

The regulation of caspase activity in apoptosis of K562 human chronic myelogenous leukemia cell line treated with Tanshinone IIA isolated from *Salvia miltiorrhiza* BUNGE

Yoonshin Park*, Yoosik Yoon, Shinyoung Lim, Hyunnjae Sung, Medical Research Team, Korea Institute of Oriental Medicine.

Apoptosis is programmed cell death that is characterized by specific morphologic and biochemical properties. Recently considerable research has focused on identifying the molecular mechanism of apoptosis. And it was found that caspases, a group of cysteine proteases, play a critical role in apoptosis of eukaryotic cells.

Apoptosis inducing effects of various oriental medical herb have been widely studied. Among them *Salvia miltiorrhiza* BUNGE was found to have apoptosis-inducing activity the apoptotic effect of Tanshinone IIA, major constituent of *Salvia miltiorrhiza* BUNGE was investigated.

Apoptosis-inducing effects of Tanshinone IIA was observed in K562 promyelocytic cell line. Inter-nucleosomal DNA fragmentation was observed above the concentration of 3.0 ug/ml.

During the apoptotic process poly(ADP-ribose)polymerase cleavage and the activation of caspase were occurred.

In this study, the regulation of the activities caspase family members were investigated, and it was found that only caspase-3 was activated. The activities of caspase-1,2,6,8,9 were not increased during Tanshinone IIA induced apoptosis.

In the time course experiments for caspase activity, caspase 3 activity was increased at 24 hr, and the other caspases were not activated.

These results suggest that, among caspase family, only caspase-3 is involved in Tanshinone IIA-induced apoptosis of K562 cells