

The mechanisms of Kaempferol-induced cell apoptosis in HUVEC cells

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The purpose of this study explored the role of Kaempferol on anti-angiogenic property and the mechanism of human umbilical vein endothelial cell (HUVECs) apoptosis. In this report, Kaempferol dose- and time-dependently inhibited viability of HUVECs. In *in vitro* study, Kaempferol induced apoptotic death of HUVECs by detecting DNA fragmentation and promoted reactive oxygen species (ROS) production using flow cytometric assay. In addition, the extrinsic caspase signaling (caspase-8 and caspase-3) were activated in Kaempferol-treated HUVECs, and their inhibitors were applied to check the signal transduction. We investigated the upstream of death receptor pathway and further observed that the levels of death receptor 5 (DR5) and phosphorylated c-Jun N-terminal kinase (JNK) signals were up-regulated in HUVECs after Kaempferol challenge, which were confirmed by a JNK specific inhibitor (SP600125). Hence, Kaempferol-induced endothelial cell apoptosis was involved in an ROS/JNK-regulated DR5 pathway. In summary, Kaempferol might process a potential therapeutic effect for anti-vascular targeting of angiogenesis during cancer treatment.

Key words: Kaempferol; angiogenesis; HUVECS, apoptosis; ROS; MAPK JNK signal