GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Proteomic analysis identifies differentially expressed proteins participating in forming Type III brush hair in Yangtze River Delta white goat

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Genet. Mol. Res. 14 (1): 323-338 (2015)
Received June 2, 2014
Accepted October 23, 2014
Published January 23, 2015
DOI http://dx.doi.org/10.4238/2015.January.23.6

ABSTRACT. The Yangtze River Delta white goat is a goat breed that can produce high quality brush hair (Type III hair) around the world. This study aimed to compare Type III hair and non-Type III hair goat skin tissues using differentially expressed proteins based on 2-dimensional gel electrophoresis technology. The differentially expressed protein spots were analyzed using the PDquest 8.0 software. Ten protein spots were detected as positive for mass spectrometric analysis based on a threshold of 2-fold change. Through matching based on Ultraflex III TOF/TOF and MASCOT database, four differentially expressed proteins were identified. Fibrinogen beta chain isoform 1 and ATP synthase beta subunit were upregulated in Type III hair, while succinyl-CoA:3-ketoacid-coenzyme A transferase 1-mitochondrial-like and actin-cytoplasmic 1 were upregulated in non-

Type III hair. The 4 proteins play important roles in different aspects of hair follicle development. These findings could pave a good foundation for explaining the mechanism of forming Type III hair.

Key words: Yangtze River Delta white goat; Type III brush hair; Two-dimensional gel electrophoresis; Proteomics

