

〈教育セミナー〉

毛髪科学最前線—ヘアケアから再生医療まで—

## 毛のメラニン科学と白髪化

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### Science of Hair Melanin and Hair Graying

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#### Abstract

Melanin pigments in each hair are supplied from melanocytes, which are originally derived from the neural crest. Pigmented hairs are produced by the cyclic growth and differentiation of multiple cell types and is governed by resident follicular keratinocyte stem cells residing in the specific part of the hair follicle called the bulge. Melanocytes also grow and differentiate responding to the hair cycle from melanocyte stem cells. Melanocyte stem cells are also located in the bulge region and the niche function of melanocyte stem cells was known to be conducted by the follicular keratinocyte stem cells. Hair graying is a condition in some areas of hairs exhibiting white hairs or colorless, and is caused by irreversible defects in the self-renewal and/or development of follicular melanocyte stem cells in the hair follicles. Also, the function of the melanocytes declines with age, and their numbers diminish gradually. I introduce the recent studies and our results on the mechanisms of hair graying and controlling the self-renewal of follicular melanocyte stem cells, and also introduce our collaborative work how to care or improve the hair graying.

**Key words:** hair graying, melanocyte, stem cell, aging.