

林木基因克隆研究进展

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Research Progress in Gene Cloning in Forest Trees

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摘要

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摘要 林木种质资源丰富, 种质间遗传差异大, 控制林木重要性状的基因克隆及转化对培育优良林木新品种具有很强的实用价值, 但许多具有潜在应用价值的林木基因未得到充分发掘和有效分离。近年来, 随着各种不同林木cDNA文库的建立, 大规模随机EST测序技术的运用以及克隆技术的不断完善, 特别是毛果杨(*Populus trichocarpa*)基因组测序计划的完成, 大量与林木重要性状相关的基因被分离和鉴定。这些重要基因的获得为利用转基因技术培育高产、优质、抗逆、抗病虫害的林木新品种奠定了一定的基础。该文综述了20多年来国内外林木基因克隆的研究进展, 对基因克隆及其应用过程中亟待解决的问题进行了讨论, 并对其发展趋势进行展望。

关键词: 林木 基因克隆 研究进展 转基因技术

Abstract: Forest trees have rich germplasm resources and a wide array of genetic differences among germplasms. Cloning and transforming genes that control important traits in tree species can be valuable in cultivating new clones with excellent quality. However, many of the genes with potential application have not been discovered or isolated. In recent years, a large number of genes related to important traits in forest trees have been identified and isolated with the establishment of forest cDNA libraries, the use of large-scale random expressed sequence tag sequencing, improvements in cloning technology, and more specifically, the complete genome sequencing of *Populus trichocarpa* Torr. & Gray. This information has laid a solid foundation for using transgenic technology to cultivate new varieties of forest trees for high yield, fine quality, high stress tolerance and pest resistance. In this review, we summarize the progress in gene cloning of forest trees over the last 20 years. We discuss some problems in gene cloning and application, as well as future applications and prospects for gene cloning and transgenic technology of forest trees.

Keywords: forest trees gene cloning research progress transgenic technology

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