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Crohn's disease gene discovery points towards new treatments

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Genetic changes that occur in patients with the bowel condition Crohn's disease could hold clues to fighting the illness.

Scientists have identified chemical changes in the DNA of patients with Crohn's disease that could help to screen people for the disease.

These changes can be detected in blood samples, opening the door to a simple test for Crohn's disease.

The findings also offer clues to how the condition develops and reveal possible targets for new treatments.

Several genes have been linked to Crohn's disease but not everybody who inherits these genes will develop the condition. The discovery sheds light on how environmental factors that vary between individuals – such as diet and gut bacteria – can trigger Crohn's disease in some people who have inherited these genes.

A study involving children with Crohn's disease in Edinburgh, Aberdeen, and Glasgow – led by the University of Edinburgh – identified chemical changes in their DNA that affect how their genes work.

The genes that are affected by these changes could represent useful targets for new treatments, the scientists say.

A DNA test alone would not be enough to diagnose the disease but it

could pinpoint those at most risk and help to reduce the number of people who are put forward for further tests, researchers say.

It could also help to monitor progression of the disease and how patients respond to treatment.

Crohn's disease is a type of inflammatory bowel disease and a common cause of chronic ill-health in the UK. It is a particular problem in children in Scotland, where the incidence of the disease has increased by 500 per cent in the past 50 years.

At present there is no way to prevent Crohn's disease and therapy is focused on treating the symptoms, which may include abdominal pain, diarrhoea and severe weight loss.

Professor Jack Satsangi, from the Centre for Genomic and Experimental Medicine at the University of Edinburgh, said: "Our study gives the strongest evidence yet that epigenetic changes are involved in Crohn's disease. The findings provide a potential mechanism whereby diet or other environmental factors may modify genetic material to cause Crohn's disease. We hope the findings will help to identify much-needed treatment opportunities for this debilitating condition."

The study is published in the journal *Inflammatory Bowel Diseases*.

More information: A.T. Adams et al. Two-stage Genome-wide Methylation Profiling in Childhood-onset Crohn's Disease Implicates Epigenetic Alterations at the VMP1/MIR21 and HLA Loci. *Inflammatory Bowel Diseases*, August 2014. journals.lww.com/ibdjournal/Ab … filing_in.99439.aspx