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The Anti-Wrinkle Mechanism of *Ganoderma lucidum* mycelial with *Acorus gramineus* callus in UVB Treated HaCaT Keratinocytes

Eun-Sil Ko, Sang-Min Cho, Sol Lee, Ji-Hye Jung, Jea-Ran Kang, Jong-Hoon Jeong, Dong-gue Shin, Jeong Hun Seo and Jeong-Dan Cha*

GENERAL BIO Co., Ltd, Namwon, Jeollabuk-Do, Republic of Korea

Skin is continuously exposed to a variety of environmental stresses, including ultraviolet (UV) radiation. UVB is an inherent component of sunlight that crosses the epidermis and reaches the upper dermis, leading to increased oxidative stress, activation of inflammatory response and accumulation of DNA damage among other effects. In the present study, the anti-wrinkle mechanism of *Acorus gramineus* callus culture supernatant (GB-AGS-PSC) was elucidated in UVB treated HaCaT keratinocytes. GB-AGS-PSC prevented the matrix metalloprotease 1 (MMP-1), elastin, and pro-collagen product and cytotoxicity and SOD inhibition. Quantitative polymerase chain reaction showed that GB-AGS-PSC-treated cells displayed dose-dependent increase in messenger RNA expression levels of Aquaporin 3 (AQP3), Keratin 1(KRT1), fillagrin, and hyaluronan synthase-2 (HAS 2) and decreased expression levels of matrix metalloproteinase-3, -9, and -13 in UVB treated HaCaT keratinocytes. Additionally, GB-AGS-PSC suppressed TNF-α, IL-1β, and IL-8 product for inflammatory responses in UVB treated HaCaT keratinocytes. Therefore, GB-AGS-PSC may be useful as an anti-photoaging resource for the skin.

Key words: *Ganoderma lucidum* mycelial, *Acorus gramineus* callus, anti-wrinkle effect, photoaging, UVB, matrix metalloproteinases

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*(Corresponding author) E-mail: cjd@generalbio.co.kr, Tel: +82-63-263-0001