PHD POSITION FOR H2020 PROJECT ASTROTECH

Company Description

BCAM is the Research Center on Applied Mathematics created with the support of the Basque Government and the University of the Basque Country, which aims to strengthen the Basque science and technology system, by performing interdisciplinary research in the frontiers of mathematics, talented scientists' training and attraction, so the excellence of our results are recognized by the Society

Information

- Deadline: 2022-07-15
- Category: Business
- Province: Bizkaia
- Country: Basque Country
- City: Bilbao

Company

BCAM

Main functions, requisites & benefits

Main functions

The past four decades demonstrated that non-neuronal cells, called astrocytes are emerging as crucial players for brain function & dysfunction. A major obstacle of previous and current initiatives on neurotechnologies is a lack of focus on astrocytes and most of the tools used to probe and sense astrocytes are derived from those developed to study neurons. The ASTROTECH (http://www.astrotechproject.eu/) Consortium aims at pioneering the field of "Glial Engineering," to develop a consistent range of tools to record, study, and manipulate astrocytes in the healthy and diseased brain. ASTROTECH will train 15 Early Stage Researchers (ESRs) on research, training and complimentary skills aiming at: (i) engineering biomaterials and nanostructured interfaces to provide in vivo-like in vitro models for controlled and reliable studies of astrocytes in vitro; (ii) fabrication and characterization of nanostructured devices for stimulation, recording and biosensing of astrocytes; (iii) optogenetics tools, optoelectronic device and photonic methods for precise and cell selective stimulation of astrocytes; and (iv) computational approaches to characterize neuron-astrocytes interactions. Specifically, training on state-of-the-art biomaterials interfaces, electronic, photonic devices will be combined with in-depth knowledge on optogenetics, neuroscience, glial physiology and biology and computational approaches to validate the developed tools in vitro, ex vivo and in silico with emphasis on pathological models of glioma, ischemia, epilepsy and depression. The ASTROTECH Consortium combines 11 funding entities and 14 partners in the academia, public research centers and industrial labs, from 9 European and Non-European countries. The consortium combines interdisciplinary knowledge with soft skills across the private and industrial sectors. ASTROTECH aims to train in every step of the value chain "from benchside to bedside" providing a thorough approach to the understanding of brain health and disorders under the flagship of neuron-glial interactions.ç Topics to be worked: Computational neurobiology, biophysics, translational neurosciences

Requisites

MSc degree, preferably in Physics, Mathematics, Engineering or Computer Sciences. High proficiency in spoken and written English. Skills: Proven record of excellence in the Master's training with knowledge of Partial Differential Equations (PDEs) and numerical methods of solution thereof, specifically in the context of Finite Element methods (FEM) and Comptuational Fluid Dynamics (CFD) Methods. Programming proficiency in at least one of the following languages: Python/C++/Julia, and knowledge of FEM/CFD software packages. Excellent communication and interpersonal skills, with ability to effectively communicate ideas to an heterogeneous audience of biologists, medical doctors, and physicists. Ability to work in a fast-changing, international environment. Ability to meet deadlines. Openness towards inclusive science, racial and LGBTQ+ minorities. Excellent capacity for planning, independence, and creativity. The preferred candidate will have a strong interest in neurobiology, and aims to pursue a career in multidisciplinary research in Neuroscience, Quantitative Medicine and Computational Psychiatry. They must be committed to academic research to the highest standards, capable of enduring stressful conditions, including being able to live, integrate and train in multiple international settings.