



The Centre for BioNano Interactions (CBNI), based in University College of Dublin, Ireland, is a multi-university research centre for nanosafety, nanomedicine and nanodiagnostics. It emphasizes the need to understand the fundamental interactions between nanoparticles and living systems, as a means to design new nanodiagnostics, new nanotherapies, and to ensure that all nanotechnology can be safely commercialized, benefiting society at large. By addressing the research and regulatory (consumer or medical) issues up-front, research leads to viable applications. Close connections are maintained with institutions, regulators, and industry worldwide and funding is derived from Ireland, EU, US and beyond.

Outstanding students have been drawn from Ireland, EU, US, and Asia, and most are leading graduates from their own regions. However, emphasis is placed on a young researchers' capacity to develop further into future research leaders in academia and industry, large and small. As the field is in its infancy, preference is given to candidates with an open minded, innovative and flexible approach to research, with a deep commitment to excellence and an ambition for success.

CBNI's core laboratories are closely coordinated and focused on specific integrated challenges. They cover nanoparticle synthesis, functionalisation and characterisation; nanoparticle dispersion in biological fluids; determination of the intermediary role of the nanoparticle-protein corona; visualization of nanoparticle uptake and localization in cells, organisms, model biological barriers and in animals; determination of nanoparticle functional impacts on living systems; and connection to disease and therapy. This allows a single chain of responsibility and direction to be maintained across all necessary skills, and students learn all the skills necessary for success.

The Centre for BioNano Interactions has an available position for a PhD project of three years in the field of bionanointeractions, with specific emphasis on tailoring the interactions of nanoparticles (NPs) with proteins and lipids in biological fluids (plasma, blood, cerebrospinal fluid, cell medium, etc.) via functionalisation of the nanoparticle's surface with peptide epitopes or ligands specifically recognized by cellular receptors. The project will involve study of the physico-chemical properties of the protein NP-complexes in such biological environments and the determination of their compositions (stability, dissociation/association rate of the binding biomolecules, etc.) by advanced proteomic techniques (mass spectrometry, protein microarrays, etc.) in order to understand the impact of the surface functionalisation on the efficiency of NP interaction with the cellular machinery. The PhD project represents an exciting opportunity to understand at a new level how nanoparticles can be targeted for delivery.

The successful candidates should have a high honours degree in Chemistry, Physics, Biology, or a related discipline, and a strong interest in the science of nanoparticles in contact with living systems. The research project will be carried out in an interdisciplinary and international environment at the CBNI in UCD. A good level of English (spoken and written) is mandatory.

For more information please e-mail Dr. Iseult Lynch (bionanointeract@fiachra.ucd.ie).

To apply, please forward CV with details of 3 referees to:

Prof. Kenneth Dawson (bionanointeract@fiachra.ucd.ie), with additional hard copy application sent to:

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