Dihydromyricetin induces cell apoptosis via a p53-related pathway in AGS human gastric cancer cells

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ABSTRACT. The aim of the present study was to determine the anti-proliferative and pro-apoptotic effects of dihydromyricetin (DHM) on the AGS human gastric cancer cells and their underlying mechanisms. The effects of DHM on AGS cells were evaluated by using 3-(4, 5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT), lactate dehydrogenase, and Annexin V/propidium iodide (PI) double-staining assays. The underlying mechanisms were determined by using quantitative real-time polymerase chain reaction. The results demonstrated that DHM significantly (P < 0.05) inhibited AGS cell proliferation and induced cell cytotoxicity in a dose- and time-dependent manner. Additionally, Annexin V/PI double-staining assay showed that DHM promoted cell apoptosis in both, early and late stages. Furthermore, DHM also regulated the expression of apoptotic genes such as p53 and B-cell lymphoma-2 (bcl-2) in a dose- and time-dependent manner. In conclusion, this is the first report demonstrating the anticancer and pro-apop-
tosis effects of DHM on AGS human gastric cancer cells. The results strongly suggest that DHM may be a potential therapeutic candidate for the treatment of gastric cancer.

**Key words:** Dihydromyricetin; Gastric cancer; Cytotoxicity; Apoptosis; p53