As a flagship research center in nanoscience and nanotechnology, our mission is to open and explore new frontiers of knowledge at the nanoscale, and bring value to society in the form of new understanding, capabilities and innovation, while inspiring and providing broad training to the next generations of researchers. Our values are Commitment, Collaboration and Transformation.

Our research lines focus on the newly-discovered physical and chemical properties that arise from the behaviour of matter at the nanoscale. ICN2 has been awarded with the Severo Ochoa Center of Excellence distinction for three consecutive periods (2014-2018 and 2018-2022 and 2023-2026). 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 in Preclinical Disease Modelling and Therapy

Research area or group: Nanomedicine Group

Description of Group/Project: The Nanomedicine Lab aims to generate and disseminate fundamental knowledge in the field of nanomedicine by bringing together nanotechnology, bioengineering, pharmacology and their translation to advanced, clinically-relevant therapeutics and diagnostics.

Our aim is the development of novel, safe and effective therapeutics based on nanoscale components and their combinations, used as either the 'drug' or the 'transport system'. Such components include DNA, RNA, viruses, stem cells, radionuclides, liposomes, graphene, 2D-heterostructures, carbon nanotubes and other nanomaterials (quantum dots, fullerenes, carbon nanohorns).

The research efforts taking place within the Nanomedicine Lab have been cross-cutting disciplines, bridging the gap between fundamental nanomaterial engineering and medicines development towards the realisation of advanced therapeutic modalities.

Our mission is to pioneer the cutting-edge and emerging discipline of nanomedicine by bringing advanced materials and nanoscale platforms to the clinic.

The main lines of research in Nanomedicine Lab include:

- Neurotechnology based on flexible, thin-film technologies for therapeutic applications in oncology and neurology
- Nanomaterials as transport systems for therapeutic and diagnostic applications against cancer and neurodegenerative disease
- Translation of graphene and 2D materials in the clinic
- Discovery of novel liposome and vesicle systems to be used as components of therapeutics in oncology and neurology

The Nanomedicine Lab has strong links with the Center for Nanotechnology in Medicine at the Faculty of Biology, Medicine and Health of The University of Manchester.

Main Tasks and responsibilities:

The Specialist Technician in Preclinical Disease Modelling and Therapy will undertake research focusing on the establishment and maintenance of CNS disease models (primarily glioblastoma and Parkinson's Disease models) in collaboration with other investigators within the Nanomedicine Lab, and other collaborative labs. Biological, biophysical and histological investigations (including cell and tissue analysis using molecular techniques and functional assays) following implantation of devices and/or administration of nanomaterials using the in vivo disease models established, will be performed. The Research Specialist will also be using routinely bioluminescence/fluorescence in vivo imaging using the IVIS Imaging system and occasionally Magnetic Resonance Imaging. Therapeutic strategies will be investigated using nanomaterial suspensions and/or ultraconformable neural interface devices used for recording, monitoring and treating the brain cancer and PD.

The Specialist Technician will be expected to interact effectively with researchers from a range of different disciplines to contribute to the programme of research, particularly in the collaborative execution and management of studies using the preclinical disease models available. The Specialist Technician will work closely with the PI (Kostarelos) to validate the appropriate institutional licensing for the performance of preclinical disease models in collaboration with colleagues at the UAB Medical School.

Key Responsibilities, Accountabilities or Duties, include:
• Conduct experimental research work using relevant preclinical disease models (mainly cancer and Parkinson's disease)
• Establishment and maintenance of preclinical disease models relevant to the funded research programmes (glioblastoma), including preparation and implementation of research protocols, SOPs and related documentation
• Be responsible for the recording, documentation and reporting of all preclinical models used by the Nanomedicine Lab
•Perform experimental research work according to the National and European legislation
• Perform cross-faculty collaborative experiments using materials and tools developed by other researchers within the research programme
• Perform treatment efficacy and monitoring studies using the stablished preclinical models, including interpretation and plotting of data
• Write-up publications and presentations of study results. Participate and have active presence in the research project meetings organized by the Nanomedicine Lab or its collaborators
• Train students, researchers, collaborators and new personnel to the use of the established preclinical disease models, including the use of the IVS imaging system
• Coordinate and execute studies with other researchers among the Nanomedicine Lab members that involve preclinical disease models
• Collate and store accurate records using paper and computer-based systems and the preparation of data for inclusion in lab books, presentations and publications. Maintain a hardcopy or electronic lab book
• Work in compliance with relevant Health and Safety Regulation, Data Protection and Institution's Policy Legislation and Regulations

