



# A novel polymorphism of the $GDF_{10}$ gene and its association with body measurement traits in Chinese indigenous cattle

C. Adoligbe<sup>1</sup>, L.S. Zan<sup>1,2</sup>, H.B. Wang<sup>1,2</sup> and J.A. Ujjan<sup>1</sup>

<sup>1</sup>College of Animal Science and Technology, Northwest A&F University, Yangling, Shaanxi, P.R. China

<sup>2</sup>National Beef Cattle Improvement Centre of Northwest A&F University, Yangling, Shaanxi, P.R. China

Corresponding author: L.S. Zan

E-mail: zanls@yahoo.com.cn

Genet. Mol. Res. 10 (2): 988-995 (2011)

Received July 29, 2010

Accepted December 2, 2010

Published May 31, 2011

DOI 10.4238/vol10-2gmr989

**ABSTRACT.** Body measurement traits are known to play numerous important roles in the assessment of productivity and economic value. They are influenced by several factors, among which genetic factors are predominant. The gene  $GDF_{10}$  is involved in skeletal morphogenesis and is associated with body measurement traits. It may be an important candidate gene for marker-assisted selection. We used the PCR-SSCP technology to examine a possible association of the single nucleotide polymorphism (SNP) (G142A) of the bovine  $GDF_{10}$  gene with body measurement traits in 417 animals belonging to six different Chinese cattle populations: Xue long (Xl), Luxi (Lx), Qinchuan (Qc), Jiaxian red (Jx), Xianang (Xn), and Nanyang (Ny). In the Jx population, least squares analysis revealed significant effects on hip width, chest depth and chest circumference. The animals with the GG genotype had higher mean values than those

with the GA genotype for all three traits. We conclude that the SNP of the GDF<sub>10</sub> gene could be a very useful genetic marker for body traits in Jx cattle reproduction and breeding.

**Keys words:** Cattle; GDF<sub>10</sub> gene; SNP; Body measurement traits