

全国中文核心期刊  
中国科技核心期刊  
中国农业核心期刊  
RCCSE中国核心学术期刊  
中国科学引文数据库 (CSCD) 期刊  
CAB International 收录期刊  
美国《生物学文摘》收录期刊  
美国《化学文摘》(CA) 收录期刊

首页 (/) 期刊介绍 编委会 投稿须知 期刊订阅 广告合作 联系我们 返回主站  
(/Corp/10.aspx) (/Corp/3600.aspx) (/Corp/5006.aspx) (/Corp/50.aspx) (http://www.haasep.cn/)

«上一篇 (DArticle.aspx?type=view&id=201104001)  
下一篇 (DArticle.aspx?type=view&id=201104003)



PDF下载 (pdfdown.aspx?Sid=201104002)

+分享  
(http://www.jiathis.com/share?uid=1541069)



微信公众号: 大豆科学

[1]赵印华,陈颖珊,郭丽琼,等.pCAAFP66表达载体的构建及其大豆遗传转化的研究[J].大豆科学,2011,30(04):541-545.  
[doi:10.11861/j.issn.1000-9841.2011.04.0541]  
ZHAO Yin-hua, CHEN Ying-shan, GUO Li-qiong, et al. Construction of Expression Vector pCAAFP66 and Its Transformation into Soybean by Agrobacterium-mediated Method[J]. Soybean Science, 2011, 30(04): 541-545.  
[doi:10.11861/j.issn.1000-9841.2011.04.0541]

点击复制

## pCAAFP66表达载体的构建及其大豆遗传转化的研究

《大豆科学》 [ISSN:1000-9841 /CN:23-1227/S ] 卷: 第30卷 期数: 2011年04期 页码: 541-545 栏目:  
出版日期: 2011-08-25

Title: Construction of Expression Vector pCAAFP66 and Its Transformation into Soybean by Agrobacterium-mediated Method

文章编号: 1000-9841 (2011) 04-0541-05

作者: 赵印华<sup>1</sup> (KeySearch.aspx?type=Name&Sel=赵印华); 陈颖珊<sup>1</sup> (KeySearch.aspx?type=Name&Sel=陈颖珊); 郭丽琼<sup>1</sup> (KeySearch.aspx?type=Name&Sel=郭丽琼); <sup>2</sup> (KeySearch.aspx?type=Name&Sel=2</sup>) (KeySearch.aspx?type=Name&Sel=2</sup>); 覃风云<sup>1</sup> (KeySearch.aspx?type=Name&Sel=覃风云); 林俊芳<sup>1</sup> (KeySearch.aspx?type=Name&Sel=林俊芳); <sup>2</sup> (KeySearch.aspx?type=Name&Sel=2</sup>) (KeySearch.aspx?type=Name&Sel=2</sup>)

1. 华南农业大学 食品学院, 广东 广州 510642;  
?2. 华南农业大学 生物质能研究所, 广东 广州 510642

Author(s): ZHAO Yin-hua<sup>1</sup> (KeySearch.aspx?type=Name&Sel=ZHAO Yin-hua); CHEN Ying-shan<sup>1</sup> (KeySearch.aspx?type=Name&Sel=CHEN Ying-shan); GUO Li-qiong<sup>1</sup> (KeySearch.aspx?type=Name&Sel=GUO Li-qiong); <sup>2</sup> (KeySearch.aspx?type=Name&Sel=2</sup>) (KeySearch.aspx?type=Name&Sel=2</sup>); QIN Feng-yun<sup>1</sup> (KeySearch.aspx?type=Name&Sel=QIN Feng-yun); LIN Jun-fang<sup>1</sup> (KeySearch.aspx?type=Name&Sel=LIN Jun-fang); <sup>2</sup> (KeySearch.aspx?type=Name&Sel=2</sup>) (KeySearch.aspx?type=Name&Sel=2</sup>)

1. College of Food Science, South China Agricultural University, Guangzhou 510642;  
?2. Institute of Biomass Research, South China Agricultural University, Guangzhou 510642, Guangdong, China

