

RESEARCH SUPPORT TECHNICIAN - NANOSTRUCTURED FUNCTIONAL MATERIALS GROUP

The mission of the Catalan Institute of Nanoscience and Nanotechnology (ICN2) is to achieve the highest level of scientific and technological excellence in Nanoscience and Nanotechnology. Its research lines focus on the newly-discovered physical and chemical properties that arise from the behavior of matter at the nanoscale. ICN2 has been awarded with the Severo Ochoa Center of Excellence distinction for two consecutive periods (2014-2018 and 2018-2022). ICN2 comprises 19 Research Groups, 7 Technical Development and Support Units and Facilities, and 2 Research Platforms, covering different areas of nanoscience and nanotechnology.

Job Title: Research Technician

Research area or group: Nanostructured Functional Materials group

Description of Group/Project:

The Nanostructured Functional Materials group (**Nanosfun**, www.nanosfun.com) is a research group at the Catalan Institute of Nanoscience and Nanotechnology (ICN2, www.icn2.cat, Barcelona, Spain). **Nanosfun** is aimed to develop novel (supra)molecular and polymeric functional nanomaterials with application in **Health** and **Environment**. Specifically, one of our main research lines is the design and fabrication of nanomaterials for **tissue regeneration**, which has become one of the main branches of medicine aiming to solve a multitude of pathologies caused by irreversible tissue degeneration. Nowadays, there is a blooming of interest with several international initiatives in the area as well as several scientific publications. However, in many cases, their transfer to the clinic is hampered (high cost of production, toxicity and low regenerative activity). For this reason, the development of new materials with **outstanding features** is a pressing concern. In this scenario, **bioinspired materials** have emerged as potential candidates. Specifically, materials based on **catechol** molecules, present in various living organisms (e.g., mussels), have demonstrated unprecedented adhesive properties under wet conditions, biocompatibility, low toxicity and low cost/scalable processes. These excellent features turn bioinspired catechol-based materials unique for their use in tissue regeneration. This project will be focused on the study of the developed materials for the skin regeneration when affected by burn wounds. Besides, the project will be focused on the scalability and GMP production of the developed products.

Specifically, the BlaSkin project belongs to the *Prueba de Concepto 2022* grant PDC2022-133261-C21 funded by MCIN/AEI/ 10.13039/501100011033 and by the European Union NextGenerationEU/PRTR.



Main Tasks and responsibilities:

The research activity of the candidate will be mainly part of the BlaSkin project, which aim the valorisation of the use of bioinspired membranes for the tissue regeneration in burn wounds. The candidate will provide research assistance for the synthesis, functionalization scalability studies and production of the bioadhesives membranes under GMP regulation. Besides, the candidate will offer research support in the *in vitro* and preclinical assays involved in the development of the project. The responsibilities will be focused on the fabrication of the membranes and their study using different cell lines involved in the regeneration process of damaged skin. Besides, the candidate will study the biodegradation process of the membranes and their functionalization with grow factors.

The candidate will work as part of an international team and she/he is expected to actively participate and lead part of this project.

Requirements:

- **Education:**
 - A Bachelor or Master Degree in Biology, Biochemistry, Nanoscience and Nanotechnology, Materials Science or similar.

- **Professional Experience:**
 - Experience in the chemical synthesis and modification of organic materials.
 - Experience in use of an array of physicochemical and materials characterization tools (DLS, spectrophotometry, electron, optical and fluorescence microscopy, HPLC).
 - Previous hands-on research experience in handling and studying the biological investigation of materials with biological matter (proteins, cells, tissues).
 - Experience in *in vitro* assays.
 - Experience in culturing mammalian cells.
 - Experience with extraction and culture of primary cells and their culturing protocols.
 - Experience in *in vivo* studies.
 - Excellent research and methodological skills relevant to the research topic.

- **Skills:**
 - Excellent communication and writing skills
 - Intrinsic motivation, strong commitment, responsibility, independence, teamwork skills.

Summary of conditions:

- Full time work (37,5h/week)
- Contract Length: 2 years
- Location: Bellaterra (Barcelona)
- Salary will depend on qualifications and demonstrated experience.
- Support to the relocation issues.
- Life Insurance.

Estimated Incorporation date: December 2022

How to apply:

All applications must be made via the ICN2 website and include the following:

1. A cover letter.
2. A full CV including contact details.
3. 2 Reference letters or referee contacts.

Deadline for applications: 25 November 2022

Equal opportunities:

ICN2 is an equal opportunity employer committed to diversity and inclusion of people with disabilities.

ICN2 is following the procedure for contract of people with disabilities according with article 59 of the Royal Decree 1/2015, of 30 of October.