



Polymorphisms in *FGFBP1* and *FGFBP2* genes associated with carcass and meat quality traits in chickens

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ABSTRACT. In the past, the focus of broiler breeding programs on yield and carcass traits improvement led to problems related to meat quality. Awareness of public concern for quality resulted in inclusion of meat quality traits in the evaluation process. Nevertheless, few genes associated with meat quality attributes are known. Previous studies mapped quantitative trait loci for weight at 35 and 42 days in a region of *GGA4* flanked by the microsatellite markers, *MCW0240* and *LEI0063*. In this region, there are 2 fibroblast growth factor binding protein (*FGFBP*) genes that play an important role in embryogenesis, cellular

differentiation, and proliferation in chickens. The objective of this study was to identify and associate single nucleotide polymorphisms (SNPs) in *FGFBP1* and *FGFBP2* with performance, carcass, and meat quality in experimental and commercial chicken populations. In the commercial population, SNP g.2014G>A in *FGFBP1* was associated with decreased carcass weight ($P < 0.05$), and SNP g.651G>A in *FGFBP2* was associated with thawing loss and meat redness content ($P < 0.05$). Four haplotypes were constructed based on 2 SNPs and were associated with breast weight, thawing loss, and meat redness content. The diplotypes were associated with thawing loss, lightness, and redness content. The SNPs evaluated in the present study may be used as markers in poultry breeding programs to aid in improving growth and meat quality traits.

Key words: Breeding; Fibroblast; Growth; QTL; SNP