The Study on Apoptosis-Inducing Effects and Mechanism of *Radix Paeoniae Alba* Extract on PC-3 Human Prostate Cancer Cell

Kang-Beom Kwon, Eun-Kyung Kim, Do-Gon Ryu

Department of Physiology, School of Oriental Medicine, Wonkwang University

The aim of this study was to investigate the apoptotic effect and its mechanism on *Radix Paeoniae Alba* Extract(RPAE) in PC-3 human prostate cancer cell line.

RPAE induced apoptosis in a dose-dependent manner in PC-3 cells as confirmed by both discontinuous DNA fragmentation using Hoechst33342 staining and poly-(ADP-ribose) polymerase(PARP) cleavage, which are apoptotic signs. To clarify the mechanisms on RPAE-induced apoptosis, we examined the NF-κB activation, PTEN and Par-4 protein expression using enzyme mobility shift assay(EMSA) and Western blotting, respectively. Treatment with RPAE resulted in the decrease of constituve NF-κB activation in a dose-dependent fashion, which were caused by the decrease of IκBα degradation. Also, RAPE increased Par-4, proapoptotic molecule and PTEN expression in PC-3 cells.

These results suggest that apoptosis of PC-3 cells by RPAE involved the decrease of NF-κB activation by the increase of Par-4 and PTEN protein expressions.

Collectively, these results suggest that RPAE may be a valuable agent for the therapeutic intervention of human prostate cancer.

Key words: Radix Paeoniae Alba, PC-3 human prostate cancer cell, apoptosis, NF-κB, Par-4, PTEN