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### UVB induced lipin-1 inhibition attenuates pro-inflammation response in keratinocytes

**Minjung Chae**

Amorepacific Corporation, Korea

Ultraviolet (UV), especially UVB (280-315 nm), radiation is a principal environmental factor for the development of skin cancer. Lipin-1 is an  $Mg^{2+}$ -dependent phosphatidate phosphatase that facilitates the dephosphorylation of phosphatidic acid to generate diacylglycerol. In this study, the effect of lipin-1 in regulating UVB induced inflammation in human epidermal keratinocytes (NHEKs) was investigated. UVB radiation resulted in a declined protein levels of lipin-1 expression after 24 hr. To access whether lipin-1 is involved in proinflammatory responses to UVB radiation, changes of proinflammatory factors were tested in NHEKs after UVB irradiation using Raybio human cytokine assay. Evaluation of the expression of proinflammatory proteins indicated that UVB-induced Il-6 and Il-8 productions were increased by lipin-1 overexpression. Lipin-1 knockdown cells treated with UVB radiation resulted in reduced mRNA levels for Il-6 and Il-8. Analysis of protein levels in the supernatants of UVB stimulated NHEKs also showed a declined Il-6 and Il-8 expression in lipin-1 KD while releases of Il-6 and Il-8 were upregulated in lipin-1 overexpression. To verify the inhibitory effect of lipin-1 downregulation on UVB induced Il-6 and Il-8 expression on NHEKs, lipin-1 KD were stimulated with UVB radiation and incubated for 48 hr. The lipin-1 KD showed a significantly lower synthesis for Il-6 and Il-8 compared with control after 24 hr. The data reflect UVB-induced Il-6 and Il-8 productions were down-regulated after lipin-1 expression was inhibited after UVB radiation. Taken together, these results suggest that UVB-induced lipin-1 downregulation has anti-inflammatory activity by attenuating the UVB-induced Il-6 and Il-8 synthesis in NHEKs.

#### Biography

Minjung Chae has completed her Ph.D. from Rutgers University (USA) and continued her research in Amorepacific Corporation (Korea). She is the specialist of lipid metabolism & inflammation in human epidermis.

minjungc@amorepacific.com

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