

# SINAPSE PhD



Name of Primary Research Base:

Neuroimaging Research Group, NHS Glasgow & Wellcome Surgical Institute,  
University of Glasgow

Name of Secondary Research Base:

The John Mallard PET Centre, University of Aberdeen

First Discipline:

Chemistry

Second Discipline:

Neuroscience/ Imaging

SINAPSE Centre Lead:

Glasgow

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## PROJECT

Title:

Development of novel radiotracers as tools for imaging the human brain

## SUPERVISORS

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Planned start date (year of intake):

October 2007

**Summary (approximately 200 words):**

This is a truly multidisciplinary proposal that brings together a variety specialised molecular imaging expertise from chemistry, physics, neuroscience and pharmacology modalities. The aim of the project is to develop novel radiolabelled molecular imaging agents to allow the study, non-invasively in humans, of various neurological targets (such as the histamine receptor, peripheral benzodiazepene receptor or noradrenaline transporter) and the effect of novel therapeutics for the treatment of CNS disorders.

The student will be primarily based in the UK's only SPECT (Single Photon Emission Computed Tomography) tracer development group at the University of Glasgow that has a wealth of specialised expertise (1) and an extensive track record in tracer development, where 8 novel SPECT radiotracers have successfully been translated from the laboratory into clinical human use (<http://www.gla.ac.uk/departments/clinicalphysics/neuroimaging/tracers/index.html>). The group has access to the only microSPECT scanner in the UK, a state-of-the-art 7T MRI system and a unique Good Manufacturing Practice (GMP) radiotracer production facility. The student will have the opportunity to gain specialised skills in the following:-

- Radiolabelling chemistry
- Analytical and preparative High Performance Liquid Chromatography
- GMP production and Quality Assurance techniques
- In-vitro and ex-vivo autoradiography
- Radioligand binding assays
- In vivo small animal imaging techniques
- Image analysis

**Key references (up to five):**

1. Pimlott SL. Radiotracer development in psychiatry. Nucl Med Commun 2005;26:183-8.
2. Talbot PS, Laruelle M. The role of in vivo molecular imaging with PET and SPECT in the elucidation of psychiatric drug action and new drug development. Eur Neuropsychopharmacol 2002;12:503-11.