



Genetic polymorphisms of the *BMAP-28* and *MASP-2* genes and their correlation with the somatic cell score in Chinese Holstein cattle

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ABSTRACT. DNA sequencing, nested polymerase chain reaction (PCR), and PCR-restriction fragment length polymorphism were used to investigate mutations in the coding regions of the bovine myeloid antimicrobial peptide-28 (*BMAP-28*) and mannan-binding lectin-associated serine protease-2 (*MASP-2*) genes in 249 Chinese Holstein dairy cows. The associations between the polymorphisms and somatic cell score (SCS) were analyzed to determine the potential of these genes as genetic markers for breeding mastitis-resistant dairy cattle. The results revealed a C-86G synonymous mutation in the *BMAP-28* gene that caused no alteration in the amino acid sequence. G553A mutation was found in the *MASP-2* gene that led to the substitution of glycine with serine. The chi-square test showed that the G553A mutation was in Hardy-Weinberg equilibrium in the Chinese Holstein dairy cows, whereas the C-86G mutation was not. The variance analysis of the influence of group loci and different genotypes on the SCS showed that the SCS of genotype CC was significantly lower than those of genotypes CG and GG ($P < 0.05$) of the C-86G mutation, and that the SCS of genotype GG was significantly lower than those of genotypes

GA and AA ($P < 0.05$) of the G553A mutation. Genotype combination analysis showed that the combination of the *BMAP-28* genotype CC and the *MASP-2* genotype GG was the best one, in which the SCS was significantly lower than those in the other combinations. Thus, this combination might be useful as a molecular and genetic marker of mastitis in Chinese Holstein dairy cows.

Keywords: *BMAP-28*; *MASP-2*; Mastitis resistance; Somatic cell score