

ABSTRACT

**Fat depot-specific differences in pref-1 gene expression and adipocyte cellularity between *Wagyu* and Holstein cattle**

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Preadipocyte factor-1 (pref-1) is specifically expressed in preadipocytes and acts as a gatekeeper of adipogenesis by maintaining the preadipocyte state and preventing adipocyte differentiation. We hypothesized that the breed differences of adipogenic capacity in cattle could be explained by the expression level of pref-1. In this experiment, we studied the expression level of the pref-1 gene and adipocyte cellularity in subcutaneous and mesenteric adipose tissues of Japanese Black (*Wagyu*) and Holstein fattening cattle. In subcutaneous adipose tissue, there were no significant differences in the pref-1 gene expression levels and adipocyte sizes between the breeds. In contrast, the expression level of the pref-1 gene in mesenteric adipose tissue of Holsteins was significantly higher than that of *Wagyu*. In addition, the size of mesenteric adipocytes in Holsteins was significantly smaller than that of *Wagyu*. These results indicate that the breed differences of fattening cattle affect the expression pattern of the pref-1 gene and adipocyte cellularity in a fat depot-specific manner.