Effect of ST2825 on the proliferation and apoptosis of human hepatocellular carcinoma cells

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ABSTRACT. The purpose of this study was to investigate the effect of ST2825, an inhibitor of myeloid differentiation factor 88 (MyD88), on the proliferation and apoptosis of human hepatocellular carcinoma (HCC) cells as well as the potential mechanism and clinical significance of ST2825 in the treatment of HCC. Immunohistochemical staining with an MyD88 antibody was performed on tissues from 80 human HCC patients and adjacent normal tissues. In the in vitro experiment, human HCC HepG-2 cells cultured in vitro were divided into the following groups: blank, control (1% DMSO), low-dose (2 µM), medium-dose (10 µM), and high-dose ST2825 (20 µM). Cell apoptosis was detected by the Annexin V-FITC assay, and HepG-2 cell proliferation was detected by the MTT assay. The expression of IκB, p65, cyclin D1, caspase-3, and bcl-2 in the cells after a 48-h treatment was assayed by western blot analysis. MyD88 expression in the HCC tissue was significantly higher than that in the adjacent normal tissue (P < 0.05). The proliferation and apoptosis rates of control HCC cells displayed no significant differences compared with those of the blank group (P > 0.05). Compared with the control, ST2825 significantly inhibited the proliferation of and promoted the apoptosis of HCC cells. Moreover,
ST2825 significantly decreased bcl-2 expression, increased cleaved caspase-3 expression (P < 0.05), and reduced p65 nuclear expression (P < 0.05) in a dose-dependent manner. ST2825 inhibits the proliferation of and promotes the apoptosis of HCC cells, thereby suggesting that ST2825 may be a new drug for HCC treatment.

**Key words:** Hepatocellular carcinoma; ST2825; Apoptosis; Proliferation