



*Research Note*

## Polymorphism analysis of *IGFBP-5* gene exon 1 in Tibet Mini-pig and Junmu No. 1 White pig

A.D. Chen<sup>1</sup>, L.L. Hao<sup>2</sup>, X.B. Fang<sup>2</sup>, K. Lu<sup>2</sup>, S.C. Liu<sup>2</sup> and Y.L. Zhang<sup>1</sup>

<sup>1</sup>Animal Nutrition Department, College of Animal Science, South China Agricultural University, Guangzhou, Guangdong Province, China

<sup>2</sup>Animal Biotechnology Department, Jinlin University, Changchun, Jilin Province, China

Corresponding authors: Y.L. Zhang / L.L. Hao  
E-mail: zhangyl@scau.edu.cn / haolinlin@jlu.edu.cn

Genet. Mol. Res. 13 (1): 1643-1649 (2014)

Received September 10, 2013

Accepted February 12, 2013

Published March 12, 2014

DOI <http://dx.doi.org/10.4238/2014.March.12.17>

**ABSTRACT.** The genetic resources and the mechanism of miniaturization in the Tibet Mini-pig have not been comprehensively studied. Polymorphisms in genes related to the insulin-like growth factor (IGF) axis have been investigated for years, but few on the polymorphism of IGF-binding protein-5 (IGFBP-5) in the Tibetan pig. In this study, allele-specific polymerase chain reaction (AS-PCR) was used to analyze polymorphisms in exon 1 of the *IGFBP-5* gene in two pig breeds, Tibet Mini-pigs and Junmu No. 1 White pigs. A BLAST analysis of the expressed sequence tags in the porcine *IGFBP-5* gene revealed that exon 1 of this gene has two single nucleotide polymorphisms (SNPs), G188T and G503A. The AS-PCR results demonstrated that in both pig breeds examined, the TT, GT, and GG genotypes existed at the G188T locus, with GT as the most common genotype. At the G503A locus, GG, GA, and AA genotypes existed in Junmu No. 1 White pigs, with the GA genotype as the most frequently

occurring. By contrast, at this locus, only the GA and AA genotypes were observed in the Tibetan pigs, and AA was more common than GA. There was a significant difference ( $P < 0.01$ ) in allele distribution between the two breeds at the G503A locus but not the G188T locus, and there was a lower polymorphism information content for the two polymorphic loci in Tibet Mini-pigs than in Junmu No. 1 White pigs. The present study revealed SNPs in exon 1 of *IGFBP-5* gene in the Tibet Mini-pig, possibly providing more understanding of the mechanism of miniaturization.

**Key words:** Pigs; *IGFBP-5* gene; AS-PCR (allele-specific PCR); SNP