

〈教育セミナー〉

メラニン産生抑制と色素沈着の評価法

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Evaluation Methods of Inhibitory Effect on Melanogenesis and Skin Pigmentation

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Abstract

Reasons for evaluating melanogenesis and skin pigmentation can be classified into two categories: 1) developing new active ingredients and 2) evaluating the effect of commodities thereby developed and comparing them with others. As the primary cause of skin pigmentation is excessive melanogenesis, the following are potential sources of research interest: 1) stimulating effect of various factors on melanocytes (MC); 2) cell activities of MC, including tyrosinase activity, shape of cells and cell growth; 3) excretion of melanin (turnover activity of epidermis). Histological and external appearance assessments of the skin are also informative. Practical evaluation methods *in vitro* (enzymes and cells), animal studies and clinical studies are introduced. Among enzymes related to melanogenesis, tyrosinase (key enzyme) and two tyrosinase related proteins are common indices. The mouse melanoma and human MC are standard. In animal experiments, a test for preventing or improving skin pigmentation using the brownish guinea pig irradiated by UV-light is common. To cause or select skin pigmentations and evaluate them non-invasively is the first consideration with humans. Instruments for typical evaluations include melanin-erythema-index meter, spectrophotometer, chromameter and image analyzer. Although new methods are needed to develop original ingredients, easy and standard effective methods are needed if such commodities are to be used by consumers.

Key words: evaluation method, skin pigmentation, melanogenesis, melanin, non-invasive method.