

# Association between polymorphism in STAT5A gene and milk production traits in Chinese Holstein cattle

Bin Bao<sup>1</sup>, Chunlei Zhang<sup>1</sup>, Xingtang Fang<sup>1</sup>, Runfeng Zhang<sup>2</sup>, Chuanwen Gu<sup>1</sup>, Chuzhao Lei<sup>2</sup>, Hong Chen<sup>1,\*\*</sup>

<sup>1</sup> Institute of Cellular and Molecular Biology, Xuzhou Normal University, Xuzhou 221116, Jiangsu, China, <sup>2</sup> College of Animal Science and Technology, Northwest A&F University/Shaanxi Key Laboratory of Biology for Agriculture, Yangling 712100, Shaanxi, China

### Abstract :

STAT5 is a key intracellular mediator of prolactin signaling and can activate transcription of milk proteins in response to prolactin. STAT5 genes are suggested to be candidate markers for milk protein yield and composition in dairy cattle. PCR-SSCP was applied to analyze the polymorphisms of two loci in STAT5A gene in 279 Chinese Holstein cattle. Genotype frequencies, allele frequencies and correlation coefficients between the polymorphic variants and milk production traits were estimated. Three genotypes were found at the two loci. At locus P1 the frequencies of genotypes AA/GG/AG were 0.240/0.147/0.613 and those of alleles A and G were 0.547 and 0.453, respectively. The A/G genotypes had significant effect on milk yield and milk protein content in lactations 1 and 2. At locus P2 the genotype frequencies of CC/TT/CT were 0.752/0.004/0.244 and C and T allele frequencies were 0.875 and 0.125, respectively. Different genotypes had remarkable effect on the milk protein content in lactation 2.

### Key Word :

Chinese Holstein cattle, gene polymorphism, lactation, milk, SSCP, STAT5A

*Volume 28, Number 1, - 2010*