**BIOENGINEERING IN REGENERATION AND CANCER GROUP**

**Group leader:**
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Biodonostia Health Research Institute
Onkologikoa
20014 San Sebastián

**In collaboration with:**

# JOB OPENING: Internship contract in preparation & support for PhD application 2023

## Advanced hydrogels for the delivery of CAR-T therapies in solid tumors

**Biotechnology, Biomedical Engineering, Biomedicine or similar**

at Biodonostia Health Research Institute
in collaboration with UPV/EHU and CIC bioGUNE

**Research team:** We are an interdisciplinary team (https://cipitrialab.com) and seek to understand how biophysical and biochemical properties of native extracellular matrix and synthetic biomaterials guide cell response in tissue regeneration, cancer dormancy and metastasis.

**Research project:** Chimeric antigen receptor-based cell therapies (CAR-T) have been shown to be effective in the treatment of hematological tumors resulting in their regulatory approval. In the case of solid tumors, there are barriers that limit the use of CAR-T therapies, including the difficulty of the cells in penetrating the malignant tissue and toxicity resulting from the release of pro-inflammatory cytokines as a result of the high number of cells transferred to the patient.

In the framework of a collaborative project with a multidisciplinary team from Biodonostia, UPV/EHU, and CIC bioGUNE, our **overall objective** is the **development of biomaterials-based new technologies** that allow the prolonged time release of CAR-T cells, favoring their access to the malignant tissue and limiting the toxicity associated with high levels of cytokines. Our vision is the development of new technologies in advanced therapies that can be transferred to the industrial tissue and the patient.

Specific objectives of this project consist of:
- Synthesis, fabrication and characterization of 3D hydrogels (1)
- Encapsulation of CAR-T cells together with immunostimulatory cytokines
- Characterization of the cytotoxic effect on tumor cells through in vitro assays
- Mid-term: Characterization of the cytotoxic effect on breast tumors in vivo in collaboration with the Breast Cancer group and Dr. María Caffarel

**Profile:** We are looking for a motivated student willing to start a PhD project. You should have a background in biotechnology, biomedical engineering, biomedicine or similar. You could start as a master student or as an internship contract in preparation & support for a PhD application in 2023 (Gob Vasco, UPV/EHU, FPU, AECC etc). Skills in hydrogel fabrication and cell culture are of advantage. The project will be carried out at Biodonostia Health Research Institute in the group of Dr. Amaia Cipitria.

**References:** (1) Lueckgen et al., Biomaterials, 2019

**Starting date:** preferred between July-Sept 2023

**Payment**: intership contract funded for 6 months and extension possible depending on funding

**Want to join? Please send your application including a motivation letter, your CV, contact details of three references and a transcript of your university record to: amaia.cipitria@biodonostia.org. Please indicate "Internship/PhD - Hydrogels for CAR-T delivery" in the subject line.**