

# The Centre for In Vivo Imaging:

*technical development and clinical  
application*

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# CIVI: Centre for In Vivo Imaging

Clinical

MR



PET



Preclinical



7T MRI



# MR Centre Staff – and what they do



In vitro, in silico,  
and hardware  
development

Preclinical  
imaging &  
spectroscopy

First in man  
development  
studies

Patient  
cohorts and  
clinical trials

# MR Centre Staff – and what they do



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*Imaging technologies team*

# ReMIT

*To develop innovative imaging technologies  
and  
apply to important questions of human health and  
disease*

# Remit

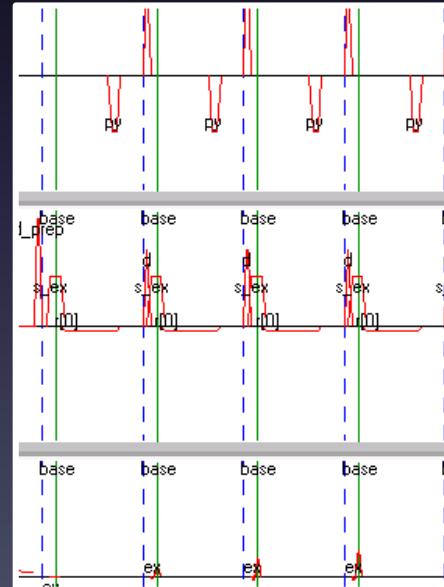
*To develop innovative imaging technologies*

*and*

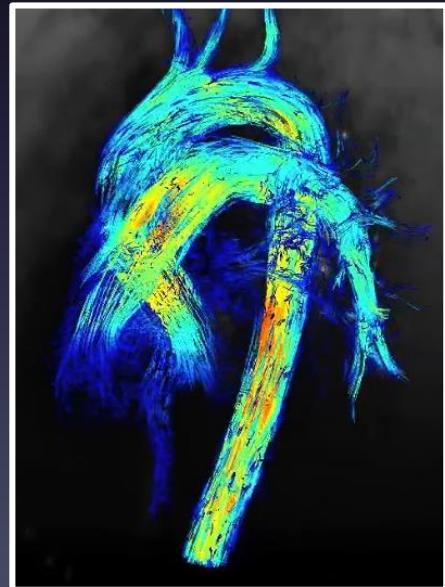
*apply to important questions of human health and disease*



Scanner hardware



Scan methodology



Data analysis

Funding:

**EPSRC**

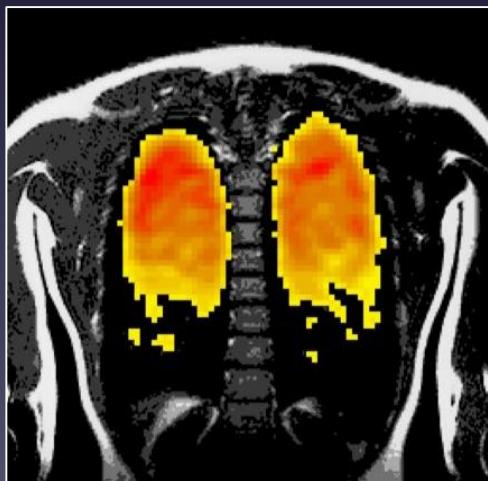
Engineering and Physical Sciences  
Research Council

