



University
of Exeter

RESEARCH
FACILITIES

An introduction to our Research Facilities

researchfacilities@exeter.ac.uk
www.exeter.ac.uk/research/facilities



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Bioimaging Centre

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Bioimaging Centre

The Bioimaging Centre provides state-of-the-art instrumentation and experienced staff to assist researchers and students in collaborative and multi-disciplinary research, by **applying advanced cellular imaging techniques to address key questions in biology.**

We fully integrate both modalities with transmission and scanning electron microscopes sit side-by-side to laser scanning confocal, wide-field fluorescence, as well as super-resolution microscopes.

LIGHT MICROSCOPY

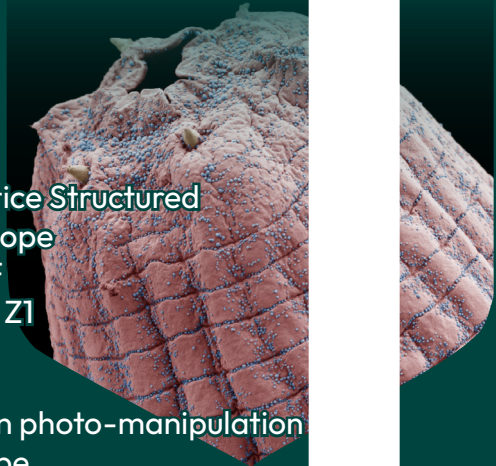
Confocal Laser Scanning:

- Zeiss LSM 880 with Airyscan FAST
- 2 x Leica TCS SP8
- Leica SP8X HyVolution II with FALCON single molecule detector
- Olympus IX81 Spinning Disc microscope

Wide-field Systems:

- Zeiss Elyra 7 3D Lattice Structured Illumination Microscope
- Olympus IX81 - TIRF
- Zeiss Axio Observer Z1

Luxendo Trulive 3D Lightsheet with 2-photon photo-manipulation
Bruker Ultima 2Pplus Two-Photon microscope
Acuifer Imaging Machine - high content imaging system



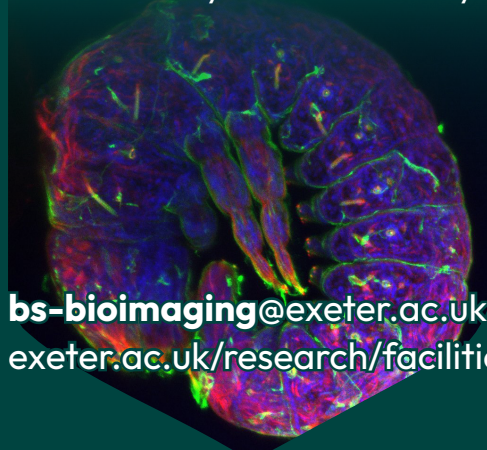
ELECTRON MICROSCOPY

JEOLJEM 1400 Transmission Electron Microscope

- Gatan Rio16 4k x 4k digital camera
- CryoCapCell HPM Live High Pressure Freezer
- RMC FC 7500 Freeze Substitution System
- Leica EM UC7 ultramicrotomy
- RMC LN cryo-ultramicrotomy

Zeiss Gemini500 Scanning Electron Microscope

- Oxford Instruments Ultimn Max100 EDS detector
- Quorum Q150T Sputter coater



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exeter.ac.uk/research/facilities/bioimaging

Centre for Cytomics

The University of Exeter's Centre for Cytomics (EXCC) stands at the forefront of state-of-the-art cytometry technology in the South West and offers a one-stop solution for quantitative single-cell research.

- Broad spectrum of multi-dimensional cytometry techniques including spectral and acoustic flow cytometry, BSLII cell sorting, multi-omics, tissue cytometry, and high-dimensional data analyses, supported by a robust IT infrastructure
- Key ally for innovation, accelerating R&D, and academic and commercial research success in diverse fields
- Offering specialised training, consulting, technology transfer and support in cytometry and related data analysis fields

TECHNOLOGY PLATFORMS

FLOW ANALYSER: Attune NxT, CytoFLEX LX, Aurora 5L, Aurora 7L, Aurora 5L (P)

IMAGING CYTOMETRY: ImagestreamX MKII, Flowcam 8400, EVOS M5000

FLOW SORTERS: FACS Aria Fusion, Bigfoot, Influx, FACS S6 SE (P)

