Plant Responses to Drought Stress
From Morphological to Molecular Features

Features
► Written by experts  ► Richly illustrated
► Presents basic concepts as well as latest findings

Contents

Fields of interests
Plant Physiology; Agriculture; Plant Ecology

Target groups
Research

Discount group
Professional Non-Medical

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Gametogenesis, Early Embryo Development and Stem Cell Derivation

This Brief offers a concise, handy overview of the main concepts related to Embryology, revisited through the novel concepts that are applied daily in stem cell research and cell therapy oriented investigations. It is based on three main areas: -The process involved in female gamete differentiation and maturation. The main aspects related to cell biology will be covered and an overview of the epigenetic regulation of gametogenesis will be presented. -Early stages of embryo development with a careful analysis of the regulatory mechanisms driving cleavage, polarization and genome activation. -Stem cell and gametogenesis. The use of the oocyte as a possible source for the derivation of stem cell lines is discussed and depicted as a powerful tool to investigate oocyte potency and asymmetric imprinting.

Contents
Gametogenesis: Primordial germ cells; Mitosis and Meiosis; Maturation of the female gamete; Imprinting and epigenetic regulation; Fertilization; Oocyte activation. - Early embryo development: Syngamy and spindle formation; Cleavage, compaction and blastulation; Cell commitment and Waddington model of epigenetic restriction. Asymmetric imprinting; Establishment of the body axis. - Stem cells and gametogenesis: Oocyte competence and potency; Oocyte as a source of uniparental pluripotent cells; Spindles of uniparental origin in mammals; Stem cells as a source of oocytes.

Fields of interests
Stem Cells; Reproductive Medicine; Cell Biology

Target groups
Professional/practitioner

Discount group
Professional Non-Medical

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Mesenchymal Stem Cell Therapy

Contents

Fields of interests
Stem Cells; Cell Biology

Target groups
Professional/practitioner

Discount group
Professional Non-Medical

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Developing Biofuel Bioprocesses Using Systems and Synthetic Biology

Advances in technological and analytical methods have fostered rapid growth of systems biology and synthetic biology. There continues to be rapid changes and discoveries in both fields with a small number of recent peer-reviewed reviews indicating some of the relationships between systems biology and synthetic biology. This proposed SpringerBrief will cover core concepts of systems biology and synthetic biology and illustrate the implementation of associated research methodologies for an integrated approach to specifically address engineering microorganisms for biofuel production.

Features
- First title to compare systems and synthetic biology approaches for biofuel production
- Gives an overview of the core concepts of systems and synthetic biology
- Provides a broad context of topics relevant to the development of biofuel processes

Contents

Fields of interests
Systems Biology; Microbiology; Biomedical Engineering

Target groups
Research

Discount group
Professional Non-Medical

# Plant Organogenesis

## Methods and Protocols

**Contents**


**Fields of interests**

Plant Sciences; Plant Biochemistry

**Target groups**

Professional/practitioner

**Discount group**

Professional Non-Medical

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**Developing Biofuel Bioprocesses Using Systems and Synthetic Biology**

ISBN 978-1-4614-5579-0

Due November 2012

2013. VI, 94 p. 8 illus. in color. (SpringerBriefs in Systems Biology) Softcover

$49.95

ISBN 978-1-4614-5579-0

**Plant Organogenesis**


Due November 2012

2013. XX, 340 p. 41 illus., 24 in color. (Methods in Molecular Biology, Volume 959) Hardcover

$139.00


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**Bacterial Cell Surfaces**


Due November 2012

2013. XIV, 420 p. 65 illus., 15 in color. (Methods in Molecular Biology, Volume 966) Hardcover

$139.00

**Cell Senescence**

**Methods and Protocols**

Contents


**Fields of interests**

- Cell Biology; Cell Physiology

**Target groups**

- Professional/practitioner

**Discount group**

- Professional Non-Medical

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**Plant Transposable Elements**

**Impact on Genome Structure and Function**

Contents

- So many repeats and so little time - How to classify transposable elements.- Transposable element annotation in completely sequenced eukaryote genomes.- Using nextgen sequencing data to investigate genome size variation and transposable element content.- Genome-wide analysis of transposition using Next Generation.- Sequencing technologies.- Hitching a ride: Non-autonomous retrotransposons and parasitism as a lifestyle.- Plant endogenous retroviruses? A case of mysterious ORFs MITEs, miniature elements with a major role in plant genome evolution.- Glue for jumping elements: Epigenetic means for controlling transposable elements in plants.- Responses of transposable elements to polyploidy.- Noise or symphony: comparative evolutionary analysis of sugarcane transposable elements with other grasses.- Helitron proliferation and gene-fragment capture.- Transposable Element exaptation in plants.- SINE exaptation as cellular regulation capture.- Transposable Element exaptation of sugarcane transposable elements with other grasses.- ... Enzyme p66SHC1.- Profiling the Metabolic Signature of Senescence.- Genome-wide RNAi Screening to Identify Regulators of Oncogene-induced Cellular Senescence.- ...

