



Polymorphisms of the cocaine-amphetamine-regulated transcript (CART) gene and their association with reproductive traits in Chinese goats

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ABSTRACT. Polymorphisms of the CART gene were investigated by PCR-single-strand conformation polymorphism analysis in 540 samples from 10 goat breeds. Ten novel single-nucleotide polymorphisms as well as three microsatellites were detected; a mutation, 77T→C, led to an amino acid change (Leu→Ser). Associations between polymorphic loci and reproductive traits were analyzed in Chuandong White, Guizhou White and Gulin Ma breeds. Mutation at position 524 had no significant effect on litter size in these three goat breeds. The polymorphism 539C→A differed significantly among the three breeds ($P < 0.05$); C_7T_8/C_9T_8 at 939 was associated with larger litter size ($P < 0.05$) than genotypes C_7T_8/C_7T_8 and C_7T_8/C_8T_8 . No significant association of birth weight was found with gene variation (524C→T, 539C→A and 939

C_nT_n). These findings could be valuable for marker-assisted selection for goat breeding.

Key words: CART gene; SNPs; Microsatellites; Reproduction traits; Goats