

# 16<sup>th</sup> European Dermatology Congress

June 07-08, 2017 Milan, Italy

## Preventive effect of cacao extract on UVB-induced skin wrinkle formation via inhibition of DNA methylation

Tae-Aug Kim, Aram Kim, Jina Choi, Jihwan Lee, Seung Hwa Baek and Donghyun Kim  
CHA University, South Korea

Cacao beans contain various bioactive phytochemicals that can attenuate or delay the onset of disease condition. However, the effect of cacao powder (CP) on UVB-induced wrinkle formation and the molecular mechanisms responsible has not previously been explored. Here, we report that oral administration of CP attenuates UVB-induced skin wrinkling by regulating genes involved in dermal matrix production and maintenance. Transcriptome analysis revealed that 853 genes are down- or up-regulated with CP supplementation, compared with UVB-irradiated mouse skin controls. CP elicited anti-wrinkle effects via inhibition of UVB-induced MMP-1 expression in a human skin equivalent model and human dermal fibroblasts (HDFs). Inhibition of UVB-induced AP-1 via CP supplementation is likely to affect the expression of MMP-1. In addition pattern-matched analysis of transcriptome and DNA methylome provide many new signature molecules regulated by CP and UVB. CP specifically modulated the expression of profilin-1 and involucrin by suppression of their DNA methylation. These results suggest that cacao extract may offer a protective effect against the photoaging process by epigenetic regulation of signature molecules, leading to an overall reduction in wrinkle formation

### Biography

Tae-Aug Kim has completed his PhD at State University of New York at Buffalo, Buffalo, NY, USA, (1993). He moved to Cutaneous Biological Research Center at Massachusetts General Hospital (MGH)/ Beth Israel Deaconess Medical Center (BIDMC)/Harvard Medical School (HMS), Boston, MA, USA, focusing on the molecular mechanism of TGF signalling on skin development for his postdoctoral training (1993-1999). Then, he was appointed as Instructor at HMS/BIDMC, continuing his research on neuronal degeneration (1999-2002). After he relocated to National Cancer Institute, Bethesda, MD, USA as a senior research fellow (2002-2011), he has working on the role of epigenetic modification and heterochromatin structure on human cancer and DNA repair. He is currently Director of Skin Biology Research Center, School of Medicine, CHA University, South Korea and is working on epigenetic regulation of skin aging and cancer using 3D skin equivalent model.

takim@cha.ac.kr

### Notes: