Identification and evaluation of polymorphisms in *FABP3* and *FABP4* in beef cattle

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ABSTRACT. Single nucleotide polymorphisms (SNPs) were screened in *FABP3* and *FABP4* by automatic sequencing of pools of DNA from crossbred animals whose phenotypes belonged to the upper and lower extremes for back fat and marbling, as well as of a pool of DNA from sires used for crossbreeding. Five SNPs were identified in *FABP3* and another nine SNPs were identified in *FAPB4*. Of these, only one SNP had no previous registry in the SNAP database (dbSNP). Three polymorphisms were selected for further evaluation of their association with production traits using restriction fragment length polymorphism-PCR (RFLP-PCR) or real-time PCR genotyping. All 3 markers were in Hardy-Weinberg equilibrium at the 5% significance level for all 7 genetic groups analyzed. Significant association was observed between *FABP3-G*/*A* with rib eye area (P = 0.035) and the rib eye area/hot carcass weight ratio (P = 0.025) and between *FABP4*/*Tas*I with marbling (P = 0.052) and meat texture (P = 0.053). No significant association was observed between the *FABP4-G/C* polymorphism and any of the observed traits. Previous association studies with allelic variants in these genes have shown mixed results,

probably because of the small effect of the genes for these traits, which suggests that results should be replicated in other populations.

Key words: *A-FABP*; Ribeye area; Back fat; *H-FABP*; Molecular marker; Marbling

