

### 梨两个休眠相关MADS-box 基因特征及在其休眠过程中的表达分析

刘国琴, 郑鹏华, Sayed Hussain, 滕元文

(1 浙江大学园艺系, 农业部园艺植物生长发育与品质调控重点开放实验室, 杭州 310058; 2 贵州大学农学院, 贵阳 550025)

### Characteristics of Two Dormancy-associated MADS-box Genes in Pear and Their Expression Analysis During the Dormancy

LIU Guo-Qin, ZHENG Peng-Hua, Sayed Hussain, TENG Yuan-Wen

(1Department of Horticulture, State Agricultural Ministry Key Laboratory of Horticultural Plant Growth, Development & Quality Improvement, Zhejiang University, Hangzhou 310058, China; 2 College of Agriculture, Gui Zhou University, Guiyang 550025, China)

- 摘要
- 参考文献
- 相关文章

Download: PDF (402KB) HTML (1KB) Export: BibTeX or EndNote (RIS) Supporting Info

摘要 *PpMADS1* 和 *PpMADS2* 是从‘酥梨’ (*Pyrus pyrifolia* white pear group ‘Suli’) 休眠芽转录组文库筛选的两个与休眠相关的MADS-box 基因序列。为了解序列的特征, 对其进行了相关生物信息学分析, 并以‘翠冠’和‘圆黄’梨为试材, 用实时定量PCR 技术分析其花芽休眠不同阶段的表达变化。结果表明: 两个基因都具有MADS-box 家族的特征序列MIKC-基序, *PpMADS1* 和 *PpMADS2* 分别与日本梨 (*P. pyrifolia* ‘Kosui’) 休眠相关的两个MADS-box 基因 *PpMADS13-1* 和 *PpMADS13-2* 聚在一起, 且单独聚为一支, 与李属植物休眠相关的MADS-box 基因关系最近。在两个品种的休眠过程中, *PpMADS1* 和 *PpMADS2* 的表达呈现相似的变化趋势, 都有一个表达高峰, 但‘翠冠’梨 *PpMADS1* 和 *PpMADS2* 的表达高峰均出现在11月15日, 而‘圆黄’梨 *PpMADS1* 的表达高峰延后到12月30日, *PpMADS2* 的表达高峰出现在12月15日。两个品种 *PpMADS1* 和 *PpMADS2* 的表达高峰都出现在内休眠解除之前, 随内休眠解除其表达量下调, 在生态休眠阶段表达量维持在较低的水平。据此推测 *PpMADS1* 和 *PpMADS2* 的表达对梨芽内休眠的解除具有调控作用

关键词: 梨 芽 休眠 MADS-box 基因 表达分析

Abstract: Two dormancy-associated MADS-box genes (*PpMADS1* and *PpMADS2*) were obtained from transcriptome library constructed *Pyrus pyrifolia* white pear group ‘Suli’. To understand sequence characteristics of two genes, bioinformatics analysis was carried out. Furthermore the gene expression patterns in lateral flower buds of both pear cultivars ‘Cuiguan’ and ‘Wonhwang’ were analyzed during the period of dormancy by quantitative real-time PCR. The results showed that *PpMADS1* and *PpMADS2* contained well-conserved MIKC-motifs of MADS-box. A phylogenetic analysis revealed that *PpMADS1* was closely related to *PpMADS13-1* of Japanese pear (*P. pyrifolia* ‘Kosui’), whereas *PpMADS2* was similar to *PpMADS13-2* of Japanese pear. The pear DAM genes formed an independent subclade and were closely related to those of Prunus spp. The expression patterns of *PpMADS1* and *PpMADS2* were similar with one peak in two cultivars during the period of dormancy. However, the timing of gene expression peak differed between two cultivars. The *PpMADS1* and *PpMADS2* expression peak occurred on the November 15th in ‘Cuiguan’ pear, while the *PpMADS1* expression peak on the December 30th, and the *PpMADS2* expression peak on the December 15th in ‘Wonhwang’ pear. The *PpMADS1* and *PpMADS2* expression peak appeared prior to the release of endodormancy, and their expression levels were gradually down-regulated after the turn over of endodormancy and kept at a lower level during the period of ecodormancy. These results indicated that *PpMADS1* and *PpMADS2* might play an important role in the regulation of bud endodormancy-release in pear.

Keywords: pear, bud, dormancy, MADS-box gene, expression analysis

#### 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

- ▶ 刘国琴
- ▶ 郑鹏华
- ▶ Sayed Hussain
- ▶ 滕元文

#### 引用本文:

刘国琴, 郑鹏华, Sayed Hussain等. 梨两个休眠相关MADS-box 基因特征及在其休眠过程中的表达分析[J] 园艺学报, 2013, V40(4): 724-

LIU Guo-Qin, ZHENG Peng-Hua, Sayed Hussain etc. Characteristics of Two Dormancy-associated MADS-box Genes in Pear and Their Expression Analysis During the Dormancy[J] ACTA HORTICULTURAE SINICA, 2013, V40(4): 724-

没有本文参考文献

- [1] 慕茜,刘更森,孙欣,李玉,陶然,王晨,房经贵.‘藤稔’葡萄冬季休眠后期花芽发育相关基因表达的分析[J].园艺学报,2013,40(5):828-
- [2] 欧春青,姜淑苓,王斐,王志刚,马力,李连文.梨贝壳杉烯酸氧化酶基因*PcKAO1*的克隆与表达分析[J].园艺学报,2013,40(5):849-
- [3] 徐圆,秦智伟,周秀艳.黄瓜果实弯曲相关基因*Cs14-3-3*的克隆及表达分析[J].园艺学报,2013,40(5):896-
- [4] 董庆龙,余贤美,刘丹丹,王海荣,安淼,姚玉新,王长君.苹果NAD-苹果酸酶基因的克隆及在不同组织和果实发育阶段的表达分析[J].园艺学报,2013,40(4):73
- [5] 曹庆芹,邓杰,朱丽静,白隼帆,赵天,朱旭文,姜奕晨.‘红颜’草莓菌根磷转运蛋白基因的克隆及荧光定量表达分析[J].园艺学报,2013,40(4):641-
- [6] 王琴,陈金涛,叶建飞,甘林叶,胡惠蓉.‘地平线’天竺葵的花芽分化及光周期特性[J].园艺学报,2013,40(4):773-
- [7] 邵文婷,刘杨,韩洪强,陈火英.茄子花青素合成相关基因*SmMYB*的克隆与表达分析[J].园艺学报,2013,40(3):467-478
- [8] 唐慧珣,司龙亭\*.黄瓜种子休眠性的数量遗传分析[J].园艺学报,2013,40(3):549-554
- [9] 王斌,张楠,闫冲冲,金青,林毅,蔡永萍,张金云.套袋对砀山酥梨果实石细胞发育及木质素代谢的影响[J].园艺学报,2013,40(3):531-539