

METHODS IN MOLECULAR BIOLOGY™

Volume 286

Transgenic Plants

Methods and Protocols

Edited by

Leandro Peña



HUMANA PRESS

Transgenic Plants Methods And Protocols Methods In Molecular Biology

**Narendra Tuteja, Renu Tuteja, Nishat
Passricha, Shabnam Saifi**



Transgenic Plants Methods And Protocols Methods In Molecular Biology:

Transgenic Plants Leandro Peña, 2008-02-05 The aim of Transgenic Plants Methods and Protocols is to provide a source of information to guide the reader through a wide range of frequently used broadly applicable and easily reproducible techniques involved in the generation of transgenic plants Its step by step approach covers a series of methods for genetically transforming plant cells and tissues and for recovering whole transgenic plants from them The volume then moves on to the use of selectable and reporter markers positive selection marker elimination after recovery of transgenic plants and the analysis of transgene integration expression and localization in the plant genome Although contributors usually refer to model plants in most chapters the protocols described herein should be widely applicable to many plant species The last two sections are devoted to methods of risk assessment and to exploring the current and future applications of transgenic technology in agriculture and its social implications in a case study Transgenic Plants Methods and Protocols is divided into six major sections plus an introduction comprising 27 chapters Part I the Introduction is a review of the past present and perspectives of the transgenic plants from the discovery of *Agrobacterium tumefaciens* as a feasible transformation vector to its use as a tool to study gene expression and function and the current and possible future applications of this technology in agriculture industry and medicine

Transgenic Plants Yelda Ozden Çiftçi, 2012-03-07 Development of efficient transformation protocols is becoming a complementary strategy to conventional breeding techniques for the improvement of crops Thus Transgenic Plants Advances and Limitations covers the recent advances carried on improvement of transformation methods together with assessment of the impact of genetically transformed crops on biosafety Each chapter has been written by one or more experienced researchers in the field and then carefully edited to ensure thoroughness and consistency

Recombinant Proteins from Plants Jacqueline MacDonald, Igor Kolotilin, Rima Menassa, 2016 This volume provides up to date scientific achievements from the world's top researchers Recombinant Proteins from Plants Methods and Protocols Second Edition guides readers through protocols for use with a variety of plant expression systems Various aspects of production are covered including vector selection and cloning product improvements for stability glycosylation and antibiotic free selection extraction and scale up and analysis of transgenic plants and their recombinant proteins Written for the Methods in Molecular Biology series chapters include introductions to their respective topics lists of the necessary materials and reagents step by step readily reproducible laboratory protocols and tips on troubleshooting and avoiding known pitfalls Authoritative and practical Recombinant Proteins from Plants Methods and Protocols Second Edition is an ideal reference for those who are interested in plant molecular biology and molecular farming

Transgenic Plants Nitish Kumar, 2025-09-30 This detailed volume explores methods used in the development of transgenic plants The book presents techniques for genetically altering plant tissues and cells as well as for obtaining entire transgenic plants from them The creation of new vectors the use of chloroplast engineering and the most recent advances in this field such as plant genome editing are also

covered Written for the highly successful Methods in Molecular Biology format chapters include introductions to their respective topics lists of the necessary materials and reagents step by step and readily reproducible laboratory protocols and tips for troubleshooting and avoiding known pitfalls Timely and practical Transgenic Plants Methods and Protocols serves as an ideal guide for the development of transgenic crop plants and their application for improving agriculture environment ecology and health

Receptor Binding Techniques Anthony P. Davenport, 2008-02-02 A comprehensive collection of readily reproducible methods for studying receptors in silico in vitro and in vivo These cutting edge techniques cover mining from curated databases identifying novel receptors by high throughput screening molecular methods to identify mRNA encoding receptors radioligand binding assays and their analysis quantitative autoradiography and imaging receptors by positron emission tomography PET Highlights include phenotypic characterization of receptors in knockout mice imaging receptors using green fluorescent protein and fluorescent resonance energy transfer and quantitative analysis of receptor mRNA by TaqMan PCR These book equips the researcher with techniques for exploring the unprecedented number of new receptor systems now emerging and the so called orphan receptors whose activating ligand has not been identified

