World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Anti-Aging Effects of Retinol and Alpha Hydroxy Acid on Elastin Fibers of Artificially Photo-Aged Human Dermal Fibroblast Cell Lines

Authors : Mohammed Jarrar, Shalini Behl, Nadia Shaheen, Abeer Fatima, Reem Nasab

Abstract : Skin aging is a slow multifactorial process influenced by both internal as well as external factors. Ultra-violet radiations (UV), diet, smoking and personal habits are the most common environmental factors that affect skin aging. Fat contents and fibrous proteins as collagen and elastin are core internal structural components. The direct influence of UV on elastin integrity and health is crucial on aging of skin by time. The deposition of abnormal elastic material is a major marker in a photo-aged skin. Searching for compounds that may protect against cutaneous photo-damage is highly valued. Retinoids and Alpha Hydroxy Acids protective and or repairing effects of UV have been endorsed by some researchers. For consolidating a better understanding of anti and protective effects of such anti-aging agents, we evaluated the combinatory effects of various dosages of lactic acid and retinol on the dermal fibroblasts elastin levels exposed to UV. The UV exposed cells showed significant reduction in the elastin levels. A combination of drugs with a higher concentration of lactic acid (30-35 mM) and a lower concentration of retinol (10-15mg/mL) showed to work better in enhancing elastin concentration in UV exposed cells. We assume this enhancement could be the result of increased tropo-elastin gene expression stimulated by retinol and lactic acid probably repaired the UV irradiated damage by enhancing the amount and integrity of the elastin fibers.

Keywords : alpha hydroxy acid, elastin, retinol, ultraviolet radiations
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020