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Titolo	Animal and Plant Stem Cells : Concepts, Propagation and Engineering / / by Mirjana Pavlovi, Ksenija Radoti
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Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XVII, 234 p. 41 illus.)
Disciplina	610.28
Soggetti	Biomedical engineering Bioinformatics Botanical chemistry Biomedical Engineering and Bioengineering Computational Biology/Bioinformatics Plant Biochemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Current Status and Perspectives in Stem Cell Research: the concept of Normal Stem Cell (NSC) and Cancer Stem Cell (CSC) -- Essential Characteristics of Stem Cells: Self-Renewal and Plasticity -- Stem Cell Sources and Types of Animal Stem Cells -- Stemness and Stem Cell Markers -- Stem Cell Signaling Molecules and Pathways -- Expansion of Stem Cells: Propagation of Animal Stem Cells Ex Vivo (in Culture) -- Stem Cell Pool: What are the Best Patterns for Cellular Therapy? -- Induced Pluripotent Stem Cells (iPSCs) and Nuclear Reprogramming -- Cancer Stem Cell Concept -- Metabolic Reprogramming in Cancer and Metabolic Theory of CSC -- Concept of Targeted Cancer Stem Cell Therapy and New Versions -- HLA Typization Choice of Donors: Match or Match Me Not -- Engraftment: Homing and Use of Genetic Markers and Labels for Tracing -- Nanotechnology in Stem Cell Research -- Stem Cell Therapy: Optimization, Regeneration, Reprogramming, Expansion, Tissue Engineering -- What are Positive Results of Stem Cell Therapies?- Topic Novelties in Animal Stem Cell Research -- Resume -- Stem Cells in

Plants: Meristems -- Shoot and Root Apical Meristems -- Lateral Meristems -- External Control of the Plant Stem Cells -- Signaling and Genetic Regulation of the Plant Stem Cells -- Meristems and Primary and Secondary Growth in a Plant -- Propagation of Plant Stem Cells in Culture -- Cultured Plant Stem Cells as a Source of Plant Natural Products -- Mitochondria, a Vital Organelle in Stem Cell Maintenance -- Molecular Similarities Between Plant and Animal Stem Cells.

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## Sommario/riassunto

This book provides a multifaceted look into the world of stem cells and explains the similarities and differences between plant and human stem cells. It explores the intersection between animals and plants and explains their cooperative role in bioengineering studies. The book treats both theoretical and practical aspects of stem cell research. It covers the advantages and limitations of many common applications related to stem cells: their sources, categories, engineering of these cells, reprogramming of their functions, and their role as novel cellular therapeutic approach. Written by experts in the field, the book focuses on aspects of stem cells ranging from expansion-propagation to metabolic reprogramming. It introduces the emergence of cancer stem cells and different modalities in targeted cancer stem cell therapies. It is a valuable source of fresh information for academics and researchers, examining molecular mechanisms of animal and plant stem cell regulation and their usage for therapeutic applications. Students at all levels of medical or engineering backgrounds will enjoy the case studies that illustrate and explain mechanisms, interactions, targeted effects, and multimodal therapeutic approaches. Academics, researchers, and professionals who want to expand their knowledge in this field will find this book an exceptional resource.

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