
Abstract
Reduced collagen matrix in the dermis constitutes one of the characteristic features of chronologically aged skin, which is further enhanced on the sun-exposed portions of the body by chronic ultraviolet light (UV) irradiation, inducing the unique changes associated with skin photoageing. The zinc salt of l-pyrrolidone carboxylate (Zinc PCA) has long been used as a cosmetic ingredient, because of its astringent and anti-microbial properties. In the present study, by employing cultured normal human dermal fibroblasts, we found that Zinc PCA suppressed UVA-induced activation of activator protein-1 (AP-1) and reduced matrix metalloproteinase-1 production in these cells, which is thought to be involved in collagen degradation in photoaged skin. Moreover, Zinc PCA treatment of the cells increased the expression of an ascorbic acid transporter mRNA, SVCT2, but not SVCT1, resulting in the enhanced production of type I collagen. Based on these in vitro findings, we consider Zinc PCA to be a promising candidate for an anti-skin ageing agent.