

Research group discovers a new immune system regulator

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Test tubes. Credit: Hanna Oksanen, University of Turku

Academy Professor Riitta Lahesmaa's research group at Turku and Åbo Akademi University, Finland, has discovered a new regulator of the immune system, a key factor that controls development of regulatory T cells. The discovery provides the basis for new strategies for the treatment of both cancer and immune-mediated diseases.

Regulatory T cells are critical controllers of the immune response. The majority of T cells boost the immune response, enhancing the ability to destroy [cancer cells](#), viruses and bacteria. In contrast, regulatory T cells

can sometimes suppress the immune system's ability to attack cancer cells, allowing cancer to grow and spread. In these instances, inhibiting or braking the regulatory T cell activity would be beneficial.

"We discovered that a protein called Hypermethylated In Cancer 1, or HIC1, serves as the key regulator of regulatory T cells controlling the expression of a large set of genes contributing to T cell function," says Academy Professor Riitta Lahesmaa. "In addition, with genome-wide methods we show that HIC1 binds to sites in the nucleus that often contain genetic variations associated with immune-mediated diseases. This gives us completely new insights into molecular mechanisms that regulate T cell function and [immune response](#) in general."

More information: Transcriptional Repressor HIC1 Contributes to Suppressive Function of Human Induced Regulatory T Cells, [DOI: 10.1016/j.celrep.2018.01.070](https://doi.org/10.1016/j.celrep.2018.01.070) , www.cell.com/cell-reports/fulltext/S2211-1247%2818%2930119-0

Provided by University of Turku

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