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

Study of the correlation between *GH* gene polymorphism and growth traits in sheep

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Genet. Mol. Res. 13 (3): 7190-7200 (2014)
Received November 22, 2013
Accepted April 11, 2014
Published September 5, 2014
DOI http://dx.doi.org/10.4238/2014.September.5.5

ABSTRACT. The growth hormone gene plays an important role in the physiological function of an organism. The current study aimed to investigate the correlation between polymorphisms in the 5' regulatory region, exon 4, and 3' untranslated region (UTR) of the sheep *GH* gene and sheep growth traits. The DNA from 510 adult sheep was analyzed by DNA sequencing and polymerase chain reaction single-strand conformation polymorphism. Two alleles (A and B) and 3 genotypes (AA, AB, and BB), 2 alleles (A and B) and 3 genotypes (AA, AB, and BB), and 3 alleles (A, B, and C) and 4 genotypes (AA, AB, BB, and AC) were found within the 5' regulatory region, exon 4, and 3' UTR, respectively. In Tibetan sheep, the association analysis indicated that there were statistically significant differences in the scores of weight, length, and heart girth within the 5' regulatory region; weight, length, wither height, and heart girth within exon 4; and weight, length, wither height, and heart girth within the 3' UTR among the different genotypes. For exon 4, Poll Dorset sheep individuals with genotype AA showed a lower score than those of genotypes BB and AB ($P < 0.05$). With regard

to the 3' UTR, Poll Dorset sheep with genotype AC showed higher scores than those of genotypes AA and AB ($P < 0.05$).

Key words: *GH* gene; Growth traits; Polymorphism; DNA sequencing; Polymerase chain reaction single-strand conformation polymorphism; Sheep

