

# Does sugar feed cancer?

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Researchers at Huntsman Cancer Institute at the University of Utah have uncovered new information on the notion that sugar "feeds" tumors. The findings may also have implications for other diseases such as diabetes. The research is published in the journal *Proceedings of the National Academy of Sciences*.

"It's been known since 1923 that tumor cells use a lot more glucose than normal cells. Our research helps show how this process takes place, and how it might be stopped to control tumor growth," says Don Ayer, Ph.D., a Huntsman Cancer Institute investigator and professor in the Department of Oncological Sciences at the University of Utah.

During both normal and cancerous cell growth, a cellular process takes place that involves both glucose (sugar) and glutamine (an amino acid). Glucose and glutamine are both essential for cell growth, and it was long assumed they operated independently, but Ayer's research shows they are inter-dependent. He discovered that by restricting glutamine availability, glucose utilization is also stopped. "Essentially, if you don't have glutamine, the cell is short circuited due to a lack of glucose, which halts the growth of the tumor cell" Ayer says.

The research, spearheaded by Mohan Kaadige, Ph.D., a postdoctoral fellow in Ayer's lab, focused on MondoA, a protein that is responsible for turning genes on and off. In the presence of glutamine, MondoA blocks the expression of a gene called TXNIP. TXNIP is thought to be a [tumor suppressor](#), but when it's blocked by MondoA, it allows cells to take up glucose, which in turn drives tumor growth. Ayer's research

could lead to new drugs that would target glutamine utilization, or target MondoA or TXNIP.

Ayer says the next step in his research is to develop animal models to test his ideas about how MondoA and TXNIP control [cell growth](#). "If we can understand that, we can break the cycle of glucose utilization which could be beneficial in the treatment of cancer," Ayer says.

Source: University of Utah Health Sciences ([news](#) : [web](#))

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