

Pinpointing immune system disturbances in celiac disease

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New research has identified four aspects of immune system disturbance which lead to the development of coeliac disease. Nearly 40 different inherited risk factors which predispose to the disease have now been identified. These latest findings could speed the way towards improved diagnostics and treatments for the autoimmune complaint that affects 1 in 100 of the population, and lead to insights into related conditions such as type 1 diabetes.

David van Heel, Professor of Gastrointestinal Genetics at Barts and The London School of Medicine and Dentistry has led an international team of researchers towards the discovery. Results of their research, funded by the Wellcome Trust, and supported by the patient charity Coeliac UK, are published online in [Nature Genetics](#) on Sunday 28 Feb 2010.

Professor van Heel, commenting on the latest findings said: "We can now shed light on some of the precise immune disturbances leading to coeliac disease. These include how [T cells](#) in the body react to toxic wheat proteins, how the thymus gland eliminates these T cells during infancy, and the body's response to [viral infections](#). We now understand that many of these [genetic risk factors](#) work by altering the amounts of these immune system genes that cells make. The data also suggests that coeliac disease is made up of hundreds of genetic risk factors, we can have a good guess at nearly half of the genetic risk at present."

The study also shows that there is substantial evidence to indicate a shared risk between the gene associated with coeliac disease and many

other common chronic immune mediated diseases. Previously Professor van Heel had identified an overlap between coeliac disease and [type 1 diabetes](#) risk regions, as well as coeliac disease and [rheumatoid arthritis](#).

Coeliac disease is common in the West, affecting around one per cent of the population. It is an auto-immune disease triggered by an intolerance to gluten (a protein found in foods containing wheat, barley and rye) that prevents normal absorption of nutrients. If undetected it can lead to severe health problems including anaemia, poor bone health, fatigue and weight loss.

More information: 'Multiple common variants for coeliac disease influencing immune gene expression' is published online in *Nature Genetics* on 28 Feb 2010.

Provided by Queen Mary, University of London

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