

A potent and selective anti-tumor agent on human gastric adenocarcinoma

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Previous studies on shikonin, a chemical derived from the Chinese medicinal herb had anti-tumor effects although it was found to be toxic. However, an acetyl derivative, acetylshikonin had less toxicity and prevented the growth of sarcomas. However, knowledge of the effect of acetylshikonin on gastric cancer in vitro and especially in vivo is unknown.

A research article to be published on April 21, 2009 in the *World Journal of Gastroenterology* addresses this question. The research team led by Prof. Zhou from Department of Pharmacology of Sichuan University analyzes the effect of acetylshikonin on gastric cancer cell line SGC-7901 and in vivo in nude mice injected with the same cells.

The authors used the gastric carcinoma cell line SGC-7901 and treated the cells in culture with various doses of acetylshikonin. They observed that increased doses of the drug resulted in increased death of the cells using MTT assay. Further analysis using TUNEL assay, Hoechst staining and FACScan showed that cell death is mediated by apoptotic pathways. This was further by increase in the Bax and decrease in Bcl-2 both at the mRNA and protein level as shown by RT-PCR and western blot analysis. In order to see if the drug was also effective in vivo, the authors injected the cells subcutaneously into nude mice and challenged them with acetylshikonin along with cyclophosphamide as a positive control. Consistent with their in vitro studies, administration of acetylshikonin into mice resulted in significant shrinkage of tumor volume and also showed increased ratio of Bax/Bcl-2 as seen with cultured cells. Taken

together, these data suggest that acetylshikonin has potent anti-tumor activity against gastric tumors and should be explored for further development for therapeutic use.

More information: Zeng Y, Liu G, Zhou LM. Inhibitory effect of acetylshikonin on human gastric carcinoma cell line SGC-7901 in vitro and in vivo. World J Gastroenterol 2009; 15(15): 1816-1820, www.wjgnet.com/1007-9327/15/1816.asp

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