Metabolite common among cancers

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A study published online on February 8 in the *Journal of Experimental Medicine* reports that several distinct mutations found in a subset of patients with acute myelogenous leukemia (AML) result in excess production of the same metabolite.

The enzyme isocitrate dehydrogenase 1 (IDH1), which normally facilitates production of the metabolite {alpha}-ketoglutarate, is mutated in approximately 80% of secondary brain tumors. This mutant version of IDH1 promotes excess production of a different metabolite: R (-)-2-hydroxyglutarate (2-HG).

A team led by Tak Mak (Toronto) detected elevated concentrations of 2-HG in the serum of the approximately 8% of AML patients with mutations in IDH1. In addition, they identified a mutation in IDH2—the sister enzyme of IDH1—in some AML patients. These patients also had unusually high serum levels of 2-HG.

Additional work is needed to understand if and how 2-HG influences brain cancer and/or leukemia progression. However, as these mutations have so far only been found in cancer, they may prove useful as drug targets.

More information: Gross, S., et al. 2010. J. Exp. Med. doi:10.1084/jem.20092506

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