Medical Xpress

Stem cell focus for IBD wound healing

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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."

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."

Source: University of Nottingham (news : web)