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Targeting the protein AEG1 impairs human liver cancer growth in mice

Hepatocellular carcinoma (HCC) is a highly aggressive form of liver cancer and one of the 5 most common cancers worldwide. Devanand Sarkar and colleagues, at Virginia Commonwealth University School of Medicine, Richmond, have now identified a gene that is expressed at high levels in human HCC tumor samples and generates a protein important for HCC progression. They therefore suggest that targeting this gene (AEG1), or the protein that it generates, might provide a new therapeutic strategy for the treatment of HCC.

In the study, human liver cells were found to express only low levels of the protein AEG1, whereas human HCC tumor samples expressed very high levels. This was associated with an increase in the number of copies of the AEG1 gene in human HCC tumor samples. Functionally, human liver cell lines engineered to overexpress AEG1 grew faster than nonengineered cells and developed into highly aggressive tumors when transplanted into mice. In addition, knocking down levels of AEG1 in human HCC cell lines after they had been allowed to form a tumor in mice limited further growth. Further analysis revealed that the effects of AEG1 were mediated, in part, via its ability to activate the Wnt signaling pathway.

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TITLE: Astrocyte elevated gene-1 regulates hepatocellular carcinoma development and progression

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