OFFER – Postdoctoral position in the biophysical properties of the brain extracellular space

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The IBF is a joint research centre of the University of the Basque Country (UPV/EHU) and the Spanish National Research Council (CSIC). In partnership with Fundación Biofísica Bizkaia (FBB), the centre focuses on advancing knowledge about the physical and chemical processes underlying biology and disease. With the FBB accredited as a Basque Excellence Research Centre (BERC) by the Basque Government, the IBF and FBB partnership enjoys a strong national and international reputation, and provides outstanding shared facilities for advanced biophysical and structural biology approaches in a new research building in the main Leioa campus of the UPV/EHU.

Offer and description of the project

We are looking for a postdoctoral level researcher to join our efforts in understanding the biophysical properties of the brain extracellular space (ECS). The Brain ECS is commonly understood and investigated from the stance of its cellular constituents, though recent research has pointed to structural dynamics occurring across spatiotemporal scales, which could impart functionality in shaping diffusion of transmitter molecules and metabolites.
To learn about the functional roles of the ECS, we employ a combination of advanced fluorescence imaging and electrophysiological tools in live and fixed mouse brain slices. We aim not only to learn about ECS structural properties, but also seek to influence these by culturing cells and brain slices in hydrogels with defined biophysical and biochemical profiles. Our aim is therefore to better understand the biophysical properties of the ECS, and reciprocally to better replicate these in hydrogels designed for in vitro research specifically on the ECS.

Required background

The candidate should hold a PhD degree in Neuroscience, Biomedicine, Biophysics, or similar, and optimally have first-hand experience with stimulated emission depletion (STED) microscopy, patch-clamp-electrophysiology, immunohistochemistry, organotypic slice work, and computational fluorescence imagine analyses.
Among the core tasks is preparation and maintenance of organotypic slices in newly developed hydrogels (through collaboration with industrial partner). STED imaging experiments on organotypic slices, as well as potentially 2-photon microscopy and confocal microscopy in fixed immunostained tissue. Analyses and data presentation will be a key part of the work, and it is expected the candidate will independently drive these efforts; with due supervision and support. This project is part of a larger multidisciplinary consortium project, and proven collaborative skills will be a plus.

The starting date is around December 1st 2025, with a contract until December 31st 2026 (13 months) funded by the IKUR neurobioscience project “Optimising hydrogel composition for research on the brain extracellular

space", with a commitment from the host group to apply further funding sources in collaboration with the candidate.

We are an equal opportunity employer committed to diversity. Applications should be addressed through the Biofisika website contact page (http://biofisika.org/contact/), adding the following subject: [Job Application: ***140_JanTonnesen].*** It is recommended that applications are made as soon as possible as they will be considered upon arrival. Applications in a single pdf file must include:

Motivation letter (1-2 pages)
Curriculum Vitae (Max 3 pages)
List of 2 references to potentially contact for further information

Deadline: November 1, 2025