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〈シンポジウム I〉

『皮膚の機能を知る～皮膚科学研究の最新情報～』

毛髪における遺伝子の最新知見

下村　裕

Update of Genes Expressed in the Hair

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Abstract

The mammalian hair follicle（HF）is a complex structure which consists of several distinct cell layers. The HF is an ectoderm-derived skin appendage. Importantly, it possesses the remarkable ability of self renewal and undergoes hair cycles throughout post-natal life. Recent advances in molecular genetics have led to the identification of numerous genes that are involved in HF morphogenesis and cycling. Furthermore, we and others have recently reported that mutations in some of these genes are associated with hereditary hair disorders in humans, such as autosomal forms of non-syndromic woolly hair. Identification of causative genes for hair disorders directly suggests crucial roles of these genes in HF morphogenesis, development, and hair growth in humans. In addition to the analysis of hereditary hair disorders, we have assessed how the hair shaft forms a rigid structure. Hair keratins and their associated proteins（KRTAPs）are a major structural component of the hair shaft. Of these, approximately 100 *KRTAP* genes have been identified on human genomes, and are classified into more than 30 families based on their amino acid compositions. We have recently investigated the KRTAP2 family members at the protein levels, and found that they have a tendency to undergo oligomelization and preferentially interact with the head domain of hair keratins *in vitro*. These findings may help to better understand the mechanisms responsible for the hair shaft keratinization in humans.

Key words:　hair follicle, woolly hair, *LIPH*, keratin, inner root sheath.