Baicalein inhibits hepatocellular carcinoma cells through suppressing the expression of CD24.


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Abstract

Hepatocellular carcinoma (HCC) is the third leading cause of cancer death and is the most common type of liver cancer. Current therapies for hepatocellular carcinoma are still rather limited and novel therapeutic strategies are required. Baicalein, extracted from Scutellaria baicalensis, has anticancer effects on HCC in vitro and vivo. However, the detailed mechanisms are not well studied yet. In the present study, we evaluated anticancer effects of purified botanical extracts on HCC cells using high-throughput screening and investigated the effects of baicalein on HCC cells using proliferation and apoptosis assays, RT-PCR, and Western blot. Transfection was used to explore the underlying mechanisms of these effects. Our results showed that baicalein is the most efficient botanical extract in a HCC cell line as compared with the other 13 extracts. Baicalein significantly decreased the expression of c-Myc, a crucial regulator of cell proliferation, apoptosis and cellular transformation, in dose- and time-dependent manners in HCC cells. Moreover, baicalein inhibited HCC cell proliferation and induced apoptosis. The mRNA and protein expressions of CD24 were downregulated by baicalein in HCC cells and ectopic overexpression of CD24 reversed baicalein-induced inhibition of cell proliferation and survival. Taken together, our results demonstrate efficient anticancer effects of baicalein on HCC cells and indicate that baicalein suppresses cell growth and cell survival through downregulation of CD24.

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KEYWORDS:

Apoptosis; Baicalein; CD24; Hepatocellular carcinoma; Inhibition

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