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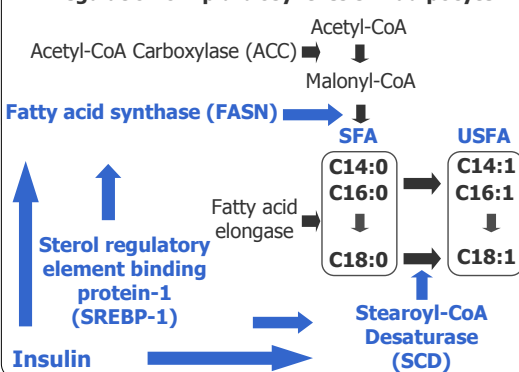
Background

Bovine GH

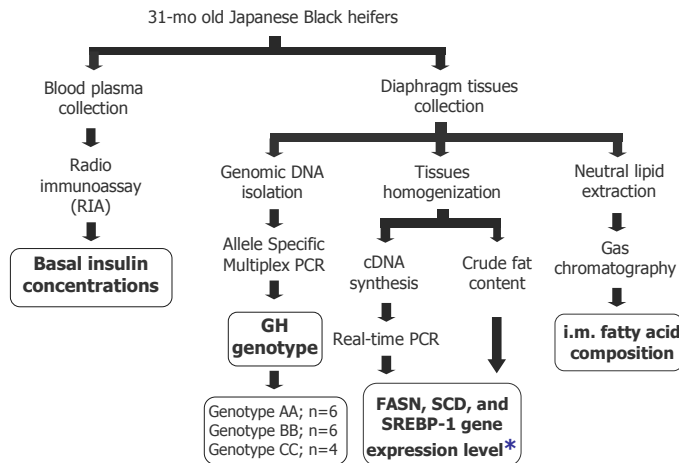


- Japanese Black cattle are famously known for their highly marbled beef and high content of monounsaturated fatty acids (MUFA)
- MUFA contributes to fat softness and higher palatability
- A single nucleotide polymorphism (SNP) in bovine growth hormone (GH) at codon 172, which is so far only found in this breed, relates with higher content of MUFA (Ardiyanti *et al.* 2009).
- GH reduces adipocyte sensitivity to insulin
- Insulin is involved in genes regulation in lipogenesis, such as FASN, SCD.
- SREBP-1 is a transcription factor for FASN and SCD
- SNP on GH gene may alter the lipogenic gene expression level and fatty acid composition as well.

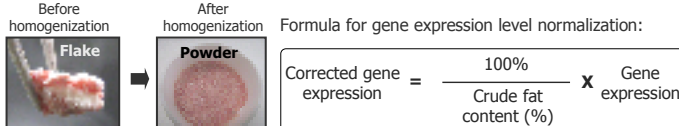
Regulation of lipid biosynthesis in adipocyte



Materials and Methods



*Measurement for lipogenic genes expression using diaphragm tissues



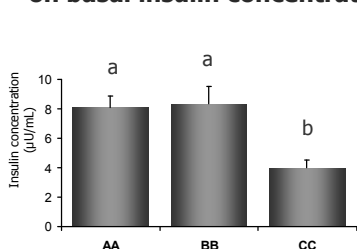
Gene expression levels were normalized using GAPDH as internal control gene and fat percentages for statistical analysis.

Objectives

This study was addressed to investigate if GH SNP at codon 127 and 172 affects i.m. fatty acid composition by measuring plasma insulin concentrations and FASN, SCD, and SREBP-1 mRNA in adipose tissues of Japanese Black heifers with GH genotype AA, BB, and CC.

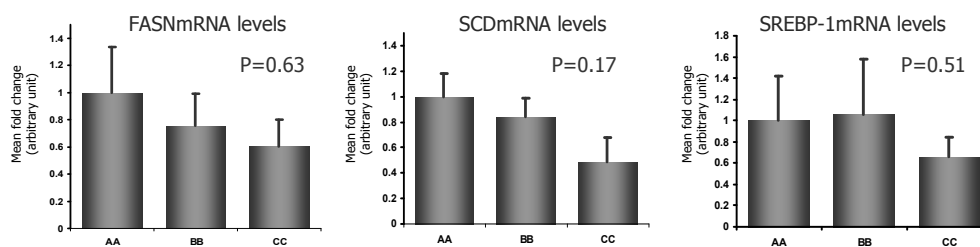
Results

Effects of GH gene polymorphism on basal insulin concentration

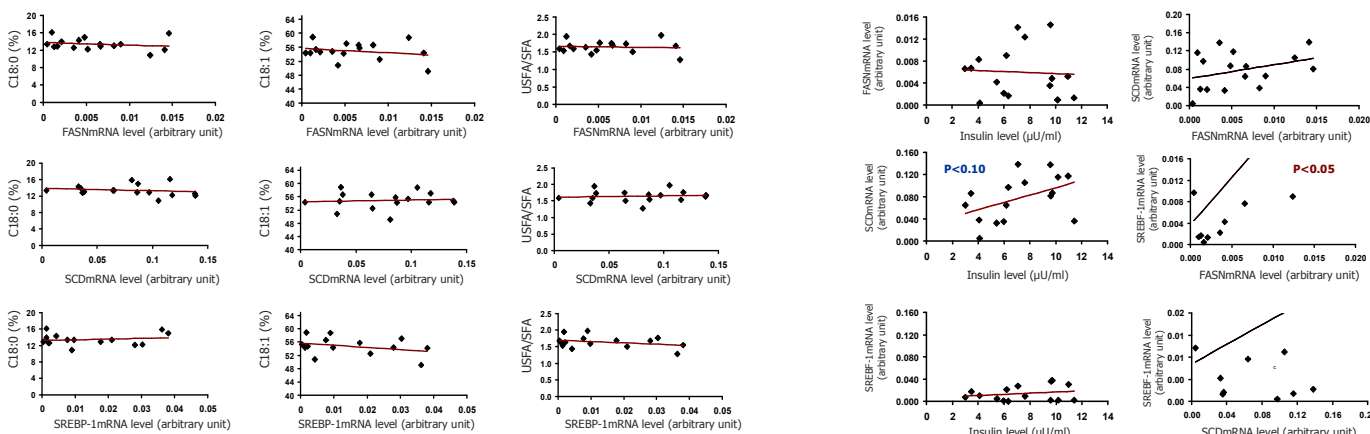


a, b Means with different superscripts significantly differ (P < 0.05)

Effects of GH gene polymorphism on lipogenic genes expression



Correlation coefficients among insulin concentration, i.m. fatty acid compositions, and lipogenic gene expressions



Conclusions

SNP in GH gene alters plasma insulin concentration and it may also affect the lipogenic genes expression in diaphragm tissues