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**Interaction between GH gene polymorphism and expression of leptin and SCD (stearoyl-coA desaturase) in Japanese Black cattle**

*Sugimoto, K.<sup>1</sup>, Kobashikawa, H.<sup>1</sup>, Ardiyanti, A.<sup>1</sup>, Sugita, H.<sup>1</sup>, Hirayama, T.<sup>1</sup>, Suzuki, K.<sup>2</sup>, Suda, Y.<sup>3</sup>, Yonekura, S.<sup>4</sup>, Roh, S.-G.<sup>1</sup> and Katoh, K.,<sup>1,2</sup>Tohoku University, Animal Physiology, and Animal Breeding and Genetics, Sendai, 981-0855, <sup>3</sup>Miyagi University, School of Food, Agricultural, and Environmental Science, Sendai, 982-0215, and <sup>4</sup>Shinshu University, Faculty of Agriculture, 399-4598, Japan; kato@bios.tohoku.ac.jp*

Japanese Black cattle have three types of growth hormone (GH) gene single nucleotide polymorphism (SNP): Leu-Thr (allele A), Val-Thr (allele B), and Val-Met (allele C) at codon 127 and 172, respectively. We recently found that the allele C is specific for Japanese Black cattle, and cattle with the allele C show lower carcass weight but richer in intramuscular oleic acid than those with other alleles. The aims of the present study were 1) to investigate the interaction between GH SNP and plasma hormones (leptin, GH, Insulin and IGF-I) at 18 and 26 m old and mRNA levels in diaphragm tissues at 30 m old because leptin is a suppressor for feed intake and GH release, and 2) to investigate the interaction between GH SNP and mRNA expression and activities of SCD in diaphragm tissues at 30 m old because SCD is a key enzyme for synthesis of unsaturated fatty acids. Plasma concentrations of leptin and insulin, but not GH, were increased by aging. Plasma insulin concentration was lower in CC-type animals than other types (AA- and BB-types). Expression of leptin mRNA was greater in allele C than others. Expression of SCD mRNA and SCD enzyme activity were greater in allele C than others. But there is no significant linear relationship between mRNA and enzyme activities. These results imply that 1) the greater effect of GH gene SNP on leptin expression in allele C results in smaller carcass weight via suppressed feed intake and GH release, and 2) increased SCD expression and activity in allele C result in accelerated synthesis of unsaturated fatty acid compositions in beef, than those in other alleles.