**Fields of interests**

- Plant Genetics & Genomics; Plant Biochemistry; Nucleic Acid Chemistry

**Target groups**

- Research

**Discount group**

- Professional Non-Medical

---

**Laboratory Protocols in Fungal Biology**

**Current Methods in Fungal Biology**

Current editor: M. Ayyachamy, National University of Ireland Galway, Ireland; A. Donnivan, National University of Ireland Galway, Ireland

Contents

Contents

Fields of interests
Protein Science; Protein Structure

Target groups
Professional/practitioner

Discount group
Professional Non-Medical


Limits of Patentability
Plant Sciences, Stem Cells and Nucleic Acids

SpringerBriefs in Biotech Patents presents timely reports on intellectual properties (IP) issues and patent aspects in the field of biotechnology. In this volume the limits of patentability are addressed, a question that is often raised when it comes to biotechnological inventions: The first section addresses current issues in the patentability of plants produced by essentially biological processes including the controversy between farmer’s privilege and patent exhaustion with respect to seeds in the US. The second section examines the patentability of human embryonic stem cells in Europe and the US, also considering alternative technologies with respect to their practicability and patentability. The third section focuses on the patentability of genes and nucleic acids, especially the issue of patenting of encoding genes and nucleic acids.

Features
► Addresses currently debated issues concerning biotechnological inventions ► Written by internationally active experts ► Provides a basis for understanding biotech patentability

Contents

Fields of interests
Stem Cells; Gene Function; Plant Breeding/Biotechnology

Target groups
Research

Discount group
Professional Non-Medical

S. M. JAIN, University of Helsinki, Finland; S. Dutta Gupta, Indian Institute of Technology, Kharagpur, India (Eds)

Biotechnology of neglected and underutilized crops

Features
► The first comprehensive resource worldwide that reflects research achievements in neglected and underutilized crop biotechnology ► Comprehensive reviews of selected neglected and underutilized crops ► 40 Colour illustrations

Contents

Fields of interests
Life Sciences, general; Biotechnology; Plant Sciences

Target groups
Research

Discount group
Professional Non-Medical


The Evolution of Global Paper Industry 1800—2050
A Comparative Analysis

Features
► 16 producing countries are included in the book. ► Analyses of the evolution of global paper industry and its future prospects ► An extended research period of 250 years

Contents

Fields of interests
Forestry; History; Industrial Organization

Target groups
Graduate

Discount group
Professional Non-Medical

Sustainable Agriculture Reviews

E. Lichtfouse (Ed)

Volume 11

Sustainable agriculture is a rapidly growing field aiming at producing food and energy in a sustainable way for humans and their children. It is a discipline that addresses current issues: climate change, increasing food and fuel prices, population growth, rich-nation obesity, water pollution, soil erosion, fertiliser loss, pest control and biodiversity depletion. This series gathers review articles that analyze current agricultural issues and knowledge, then proposes alternative solutions.

Contents

Fields of interests
Agriculture; Life Sciences, general; Sustainable Development

Target groups
Graduate

Discount group
Professional Non-Medical

Mycorrhizal Plant–Fungus Interactions: An Introduction

V. S. Merckx, Leiden University, The Netherlands (Ed)

Mycorrhizal Plant–Fungus Interactions: An Introduction

Over the course of evolution, several plant lineages have found ways to obtain water, minerals, and carbohydrates from fungi. Some plants are able to exploit fungi to such extent that they lose the need for photosynthesis. The ability of a plant to live on fungal carbon is known as mycoheterotrophy. This intriguing process has fascinated botanists for centuries, yet many aspects of mycoheterotrophy have remained elusive for a long time. Mycoheterotrophic Flowering Plants explores the biology of mycoheterotrophs, offering general insights into their ecology, diversity, and evolution. Written by renowned experts in the field and bolstered with lavish illustrations and photographs, this volume provides a thematic overview of different aspects of mycoheterotrophy.

Contents

Fields of interests
Plant Sciences; Plant Ecology; Plant Genetics & Genomics

Target groups
Research

Discount group
Professional Non-Medical
The European Polysaccharide Network of Excellence (EPNOE)
Research Initiatives and Results

Contents

Fields of interests
Enzymology; Carbohydrate Chemistry; Food Science

Target groups
Research

Discount group
Professional Non-Medical
L. Swan (Ed)

Origins of Mind

Contents

Fields of interests
Life Sciences, general; Philosophy of Mind; Philosophy of Nature

Target groups
Research

Discount group
Professional Non-Medical

S. H. Tsang, Columbia University, NY, USA (Ed)

Stem Cell Biology and Regenerative Medicine in Ophthalmology

Patient specific and disease specific stem cell lines have already introduced groundbreaking advances into the research and practice of ophthalmology. This volume provides a comprehensive and engaging overview of the latest innovations in the field.

