

University of Liverpool - Nanorods as cell tracers

A four year PhD Studentship to develop nanorods as cell tracers is available to an outstanding and highly motivated candidate. The interdisciplinary project is part of a newly awarded UK Regenerative Medicine Platform (UKRMP) ‘Safety Hub’ (www.ukrmp.org.uk). The overall aim of the Hub is to enable clinical translation of safe effective regenerative medicine therapies.

The main barrier to evaluating the safety of stem cell therapies at present is the inability to monitor the tissues and organs that stem cells populate following transplantation. In order to check for adverse reactions, we need to know where the cells have gone. The aim of this project is to develop nano-scale cell tracking agents to monitor the biodistribution and behaviour of transplanted stem cells in a living animal. Specifically, we will generate gold nanorods (GNRs) with novel coatings that will render the GNRs physically, biochemically and colloidally stable, and facilitate optimal cellular uptake and retention without interfering with cell function. Following extensive in vitro analysis, optimised GNRs will be used to track cells following transplantation into mice with induced kidney injury, using photoacoustic imaging (PAI). PAI is an emerging non-invasive imaging technology that integrates high optical contrast with high ultrasound resolution. GNRs have high photoacoustic contrast because of their infrared optical absorbance, and thus, have great potential for cell tracking.

The project will be jointly supervised by Dr. Raphaël Lévy and Prof. Mathias Brust (Institute of Integrative Biology and Department of Chemistry, University of Liverpool) and will involve preparative, structural and mechanistic studies on the interactions of nanorods with cells. Candidates should have an outstanding academic record and hold a Bachelor and/or a Masters degree in a relevant area of Chemistry, Physics, Biology, Biochemistry or Materials Science.

The position is for up to four years, starting before the end of 2013 and is open to applicants from all EU member states.

Applications including a full c.v., contact details of two academic referees and a cover letter stating why the applicant is interested in this position, should be submitted by e-mail to M.Brust@liv.ac.uk indicating reference Regenerative Medicine in the subject line.

The deadline for application is 28th June 2013

Informal inquires by highly motivated applicants should be addressed to Prof. Mathias Brust (M.Brust@liverpool.ac.uk) and Dr. Raphaël Lévy (rapha@liv.ac.uk)