



Association between single-nucleotide polymorphisms of fatty acid synthase gene and meat quality traits in Datong Yak (*Bos grunniens*)

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ABSTRACT. Fatty acid synthase (FASN) is a key enzyme in fatty acid anabolism that plays an important role in the fat deposit of eukaryotic cells. Therefore, in this study, we detected 2 novel single-nucleotide polymorphisms (SNPs) in the *FASN* gene in 313 adult individuals of Datong yak using polymerase chain reaction-single strand conformation polymorphism and DNA sequencing techniques. SNP g.5477C>T is located in intron 3 of *FASN*, and 3 genotypes, HH, HG, and GG, were detected in this mutation site. SNP g.16930T>A is located in exon 37 of *FASN*, and 2 genotypes, EE and EF, were detected in this site. Association analysis of these 2 SNPs with meat quality traits showed that in SNP g.5477C>T, yaks with the HH genotype and HG genotype

had significantly higher intramuscular fat content than individuals with the GG genotype ($P < 0.01$). In SNP g.16930T>A, yaks with the EE genotype also had significantly higher IMF content than individuals with the EF genotype ($P < 0.01$). The results indicate that *FASN* may be used as a candidate gene affecting intramuscular fat content in Datong yaks.

Key words: Fatty acid synthase gene; Meat quality traits; Polymorphism; Yak