



Candidate genes for the development of hair follicles in Hu sheep

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Genet. Mol. Res. 15 (3): gmr.15036877

Received May 28, 2015

Accepted August 12, 2015

Published August 5, 2016

DOI <http://dx.doi.org/10.4238/gmr.15036877>

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ABSTRACT. The aim of this study was to detect candidate genes for the development of hair follicles in the Hu sheep breed. Seven genes have been detected in large, medium, and small wave follicles of Hu sheep using gene chip technology. The histological features of the follicles of newborn Hu-lambs were combined with fluorescence quantitative PCR technology to detect the correlation between the expression of the seven genes and hair follicle development. Among the genes studied, matrix metalloproteinase-7 (*MMP2*), bone morphogenetic protein-7 (*BMP7*), and sideroflexin 1 (*SFXN1*) showed a significantly different pattern of expression in large, medium, and small wave follicles ($P < 0.05$). The expression of *MMP2* had a significant positive correlation with secondary follicles in large waves ($P < 0.05$), while the expression

of *BMP7* had a significant correlation with primary follicle diameter in small wave follicles, and a highly significant positive correlation with the number of secondary follicles in the small waves ($P < 0.01$). The expression of *SFXN1* was significantly and positively correlated with the diameters of small wave primary follicles; it also showed a highly significant positive correlation with secondary follicle diameters. Although other genes are associated with hair follicles, their expression in large, medium, and small wave follicles was not significant. We propose that *BMP7*, *MMP2*, and *SFXN1* genes could be important candidate genes for use in breeding Hu lambs with early coat development.

Key words: Hu sheep; Hair follicle; Patterns