World congress on
HEALTH AND MEDICAL SOCIOLOGY
&
International Conference On
MOLECULAR BIOLOGY & BIOCHEMISTRY

December 03-04, 2018
Osaka, Japan

Transcriptional regulation of the genes involved in skin-regeneration using protein delivery

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Photoaging caused by UVB-irradiation leads to extracellular matrix damage. Most of the skin aging phenomenon is due to the loss of collagen and elastin fibers in dermal layer. ICE-1 and ICE-2 are important transcription factors involved in type □ collagen synthesis. To increase type I collagen synthesis by regulating the activity of these transcription factors, we designed the intranuclear transcription modulation domains (TMD) of ICE-1 and ICE-2 which can be delivered effectively into the nucleus by being conjugated with protein transduction domain (PTD). The overexpressed ICE-1 and ICE-2 gene through transient transfection and treatment of purified recombinant proteins, pICE-1 and pICE-2 are upregulating type I collagen synthesis on UVB-damaged human dermal fibroblast. In conclusion, transcriptional regulation of type I collagen gene by using transcription modulation domains of ICE-1 and ICE-2 may have significant anti-photoaging effects in human dermal fibroblast.

Biography

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