

〈一般論文〉

## 複製老化した真皮線維芽細胞の黄色化とカルボニル化

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### The Effect of Carbonylation on Yellowish Coloration of Replicatively Senescent Dermal Fibroblasts

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#### Abstract

The yellowish coloration of the aged skin is generally known to be caused by the yellowing of dermal extracellular matrix such as collagen. We, however, found that cultured dermal fibroblasts themselves became yellowish color after long-term culture. In this study, we investigated the mechanisms of yellowish coloration of the replicatively senescent dermal fibroblasts. In the yellowed fibroblasts, the amount of reactive oxygen species (ROS) and carbonylated proteins that were reported to be a main factor of yellowish dermal extracellular matrix were increased. In addition, marked lipid peroxidation products (aldehydes) which are intermediates in the carbonylation reaction were observed. In the *trans*-resveratrol-treated yellowed cells, intracellular ROS, carbonylated proteins and aldehydes formation was reduced and the yellowish color was diminished. Based on these results, we speculate that the carbonylation of dermal fibroblasts may be related to the yellowing of aged skin similar to the carbonylated dermal extracellular matrix. Further, it was expected that inhibition of ROS could restore the yellowish color to the previous color in yellowed cells, even in the skin.

**Key words:** aldehyde, carbonylation, reactive oxygen species, yellowish color.