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



«上一篇 (DArticle.aspx?type=view&id=200902001)
下一篇 (DArticle.aspx?type=view&id=200902003)


PDF下载 (pdfdow.aspx?Sid=200902002)
+分享 (http://www.jiathis.com/share?uid=1541069)


微信公众号：大豆科学

[1]曲姗姗,刘丽君,寇坤,等.农杆菌介导法将Bt(cryⅠA)基因导入大豆的研究[J].大豆科学,2009,28(02):186-190，194.[doi:10.11861/j.issn.1000-9841.2009.02.0186]
QU Shan-shan,LIU Li-jun,KOU Kun,et al.Transformation of -Bt(cryⅠA)-Gene into Soybean via Agrobacterium-mediated Method[J].Soybean Science,2009,28(02):186-190，194.[doi:10.11861/j.issn.1000-9841.2009.02.0186]
点击复制

# 农杆菌介导法将Bt(cryⅠA)基因导入大豆的研究

《大豆科学》 [ISSN:1000-9841 /CN:23-1227/S ] 卷： 第28卷 期数： 2009年02期 页码： 186-190，194 栏目： 出版日期： 2009-04-25

Title: Transformation of -Bt(cryⅠA)-Gene into Soybean via Agrobacterium-mediated Method

文章编号: 1000-9841(2009)02-0186-05

作者: 曲姗姗[1] (KeySearch.aspx?type=Name&Sel=曲姗姗)[2] (KeySearch.aspx?type=Name&Sel=2</sup>)；刘丽君[1] (KeySearch.aspx?type=Name&Sel=刘丽君)；寇坤[1] (KeySearch.aspx?type=Name&Sel=寇坤)[2] (KeySearch.aspx?type=Name&Sel=2</sup>)；唐晓飞[1] (KeySearch.aspx?type=Name&Sel=唐晓飞)；杨喆[1] (KeySearch.aspx?type=Name&Sel=杨喆)
1黑龙江省农业科学院大豆研究所，黑龙江 哈尔滨 150086；
2东北农业大学研究生院，黑龙江 哈尔滨 150030

Author(s): QU Shan-shan[1] (KeySearch.aspx?type=Name&Sel=QU Shan-shan)[2] (KeySearch.aspx?type=Name&Sel=2</sup>)；LIU Li-jun[1] (KeySearch.aspx?type=Name&Sel=LIU Li-jun)；KOU Kun[1] (KeySearch.aspx?type=Name&Sel=KOU Kun)[2] (KeySearch.aspx?type=Name&Sel=2</sup>)；TANG Xiao-fei[1] (KeySearch.aspx?type=Name&Sel=TANG Xiao-fei)；YANG Zhe[1] (KeySearch.aspx?type=Name&Sel=YANG Zhe)
1Soybean Research Institute，Heilongjiang Academy of Agricultural Sciences，Harbin 150086，Heilongjiang；
2Graduate School of Northeast Agricultural University，Harbin 150030，Heilongjiang，China

关键词: 大豆 (KeySearch.aspx?type=KeyWord&Sel=大豆)；Bt基因 (KeySearch.aspx?type=KeyWord&Sel=Bt基因)；遗传转化 (KeySearch.aspx?type=KeyWord&Sel=遗传转化)

Keywords: Soybean (KeySearch.aspx?type=KeyWord&Sel=Soybean)；Bt gene (KeySearch.aspx?type=KeyWord&Sel=Bt gene)；Genetic transformation (KeySearch.aspx?type=KeyWord&Sel=Genetic transformation)

分类号: S565.1

DOI: 10.11861/j.issn.1000-9841.2009.02.0186 (http://dx.doi.org/10.11861/j.issn.1000-9841.2009.02.0186)

文献标志码: A

摘要: 构建含有Bt（cryⅠA）基因的植物表达载体pCAMBIA3300-Bt，以大豆子叶节为受体，通过农杆菌介导法将Bt基因导入大豆品种黑农37中，获得转基因植株。并进行大豆的再生和遗传转化系统优化的研究，以获得较高的转化率。结果表明：在6-BA浓度为1.7 $mgL^{-1}$时，丛生芽分化率最高。确定该品种大豆在丛生芽分化阶段的草铵膦筛选浓度为3.5 $mgL^{-1}$。获得转化质粒pCAMBIA3300-Bt的转基因植株，其中$T_1$代PCR阳性植株19株。采用real-time PCR的方法对$T_1$代抗性植株进行Bt基因的转录水平的分析，初步证明Bt基因已整合到受体大豆的基因组内。

Abstract: It is very important for diseases and insect pests controlling to transfer some resistant genes to obtain transgenic resistant varieties. In this study, plant expression vector pCAMBIA3300-Bt containing -Bt (cryⅠA) - gene was constructed, and transgenic plants were obtained by Agrobacterium-mediated transformation of soybean(Heinong 37) cotyledonary nodes. We regenerated plants and optimized the conditions of transformation to increase the efficiency of transformation. It had the optimal rate of shooting when the concentration of 6-BA was 1.7 $mgL^{-1}$. The optimal selection concentration of Glufosinate-ammonium for shoot initiation was 3.5 $mgL^{-1}$Transformed plants containing pCAMBIA3300-Bt was obtained and 19 positive plants from $T_1$generation were tested by PCR. Real-time PCR was used to investigate the transcription level of Bt gene in $T_1$transgenic plants, it confirmed the integration of Bt genes into the genome of soybean.

