



Open position: Mechanobiology of cells cultured in physiomimetic matrices

A 4-year funded PhD position, starting October 3rd, 2022, is available in our team at the School of Medicine of the University of Barcelona (campus Hospital Clinic).

We are a multidisciplinary group investigating cell mechanobiology to better understand normal and pathologic processes. Specifically, we address how cells can produce and sense force during a variety of cellular functions, including adhesion and migration. We are pioneering the use of physiomimetic matrices and organ-on-a-chip devices to maintain cells in conditions that resemble more closely their physiologic microenvironment in relevant diseases such as cancer, fibrosis, atherosclerosis or asthma.

The PhD candidate will study two fundamental questions in mechanobiology. First, she/he will study the mechanical response of freshly isolated primary cells as compared to their equivalent immortalized cell lines. Second, she/he will test whether culturing immortalized cell lines in physiomimetic environments *in vitro* can modify their mechanobiological response towards the one that cells display in their native tissues *in vivo*.

Tasks will include:

- Isolating primary lung cells from rats and cell culture
- Use of optical microscopy to assess cell migration
- Use of mechanobiology techniques such as traction force microscopy and fluorescent characterization of dynamic cytoskeleton structures
- Fabrication and use of physiomimetic matrices and organ-on-a-chip devices

By the time of signing the contract, the candidate must hold a Master's degree in the field of life sciences. Candidates with an interdisciplinary profile are also very welcome (Physics / Biology / Chemistry / Engineering). Experience in cell culture and optical microscopy is a plus.

The candidate will get her/his PhD degree and expectedly publish scientific articles in prestigious international journals.

We offer:

- A 4-years contract.
- A highly multidisciplinary research team (biology, physics and biomedical engineering) with access to state-of-the-art microscopy equipment and core facilities.
- A large set of training opportunities to broaden your skills.
- Possibility to do internships in laboratories abroad.

Application

Please send your CV to jorge.otero@ub.edu or rsunyer@ub.edu with the subject: "Open Position"

Further information:

- Brief introduction to mechanobiology: <http://biofisica.info/articles-7/mechanobiology-of-collective-cell-systems/>
- Physiomimetic environments for culturing mesenchymal stromal cells: <https://www.mdpi.com/2073-4360/13/14/2350>
- Physiomimetic environments for culturing alveolar epithelial cells: <https://www.mdpi.com/1422-0067/23/9/4888>