〈シンポジウム〉
(紫外線と皮膚を考える)

紫外線による真皮の障害
——コラーゲン，エラスチンの生合成と分解——

正木 仁*

Alterations of Dermal Structure Induced by UV Irradiation
—Contribution of both production and degradation of collagen and elastin—

Hitoshi MASAKI*

Abstract

The aging is called "Photoaging," being different from the intrinsic aging. Many researchers proposed that the formations of wrinkle and sagging be related to the alteration of the structure in the dermal matrix. In the photoaging skin, we observed the following characteristics from histological studies: 1) the decrease of collagen, 2), the disappearance of reticular structure of elastin, 3) the increases of amorphous elastin and glycosaminoglycans, 4) accumulation of AGE (advanced glycation end-products) modified protein. In generally, the turnover of the dermis is regulated the synthesis and the degradation such as collagen, elastin, and glycosaminoglycans. The photoaging skin enhances the ability of the degradation and falls the synthesis. These alterations are caused by the direct effects of UV lights and the indirect effects through the active oxygen species, which are generated by UV irradiation. Furthermore, it is found that AGE-modified proteins generate active oxygen species during UVA irradiation. Thus, the accumulation of AGE-modified proteins progresses the photoaging skin due to the active oxygen species generated by themselves. It will be reviewed that the unbalance of dermal turnover features play an important role on the progression of photoaging skin.

Key words: wrinkle, UV, photoaging, dermal matrix, active oxygen, MMP, AGEs.