

山羊β乳球蛋白基因的克隆及其在转基因小鼠乳汁中的高效表达 Goat β-lactoglobulin Gene Cloning and High Expression in the Mammary Gland of Transgenic Mice

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摘要 通过长距离PCR从山羊基因组DNA分两段扩增山羊β乳球蛋白(β-lactoglobulin, BLG)基因, 扩增出的两个片段分别克隆到T载体上, 利用BLG基因序列自身存在的NarI单酶切位点进行拼接, 获得了全长为7.2kb的山羊BLG基因克隆, 并构建了它的真核表达载体, 经酶切鉴定和序列分析证实了克隆的正确性。用线性化的BLG基因显微注射小鼠受精卵以建立转基因鼠, 经PCR和Southern印迹分析证实获得了6只首建者(Founder)转基因小鼠(3♀, 3♂), 在泌乳期采集两只F0代转基因雌鼠乳汁并用ELISA测定山羊β乳球蛋白的含量, 其表达水平分别为23.49 mg/mL和2.19 mg/mL。

Abstract:To clone goat β-lactoglobulin (BLG) gene, two fragments were amplified from goat genomic DNA by LD-PCR method. The fragments were inserted in T-vectors before being spliced into the whole 7.2 kb BLG gene at a single restriction enzyme site of NarI. Consequently, the eukaryotic expression vector was constructed. All the clones were proved to be correct by restriction enzyme cutting and sequencing analysis. Six Founders (3♀, 3♂) of goat BLG transgenic mice were obtained by microinjection and BLG genes integration were confirmed by both PCR and Southern blot analyses. The milk was collected from two lactating female transgenic mice and goat BLG protein contents were measured with ELISA. The results showed that goat BLG protein in milk of the two mice were 23.49 mg/mL and 2.19 mg/mL, respectively.

关键词 [β乳球蛋白\(BLG\)](#) [转基因小鼠](#) [乳腺表达](#) [乳汁蛋白](#) **Key words** [β-lactoglobulin](#) [transgene mouse mammary gland expression](#) [milk protein](#)

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