The BEACON Biorefining Centre of Excellence
A partnership between Aberystwyth, Bangor and Swansea Universities.

Facilities and capabilities at Swansea University
The BEACON capability at Swansea University is centred on the microbiology facilities in the Institute of Life Science (ILS), the research arm of the Swansea University Medical School.

Completed in 2007, with support from the Welsh Government and the European Union, the ILS laboratories house state-of-the-art facilities and equipment. The highly trained personnel have a history of industrial biotechnology experience going back 30 years, with a wealth of experience of working with a range of industries including leading international pharmaceutical, agrochemical, chemical and food industries as well as local SMEs.

Aims
- Use microbial genetics, molecular biology and chemical biology to provide microbiological routes to products from plant biomass and waste streams that do not compete with food availability
- To evaluate performance of microorganisms producing a variety of green products and alternatives to oil based processes
- To promote integrated biorefinery processes with high-value co-products, including for health
- To provide linkage of academics and businesses in BEACON and to other Welsh Government and European Union supported projects to facilitate translation of research

Expertise / Strengths
- Microbial genetics of yeasts, filamentous fungi and actinomycetes
- Heterologous protein production from a range of microbial hosts
- Enzymology and fermentation
- Molecular modelling and protein structure / activity
- Biological and analytical chemistry
- Functional genomics
- International microbiology networks, including funding from EU Framework and National Institutes of Health (USA)
Microbiology Facilities for BEACON at the ILS

- State-of-the-art laboratories and expertise in microbiology
- Spin-in potential into the ILS with access to laboratory and office space
- Access to the ILS Affiliate Membership scheme, which offers a serviced hot-desk, introductions to key experts and the opportunity to book ILS meeting areas
- Proximity to EPSRC UK National Mass Spectrometry Centre, the ILS Clinical Research Facility and Clinical Imaging Suite, Centre for Nanohealth and supercomputing capabilities
- Scale-up fermentation and separation facilities (Engineering, Bay Campus)

www.swansea.ac.uk/ils
www.p.450swansea.co.uk/beacon
www.nmsf.swan.ac.uk

Applications

- Opportunities exist to develop co-operative research and development and company advice on processes involving microbes and proteins
- Microbial natural product discovery and novel chemical entities for medicine
- Metabolic engineering in microbes
- Monoxygenase biotransformations of lipophilic chemicals in biorefinery
- Adding value in waste management

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