



## Polymorphisms in the delta-like 2 homolog gene and their association with growth and meat-quality traits in Qinchuan cattle

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**ABSTRACT.** The delta-like 2 homolog (DLK2) modulates adipogenesis, hematopoiesis, osteogenesis, and other cell-differentiation processes. In the present study, we detected potential polymorphisms in the *DLK2* gene in 604 individuals of Qinchuan cattle by using PCR-RFLP and DNA-sequencing methods. Herein, we identified five novel single-nucleotide polymorphisms (SNPs) (g.888G>A, g.910A>G, g.995G>A, g.4321A>G, g.4850A>G) and analyzed their association with measured traits. Four of the five analyzed polymorphisms were associated with at least one of the following traits: body weight (BW), chest depth (CD), chest circumference (CC), back fat thickness (BT), and rib-eye area (REA). To the best of our knowledge, our research is the first to report the association of *DLK2* gene polymorphisms with growth and meat quality traits in Qinchuan cattle. In summary, the results of our study suggest that the *DLK2* gene can be used as a candidate gene in beef cattle breeding.

**Key words:** Polymorphisms; Qinchuan cattle; *DLK2* gene; Mutation; Growth and meat traits