



Sequence variants in the bovine *PRDM16* gene associated with body weight in Chinese cattle breeds

J. Wang¹, C. Wang¹, R. Tian¹, Y.-Z. Huang¹, X.-S. Lai¹, X.-Y. Lan¹,
J.-Q. Wang³ and H. Chen^{1,2}

¹Shaanxi Key Laboratory of Molecular Biology for Agriculture,
College of Animal Science and Technology, Northwest A&F University,
Yangling, China

²Institute of Cellular and Molecular Biology, Xuzhou Normal University,
Xuzhou, China

³Research Center of Cattle Engineering Technology in Henan,
Zhengzhou, China

Corresponding author: H. Chen
E-mail: chenhong1212@263.cn

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ABSTRACT. As a zinc-finger protein, PR domain containing 16 (PRDM16) controls brown fat determination by stimulating brown fat cell production while suppressing the expression of genes for production of white fat cells; mutations in this domain are associated with myelodysplastic syndrome and leukemogenesis. In our study, polymorphisms in exons 2, 3, 4, 5, 7, 8, and 9 of the *PRDM16* gene were detected by PCR-SSCP, DNA sequencing and CRS-PCR-RFLP methods in 1031 cattle of the Chinese breeds: Jiaxian, Nanyang, Qinchuan, and Chinese Holstein. Three mutations (NC_007314.3: g.577 G>T, 614 T>C, 212237 T>C) were detected. Animals with the homozygote genotype had lower body weight and average daily gain than those with the other genotypes. *PRDM16* gene-specific SNPs may be useful markers for growth traits for marker-assisted selection programs.

Key words: Association; Cattle; *PRDM16* gene; Sequence variants