棉花学报
Cotton Science
主管：中国科学技术协会
主办：中国农学会
承办：中国农业科学院棉花研究所

棉花学报 » 2010, Vol. 22 » Issue (2) :157-162 DOI: 1002-7807(2010)02-0157-06

棉铃虫*HaHR*3基因的克隆及其植物RNA干扰载体的构建

尹富仕，曾洪梅*，张雨良，邱德文，杨秀芬，王立梅

中国农业科学院植物保护研究所/农业部生物防治重点开放实验室,北京 100081

Cloning of Helicoverpa armigera Gene *HaHR*3 and Construction of Its RNA Interference Vector

YIN Fu-shi, ZENG Hong-mei*, ZHANG Yu-liang, QIU De-wen, YANG Xiu-fen, WANG Li-mei*

Key Laboratory for Biological Control of Ministry of Agriculture, Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing 100081, *China*

摘要 参考文献 相关文章

Download: PDF (634KB) HTML 1KB Export: BibTeX or EndNote (RIS) Supporting Info

摘要 采用RT-PCR方法克隆了棉铃虫蜕皮调节转录因子*HaHR*3基因，该基因含有1671 bp的完整开放阅读框。序列分析表明，*HaHR*3与多种昆虫蜕皮调节转录因子高度同源。利用生物信息学方法对HaHR3的结构特征进行分析发现，*HaHR*3具有蜕皮调节转录因子超家族的典型特征，包括两个锌指结构和一个DNA结合结构域，不存在信号肽序列和N糖基化位点。选择HaHR3基因的部分片段构建了RNAi中间载体pRNAi1017-*HaHR*3sa，再将*HaHR*3正反向序列亚克隆至植物表达载体pCAMBIA2300-35S-OCS，成功构建了由35s启动子调控的HaHR3基因的正反向RNA干扰载体pCAM-RNAi-HaHR3。这一载体的成功构建为下一步通过植物介导的RNA干扰技术防治棉铃虫打下了坚实的基础。

关键词： 棉铃虫 蜕皮调节转录因子 结构分析 RNA干扰

Abstract： The molt-regulating transcription factor (hormone receptor 3, *HR*3) controls the expression of related gene clusters in the process of molting and plays a key role in the regulation of molt cascade reactions. The cDNA segments of *HaHR*3, *HR*3 from Helicoverpa armigera, were cloned using RT-PCR. With an open reading frame of 1671 bp, *HaHR*3 showed 98% identity with *HHR*3 (AF337637) in homology comparison. The structure analysis indicated that *HaHR*3 has the typical characters of the superfamily of molt-regulating transcription factors, including two zinc finger motifs and a DNA banding domain. Neither signal peptide sequence nor N-glycosylated site was found in the *HaHR*3. Based on the sequence of *HaHR*3, the RNAi vector pRNAi1017-HaHR3sa was constructed. By subcloning the sense-antisense sequence of *HaHR*3 into the plant expression vector pCAMBIA2300-35S-OCS, pCAM-RNAi-HaHR3, the RNAi vector of the *HaHR*3 gene which is driven by the 35 Spromoter, was constructed. This provides a solid foundation for the application of the plant-mediated RNAi technique in the biological control of *Helicoverpa armigera*.

Keywords： *Helicoverpa armigera* *HaHR*3 gene structure analysis RNA interference

Received 2009-06-29;

Fund:

国家“973”计划项目(2003CB114204)；国家“863”计划项目(2006AA10A210)；转基因专项(2008ZX08010－004)

Corresponding Authors: zenghongmei666@yahoo.com.cn

About author: 尹富仕(1985-),男, 在读硕士

Service
把本文推荐给朋友
加入我的书架
加入引用管理器
Email Alert
RSS
作者相关文章
尹富仕
曾洪梅
张雨良
邱德文
杨秀芬
王立梅

引用本文:
尹富仕， 曾洪梅， 张雨良， 邱德文， 杨秀芬， 王立梅.棉铃虫*HaHR*3基因的克隆及其植物RNA干扰载体的构建[J] 棉花学报, 2010,V22(2): 157-162

YIN Fu-Shi, ZENG Hong-Mei, ZHANG Yu-Liang, QIU De-Wen, YANG Xiu-Fen, WANG Li-Mei.Cloning of Helicoverpa armigera Gene *HaHR*3 and Construction of Its RNA Interference Vector[J] Cotton Science, 2010,V22(2): 157-162

链接本文:
http://journal.cricaas.com.cn:8082/mhxb/CN/1002-7807(2010)02-0157-06 或 http://journal.cricaas.com.cn:8082/mhxb/CN/Y2010/V22/I2/157