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Researchers discover 'molecular switch' that causes auto-immune diseases

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Wednesday February 15, London: The discovery of the 'molecular switch' that causes inflammatory bowel disease (IBD) and Celiac disease, could lead to more effective new treatments for these life-changing auto-immune conditions, according to research from scientists at King's College London and University College London.

For the first time, researchers have a specific target for the treatment of these conditions by identifying an immune molecule called T-bet as the key control point that regulates this genetic risk in specific diseases. The discovery has been published in the journal *PLoS Genetics*.

T-bet plays an important role in coordinating the body's immune responses. In patients with IBD, T-bet behaves abnormally, causing the immune reaction which leads to the development of the condition.

A great deal of work has been done on the genetic predisposition to autoimmune disease over the past 10 years. However, it has been very difficult to develop effective treatments because a large number of genes each make a very small contribution to the development of these diseases.

Professor Graham Lord, co-senior author on the study and Director of the National Institute for Health Research Biomedical Research Centre at Guy's and St Thomas' NHS Foundation Trust and King's College London, which supported this study, said: "Our research outlines a specific focus for the development of new treatments for these diseases

which have such a profound effect on sufferers."

More information: Katrina Soderquest et al, Genetic variants alter T-bet binding and gene expression in mucosal inflammatory disease, *PLOS Genetics* (2017). DOI: 10.1371/journal.pgen.1006587

Provided by NIHR Biomedical Research Centre at Guy's and St Thomas' and King's College London

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