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生物技术—研究报告

水稻白叶枯病抗性基因Xa31(t)候选基因的克隆及遗传转化

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摘要:

为了构建水稻白叶枯病抗性基因Xa31(t)候选基因的植物表达载体并对其进行遗传转化，以水稻白叶枯病抗性品种‘扎昌龙’(ZCL)的基因组DNA为模板，通过长片段PCR扩增得到水稻白叶枯病抗性基因Xa31(t)候选基因Xa31(t)-1和Xa31(t)-2的序列，采用酶切、连接的方法先将目的基因克隆至T载体，筛选正确的质粒后，再克隆至pCMABIA1300表达载体。以农杆菌介导法将构建好的重组质粒转入‘日本晴’和‘台北309’的愈伤后诱导成苗，获得了大量转基因植株，这些工作为克隆白叶枯病抗性基因并研究其功能奠定了基础。

关键词: 遗传转化

Cloning and Genetic Transformation of the Candidate Genes for the Bacterial Blight Resistance Gene Xa31(t) in Rice

Abstract:

To construct the expression vector with the candidate genes of bacteria blight disease resistance gene Xa31(t) in rice, and to make the genetic transformation, the candidate genes Xa31(t)-1 and Xa31(t)-2 of rice bacterial blight resistance gene Xa31(t) were obtained through the method of long segments PCR with the resistant variety ‘Zachanglong’ (ZCL) genomic DNA as the template. Then the target genes were cloned to the T-vector with the way of restriction endonuclease reaction and enzyme ligation reaction. After screening the positive clones and sequencing, the target genes were cloned to the expression vector of pCMABIA1300. Finally, the recombinant plasmids were transformed into the callus of the susceptible varieties ‘Nipponbare’ and ‘Taibei309’ respectively by agrobacterium-mediated approach and a lot of transformed rice seedlings were obtained. These work laid the foundation for cloning the bacterial blight resistance gene Xa31(t) and studied its function.

Keywords: genetic transformation

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