

RenalToolBox – Project Description

ESR Number:	ESR8	Host:	LIVUNI
Project Title:	Developing mathematical tools for image analysis to evaluate the effects of regenerative medicine therapies on kidney function		
Research Field:	Medical Sciences		
Contact Person:	Prof Harish Poptani		
Academic Supervisor(s):	Prof Harish Poptani (preclinical imaging), Dr Rachel Bearon (mathematics), and Prof Phil Kalra (consultant nephrologist, clinical MRI)		
Research Group / Department:	Imaging/ITM		
Group's website:	www.renaltoolbox.org		
Full Address:	Centre for Preclinical Imaging, Institute of Translational Medicine, Nuffield Wing, Sherrington Building, Crown Street, Liverpool L69 3BX, UK		
Expected Start Date:	01 April 2019		
Description:			
<p>The RenalToolBox is an EU-funded ITN that aims to develop novel tools and technologies to assess the safety and efficacy of cell-based regenerative medicine therapies for kidney disease. You will join a team of 15 Early Career Researchers (ESR) working across 10 different institutions towards this goal.</p> <p>In this position you will be developing novel image processing routines and mathematical modelling tools for quantitative analysis of MRI of the kidney. The overall goal of your project will be to apply MRI methods to accurately assess different aspects of renal function following kidney injury, and to quantify the extent to which renal function improves following the administration of mesenchymal stromal cell (MSC)-based therapies. Working collaboratively within the ITN, you will be co-supervised by academics from the Institute of Translational Medicine and the Department of Mathematics within the University of Liverpool. While the major focus would be the development of analytical tools for MRI, you will also have the opportunity to work with complementary imaging technologies including multi spectral optoacoustic tomography (MSOT), positron emission tomography (PET) and single positron emission computed tomography (SPECT).</p> <p>You will develop skills in the following areas:</p> <ul style="list-style-type: none"> - Preclinical MRI of the mouse kidney - Developing tracer kinetic modelling of imaging data - Developing image processing and analysis tools including image registration and segmentation - Multi-scale modelling for accurately assessing different aspects of renal function simultaneously. <p>The post holder will be employed on a fixed term (36-month contract) and enrolled as a PhD student at the University of Liverpool. The candidate will be expected to spend periods of time with other partners in the consortium.</p>			

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More information about this consortium and the project can be found in www.renaltoolbox.org.

Required Skills / Qualifications:

Essential:

- BSc degree in a relevant subject (mathematics, bioengineering, biomedical sciences, physics, physiology or other related subjects)
- Excellent oral and written communication skills with well-developed interpersonal skills.
- Ability to work effectively and collaboratively within a multidisciplinary team.
- Enthusiastic, self-motivated individual, willing to take part in personal skills training, international travel and public outreach activities.
- Demonstrated commitment to high-quality research.

Desirable:

- A Master's degree in mathematics, biomedical engineering or a similar discipline.
- Research experience involving quantitative analysis of imaging data.
- Experience with preclinical imaging (MRI or nuclear imaging).

The candidate is also required to fulfil the research experience and transnational mobility requirements outlined in <https://renaltoolbox.org/job-positions/>

Other requirements:

N/A