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定量RT-PCR及其在植物学研究中的应用

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Quantitative RT-PCR and its application in botany research

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摘要 定量RT-PCR(Quantitative.reverse.transcriptase-PCR)是在反转录和定量PCR的基础上发展起来的一种特异性检测基因表达的技术。主要包括相对定量RT-PCR(Relative.quantitative.RT-PCR)、竞争性定量RT-PCR(Competitive.quan-titative.RT-PCR)、比较定量RT-PCR(Comparative.quantitative.RT-PCR)和实时定量RT-PCR(Real.time.quantitative.RT-PCR)四种。目前定量RT-PCR在植物学研究中的应用越来越广泛,如植物营养学研究、植物发育学研究、植物抗逆机理研究、转基因植物的检测、病原菌的检测、植物与微生物互作机理研究、植物抗病性检测等方面。本文综述了定量RT-PCR的原理及在植物学中的应用。

关键词： 相对定量RT-PCR 竞争性定量RT-PCR 比较定量RT-PCR 实时定量RT-PCR 植物学 相对定量RT-PCR 竞争性定量RT-PCR 比较定量RT-PCR 实时定量RT-PCR 植物学

Abstract： Quantitative reverse transcription-polymerase chain reaction(Quantitative RT-PCR) is based on the reverse transcription and PCR.It can be applied for the quantification of mRNA expressed from endogenous genes,and transfected genes of either stable or transient transfection in both relative and absolute terms.In particular,it is the most sensitive and reproducible method for the detection of low-abundance mRNA,often obtained from limited tissue samples.In fact,this technique is sensitive enough to enable quantitation of RNA from a single cell.There are four kinds of quantitative RT-PCR: relative quantitative RTPCR,competitive quantitative RT-PCR,comparative quantitative RT-PCR and real time quantitative RT-PCR.Quantitative RT-PCR is available for botany research including plant nutrition,plant development,plant stress study,genetically modified organism assay,diagnosis of pathogen,relation between the plant and microorganism,disease resistance assay and so on.This article reviews the principle and application of the quantitative RT-PCR in botany research.

Keywords：

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