关键词: 抗冷冻蛋白 (KeySearch.aspx?type=KeyWord&Sel=抗冷冻蛋白); 载体构建 (KeySearch.aspx?type=KeyWord&Sel=载体构建); 农杆菌介导 (KeySearch.aspx?type=KeyWord&Sel=农杆菌介导); 大豆遗传转化 (KeySearch.aspx?type=KeyWord&Sel=大豆遗传转化)

Keywords: afp gene (KeySearch.aspx?type=KeyWord&Sel=<i>afp</i> gene); Vector construction (KeySearch.aspx?type=KeyWord&Sel=Vector construction); Agrobacterium-mediated (KeySearch.aspx?type=KeyWord&Sel=<i>Agrobacterium</i>-mediated); Soybean genetic transformation (KeySearch.aspx?type=KeyWord&Sel=Soybean genetic transformation)

分类号: S565.1

DOI: 10.11861/j.issn.1000-9841.2011.04.0541 (http://dx.doi.org/10.11861/j.issn.1000-9841.2011.04.0541)

文献标志码: A

摘要: 以pCambia3301为载体骨架, afp为目的基因, 构建了大小为9 868 bp的大豆表达载体pCAAFP66. 该载体带有抗冷冻蛋白基因afp和筛选标记基因bar. 以大豆品种华春3号和华春6号的胚尖和子叶节为外植体, 应用农杆菌介导法进行遗传转化, 以草甘膦(PPT)为筛选底物. 结果表明: 在胚尖转化体系中, 华春3号和华春6号初转化频率分别为7.0%和4.0%, 在子叶节转化体系中, 2个品种都未获得转化植株.

Abstract: Plant expression vector pCAAFP66 (9868 bp), which contained the target gene afp and the screening marker Bar gene, was constructed for soybean transformation. The anti-freezing gene afp was transformed into embryonic tip and cotyledonary node of soybean using Agrobacterium-mediated method and PPT as selective agent. Identification indicated the afp gene was successfully transformed into Huachun 3 and Huachun 6 through the embryonic tip transformation system, with transformation rates 7.4% and 4.0%, respectively. Whereas in the cotyledonary node system no transformed plants was obtained. Analysis of the embryonic tip and cotyledonary node approach revealed that significant differences existed in the regeneration and transformation rate between two genotypes; even with the same genotype, different explants materials had totally different transformation rates.

### 参考文献/References:

- [1]郭丽琼, 林俊芳, 熊胜. 抗冷冻蛋白基因遗传转化草菇的研究[J]. 微生物学报, 2005, 45(1): 39-43. (Guo L Q, Lin J F, Xiong S. Transformation of *Volvariella volvacea* with a thermal hysteresis protein gene by particle bombardment[J]. Acta Microbiologica Sinica, 2005, 45(1): 39-43.)
- [2]Wallis J G, Wang H Y, Guerra D J. Expression of a synthetic antifreeze protein in potato reduces electrolyte release at freezing temperatures[J]. Plant Molecular Biology, 1997, 35: 323-330.
- [3]王艳, 邱立明, 谢文娟, 等. 昆虫抗冻蛋白基因转化烟草的抗寒性[J]. 作物学报, 2008, 34(3): 397-402. (Wang Y, Qiu L M, Xie W J, et al. Cold tolerance of transgenic tobacco carrying gene encoding insect antifreeze protein[J]. Acta Agronomica Sinica, 2008, 34(3): 397-402.)
- [4]Nemoto Y, Kisaka M, Fuse T, et al. Characterization and functional analysis of three wheat genes with homology to the CONSTANS?flowering time gene in transgenic rice[J]. The Plant Journal, 2003, 36(1): 82-93.

