



Fundación Biofísica Bizkaia  
Biofísica Bizkaia Fundazioa

## FUNDACIÓN BIOFÍSICA BIZKAIA / BIOFISIKA BIZKAIA FUNDAZIOA

OFFER – PhD candidate for grant applications in smart probes for stroke  
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Fundacion Biofísica Bizkaia (FBB) is a center of excellence on an international level with the main aim of promoting a multidisciplinary program in the field of Biophysics and its application in the areas of Biotechnology and Health, focusing all its resources in Instituto Biofísica Institutua (UPV/EHU, CSIC). The IBF is a joint research centre of the University of the Basque Country (UPV/EHU) and the Spanish National Research Council (CSIC). In close partnership with the FBB, the centre focuses on fundamental and translational biophysics research and offers a highly collaborative culture. Accredited as a Basque Excellence Research Centre (BERC), the institute provides outstanding shared facilities for advanced biophysical and structural biology approaches in a new research building in the main Leioa campus of the University of the Basque Country.

### Description of the project and position offered

Fluorine ( $^{19}\text{F}$ ) is a unique atom that combines small atomic size with the highest electronegativity in the Periodic Table. It constitutes an interesting label for diagnosis and biomedical imaging due to the lack of background signal, allowing for unequivocal detection of fluorinated probes. In this context, fluorinated NPs are emerging as alternative contrast agents or imaging probes for diagnosis by  $^{19}\text{F}$  MRI. Apart from pure diagnosis, one of the most innovative fields in which fluorine probes are being developed is the design of smart or OFF/ON probes. In this sense, the development of new contrast agents that provide functional information regarding certain pathology rather than only achieving image enhancement is one of the main topics in contrast enhanced MRI development nowadays, also for  $^{19}\text{F}$  MRI. Since there is no detectable background signal, fluorinated probes are ideal candidates for the design of OFF/ON systems, in which the signal is temporarily shut down and subsequently triggered by selected external stimuli. This feature can be tuned so that the appearance of signal is a consequence of the processes or phenomena of interest, gaining in this manner additional information regarding biomarkers of interest in situ and in real time. In this context, we are looking for a PhD candidate to develop smart contrast agents based on fluorinated probes to study the role of metalloproteinases after stroke by  $^{19}\text{F}$  MRI.

What we offer:

- 18 month contract (starting 1st January 2022) to start working on the project and apply for several fellowships.
- To work in a multidisciplinary project involving probe design and synthesis of nanoparticles, in vitro validation, in vivo validation in a stroke animal model, magnetic resonance applications and bioimaging.
- To join Instituto Biofísica, a leading centre in biophysics, located in the UPV/EHU campus and in close interaction with other centres and faculties, with access to singular infrastructures.

### Education and Experience Required

We are looking for:

- A motivated student with background in chemistry. Knowledge on nanotechnology and/or biomedicine will also be valued.
- Good academic record in order to succeed in grant applications.
- The candidate must hold a Master that gives access to doctoral studies.



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**Contact:** We are an equal opportunity employer committed to diversity. Please submit a curriculum vitae (indicating your average final qualifications) and motivation letter, through the Biofisika website contact page (<http://biofisika.org/contact/>), adding the following subject: [*Job Application: 86\_MsC\_MC*].

**Deadline: until the position is filled**

\* Please note that due to the large number of applicants expected, it will not be possible to communicate the evaluation results to all the candidates.