**MRC** | Medical  
Research  
Council

# Examples

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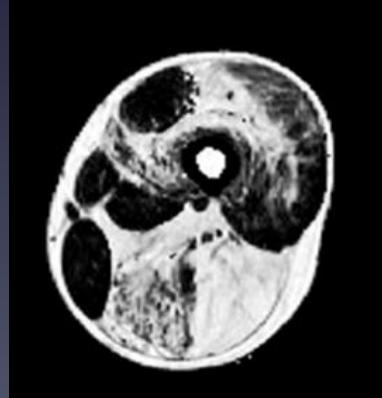
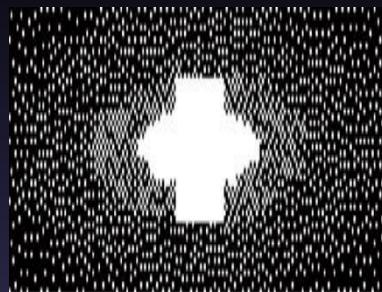
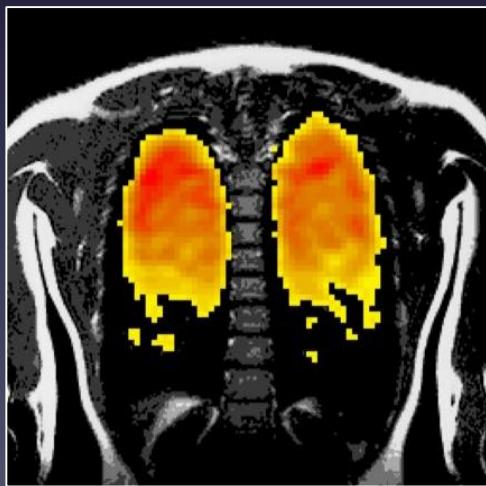
Inhalable MR-visible gases  
for lung function imaging



# Examples

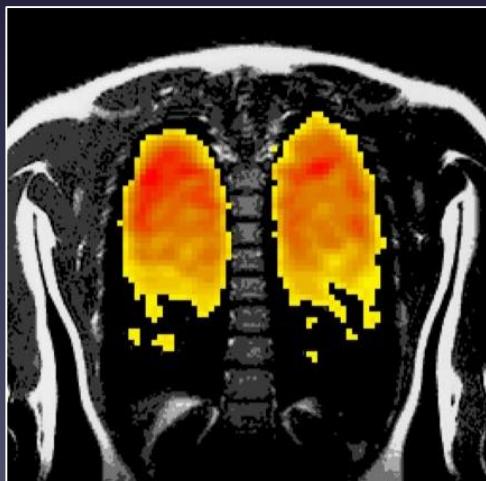
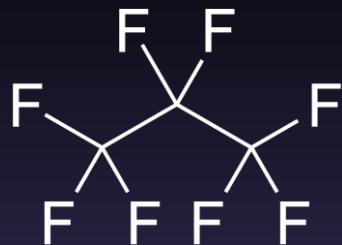
Inhalable MR-visible gases  
for lung function imaging

Accelerating MRI for  
challenging  
patient cohorts

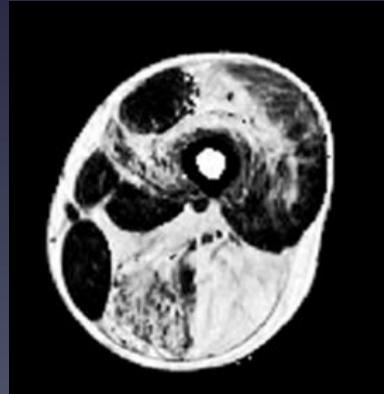
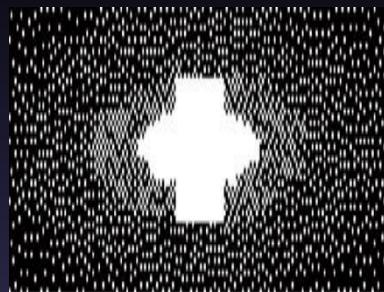


# Examples

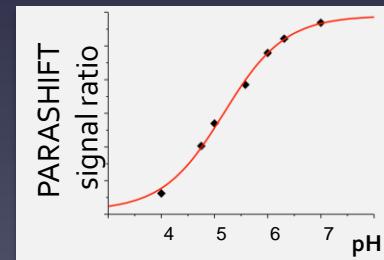
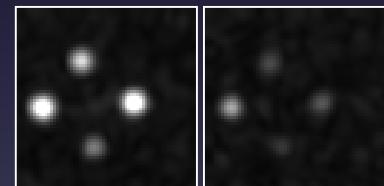
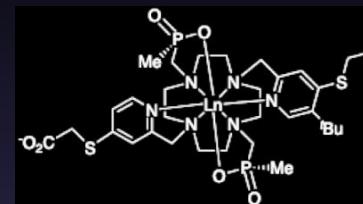
Inhalable MR-visible gases  
for lung function imaging



