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〈シンポジウム II〉

『光老化の予防と対策最前線』

スキンケアによる光老化の予防

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Skin Care for Cutaneous Photoaging

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Abstract

Ultraviolet (UV) exposure strongly influences skin aging (so-called photoaging). Sun-exposed skin shows not only superficial changes, such as wrinkles and sagging, but also many internal changes in the epidermis and dermis. The basement membrane (BM) at the dermal–epidermal junction plays important roles in maintaining a healthy epidermis and dermis, and becomes damaged in sun-exposed skin, but not unexposed skin. Repeated damage may be involved in the acceleration of skin aging. Matrix metalloproteinase (MMP) and urinary plasminogen activator are increased in UV-irradiated skin. By using skin-equivalents as a model, we have found that MMP and plasmin cause BM damage and that the reconstruction of BM is enhanced by inhibiting proteinases, as well as by increasing synthesis of BM components. In the epidermis of UVB-exposed skin, vascular endothelial growth factor (VEGF), an angiogenic factor, was increased, whereas thrombospondin-1 (TSP-1), an anti-angiogenic factor, was decreased, resulting in induction of angiogenesis in the papillary dermis, as well as wrinkle formation. Experimental over-expression of TSP-1 in epidermis is known to inhibit angiogenesis and wrinkle formation. Therefore, compounds that enhance BM repair by increasing BM components, or that inhibit abnormal angiogenesis by increasing TSP-1 in epidermal cells, may have anti-aging effects.

Key words: photoaging, basement membrane, laminin, angiogenesis, MMP.