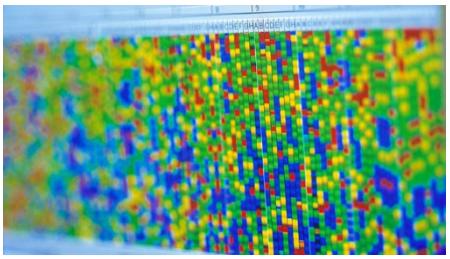
Integrated Genomics 2025 Showcase

16th October 2025

9.30am - 2pm

Michael Smith Lecture theatre and lounge


Contents:

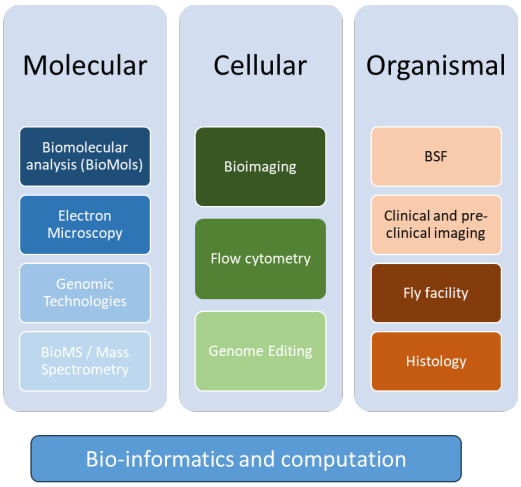
FBMH Technology Platforms and thematic groups:

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

Integrated Genomics:

As part of the Technology Platforms thematic Group showcase series, the Integrated Genomics group will be holding their 2025 showcase on the 16th of October (9.30am – 2pm) in the Michael Smith Lecture Theatre.

Discover how the Integrated Genomics group can support your research with:

- **Cutting-edge Technological and Methodological Offerings**: Explore the latest advancements in genomics-focused research within the Technology Platforms. This is the perfect opportunity for new PhD students to learn about the support available!
- **Inspiring Case Studies**: Dive into the interdisciplinary work undertaken by the Technology Platforms within the Integrated Genomics theme.
- **Interactive Q&A Session**: Engage in a lively discussion around bioinformatics analysis of genomics data.
- **Oxford Nanopore Technologies**: Hear about the latest technology offerings and the advantages of the PromethION.
- **Poster Session**: During coffee and lunch breaks, check out posters highlighting the support available across the Technology Platforms.
- 🍕 **Networking Opportunity**: come and discuss your technological needs with colleagues and experts over lunch.

Everyone is welcome to attend, but registration is required. Don't miss out on this fantastic opportunity to connect, learn, and be inspired!

Agenda:

Session 1: **Chair: Matt Hepworth**		
09.30am - 09.40am	Introduction	Matt Hepworth
09.40am - 10.25am	Case Study 1: Optimising and analysing single-nucleus RNA-seq in murine cerebral malaria	Jack Green, I-Hsuan Lin, Mike Haley
10.25am - 11.10am	Case Study 2: Interrogating Liver disease and development in high definition with spatial transcriptomics	Elliot Jokl and Syed Murtuza Baker
11.10am – 11.40am	**Coffee**	

Session 2: **Chair: Leo Zeef**		
11.40am - 12.25pm	Ensuring successful results with Nanopore Sequencing using different Applications and New Workflows	Oxford Nanopore Technologies James Stevens Lizzy Russell-Lowe (MFT)
12.25pm – 1.10pm	Q&A: Bio-informatics for genomics	Mudassar Iqbal, Leo Zeef Syed Murtuza Baker, I-Hsuan Lin
1.10pm – 1.15pm	Overview	

Lunch and posters	
1.15pm – 2.00pm	Lunch and Posters - 1:1 slots with platform experts -including vendor displays from Oxford Nanopore Technologies -including information display from BSF

Vendor:

Oxford Nanopore Technologies:

Oxford Nanopore has developed a new generation of DNA/RNA sequencing technology. It is the only sequencing technology that offers real-time analysis (for rapid insights), in fully scalable formats from pocket to population scale, that can analyse native DNA or RNA and sequence any length of fragment to achieve short to ultra-long read lengths.

Small formats such as Flongle address the need for on-demand, rapid, smaller tests or experiments, and can be used in labs or in the field. The pocket-sized MinION is a powerful and portable sequencing device that can deliver high volumes of long read sequence data. The benchtop GridION can run up to five MinION Flow Cells at a time, on-demand, for larger genomics projects. PromethION is the largest format for nanopore sequencing, designed to offer on-demand use of up to 48 Flow Cells - capable of delivering more than 10 Tb of sequence data in a full run, and is now being used in population-scale sequencing projects. The palm sized PromethION 2 makes high-output nanopore sequencing broadly accessible

To make the technology suitable for any user, we focus on increasing ease of use and automation. Nanopore sequencing offers easy and rapid preparation, including a ten minute library preparation kit. We also provide a range of analysis workflows.

https://nanoporetech.com/

Posters:

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

Electron Microscopy Core Facility. **Rich Collins**

Biology and pathology in small mammals using MRI **Ross Little**

Cryo EM processing. **Rich Collins**

Flow Cytometry Core Facility. **Gareth Howell**

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

Metabolomics, Lipidomics and Bioanalysis in the Biological Mass Spectrometry Core Facility **George Taylor**

