

1. Record Nr.	UNINA9910139016403321
Titolo	Plant nuclear structure, genome architecture, and gene regulation [[electronic resource] /] / edited by David Evans, Katja Graumann, John Bryant
Pubbl/distr/stampa	Chichester, West Sussex, U.K., : Wiley-Blackwell, 2013
ISBN	1-118-47250-0 1-118-47248-9 1-299-46464-5 1-118-47249-7
Descrizione fisica	1 online resource (299 p.)
Collana	Annual plant reviews ; ; v. 46
Altri autori (Persone)	EvansD. E (David E.) GraumannKatja BryantJohn
Disciplina	572.862
Soggetti	Plant gene expression Plant genomes
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Annual Plant Reviews Volume 46; Contents; List of Contributors; Preface; Acknowledgements; 1 Introduction: Mysteries, Molecules and Mechanisms; 1.1 Darwin and Margulis revisited; 1.2 Nuclei-general features; 1.3 The plant nuclear genome; 1.3.1 General features; 1.3.2 Replication of the nuclear genome; 1.4 DNA inside, ribosomes outside; 1.5 Concluding comments on the evolution of the nucleus; References; 2 The Nuclear Envelope-Structure and Protein Interactions; 2.1 Introduction; 2.2 Organization and structure of the plant nuclearenvelope; 2.3 Proteins of the plant nuclear envelope 2.3.1 Proteins involved in signalling2.3.2 Proteins of the nuclear pore complex; 2.3.3 Proteins of the INM; 2.3.4 Proteins spanning the periplasm and linking the NE membranes; 2.3.5 The plant lamina; 2.4 The plant nuclear envelope and the nucleoskeleton; attachments at the INM; 2.5 The plant nuclear envelope and the cytoskeleton; attachments at the ONM; 2.6 Targeting of proteins to the plant NE; 2.7 Nuclear envelope protein dynamics in mitosis; 2.7.1 The role of NPC in

regulating NE dynamics in cell division; 2.7.2 NE protein dynamics in division  
2.8 The phragmoplast and cell plate and their relationship to the NE  
2.9 The plant NE in meiosis; 2.10 Lipid composition of the plant NE and its homeostasis; 2.10.1 Nuclear-vacuolar junctions and lipid homeostasis; 2.10.2 NE phospholipid regulation by lipins; 2.11 The role of plant NE components in stress responses; 2.11.1 Nuclei repositioning in response to environmental stimuli; 2.11.2 Functions of the plant NE during viral infection; 2.12 Concluding remarks; Acknowledgements; References; 3 The Plant Nuclear Pore Complex - The Nucleocytoplasmic Barrier and Beyond  
3.1 Nuclear pore complex structure  
3.1.1 Structure of the NPC; 3.1.2 Molecular composition of the NPC; 3.1.3 Nucleocytoplasmic trafficking; 3.1.3.1 Karyopherins and Ran cycle; 3.1.3.2 Non-karyopherin transport; 3.1.3.3 Models explaining 'virtual gating' of the NPC; 3.2 Physiological and developmental roles of plant nuclear pore components; 3.2.1 Plant-microbe interactions; 3.2.2 Hormone responses; 3.2.2.1 Abscisic acid signalling; 3.2.2.2 Auxin signalling; 3.2.3 Abiotic stress responses; 3.2.3.1 Temperature stress; 3.2.3.2 Salt and osmotic stress; 3.2.4 Growth and development  
3.3 The Dynamics of the Nuclear Pore Complex  
3.3.1 Types of mitosis; 3.3.2 NPC disassembly and dynamics of animal NPC components; 3.3.3 Dynamics of fungal NPC components; 3.3.4 Dynamics of plant NPC components; 3.4 Conclusions; References; 4 Nucleoskeleton in Plants: The Functional Organization of Filaments in the Nucleus; 4.1 Introduction; 4.2 Intermediate filaments and the nucleoskeleton; 4.3 Plants do not have intermediate filaments but they may have functional equivalents; 4.4 Plants can evolve different solutions to the same problem; 4.5 Intermediate filaments first evolved in the nucleus  
4.6 Plants require a rigid nuclear boundary

---

#### Sommario/riassunto

This timely volume brings together expert reviews of the recent significant advances in our knowledge and understanding of the organisation of the higher plant nucleus, and in particular in the relationship between nuclear organisation and the regulation of gene expression. Rapid progress has been made in a number of key areas over the last five years, including description and characterization of proteins of the nuclear envelope and nuclear pore complex, novel insights into nucleoskeletal structures, as well as developments related to chromatin organization, function and gene expression. T

---