



New polymorphisms in the novel LYRM1 gene are associated with body measurement and meat quality traits in Qinchuan cattle

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ABSTRACT. Body measurement and meat quality traits play important roles in the evaluation of productivity in cattle; they are influenced by genetic and environmental factors. Recent studies have shown that LYRM1 is a novel gene related to obesity and may influence fat deposition. We screened for new polymorphisms in the bovine LYRM1 gene and analyzed their association with body measurement and meat quality traits in cattle. DNA samples were obtained from 572 Qinchuan cattle aged from 18 to 24 months. DNA sequencing was used to find the LYRM1 single nucleotide polymorphisms (SNPs). Sequence analysis of LYRM1 revealed four novel SNPs in exon 3: G50A in coding region, C126A, A127T, and T128A in a 3'-untranslated region. G50A, A127T and T128A showed two genotypes: AG and GG, AA and AT, AT and TT, respectively; while C126A showed three genotypes: AA, AC and CC. Analysis showed that these four polymorphisms were significantly associated with body measurement and meat quality traits in the

Qinchuan cattle population. We suggest that the LYRM1 gene can be used for marker-assisted selection to improve body measurement and meat quality traits in the Qinchuan cattle population.

Key words: Body measurement; Meat quality traits; LYRM1; Qinchuan cattle; Single nucleotide polymorphism