산화성스트레스에 의해 유도된 신장세포 아포프토시스에 대한 푸코이단의 보호효과

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Fucoidan Prevents H_2O_2-induced Mesangial Cell Apoptosis through Induction of Heat Shock Protein 70

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Oxidative stress play an important role in the induction of mesangial cell (MC) injury. It is known that heat shock protein 70 (HSP-70) is a molecular chaperons to enhance cellular repair mechanisms. However, there is a few models of introduce novel pharmaceutics enhancing the HSP expression. Fucoidan, the sulphated polysaccharide extracted from brown seaweed, has various biologic activities. In this study, we evaluated whether fucoidan promote HSP-70 expression. In addition, we examined the anti apoptotic effect of HSP-70 in H_2O_2-induced MC apoptosis. When mesangial cells undergo fucoidan pretreatment, HSP-70 protein production, estimated by Western blots, was increased compared to normal control cells. Oxidative injury generated by H_2O_2 inhibited cell survival, as measured by flow cytometric analysis of annexin V and PI. Pretreatment of cell with fucoidan significantly promoted the expression of HSP-70 and also inhibited H_2O_2-induced cellular injury. These findings suggest that fucoidan is a inducer of HSP70 and exerts a protective effect against oxidative renal cell injury.