Effect of luteolin on gene expression in mouse H22 hepatoma cells

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ABSTRACT. The purpose of our study was to observe the effects of luteolin on the expression of the genes ICAM-1, LFA-3, and PCNA in H22 hepatoma tissue. Sixty ICR (Institute of Cancer Research) mice with H22 hepatoma were randomly divided into five groups: a normal saline control group, low-, medium-, and high-dose luteolin groups, and a cyclophosphamide group. The mice were euthanized the day after administration withdrawal and subcutaneous tumor tissue was extracted. Quantitative fluorescence RT-PCR was used to detect the expression of ICAM-1, LFA-3, and PCNA in H22 hepatoma tissue in the mice. Luteolin was found to up-regulate the expression of ICAM-1 in H22 hepatoma tissue, of which the middle-dose group had the most obvious effect, showing a significant difference (P < 0.01) as compared to the normal saline group. Each dose group of luteolin significantly
down-regulated the expression of $LFA-3$ in H22 hepatoma tissue, showing significant differences as compared to the saline control group ($P < 0.01$). The medium- and high-dose luteolin groups significantly reduced the expression of $PCNA$ in H22 hepatoma tissue of ICR mice, where the effect of the high-dose group was the most obvious, and the difference between the two luteolin groups and the normal saline group was statistically significant ($P < 0.01$). Luteolin may inhibit tumor angiogenesis and tumor cell proliferation by down-regulation of $LFA-3$ and $PCNA$ and up-regulation of $ICAM-1$ in tumor tissue of tumor-bearing mice, thereby achieving its anti-tumor effect.

**Key words:** Luteolin; H22 hepatoma; Tumor tissue; Gene expression