

# Apoptotic Effect of Genistein on Hepatocellular Carcinoma HepG 2 Cell Line

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## Abstract

Hepatocellular carcinoma (HCC) is a major health problem and the sixth most common cancer worldwide. Although liver cancer is the sixth most common neoplasm worldwide, its very poor prognosis makes it the third leading cause of cancer-related mortality. This malignancy occurs more often among men than women, with the highest incidence rates reported in East Asia. GE (4',5,7-trihydroxyisoflavone), a phytoestrogenic compound and a major isoflavone constituent of soybeans and soy products, has been shown to suppress the growth of various cancers such as ovarian, oesophagus, breast, lung and colon cancers through modulation of various pathways. The aim of the present study was to analyse the apoptotic and antiproliferative effect of genistein in the hepatocellular carcinoma HepG2 cell line. **Materials and Methods:** Cells were treated with various concentrations of genistein and the MTT assay was used and then cells were treated with a single dose of genistein (25 $\mu$ M) and flow cytometry assay was performed. **Results:** genistein inhibited the growth of liver cancer cells and induced apoptosis significantly with a time- and dose-dependent manner. **Discussion:** Our findings clearly indicated that genistein has a significant inhibitory effect and induces apoptosis with a dose- and time-dependent manner. **Conclusion:** genistein can significantly inhibit the growth of HCC cells and plays a significant role in apoptosis of this cell line.