

Nanotechnology

Key Facts and Overview

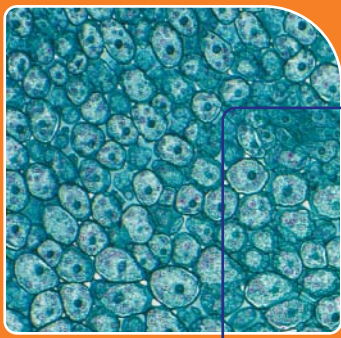
- The University of Newcastle upon Tyne is the leading UK Higher Education Institute in government contract and the commercialisation of research undertaking industrially sponsored work in laboratories including Inex: the largest and best equipped public sector micro and nano device fabrication facility in the UK. Inex has already generated millions of pounds of value in technology; spinning out 11 companies since 2002.
- A co-operation agreement has been established between Institute for Nanoscale Science & Technology, University of Newcastle upon Tyne and NTT Basic Research Laboratories, Nippon Telegraphy & Telephone Corporation. They are conducting research in information technology, microelectronics, submicron technology and bio-nanotechnology.
- Key new centres in the region include a Plastic Electronics Manufacturing Centre that will draw expertise from Newcastle, Durham and Cambridge Universities and an open access Flexible Electronics Facility that will establish the region as a focal point for flexible electronics materials in the UK.

Universities

- The UK Department of Trade's **University Innovation Centre (UIC)** for nanotechnology is in North East England because considerable research into nanotechnology and microsystems is taking place at all five regional universities. Newcastle has a 5* Research Assessment Exercise (RAE) rating in biological and biomedical applications whilst the University of Durham was one of only three UK Chemistry departments to be awarded a 5* RAE and specialises in film and surface technologies. Northumbria University's strengths include advanced materials and surface engineering, the University of Sunderland works on biosensors and the University of Teesside is involved in developing miniaturised diagnostic systems.

Industry Support

- **Cenamaps** is an international Centre of Excellence for Nanotechnology, Micro and Photonic Systems. CENAMAPS' strategy is to seed collaborative R&D programmes as platforms for near market commercialisation opportunities through university spin-outs and by strengthening the knowledge base so that it can support larger industry-linked projects in the region. Activity in nanotechnology covers three core themes: biomedical and bio-scientific, electronics and photonics, and functional materials.
- The **Centre for Process Innovation (CPI)** was established as a UK-wide resource to stimulate and drive innovation within the process industry. Working with global industry partners and leading research universities, CPI are committed to delivering world-class, groundbreaking applied research and development. Core technology platforms are in advanced processing and manufacturing, functional materials and fuel cell applications.
- The **Inex** facility is the UK's largest public sector MNT technology concept to prototype service provider. It deals in micro and nano prototyping, product development, small-volume production, training and licensing.
- **NetPark** is the key strategic site for exploitation of developments in the physical sciences, particularly as a potential high-tech R&D/prototyping/manufacturing location. It is strategically placed to exploit the potential of the University of Durham, CENAMAPS, CPI and Wilton - one of the largest complexes for chemical production and development in Europe.
- Major corporates encouraging nanotechnology in North East England include **Procter & Gamble, British Aerospace, ICI and Atmel.**
- The region is home to many spin-out companies from research and technology developed at the universities. Examples include:
 - **Bede plc**, a University of Durham spin-out that is now globally active and listed on the London Stock Exchange which turns out world-first products. They include X-ray analytical tools, system tools for semi-conductor metrology, high resolution general-purposes diffraction, and analysis of pharmaceuticals, as well as general materials analysis.
 - **Orla Protein Technologies**, working from the University of Newcastle upon Tyne INEX incubator facility, the bio-nanotechnology firm Orla enjoys venture capital backing to promote its collaborations with global pharmaceutical companies. A specialist in the design and manufacture of biological surfaces, it makes its proteins 30,000 times thinner than a sheet of blotting paper for the medical and diagnostic industries. When medical implants have to interact with their biological surrounding, Orla's proteins act on a scale of one billionth of a metre. Yet one teaspoon of Orla protein could cover an area of four tennis courts.
 - **Durham Scientific Crystals (DSC)** is a spin-out company from the Physics Department of the University of Durham that is actively involved in the development of proprietary semiconductor materials in conjunction with the University's research labs. The technology, which has a worldwide patent protection, was developed in the University through research over the last three decades and Durham Scientific Crystals recently became a partner company of Amphion Innovations plc, which will help take the business to its next stage of development.



Finance

There are many sources of finance and venture capital available to companies in the region. Unique in North East England is **Nstar** set up by One NorthEast. It focuses on high risk venture capital, and it partners with the commercial venture capital community to invest in new technology spun out of universities or created within the small to medium sized enterprise market. Nstar can create tailored supply chains for large corporations through this process. Nstar has total funding of £60m (\$108m) split into Proof of Concept Fund and Co-investment Funding.

Market Access

The Model below demonstrates how all of the expertise and support organisations place North East England in a unique position to support companies in the commercialisation of research and getting new products to market. At the centre of the process is the Investment & Aftercare Team that will sit with you to understand your own individual requirements and come back with a tailored investment solution to include some or all of the elements below. From here in the UK or offices in North America, China, Japan, Korea, Australia, Norway and Germany, the team will help you get your products and services into the market.



Case Study - Orla Protein Technologies Ltd

Orla Protein Technologies Ltd is a spin-out from the University of Newcastle upon Tyne's Institute of Cell & Molecular Biosciences. Orla has built a solid reputation as a leader in the nano-biotechnology sector since receiving venture capital funding from Insight Capital in 2003. Orla is the only company to design, express and assemble biological surfaces containing both essential components; proteins and lipids. A patented technology platform and extensive expertise in surface biology means that Orla can meet customer needs ranging from simple protein immobilisation to complex bio-mimetic surfaces. As well as serving existing customers in bio-surface design and protein engineering the company is currently developing a revolutionary diagnostic biochip platform.

Contact details

To discuss the service further, or to receive an initial response to an investment proposal, please make contact by phone, fax, e-mail or post today.

Tel: +44 (0) 191 229 6500 or
+44 (0) 191 229 6363

Fax: +44 (0) 191 229 6243

E-mail: strategicinvestment@onenortheast.co.uk

Address:

One NorthEast, Stella House, Goldcrest Way, Newburn Riverside,
Newcastle upon Tyne NE15 8NY United Kingdom.

www.investnortheastengland.com