

论文

多基因双T-DNA植物表达载体的构建及拟南芥转化

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摘要:

多基因植物表达载体用于植物遗传转化是培育具有多种优良品质作物的有效策略. 双T-DNA系统是实现筛选完成后选择标记基因删除的一种简便可行的方式. 为培育高度抗逆或去除标记基因的农作物, 构建了多基因双T-DNA植物表达载体2T-bbgdD, 其中含有一个抗除草剂基因bar, 3个抗逆相关基因(DREB1A, Na⁺依赖性Pi转运体基因(d5), betA)和一个报告基因gfp. 利用农杆菌介导法将该载体转入拟南芥, 获得了多基因共转化及去除标记基因的转基因拟南芥. 可将此植物表达载体进一步用于作物的遗传转化.

关键词: 植物表达载体 DNA重组 多基因 双T-DNA 拟南芥 遗传转化

Construction of double a T-DNA plant expression vector harboring multi-genes and transformation of Arabidopsis thaliana

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Abstract:

A plant expression vector harboring multi-genes has good potential in breeding crops with many excellent agronomic traits. A feasible approach to eliminate the selectable marker genes from transgenic plants is the use of a "double T-DNA" binary vector system. The double T-DNA plant expression vector harboring multi-genes was constructed and transferred into Arabidopsis thaliana mediated by Agrobacterium tumefaciens., which includes one herbicide-resistant gene (bar), three abiotic stress-related genes (DREB1A, d5, betA) and one report gene (gfp). In addition, transgenic plants with multi-genes or without selective marker genes were obtained, respectively, which implies a promising future of this plant expression vector in breeding selectable-marker-free transgenic crops or crops with higher abiotic stress-resistance.

Keywords: plant expression vector DNA recombination multi-genes double T-DNA Arabidopsis thaliana genetic transformation

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