ISOLIQUIRITIGENIN INDUCED APOPTOSIS AND G2 ARREST TO INHIBIT MALIGNENT PHENOTYPE OF ORAL CANCER IN VITRO

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Abstract:

Objectives: Isoliquiritigenin (ISL) was found in licorice. It has various biological actions, including anti-virus, anti-oxidation, anti-inflammation and anti-ulcer activity. It is also utilized in cancer research, such as prostate and breast cancer. However there are a few research papers about oral cancer.

Methods: The 3 OSCC cell lines (HSC3, OECM-1, and SAS) were used for anti-oral cancer drugs screening, and normal human oral keratinocyte (OK) and oral fibroblast (OF) were used for control. Cell viability is detected by MTT assay. Cell cycle and apoptosis were analyzed by flow cytometry. Messenger RNA and protein expression were detected by RT-PCR and western blotting, respectively. The cell migration and colony formation ability were used for malignant phenotype inhibition tests.

Results: OK and HSC3 were sensitive to ISL, but OF, OECM-1, and SAS were not. ISL induced HSC3 cell cycle G2/M arrest and apoptosis in dose dependent manner might by ataxia-telangiectasia mutated (ATM) pathway. HSC3 migration, colony formation ability were inhibited after low dosage ISL 3.125 μM and 6.25 μM treated.

Conclusions: ISL induced HSC3 apoptosis and cell cycle G2/M arrest. The cell malignant phenotypes, such as migration and colony formation were significant inhibited by 3.125 μM and 6.25 μM ISL. These results indicated that ISL was a high potential new anti-cancer drug.

Keywords: apoptosis; isoliquiritigenin; oral squamous cell carcinoma