Accelerating MRI for  
challenging  
patient cohorts



Imaging agents  
sensitive to tissue  
physiology



# Clinical research

Bipolar disorder      Dementia

Type 2 diabetes

Renal fibrosis      Traumatic brain injury

Cardiac dysfunction

Autonomic dysfunction

Oncology

Mitochondrial dysfunction

Muscle physiology

Tissue oxidative stress

Metabolic disorders

Muscular dystrophy

Hepatic steatosis

Rheumatoid arthritis

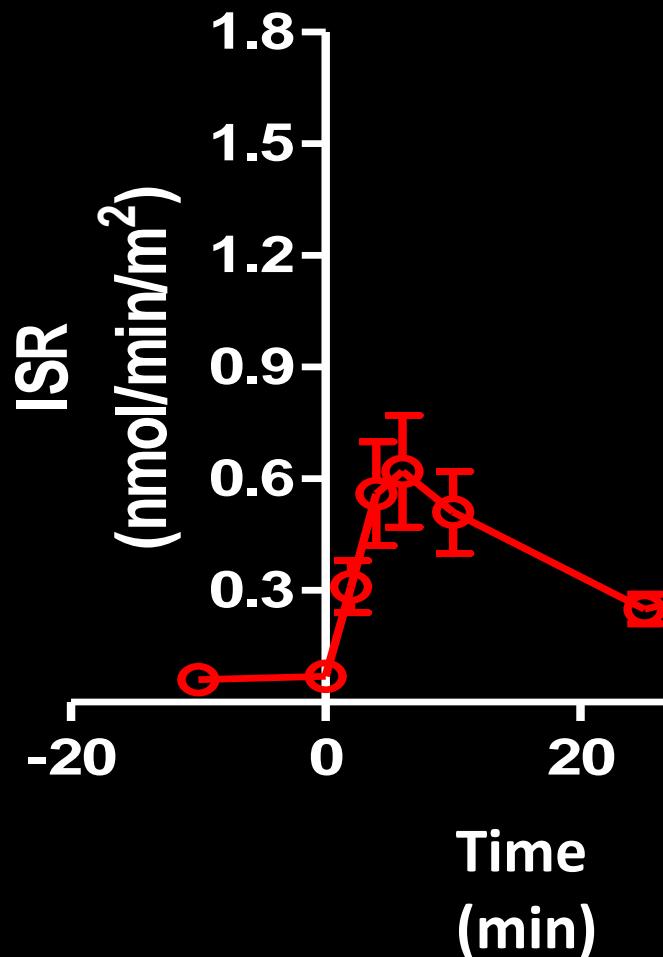
Neuropsychology

Primary Biliary Cirrhosis

Brain functional imaging

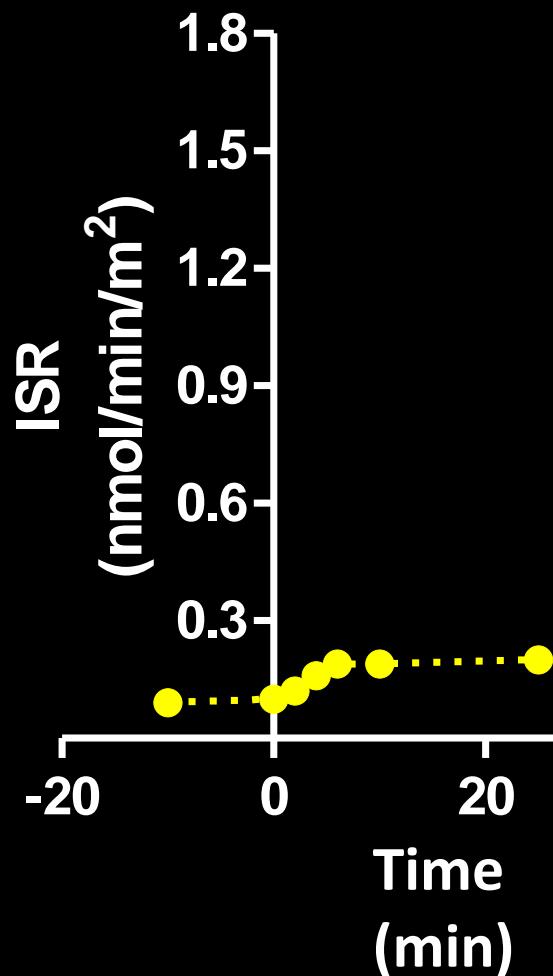
Brain ageing

# Control subjects: Beta cell function by SISTA



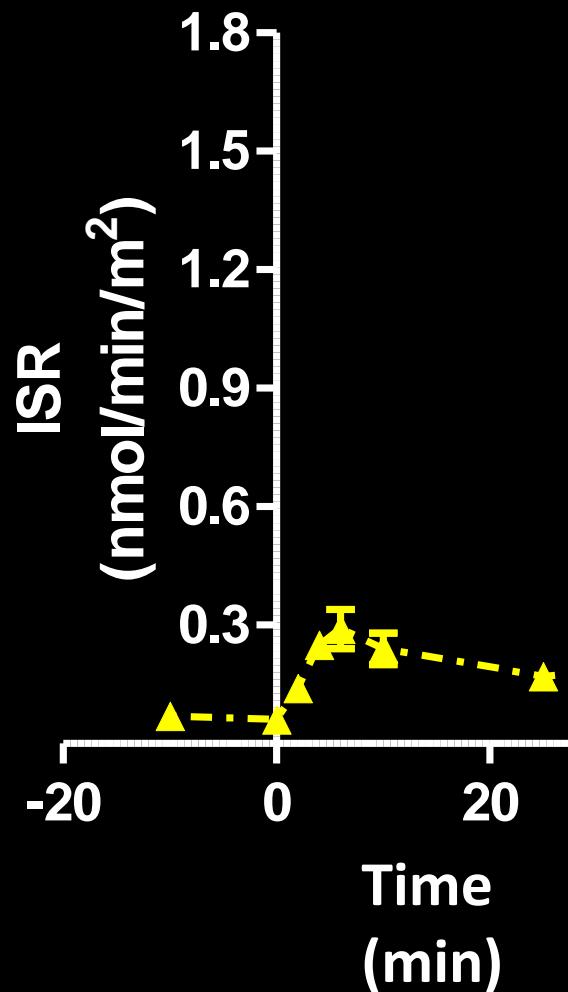
