



## *Siegesbeckia Glabrescens* induces apoptosis via extrinsic pathway in MDA-MB-231 cells

Liou Jia Liang, Heung Mook Shin

Dongguk University

Hormone replacement therapy is contraindicated in women with breast cancer. Cytotoxic chemotherapy plays an important role in the management of patients with hormone-insensitive or metastatic breast carcinoma, although most of them ultimately develop recurrence. Therefore, there is a need for novel cytotoxic agents and treatment strategies in patients with advanced breast carcinoma that is refractory to conventional chemotherapy.

*Siegesbeckia glabrescens*(SG), an herbal medicine, which has been used for the treatment of arthritis, and fever, as well as detoxification properties. According to the detoxification properties of SG, we have already reported that the apoptotic effect of SG in human liver cancer cell (HepG2) and breast cancer cell (MCF-7).

In the present study, we investigated cell viability of SG on the estrogen receptor negative MDA-MB-231 breast cancer cells by XTT assay. Down regulation of the proliferative activity and cell killing by SG extracts occurred in a clear dose-dependent response with an almost 40-50% growth inhibitory concentration of 0.3 mg/ml in MDA-MB-231 cells. Further, the mode of cell death was identified as apoptosis by microscopic inspection or Hoechst 33342 staining. In addition, significant apoptotic DNA fragmentation was occurred at 12 h after SG treatment. SG induced the cleavage of procaspase-8,-3 and PARP. It did not affect Bcl-2 and Bax mRNA expression.

Our results indicate that SG evokes apoptosis through extrinsic pathway in MDA-MB-231 cells

Key words: *Siegesbeckia Glabrescens*, apoptosis, MDA-MB-231 cells, extrinsic pathway