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Cancer cells hijack glucose, alter immune cells

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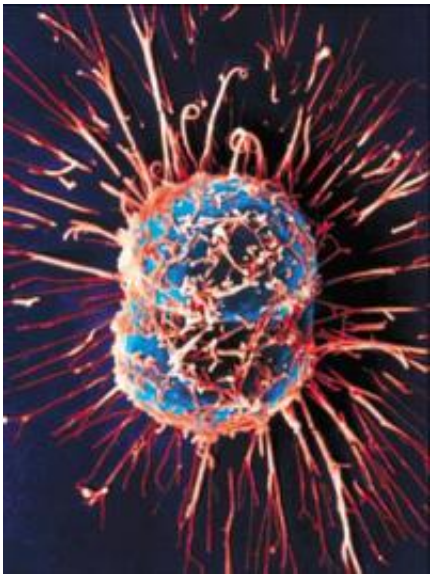

Dividing Cancer Cells. Credit: University of Birmingham

When cancer cells compete with immune cells for glucose, the cancer wins. As a result, the immune T cells are not healthy and don't have the weapons to kill the cancer.

"If we have a way to manipulate the metabolic pathway, the T cells may be healthier," says senior author Weiping Zou, M.D., Ph.D., Charles B. de Nancrede Professor of Surgery, Immunology and Biology at the University of Michigan Medical School.

The finding, published in *Nature Immunology*, suggests a potential metabolic pathway against cancer.

"We know that if we provide glucose, the tumor uses it. One question we have is, can we make T cells resistant to glucose restriction? In our study, we define a mechanism that we can use as a model to test this," Zou says.

The researchers found that T cells that have stem cell-like properties are tied to longer survival and high tumor killing capacity in human cancer. They propose altering the cancer environmental metabolic pathway to allow the T cells to be largely functional. This would allow the T cells to kill the cancer cells.

Their findings also have potential as a tool to predict ovarian cancer survival, or a marker to predict effectiveness of immune therapy including checkpoint blockade or immune vaccination. Additional clinical testing is needed.

More information: *Nature Immunology*, "Cancer mediates effector T cell dysfunction by targeting microRNAs and EZH2 via glycolysis restriction," published online Nov. 2, 2015. DOI: 10.1038/ni.3313

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