Features
► Describes a wide range of possible applications, from ocularfacial plastic surgery to the restoration of sight lost by degenerative disorders and glaucoma, to cancer research ► Gives a comprehensive account of types of safety trials that may be used to assess stem cell-based treatments’ viability ► Contains a discussion of the evidence that cancer stem cells can lead to uveal melanoma

Contents

Fields of interests
Stem Cells; Cell Biology; Ophthalmology

Target groups
Professional/practitioner

Discount group
Professional Non-Medical

S. Turillazzi, University of Florence, Italy

The Biology of Hover Wasps

This book represents the culmination of the author’s lifetime work on a single fascinating group of insects, the hover wasps, Stenogastrinae. The author explores the biology of these little-known wasps at the threshold of sociality, presenting an ambitious survey of ideas about their evolution and an assessment of the current standing of controversial concepts. Following taxonomic and morphological descriptions, the behaviour, colonial dynamics, social communication and especially the remarkably diverse nests of wasps are discussed. Compared to the better-known species of paper wasps, hornets and yellow jackets, the hover wasps show various peculiarities, such as characteristics of immature brood rearing, nest defence and mating systems. The nest architecture probably presents the most variable solutions in social wasps and is characterized by an astonishing level of camouflage, making these insects an interesting example of special adaptation to forest environments.

Features
► The author is a leading expert on the biology of social wasps ► First comprehensive treatment of these social insects  ► With fascinating illustrations and online videos

Contents

Fields of interests
Entomology; Behavioural Sciences; Evolutionary Biology

Target groups
Research

Discount group
Professional Non-Medical

Due November 2012

2013. VI, 405 p. 34 illus., 15 in color. (Biosemiotics, Volume 8) Hardcover
► $209.00
ISBN 978-94-007-5418-8

Due November 2012

2013. XIII, 215 p. 39 illus., 28 in color. (Stem Cell Biology and Regenerative Medicine) Hardcover
► approx. $189.00

Due November 2012

2013. Approx. 300 p. 145 illus., 35 in color. Hardcover
► approx. $189.00
ISBN 978-3-642-32679-0
Plant Acclimation to Environmental Stress

Contents

Fields of interests
Plant Sciences; Plant Biochemistry; Plant Anatomy/Development

Target groups
Professional/practitioner

Discount group
Professional Non-Medical

Current Views on Fish Welfare

The book, entitled "Welfare of farmed fish in present and future production systems", summarises the view of more than 80 experts in the field of fish welfare, collected over a period of more than five years in an international network entitled "Welfare of Fish in European Aquaculture" (Cost action 867), which was sponsored by the COST Office. COST is the acronym for European Cooperation in Science and Technology. During the time of the action a shift became evident in the general perception of fish welfare. It now not only includes variables with very direct effects on growth, and thereby the economy of the farmer, such as disease, water and feed quality, but the term also includes fish preferences and biology-based stimulation measures. This Cost action has contributed to the notion that welfare sets biological criteria for a sustainable production system.

Features
- Presents the view of more than 80 experts in the field of fish welfare
- Helps guide the way towards welfare of farmed fish in present and future production systems
- Each of the scientific papers is preceded by a summary for non-experts to make it accessible to stakeholders that are not part of the research community

Contents

Fields of interests
Animal Physiology; Behavioural Sciences; Zoology

Target groups
Research

Discount group
Professional Non-Medical

Available
2012.XII, 321 p. 126 illus., 22 in color. (Ecological Research Monographs) Hardcover
- $189.00
ISBN 978-4-431-54051-9
B. Zhang, East Carolina University, Greenville, NC, USA (Ed)

**Transgenic Cotton**

**Methods and Protocols**

**Contents**

Transgenic Cotton: From Biotransformation Methods to Agricultural Application.
- Genetically Modified Cotton in India and Detection Strategies.
- Agrobacterium-Mediated Transformation of Cotton.
- Biolistic Transformation of Cotton Zygotic Embryo Meristem.
- Biolistic Transformation of Cotton Embryogenic Cell Suspension Cultures.
- Cotton Transformation via Pollen Tube Pathway.
- Investigating Transgene Integration and Organization in Cotton (*Gossypium hirsutum* L.) Genome.
- Estimating the Copy Number of Transgenes in Transformed Cotton by Real-Time Quantitative PCR.
- Development of Enzyme-Linked Immunosorbant (ELISA) Assay for the Detection of Bt Protein in Transgenic Cotton.
- DNA-Based Diagnostics for Genetically Modified Cotton: Decaplex PCR Assay to Differentiate MON531 and MON15985 Bt Cotton Events.
- An Efficient Grafting Technique for Recovery of Transgenic Cotton Plants.
- Inheritance of Transgenes in Transgenic Bt Lines Resistance to Helicoverpa armigera in Upland Cotton.
- Agrobacterium rhizogenes-Induced Cotton Hairy Root Culture as an Alternative Tool for Cotton Functional Genomics.
- Overexpression of miR 156 in Cotton via Agrobacterium-Mediated Transformation.
- Development of Transgenic CryIA(c)+GNA Cotton Plants via Pollen Tube Pathway Method Confers Resistance to Helicoverpa armigera and *Aphis gossypii* Glover.

**Fields of interests**

Plant Sciences; Agriculture

**Target groups**

Professional/practitioner

**Discount group**

Professional Non-Medical

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Due November 2012

2013. XXII, 330 p. 55 illus., 28 in color. (Methods in Molecular Biology, Volume 958) Hardcover

$119.00

ISBN 978-1-62703-211-7