

研究论文

成年核移植山羊生长相关基因的表达分析

邢宝松^{1, 2}, 徐银学¹, 成勇³, 刘红林¹, 杜淼⁴

1. 南京农业大学动物科技学院, 南京 210095;
2. 河南省农业科学院畜牧兽医研究所, 郑州 450002;
3. 扬州大学兽医学院, 扬州 225009;
4. 中国科学院遗传与发育生物学研究所, 北京 100101

收稿日期 2006-11-9 修回日期 2007-1-8 网络版发布日期 2007-8-10 接受日期

摘要 体细胞核移植过程有可能影响克隆动物生长相关基因尤其是印迹基因的表达水平。本研究运用同源引物PCR扩增、RACE技术并结合同源克隆策略, 克隆了7个山羊生长相关基因包括3个印迹基因 (*H19*、*IGF2* 和 *IGF2R*) 和4个非印迹基因 (*IGF1*、*IGF1R*、*GHR* 和 *GHSR*) 的完全CDS或者部分cDNA序列, 经生物信息学技术确认后, 用荧光实时定量PCR对8只成年克隆山羊中这些基因的表达水平进行分析, 结果表明3个印迹基因中 *IGF2R* 基因表达水平极显著高于对照组的自然繁殖山羊 ($P < 0.01$), 而 *H19* 和 *IGF2* 的表达则没有很大区别; 4个非印迹基因中只有 *IGF1R* 的表达水平极显著高于对照组 ($P < 0.01$), *IGF1*、*GHR* 和 *GHSR* 的表达与对照组相似。表明即使在表型正常的成年克隆动物也存在一定的表观遗传异常。通过对获得完全CDS和3' UTR 的 *IGF2* 基因经过生物信息学分析表明, 山羊 *IGF2* 基因包含一个540 bp 的开放阅读框 (ORF) 编码179个氨基酸。IGF2基因cDNA序列和氨基酸序列以及其它基因部分序列比较分析表明, 山羊所有这些基因与绵羊的同源性要高于同牛的同源性。

关键词 [山羊; 核移植; 基因表达; 荧光实时定量 PCR; 印迹基因](#)

分类号

Overexpression of *IGF2R* and *IGF1R* mRNA in SCNT-produced Goats Survived to Adulthood

Baosong Xing^{1, 2}, Yinxue Xu^{1, ①}, Yong Cheng³, Honglin Liu¹, Miao Du⁴

1. College of Animal Science and Technology, Nanjing Agricultural University, Nanjing 210095, China;
2. Institute of Animal Science, Henan Academy of Agricultural Science, Zhengzhou 450002, China;
3. College of Veterinary Medicine, Yangzhou University, Yangzhou 225009, China;
4. Institute of Genetics and Developmental Biology, Chinese Academy of Science, Beijing 100101, China

Abstract

<P>The procedure of somatic cell nuclear transfer (SCNT) is likely to affect the expression level of growth-related genes especially imprinting genes. In this study, expressions of growth-related genes including three imprinting genes (*H19*, *IGF2*, and *IGF2R*) and four non-imprinting genes (*IGF1*, *IGF1R*, *GHR*, and *GHSR*) in adult nuclear transferred (NT) goats were investigated by real-time PCR. The expressions of these genes in adult clones were found largely normal, but *IGF2R* and *IGF1R* were more highly expressed in cloned goats than in non-NT goats ($P < 0.01$). Analysis on mono-allelic expression pattern of imprinting genes indicated that mono-allelic expression patterns of *H19* and *IGF2* in cloned goats were similar to that in non-NT goats. In addition, the sequence of goat *IGF2* gene and the putative amino acid sequence were obtained. The 986 nucleotide cDNA of goat *IGF2* gene contained an open-reading frame of 540 nucleotides coding for 179 amino acids. Both cDNA sequence and amino acid sequence of *IGF2* in goat showed their higher homology with that in sheep than in cattle; the partial cDNA fragments of *H19*, *IGF2R*, *GHSR*, *IGF1R*, and *GHR* in goat were also cloned and sequenced, which shared higher sequence identities with those in sheep than in cattle.</P>

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(315KB\)](#)
- ▶ [\[HTML全文\]\(491KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含 “山羊; 核移植; 基因表达; 荧光实时定量 PCR; 印迹基因” 的相关文章](#)
- ▶ [本文作者相关文章](#)

- [邢宝松](#)
- [徐银学](#)
- [成勇](#)
- [刘红林](#)
- [杜淼](#)

Key words [goat](#) [nuclear transfer](#) [gene expression](#) [real-time PCR](#) [imprinting gene](#)

DOI:

通讯作者 徐银学 xuyinxue@yahoo.com