

〈原 著〉

老化促進モデルマウスの皮膚における弾力繊維の沈着とそれに対するビタミンB₂酪酸エステルおよびビタミンE酢酸エステルの抑制効果

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Deposition of Elastic Fibers in the Skin of the Senescence-Accelerated Mouse and its Suppression by Vitamin B₂ Tetrabutryrate and d- α -tocopheryl Acetate

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Abstract

Age-related alteration in the skin dermis was studied in male senescence-accelerated mice (SAM) of three different age categories (3-4, 5-6, and 12-14-month-old). The most prominent alteration was the deposition of elastic fibers. Numerous, fine, feathery, and highly branched elastic fibers were widely deposited in the middle and upper parts of dermis in SAM-P/1 (accelerated senescence-prone mice) of 12-14-month-old, but not in SAM-P/1 of 3-4 and 5-6-month-old and in SAM-R/1 (accelerated senescence-resistant mice). The elastic fibers in SAM-P/1 aged 12-14 months were ultrastructurally normal; microfibrils were distributed around the periphery of amorphous matrices and degeneration feature of the elastic fibers was not observed. Such histological features were similar to those in the hyperplasia of elastic fibers in the skin of experimental animals induced by repeated irradiation of ultraviolet and/or infrared ray. When SAM-P/1 of 1.5-month-old were orally administered vitamin B₂ tetrabutryrate or d- α -tocopheryl acetate for 10 months, the deposition of elastic fibers was found to be suppressed, suggesting that lipid peroxides might be causative of the deposition of elastic fibers.

All these results indicate that SAM-P/1 is a useful animal model for studies on the aging of skin tissues.

Key words: SAM – elastic fiber – skin – aging – antioxidant