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

M. Chu1,2*, X.Y. Wu1,2*, X. Guo1,2, J. Pei1,2, F. Jiao1, H.T. Fang1, C.N. Liang1,2, X.Z. Ding1,2, P.J. Bao1,2 and P. Yan1,2

1Lanzhou Institute of Husbandry and Pharmaceutical Sciences, Chinese Academy of Agricultural Science, Lanzhou, China
2Key Laboratory of Yak Breeding Engineering of Gansu Province, Lanzhou, China
3Food and Drug Administration of Jinchang, Jinchang, China

*These authors contributed equally to this study.
Corresponding author: P. Yan
E-mail: pingyanlz@163.com

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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