

〈教育セミナー〉

## シミの予防法：現在の美白剤のストラテジー

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### Prevention of Pigment Spots: Up to Date Strategies on Development of Whitening Agents

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#### Abstract

Main targets of whitening cosmetics are prevention and suppression of spots in the skin. Although detailed mechanism remains obscure, it has been considered that spots are associated with imbalance between production of melanin in melanocytes and exclusion of melanin from basal keratinocytes in epidermis. There are three major strategies taken for suppression of hyperpigmentation. One is the inhibition of melanin-producing enzyme in melanocytes such as tyrosinase, TRP-1, and TRP-2. Second approach is the suppression of several melanogens represented by endothelin,  $\alpha$ -MSH, histamin, and nitric oxide, all of which are released from melanocytes-surrounding cells and cause melanogenesis. Last one is the acceleration of melanin exclusion from epidermis by improvement of epidermal turnover. The present review will highlight these up-to-date strategies.

**Key words:** whitening, hyperpigmentation, tyrosinase, melanogen, melanin exclusion.