

研究报告

伴性矮小型鸡 *GH*、*GHR*和 *IGF-1* 基因的表达变化

吴桂琴, 郑江霞, 杨宁

中国农业大学动物科技学院, 北京 100094

收稿日期 2006-12-9 修回日期 2007-6-14 网络版发布日期 2007-7-23 接受日期

摘要

采用荧光实时定量PCR的方法, 从转录水平上分析了伴性矮小型鸡和普通鸡肝脏中 *GH*、*GHR*和 *IGF-1* 基因的表达变化趋势。结果表明: 伴性矮小型鸡和普通鸡肝脏组织中 *GH* 的 mRNA 表达量没有明显差异, 而 *GHR* 在矮小鸡中的表达量明显比普通鸡的高3倍多, 但 *IGF-1* 基因在矮小鸡肝脏中的表达量却远远低于普通鸡, 差异达到2个数量级。这表明, 伴性矮小型鸡 *GHR* 外显子10 和3' 非翻译区的长片断缺失并没有降低 *GHR* 基因的表达, 相反有所增高, 这一过程中可能存在相应的功能代偿机制。与此同时, 在伴性矮小型鸡肝脏中几乎观察不到 *IGF-1* 基因的表达, 证明正是由于 *GHR* 基因的缺陷影响了 GH 生理效应的发挥。实验结果印证了伴性矮小型与 *GH* 和 *GHR* 的转录水平无关, 而可能是 *GHR* 编码产物异常阻碍了 GH-GHR-IGF 信号通路, 导致 *IGF-1* 表达受阻, 不能发挥正常的生理功能。

关键词 [伴性矮小型鸡](#); [GH](#); [GHR](#); [IGF-1](#); [荧光实时定量PCR](#)

分类号

Expression profiling of *GH*, *GHR*, and *IGF-1* genes in sex-linked dwarf chickens

WU Gui-Qin, ZHENG Jiang-Xia, YANG Ning

College of Animal Science and Technology, China Agricultural University, Beijing 100094, China

Abstract

<P>In this study, quantitative real-time PCR was used to compare the mRNA expression of GH, GHR, and IGF-1 genes in livers of sex-linked dwarf chickens with their normal siblings. The results showed that there was no significant difference between dwarf and normal chickens in GH expression. The expression of GHR gene was more than 3-fold higher in dwarf chickens, compared with that of the normal. However, the transcription level of IGF-1 decreased dramatically in the sex-linked dwarf. These observations suggest that the dwarf phenotype occurs independent of GH action, but is due to a dysfunctional GHR. A 1.7 kb deletion has been reported in exon 10 and the 3'untranslated region (UTR) of the GHR gene in dwarf chickens. This transcript could be translated into a protein that does not retain its normal function, which would account for the absence of GH-binding activity in liver membranes of the dwarf chickens.</P>

Key words [sex-linked dwarf chicken](#) [GH](#) [GHR](#) [IGF-1](#) [quantitative real-time PCR](#)

DOI: 10.1360/yc-007-0989

通讯作者 杨宁 nyang@cau.edu.cn

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(0KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [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](#)
[“伴性矮小型鸡; GH; GHR; IGF-1; 荧光实时定量PCR”的 相关文章](#)
- ▶ [本文作者相关文章](#)

- [吴桂琴](#)
- [郑江霞](#)
- [杨宁](#)