

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:** Specialist Technician

**Research area or group:** Nanomedicine Group

**Description of Group/Project:**

The main lines of research include:

- Clinical translation of bioelectronic and microfluidic devices
- Nanomaterials as vector systems for therapeutic and diagnostic applications
- Development of graphene and 2D materials in medicine
- Discovery of novel biomarkers and therapeutic targets in oncology and neurology

The group brings to the Institute a strong expertise in research and development of novel types and applications of established nanoparticle systems, particularly liposomes. Moreover, rich experience in the medical translation of carbon nanomaterials, at varying shapes and dimensions, such as fullerenes, carbon nanotubes, nanohorns and graphene. A wide range of nanomaterials developed as platforms for the biological transport of therapeutic and diagnostic components in cell culture and preclinical disease models. The primary therapeutic targets for clinical translation of these technologies have been cancer (solid and metastatic) and brain pathologies (Parkinson's, stroke, Alzheimers, glioblastoma).

Nanomedicine@ICN2 has strong links with the Nanomedicine Lab at the Faculty of Biology, Medicine and Health at the University of Manchester, with Prof. Kostas Kostarelos leading both teams in a joint effort to develop medicines at the nanoscale. Graphene and 2D materials will have a central role in a number of research lines carried out in the context of the Graphene Flagship Biomedical Technologies Work Package.

**Main Tasks and responsibilities:**

The Specialist Technician will assist to the scientific programme of the Graphene Flagship project. The work will involve the preparation and characterization of non-covalent graphene complexes with biologically active molecules (proteins, peptides and small molecules). The Specialist Technician would be expected to undergo full training in all techniques and protocols to be used, and thereafter to perform the experiments with minimal supervision. Therefore, meticulous record keeping and a high level of consistency is key for this position.

Principal responsibilities:

- Through interaction with the PI and other members of the Nanomedicine Group to assist to the development, progression and execution of the Graphene Flagship project

- Synthesis, functionalization, and characterisation of various graphene-based materials (graphene oxide, exfoliated graphene, other 2D material)
- Use of chemical synthesis tools and protocols to surface-modify 2D materials
- Use a range of physicochemical and materials characterisation techniques (HPLC, Raman, AFM, SEM, TGA, DLS, spectrophotometry, electron microscopy, ICP-MS, XPS)
- Execution of experiments using different core facilities at the Campus UAB and collaborating institutions
- Training of new students and researchers in physicochemical and materials characterization tools and protocols established and core facilities used
- Assist in the internal material distribution within the Nanomedicine Lab and throughout the collaborators worldwide.

### Requirements:

**Education:** Degree in chemistry, chemical engineering, materials science, biochemistry, or equivalent

### Skills:

- Demonstrable previous use of an array of physicochemical and materials characterisation tools (HPLC, Raman, AFM, SEM, TGA, DLS, spectrophotometry, electron microscopy, ICP-MS, XPS)
  - Excellent methodological skills relevant to the research theme (surface modification or chemical functionalisation of carbon nanomaterials)
  - Excellent organisational and time-management skills, including the ability to deliver timely and high quality outputs
  - Ability to plan, organise, and undertake work without detailed supervision
  - Ability to develop effective working relationships with all levels of staff and students
  - Ability to work under pressure and maintain a high degree of accuracy
  - Ability to work effectively in a multi-disciplinary team
  - Experience in procurement/reception of consumables
  - Ability and enthusiasm to learn new skills outside own discipline
- **Professional Experience:**
    - Experience in the chemical synthesis and modification of carbon nanomaterials and graphene
    - Experience in experimental research using of electron microscopy techniques (TEM, cryo-EM, tomography)
    - Previous hands-on research experience in handling and studying the biological investigation of carbon nanomaterials, in particular graphene, with biological matter (proteins, cells, tissues)

### Summary of conditions:

- Full time work (37,5h/week)
- Contract Length: 1 year (renewable)
- Location: Bellaterra (Barcelona)
- Salary will depend on qualifications and demonstrated experience.
- Support to the relocation issues.
- Life Insurance.

Estimated Incorporation date: As soon as possible

**How to apply:**

All applications must be made via the ICN2 website <https://jobs.icn2.cat/job-openings/345/specialist-technician-nanomedicine-group> and include the following:

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

**Equal opportunities:**

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