Protein-Protein Interactions Haiyan Fu, 2008-02-03 As the mysteries stored in our DNA have been more completely revealed scientists have begun to face the extraordinary challenge of unraveling the intricate network of protein protein interactions established by that DNA framework It is increasingly clear that proteins continuously interact with one another in a highly regulated fashion to determine cell fate such as proliferation differentiation or death These protein protein interactions enable and exert stringent control over DNA replication RNA transcription protein translation macromolecular assembly and degradation and signal transduction essentially all cellular functions involve protein protein interactions Thus protein protein interactions are fundamental for normal physiology in all organisms Alteration of critical protein protein interactions is thought to be involved in the development of many diseases such as neurodegenerative disorders cancers and infectious diseases Therefore examination of when and how protein protein interactions occur and how they are controlled is essential for understanding diverse biological processes as well as for elucidating the molecular basis of diseases and identifying potential targets for therapeutic interventions Over the years many innovative biochemical biophysical genetic and computational approaches have been developed to detect and analyze protein protein interactions This multitude of techniques is mandated by the diversity of physical and chemical properties of proteins and the sensitivity of protein protein interactions to cellular conditions

Gene Expression Profiling Richard A. Shinkoff, 2008-02-03 Leading scientists in gene expression methodology and bioinformatics data analysis describe readily reproducible methods for measuring RNA levels in cells and tissues The techniques presented include new methods for applying the Affymetrix GeneChip SAR SAGE StaRT PCR SSH the Invader Assay and ADGEM The authors also provide critical bioinformatics insight and resources for data analysis and management By distilling the basic underlying principles of many methods to a few straightforward concepts investigators

can easily choose the method most appropriate to their application **Human Retrovirus Protocols** Tuofu Zhu,2008-02-04

A cutting edge collection of basic and state of the art methods optimized for investigating the molecular biology of this class of retrovirus These readily reproducible techniques range from methods for the isolation and detection of human retroviruses to cutting edge methods for exploring the interplay between the viruses and the host Here the researcher will find up to date techniques for the isolation and propagation of HIV HTLV and foamy virus from a variety of sources There are also assays for determining the cell tropism of HIV 1 the coreceptor usage of HIV 1 and human gene expression with HIV 1 infection by microarrays as well as for phenotyping HIV 1 infected monocytes and examining their fitness Highlights include the detection and quantification of HIV 1 in resting CD4 a new cloning system for making recombinant virus cDNA microarrays and the determination of genetic polymorphisms in two recently identified HIV 1 co factors that are critical for HIV 1 infection **Advances in Plant Transgenics: Methods and Applications** Ramalingam Sathishkumar,Sarma Rajeev

Kumar,Jagadeesan Hema,Venkidasamy Baskar,2019-11-15 The green revolution led to the development of improved varieties of crops especially cereals and since then classical or molecular breeding has resulted in the creation of economically valuable species Thanks to recent developments in genetic engineering it has become possible to introduce genes from different sources such as bacteria fungi viruses mice and humans to plants This technology has made the scientific community aware of the critical role of transgenics not only as a means of producing stress tolerant crops but also as a platform for the production of therapeutics through molecular farming This book discusses the commercial applications of plant transgenic technologies including the use of transgenic cell culture approaches to improve the production of metabolites and high value therapeutics as well as transgenic plants in pest management It also explores generation of novel vectors protein production using chloroplast engineering and the latest developments in this area such as genome editing in plants Featuring general discussions and research papers by leading international experts it is a valuable resource for scientists teachers students and industrialists working in the field **Advancement in Crop Improvement Techniques**

Narendra Tuteja,Renu Tuteja,Nishat Passricha,Shabnam Saifi,2020-06-13 Advancement in Crop Improvement Techniques presents updates on biotechnology and molecular biological approaches which have contributed significantly to crop improvement The book discusses the emerging importance of bioinformatics in analyzing the vast resources of information regarding crop improvement and its practical application and utilization Throughout this comprehensive resource emphasis is placed on various techniques used to improve agricultural crops providing a common platform for the utility of these techniques and their combinations Written by an international team of contributors this book provides an in depth analysis of existing tools and a framework for new research Reviews techniques used for crop improvement from selection and crossing over to microorganismal approaches Explores the role of conventional biotechnology in crop improvement Summarizes the combined approaches of cytogenetics and biotechnology for crop improvement including the importance of molecular

techniques in this process Focuses on the emerging role of bioinformatics for crop improvement

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