

生物技术 生命科学

牛MBL1基因启动子区单核苷酸多态性

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摘要:

为研究牛甘露糖结合凝集素1(mannose-binding lectin 1, MBL1)基因启动子区单核苷酸多态性,采用聚合酶链式反应限制片长多态性(restriction fragment length polymorphism, RFLP)、单链构象多态性(single-strand conformation polymorphism, SSCP)及直接测序的方法检测了1 073头中国荷斯坦奶牛、69头鲁西黄牛和24头渤海黑牛启动子区-2194(A>C)、-1446(T>C)、-1330(G>A)三个位点的不同基因型分布。结果表明,在-2194位点和-1330位点处渤海黑牛只检测到两种基因型(AA/AC,GG/GA);而鲁西黄牛群体中在-1330位点处没有检测到AA型。三个品种牛群在该三个位点的优势等位基因相同,分别为A、C、G,频率为A(CH 0.900 1/LYC 0.760 9/BBC 0.937 5)、C(CH 0.604 8/LYC 0.768 1/BBC 0.625)和(CH 0.725 1/LYC 0.869 6/BBC 0.895 8)。三个品种牛的优势等位基因相对保守,需进一步研究分析这三个多态位点与牛生产性状的关系。

关键词: 牛; MBL1基因; 启动子区; 单核苷酸多态性

Single Nucleotide Polymorphism in the Promoter Region of MBL1 Gene in Bos Taurus

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Abstract:

In order to study the single nucleotide polymorphisms (SNPs) in the promoter region of Mannose-binding Lectin1, the genotypes of 3 loci at -2194(A>C), -1446(T>C), -1330(G>A) in the promoter region of MBL1 were detected by RFLP (restriction fragment length polymorphism), SSCP (single-strand conformation polymorphism) and directly sequencing method, with 1 073 Chinese Holstein cattles, 69 Luxi Yellow cattle and 24 Bohai Black cattles as materials. The results showed that only 2 genotypes (AA/AC,GG/GA) were observed at sites -2194(A>C)and -1330(G>A)in Bohai Black cattle, and in Luxi Yellow cattles, the genotype AA was not detected at site -1330 (G>A). The dominant alleles in 3 breeds were A, C and G, and the allelic frequencies were A (CH 0.900 1/LYC 0.760 9/BBC 0.937 5)、C (CH 0.604 8/LYC 0.768 1/BBC 0.625) and G(CH 0.725 1/LYC 0.869 6/BBC 0.895 8), respectively. The above results indicated that among all detected loci, the dominant alleles in 3 breeds were conservative relatively. Thus the 3 SNPs association with production traits needs further studies.

Keywords: Bos taurus MBL1 gene promoter region single nucleotide polymorphisms (SNPs)

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