- [5] 谷俊涛, 赵红梅, 刘祝玲, 等. 农杆菌介导白三叶草高效遗传转化和转基因植株再生[J]. 草业学报, 2007, 16(2): 84-89. (Gu J T, Zhao H M, Liu Z L. Genetic transformation of trifolium repens using Agrobacterium tumefaciens and transgenic plant regeneration with high efficiency[J]. Acta Prataculturae Sinica, 2007, 16(2): 84-89.)
- [6] Shou H X, Guo Z B, Zhang Z Y, et al. Assessment of conditions affecting Agrobacterium-mediated soybean transformation using the cotyledonary node explant[J]. Euphytica, 2004, 136: 167-179.
- [7] 周思军, 李希臣, 刘昭军, 等. 通过农杆菌介导法将Bt(cryIA)基因导入大豆[J]. 大豆科学, 2001, 20(3): 157-164. (Zhou S J, Li X C, Liu Z J, et al. Introduction of Bt gene into soybean by Agrobacterium-mediated transformation[J]. Soybean Science, 2001, 20(3): 157-164.)
- [8] 王萍, 郭永来, 高世庆, 等. 基因枪法将GmDREB3基因导入大豆的研究[J]. 大豆科学, 2007, 26(3): 315-318. (Wang P, Guo Y L, Gao S Q, et al. Transforming GmDREB3 gene into soybean via particle bombardment[J]. Soybean Science, 2007, 26(3): 315-318.)
- [9] 刘海坤, 卫志明. 利用根瘤农杆菌介导转化大豆成熟种子胚尖获得转基因植株[J]. 植物生理与生物学报, 2004, 30(6): 631-636. (Liu H K, Wei Z M. Transgenic soybean obtained with Agrobacterium tumefaciens-mediated transformation of embryonic tip of soybean mature seeds[J]. Acta Photophysiological Sinica, 2004, 30(6): 631-636.)
- [10] Wei D, Wei Z M. An Optimized Agrobacterium-mediated transformation for soybean for expression of binary insect resistance genes[J]. Plant Science, 2007, 173: 381-389.
- [11] Elibio L R, Giovanni R V, Francisco J L. High-efficiency transformation by biolistics of soybean, common bean and cotton transgenic plants[J]. Nature Protocols, 2008, 3: 410-418.
- [12] 刘海坤, 卫志明. 大豆遗传转化研究进展[J]. 植物生理与生物学报, 2005, 31(2): 126-134. (Liu H K, Wei Z M. Recent advances in soybean genetic transformation[J]. Acta Photophysiological Sinica, 2005, 31(2): 126-134.)
- [13] 段莹莹, 赵琳, 陈李森, 等. 农杆菌介导的大豆子叶节和下胚轴转化方法的比较及优化[J]. 大豆科学, 2010, 29(4): 590-597. (Duan Y Y, Zhao L, Chen L Y, et al. Comparison and optimization of the Agrobacterium-mediated transformation of soybean by using cotyledonary node and hypocotyl explants[J]. Soybean Science, 2010, 29(4): 590-597.)

