

**POLIMORFISME SINGLE NUCLEOTIDE POLYMORPHISM EXON 9  
GEN LEPR PADA AYAM HIBRIDA F<sub>2</sub> KAMBRO  
(*Gallus gallus gallus*, Linn.1758)**

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**ABSTRAK**

Implementasi metode T-ARMS PCR dalam deteksi *single nucleotide polymorphisms* (SNPs) gen *LEPR* sampel DNA ayam belum pernah dilakukan. Riset ini bertujuan dalam merancang protokol spesifik deteksi SNPs ekson 9 gen *LEPR* dan mendeteksi ekspresi gen *LEPR* atau SNPs *LEPR* pada sampel DNA ayam Pelung, F<sub>1</sub> Pelung, Layer, Broiler Cobb 500, ayam F<sub>1</sub> Kambro dan ayam F<sub>2</sub> Kambro menggunakan metode T-ARMS PCR. Penentuan derajat korelasi gen *LEPR* terhadap Bobot Tubuh (BT) dan Produktivitas Telur (PT) pada populasi ayam F<sub>1</sub> Kambro dan F<sub>2</sub> Kambro. Parameter fenotip kualitatif menunjukkan enam kelompok variasi fenotip tersegregasi dibandingkan ayam F<sub>1</sub> Kambro. Pertumbuhan bobot ayam F<sub>2</sub> Kambro mencapai  $753,36 \pm 155,31$  gram dalam 7 minggu tidak signifikan terhadap ayam F<sub>1</sub> Kambro disebabkan adanya *inbreeding depression* ( $F_x = 25\%$ ,  $LI = 4,925\%$ ) dan mutasi transversal alel A *LEPR*. Protokol spesifik deteksi SNPs ekson 9 gen *LEPR* dengan metode T-ARMS PCR dapat mendeteksi mutasi C127A *LEPR* dengan rasio IP : OP 10:1 pmol/ $\mu$ M, konsentrasi template DNA ayam 100 ng/ $\mu$ L dengan temperatur *annealing*  $55,7^\circ\text{C}/30\text{s}$ . Mutasi transversal alel A SNPs ekson 9 *LEPR* terdeteksi pada sampel DNA ayam betina F<sub>1</sub> Kambro (80%), ayam jantan F<sub>2</sub> Kambro (20%), ayam betina Broiler Cobb 500 (75%). Mutasi tersebut tidak terdeteksi pada sampel DNA ayam Layer, ayam Pelung Blirik Hitam dan ayam F<sub>1</sub> Pelung.

Kata Kunci: F<sub>2</sub> Kambro, F<sub>1</sub> Kambro, ARMS-PCR, *genotyping*, C127A

**POLYMORPHISM OF EXON 9 *LEPR* GENE SINGLE NUCLEOTIDE  
POLYMORPHISM IN HYBRID CHICKENS F<sub>2</sub> *KAMBRO*  
(*Gallus gallus gallus*, Linn.1758)**

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**ABSTRACT**

The implementation of the T-ARMS PCR method in the detection of single nucleotide polymorphisms (SNPs) in the *LEPR* gene in chicken DNA samples has never been conducted. This research aims to design a specific protocol for exon 9 *LEPR* gene SNPs detection and detect *LEPR* gene expression or *LEPR* SNPs in *Pelung* chicken samples, F<sub>1</sub> *Pelung*, Layer, Broiler Cobb 500, F<sub>1</sub> *Kambro* chicken and F<sub>2</sub> *Kambro* chicken using the T-ARMS PCR method. Determination of *LEPR* gene correlation degree on Body Weight (BT) and Egg Productivity (PT) in F<sub>1</sub> *Kambro* population and F<sub>2</sub> *Kambro*. Qualitative phenotype parameters showed six groups of segregated phenotypes compared to F<sub>1</sub> *Kambro* chicken. Growth of F<sub>2</sub> *Kambro* chicken weight reached  $753.36 \pm 155.31$  grams in 7 weeks was not significant for F<sub>1</sub> *Kambro* chicken due to inbreeding depression (Fx = 25%, LI = 4.925%) and transversion of A *LEPR* allele mutations. Specific protocol detection of exon 9 *LEPR* gene SNPs using the T-ARMS PCR method can detect C127A *LEPR* mutations with IP: OP ratio 10:1 pmol /  $\mu$ M, chicken DNA template concentration of 100 ng /  $\mu$ L with annealing temperature of 55.7° C / 30s. The transversion mutation of C127A of *LEPR* exon 9 SNP were detected in DNA samples of F<sub>1</sub> *Kambro* hens (80%), F<sub>2</sub> *Kambro* roosters (20%), Broiler Cobb 500 hens (75%). The mutations were not detected in Layer, *Pelung Blik Hitam* chicken and F<sub>1</sub> *Pelung* populations.

Keywords: F<sub>2</sub> *Kambro*, F<sub>1</sub> *Kambro*, ARMS-PCR, genotyping, C127A