

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](https://doi.org/10.1016/j.immuni.2013.05.011)

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