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Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Prologue: Plant Stem Cells – Evolution of a Key Concept -- From Nmec and Haberlandt to Molecular Cell Biology -- Part I: Control of Growth And Development -- Why to Spent Tax Money on Plant Microtubules? -- Auxin Biology: Applications and the Mechanisms Behind -- The Biotechnological Potential of Cytokinin Status Manipulation -- Cell Fate Between Life and Death During Somatic Embryogenesis -- Molecular Cell Biology of Pollen Walls -- Part II: Stress Tolerance -- Plant Cell Responses to Cadmium and Zinc -- Applied Cell Biology of Sulfur and Selenium in Plants -- Endocytosis: At the Crossroads of Pattern Recognition Immune Receptors and Pathogen Effectors -- Part III: Plant Metabolism -- Plant Compounds Acting on the Cytoskeleton -- Secondary Metabolites of Traditional Medical Plants – A Case Study of Ashwagandha (Withania Somnifera) -- Metabolic Engineering of Wood Formation -- Part IV: The Cell Biology Toolbox – New Approaches -- Flow Cytometry in Plant Research: A Success Story -- Photoconvertible

Reporters for Selective Visualization of Subcellular Events and Interactions -- Plant Cell Strains in Fundamental Research and Application.

Sommario/riassunto

The aim of this volume is to merge classical concepts of plant cell biology with the recent findings of molecular studies and real-world applications in a form attractive not only to specialists in the realm of fundamental research, but also to breeders and plant producers. Four sections deal with the control of development, the control of stress tolerance, the control of metabolic activity, and novel additions to the toolbox of modern plant cell biology in an exemplary and comprehensive manner and are targeted at a broad professional community. It serves as a clear example that a sustainable solution to the problems of food security must be firmly rooted in modern, continuously self re-evaluating cell-biological research. No green biotech without green cell biology. As advances in modern medicine is based on extensive knowledge of animal molecular cell biology, we need to understand the hidden laws of plant cells in order to handle crops, vegetables and forest trees. We need to exploit, not only empirically, their astounding developmental, physiological and metabolic plasticity, which allows plants to cope with environmental challenges and to restore flexible, but robust self-organisation.