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Anti-proliferative and apoptotic activities of chrysin in neuroblastoma cells

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Background and Amis: Most cancer patients have some resistance to and suffer from side effects of conventional chemotherapy. Thus, identification of a novel anticancer drug with better target selectivity for cancer treatment is urgently needed. Honey has been shown to exhibit good antioxidant and anticancer activity. However, relatively little is known of the potential beneficial or adverse health effects of its active constituent, chrysin. The objective of the present study was to investigate the specific effects of chrysin on viability, morphology, proliferation, cell cycle progression, and apoptosis in neuroblastoma (N2A) mouse cells.
Methods: The cells (N2A) were cultured in RPMI medium and treated with different concentrations of chrysin for three consecutive days. Cell viability was quantitated by the 3-(4, 5-Dimethylthiazol-2-yl)-2, 5-diphenyl tetrazolium bromide (MTT) assay. Apoptotic cells were determined using propidium iodide (PI) solution by a FACS calibur flow cytometric equipment.
Results: The results of MTT assay showed that both the tested compounds were able to induce an antiproliferative effect on N2A cells in a dose- and time-dependent manner. Chrysin induced apoptosis of N2A cells, as determined by flow cytometry histogram of treated cells which inducing apoptotic cell death is involved in honey toxicity.
Conclusions: Our results suggest that chrysin has cytotoxicity and appoptotic effects on neuroblastoma cell line. Chrysin may therefore be considered a potential candidate for both cancer prevention and treatment. Further investigation is needed to validate the contribution of chrysin in tumor therapy in vivo.

Keywords: Proliferation; Apoptosis; Chrysin, Neuroblastoma