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Scientists discover new mechanism regulating the immune response

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Scientists at an Academy of Finland Centre of Excellence have discovered a new mechanism regulating the immune response that can leave a person susceptible to autoimmune diseases.

A fresh study by Turku Centre for Biotechnology and Aalto University in Finland is the first to report a new mechanism that regulates specification of lymphocytes, the white blood cells pivotal to immune response. By combining state-of-the art techniques, next-generation deep sequencing and computational data mining, the researchers discovered new epigenetic factors regulating lymphocyte function. Regulatory regions of the genes studied displayed variations (single nucleotide polymorphisms or SNPs) that have been associated with predisposition to autoimmune diseases such as type1 diabetes, rheumatoid arthritis and inflammatory bowel disease. These discoveries provide new insight into and basis for the study of emergent mechanisms of immune-mediated diseases.

Immune-mediated diseases such as type 1 diabetes, rheumatoid arthritis, asthma and allergies result from abnormal immune response. T lymphocytes that orchestrate the immune response can differentiate into functionally distinct lineages to combat infection and disease. The correct response to cytokines and a controlled balance of T lymphocyte populations are critical for the immune system and for the avoidance of autoimmune disorders.

The study was published in *Immunity*, a distinguished international

scientific journal.

More information: *Immunity* (2013), doi: 10.1016/j.immuni.2013.05.011