〈シンポジウム〉
皮膚をめぐる香粧品科学のターニングポイント

メラニン生成阻害
－薬理学的観点から見たその制御－

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Pharmacological Regulation on Melanogenesis

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Abstract

Melanogenesis is regulated by tyrosinase and found to be physiological response in the skin. A method to evaluate the antimelanogenic agent and a novel mechanism of melanogenesis were important to regulate the melanogenesis. In this study, therefore, we demonstrate percutaneous absorption of ascorbic acid phosphate magnesium (APM), one of the most potent antimelanogenic agent, and the mechanism of melanogenesis including nitric oxide (NO). APM was stable in water and was hydrolyzed by acid phosphatase to result in the release of ascorbic acid (AsA). The percutaneous absorption of APM was detected by histochemical identification of released AsA. Our present results also suggested that NO which is released from L-arginine by NO synthase may be partially involved in melanogenesis. L-Arginine significantly stimulated the melanogenesis and the formation of guanosine-cyclic 3',5'-monophosphate (cGMP) in B16 mouse melanoma cells. In addition, these stimulations were inhibited by N-methyl arginine (NMA) which is known to be an inhibitor of NO synthase. In summary, these findings may pharmacologically prove the effectiveness of antimelanogenic cosmetics.

Key words: Melanogenesis, Percutaneous absorption, APM, NO, cGMP