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Resources and facilities

Resources

International Genetically Engineered Machine (iGEM) (http://www.igem.org/Main_Page)

iGEM is an international Synthetic Biology competition for undergraduate students.

Please contact Tim Dafforn (http://www.birmingham.ac.uk/staff/profiles/biosciences/dafforn-tim.aspx) if you are interested in taking part.

A Synthetic Biology Roadmap for the UK (http://www.rcuk.ac.uk/Publications/reports/Pages/syntheticbiologyroadmap.aspx)

This report provides the vision and direction for supporting a world-leading synthetic biology community in the UK. Produced by an independent panel of experts for the government's Department for Business Innovation and Skills, it sets out a shared vision for realising the potential of synthetic biology in the UK.

A copy of this report is available here as a PDF (http://www.rcuk.ac.uk/documents/publications/SyntheticBiologyRoadmap.pdf)

Scientific facilities

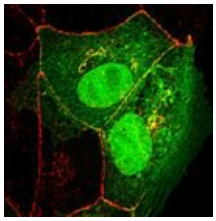
The Advanced Mass Spectrometry facility (/facilities/advanced-mass-spectrometry/index.aspx)

Combining state-of-the-art instrumentation with world-class expertise for biomolecular analysis.

The facility boasts:

- Thermo Scientific LTQ FT Ultra (http://www.birmingham.ac.uk/facilities/advanced-mass-spectrometry/about/ft-icr.aspx)
- Thermo Scientific Orbitrap Velos ETD (http://www.birmingham.ac.uk/facilities/advanced-mass-spectrometry/about/orbitrap.aspx)
- Thermo Scientific TSQ Vantage (http://www.birmingham.ac.uk/facilities/advanced-mass-spectrometry/about/qqq.aspx)

Birmingham Advanced Light Microscopy facility (BALM) (/facilities/balm/index.aspx)



This facility provides cutting edge microscopy resources to members of the univesity community and beyond. Our microscopes are routinely used for high resolution live-cell imaging, as well as analysis of organisms ranging from Drosophila to zebrafish. In addition to training and technical assistance we also provide data analysis capabilities through our dedicated workstations.

Birmingham Biomolecular Characterisation Facility (BBCF) (/facilities/bbcf/index.aspx)

Based in the School of Biosciences, the BBCF boasts many of the biophysical tools essential for complete biomolecular characterisation.

These tools provide information on:

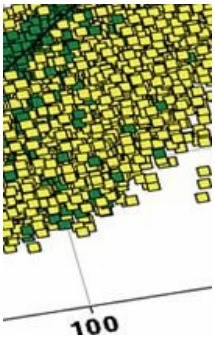
- **Conformation**: Circular Dichroism (CD), Fourier Transformation Infrared Spectroscopy (FTIR) and X-ray Crystallography
- **Size**: Analytical Ultracentrifugation (AUC) Aggregation and
- **Association**: (AUC/DLS) Protein folding and stability: (FTIR/CD/AUC)

Birmingham Drug Discovery Facility (/facilities/bddf/index.aspx)

The Birmingham Drug Discovery Facility contains a number of cutting-edge technologies required to enable Birmingham scientists to conduct translational science.

We offer access to two fully automated drug discovery platforms (http://www.birmingham.ac.uk/facilities/bddf/platforms/index.aspx) housed in the Drug Discovery Facility laboratory which is located in the School of Biosciences at the Institute of Microbiology and Infection (IMI).

Functional Genomics, Proteomics and Metabolomics Facility (/facilities/genomics/index.aspx)



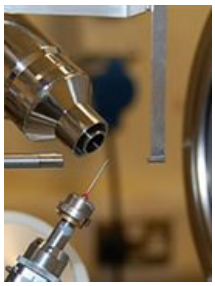
The facility is involved in numerous research efforts in Biosciences, working within areas such as cancer research, cell signalling, microbial gene expression and modulation of plant growth and parasitic resistance.

The facility prides itself on it's ability to provide high throughput, accurate services to the University, external institutions and commercial companies at competitive prices.

Horticultural services (/facilities/horticultural/index.aspx)

Located within the School of Biosciences are six containment glasshouses and two large walk in growth rooms, with lighting, heating, air conditioning, shade screens and watering all individually controlled and fully automated including a growth room with integral humidification. Further facilities include growth cabinets, separate glasshouse unit, plant preparation area and nearby autoclave.

Macromolecular X-Ray Diffraction Facility (/facilities/x-ray/index.aspx)



The facility includes a new-generation microfocus rotating anode generator and a CCD chip-based area detector for rapid data acquisition. Protein crystallisation, largely a trial-and-error process, is often hampered by the scarcity of pure protein. With the aid of a liquid handling robot, capable of dispensing nano-litre volumes, the number of potential growth conditions can be vastly extended, enhancing the chance of success and rendering possible the crystallisation of difficult proteins or protein complexes.

NERC Biomolecular Analysis Facility - NBAF-Birmingham (/facilities/metabolomics/index.aspx)

One of the five nodes of the NERC Biomolecular Analysis Facility (NBAF), the Birmingham node was established in March 2009 to serve the metabolomics research needs of the NERC community. We offer advanced metabolomics methodologies based upon FT-ICR mass spectrometry and 1-D and 2-D NMR spectroscopy, as well as extensive data analysis.

Other centres

Centre for Systems Biology (/research/activity/csb/index.aspx)

Houses a dedicated 128 processor computer cluster, office space and meeting facilities. Staff from the School of Biosciences as well as other Schools (Medicine, Mathematics, Computer Science and Engineering) are seconded to the Centre for varying periods of time.

The Henry Wellcome Building for Biomolecular NMR (http://www.nmr.bham.ac.uk/)

Administered by the Medical School which houses a range of instruments (900MHz, 800MHz, 2x 600MHz, 2x 500MHz).

Centre for Electron Microscopy

With 3 transmission and 5 scanning microscopes

The Centre for Chemical and Biochemical Analysis (/facilities/chemical-analysis/index.aspx)

The Analytical Facility in the School of Chemistry at the University of Birmingham brings Mass Spectrometry, Nuclear Magnetic Resonance, Chromatography, Elemental Analysis and X Ray Diffraction all together under one section to provide the very highest quality of data analysis to academics and students in both research and teaching. With our excellent facilities and high level of expertise, we can offer our analytical services to other Schools within the University sector and external commercial organisations.

School of Chemistry - Glassblowing Facility (/facilities/glassblowing/index.aspx)

Science City Research Alliance (http://www2.warwick.ac.uk/fac/cross_fac/sciencecity)

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