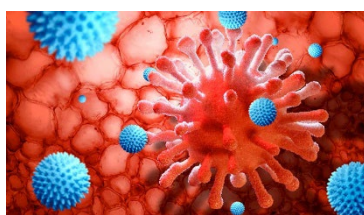


Protein and Metabolite Analysis 2025 Showcase

31st March 2025

9.30am - 3pm

Michael Smith Lecture theatre and lounge



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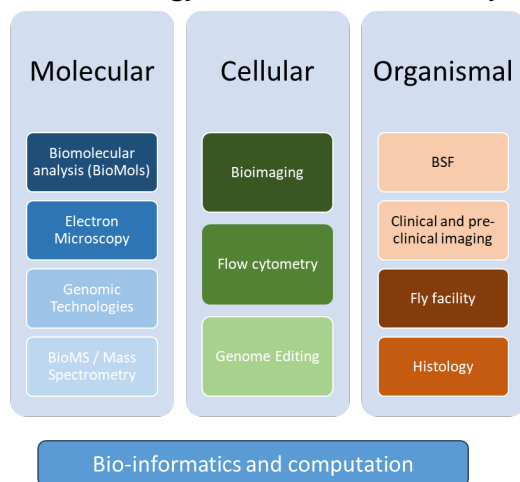
FBMH Technology Platforms and thematic groups

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



Protein and Metabolite Analysis

As part of the Technology Platforms thematic Group showcase series, the Protein and Metabolite Analysis group 2025 showcase is on the 31st March 2025 (9.30am – 3pm) in the Michael Smith Lecture Theatre.

Come and find out how the Protein and Metabolite Analysis group can support your research with:

1. Case studies highlighting how researchers and the technology platforms collaborate to support interdisciplinary projects
2. A round table discussion on the future directions of protein and metabolite analysis support for interdisciplinary research within the faculty and beyond
3. The latest technology offerings that cover the breadth and nature of protein and metabolite analyses available across the technology platforms (the perfect opportunity for new PhD students to find out what support is available!)
4. What support vendors can offer the users of the equipment within the technology platforms (and their latest tech offerings!)

There will be a poster session over the lunch break highlighting the services available within the Technology platforms.



Agenda

Session 1:

Chair: Tom Jowitt and Gareth Howell

09.30am - 09.40am	Introduction	Gareth Howell, Tom Jowitt and David Knight
09.40am -10.25am	Towards a workflow for proteomic profiling of intracellular trafficking pathways	Joan Chang / Gareth Howell
10.25am – 11.10am	Not just a service: steering and evolving BioMS together with users	Jean-Michel Fustin, George Taylor, Stacey Warwood, Julian Selley
11.10am – 11.40am	Coffee	

Session 2:

Chair: Sam Butterworth

11.40am - 12.25pm	Structure and interactions of extracellular matrix proteins involved in cell signalling	Clair Baldock / Tom Jowitt
12.25pm - 1.10pm	Panel discussion <i>What are the new technologies with protein and metabolite analysis? What are the challenges facing protein and metabolite analysis? What new pipelines and advances are needed in protein and metabolite analysis?</i>	
1.10pm – 1.15pm	Summary	

Lunch and posters

1.15am – 2.00pm	Lunch and Posters -including vendor displays from BD Biosciences, ProteinTech -including information stand from the BSF
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Session 3:

2.00pm – 3.00pm Meet the core facility managers – booked sessions



Panel Discussion

What are the new technologies with protein and metabolite analysis? What are the challenges facing protein and metabolite analysis? What new pipelines and advances are needed in protein and metabolite analysis?

Panel Members:

Sam Butterworth (chair)

Sam joined the university as a Senior Lecturer in Medicinal Chemistry in November 2016 and was promoted to Professor of Medicinal Chemistry in 2024. Prior to this he worked at the University of Birmingham from 2013 and at AstraZeneca from 2005-2013. During this time he has been accountable for chemistry strategy and delivery for all phases of discovery projects through externalised pre-portfolio collaborations, HTS, Lead Generation, Lead Optimisation to Pre-clinical development. His work at AstraZeneca led to the development of a targeted anti-cancer agent AZD9291, that was approved by the FDA in November 2015 and is now used internationally under the name osimertinib/Tagrisso. Along with his colleagues, Sam has been recognised for this work through the 2017 RSC Malcolm Campbell Award and the 2018 ACS Heroes of Chemistry award (see link above).



The Butterworth group work on applying synthetic and biological chemistry to study and solve biological problems of relevance to human health and disease. All projects are conducted in collaboration with biomedical researchers and clinicians, allowing testing of compounds in the most relevant biological models.

Tom Jowitt



Tom Jowitt is the facility lead for the Biomolecular Analysis facility. The biomolecular analysis core helps researchers understand the fundamental biophysical properties of molecules, their hydrodynamics, thermodynamics and optical properties which allows us to interrogate their structure, stability, interactions and dynamics in solution.

