PSORIASIS

ONCOSTATIN M UPREGULATED LIVIN EXPRESSION PROTECTS KERATINOCYTE CELLS AGAINST ROS-INDUCED CELL DEATH IN PSORIASIS VULGARIS

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Background: Psoriasis vulgaris (PV) is a chronic immune-mediated hyperproliferative inflammatory skin disease characterized by pathological skin lesions due to various exogenous and endogenous factors. The pathophysiology of PV has not been fully elucidated. Our previously findings show that high level of the inhibitor of apoptosis protein livin is associated with the severity of PV, but its definite roles in the pathogenesis of PV still need to be explored.

Objective: The aim of this study is to investigate the regulatory mechanism of highly expressed livin in PV, and to evaluate the effects of livin on cell proliferation and reactive oxygen species (ROS) induced cell death.

Materials and Methods: M5-stimulated HaCaT cell line was used as an in vitro model of PV. The expression of livin after stimulation at both mRNA and protein levels were measured by Real-time PCR and Western blotting. Exogenous hydrogen peroxide (H2O2) was added to the culture medium to mimic ROS, the effects on cell proliferation and cell death were further measure by EDU incorporation assay and Annexin V-FITC/7AAD staining using flow cytometer.

Results: We found that Oncostatin M can induce livin expression in HaCat keratinocyte cells through activating the extracellular signal-regulated kinase1/2 (ERK1/2) and STAT3 pathways. Moreover, highly expressed livin confers cells protection against ROS induced cell dealth. Knockdown of livin using siRNA in HaCaT cells decreased the proliferation of keratinocyte, and decreased the secretion of CCL20 and IL-8 cytokines.

Conclusions: Our data show that Oncostatin M can upregulate livin expression in a STAT3 and ERK dependent ways. Highly expressed livin plays an important role in protecting cells from oxidative stress induced cell death during pathogenesis of PV.