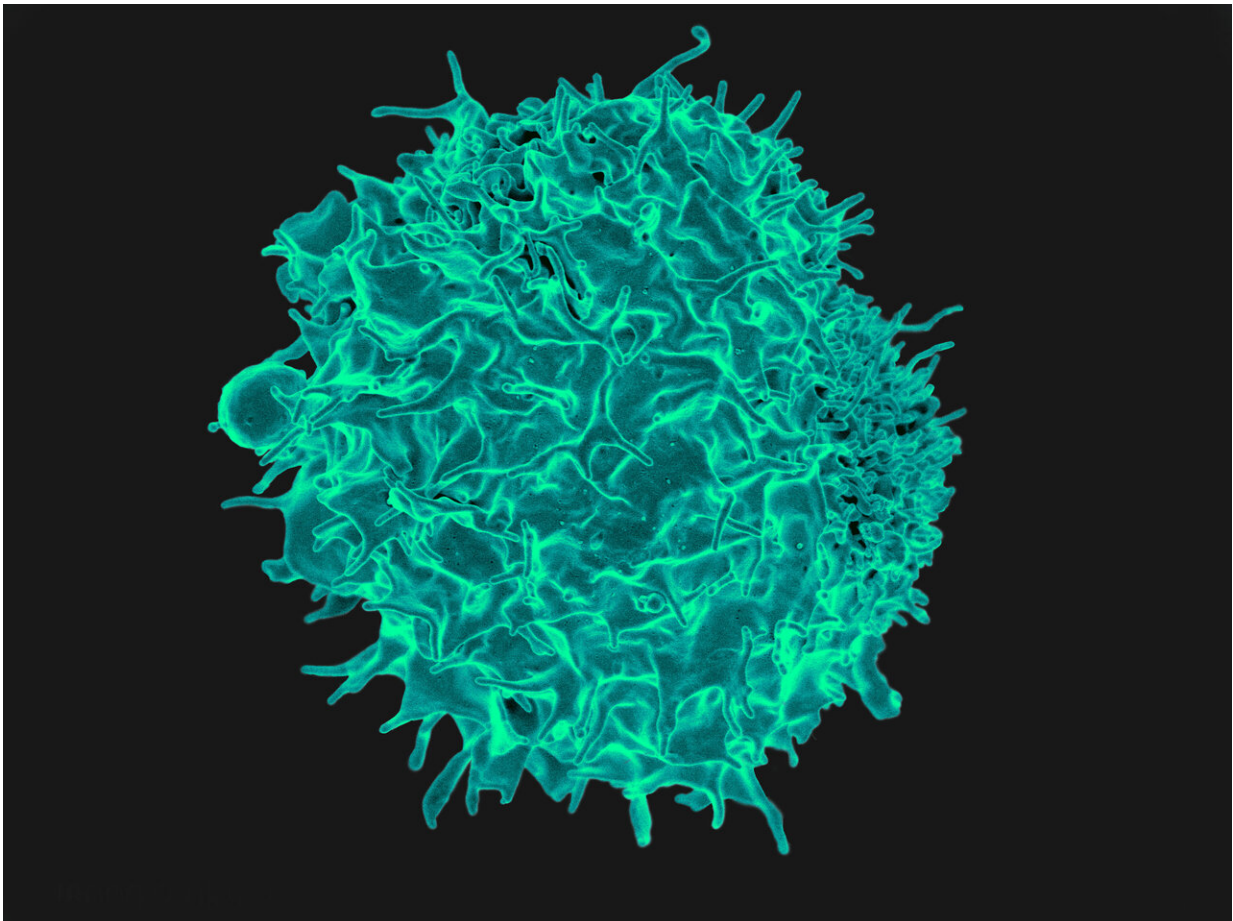


Challenging metabolism may help fight disease

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Colorized scanning electron micrograph of a T lymphocyte. Credit: NIAID

New research by Swansea University academics has shown that

harnessing metabolism at a cellular level may help to relieve or heal a range of disorders.

Researchers at the University's Medical School who have published their findings in the journal *Nature Communications* looked at how [immune system cells](#), which are essential to fighting infection and preventing diseases like cancer, use their metabolic pathways when they are activated in the laboratory.

When these infection and cancer fighting cells, known as CD4+ T cells, are challenged, they make enough energy to fuel their important cellular functions and to create biosynthetic [building blocks](#) to divide and increase to respond to challenges like an infection.

The researchers found that the cells do this by taking up nutrients and processing them through cellular metabolic pathways. When the cells are activated they re-programme their metabolic pathways in order to provide the energy and building blocks needed to carry out their function.

Dr. Nick Jones, of Swansea University Medical School, who led the study said: "It is important to understand how these cells function metabolically as it might lead to new therapies to help treat infectious diseases and cancer. In this study we have scrutinised the [metabolic pathways](#) used by the immune cell and how a particular type of metabolism of the cells allows them to carry out these important functions. In doing so our results indicate that manipulating metabolism may have help to fight various diseases or disorders.

"Our next steps in our research will be understanding how differences in key sugars in our diet can affect the immune system response when challenged by bacteria."

More information: Nicholas Jones et al, Akt and STAT5 mediate naïve human CD4+ T-cell early metabolic response to TCR stimulation, *Nature Communications* (2019). [DOI: 10.1038/s41467-019-10023-4](https://doi.org/10.1038/s41467-019-10023-4)

Provided by Swansea University

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