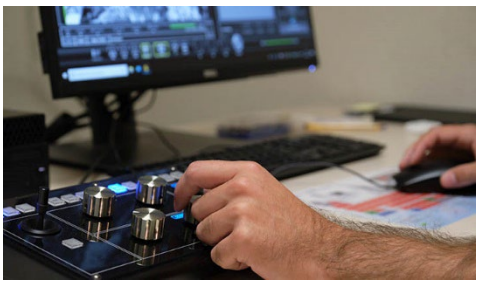
Imaging Across Scales 2025 Showcase

8th July 2025

9.30am - 2pm

Michael Smith Lecture theatre and lounge

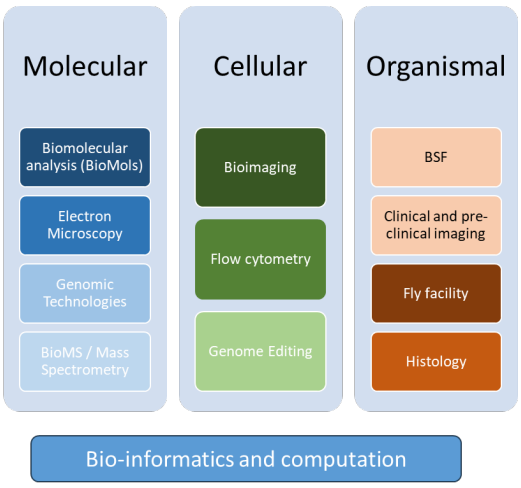

FBMH Technology Platforms and thematic groups

Our technology platforms allow the interrogation of biology and disease from molecular interactions to whole organisms.

The breadth and quality of technical applications available in Manchester is key to our success. They help attract researchers from across the globe.

The scale and power of Manchester's research environment enables us to apply diverse analytical approaches in combination to maximise the insight gained from our discoveries.

The Technology Platforms in the Faculty of Biology, Medicine and Health (FBMH) encompass the Biological Services Facility (BSF), pre-clinical and clinical imaging, and the small research Core Facilities. There are nine small research core facilities: Bio-imaging and Histology, Biomolecular analysis, Biological mass spectrometry, Electron microscopy, Flow cytometry, Genomics Technologies, Genome Editing Unit and the Fly Facility. A bio-informatics facility provides support across these platforms. More information on our technology platforms can be found here.



To enable interdisciplinary research which cuts across the different platforms, three thematic groups have been created to develop cross cutting pipelines. These groups are:

Imaging across scales:

Academic Lead Martin Lowe, Technology Lead: Rich Collins

Protein and Metabolite Analysis:

Academic Lead Sam Butterworth, Technology Leads: Tom Jowitt and Gareth Howell

Integrated genomics:

Academic Lead Matthew Hepworth Technology lead: Andy Hayes

Imaging Across Scales

As part of the Technology Platforms thematic Group showcase series, the Imaging across scales group 2025 showcase will be on the 8th of July (9.30am – 2pm) in the Michael Smith Lecture Theatre.

This Imaging across scales showcase will highlight:

1. The latest imaging technological and methodological offerings available within the technology platforms (the perfect opportunity for new PhD students to find out what support is available!),
2. Case studies highlighting the interdisciplinary work undertaken in an integrated manner by the technology platforms within the Imaging across scales theme
3. Translational Imaging: Learn about how imaging can be used for clinical impact by talking to the local SME Bioxydyn.
4. Lunch with the Experts: Enjoy a delicious pizza lunch while having 1:1 chats with our imaging specialists from Electron Microscopy, Bio-imaging and Histology, and Pre-clinical and Clinical (MRI) imaging.

There will be a posters from all of the FBMH Technology Platforms showcasing what support they can offer not just for Imaging Across the scales.

