

## *COLLABORATIVE IBEC INTERNATIONAL PhD PROGRAMME*

### **Position**

1. Project Title:  
**Mechanobiology of pancreatic cancer**
2. Research project/ Research Group description

Pancreatic cancer has a dismal prognosis, even if diagnosed early. An interesting angle to further understand this disease is its connection to tissue mechanics. Pancreatic cancer is associated with a strong desmoplastic reaction, leading to a stiffening of the tissue that is known to be related to the epithelial-to-mesenchymal transition (EMT) and to cell plasticity in general. The groups of Pere Roca-Cusachs (Institute for Bioengineering of Catalonia, IBEC), and Francisco X. Real (Centro Nacional de Investigaciones Oncológicas, CNIO) have an ongoing collaboration to study this connection. This works combines expertise in mechanobiology in vitro (IBEC) with expertise in pancreatic cancer biology in vitro and in vivo (CNIO). The research project offered here aims to continue this research, exploring the connection between tissue mechanics, cell plasticity, and pancreatic cancer. The project will combine in vitro models of pancreatic cancer, biomechanical techniques to measure and manipulate tissue mechanics and cellular forces, molecular biology approaches, use of omics techniques and bioinformatics tools, and in vivo and patient data. The aim will be to understand the mechanisms by which mechanical alterations induced in cancer affect cell state, and how this in turn affects cancer progression.

3. Job position description

The position is open to candidates with background in biology, engineering, or physics. We also require a good level of English. The student will be integrated in a dynamic and multidisciplinary research environment, with multiple opportunities for training. This includes weekly lab meetings, courses and workshops both in scientific techniques (microscopy, computing) and general skills (writing, presenting, and others), presentation of results in international scientific meetings, and potential research stays in collaborating labs. The position will be based in Barcelona (IBEC), but will also include research stays at CNIO (Madrid). The candidate is expected to develop a research project on the topic of mechanobiology and pancreatic cancer, under the guidance of Profs. Roca-Cusachs and Real.

## Group Leader at IBEC

1. Title: Prof.
2. Full name: Pere Roca-Cusachs
3. Email: [proca@ibecbarcelona.eu](mailto:proca@ibecbarcelona.eu)
4. Research Group: Cellular and Molecular Mechanobiology

## Collaborator in the other institution

1. Title: Prof.
2. Full name: Francisco X. Real
3. Email: [freal@cniio.es](mailto:freal@cniio.es)
4. Institute: Centro Nacional de Investigaciones Oncológicas (CNIO)
5. Research group: Epithelial Carcinogenesis