

## Effect of Silkworm Hemolymph on Oxidative Stress Induced by UVA and Hydrogen Peroxide in Fibroblasts

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Exposure to UV appears to be the most important environmental factor involved in the development of skin photoaging<sup>1)</sup>. It has been known that oxidative stress induced by UV lead to the skin cell death, the formation of reactive oxygen species(ROS), the reduction in collagen, and the increase of matrix metalloproteinases(MMPs)<sup>2,3)</sup>. In our previous study, it has been shown that silkworm hemolymph(SH) inhibited apoptosis and ROS generation in various systems<sup>4,5,6)</sup>. In this study, we investigated the effect of SH on oxidative stress induced by UVA(320-400nm) and hydrogen peroxide in murine fibroblast cell line, NIH/3T3, and human dermal fibroblasts. DNA fragmentation assay showed that SH inhibited the apoptosis induced by UVA and hydrogen peroxide. SH inhibited the formation of ROS, which was determined using 2,7'-dichlorofluorecin diacetate(DCFH-DA). There was also a reduction in the expression of MMP-1(interstitial collagenase) induced by UVA and hydrogen peroxide. These results suggest that SH contains some components protecting fibroblasts against oxidative stress induced UVA and hydrogen peroxide and such components will be used as cosmetic supplements.

### Reference

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