



Polymorphisms in the LPL gene and their association with growth traits in Jiaxian cattle

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ABSTRACT. Previous studies showed that the lipoprotein lipase (LPL) gene was involved in metabolism and transport of lipids, suggesting that the LPL is a potential candidate gene affecting growth traits in animals. The aim of this study was to identify polymorphism in the bovine LPL gene and analyze its possible association with growth traits in 218 randomly selected Jiaxian cattle. We used DNA sequencing to identify single nucleotide polymorphisms (SNPs) in the LPL gene. A sequence analysis revealed three SNPs: two in intron 5 (C18306T and C18341T) and one in exon 6 (G18362A). G18362A is a missense mutation leading to a change of the 325th glycine to serine. Based on χ^2 tests, the genotypic distributions of C18306T were in agreement with the Hardy-Weinberg equilibrium ($P > 0.05$), whereas the other two mutations were not ($0.05 > P > 0.01$). Association analyses showed that the C18341T SNP was significantly associated with several growth traits ($P < 0.01$ or $P < 0.05$), and the G18362A was associated with withers height ($P < 0.05$). Our results suggest that

LPL gene variation may be considered molecular markers for growth traits in Jiaxian cattle.

Key words: Growth traits; Jiaxian cattle; Lipoprotein lipase