



Stem cell focus for IBD wound healing

April 27th 2009, St Albans, Herts. Scientists at The University of Nottingham are investigating whether stem cell markers could have a role to play in speeding up wound healing in patients suffering from inflammatory bowel disease (IBD).

The study could eventually lead to the development of new drugs which use natural molecules to spark the recovery of patients suffering from ulcerative colitis and Crohn's disease, reducing their risk of associated complications such as scarring, bowel obstructions and tumour growth.

Funded with a £118,500 grant from the National Association for Colitis and Crohn's Disease (NACC), the two-year project is being led by Professor Mohammad Ilyas in the University's Division of Pathology.

He said: "The study will focus on the molecule CD24 which is a stem cell marker and which plays a key role in cell proliferation and the migration of healthy cells to a damaged area to restore normal tissue.

"CD24 is a small molecule attached to the cell membrane which has been recently reported as a marker of stem cells in the colon. It occurred to us that CD24 might have a role to play in IBD and during further studies we found that it was indeed present in sections of diseased bowel."

IBD affects around one in 400 people in the UK. Common symptoms include inflammation and ulceration of the intestine and colon, pain, severe diarrhoea, tiredness and weight loss. The cause of the disease is yet to be definitively identified, although scientists believe it could be due to a combination of genetic predisposition and environmental factors. Currently, there is no cure and patients manage their condition with a mixture of lifestyle changes, anti-inflammatory drugs and, in severe cases, surgery.

Professor Ilyas added: "The power of the gut to heal the damage caused by acute episodes of inflammation is remarkable and frequently the gut lining reverts to normal. Anti-inflammatory drugs help this process along and allow the wound healing to begin earlier than it would naturally.

"In the future, it may be possible to use a variety of therapies (possibly including gene therapy) to manipulate the expression of the CD24 molecules on cells to promote even more rapid healing. This may mean less scarring, bowel obstruction and fistulation and less chance of developing tumours resulting from persistent inflammation. As a result of this, it may also reduce the chance of needing surgery further down the line."

More follows...

In the early stages of the project, the pathologists will be using cell lines in the lab to study CD24 at a cellular and molecular level to discover the mechanisms by which it operates and encourages cell migration and other associated molecules that are co-expressed.

They will then examine diseased IBD tissue to establish whether what they have observed in the lab is occurring in reality.

It is hoped the findings will lead to further clinical work to look at the possible benefits of CD24 in allowing IBD patients to more effectively manage their disease.

The CEO of NACC, Richard Driscoll, explains, “Since 1984, NACC members have raised over £4.5 million and more than 100 research awards have been made to hospitals and universities throughout the United Kingdom. This year our Medical Research Committee selected three studies to receive NACC research awards which we hope will contribute to finding improved treatments and ultimately a cure for IBD. We welcome Professor Ilyas’ work on CD24 in seeking a better understanding of the gut healing process and how it may be enhanced in inflammatory bowel disease.”

— Ends —

Notes to editors: The University of Nottingham is ranked in the UK's Top 10 and the World's Top 100 universities by the Shanghai Jiao Tong (SJTU) and *Times Higher* (THE) World University Rankings.

More than 90 per cent of research at The University of Nottingham is of international quality, according to RAE 2008, with almost 60 per cent of all research defined as ‘world-leading’ or ‘internationally excellent’. *Research Fortnight* analysis of RAE 2008 ranks the University 7th in the UK by research power. In 27 subject areas, the University features in the UK Top Ten, with 14 of those in the Top Five.

The University provides innovative and top quality teaching, undertakes world-changing research, and attracts talented staff and students from 150 nations. Described by *The Times* as Britain's ‘only truly global university’, it has invested continuously in award-winning campuses in the United Kingdom, China and Malaysia. Twice since 2003 its research and teaching academics have won Nobel Prizes. The University has won the Queen's Award for Enterprise in both 2006 (International Trade) and 2007 (Innovation – School of Pharmacy), and was named ‘Entrepreneurial University of the Year’ at the Times Higher Education Awards 2008.

Nottingham was designated as a Science City in 2005 in recognition of its rich scientific heritage, industrial base and role as a leading research centre. Nottingham has since embarked on a wide range of business, property, knowledge transfer and educational initiatives (www.science-city.co.uk) in order to build on its growing reputation as an international centre of scientific excellence. The University of Nottingham is a partner in *Nottingham: the Science City*.

More information is available from Professor Mohammad Ilyas on +44 (0)115 823 0735, mohammad.ilyas@nottingham.ac.uk or Emma Thorne, Media Relations Manager in the Communications Office at The University of Nottingham, on +44 (0)115 951 5793, emma.thorne@nottingham.ac.uk

More University of Nottingham news: <http://communications/nottingham.ac.uk/>