# Beta cell function: Diabetes subjects

Baseline



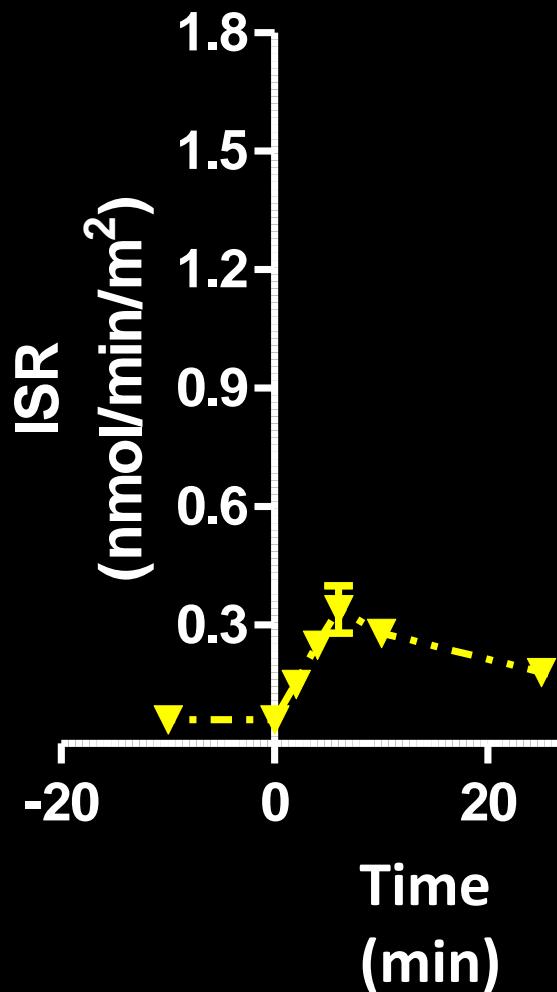
# Beta cell function: Diabetes subjects

Week 1



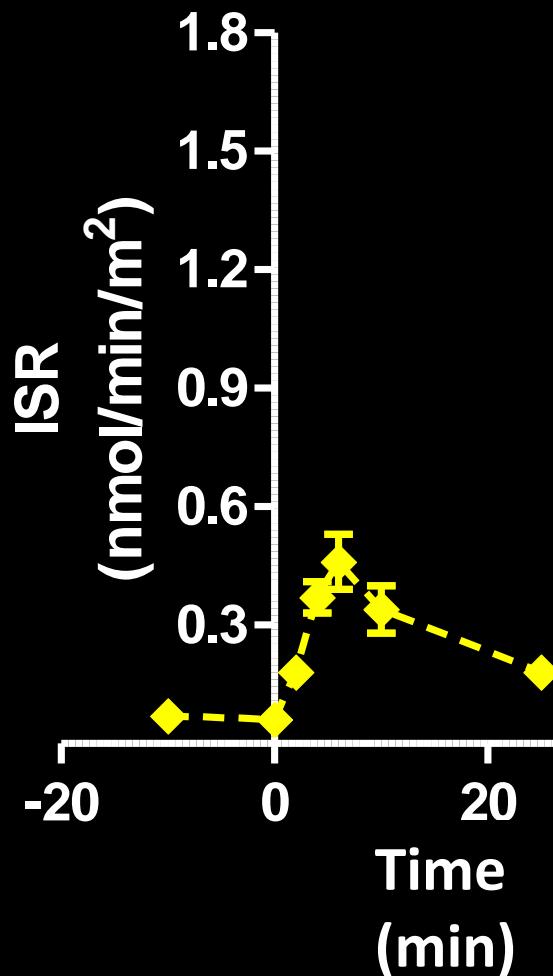
# Beta cell function: Diabetes subjects

Week 4

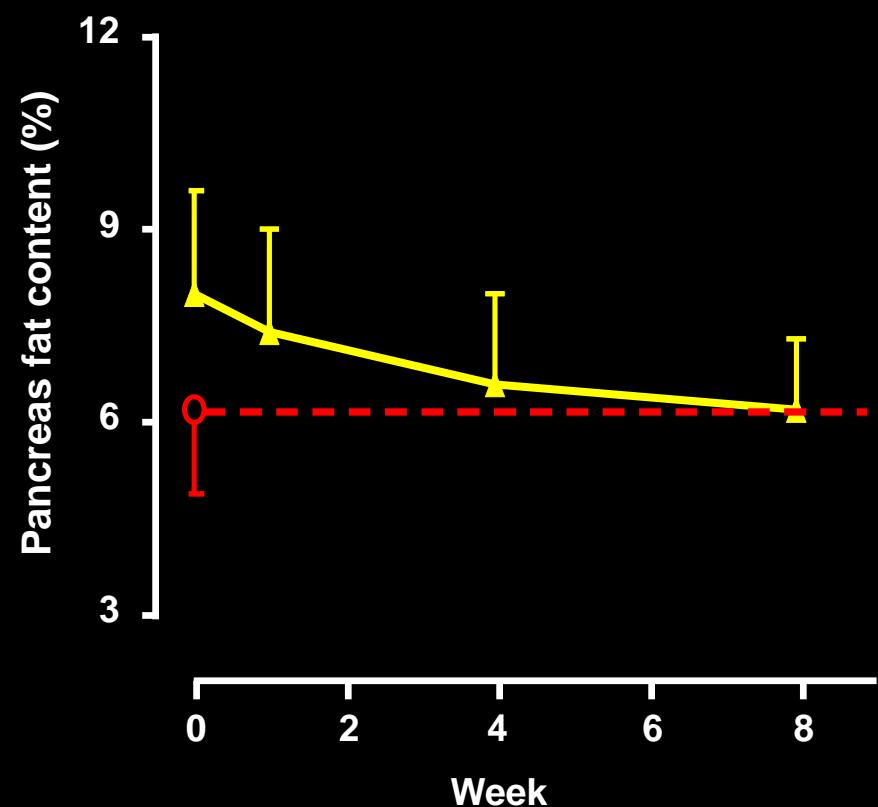
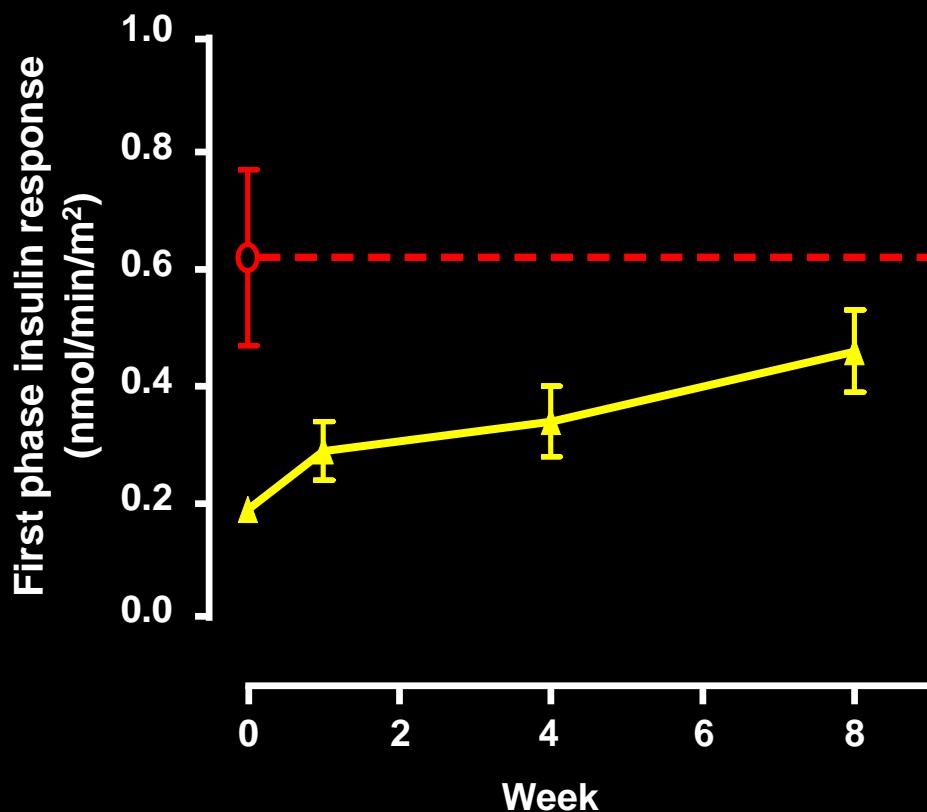


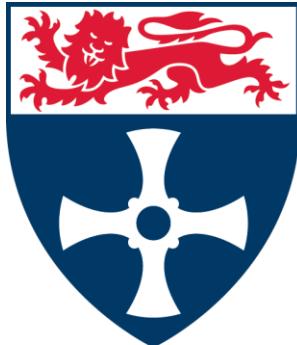
# Beta cell function: Diabetes subjects

Week 8



# Change in beta-cell function and pancreas fat





**Newcastle  
University**

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**Centre for  
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[www.ncl.ac.uk/civi](http://www.ncl.ac.uk/civi)