



College	Science
School	School of Chemistry and Chemical Biology
Unit	Centre for BioNano Interactions
Post Title	UCD Post-doctoral Research Fellow Level 1
Project	Molecular and Cell Biologist; Biological identity of nanoparticles in biological fluids and nanoparticle interactions at cell level, and beyond
Post Duration	Up to 2 years
Reports to	Prof. Kenneth Dawson
HR Reference No.	006273-PD1
HR Administrator	Sarah Dunne

Position Summary

We are seeking an outstanding and exceptional academic researcher and potential leader of the future, with a substantial background in a relevant arena of molecular and cell biology. The candidate will be flexible, with an open minded and creative approach that will help us to develop further the interdisciplinary bionanoscience field, with excellence. Relevant arenas include cellular uptake mechanisms and pathways, signalling, but emphasis will be given to quality of the candidate, rather than previous experience alone. Overall organizational and management skills would also be an advantage. Scientifically, the candidate will be an exceptional individual with the capacity to help frame and build a newly emerging scientific field, and to rapidly master new ideas and techniques, as well as adopt responsibilities in supporting the development of post graduate students.

There is ample advanced research space, and world-class infrastructure within CBNI and the University to support the best researchers.. There will be opportunity for advanced and successful candidates to continue career development associated with CBNI, and in this regard there is an active interest and commitment to attract candidates that are likely to succeed in competition for long term international positions and fellowships.

This research appointment opportunity stresses our focus on scientific excellence (and excellent outputs) including the importance of significant impact in health related areas. As such, the research program is not tightly prescribed; it is expected to evolve, and follow success.

Nanoscience has the potential to revolutionise and benefit many aspects of human society, especially in the fields of information technology and medicine. As one of the world's leading centres of knowledge for bionanointeractions, applied to the fields of nanosafety, nanobiology and nanomedicine, the Centre for BioNano Interactions is pioneering many of the new techniques and approaches in this area.

Key areas of research are

- Interactions between nanoparticles and living systems
- Nanobioscience, nanomedicine, nanodiagnostics, nanosafety
- Health and environmental impact of nanoparticles
- Applications of bionanoscience for therapy and diagnostics

CBNI consists of several smaller groups, each with focused skills (synthesis of nanoparticles, biophysical and proteins science, imaging, molecular and cell biology etc.), each containing several researchers and a number of students. It is a vibrant and multicultural community, with high levels of commitment and focus. Additionally, CBNI is at the Centre of a significant number of large scale international co-operations, especially EU (CBNI coordinates the EU Infrastructure in the field), US, Asia, Australia. <u>The successful candidate will join a team of high calibre, international scientists, focussed on scientific excellence and the translation of the same to societal impact.</u>

Specifically, the successful candidate will be a **Postdoctoral Researcher** with the ability to support a new programme focused on the biological identity of nanoparticles in relevant biological environments. He/she will have a background in cell biology, and solid capability to carry out cell level studies, but it will be important that they also have an awareness of the biophysical sciences. This programme is based on the core hypothesis that the biological identity of engineered nanoscale objects is significantly derived by its state in situ-that is, in the biological context in which it is applied, and not alone by its pristine state. This means that many simple cell culture studies of nanoparticles interactions, or targeting of nanomedicine may not give guidance as to the likely outcome *in vivo* (e.g. *Nature nanotechnology* 8 (2), 137-143 (2013)).

The researcher will ensure communication and appropriate coordination between the synthetic efforts to produce the nanomaterials, the researchers characterising the nanoparticle-biomolecule complexes to define the biological identity of the nanoparticles, and those investigating the resulting interactions with living cells. The exceptional range of activities, and the interdisciplinary character of this program, as well as the relatively immature nature of the field (this has implications for quality control at every step) suggest the need for a highly skilled post-doctoral researcher capable of mastering a wide range of different techniques, and a long term commitment to investing in all aspects of quality.

This is a research focused role, where you will conduct a specified programme of research supported by research training and development under the supervision and direction of a Principal Investigator. The primary purpose of the role is to develop new or advanced research skills and competences, on the processes of publication in peer-reviewed academic publications and scholarly dissemination, the development of funding proposals, and the supervision and mentorship of graduate students along with the opportunity to develop skills in research led teaching.

Salary: €33,975 – €41,181 per annum

Appointment on the above range will be dependent on qualifications and experience

Principal Duties and Responsibilities

- Conduct a specified programme of research and scholarship under the supervision and direction of your Principal Investigator.
- Engage in appropriate training and professional development opportunities as required by your Principal Investigator, your School or Institute, or the University.
- Engage in the dissemination of the results of the research in which you are engaged as directed by and with the support of and under the supervision of your Principal Investigator.
- Engage in the wider research and scholarly activities of your research group, School and Institute.
- Mentor and assist, as appropriate and as directed, the research graduate students in your group, School and Institute.
- Carry out administrative work associated with your programme of research.

Selection Criteria

Selection criteria outline the qualifications, skills, knowledge and/or experience that the successful candidate would need to demonstrate for successful discharge of the responsibilities of the post. Applications will be assessed on the basis of how well candidates satisfy these criteria.

Mandatory

- PhD in Biology (preferred, not obligatory) with strong skills in Chemistry, Physics or other relevant discipline
- A demonstrated commitment to research and publications
- An understanding of the operational requirements for a successful research project

- Evidence of research activity (publications, conference presentations, awards) and future scholarly output (working papers, research proposals, and ability to outline a research project.
- Excellent Communication Skills (Oral, Written, Presentation etc)
- Excellent Organisational and Administrative skills including a proven ability to work to deadlines

The PD1 position is intended for early stage researchers, either just after completion of a PhD or for someone entering a new area for the first time. If you have already completed your PD1 stage in UCD or will soon complete a PD1, or you are an external applicant whose total Postdoctoral experience, inclusive of the duration of the advertised post, would exceed 4 years, you should not apply and should refer to PD2 posts instead.

<u>Desirable</u>

- Experience in cell biology and dissection of cellular pathways.
- In depth knowledge of national and international issues concerning Nanosafety.
- Previous industrial experience or experience in industrial engagement.
- Ability to interact with leaders in industry, international organizations, government organizations, and academia.
- Demonstrated understanding of the value of academic and commercial information e.g. Nondisclosure agreements.
- Knowledge of IP processes and how to protect findings.
- Demonstrated ability to work independently and as part of a team.
- Ability to manage multiple diverse tasks by setting priorities and scheduling resources within the team.
- Experience in setting own research agenda.
- Excellent track records (publications in high impact journals, invited lectures etc.).

Further Information for Candidates

Supplementary information

The University:	http://www.ucd.ie/aboutucd.htm
The College of Science:	http://www.ucd.ie/science/
The School of Chemistry & Chemical Biology:	http://www.ucd.ie/chem/
CBNI UCD:	www.ucd.ie/cbni

UCD offers a comprehensive **Research Careers Framework** in line with the Advisory Science Council Report '*Towards a Framework for Researcher Careers*'. This model provides a structured and supportive **Career and Skills Development** system designed to ensure that Post-docs in UCD are able to plan their careers and prepare for future opportunities in academia, industry or the public sector. For more information, please click here.

Relocation Expenses

Will not apply

Will be applied in accordance with the UCD policy http://www.ucd.ie/hr/policies/#d.en.31150

Informal Enquiries ONLY to:

Name:	Michelle Armstrong
Title:	CBNI Research Administrator

Email address: <u>Michelle.Armstrong@cbni.eu</u>