



Association of *Apolipoprotein B* gene with carcass, performance, and organ traits in a paternal broiler line

Cruz, V.A.R.^{1*}, Ibelli, A.M.G.², Buzanskas, M.E.¹, Rosa, J.O.¹, Chud, T.C.S.¹, Ledur, M.C.², Peixoto, J.O.², Munari, D.P.¹

¹UNESP – Univ. Estadual Paulista, Jaboticabal, SP, Brazil, ²Embrapa Suínos e Aves, Concórdia-SC, Brazil.

* valdecya.r.cruz@gmail.com

The *Apolipoprotein B* gene (*ApoB*), located in chromosome 3 of *Gallus gallus*, encodes a glycoprotein that plays an essential role in the absorption, assembly, and secretion of lipids (triglycerides and cholesterol) throughout the intestine and other tissues. This study aims to investigate the association of the single nucleotide polymorphism (SNP) g.102A>T in the *ApoB* with carcass, performance, and organ traits in a paternal broiler line. A set of primers was designed to amplify a specific region in this gene for SNP discovery. Genotyping was performed by PCR-RFLP, using the restriction enzyme *Msl* I. A total of 1,454 chickens from the paternal broiler line TT was used. Association analyses were carried out using the maximum likelihood method with the QxPak program for approximately 80 traits. The fixed effects of sex, hatch and SNP were considered in the analyses, as well as the additive genetic and residual random effects. According to the results, the SNP g.102A>T was associated with feed intake from 35 to 41 days of age (FI35-41; P<0.01), breast fillet yield (BFY; P< 0.05), and blood and feather yield (BLFY; P< 0.05). The additive effect of the SNP for BFY, BLFY, and FI35-41, were respectively 0.04%, -0.13% and 15g, indicating a positive effect in breast fillet yield and feed intake, and a negative effect for blood and feather yield. Thus, the phenotypic variation observed for the studied traits could be assigned to the SNP g.102A>T or due to adjacent causative variations.

Keywords: animal breeding, APOB gene, broiler, SNP

Acknowledgments: CNPq Fellowship; FAPESP Fellowship; CAPES Fellowship; EMBRAPA.