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Agrobacterium: From Biology to Biotechnology Springer Science & Business Media
Biotechnology is one of the major technologies of the twenty-first century. Its wide-ranging, multi-disciplinary activities include recombinant DNA techniques, cloning and the application of microbiology to the production of goods from bread to antibiotics. In this new edition of the textbook Basic Biotechnology, biology and bioprocessing topics are uniquely combined to provide a complete overview of biotechnology. The fundamental principles that underpin all biotechnology are explained and a full range of examples are discussed to show how these principles are applied; from starting substrate to final product. A distinctive feature of this text are the discussions of the public perception of biotechnology and the business of biotechnology, which set the science in a broader context. This comprehensive textbook is essential reading for all students of biotechnology and applied microbiology, and for researchers in biotechnology industries.

Working With Nature Routledge
Sixteen contributions cover such topics as the polymerase chain reaction; regulation of alternative splicing; human retinoblastoma susceptibility gene; control of translation initiation in mammalian cells; the utility of streptomycetes as hosts for gene cloning; folding of eukaryotic proteins produc

CRISPR-Cas Systems Elsevier
Genetic engineering has been studied for a number of years for understanding the formation of cells and cell structures as well as the processes involved in evolution. The scientific advancements in the field of genetic engineering and biotechnology have resulted in the manipulation of genes of organisms as well as plants to enhance their traits for commercial purposes. Protein expression and DNA sequencing are key topics of research in this field. This book on genetic engineering and biotechnology discusses the theories and practices related to genes and genetic modification. While understanding the long-term perspectives of the topics, the book makes an effort in highlighting their impact as a modern tool for the growth of the discipline. This book is an essential guide for both academicians and those who wish to pursue this discipline further.

Genetically Engineered Crops Elsevier
The only series for MYP 4 and 5 developed in cooperation with the International Baccalaureate (IB) Develop your skills to become an inquiring learner; ensure you navigate the MYP framework with confidence using a concept-driven and assessment-focused approach presented in global contexts. - Develop conceptual understanding with key MYP concepts and related concepts at the heart of each chapter. - Learn by asking questions with a statement of inquiry in each chapter. - Prepare for every aspect of assessment using support and tasks designed by experienced educators. - Understand how to extend your learning through research projects and interdisciplinary opportunities. This title is also available in two digital formats via Dynamic Learning. Find out more by clicking on the links at the top of the page.

The Biology of Frankia and Actinorhizal Plants Hodder Education
Agrobacterium is a plant pathogen which causes the “crown-gall” disease, a neoplastic growth that results from the transfer of a well-defined DNA segment (“transferred DNA”, or “T-DNA”) from the bacterial Ti (tumor-inducing) plasmid to the host cell, its integration into the host genome, and the expression of oncogenes contained on the T-DNA. The molecular machinery, needed for T-DNA generation and transport into the host cell and encoded by a series of chromosomal (chv) and Ti-plasmid virulence (vir) genes, has been the subject of numerous studies over the past several decades. Today, Agrobacterium is the tool of choice for plant genetic engineering with an ever expanding host range that includes many commercially important crops, flowers, and tree species. Furthermore, its recent application for the genetic transformation of non-plant species, from yeast to cultivated mushrooms and even to human cells, promises this bacterium a unique place in the future of biotechnological applications. The book is a comprehensive volume describing Agrobacterium's biology, interactions with host species, and uses for genetic engineering.

Basic Biotechnology Springer Science & Business Media
Applied Molecular Biotechnology: The Next Generation of Genetic Engineering explains state-of-the-art advances in the rapidly developing area of molecular biotechnology, the technology of the new millennium. Comprised of chapters authored by leading experts in their respective fields, this authoritative reference text: Highlights the latest omics-based tools and approaches used in modern biotechnology Explains how various molecular biology technologies can be used to develop transgenic plants and how those plants can meet growing food and plant-derived product demands Discusses chloroplast gene expression systems, mitochondrial omics, plant functional genomics, and whole-genome resequencing for crop improvement Explores plant – microbe and plant – insect interactions affecting plant protection and productivity Covers animal models, pharmacogenomics, human tissue banking, and the molecular diagnosis of diseases such as cervical cancer, obesity, and diabetes Examines the molecular aspects of viral diseases, production of industrial commodities using viral biotechnology, and biotechnological uses of magnetic nanoparticles Describes the use of biotechnology in the food, chemical, pharmaceutical, environmental conservation, and renewable energy sectors Applied Molecular Biotechnology: The Next Generation of Genetic Engineering serves as a springboard for new discoveries in molecular biology and its applications. Thus, this book is an invaluable resource for students and researchers of molecular biotechnology.

