

## A potential chemotherapeutic drug to treat hepatocellular carcinoma

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A research team from China investigated the effect of galangin on hepatocellular carcinoma (HCC) cells. They found that galangin mediates apoptosis through a mitochondrial pathway, and may be a potential chemotherapeutic drug for the treatment of HCC.

Hepatocellular <u>carcinoma</u> (HCC) is one of the most common cancers worldwide, particularly in China. However, HCC remains one of the more difficult cancers to treat. It is important to screen for new anticancer drugs. A number of dietary compounds possess anti-cancer properties. These dietary compounds may modify the activity of specific targets that control cell proliferation and apoptosis. Galangin could inhibit the methoxyresorufin O-demethylase activity of CYP1A2, CYP1A1 and P-form phenolsulfotransferase. Galangin induced apoptosis in several cancer cell lines and arrested the cell cycle, modulated the expression of cycline/cdk, and decreased Bcl-2. It was suggested that galangin may be a potential anti-tumor agent. However, the mechanism by which galangin exerts its anti-tumor activity is unknown.

A research article to be published on July 21, 2010 in the <u>World Journal</u> of <u>Gastroenterology</u> addresses this question. This is the first study to report that galangin mediates apoptosis through a mitochondrial pathway.

Their data demonstrated that (1) galangin induces HCC cell apoptosis by triggering Bax translocation to the mitochondria; (2) galangin-treated



HCC cells causes the release of AIF and cytochrome c into the cytosol from the mitochondria; and (3) overexpression of Bcl-2 attenuated galangin-induced HepG2 cells apoptosis, while down-regulated Bcl-2 expression enhanced galangin to induce cell apoptosis.

Understanding the mechanism by which galangin induces apoptosis may lead to its use as an anti-cancer treatment of HCC. This study may represent a future potential <u>chemotherapeutic drug</u> in the treatment of HCC with galangin.

**More information:** Zhang HT, Luo H, Wu J, Lan LB, Fan DH, Zhu KD, Chen XY, Wen M, Liu HM. Galangin induces apoptosis of hepatocellular carcinoma cells via the mitochondrial pathway. World J Gastroenterol 2010; 16(27): 3377-3384 www.wjgnet.com/1007-9327/full/v16/i27/3377.htm

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