

Scientists find how bacteria in cows' milk may cause Crohn's disease

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Crohn's is a condition that affects one in 800 people in the UK and causes chronic intestinal inflammation, leading to pain, bleeding and diarrhoea.

The team found that a bacterium called *Mycobacterium paratuberculosis* releases a molecule that prevents a type of white blood cell from killing *E.coli* bacteria found in the body. *E.coli* is known to be present within Crohn's disease tissue in increased numbers.

It is thought that the *Mycobacteria* make their way into the body's system via cows' milk and other dairy products. In cattle it can cause an illness called Johne's disease - a wasting, diarrhoeal condition. Until now, however, it has been unclear how this bacterium could trigger intestinal inflammation in humans.

Professor Jon Rhodes, from the University's School of Clinical Sciences, explains: "*Mycobacterium paratuberculosis* has been found within Crohn's disease tissue but there has been much controversy concerning its role in the disease. We have now shown that these *Mycobacteria* release a complex molecule containing a sugar, called mannose. This molecule prevents a type of white blood cells, called macrophages, from killing internalised *E.Coli*."

Scientists have previously shown that people with Crohn's disease have increased numbers of a 'sticky' type of *E.coli* and weakened ability to fight off intestinal bacteria. The suppressive effect of the *Mycobacterial*

molecule on this type of white blood cell suggests it is a likely mechanism for weakening the body's defence against the bacteria.

Professor Rhodes added: "We also found that this bacterium is a likely trigger for a circulating antibody protein (ASCA) that is found in about two thirds of patients with Crohn's disease, suggesting that these people may have been infected by the Mycobacterium."

The team is beginning clinical trials to assess whether an antibiotic combination can be used to target the bacteria contained in white blood cells as a possible treatment for Crohn's disease.

Source: University of Liverpool

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