Proteomics in the Biological Mass Spectrometry Core Facility **Stacey Warwood**

The Stoller Clinical Analysis Research Facility (SCARF) **Jennifer Haworth**

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**

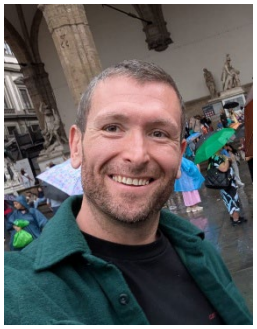
Manchester Fly Facility: Advanced imaging in a versatile & highly efficient model organism. **Sanjai Patel**

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

Speakers:

Jack Green

Jack is a research fellow at the University of Manchester, working in the Lydia Becker Institute of Immunology and Inflammation and the Geoffrey Jefferson Brain Research Centre. Jack's research focuses on uncovering the fundamental biology behind inflammation, such as elucidating new mechanisms in mechano-immunology that influence inflammatory and innate immune responses.

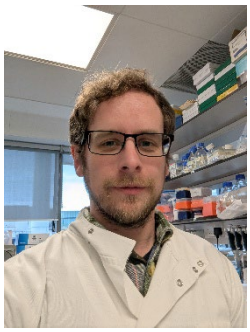


Mike Haley

Michael Haley has driven the advancement of high-dimensional tissue imaging and spatial omics analysis at the University of Manchester, pioneering the use of Hyperion imaging mass cytometry (IMC). He has extensive experience analysing both spatial and non-spatial omics datasets, including single-cell RNA sequencing and Visium 10x spatial transcriptomics, using them to explore cellular organisation, interactions, and molecular heterogeneity in health and disease. Gaining his PhD in 2013, he is a Senior Experimental Officer within the Bioimaging Core Facility, where he supports and develops cutting-edge tissue imaging and integrative omics approaches.

I-Hsuan Lin

I-Hsuan Lin is a Technical Specialist at the Bioinformatics Core Facility, where she supports cutting-edge research through the development and application of computational methods for genomic data analysis. As a bioinformatician, she collaborates closely with students and researchers to interpret complex biological data and drive scientific discovery.



Elliot Jokl

Elliot is a Postdoctoral Research Associate in the lab of Professor Karen Piper Hanley. Our lab is interested in how the tissue microenvironment of the liver changes in response to injury and disease, with a particular focus on identifying biomarkers which will help us to identify people with liver disease earlier. We are also investigating how these tissue changes may increase the risk of liver cancer development.

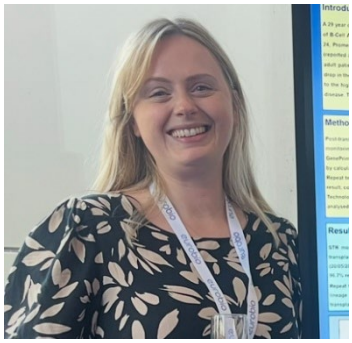
Syed Murtuza Baker

Dr Syed Murtuza Baker is a Senior Bioinformatics Scientist and recognised expert in single-cell and spatial omics data science at the University of Manchester. As a member of the Bioinformatics Core Facility (BCF), he leads the development of advanced analytical tools, computational workflows, and strategic bioinformatics infrastructure that underpin cutting-edge biomedical research.

His expertise spans high-throughput sequencing data analysis—including bulk and single-cell RNA-seq, ATAC-seq, multiome, and spatial transcriptomics—as well as imaging-based spatial proteomics. Dr Baker's work integrates these modalities through innovative multi-omics and machine-learning approaches, with a strong focus on reproducibility, transparency, and FAIR data principles.

He has published in leading journals and actively contributes to the UK spatial omics community through invited talks, workshops, and national collaborations. An experienced mentor and educator, he supervises PhD students and delivers bespoke training in single-cell and spatial data analysis.

Dr Baker also plays a strategic role in shaping institutional bioinformatics capacity—serving on the University's Bioinformatics Strategy Group and leading initiatives that enhance computational infrastructure, research efficiency, and interdisciplinary collaboration.



Lizzy Russell-Lowe

I am currently working at a Clinical Scientist in the Transplantation Laboratory at Manchester Royal Infirmary. My career began working for QIAGEN post-university, whereby I was involved with a team developing NGS assays for various different cancer panels. I was then able to get on to the Scientist Training Programme (STP), specialising in Histocompatibility and Immunogenetics. Following this three-year training scheme, including receiving a MSc from the University of Manchester, I obtained my first post as a clinical scientist specialising in transplantation at NHSBT Barnsley.

Transplantation laboratories specialise in all aspects of transplant, including solid organ and haematopoietic stem cell transplant. Our work involves both serology and molecular based assays to evaluate patients pre-transplant, to help identify the best available donor options, and to monitor patients post-transplant. As part of this work, we take part in a 24/7 on-call rota to facilitate deceased donor transplantation for our local group of renal, pancreas, heart, and lung patients.

Mudassar Iqbal

Senior Lecturer & Academic lead for bioinformatics

Leo A.H. Zeef

- Bioinformatics Core Facility Manager since 2010.
- PhD in Biochemistry at the Leiden University, The Netherlands, 1994.
- MSc in Bioinformatics at the University of East Anglia, UK, 2002.
- BSc in Biochemistry at the University of Natal, South Africa, 1986.

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