

ABSTRACT

**Heat Shock Protein B1 and Its Regulator Genes Are Negatively Correlated
with Intramuscular Fat Content in the Longissimus Thoracis Muscle of
Hanwoo (Korean Cattle) Steers**

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In previous proteomic studies, heat shock protein β 1 (HSPB1) was detected as a candidate protein related to meat quality in cattle. This study sought to determine if its gene expression was associated with intramuscular fat content in the longissimus thoracis muscle of Korean cattle (Hanwoo). Tissue from two groups of 10 steers each, low-marbling (mean intramuscular fat content, $7.4 \pm 1.5\%$) and high-marbling ($23.5 \pm 2.8\%$), were used for immunoblotting, real-time PCR, and statistical analyses. HSPB1 expression in both mRNA and protein was shown to be negatively related to intramuscular fat content ($P < 0.05$). Pathway analysis found two genes, TNF receptor superfamily member 6 (FAS) and angiotensinogen (AGT), that were regulators of the HSPB1 gene. The expression of the two genes showed a negative correlation with intramuscular fat content ($P < 0.05$). These results suggest that HSPB1, FAS, and AGT may be good candidate genes associated with intramuscular fat content in the longissimus muscle of Korean cattle.

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