



A novel polymorphism of the MYPN gene and its association with meat quality traits in *Bos taurus*

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ABSTRACT. Myopalladin (MYPN) is a multifunctional protein that maintains sarcomeric integrity and regulates Z-line structure. It is an important candidate gene for meat quality selection through marker-assisted selection. Using PCR-RFLP technology, we discovered a single-nucleotide polymorphism (SNP) (A1795G in exon 9) of the MYPN gene. Allele frequencies of this SNP were investigated and evaluated by the χ^2 test in 660 cattle populations in China; only the Nanyang population was not in Hardy-Weinberg equilibrium. Gene heterozygosity, effective allele number and polymorphism information content of the bovine MYPN locus in seven populations varied from 0.3888 to 0.4998, 1.6360 to 1.9992, and 0.3132 to 0.3749, respectively. We also looked for a potential association of this SNP with ultrasound traits in 399 individuals and found a significant effect on the ultrasound loin-muscle area. Meat quality traits were analyzed in another 61 Qinchuan individuals to analyze associations with genotype. Animals with the genotype GG had higher mean values for loin-eye area ($P < 0.05$) and water-holding capacity ($P < 0.01$) than those with AA or AG genotypes. We conclude that this SNP of the MYPN gene has potential as a genetic marker for meat quality traits in cattle reproduction and breeding.

Key words: Cattle; MYPN gene; SNP; PCR-RFLP; Meat quality traits