General Responsibilities, Accountabilities or Duties, include:
• Contribute to the group's progression by providing feedback and input to experimental design and development
• Provide advice and assistance to the research staff and students in order to best meet their requirements for research support, either personal or through delegation to appropriate team members

• Provide clear and timely written work, producing reports and publishing in high quality publications, and communicate verbally as required with other members of the Nanomedicine Lab and collaborating partners. This may include presentations at national or international level and outreach activities
• Maintain expertise in scientific developments relevant to the objectives of the Nanomedicine Lab and provide relevant expert advice within the Skin2DTronics and to its project partners
• Expected to participate in Nanomedicine Lab scientific activities (lab meetings, seminars, etc.)
• Actively read the scientific literature relating to (and around) the project
• To undertake any necessary training
• To learn and develop new research skills outside own discipline
• Any other reasonable duties commensurate with the post that may be requested

You should hold a PhD in pharmacy, biomedicine, neuroscience, neurobiology, neuropharmacology or neuro-oncology. You should have demonstrable previous handling, surgical (and ideally neurosurgical) experience and familiarity with use of neurodegenerative or neurooncological preclinical disease models for therapeutic or diagnostic purposes. Prior experience with in vivo brain cancer models will be particularly preferred. Previous experience in experimental research using devices, biomaterials on nanomaterials and evidence of a developing research publication track record would be advantageous.

Requirements:

Person specification:
The researcher appointed should be an enthusiastic and highly self-motivated individual, with previous postdoctoral experience in preclinical neuropathology, surgical skills and disease modelling.

Essential Education and Professional Qualifications:
• PhD in pharmacy, biomedicine, biotechnology, neuroscience, neurobiology, neuropharmacology or neuro-oncology or equivalent
• Hold a Personal License: "reconeixement de la capacitació" by the "Departament d'Acció Climàtica, Alimentació i Agenda Rural" from la "Generalitat de Catalunya"

Essential Knowledge, Skills and Experience:
• Experience with general surgical techniques using preclinical disease models
• Experience in establishment and use of neuropathological disease models, including brain cancer models
• Experience with neurosurgical techniques in the CNS or PNS
• Experience in neuropathology histological skills (e.g. tissue sectioning, histology, immunostaining)
• Experience in vitro techniques that can be applied to cancer research (e.g. cell-based immunoassays), and ex vivo immunobiology techniques (e.g. flow cytometry)
• Excellent understanding of IT Tools, MS Office (e.g. Excel, Power Point)
• Excellent verbal and written communication skills (in English)
• Excellent organisational and time-management skills, including the ability to deliver timely and high-quality outputs
• Ability to clearly present information verbally, electronically and on paper
• Ability to be creative in research ideas to develop/progress the research area
• Ability to plan, organise, and undertake work with minimal supervision
• Ability to work under pressure while maintaining high standards and good reproducibility results
• Ability to work effectively in a multi-disciplinary team
• Ability to work independently, use own initiative where appropriate, and be proactive in approach to work

Desirable Knowledge, Skills and Experience:

• Experience with establishment and use of preclinical (rodent) models, including motor function and behavioural tests
• Experience with orthotopic brain carcinoma models
• Experience and direct involvement in projects funded by the European Commission (e.g. H2020)
• Experience in culturing and genetic modification of mammalian cells
• Experience with extraction and culture of primary cells and their culturing protocols of neuronal origin
• Experience and familiarity with nanomaterials and nanotechnology research
• Experience of supervising student research projects
• Evidence of a developing track record in publishing and dissemination of high-quality publications in peer-reviewed journals

Summary of conditions:

- Full time work (37,5h/week)
- Contract Length: 2 years, with the possibility to extend up to 4 years

- Location: Bellaterra (Barcelona)
- Salary will depend on qualifications and demonstrated experience.
- Support to the relocation issues.
- Life Insurance.
- Work-Life Balance and Flexibility with flexible work schedules
- 28 holidays per year
- Flexible compensation plan: tax advantages contracting some products (health insurance, childcare, training, among others.)
- Training activities: languages, mentoring programme, wellbeing programme.
- International environment

Estimated Incorporation date: May 2025

How to apply:

All applications must be made via the ICN2 website (Specialist Technician in Preclinical Disease Modelling and Therapy | Job openings and fellowships | ICN2 - Institut Català de Nanociència i Nanotecnologia) 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: 30th April 2025

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.