CBNS Animal Imaging Workshop
Practical Session

– MSOT & Optical –

Tumour localisation of a fluorescently labelled targeted NP

Experimental Description:	A Cy5.5 labelled nanoparticle (~10-20 nm in diameter) with a targeting ligand for prostate cancer has been injected intravenously at a concentration of ~ 200 µg of dye per injection into two Balb/c nude mice bearing subcutaneously implanted tumours on the right flank of the mouse.
Key Questions	• How does the spatial resolution compare between the two instruments? • What is the difference between the tumour localisation information observed with optical imaging and the MSOT? • What type of information with regards to biodistribution can each technique give you?

– PET-CT –

Longitudinal PET of a ^{89}Zr Labelled NP

Experimental Description:	Images will be displayed and the data will be analysed for the full biodistribution and tumour localisation of a 7-day PET-CT study for a targeted NP labelled with ^{89}Zr. Image sets include a 60-minute dynamic PET, after 48 hours, and after 7 days. (The time point shown will be based on the session attended.)
Key Questions	• What anatomical information can be observed with CT? • What biodistribution information can be determined? • How do you validate your in vivo ROI data?

– PET-MRI –

Dynamic PET of ^{18}FDG and Simultaneous Gd^{3+} Contrast Enhanced MRI

Experimental Description:	A Balb/c nude mouse bearing a subcutaneous PC3 tumour in the right flank will be injected intravenously with an ^{18}FDG radiotracer and Magnevist, a chelated Gd^{3+} contrast enhancement agent to visualise the tumour and blood vessels in the mouse.
Key Questions	• What anatomical information can be observed with MRI? • Where does the ^{18}FDG go? Magnevist? • What does the overlay of the two modalities show you?