Biology for the IB Diploma CABI
Biotechnology in the Chemical Industry: Towards a Green and Sustainable Future focuses on achievements and prospects for biotechnology in sustainable production of goods and services, especially those that are derived at present mostly from the traditional chemical industry. It considers the future impact of industrial biotechnology and lays out the major research areas which must be addressed to move from a flourishing set of scientific disciplines to a major contributor to a successful future knowledge-based economy. The book focuses on the research needed to underpin three broad topics: biomass, bio-processes and bio-products, including bio-energy. Readers, including advanced students, researchers, industry professionals, academics, analysts, consultants, and anyone else interested, or involved in biotechnology will find this book very informative. Offers a comprehensive introduction to the subject for researchers interested in the biotechnological applications in chemical industry Provides a state-of-the art update on the field Presents the economic and ecological advantages of industrial biotechnology Discusses efforts made by developing countries towards industrial biotechnology Describes new biotechnological applications Includes the major challenges facing industrial biotechnology

The Origin of Eukaryotic Cells Academic Foundation
This is the first book to extensively and exclusively cover nonconventional yeasts - all yeasts other than S. cerevisiae and S. pombe. In addition to useful background information, the author includes detailed protocols allowing the investigation of basic and applied aspects for a wide range of these organisms. Due to the increasing importance of nonconventional yeasts in biotechnological applications, this book should become the standard reference for both pure and applied scientists working in the fields of microbiology and biochemistry.

Biology for the IB Diploma Second Edition Nottingham University Press
Genetically engineered (GE) crops were first introduced commercially in the 1990s. After two decades of production, some groups and individuals remain critical of the technology based on their concerns about possible adverse effects on human health, the environment, and ethical considerations. At the same time, others are concerned that the technology is not reaching its potential to improve human health and the environment because of stringent regulations and reduced public funding to develop products offering more benefits to society. While the debate about these and other questions related to the genetic engineering techniques of the first 20 years goes on, emerging genetic-engineering technologies are adding new complexities to the conversation. Genetically Engineered Crops builds on previous related Academies reports published between 1987 and 2010 by undertaking a retrospective examination of the purported positive and adverse effects of GE crops and to anticipate what emerging genetic-engineering technologies hold for the future. This report indicates where there are uncertainties about the economic, agronomic, health, safety, or other impacts of GE crops and food, and makes recommendations to fill gaps in safety assessments, increase regulatory clarity, and improve innovations in and access to GE technology.

An Introduction to Molecular Medicine and Gene Therapy Genetically Engineered CropsExperiences and Prospects
Many potential applications of synthetic and systems biology are relevant to the challenges associated with the detection, surveillance, and responses to emerging and re-emerging infectious diseases. On March 14 and 15, 2011, the Institute of Medicine's (IOM's) Forum on Microbial Threats convened a public workshop in Washington, DC, to explore the current state of the science of synthetic biology, including its dependency on systems biology; discussed the different approaches that scientists are taking to engineer, or reengineer, biological systems; and discussed how the tools and approaches of synthetic and systems biology were being applied to mitigate the risks associated with emerging infectious diseases. The Science and Applications of Synthetic and Systems Biology is organized into sections as a topic-by-topic distillation of the presentations and discussions that took place at the workshop. Its purpose is to present information from relevant experience, to delineate a range of pivotal issues and their respective challenges, and to offer differing perspectives on the topic as discussed and described by the workshop participants. This report also includes a collection of individually authored papers and commentary.

Aquaculture and Fisheries Biotechnology and Genetics DIANE Publishing
Genetically Engineered CropsExperiences and ProspectsNational Academies Press

Experiences and Prospects National Academies Press
Biotechnology Is At The Heart Of Technology Revolution In Asia Today With Immense Potential In The Pharmaceutical And Agriculture Sectors. This Study Covers Economic And Policy Issues And The Experiences In Biotechnology In Japan, India, Malaysia, The Phillipines, Korea, Bangladesh, Thailand, China And Singapore And Also The International Cooperative

Strategies Of Asean And In Europe. This Book Is A Valuable Resource For Governments, Multilateral Institutions, Academics And Practitioners In The Field Of Economic Development And Technology Policy Management.