参考文献/References:
[1]De Block M，Herrera Estrllas L，Van Montagu M，et al.Expression of foreign genes in regenerated plant s and their progeny[J].EMBOJ，1984，3 :1681-1689.
[2]Horsch R B，Fraley R T，Rogers S G，et al.Inheritance of functional foreign genes in plants[J].Science，1984，223 :496-498.
[3]Hinchee M A，Connerward D V，Newell C A，et al.Prosuvction of transgenic soybean plants using Agrobacterium mediated DNA transfer[J].Biotechnology，1988，6 :915-922.
[4]Rong Di，Purcell V，Collins G B，et al.Production of transgenic soybean lines expressing the bean pod mottle virus coat protein precursor gene[J].Plant Cell Reports，1996，15(10)：746-750.
[5]刘北东，朱延明，李海燕，等.大豆子叶节再生影响因素的研究[J].大豆科学，2002，2(21)：88-92.(Liu B D，Zhu Y M，Li H Y，et al.Study on actors affecting the soybean cotyledonary node regeneration[J].Soybean Science，2002，2(21)：88-92.)
[6]袁鹰，刘德璞，郑培和，等.大豆组织培养再生植株研究[J].大豆科学，2001，20(1)：9-13.(Yuan Y，Liu D P，Zheng P H，et al.Yuan Y，Liu D P，Zheng P H，et al.Study on plant regeneration from soybean culture[J].Soybean Science，2001，20(1)：9-13.)

**[7]Terry Catherine F，Shanahan Della J，Ballam Lydia D，et al.Real-time detection of genetically modified soya using lightcycle and ABI 7700 plantforms with TaqMan，Scorpion，and SYBR Green I Chemistries[J].AOAC International，2002，85 :938 -944.**
**[8]Vollenbofer S，Burg K，Schmidt J，et al.Genetically modified organisms in food -screening and specific detection by polymerase chain reaction[J].Agricultural and Food Chemistry，1999，47 :5038-5043.**
**[9]王萍，王军军，商德虎.影响大豆子叶节丛生芽形成的诱导因子研究[J].吉林农业科学，2001，(3)：45-49.(Wang P，Wang J J，Shang D H.Effect of induce factors on multiple bud formation of cotyledonary node in soybean[J].Journal of Jilin Agricultural Sciences，2001，(3)：45-49.)**
**[10]李明春，蔡易，赵桂兰，等.改良大豆子叶节再生体系的研究[J].作物学报，2006，32(2)：223-227.(Li M C，Cai Y，Zhao G L，et al.Improvement of cotyledon node regeneration system in soybean（Glycine max）[J].Acta Agronomica Sinica，2006，32(2)：223-227.)**
**[11]吴影，宋丰顺，陆徐忠，等.实时荧光 PCR技术定量检测转基因大豆方法的研究[J].作物学报，2007，33(10) :1733-1737.(Wu Y，Song F S，Lu X Z，et al.Detecting genetically modified soybean by Real-time quantitative PCR technique[J].Acta Agronomica Sinica，2007，33(10) :1733-1737.)**

相似文献/References:

