

# Study sheds light on cause of bowel disease

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Scientists have uncovered vital clues about how to treat serious bowel disorders by studying the behaviour of cells in the colon.

Researchers at the University of Edinburgh believe a chemical messenger that is essential for developing a baby's gut in the womb could hold the key to new treatments for inflammatory bowel disease (IBD), a condition which affects 1 in 250 people in the UK.

The team studied a chain of chemical reactions inside colon cells, called the Hedgehog signalling pathway, which controls the way it behaves and communicates with other cells.

The researchers found that some patients with IBD inherit a defective copy of one of the important links in this chain, a gene called *GLI1*. This defective *GLI1* is only half as active as normal. Additionally, the Hedgehog pathway itself signals at lower levels than normal when the large bowel is inflamed.

The results suggest that the *GLI1* protein may calm inflammation within the healthy colon, and that this process appears to go wrong in IBD patients, causing their gut to become inflamed.

The researchers now hope to test whether strengthening this weakened protein will help to prevent or treat inflammatory bowel diseases like Crohn's disease and ulcerative colitis.

Dr Charlie Lees from the University's Institute of Genetics and

Molecular Medicine, who led the study, said: "Everybody has billions of bacteria in the gut, the vast majority of which do us no harm. Our body's natural immune responses identify and eliminate harmful bacteria, whilst living in harmony with the healthy bacteria. But in people with inflammatory bowel disease, that response goes wrong and an over-active immune response against these healthy bacteria leads to chronic inflammation in the gut.

"It now seems that the Hedgehog signalling pathway, and specifically the GLI1 protein, is crucial to that response. We think it provides an important signal to certain types of immune cells in the gut wall, instructing them to adopt an anti-inflammatory state. If we can find ways to bolster these responses in people with IBD, we may be able to help prevent the painful attacks which are so devastating to patients."

Source: University of Edinburgh

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