

PIT1 gene polymorphism in Pietrain and Large White pigs after divergent selection

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ABSTRACT. We examined the polymorphisms in the PIT1 gene of 103 pigs and compared their frequencies in the maternal and paternal lineages of the Pietrain and Large White breeds, which have undergone divergent selection for over 30 years. DNA samples extracted from the blood of these animals were amplified by PCR and genotyped by RFLP, using the restriction enzyme *RsaI*. The data were analyzed with the chi-square test. We found that 57.3% of the animals were genotype AB, among which 26.2% were of the Large White paternal lineage, 18.5% the Pietrain paternal lineage and 12.6% the Pietrain maternal lineage. The AA genotype appeared in 20.4%, of which 7.8% were Large White, 4.8% the Pietrain paternal lineage and 7.8% the Pietrain maternal lineage. BB was observed in 22.3% (6.8% were of the Large White paternal lineage, 9.7% of the Pietrain paternal lineage and 5.8% of the Pietrain maternal lineage). The allele frequencies were 49.0% A and 51.0% B allele. When we examined the Pietrain maternal and paternal lineages, we found that the PIT1 gene had been fixed in the paternal lineage, suggesting that the B allele is associated with low body fat and improved muscle development when

compared to the maternal lineage. However, no significant differences were found between the Pietrain and Large White paternal lineages.

Key words: POU1F; Candidate gene; PCR-RFLP; Genotyping