

<b>Call reference number</b>	(2025-01)
<b>Call name</b>	Pre-doctoral researcher to study piezo- and magnetoelectric stimulation for cardiac repair
<b>Application Deadline</b>	2025/02/09

### Introduction and main description

BCMaterials, Basque Center for Materials, Applications and Nanostructures, is an autonomous research center launched in June 2012 by Ikerbasque, the Basque Foundation for Science and the University of the Basque Country (UPV/EHU) as a research center for Materials, Applications and Nanostructures. The center is included in the BERC's (Basque Excellence Research Centers) network and its mission is to generate knowledge on the new generation of materials, turning this knowledge into (multi)functional solutions and devices for the benefit of society.

BCMaterials is looking for a pre-doctoral researcher to help produce and characterize a heart-on-a-chip device able to deliver electric stimuli. The candidate will develop a fundamentally new technology based on electroactive and magnetoelectroactive polymers - that is, materials that convert mechanical stress or magnetic fields into electrical signals and vice versa - to promote cardiac cell differentiation and support the contractile function of heart cells. In addition, these same electroactive scaffolds will be used to remotely monitor cardiac function and, in combination with a machine learning approach, predict cardiac failure.

The selected researcher will further perform biological experiments in order to determine the impact of different stimulation protocols on stem cells differentiation and on the activity of cardiac cells. The success of this technology promises to reduce the need for invasive treatments and minimize healthcare costs.

We offer a one-year contract. After an evaluation of the candidate's performance, if the results are positive, the researcher will be hired for two more years. It is estimated that three years are enough to develop a PhD thesis.

### Skills and Requirements

We are seeking for a highly motivated candidates with:

- MSc degree in Biology, Chemistry, Chemical Engineering, Biotechnology or similar.
- Background in cell biology, biomaterials, cell-materials interaction or related fields.
- Strong interest in tissue engineering, preferable with some experience in electric stimulation of biological tissues.
- English, and able to work in an international and interdisciplinary environment.

### Work Program / Duties / Responsibilities

The PhD candidate can participate in the following tasks:

- Establishment of a heart-on-chip device.
- Determination of the impact of piezoelectric stimulation of muscle and stem cells.
- Determination of the thresholds of the stimulation.
- Analysis of the mechanisms underlying the biological response.

**Work Program / Duties / Responsibilities**

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**Application Procedure**

Apply by submitting a motivation letter and a CV (in English) using the "Contact" button at the corresponding offer, at the "Join Us" area on BCMaterials' portal (<https://www.bcmaterials.net/join-us>).

Your name and email address will be required for further contact too.

**Other Relevant Information**

We provide a highly stimulating environment with state-of-the-art infrastructures, and unique professional career development opportunities. We offer and promote a diverse and inclusive environment and welcomes applicants regardless of age, disability, gender, nationality, ethnicity, religion, sexual orientation or gender identity.