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Identification and analysis of phospholipid transfer protein polymorphisms and their association with marbling score in Hanwoo (Korean cattle)

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ABSTRACT. Phospholipid transfer protein (PLTP) regulates high-density lipoprotein metabolism. The gene encoding PLTP is located on bovine chromosome 13. The objective of this study was to identify single nucleotide polymorphisms (SNPs) in the Hanwoo (*Bos taurus coreanae*) PLTP gene to detect novel mutations affecting economically important traits. Five SNPs were identified in the coding region (C7368T, G7453A, C9888T, and C9905T) and intron (A1750G). G7453A changes amino acid 362 of PLTP from alanine to threonine, and C9888T changes amino acid 491 of PLTP from proline to serine. Statistical analyses revealed that the G7453A and C9888T polymorphisms in the PLTP gene were significantly associated with marbling score ($P < 0.05$). The relationship between haplotype and economic traits was analyzed and found to be significantly associated with marbling score ($P < 0.05$). The results suggest that PLTP polymorphisms might be an important genetic influence on economic traits in Hanwoo.

Key words: Cattle; Hanwoo; SNP; Phospholipid transfer protein; Polymorphism

