〈シンポジウム〉
「毛包脂腺系を科学する—毛髪のサイエンスと新しい育毛剤へのアプローチ」

毛髪とホルモン

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Hair and Hormone

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Abstract

Androgens are known to regulate the growth of some sorts of hair, including the beard, axillary hair, and frontal scalp hair of genetically predisposed individuals. Beard, axillary and frontal scalp dermal papilla cells (DPC) were recently shown to possess the characteristics of androgen target cells. Androgen receptor mRNA was strongly expressed in axillary and beard DPC. While the expression of type I 5α-reductase is ubiquitous property of DPC, type II 5α-reductase gene expression is limited to beard and frontal scalp DPC. In contrast, follicular epithelial cells do not have characteristics of the target cells. Although androgen itself did not have a proliferative effect on either type of cells when cultured alone, androgen significantly stimulated the proliferation of follicular epithelial cells which were cocultured with beard or axillary dermal papilla cells. We found that insulin-like growth factor-I (IGF-I) is one of the androgen dependent paracrine growth factors in DPC. Neutralizing antibody against IGF-I antagonized the stimulatory effect of androgen on the growth of outer root sheath cells cocultured with beard dermal papilla cells. The expression of IGF-I in beard and axillary DPC was stimulated by androgen. While follicular epithelial cells expressed mRNA for IGF-I receptor, the expression was not affected by androgen. These findings suggest that IGF-I is a candidate for androgen induced hair growth factors from dermal papilla cells in a paracrine fashion. Recently we found that the expression of FGF8 is also up regulated by androgen in beard DPC. FGF8 is another candidate for androgen dependent hair growth factor.

Key words: hair, dermal papilla cells, androgen receptor, 5α-reductase, growth factor.