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摘要： 以大豆细胞质雄性不育系配套保持系材料(JLCMS1)的黄化苗为材料，纯化得到线粒体。低熔点琼脂糖包埋线粒体成胶块，消化裂解后用HindⅢ部分酶切，通过脉冲场电泳回收40~60 kb酶切片段。将回收产物连接到载体pIndigo-BAC 5，通过电击转化大肠杆菌DH10B感受态细胞，获得的BAC文库包含2 000个单克隆，平均插入片段大小约为50 kb，约覆盖大豆线粒体基因组250倍以上。

Abstract: A soybean maintainer of the coytoplasmic male sterility soybean (JLCMS1) was used for mitochondria isolation with high purity. Purified mitochondria was embedded into plugs by low melt point agarose, then the plugs was lysed and partially digested by HindⅢ. The DNA fragments between 40 and 60 kb size were selected by pulsed field gel electrophoresis. The size-selection product was ligated to BAC vector pIndigo-BAC5 and then transformed into competent cell of DH10B by electroperation. The constructed BAC library consist of 2 000 clones with an average 50 kb inserts and covered more than 250 times of the soybean mitochondrial genome used in this research.

参考文献/References:
[1]王曙明,孙寰,赵丽梅,等.中国大豆雄性不育和杂种优势利用研究进展与问题分析[J]. 大豆科学, 2009, 28(6): 1089-1096, 1102. (Wang S M, Sun H, Zhao L M, et al. Progress and problem analysis on soybean male sterility and heterosis exploitation in China[J]. Soybean Science, 2009, 28(6): 1089-1096, 1102.)
[2]孙寰,赵丽梅,黄梅. 豆质-核互作不育系研究[J]. 科学通报, 1993, 38(16): 1535-1536.(Sun H, Zhao L M, Huang M. Studies on the cytoplasmic-nuclear male sterile soybean[J]. Chinese Science Bulletin, 1993, 38(16): 1535-1536.)
[3]Sun H, Zhao L M, Huang M. Cytoplasmic-genetic male sterile soybean and method for producing hybrid soybean[P]. American Patent, 2001, US 6, 320, 098 B1.

[4]张磊,戴欧和,黄志平,等. 大豆质核互作M型雄性不育系的选育及其育性表现[J]. 中国农业科学, 1999, 32(4): 34-38. (Zhang L, Dai O H, Huang Z P, et al. Selection of soybean male sterile line of nucleo cytoplasmic interaction and its fertility[J]. Scientia Agricultura Sinica, 1999, 32(4): 34-38.)
[5]赵丽梅,孙寰,黄梅. 大豆细胞质雄性不育系ZA的选育和初步研究[J]. 大豆科学, 1998, 17(3): 268-270. (Zhao L M, Sun H, Huang M. The development and preliminary studies on cytoplasmic male sterile soybean line ZA[J]. Soybean Science, 1998, 17(3): 268-270.)
[6]盖钧镒,丁德荣,崔章林,等. 大豆质核互作雄性不育系NJCMS1A的选育及特性[J]. 中国农业科学, 1999, 32(5): 23-27. (Gai J Y, Ding D R, Cui Z L, et al. Development and performance of the cytoplasmic-nuclear male sterile line NJCMS1A of soybean[J]. Scientia Agricultura Sinica, 1999, 32(5): 23-27.)
[7]许占友,李磊,邱丽娟,等. 大豆三系的选育及恢复基因的SSR初步定位研究[J]. 中国农业科学, 1999, 32(2): 32-38. (Xu Z Y, Li L, Qiu L J, et al. Selection of three lines and localization of the restorer genes in soybean using SSR markers[J]. Scientia Agricultura Sinica, 1999, 32(2): 32-38.)
[8]Bai Y N, Gai J Y. Development of a new cytoplasmic-nuclear male-sterile line of soybean and inheritance of its male-sterile restoration[J]. Plant Breeding, 2006, 125: 85-88.
[9]Zhao T J, Gai J Y. Discovery of new male-sterile cytoplasm sources and development of a new cytoplasmic-nuclear male-sterile line NJCMS3A in soybean[J]. Eupytica, 2006, 152: 387-396.
[10]李玉秋. 大豆细胞质雄性不育线粒体基因组的比较研究[D]. 长春: 吉林大学, 2008: 32-34.(Li Y Q. Mitochondrial genome comparison research of soybean cytoplasmic male sterility[D]. Changchun: Jilin University, 2008: 32-34.)
[11]Peterson D G, Tomkins J P, Frisch D A, et al. Construction of plant bacterial artificial chromosome (BAC) libraries: An illustrated guide[M]. Journal of Agricultural Genomics, 2000, 5: 1-100.
[12]Zhang H B, Choi S, Woo S, et al. Construction and characterization of two rice bacterial artificial chromosome libraries from the parents of a permanent recombinant mapping population[J]. Molecular Breeding, 1996, 2: 11-24.
[13]陈书元. 甘蓝型油菜-新疆野生油菜二体异附加系BAC文库的构建[D]. 武汉:华中农业大学, 2008: 32-40.(Chen S Y. Construction of the BAC library of brassica napus-Chinese Xinjiang wild rape disomic alien addition[D]. Wuhan: Huazhong Agricultural University, 2008: 32-40.)
[14]Osoegawa K, Woon P Y, Zhao B, et al. An improved approach for construction of bacterial artificial chromosome libraries[J]. Genomics, 1998, 52: 1-8.
[15]Shizuya H, Bieeren B, Kim U J, et al. Cloning and stable maintenance of 300-kilobase pair fragments of human DNA Escherichia coli?using an F-factor based vector[J]. Proceedings of the National Academy of Sciences, 1992, 89: 8794-8797.
[16]Yu L S, Valeria M, Bruce B. Transformation of Escherichia coli?with large DNA molecules by electroporation [J]. Nucleic Acids Research, 1995, 23: 1990-1996.

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(03):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(03):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(03):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(03):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(03):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(03):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(03):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(03):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(03):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(03):46.[doi:10.3969/j.issn.1000-9841.2013.01.011]
[11]王曙明,王跃强,李建平,等.田间开放条件下大豆不育系制种技术研究[J]. (darticle.aspx?type=view&id=201003006)大豆科学,2010,29(03):385.[doi:10.11861/j.issn.1000-9841.2010.03.0385]
WANG Shu-ming,WANG Yue-qiang,LI Jian-ping,et al.Seed Production of Soybean Cytoplasmic Male Sterile (CMS) Line under Field Conditions[J].Soybean Science,2010,29(03):385.[doi:10.11861/j.issn.1000-9841.2010.03.0385]
[12]张伟龙,张伟,徐长洪,等.父母本不同行距配置对昆虫授粉效率的影响[J]. (darticle.aspx?type=view&id=201705011)大豆科学,2017,36(05):733.[doi:10.11861/j.issn.1000-9841.2017.05.0733]
ZHANG Wei-long,ZHANG Wei,XU Chang-hong,et al.Effect of Different Parents Row Spacing on the Efficiency of Insect Pollination[J].Soybean Science,2017,36(03):733.[doi:10.11861/j.issn.1000-9841.2017.05.0733]

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