

Association of an *InDel* in the ghrelin gene with performance traits in a paternal broiler line

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The ghrelin gene (GHRL) stimulates the growth hormone in both chicken and mammals. This gene also controls feed intake. However, in chicken, the *GHRL* inhibits feed intake, while in mammals it has opposite effect. In this gene, which is located on chicken chromosome 12, there is an 8-bp insertion-deletion (InDel) polymorphism that has been associated with weight and fat deposition traits in an F₂ chicken population. Thus, the aim of this study was to evaluate the association of this *ghrelin* InDel with broiler growth traits in a pure line. A total of 1154 chickens from a paternal broiler line TT, developed by Embrapa Swine and Poultry was evaluated. DNA from whole blood was extracted using the DNAzol reagent[®]. The region containing the primers were described by Fang *et al.* (2006) and PCR products were analyzed by electrophoresis on 8% polyacrylamide gel for 3 hours at 120 V. The performance traits analyzed were: birth weight, weight at 21, 35, 41 and 42 days, weight after bleeding and plucking, and feed intake, weight gain and feed conversion from 35 to 41 days of age. Association analysis was performed with QxPak (Perez-Enciso; Misztal, 2004) using a mixed model including the fixed effects of sex, hatch and SNP, and the infinitesimal and residual random effects. The additive, additive + dominance and dominance effects of the SNP were tested including their interaction with sex. From 1154 animals genotyped, 400 (34.66%) had the 8 bp-insertion, 661 (57.3%) were heterozygous for the polymorphism and 93 (8%) had 8bp-deletion. The additive-dominant model had the best fit, and the association between the InDel and the growth traits was significant for birth weight (p<0,03). When considering the interaction with sex, the InDel had a significant dominant effect on weight at 35 days of age (p<0,03) in males. The results indicate a direct effect of the InDel on the significant traits, being a potential marker for growth in chicken breeding programs.