

Protective Effect of 23-Hydroxytormentonic Acid from Oxidation Stress by Ultraviolet A

Young Ah Cho

Konkuk University School of Medicine, South Korea

Ultraviolet A (UVA) can penetrate further than the skin dermis and produce reactive oxygen species (ROS) in the dermal layer. ROS leads to changes of gene expression, inflammatory reactions in dermal tissue and photo aging. Therefore, strategies to protect the skin from UVA are constantly being studied. 23-Hydroxytormentonic acid (23-HTA) has been proven to exhibit several free radical scavenging effects. The objectives of this study were to investigate the *in vitro* effect of 23-HTA on normal human dermal fibroblasts (NHDF) irradiated with UVA. The NHDFs derived from human skin cells were cultured in the medium diluted with 23-HTA and L-ascorbic acid. 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenylterazolium bromide (MTT) assay was performed to investigate effect of 23-HTA on cell viability. Scavenging activities of 23-

HTA against diphenylpicrylhydrazyl (DPPH), 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid) (ABTS) and hydrogen peroxide *in vitro* were evaluated. Quantitative real time PCR (qRT-PCR) analysis was used for the expression levels of antioxidant enzymes and pro-inflammatory cytokines genes. 23-HTA had the concentration-dependent radical inhibitory effects and exhibited protective effects against UVA-induced stress in NHDFs. In addition, decreased mRNA expression of TNF- α , IL-1 and IL-6 suggested that 23-HTA attenuated the UVA-induced inflammatory response by decreasing the expression of the proinflammatory cytokines. This study demonstrated that 23-HTA exerts a protective effect on human dermal fibroblast against oxidative stress induced by UVA.

Biography:

Young Ah Cho is currently working for Konkuk university medical center in South Korea. She received the Bachelor's degree in life science from the Hanyang University and received M.D. in Konkuk University, College of Medicine, South Korea. Her current research interests include proinflammatory cytokines and autoimmune disease in dermatology.