



Daresbury Science
& Innovation
Campus

Biomedical

Shaping the Future of Science & Innovation

Daresbury Science & Innovation Campus (Daresbury SIC) is an internationally recognised location for hi-tech businesses and leading-edge science. It represents a fundamentally new approach to driving UK competitiveness in global science and innovation. Daresbury SIC was formed by the Northwest Regional Development Agency (NWDA), the Science & Technology Facilities Council (STFC), Halton Borough Council and the research intensive universities of Liverpool, Lancaster and Manchester.

The Campus provides a unique environment for innovation and business growth with knowledge sharing, collaboration and networking, and offers major opportunities to the biomedical sector for knowledge exchange and the development of collaborative activities.



A National Technology Pool

England's Northwest is one of the UK's top three biomedical clusters, which includes the biotechnology, pharmaceuticals and healthcare industries and the Campus is ideally placed to serve this sector.

Campus stakeholder, STFC, as part of its Futures Programme to address the government's human challenges theme, is committed to bioscience at Daresbury SIC and its sister Campus at Harwell in Oxfordshire. The pairing of these national Science & Innovation Campuses with STFC as the common stakeholder enables any organisation engaging with one Campus to have access to the facilities of both.



Diamond Light Source at Harwell SIC

Of key importance are STFC's interdisciplinary, collaborative programmes for protein structure research using its large-scale facilities as well as the application of spectroscopy and laser/microscope imaging to biological and medical research. Facilities include its Diamond Light Source synchrotron, the European Synchrotron Radiation Facility and the world's leading pulsed neutron and muon source, ISIS. STFC's additional capabilities in x-rays, neutrons and surface science offer further value to the biomedical industry.

The Campus is home to the Medical Technology Exchange Centre, MedTEC, which enables rapid engagement of the NHS and other health related organisations on Campus.

Technology Exchange

The facilities and services of STFC, managed by its leading research groups active in a number of biomedical areas, can be accessed through its knowledge transfer organisation, STFC Innovation Ltd, which progresses individual projects through various business models to the point of implementation as commercial licenses or spin-out companies.



STFC Innovations Ltd

www.daresburysic.co.uk/sectors/biomedical

From Particle Accelerators to Business Acceleration

Daresbury SIC has built a critical mass of biomedical expertise around its strengths in accelerator science and computational science. At the forefront of its current R&D are proof of principle particle accelerators with potential future applications in targeted hadron cancer therapy.

Such major R&D projects along with the growing network of hi-tech organisations and successful technology transfer has created a magnet for the biomedical sector and continues to attract a growing number of biomedical SMEs with activities ranging from integrated care to speciality pharmaceuticals, nanofibres to stem cell processing. These companies engage with STFC on research projects as well as enjoying a very high degree of inter-company collaboration.



A Leading Region for Biomedical

The North West is home to over 200 biomedical companies and seven multinational pharmaceutical companies. The pharmaceuticals sector here employs 20,000 people and is the highest exporter of pharmaceuticals in the UK with £3.4 billion. The Campus is ideally positioned to engage with partners that are active in meeting the requirements of the sector. Key amongst these is Bionow, the cluster support group for the region's biotechnology, pharmaceutical and healthcare industry.

A Growing Hi-tech Community

The Daresbury SIC network provides companies with an ecosystem perfectly suited to the needs of growing biomedical businesses, bringing rapid solutions to practical and commercial challenges.

Over £20 million of private sector investment has been secured since the Campus was launched. Companies have successfully launched products through high street vendors, signed major contracts with the NHS, expanded operations internationally, secured grant funding and won major international awards for innovation.

The Campus also supports and promotes the successful commercialisation of technology emerging from its knowledge base. One example is the Electrospinning Company Ltd, a spin-out from the STFC, which has designed a unique process enabling the production of nanofibres from a wide range of materials. These are used to build high surface area, non-woven fabrics with applications in healthcare for tissue regeneration, wound care and drug delivery.

Real World Impact

At the core of the STFC's mission is to address large scale biological problems using an interdisciplinary approach by developing new high impact technologies, and to play a collaborative role in major industrial projects. Among numerous examples of this was the successful solving of the foot and mouth virus using

synchrontron radiation carried out by Daresbury scientists. Scientists have also played a role in industry, for example in advanced protein crystallography for accelerated drug discovery, computational microfluidic dynamics simulations for improvements in drug delivery and in detecting patented forms of drugs within generic offerings.



Working in Partnership

Through the STFC and stakeholder universities, Daresbury SIC supports successful collaborations with partners, including other research councils, universities, charities and small businesses, with over three quarters of tenant companies collaborating with each other or higher education stakeholders.

It has developed a number of cutting edge bio-related R&D projects and commercial collaborations, including fast protein dynamics, non-invasive deep probing of living tissue, innovations in mass spectrometry and an investigation into neurodegenerative disease.

Its next generation particle accelerators are being developed in partnership with stakeholder universities and have backing from the NWDA's Northwest Seed Fund.

And the 'Lab in a Cell' initiative at Harwell SIC brings together a multidisciplinary team using breakthrough advances in optics, combined with high-end computing capabilities. Its aim is to develop a unique multidimensional single molecule imaging platform, with potential for providing a greater understanding of how crucial membrane proteins interact with anti-cancer drugs, along with strategies for patient selection and tailored therapies.



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Did you know?

Dr John Walker, a user of the protein crystallography facility at Daresbury, was awarded a Nobel Prize for his studies of energy generation in cells.

The Future for Daresbury SIC

Daresbury SIC will continue to be a key location for biomedical organisations, enabling them to tap into commercial resource pool and initiate long term R&D activity. Activities will centre around MedTEC in addition to the stakeholder universities, each of which has key strengths in Biomedical research.

Added to this is a £65 million government contribution which will finance world leading centres for cutting edge research in computer modelling – valuable in understanding and predicting issues including how cells interact in the body – and sensor development, which will have biomedical imaging applications.



Business at the Heart of Science

The Campus is home to almost 100 hi-tech businesses, ranging from small start-ups to strategic units of large multi-national corporations, and offers high quality office space alongside multidisciplinary laboratory facilities with associated biomedical business incubators.

Laboratory facilities include a fully equipped and functional Biosciences Laboratory for biological preparation. Facilities are available for protein crystallography studies and include a wide range of instrumentation suitable for the study of organic and microbiological specimens.

Analytical user facilities include a surface science and imaging laboratory, an instrumentation laboratory, high performance liquid chromatography, dynamic light scattering, a spectrofluorometer, FTIR and UV-Vis.

Business support facilities and accommodation within the Daresbury Innovation Centre provides:

- A recognised research & development focussed environment with an STFC account manager and links to a wide network of research intensive universities
- Opportunities for technological and commercial collaboration
- Excellent transportation links
- Tailored business support and connections to major funding streams
- A spacious rural location in the heart of Cheshire.

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EUROPEAN UNION

Putting Business at the Heart of Science