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An *Sdu*I polymorphism at intron 20 of the Chinese Holstein cow *STAT4* gene and its effect on milk performance traits

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ABSTRACT. The signal transducer and activator of transcription (*STAT*) genes are responsive to a wide range of cytokines, growth factors, and hormones, and thus control important biological processes. In humans, *STAT4* mutations have been identified as genetic markers for rheumatoid arthritis, systemic lupus erythematosus, and primary Sjögren's syndrome, whereas little research has been conducted on bovine *STAT4* mutations and their potential effects. Herein, 585 Chinese Holstein cows were used to investigate *STAT4* mutations and their effects on milk performance traits. One haplotype block, containing g.95879G>A, g.96013G>C, was identified in intron 20 of the bovine *STAT4* gene by restriction fragment length polymorphism-polymerase chain reaction and DNA sequencing. Two single nucleotide polymorphisms were significantly associated with milk yield at 305 days ($P < 0.05$), and with protein percentage ($P < 0.05$). Chinese Holstein cows with the haplotype GGGG had higher milk yields at 305 days and lower protein percentages. These results suggest that the 2

single nucleotide polymorphisms of *STAT4* could be used as genetic markers for milk performance traits in Chinese Holstein cows.

Key words: *STAT4*; Polymorphism; Milk performance traits; Chinese Holstein cow

