

Anti-leukemia activity of baicalin and baicalein, flavonoids derived from *Scutellaria baicalensis* Georgi

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Baicalin and baicalein are the flavonoids derived from the dried roots of *Scutellaria baicalensis* Georgi, known as baikal skullcap roots (Huang Qin) in the traditional Chinese medicine. Several biological activities of these two compounds have already been reported such as anti-inflammatory, anti-allergic, and choloretic activities. In this study, we investigated an anti-leukemic activity of baicalin and baicalein against a human acute myelocytic leukemia cell line, HL-60 cells. HL-60 cells were incubated with baicalin and baicalein for several days. Cell number was counted after the incubation. Both baicalin and baicalein decreased the number of cells in a dose-dependent manner. Baicalein, a deglycosylated form of baicalin showed intense suppressive effects at lower concentrations than baicalin. Since both baicalin and baicalein showed anti-leukemic activities within a short time, we assessed the killing activities of these two compounds using a CCK-8 kit. Both baicalin and baicalein showed killing activities at higher concentrations within 24 h. Observation under a microscope of the cells incubated with these two compounds for 3 h revealed deformation of the cells i.e. abnormal cell shapes such as swelling and blebbing, suggesting that the cells exposed to these compounds went into necrotic cell death. We still continue to investigate the precise mode of action.