

Our Capabilities

We offer access to a range of platforms that underpin research and innovation in synthetic and systems biology, bringing together state-of-the-art equipment with in-house expertise to provide bespoke solutions. Many of our experimental facilities are accessible on a fee-per-service basis.

The Edinburgh Genome Foundry – A BBSRC-funded, fully-automated facility to design and assemble DNA up to chromosome size.

Metabolomics and Fluxomics – A core experimental resource containing specialist equipment for measuring multiple parameters of cell physiology.

Microscopy Lab – A range of novel microscopy techniques including confocal microscopy (OPERA™ system), optical imaging and single-cell analysis.

Mathematical Modelling and Machine

Learning – Innovative data analysis combined with mechanistic modelling, network theory and robust data management.


Plant Phenomics – Tissue culture and biological containment, controlled growth environments and plant stem cell cultures.

Chemical Translational Biology – Miniaturised drug discovery platforms including single bead analysis, single molecule scanning and single cell micro spectroscopy.



For Further Information

Contact Us

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Find Us

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Innovating research, policy and education in synthetic and systems biology



THE UNIVERSITY of EDINBURGH



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Our Vision

We will combine our research excellence in synthetic and systems biology to provide insights into natural systems and to apply this knowledge to the challenges facing biomedicine, animal health, agriculture, industrial biotechnology and global sustainability.

Our Mission

We will deliver world-leading research in systems and synthetic biology; combining theory and informatics with molecular biology to understand and re-design biological systems. We are pioneering genetic and chemical tools to analyse the cell, technologies to quantify responses at the single-cell level, and mathematical models to both predict and control cellular behaviour.

Our Centre

SynthSys was originally established in 2007 as a Centre for Integrative Systems Biology, funded by the BBSRC and the EPSRC. Since then, the Centre has expanded and now hosts a Synthetic Biology Research Centre funded by the BBSRC, EPSRC and MRC – the UK Centre for Mammalian Synthetic Biology.

SynthSys operates both as a virtual centre, embracing a community of more than 200 researchers across the University of Edinburgh, and as a physical one, in the purpose built CH Waddington building.

Our research is broad and deep, addressing a diversity of scientific questions with wide ranging impacts.

Partner with Us

We engage in a broad range of collaborations globally and welcome further opportunities to work with academia and industry.

We can offer our internationally recognised expertise, access to state-of-the-art technologies and specialist training.

Our research has had impact in industrial biotechnology and bioenergy, in agriculture and the environment, and in animal and human health.

