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GFP基因在棉花转化中的应用 The Use of Green Fluorescent Protein Gene in Cotton Transformation

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摘要 以绿色荧光蛋白GFP基因为报道基因，用花粉管通道和农杆菌介导的转化方法将外源基因导入棉花(Gossypium hirsutumL.)，分别获得转化幼胚、幼苗和转化愈伤组织。用手持紫外灯结合显微镜检术能够快速地对转化子进行活体筛选鉴定，比用GUS检测方法有明显的优越性。本研究不但为花粉管通道转化法的可行性提供了新的证据，同时也建立了GFP用于棉花基因工程研究的检测技术体系。

Abstract: With the Green Fluorescent Protein gene (GFP) as a reporter gene, the transgenic embryos, seedlings and calli of cotton(Gossypium hirsutum L.) were obtained by the method of pollen tube pathway and Agrobacterium-mediated techniques separately. The GFP gene under the control of the 35s Cauliflower Mosaic Virus promoter produced bright?green fluorescence easily detectable and screenable in cotton tissue by fluorescence microscopy and a hand-held ultraviolet lamp. The screenable marker aided and facilated the rapid segregation of individual transformation events, drastically reduced the quantity of tissue to be handled. The GFP can be screened in vivo without destroying the materials, so it is more practical and useful than GUS. The use of GFP could advance the development of cotton gene engineering.

关键词 绿色荧光蛋白 花粉管通道 棉花 报道基因 转化 Keywords green fluorescent protein (GFP) pollen tube pathway cotton reporter gene transformation
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