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Nota di contenuto	Cell Cycle Control and Plant Development; Contents; Contributors; Preface; 1 The growing family of plant cyclin-dependent kinases with multiple functions in cellular and developmental regulation; 1.1 Introduction; 1.2 Structural diversity in the family of plant CDKs; 1.3 Expression profiles of CDK genes: structures and functions of promoters; 1.4 Diverse functions of CDK protein complexes in multiple regulatory mechanisms; 1.5 Developmental consequences of altered CDK functions; 1.6 Perspectives; Acknowledgments; References; 2 The plant cyclins; 2.1 Introduction 2.1.1 Cyclins and the cell cycle oscillator2.2 The plant cyclin family; 2.2.1 Phylogenetic relationships between animal and plant cyclins; 2.2.2 Cyclin domains; 2.2.3 A-type cyclins; 2.2.4 B-type cyclins; 2.2.5 D-type cyclins; 2.2.6 Other cyclins; 2.3 Expression of cyclins during the cell cycle; 2.3.1 The G1 checkpoint; 2.3.2 S phase; 2.3.3 G2-M; 2.4 Cyclins in plant development; 2.5 Concluding remarks;

Acknowledgments; References; 3 CDK inhibitors; 3.1 Introduction; 3.2 Plant CDK inhibitors and sequence uniqueness; 3.3 Expression; 3.4 Interactions with cell cycle proteins and CDK inhibition
3.5 Protein stability and modifications3.6 Cellular localization; 3.7 CDK inhibitors and plant growth and development; 3.8 Cell cycle phase transitions; 3.9 Cell cycle exit and endoreduplication; 3.10 Concluding remarks; Notes added at proofing stage; Acknowledgments; References; 4 The UPS: an engine that drives the cell cycle; 4.1 The molecular machinery mediating ubiquitin-dependent proteolysis; 4.1.1 Ubiquitylation reaction; 4.1.2 Ubiquitin protein ligases; 4.2 The SCF and APC/C: the two master E3s regulating the cell cycle; 4.2.1 The SCF: an E3 regulating the G1/S transition
4.2.2 The APC/C: the E3 coordinating cell cycle progression through mitosis and G14.3 Cell cycle targets of the proteolytic machinery; 4.3.1 The transition from G1 to S phase; 4.3.2 Regulators that control DNA replication licensing; 4.3.3 Metaphase to anaphase transition; 4.3.4 Mitotic cyclin destruction: the essential step to exit mitosis; 4.3.5 APCCDC20 versus APCCDH1/CCS52; 4.3.6 Regulation of endoreduplication by the APC/C; 4.4 Conclusion; References; 5 CDK phosphorylation; 5.1 Introduction; 5.2 Overview of CAKs in yeasts and vertebrates; 5.3 Vertebrate-type CAK in plants
5.3.1 CDKD, cyclin H and MAT15.3.2 CDKD protein complexes; 5.3.3 CDKD in cell cycle regulation and transcriptional control; 5.4 Plant-specific CAK; 5.4.1 Unique features of CDKF; 5.4.2 CAK-activating kinase activity of CDKF; 5.5 Manipulation of in vivo CDK activities by CAK; 5.6 Inhibitory phosphorylation of yeast and vertebrate CDKs; 5.7 Inhibitory phosphorylation of plant CDKs; 5.7.1 Plant WEE1 kinases; 5.7.2 Requirement for tyrosine dephosphorylation in plant cell division; 5.7.3 A CDC25-like phosphatase and an antiphosphatase in Arabidopsis; 5.8 Conclusion and perspectives
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Sommario/riassunto

The cell cycle in plants consists of an ordered set of events, including DNA replication and mitosis, that culminates in cell division. As cell division is a fundamental part of a plant's existence and the basis for tissue repair, development and growth, a full understanding of all aspects of this process is of pivotal importance.Cell Cycle Control and Plant Development commences with an introductory chapter and is broadly divided into two parts. Part 1 details the basic cell machinery, with chapters covering cyclin-dependent kinases (CDKs), cyclins, CDK inhibitors, proteolysis, CDK ph