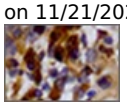
Scientists uncover how mutation of IDH1 gene changes metabolic activity, leads to cancer.

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The IDH1 gene is directly involved in a cells' ability to metabolize food. It is also the most commonly mutated metabolic gene in human cancer cells. Scientists at the UNC Lineberger Comprehensive Cancer Center have now uncovered how this mutation changes the body's chemistry and supports the development of cancer. The molecules α-ketoglutarate (α-KG) and 2-hydroxyglutarate (2-HG) serve opposing functions in the body. The first contributes to normal cell growth, while the second is a competitive inhibitor of α-KG. In cells with mutated IDH1 genes, the body overproduces 2-HG, which entirely changes the metabolic make-up of the cell. The discovery of how IDH allows 2-HG to outcompete α-KG offers hope for new targets for cancer treatments. Increaseing α-KG activity could block the cancer-promoting activities of 2-HG.

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