[1]刘章雄,李卫东,孙石,等.1983～2010年北京大豆育成品种的亲本地理来源及其遗传贡献[J]. (darticle.aspx?type=view&id=201301001)大豆科学,2013,32(01):1.[doi:10.3969/j.issn.1000-9841.2013.01.002]
LIU Zhang-xiong,LI Wei-dong,SUN Shi,et al.Geographical Sources of Germplasm and Their Nuclear Contribution to Soybean Cultivars Released during 1983 to 2010 in Beijing[J].Soybean Science,2013,32(02):1.[doi:10.3969/j.issn.1000-9841.2013.01.002]
[2]李彩云,余永亮,杨红旗,等.大豆脂质转运蛋白基因GmLTP3的特征分析[J]. (darticle.aspx?type=view&id=201301002)大豆科学,2013,32(01):8.[doi:10.3969/j.issn.1000-9841.2013.01.003]
LI Cai-yun,YU Yong-liang,YANG Hong-qi,et al.Characteristics of a Lipid-transfer Protein Gene GmLTP3 in Glycine max[J].Soybean Science,2013,32(02):8.[doi:10.3969/j.issn.1000-9841.2013.01.003]
[3]王明霞,崔晓霞,薛晨晨,等.大豆耐盐基因GmHAL3a的克隆及RNAi载体的构建[J]. (darticle.aspx?type=view&id=201301003)大豆科学,2013,32(01):12.[doi:10.3969/j.issn.1000-9841.2013.01.004]
WANG Ming-xia,CUI Xiao-xia,XUE Chen-chen,et al.Cloning of Halotolerance 3 Gene and Construction of Its RNAi Vector in Soybean (Glycine max)[J].Soybean Science,2013,32(02):12.[doi:10.3969/j.issn.1000-9841.2013.01.004]
[4]张春宝,李玉秋,彭宝,等.线粒体ISSR与SCAR标记鉴定大豆细胞质雄性不育系与保持系[J]. (darticle.aspx?type=view&id=201301005)大豆科学,2013,32(01):19.[doi:10.3969/j.issn.1000-9841.2013.01.005]
ZHANG Chun-bao,LI Yu-qiu,PENG Bao,et al.Identification of Soybean Cytoplasmic Male Sterile Line and Maintainer Line with Mitochondrial ISSR and SCAR Markers[J].Soybean Science,2013,32(02):19.[doi:10.3969/j.issn.1000-9841.2013.01.005]
[5]卢清瑶,赵琳,李冬梅,等.RAV基因对拟南芥和大豆不定芽再生的影响[J]. (darticle.aspx?type=view&id=201301006)大豆科学,2013,32(01):23.[doi:10.3969/j.issn.1000-9841.2013.01.006]
LU Qing-yao,ZHAO Lin,LI Dong-mei,et al.Effects of RAV gene on Shoot Regeneration of Arabidopsis and Soybean[J].Soybean Science,2013,32(02):23.[doi:10.3969/j.issn.1000-9841.2013.01.006]
[6]杜景红,刘丽君.大豆fad3c基因沉默载体的构建[J]. (darticle.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(02):28.[doi:10.3969/j.issn.1000-9841.2013.01.007]
[7]张力伟,樊颖伦,牛腾飞,等.大豆“冀黄13”突变体筛选及突变体库的建立[J]. (darticle.aspx?type=view&id=201301008)大豆科学,2013,32(01):33.[doi:10.3969/j.issn.1000-9841.2013.01.008]
ZHANG Li-wei,FAN Ying-lun,NIU Teng-fei?,et al.Screening of Mutants and Construction of Mutant Population for Soybean Cultivar "Jihuang13" [J].Soybean Science,2013,32(02):33.[doi:10.3969/j.issn.1000-9841.2013.01.008]
[8]盖江南,张彬彬,吴瑶,等.大豆不定胚悬浮培养基因型筛选及基因枪遗传转化的研究[J]. (darticle.aspx?type=view&id=201301009)大豆科学,2013,32(01):38.[doi:10.3969/j.issn.1000-9841.2013.01.009]
GAI Jiang-nan,ZHANG Bin-bin,WU Yao,et al.Screening of Soybean Genotypes Suitable for Suspension Culture with Adventitious Embryos and Genetic Transformation by Particle Bombardment[J].Soybean Science,2013,32(02):38.[doi:10.3969/j.issn.1000-9841.2013.01.009]
[9]王鹏飞,刘丽君,唐晓飞,等.适于体细胞胚发生的大豆基因型筛选[J]. (darticle.aspx?type=view&id=201301010)大豆科学,2013,32(01):43.[doi:10.3969/j.issn.1000-9841.2013.01.010]
WANG Peng-fei,LIU Li-jun,TANG Xiao-fei,et al.Screening of Soybean Genotypes Suitable for Somatic Embryogenesis[J].Soybean Science,2013,32(02):43.[doi:10.3969/j.issn.1000-9841.2013.01.010]
[10]刘德兴,年海,杨存义,等.耐酸铝大豆品种资源的筛选与鉴定[J]. (darticle.aspx?type=view&id=201301011)大豆科学,2013,32(01):46.[doi:10.3969/j.issn.1000-9841.2013.01.011]
LIU De-xing,NIAN Hai,YANG Cun-yi,et al.Screening and Identifying Soybean Germplasm Tolerant to Acid Aluminum[J].Soybean Science,2013,32(02):46.[doi:10.3969/j.issn.1000-9841.2013.01.011]
[11]刘尚前,王罡,季静,等.农杆菌介导法将Bt基因转入大豆的研究[J]. (darticle.aspx?type=view&id=200701023)大豆科学,2007,26(01):103.[doi:10.3969/j.issn.1000-9841.2007.01.024]
LIU Shang-qian,WANG Gang,JI Jing,et al.PUT Bt GENE TRANSFER INTO SOMATIC VIA AGROBACTERIUM TUMEFACIEN[J].Soybean Science,2007,26(02):103.[doi:10.3969/j.issn.1000-9841.2007.01.024]

**备注/Memo** 基金项目：国家高技术研究发展计划（863计划）资助项目（2006AA1021F9）；国家转基因重大专项资助项目（2008ZX08004-002）。

作者简介：曲姗姗(1983-)，女，硕士研究生，研究方向为植物基因工程与分子生物学。E-mail：qss3344@126.com。

更新日期/Last Update: 2014-10-03