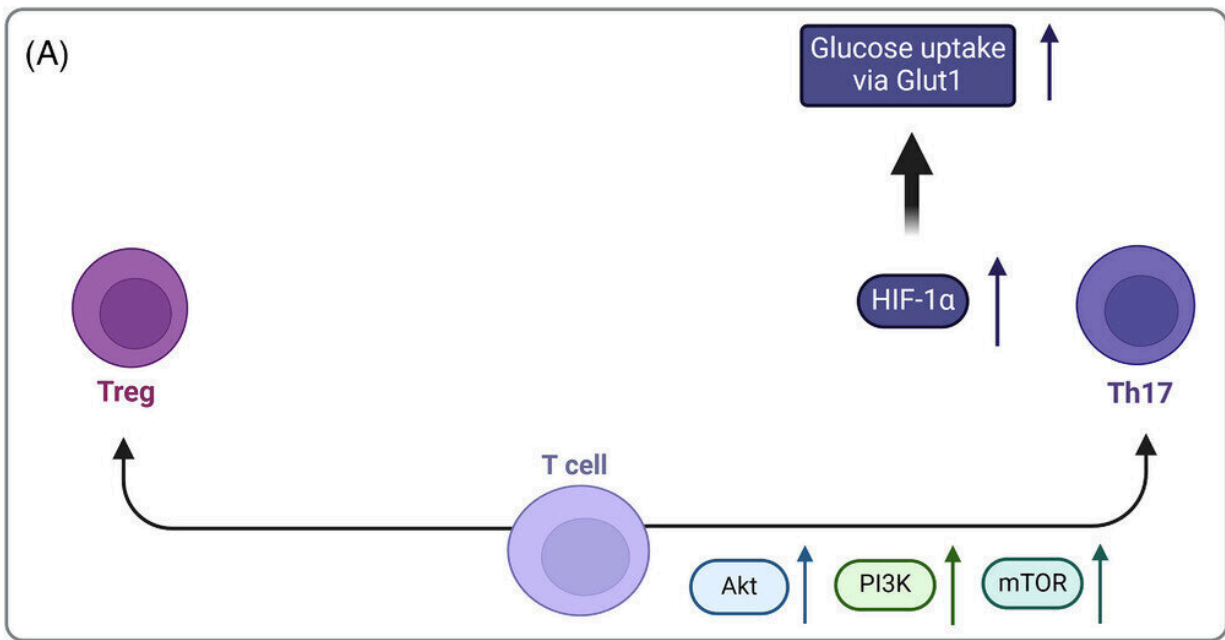


New insights into T and B cells offer hope for autoimmune disease sufferers

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T- and B-cell metabolic changes in the progression of autoimmune diseases, taking Systemic Lupus Erythematosus (SLE) as an example. Credit: *Clinical and Translational Medicine* (2024). DOI: 10.1002/ctm2.1626

Scientists should focus on the interactions between T and B cells to find better treatments for autoimmune disorders, such as rheumatoid arthritis, according to a new study from the University of Surrey. [The study has been published](#) in *Clinical and Translational Medicine*.

Systems Biology researchers have found that our [metabolism](#) could play an outsized role in the delicate balancing act between T and B cells, leading to autoimmune diseases. The study also found evidence that changes in metabolism caused by aging add further risks.

Dr. Matteo Barberis, lead author of the study from the School of Biosciences, said, "We have proposed a new way to treat autoimmune diseases by focusing on the metabolism of immune cells, like T and B cells. We can find more effective treatments by understanding how these cells interact to change their behavior due to shifts in our body's energy processing.

"This approach brings together different areas, such as inflammation and immunometabolism, how our immune system uses energy and the effects of aging."

T and B cells are specialized white blood cells that play crucial roles in our immune system. T cells help identify and attack infected cells, while B cells create antibodies to neutralize harmful invaders like viruses and bacteria. Through mutual regulation, T and B cells can meet the metabolic demand required in each stage of their development.

The team conducted a thorough critical analysis of the current literature in different areas, such as inflammation and immunometabolism, to comprehensively understand the processes involved, where metabolic, signaling and epigenetic routes integrate.

Dr. Matteo Barberis added, "This approach envisions therapeutic treatments of [autoimmune disorders](#) through a strategy of repurposing drugs capable of simultaneously targeting the immune system and the metabolism. It's a promising direction that could lead to better ways to manage conditions such as lupus or multiple sclerosis."

More information: Matteo Barberis et al, Metabolic imbalance driving immune cell phenotype switching in autoimmune disorders: Tipping the balance of T- and B-cell interactions, *Clinical and Translational Medicine* (2024). [DOI: 10.1002/ctm2.1626](https://doi.org/10.1002/ctm2.1626)

Provided by University of Surrey

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