Schedule

Session 1: **Chair: Rich Collins**		
09.30am - 09.40am	Introduction	Rich Collins/ Martin Lowe
09.40am -10.15am	Basement Devils in Detail: from light to electron microscopy	Alexander Mironov / Bernard Davenport
10.15am – 10.50am	Advanced techniques in bioimaging to investigate protein behaviour and their interactions	James Bagnall / Nawseen Tarannum / Iona Norwood
10.50am – 11.15am	**Coffee**	

Session 2: **Chair: Martin Lowe**		
11.15am - 11.50am	Exploring the evolving splenic microenvironment during malaria infection by high dimensional imaging	Mike Haley / Antonn Cheeseman
11.50am - 12.25pm	Imaging hypoxia using MRI: from the lab to the clinic	Ross Little / John Waterton
12.25pm – 1.15pm	Panel Discussion	

Lunch and posters	
1.15am – 2.00pm	Lunch and Posters -including information display from BSF -learn about translational imaging from Bioxydyn. -Meet the core facility managers for 1:1 advice

Posters

What's available in the Bioimaging Facility. **Peter March**

Electron Microscopy Core Facility. **Aleksandr Mironov**

Cryo EM processing. **Rich Collins**

Studying biology and pathology in small mammals using preclinical MRI. **Ben Dickie**

Imaging brain fluids using MRI. **Ben Dickie**

Flow Cytometry Core Facility. **Gareth Howell**

Multiparameter imaging and cytometry – mass cytometry services at the University of Manchester. **David Chapman / Jen Baron**

Proteomics in BioMS. **David Knight**

Metabolomics and Lipidomics in BioMS. **David Knight**

Biomols Nanobody Library. **Tom Jowitt**

Biomolecular analysis core facility. **Tom Jowitt**

The Genome Editing Unit. **Amanda McGovern**

How to cost bio-informatics into your grant. **Leo Zeef / Ian Donaldson / I-Hsuan Lin**

Manchester Fly Facility: Advanced imaging in a versatile & highly efficient model organism. **Sanjai Patel**

Genomic Technologies Core Facility. Andy Hayes, Stacey Holden, **Michal Smiga**, Claire Morrisroe, Bharat Rash, Beverley Anderson, Andrew Sharrocks

Panel Discussion

What are the new technologies which will impact how you Image Across Scales? What are the challenges facing Imaging Across the Scales? What new pipelines and advances are needed and will AI play a role?

Panel members:

Martin Lowe

Academic Lead for Imaging Across Scales.

Professor of Cell Biology. We use different imaging techniques to study the organisation and dynamics of cellular organelles. This includes electron microscopy, flow cytometry and fixed and live light microscopy

Rich Collins

Technology lead for Imaging Across Scales.

I am a cryoEM specialist for nearly 30 years now and have been working a variety of protein/membrane/organelle systems using high resolution TEM to calculate detailed 3D structures.

Alexander Mironov

I am an electron microscopist with 30 years of experience in the field of cell biology, managing Core Electron Microscopy Facility for 15 years.

James Bagnall

PhD, Senior Experimental Officer, Bioimaging Core Facility

Microscopist with a research background in imaging dynamical systems, including hypoxia, inflammation and circadian pathways. Extended interests in quantitative microscopy techniques; including measuring protein interactions, molecular numbers and properties as well as hyperspectral imaging.

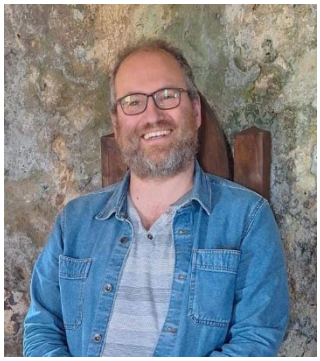
Mike Haley

Michael Haley has driven the advancement of high-dimensional tissue imaging at University of Manchester, pioneering the use of Hyperion imaging mass cytometry (IMC). High-dimensional imaging technologies allows imaging of 40+ protein markers in tissues, giving new insights into how tissues are spatially organised at the cellular level, and how cells interact in health and disease. Gaining his PhD in 2013, he is a Senior Experimental Officer supporting tissue imaging within the Bioimaging Core Facility.

Antonn Cheeseman

My PhD focussed on how splenic immune responses to blood stage malaria are generated and spatially coordinated in a rapidly changing and highly diverse tissue microenvironment. To do this, we leveraged animal models and post-mortem human tissue samples, which we interrogated by flow cytometry, traditional fluorescent imaging techniques and imaging mass cytometry.

