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Absence of TRP-2 in melanogenic melanocytes of human hair.

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Source

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Erratum in

- Pigment Cell Res. 2004 Dec;17(6):694. Thibaut, Sonia [corrected to Thibaut, Sébastien].

Abstract

Skin and hair colour mostly depend on the activity of melanogenic melanocytes. Numerous proteins involved in melanocyte function have been identified including pMel-17, Mitf-M, Sox10, tyrosinase, tyrosinase related proteins-1 (TRP-1) and -2 (TRP-2). In the hair, melanogenic activity occurs only during the anagen phase of the hair cycle. In order to evaluate the implications of some known melanogenic proteins in human hair pigmentation, we performed immunohistochemical studies to reveal the expression of pMel-17, Mitf-M, tyrosinase, TRP-1 and TRP-2 in active bulb melanocytes of eumelanic brown and black anagen hairs of different ethnic origins, e.g. brown Caucasian, black Asian and African hairs. The labelling was compared with that observed in Caucasian and African scalp epidermis (interfollicular epidermis) melanocytes. We found that while pMel-17, TRP-1 and TRP-2 were expressed in epidermal melanocytes irrespective of ethnic origin and melanin content of the scalp epidermis, Mitf-M and tyrosinase expression were clearly evidenced only in pigmented epidermis, e.g. African scalps. Regarding human hair, pMel-17, Mitf-M, tyrosinase and TRP-1 were detected in a similar manner in active bulb melanocytes of brown and black hairs. In contrast and unexpectedly, TRP-2 could not be detected in hair bulb melanocytes, whatever the hair colour and ethnic origin. The lack of TRP-2 was further confirmed by western blot analyses. Reverse transcriptase-polymerase chain reaction (RT-PCR) performed on hair bulb mRNA demonstrated that Mitf-M, tyrosinase and TRP-1 amplicon signals were easily detected, whereas the TRP-2 amplicon signal was barely detectable. Furthermore Sox10 was not detected in hair bulb. Altogether our results suggest that the absence of detectable level of TRP-2 is due to transcriptional control in active melanocytes of human eumelanic hair bulbs. According to the absence of TRP-2 in melanin-producing melanocytes of brown and black hair bulbs, one must consider that eumelanogenesis as well as brown and black colour do not require TRP-2 expression in human hair.

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