

## Postdoctoral researcher at the Smart Nano-Bio-Devices Research Group (Ref.: PD MOB SS)

### Introduction to the vacant position:

The Smart Nano-Bio-Devices Group is looking for a Postdoctoral Researcher to work on the development of self-propelled nanobots for translational approaches within biomedicine. The contract will be within the framework of the **MUCONCOBOTS** Project, which has a primary objective of employing nanobots to transport a specialized drug for the treatment of peritoneal pseudomyxoma (PMP). This rare disease is distinguished by the development of tumors that produce a significant quantity of mucus within the peritoneal cavity, making it the most notable type of mucinous tumor known.

### Main tasks and responsibilities:

- Synthesis, functionalization and characterization of inorganic (e.g., mesoporous silica, gold nanoparticles, iron oxide nanoparticles) and organic (e.g., lipidic, polymeric, hydrogel-based) nanocarriers.
- Optimization of nanoparticle drug loading process with the aim of developing nanobots as active smart drug delivery systems.
- In vitro evaluation of the therapeutical effect and mechanism of action of the drug-loaded nanobots under different biological environments.
- Test and evaluate the therapeutic effect in vitro using mucus-secreting models.
- Guide bachelor, master, and PhD students.
- Interaction and reporting within the group and with private foundations and companies.
- Actively working in the development of new ideas that give rise to future and/or evolution of projects and generation of intellectual property.

### Requirements for candidates:

#### Essential:

- PhD in the field of pharmacy, chemistry, biotechnology, nanomedicine, biochemistry, or similar.
- Experience in nanoparticle synthesis and functionalization of biocompatible and biodegradable inorganic and organic nanocarriers.
- Experience in drug loading and drug delivery studies with therapeutic small molecules.
- Knowledge on common characterization techniques (NMR, FTIR, DLS, Z-potential, GPC, HPLC chromatography, SEM, TEM, AFM, spectroscopy equipments, etc)
- Experience in cell culture and biological assays (viability and metabolic studies, immunostaining and confocal microscopy, RT-PCR and WesternBlot)
- High level of English.
- Communication, Teamwork, Proactivity, Commitment, Collegiality, Integrity, Critical and Analytical thinking.

#### Advantageous:

- Basic knowledge on microfluidics applied to nanoparticle synthesis

- Experience on the characterization of hydrogels or viscous materials (e.g. rheology, TEER) and advanced characterization techniques (e.g. Super-Resolution Microscopy)
- Valuable accreditation A (Animal care), B (Euthanasia), C (Experimental procedure) Functions according to RD 53/2013.

### We Offer:

- Number of available positions: 1
- Starting date: April May 2024
- Working conditions:
  - Twelve-month full-time contract linked to the budget and duration of the project.
  - Measures to reconcile work and family life (maternity and paternity leave, flexible schedule working hours, 23 working days of paid holidays, 9 leave days for personal matters, among others).
- IBEC ensures equality of access to professional development opportunities irrespective of employment status, length at IBEC or other factors. The IBEC's yearly training catalogue offers a wide range of training in technical and transferable skills including mobility grants and a Mentoring programme for predoctoral and postdoctoral researchers.
- Stimulating, interdisciplinary research and high-quality international scientific environment.
- Induction programme to facilitate incorporation at IBEC and additional support is provided for foreigners to obtain Visa-working permit and to install in Barcelona.

### How to apply:

An online application form will be available through IBEC dedicated site: <https://careers.ibecbarcelona.eu/>  
Only those applications submitted before the deadline will be evaluated.

### Reference: PD\_MOB\_SS

If you have any further question regarding your application, please contact us at [jobs@ibecbarcelona.eu](mailto:jobs@ibecbarcelona.eu)

### Principles of the selection process:

IBEC is committed to the principles of the Code of Conduct for the Recruitment of Researchers of the European Commission and the Open, Transparent and Merit based Recruitment principles (OTM-R) <https://ibecbarcelona.eu/careers-at-ibec/jobs/>

IBEC's Commitment on equal opportunity:

Our strength and excellence as an international transdisciplinary Research Institute are based on diversity. Being an equal opportunity employer, we are committed to diversity and inclusion, so that we support employees irrespective of their gender, nationality, religion, disabilities, age, sexual identity or cultural and socioeconomic background."

IBEC actively looks for female candidates for Senior positions (Postdoctoral and GL positions) ensuring that at least 40% of shortlisted applicants invited to interview have to be

women with comparable level of CVs as the male candidates. At the end of the evaluation process, in case of equal merit, priority will be given to female candidates.

For candidates with children that come from outside Barcelona, we offer babysitting services during the interview, so you don't have to worry about anything else than doing a good interview. Contact us if you are interested in this service.

IBEC, as a signatory of the San Francisco Declaration on Research Assessment (DORA), will consider, especially for early-stage investigators, much more the scientific content of research outputs, than publication metrics or the identity of the journal in which it were published.

### Protection of personal data:

IBEC guarantees that candidates' personal data are processed in accordance with the requirements of the EU General Data Protection Regulation (GDPR) and Law 3/2018 on Data Protection.

Personal data will be processed solely for the purposes of the selection process.

### Who we are?

The Institute for Bioengineering of Catalonia, IBEC is an interdisciplinary research center focused on Bioengineering and Nanomedicine based in Barcelona. IBEC is one of the top research institutions named as a Severo Ochoa Research Centre by the Ministry of Science, Universities and Innovation, which recognizes excellence at the highest international level in terms of research, training, human resources, outreach and technology transfer.

IBEC's mission is to develop international high-quality interdisciplinary research that, while creating knowledge, contributes to making a better quality of life, improving health and creating wealth. A close link with key universities, reference hospitals and corporations, are assets that facilitate achieving the mission.

IBEC was established in 2005 by the Generalitat de Catalunya (Autonomous Government of Catalonia), the University of Barcelona (UB) and the Technical University of Catalonia (UPC).

IBEC is located within the Barcelona Science Park and is managing 3.800 square meters facilities, with an annual budget of 13 Mio€; 3.800 square meters of facilities; 21 research groups and a team of researchers and support services of 350 people from 30 different countries.  
[www.ibecbarcelona.eu](http://www.ibecbarcelona.eu)

