

Evodiamine inhibits the proliferation of human sk-br-3 breast cancer cells by inducing apoptosis

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Abstract: Evodiamine has been reported to exhibit anticancer effects against a number of human cancer cell lines. The present study was designed to evaluate the anticancer effects of evodiamine against the human SK-BR-3 breast cancer cells. The human breast cancer cells SK-BR-3 were purchased from the American type Culture Collection (ATCC, USA). Both the cell lines were propagated using RPMI-1640 (Gibco, Carlsbad, CA, USA) containing 10% fetal bovine serum (FBS, Gibco, Carlsbad, CA, USA) and 1% penicillin/streptomycin (WELGENE). The results showed that evodiamine dose-dependently suppressed the proliferation of SK-BR-3 breast cancer cells in a dose-dependent manner with minimal cytotoxic effects against the normal cells. The IC₅₀ of evodiamine was found to be 12 μM against the SK-BR-3 cells as compared to an IC₅₀ of 74 μM against the normal breast cells. Acridine orange and ethidium bromide (AO/EB) staining showed that evodiamine induced apoptosis in SK-BR-3 breast cancer cells. The annexin V/PI staining further confirmed the induction of apoptosis in SK-BR-3 cells. The western blot analysis showed Western blotting revealed that evodiamine suppressed the expression of Bax and upregulated the expression of Bcl-2 in breast cancer SK-BR-3 cells. Wound healing and transwell assays showed that evodiamine inhibited the migration and invasion of SK-BR-3 breast cancer cells. Taken together, the results suggest that evodiamine suppresses the proliferation of breast cancer cells and may prove to be a beneficial lead molecule for the development of developing chemotherapy for breast cancer.

Keywords: Breast cancer, Evodiamine, proliferation, apoptosis
