



Fundación Biofísica Bizkaia  
Biofisika Bizkaia Fundazioa

## FUNDACIÓN BIOFÍSICA BIZKAIA / BIOFISIKA BIZKAIA FUNDAZIOA

### OFFER – PhD Candidate

Publication date: November 16, 2020

We look for a highly motivated graduate student to train as a PhD working in the “Viral Membrane Proteins Lab” at the Instituto Biofisika (UPV/EHU, CSIC), <http://biofisika.org/>

The candidate must commit, in her/his own benefit, to reach a high level of excellence.

We offer an initial one-year contract starting January 15<sup>th</sup> 2020, which can be extended an additional year, to familiarize the candidate with our research project and to adequately prepare the application to national and regional PhD fellowships.

### Description of the PhD Thesis project

*Title: Development of tumor-specific membrane-active antibodies as the basis for new cancer immunotherapies.*

Immunotherapy has become an established pillar of cancer treatment. However, the majority of patients have limited responses to monoclonal antibody therapy due to development of resistance. This phenomenon is often associated to a lower expression of cell-surface molecules targeted by the antibody and to point mutations that arise from selection pressure. Here, we propose to target the cell lipid membrane in addition to cell-surface proteins as a way to decrease tumor immune escape. Hence, the thesis work will focus on the development of tumor-specific antibodies with the capacity to interact with the membrane of cancer cells and kill them. Specifically, we propose to increase the affinity of therapeutic antibodies targeting membrane proximal regions i.e., epitopes that are exposed close to, or lying on the membrane surface through optimization of their membrane interaction. This approach has been successfully used by our group to enhance potency of HIV antibodies targeting membrane-proximal epitopes (see: Carravilla et al. (2019) Nat. Commun. 10(1):78. doi: 10.1038/s41467-018-07962-9; Rujas et al. (2020) Cell Rep. 32(7):108037. doi: 10.1016/j.celrep.2020.108037). In addition, we propose to further engineer therapeutic antibodies to endow them with the capacity to damage membranes that will act as “bullets” to select and kill cancer cells.

Fundación Biofísica Bizkaia (FBB) is a center of excellence, which focuses on fundamental and translational biophysics research and offers a highly collaborative culture. Accredited as a Basque Excellence Research Centre (BERC), it 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 (UPV/EHU).

All its resources are focused on the Basque Centre for Biophysics, a joint research center of the UPV/EHU and the Spanish National Research Council (CSIC).

### Education and Experience Required

A degree in Biochemistry, Molecular Biology, Biotechnology, Chemistry, Biology, or related disciplines is required. Previous stays in research laboratories will be positively valued.

**Contact:** Applicants are encouraged to send a cover letter, CV, academic qualifications and 3 references through Biofisika website contact page (<http://biofisika.org/contact/>), adding the following subject: [73\_JLNPhD]

### **Deadline: December 15, 2020**

\*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.