Ross Little



I have been working on advanced MRI methods for about twenty years, with a focus on developing methods for the non-invasive longitudinal assessment of tumour hypoxia. I currently manage the preclinical 7T MRI scanner housed in the Stopford Building.

John Waterton

After PhD at Cambridge and postdocs at Vancouver and Oxford, John Waterton was at AstraZeneca 1980-2014, where he established an in vivo magnetic resonance lab, the first in the industry. He is now Scientific Director at Bioxydyn Ltd, a UoM spinout. Over many years he has deployed imaging biomarkers to support drug discovery and clinical development in a wide range of therapy areas including oncology, musculoskeletal, cardiovascular, diabetes, hepatology, respiratory, endocrinology, toxicology and neurology. As Director of Imaging in AZ's Translational Sciences organisation, he had responsibility for Imaging Centres at Alderley Park and Mölndal. Later, as Chief Scientist (Personalised Healthcare & Biomarkers), he was responsible for leading the strategic development, translation, and evaluation of imaging biomarkers to accelerate AZ's clinical and preclinical studies. He is co-author of over 250 peer-reviewed publications and patents in the field of imaging biomarkers in drug discovery and development. He now focuses on the effective validation of imaging biomarkers, including co-leadership of 2 IMI/IHI consortia. He is senior author on the CRUK/EORTC "Imaging Biomarker Roadmap for Cancer Studies" https://doi.org/10.1038/nrclinonc.2016.162 [doi.org]. In addition he has a particular interest in the use of imaging in the reduction, refinement, and ultimately replacement, of animal experimentation. He was appointed Professor of Translational Imaging in the University of Manchester, 2007.

Laura Parkes

Laura is Professor of Neuroimaging at the University of Manchester. She has over 20 years' experience in the invention, validation, implementation and application of Magnetic Resonance Imaging (MRI) measurements of the human brain. With training in both physics (MPhys, University of Oxford) and Neuroscience (University College London) she bridges the gap between technological innovation and fundamental neuroscience research. Laura's main expertise is in MRI of the microvasculature, in particular, pioneering the development and use of arterial spin labelling (ASL) measurements of cerebral blood flow and neurovascular coupling, funded through an MRC New Investigator Award. More recently she has developed and applied dynamic contrast-enhanced MRI measurements of blood-brain barrier leakage, tracking the progression of cerebrovascular pathology and neurodegeneration following stroke.

Laura leads a growing multidisciplinary team of physicists, mathematicians, neuroscientists and clinicians in a program of work developing and applying quantitative brain imaging measurements to characterise pathology, principally in dementia, stroke and brain tumours. She has supervised 17 PhD students to successful completion and is passionate about inspiring more physics and engineering students into neuroscience.

Translational Imaging

Bioxydyn was spun out of UoM in 2009 to translate advanced MRI methods into the real-world clinical trial setting.

https://rescon.manchester.ac.uk/searchexperts.

https://bioxydyn.com/

About Bioxydyn Ltd

Bioxydyn provides high-standard, quantitative medical imaging services for clinical academic R&D and for drug developers, in small or large multi-centre studies.

How Bioxydyn Ltd support researchers

Bioxydyn supports Manchester investigators who use medical imaging measurements (i.e. imaging biomarkers) in their studies. This includes the design, set-up, conduct, QC, and analysis of imaging studies, whether grant-funded or in Pharma trials. All work is conducted in full compliance with ICH GCP. Bioxydyn has experience in MRI and other imaging in almost every organ system and disease area including oncology, inflammation, neurology, musculoskeletal, lung and liver. Bioxydyn supports both single-centre studies at UoM and multicentre studies, with particular expertise in harmonising protocols across different manufacturers' scanners.

At what stage Bioxydyn Ltd support researchers in their projects

At the point where the researcher is starting to contemplate the possibility of clinical trials that might use imaging, particularly MRI, readouts. Bioxydyn can help with • Design and analysis of preclinical imaging studies helping translation to man • Choice and specification of clinical imaging endpoints • Justifying imaging readouts in grant applications • Design, set-up, conduct, QC, and analysis of clinical imaging studies

Keywords

- Clinical Trial
- Image-based biomarkers
- Magnetic Resonance Imaging
- Translational Research, Biomedical

MANCHESTER 1824
The University of Manchester

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