

PhD Position in "Optimizing the transport of nanoparticles through mucous biological tissues"

Job Summary:

PhD Position (starting Spring Semester 2015 or already enrolled in Fall Semester if 2014, 36 months by research) in the discipline of Chemistry within the research area of Experimental and Computational -Bio-physicochemistry and Delivery of Nanotherapeutics. Focus will be on the development of chemical and biochemical mucous barrier models and on computational methods to study the penetration of nano-scale drugs through mucous tissues and their experimental validation.

Job Description:

The successful candidate is expected to be a highly motivated PhD candidate, able to work in a highly competitive environment and exposed to multidisciplinary and inter-sectoral challenges. The candidate will be enrolled in the University of Cyprus Chemistry PhD program with significant input from Mechanical Engineering, Material Science, Physics and Bioinformatics disciplines.

The scientific project will involve (i) the development of stochastic models to predict the diffusivity of nanoparticles based on the micro-structural characteristics of the mucus (viscosity, fiber diameter and volume fraction) and the physical properties of the particles (size, surface charge or shape); (ii) validation of model prediction with in vitro experiments in artificial native and diseased mucus. Model predictions will be validated with in vitro experiments in artificial mucus both for the native and diseased cases. Fluorescently labeled nanoparticles of different size, surface charge, or shape will be employed provided by other partners and measure their diffusion coefficient using fluorescence microscopy techniques and particle tracking analysis; (ii) use of model predictions to derive design rules for the properties of nanoparticles (i.e., size, shape and charge) that optimize penetration through the mucus layer: Simulations will be run to predict optimal nanoparticle properties that ensure effective penetration in the mucus layer.

Minimum requirements: The candidate should have a Bachelor's and a Master's degree or equivalent in Chemistry, Chemical Engineering, Physics, Biology or related disciplines, enabling enrolment to a PhD program.

Special Requirements: The successful candidate should not have resided in Cyprus for 12 months or more over the 3 years preceding employment (excluding holidays).

Interested candidates should apply by (i) applying directly to the UCY, Department of Chemistry graduate program (<https://www.ucy.ac.cy/graduateschool/index.php/el/>) and (ii) sending an updated comprehensive CV and the names and contact details of 3 referees, no later than **March 31, 2015** to:andreani@epos-iasis.com, odysseos@ucy.ac.cy