Genetic Engineering & Biotechnology News Springer Science & Business Media

CRISPR/Cas is a recently described defense system that protects bacteria and archaea against invasion by mobile genetic elements such as viruses and plasmids. A wide spectrum of distinct CRISPR/Cas systems has been identified in at least half of the available prokaryotic genomes. On-going structural and functional analyses have resulted in a far greater insight into the functions and possible applications of these systems, although many secrets remain to be discovered. In this book, experts summarize the state of the art in this exciting field.

Biotechnology in Agriculture in Asia Cambridge University Press

Biotechnology of Major Cereals will focus on the recent advances and future prospects in cereal biotechnology. The first part of the book will cover the world ' s major cereals and focus on new developments and trends. The second part will be technology rather than species-led, detailing fundamental developments in technologies and significant target traits.

Genetic Engineering Springer Science & Business Media

The most comprehensive coverage of the new 2014 syllabus for both SL and HL, this completely revised edition gives you unrivalled support for the new concept-based approach to learning, the Nature of Science. The only DP Biology resource that includes support straight from the IB, integrated exam work helps you maximize achievement.

Concepts of Biology Springer Nature

"This book covers topics essential to the study of fish genetics, including qualitative and quantitative traits, crossbreeding, inbreeding, genetic drift, hybridization, selection programs, polyploidy, genomics and cloning. This fully updated second edition also addresses environmental risk, food safety and government regulation of transgenic aquatic organisms, commercial applications of fish biotechnology and future issues in fish genetics"--

Fruit and Vegetable Biotechnology Walter de Gruyter GmbH & Co KG

Gene therapy, or the use of genetic manipulation for diseasetreatment, is derived from advances in genetics, molecular biology,clinical medicine, and human genomics. Molecular medicine, theapplication of molecular biological techniques to disease treatmentand diagnosis, is derived from the development of human organtransplantation, pharmacotherapy, and elucidation of the humangenome. An Introduction to Molecular Medicine and GeneTherapy provides a basis for interpreting new clinical andbasic research findings in the areas of cloning, gene transfer, andtargeting; the applications of genetic medicine to clinicalconditions; ethics and governmental regulations; and the burgeoningfields of genomics, biotechnology, and bioinformatics. By dividingthe material into three sections - an introduction to basicscience, a review of clinical applications, and a discussion of theevolving issues related to gene therapy and molecular medicine-thiscomprehensive manual describes the basic approaches to the broadrange of actual and potential genetic-based therapies. In addition, An Introduction to Molecular Medicine andGene Therapy: Covers new frontiers in gene therapy, animal models, vectors,gene targeting, and ethical/legal considerations Provides organ-based reviews of current studies in gene therapyfor monogenetic, multifactoral or polygenic disorders, andinfectious diseases Includes bold-faced terms, key concepts, summaries, and listsof helpful references by subject in each chapter Contains appendices on commercial implications and a review ofthe history of gene therapy This textbook offers a clear, concise writing style, drawingupon the expertise of the authors, all renowned researchers intheir respective specialties of molecular medicine. Researchers ingenetics and molecular medicine will all find An Introductionto Molecular Medicine and Gene Therapy to be an essentialguide to the rapidly evolving field of gene therapy and itsapplications in molecular medicine.

Proceedings of the Second International Symposium Hodder Education

Annotation State-of-the-art research by leading experts ## Advanced feedstock production and processing ## Enzyme and microbial biocatalysis ## Bioprocess research and development ## Commercialization of biobased products.

Chloroplasts and Mitochondria Hodder Education

Concepts of Biology is designed for the single-semester introduction to biology course for non-science majors, which for many students is their only college-level science course. As such, this course represents an important opportunity for students to develop the necessary knowledge, tools, and skills to make informed decisions as they continue with their lives. Rather than being mired down with facts and vocabulary, the typical non-science major student needs information presented in a way that is easy to read and understand. Even more importantly, the content should be meaningful. Students do much better when they understand why biology is relevant to their everyday lives. For these reasons, Concepts of Biology is grounded on an evolutionary basis and includes exciting features that highlight careers in the biological sciences and everyday applications of the concepts at hand.We also strive to show the interconnectedness of topics within this extremely broad discipline. In order to meet the needs of today's instructors and students, we maintain the overall organization and coverage found in most syllabi for this course. A strength of Concepts of Biology is that instructors can customize the book, adapting it to the approach that works best in their classroom. Concepts of Biology also includes an innovative art program that incorporates critical thinking and clicker questions to help students understand--and apply--key concepts.

Biotechnology in the Chemical Industry Springer Science & Business Media

First Published in 1998. Routledge is an imprint of Taylor & Francis, an informa company.