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ABSTRACT

Effect of SCD and SREBP genotypes on fatty acid composition in adipose tissue of Japanese Black cattle herds

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Fatty acid composition of beef adipose tissue is one of important traits because high proportions of monounsaturated fatty acid are related to favorable beef flavor and tenderness. In this study, we investigated effects of genetic factors such as stearoyl-CoA desaturase (SCD) and sterol regulatory element binding protein (SREBP) on beef carcass traits including fatty acid composition using two cattle populations. Sire effect was significantly related to almost all traits except BMS, suggesting that the trait examined in this study is highly controlled by genetic factors. The effect of SCD genotype on fatty acid composition was detected remarkably in both cattle groups, especially on stearic and oleic acids. This result was consistent with our previous studies and suggests that SCD is associated with fatty acid composition. Unlike SCD genotyping, the effect of SREBP genotype was not identified in this study. Our results suggested that SCD genotype would contribute to improving beef quality in field populations. Further studies about the relationship among these factors will bring an insight into the molecular mechanism of fatty acid metabolism in cattle.