



Stem Cell Research



Key Facts and Overview

- Newcastle Human Embryonic Stem Cell Group are one of only two research units, and the first in the UK, that have been awarded a Human Fertilisation & Embryology Authority licence to undertake somatic cell nuclear transfer.
- The University of Newcastle upon Tyne researchers, in collaboration with the Fertility Centre at Life, successfully cloned a human embryo in May 2005, becoming the first team in the West to achieve such a procedure.
- North East England has the greatest concentration of stem cell researchers in England north of Cambridge, and the fourth largest in the UK.
- Six human Embryonic Stem (ES) cell lines have been established in Newcastle in the last year.
- North East England is home to one of only two NHS Cord Blood Banks in the UK at the Stem Cell Cryopreservation and Manipulation Unit in Newcastle.
- The Institute of Stem Cell Biology and Regenerative Medicine (ISCBRM) is being established in North East England. Significant investments have been made to help meet its ambition to become one of the world's top ten stem cell research centres. Its technical support facilities will include two new GMP grade laboratories to produce stem cells of all types to clinical grade.

Science Base

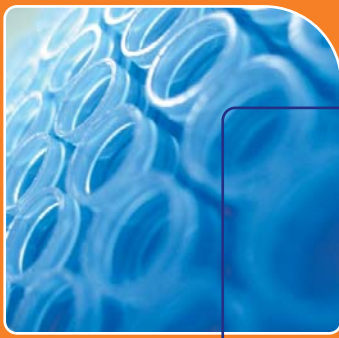
- The University of Durham has created a £6m integrated research centre of Bioactive Chemistry; which is linked to the £6m Integrative Cell Biology laboratories.
- The Centre for Stem Cell Biology and Regenerative Medicine is an interdisciplinary research centre at the University of Durham and collaborates with the NHS and the James Cook Hospital in Teesside.
- The University of Newcastle upon Tyne's Institute of Human Genetics is one of the largest in Europe and concentrates its research activity on both Human Embryonic Stem Cells (HESC) and adult stem cells.
- Science research at the University of Durham has more impact worldwide than work at any other British university, including Cambridge, Oxford and Imperial College London. It enjoys the most cited number of research and influence of other research according to the Times Higher Education Supplement (THES) in its annual science report in October 2005.
- All departments in the Faculty of Medical Science at the University of Newcastle upon Tyne were awarded either 5 or 5* assessment as part of the UK Governments Research Assessment Exercise (RAE) in 2001, ranking Newcastle third overall in the UK.

Clinical Expertise

- North East England offers world-class clinical expertise in Newcastle, by the Newcastle upon Tyne NHS Trust (the Sunday Times Hospital of the Year 2004). ES cell derivation has been enabled by its successful IVF/Reproductive Medicine clinic.
- Translational research is channelled through the Clinical Trials Unit and the £4.5m Newcastle Clinical Research Facility, that links medical research in the University of Newcastle to the clinical excellence of the regional NHS Trust.
- There is strong regional academic and clinical activity around transplantation, and stem cell tolerance is assessed by Newcastle's Applied Immunology Group.

Industry Support

- The International Centre for Life (ICFL), based in Newcastle, is the UK's first biotechnology village.
- Based at the ICFL, Life Knowledge Park (LKP) is one of five genetic research centres undertaking research into genomic instability. With specific links to the NHS, LKP concentrates its research into degenerative diseases associated with ageing.
- CELS drives the life science and healthcare economy by identifying and exploiting market opportunities with commercial potential. CELS operates BioNE² a network which supports the development of post-genomic technologies and research linking directly to industry.



Companies

Some companies in the region involved in stem cell activity include:

Company	Activity
ReInnervate Limited	Spin-out. Neural stem cell research to facilitate cell lines, assays, enabling systems and therapeutic patents.
Orla Protein Technologies Ltd	Orla is a leading UK nano-biotechnology company offering a comprehensive 'Surface Biology' platform. Orla can supply proteins and protein based bio-mimetic surfaces for application in cell culture and medical devices, functionalised microfluidic devices for cell analysis.
Avecia	Leading provider of development and manufacturing services in microbial and mammalian-based therapeutics.
Hyclone	Global supplier of cell culture and bioprocessing systems.
Novocastra Laboratories Ltd	Innovative developer and manufacturer of reagents for biomedical research.
Immunoquest	Manufacture and license cutting edge antibodies in the cell biology.

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.



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