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研究报告

钙蛋白酶Ⅰ(CAPN1)基因多态性与鸡肉嫩度和屠体性状的相关研究

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摘要

为了探讨CAPN1基因作为影响鸡肌肉嫩度候选基因的可能性，寻找与鸡嫩度性状相关的分子标记，对钙蛋白酶Ⅰ(CAPN1)基因的CDS区进行SNPs 检测，分析不同基因型在5个优质肉鸡纯品系和3个配套系间分布规律。利用测序和单链构象多态(SSCP)的方法进行SNPs 检测和基因型的分析，计算等位基因频率、各位点多态信息含量。结果发现2546位(位点A) 处发生点突变由C→T和3535位(位点B)处发生点突变由G→A。各位点的3 种基因型与肉鸡生产性状的最小二乘分析结果表明,各位点的各种基因型个体在肌纤维密度和部分屠体性状指标存在显著差异(P< 0.05)。初步推断CAPN1基因可能是影响鸡嫩度性状潜在的主效基因或与主效基因连锁，并且这些位点具有成为分子标记的潜在可能。

关键词 鸡；钙蛋白酶Ⅰ(CAPN1) SNPs 肌肉嫩度

分类号

Study on correlation between single nucleotide polymorphism of CAPN1 gene and muscle tenderness and carcass traits in chicken

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Abstract

<P>In order to investigate the effect of CAPN1 on broiler tenderness traits, its CDS was analyzed with PCR-SSCP and DNA sequencing, and the genotype analyses covered individuals from five purelines and three crossbreds. Primers for exon5 and exon6 of CAPN1 were designed from database of chicken genomic sequence. The frequency of allele and PIC were calculated. A C/T mutation at base position 2546 (site A) and a G/A mutation at base position 3535(site B) were found among individuals in each line. The least square analysis showed that three genotypes of birds had significant correlation with fiber density and partial carcass traits in site A and B. It was concluded from the results that CAPN1 gene may be the major gene affecting the tenderness traitsof chicken or it links with the major gene, and the the polymorphic site may be used as molecular markers for meat tenderness and chicken quality.</P>

Key words chicken CAPN1 SNPs muscle tenderness

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