
- Teamwork and collaborative skills.

Functions

- Cellular and molecular biology studies.
- Proteomics and bioinformatics studies.
- Electroencephalography studies.
- Pharmacological studies.
- Animal behavior studies.
- Participation in general laboratory maintenance tasks.
- Participation in group meetings and national and international conferences.

Offered

- Predoctoral contract.
- Annual working schedule of 1,627.5 hours (37.5 hours/week).
- EPIF salary conditions.
- Research Group: Molecular Physiology of the Synapse.
- Opportunity to undertake a PhD in Neurosciences at the Autonomous University of Barcelona within the framework of the research projects developed by the Research Group.
- Support for applications to competitive public calls for predoctoral research contracts (AGAUR, ISCIII, MICIU, etc.).

Documentation and deadline for submission

Interested parties should preferably deliver the documentation (1) in PDF, by e-mail to the Management of the Santa Creu i Sant Pau Hospital Research Institute Foundation, address ir_seleccio@santpau.cat, indicating the reference **2026/085**:

(1) Application letter and updated Curriculum Vitae and signed Data Processing Authorization**

At the request of the Santa Creu i Sant Pau Hospital Research Institute Foundation, the candidates must present the documentation accrediting the merits mentioned in the curriculum vitae.

Applications will be resolved within a maximum period of one month from the end of the deadline for submission of documentation. At the end of this period, without having been notified of an express resolution, the interested parties will be entitled to understand that their applications have been rejected.

Santa Creu i Sant Pau Hospital Research Institute Foundation may declare this call for applications closed if, according to its criteria, the candidates does not meet the conditions that the Institution considers necessary to fill the position.

The interpretation of the requirements and their enforceability to the candidates will be exclusive to the Santa Creu i Sant Pau Hospital Research Institute Foundation.

****It is essential to attach the duly signed data processing authorization (document attached at the end of the call)*****

**The deadline for submitting applications
will end on June 23th 2026 at 3:00 p.m.**

Fundació Institut de Recerca de l'Hospital de la Santa Creu i Sant Pau, sited at C. Sant Quintí, 77-79, 08041, Barcelona, Tel: 93 291 90 50, NIF: G-60136934, as Data Controller and in compliance with Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) and the Organic Law 3/2018 of 5th of December, on the protection of personal data and the guarantee of digital rights, will treat your data with the sole purpose of developing this call. The legal basis for this treatment is the article 6.1 a, c and f from the GDPR, giving that we will ask for your consent, the treatment is necessary for the application of precontractual measures and its necessary to satisfy the legitimate interests pursued by the Data Controller.

The data will be kept during the necessary time to develop the call. Data will be treated solely by that areas and services that are allowed to in accordance with their assigned competences and functions. There will be no data cessions made unless there is a legal obligation to do so. You are entitled to exercise the rights of access, rectification, deletion, opposition, limitation and portability. In case you have any doubts, you can contact the data protection delegate at dpo_ir@santpau.cat. You also have the right to file a complaint to the relevant control authority.

PERMANENCE COMMITMENT: *Selected persons who will hold the summoned or vacant position, will not be able to apply for a new call until 1-year period has expired. In case of part-time job positions, this period will be of 6 months. In both cases, the period will compute from the date of publication of the resolution. The vacant summoned, and the ones that derive from it (intern movements), will be successively covered on the same proceeding among the submitted candidates to each particular call, regardless of whether this entails coverage of places in turns other than the call.*

Barcelona, 09/06/2026



Human Resources Departament
Santa Creu i Sant Pau Hospital Research Institute Foundation

AUTHORISATION FOR PROCESSING PERSONAL DATA

Dear candidate:

The Fundació Institut de Recerca del Hospital de la Santa Creu i Sant Pau, with CIF G-60136934 and registered office at C/ Sant Quintí, 77-79, (08024) Barcelona, as data controller, informs you that it will process your data for the following purposes:

- Receipt of applications.
- Analysis of applications in order to incorporate the worker into the team of the Fundació Institut de Recerca del Hospital de la Santa Creu i Sant Pau, for a current vacancy and for future selection processes that fit your profile.
- To carry out personnel selection processes, as well as to formalise the hiring of the employee, if applicable.
- Comply with the required legal obligations.

The legitimate basis for processing the data is based on the legitimate interest of processing this job offer, in accordance with the provisions of Article 6.1 b) of the General Data Protection Regulation, as your data are necessary for the performance of a contract, which the data subject is a party or for the implementation of pre-contractual measures at his or her request.

However, we inform you that your data (i) will only be processed by those departments or areas of the Institute which, according to their competencies and functions, have an interest in the selection of personnel, (ii) may be communicated to public authorities and organisations, in order to comply with a legal obligation, such as service providers and third parties necessary for the management and execution of the relations derived from the request made and (iii) that they will be kept for the periods foreseen for the prescription of legal responsibilities.

Finally, we inform you that you have the right to access your personal data, to rectify them, to request their deletion, to oppose their processing and to revoke your consent to this processing. In certain circumstances, you may request that we restrict the processing of your personal data, in which case we will only retain your personal data for the exercise or defence of claims. In addition, you have the right to make a complaint to the relevant data protection authority. If you have any questions about the processing of your data you can contact the Entity's Data Protection Officer by sending an email to dpo@santpau.cat.

Consent

I have been informed about the processing of my data and I consent to the processing:

YES

NO

Name & Surname:

Signature