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Crispr Methods And Protocols Methods In Molecular Biology

Claudia Stange Klein



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Agrobacterium Claudia Stange Klein, 2025-03-27 This volume details Agrobacterium strain methods such as plant genotype transient and stable transformation of plants for gene overexpression silencing transplastomic and editing Transformation protocols are focused mainly in plants with economic importance such as cereals and fruit trees including diploids and polyploids and in non plant species such fungi and algae Written in the highly successful Methods in Molecular Biology series format chapters include introductions to their respective topics lists of the necessary materials and reagents step by step readily reproducible laboratory protocols and key tips on troubleshooting and avoiding known pitfalls Authoritative and cutting edge Agrobacterium Methods and Protocols aims to be a useful and practical guide to new researchers and experts looking to expand their knowledge

System Vaccinology Vijay Kumar Prajapati, 2022-08-20 Emergence of new and deadly infectious diseases is significantly deteriorating the human health Development of vaccine by the scientist has become an important weapon to control the spread of infectious diseases as well as to improve the life expectancy at global level in 20th 21st Century This book will provide the in depth knowledge of vaccine history and development of new strategies to design efficacious and safe vaccine molecule This book will cover the development of system vaccinology and their applications revolutionize the vaccine discovery This will provide a resource for the basic and clinical researcher working to human life expectancy by their vaccine experiments and clinical trials My purpose to write this book to educate the students and researchers with modern development in the field of vaccinology and empowering the researcher with new tools and methodology for developing potential and immunogenic vaccines This book will be helpful to solve the curiosity of science and medical background students related with vaccinology and will be helpful to devise a new vaccine molecule to control the spread of new and emerging pathogens Systems biology is a rapidly expanding research discipline aiming to integrate multifaceted datasets generated using state of the art high throughput technologies such as arrays and next generation sequencing Combined with sophisticated computational analysis we are able to interrogate host responses to infections and vaccination on a systems level thus generating important new hypotheses and discovering unknown associations between

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Applications of Genome Modulation and Editing Paul John Verma,Huseyin Sumer,Jun Liu,2022-06-13 This volume details generation of gene edited cell lines and organisms as models for human diseases pest control and large animal welfare and production outcomes Chapters guide readers through gene regulation editing screening of cell lines genome editing and an overview of the tools for efficient genome editing including ZFNs TALENs and CRISPR Written in the format of the highly successful Methods in Molecular Biology series each chapter includes an introduction to the topic lists necessary materials and reagents includes tips on troubleshooting and known pitfalls and step by step readily reproducible protocols Authoritative and cutting edge Applications of Genome Modulation and Editing aims to be a useful and practical guide for researchers to commence or advance their study in this field

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Tools & Techniques of Plant Molecular Farming Chittaranjan Kole,Anurag Chaurasia,Kathleen L. Hefferon,Jogeswar Panigrahi,2023-11-22 This edited book is an in depth compilation of recent tools and techniques concepts and strategies used globally in plant molecular farming PMF for the cost effective bulk production of recombinant proteins secondary metabolites and other biomolecules The book presents an overview of success stories of PMF applications from developing countries to address poverty achieve zero hunger good health and well being thus achieving the UN SDGs 1 2 and 3 The book deep dives into recent extraction and downstream processing methodologies its co existence with conventional agriculture global governance and finally opportunities challenges and future perspectives in plant molecular farming It focuses on plastid

chloroplast transformation transplastomics and its application in plant molecular farming The books highlight recent advances in genome editing synthetic biology glycosylation and glyco engineering for improved plant molecular farming by marker free and tissue specific systems via cisgenic and transgenic crops In depth discussions on biosafety issues and bio containment strategies have also been included The book has 15 chapters authored by globally leading experts on the subject presenting opportunities challenges for bio industrial researchers and entrepreneurs It is useful to researchers industrialists entrepreneurs policy planners academician and students across the disciplines

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