Weblink -

<https://www.bmh.manchester.ac.uk/research/platforms/biomolecular-analysis/>

Gareth Howell



Gareth is the facility manager for the Flow Cytometry Core Facility. The Flow Cytometry Core Facility offers a suite of technologies to rapidly profile and sort large populations of cells and particles. We offer researchers access to cutting-edge flow cytometry analysis and sorting equipment, high parameter mass cytometry and imaging cytometry.

Weblink - <https://www.bmh.manchester.ac.uk/research/platforms/flow-cytometry/>

David Knight



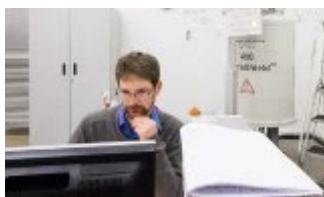
David is the facility manager for the Biological Mass Spectrometry (BioMS) Facility, which is dedicated to the identification, characterisation and quantification of proteins, metabolites and other biological molecules using mass spectrometry and associated technologies.

BioMS has recently linked with the Stoller Analytical Centre for Clinical Discovery and Diagnosis and the Centre for Advanced Pharmacokinetic Research (CAPKR) to support high quality and robust discovery-based and clinical investigations.

Our central technology remains mass spectrometry, but we provide access to a range of technologies and methodologies for higher throughput and automated sample preparation, industry grade ligand binding assays, and comprehensive data analysis. All of this is supported by our staff with decades of experience in applying these resources to your research.

<https://www.bmh.manchester.ac.uk/research/platforms/mass-spectrometry/>

Matt Cliff



Matt is the Senior Technical Specialist for the Magnetic Measurements technical platform in the Faculty of Science and Engineering. He has over 20 years' experience of biomolecular NMR, using it to determine protein structures, dynamics and interactions. His research focus is the mechanism of phosphoryl transfer enzymes, and intrinsically disordered proteins involved in cell signalling and disease.

<https://www.mib.manchester.ac.uk/research/facilities/>

Colin Levy

Colin manages the XRD facility in FSE where they use state-of-the-art equipment and X-ray diffraction by single protein crystals to elucidate 3D structures at atomic resolution.

We provide a complete service from solution to structure and offer the following services:

- Target selection
- Construct design
- Protein purification guidance
- Crystallogensis screening
- Hit optimisation
- Data collection
- Structure determination
- Model building / refinement

<https://www.mib.manchester.ac.uk/research/facilities/>



Joan Chang



Joan received her PhD from the Institute of Cancer Research in 2013. She arrived at Manchester late 2016 to study the nitty-gritty of matrix (collagen) control by cells and is a Mass Spec aficionado. She is currently an MRC CDA research fellow with a research focus on the inter- and intra-cellular collagen trafficking and regulatory controls

Clair Baldock



Professor of Biochemistry, University of Manchester

The research in my laboratory focuses on the structure and growth factor regulation of extracellular matrix proteins. Many matrix molecules form fibrillar assemblies and the novel application of structural biology and biophysical techniques is revealing exciting insights into their molecular assembly and structural organisation. We are using a range of techniques including small angle X-ray scattering (SAXS), cryo-TEM with single particle analysis and electron tomography to tease out the structural details

Jean-Michel Fustin



Future Leaders Fellow

At the Meth Lab, we focus on methyl metabolism, and more precisely how methyl metabolism interacts with our biological clock. Biological methylation of nucleic acids, proteins, fatty acids and small molecules are catalysed by methyltransferases that use the methyl donor co-substrate S-adenosylmethionine (SAM), synthesised by a universal metabolic pathway called the methyl cycle.

The synthesis of SAM requires the essential nutrients methionine, vitamin B9, B12 and choline. While the role of histone methylation in the function of our biological clock is relatively well understood, there are many more methylations whose physiological roles are uncertain, including RNA methylation and non-histone protein methylation.

We study the function of selected methylated nucleotides in messenger RNA, and we seek to define how SAM availability regulates general cellular methylations. We use molecular and behavioural circadian rhythms, which depend on transcription-translation feedback loops, as a read-out for the effects of genetic, dietary and pharmacological methylation deficiencies



Posters

Bioimaging Facility. **Peter March**

Electron Microscopy Core Facility. **Aleksandr Mironov**

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 - **Antony Adamson**

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

Why the fruit fly Drosophila? - **Sanjai Patel**

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



Vendors:

BD Biosciences:

A comprehensive suite of trusted products, integrated solutions, useful tools and a wealth of information to advance your flow cytometry applications.

<https://www.bdbiosciences.com/en-gb>

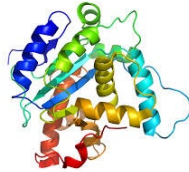


Proteintech:

Proteintech – a global antibody, ELISA kit, and protein manufacturer (ptglab.com).

It's Proteintech's ethos, "From our bench to your bench" to work closely with scientists.

Proteintech specialise in antibodies and can help answer all your questions!



Contacts:

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Gareth Howell: gareth.howell@manchester.ac.uk

Research Development Manager Technology Platforms

Fiona Foster: fiona.foster@manchester.ac.uk

