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The Effect of Luteolin on Human Glioblastoma

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The Effect of Luteolin on Human Glioblastoma

Glioblastoma multiforme (GBM) is widely recognized as the most common and lethal of the malignant gliomas. Few effective therapeutic treatments are available as five-year survival rates of diagnosed individuals are less than five percent. Luteolin, a common flavonoid found in a variety of fruits and vegetables, has demonstrated significant promise in combating cancers of the breast, colon, liver, lung, and bone. In this study, we investigated the effects of luteolin on glioblastoma multiforme cell lines U-251, U-87, and U-1242. Cell viability was assessed using cell count with trypan blue exclusion and MTT assays. Results revealed that luteolin reduces GBM cell viability and cell proliferation in a time and concentration-dependent manner. Western Blot analysis indicated that luteolin decreased AKT, ERK, and MAPK phosphorylation following treatment with EGF. Additionally, luteolin promoted apoptosis in GBM cells by inducing PARP and caspase-3 cleavage, and decreasing levels of the anti-apoptotic protein BCL-XL. Our results indicate that luteolin exhibits a biological effect and may be used as a therapeutic agent for glioblastoma multiforme.