#### 相似文献/References:

- [1] 杜景红, 刘丽君. 大豆fad3c基因沉默载体的构建[J]. (article.aspx?type=view&id=201301007) 大豆科学, 2013, 32(01): 28. [doi:10.3969/j.issn.1000-9841.2013.01.007]  
DU Jing-hong, LIU Li-jun. Construction of fad3c Gene Silencing Vector in Soybean[J]. Soybean Science, 2013, 32(04): 28. [doi:10.3969/j.issn.1000-9841.2013.01.007]
- [2] 吴冰, 李喜焕, 刘翠, 等. 大豆MYB转录因子GmPHR1转化及功能研究[J]. (article.aspx?type=view&id=201303005) 大豆科学, 2013, 32(03): 302. [doi:10.11861/j.issn.1000-9841.2013.03.0302]  
WU Bing, LI Xi-huan, LIU Cui, et al. Genetic Transformation and Function Analysis of Transcription Factor GmPHR1 in Soybean[J]. Soybean Science, 2013, 32(04): 302. [doi:10.11861/j.issn.1000-9841.2013.03.0302]
- [3] 魏强, 李鲁华, 王春艳, 等. 大豆凝集素1e2基因RNA干扰表达载体构建及转化的研究[J]. (article.aspx?type=view&id=201303006) 大豆科学, 2013, 32(03): 306. [doi:10.11861/j.issn.1000-9841.2013.03.0306]  
WEI Qiang, LI Lu-hua, WANG Chun-yan, et al. Construction of RNAi Expressed Vector of Soybean Agglutinin 1e2 Gene and Transform Research[J]. Soybean Science, 2013, 32(04): 306. [doi:10.11861/j.issn.1000-9841.2013.03.0306]
- [4] 翟莹, 雷婷婷, 闫帆, 等. 大豆GmERF6基因的原核表达及重组蛋白纯化[J]. (article.aspx?type=view&id=201106004) 大豆科学, 2011, 30(06): 906. [doi:10.11861/j.issn.1000-9841.2011.06.0906]  
ZHAI Ying, LEI Ting-ting, YAN Fan, et al. Prokaryotic Expression and Protein Purification of GmERF6 Gene[J]. Soybean Science, 2011, 30(04): 906. [doi:10.11861/j.issn.1000-9841.2011.06.0906]
- [5] 赵欢欢, 吴兴, 张锋, 等. 拟南芥AtLACS9基因的克隆及其植物表达载体构建[J]. (article.aspx?type=view&id=201102003) 大豆科学, 2011, 30(02): 190. [doi:10.11861/j.issn.1000-9841.2011.02.0190]  
ZHAO Huan-huan, WU Xing, ZHANG Feng, et al. Cloning and Plant Expression Vector Construction of AtLACS9 Gene from Arabidopsis Thaliana[J]. Soybean Science, 2011, 30(04): 190. [doi:10.11861/j.issn.1000-9841.2011.02.0190]
- [6] 谢璐璐, 李晓琳, 罗利, 等. 大豆GmSOT1基因克隆、载体构建及初步表达研究[J]. (article.aspx?type=view&id=201406004) 大豆科学, 2014, 33(06): 815. [doi:10.11861/j.issn.1000-9841.2014.06.0815]  
XIE Lu-lu, LI Xiao-lin, LUO Li, et al. Cloning, Plant Expression Vector Construction and Preliminary Study of GmSOT1 Gene from Soybean[J]. Soybean Science, 2014, 33(04): 815. [doi:10.11861/j.issn.1000-9841.2014.06.0815]
- [7] 宁爱玲, 杜海平, 喻德跃, 等. GmAOC3-基因转化载体构建及转化大豆的初步研究[J]. (article.aspx?type=view&id=201504008) 大豆科学, 2015, 34(04): 588. [doi:10.11861/j.issn.1000-9841.2015.04.0588]  
NING Ai-ling, DU Hai-ping, YU De-yue, et al. Construction of Transformation Vector of GmAOC3 Gene and Preliminary Study on the Transformation of Soybean[J]. Soybean Science, 2015, 34(04): 588. [doi:10.11861/j.issn.1000-9841.2015.04.0588]
- [8] 翟莹, 张军, 赵艳, 等. 大豆SbPRP1和SbPRP2基因在非生物胁迫下的表达及载体构建[J]. (article.aspx?type=view&id=201701004) 大豆科学, 2017, 36(01): 24. [doi:10.11861/j.issn.1000-9841.2017.01.0024]  
ZHAI Ying, ZHANG Jun, ZHAO Yan, et al. Expression and Vector Construction of SbPRP1 and SbPRP2 in Soybean Under Abiotic Stresses[J]. Soybean Science, 2017, 36(04): 24. [doi:10.11861/j.issn.1000-9841.2017.01.0024]

备注/Memo 基金项目: 国家转基因生物新品种培育重大专项资助项目(2009ZX08004-007B); 广东省科技计划资助项目(2009A020102004); 华南农业大学“211工程”三期资助项目(2009C010500001)。

第一作者简介: 赵印华(1984-), 男, 在读硕士, 研究方向为大豆转基因育种。E-mail: zhaoyinhua11@yahoo.com.cn.

通讯作者: 林俊芳(1962-), 男, 博士生导师, 主要从事生物活性物质与生物炼制方面的研究。E-mail: linjf@scau.edu.cn.

更新日期/Last Update: 2014-08-15