

The Journal

February 26, 2008

Stem cells used to regrow bone tissue

Edinburgh researchers develop novel method for using patients' own stem cells to regrow bone and cartilage.

CAMERON ROBINSON

Researchers at the University of Edinburgh are helping to develop a revolutionary new technique to repair damaged bone and cartilage using a patient's own stem cells.

The initiative centres around a pioneering "bioactive scaffold" constructed to protect the patient's stem cells, whilst stimulating their growth into bone and cartilage. This innovative structure enables growth and repair to take place inside the patient's body at the site of the damaged or affected tissue.

£1.4 million of funding has been made available by the UK Stem Cell Foundation, the Medical Research Council (MRC) and Scottish enterprise in conjunction with the Chief Scientist's Office to help further the research.

Dr Brendon Noble, of the University of Edinburgh's MRC Centre for Regenerative Medicine, said: "This is a novel approach in terms of treating damaged bones and cartilage. The aim is to translate the knowledge we have gained from bone biology studies into tangible treatments for patients."

To this end, research will proceed in conjunction with clinicians to transform findings into treatment techniques for diseases such as osteoarthritis, and even the repair of bones shattered as a result of extensive trauma.

Researchers will also be working in collaboration with the Scottish National Blood Transfusion Service in order to culture bone-forming cells derived from blood, as an alternative to using cells from bone marrow. Harvesting the stem cells from the patient's blood supply removes the need for surgery whilst limiting the likelihood of rejection, a consequence with potentially fatal results.

This initiative could impact a significant number of patients' lives; hip fractures alone kill around 14,000 elderly people a year in the UK.

The research also has economic ramifications, for example upon the worldwide market for orthopaedic devices - a \$17 billion industry.

Dr Anna Krassowska, research manager for the UK Stem Cell Foundation, commented: "This research has the potential to open up one of the largest stem cell markets in the industry."

The Edinburgh research team aims to set up the initial clinical trial within two years, likely involving around 30 patients.