



University of
Nottingham
Precision Imaging

Precision Imaging

Beacon of Excellence

Working with companies to
transform healthcare and nutrition
with pioneering imaging

nottingham.ac.uk/precision-imaging



Discover how we can help you achieve your vision

Our expertise in precision imaging is underpinned by world leading experts in medicine, physics, mathematics, psychology, life sciences and computer science. The Sir Peter Mansfield Imaging Centre and the NIHR Nottingham Biomedical Research Centre offer a great diversity of skills to identify and implement solutions to your problems and needs.

Innovations in the application of our imaging tools are shaping a step-change in understanding, diagnosis and prediction of outcomes focusing on mental health and chronic diseases.

Pharmaceuticals

We work with the pharmaceutical industry to demonstrate **mode of action**, assess **product performance** *in vivo* and generate **evidence of efficacy** to aid development, marketing and regulatory submissions. We also develop new surrogate imaging biomarkers to assess drug efficacy from early to late clinical trials.

Collaborations with the pharmaceuticals industry

- Imaged the heart's response to dialysis treatments, and studied cardiac and renal response to fluid therapy
- Assessed changes using multiparametric liver MRI following therapy with direct-acting antivirals in chronic hepatitis C virus patients
- Studied the mode of action and efficacy of different dosing regimes of a novel 5HT4 agonist active, anti-diarrhoeal drugs and macrogol formulations
- Imaged deployment and performance of different alginate formulations for heartburn and laxative products

Food and beverage

We work with the food and beverage industry to **image** new pre-competitive materials and finished products *in vivo* in the gastrointestinal tract. This helps commercial partners to understand and demonstrate **mode of action**, assess **product performance** and generate **evidence** for marketing and regulatory submissions.

Medical devices

We continue Nottingham's tradition of **innovation** by working with small and medium-sized enterprises to develop new medical devices. We help companies to guide the development, assess **performance**, demonstrate deployment and investigate mode of action of novel devices and formulations.

Biomarkers for health

We develop imaging biomarkers available for **precision medicine** ranging from population health and **diagnostic** to **predictive** outcome markers, for example:

- Fibrosis markers in liver and kidney disease
- Markers to track Parkinson's Disease
- Preclinical markers of neurodegenerative diseases

Collaborations with the food and beverage industry

- Demonstrated self assembly of gelling hydrocolloid materials in the stomach
- Demonstrated the mode of action of products for digestive comfort
- Provided proof of survival of aerated drinks for weight management
- Highlighted the mode of action of performance sport drinks
- Used functional MRI brain imaging to study food eating and sensory perception, and taster phenotype

Collaborations with the medical device industry

- Producing new MRI marker capsules to measure gastrointestinal transit in children with constipation
- Used our imaging techniques to demonstrate deployment of gastroretentive devices inside the human stomach

Other body and brain imaging work

- We carry out leading work including lung, kidney, liver and MSK diseases
- We are developing imaging methods for the prediction of chronic kidney disease
- We develop unique experimental neuroimaging for clinical neuroimaging and mental health leading the first imaging connectivity-guided and neuromodulation trial in treatment resistant depression



Facilities

All our whole-body scanning facilities are managed by the Sir Peter Mansfield Imaging Centre and dedicated to supporting research full time. The University of Nottingham has the facilities to suit your needs:

- Suite of MRI from 0.5-7T with access to intraoperative MRI and in-scanner exercise
- Electroencephalography (EEG)
- Hyperpolarisation facilities (Dynamic Nuclear Polarisation)
- Gamma scintigraphy
- Multimodal preclinical imaging facilities
- New generation of Magnetoencephalography (MEG) with increased sensitivity, where brain activity can be recorded in a naturalistic environment



Collaborate with us

We can help you to:

- achieve your research ambitions
- find facilities and expertise to help with product development
- place a student or graduate into your business to work on a project



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