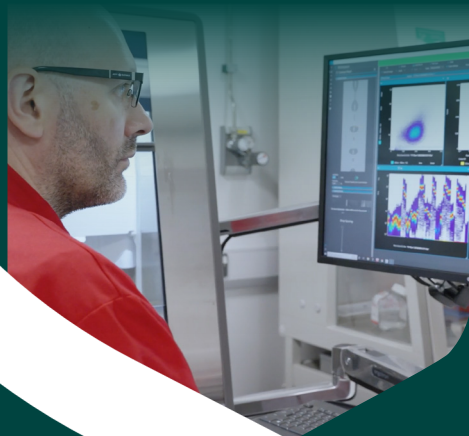
MULTI-OMICS: Luminex FlexMAP 3D, Chromium X (10x)

TISSUE CYTOMETRY: MACSima Imaging Cytomics System



WHY EXCC?

Cutting-Edge Technology - Expertise and Collaboration - Customised Solutions
Accelerated Innovation - Networking and Visibility





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Mierelle Gillings Neuroimaging Centre

The Mireille Gillings Neuroimaging Centre (MGNC) is a state-of-the-art facility for clinical research located on the Royal Devon University Healthcare NHS Foundation Trust's Wonford Site in Exeter. It is part of a collaborative partnership between the Royal Devon and the University of Exeter Medical School.

The Centre, officially opened in April 2020, providing highly advanced PET-CT and MRI scanning facilities for research, clinical diagnosis and therapy.

The main mission of the MGNC is to foster clinical research in the field of dementia and neurodegenerative diseases aimed to discover mechanisms of disease and finding cures for these progressive disorders. It aims to transform research and diagnosis of dementia and other neurological diseases.

POSITRON EMISSION TOMOGRAPHY (PET)

- Molecular imaging with Positron Emission Tomography (PET)
- World-leading methodologies for the analysis and modelling of PET data
- Range of radiopharmaceuticals, including fluorinated-18 radiotracers for tau and amyloid protein

COMPUTERISED TOMOGRAPHY (CT)

- Computerised Tomography (CT) scans to provide meaningful information as standalone scans as well as acquired alongside PET scans to aid the analysis and interrogation of PET data.

MAGNETIC RESONANCE IMAGING (MRI)

- Magnetic Resonance Imaging (MRI) expertise on the acquisition of, and provide services on the analysis of, sequencing including:
 - Arterial Spin Labelling (ASL)
 - Neuromelanin-sensitive MRI, Susceptibility-Weighted Imaging (SWI)
 - Quantitative Susceptibility Mapping (QSM)
- Diffusion Weighted Imaging (DWI)
- functional MRI (fMRI)

mgnc@exeter.ac.uk

exeter.ac.uk/research/facilities/mgnc

Sequencing Facility

The University of Exeter Sequencing Facility provides state-of-the-art genomics and bioinformatics analysis. We specialise in providing bespoke sequencing services offering an exceptional range of project parameters to researchers in academia and industry.

A good experimental design is crucial to ensure you obtain high quality, publishable data. We're here to help you make your design is optimal and profiles the best value for money without compromising your science.

We offer a wide range of standard and bespoke sequencing options on both Illumina and Nanopore platforms with a selection detailed below

RNA SEQUENCING

- Gene expression profiling
- Full length transcriptome sequencing
- Micro RNA
- Circular RNA

GENOMIC SEQUENCING

- *De novo* assemblies (options for annotation available)
- Resequencing (options for variant calling available)
- Targeted sequencing
- Single-stranded DNA sequencing

SINGLE CELL-OMICS

EPIGENOMICS

ENVIRONMENTAL PROFILING

- Metagenomics
- Amplicon sequencing (e.g. 16S/18S/ITS/CO1)

BIOINFORMATICS ANALYSIS

- Tailored support to your needs





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VSimulators

A multi-disciplinary
cutting-edge facility
helping to shape
the future of human
movement research

VSimulators

VSimulators is a unique, multi-disciplinary research facility, which synchronises virtual reality, a motion platform, motion capture technology, and biomedical measuring devices, and can be used to support research and commercial projects in healthcare, biomechanics, and engineering.

VSimulators enables research into:

HUMAN FACTORS AND COMFORT

HUMAN MOVEMENT, HEALTH, & WELLBEING

IMMERSIVE REALITY

DATA SCIENCE AND ANALYTICS

TRANSPORT

STRUCTURAL ENGINEERING AND BUILT ENVIRONMENT



As well as simulating a range of real-world scenarios, allowing companies to test their products and designs in a controlled environment, VSimulators incorporates the technology to measure people's responses to these environments. This is crucial to the Facility's work supporting research into mobility disorders.

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