



## Blockade of S100A3 activity inhibits murine hair growth

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**ABSTRACT.** Using mouse gene expression microarray analysis, we obtained dynamic expression profiles of the whole genome in a depilation-induced hair growth mouse model. S100A3 expression increased during the anagen phase and returned to normal during the telogen phase. The effects of S100A3 blockade on the hair growth cycle were examined in mice after subcutaneous injection of an anti-mouse S100A3 antibody. Protein localization of S100A3 was confined to the hair shafts during the anagen phase and the sebaceous glands during the telogen phase. S100A3 blockade delayed hair follicle entry into the anagen phase, decreased hair elongation, and reduced the number of hair follicles in the subcutis, which correlated with the downregulated expression of hair growth induction-related genes *in vivo*. The present study demonstrates that anti-S100A3 antibody inhibits mouse hair growth, suggesting that S100A3 can be used as a target for hair loss treatment.

**Key words:** S100A3; Anti-S100A3 antibody; Hair growth; Hair cycle; Anagen