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Descrizione fisica	1 online resource (741 p.)
Disciplina	572.8/2
Soggetti	Plant molecular genetics Plant gene expression Genomics
Lingua di pubblicazione	Inglese
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Cover; Table of Contents; Title Page; Copyright; Acknowledgements; Introduction; About the Companion Website; Part I: Plant Genomes and Genes; Chapter 1: Plant Genetic Material; 1.1 DNA is the genetic material of all living organisms, including plants; 1.2 The plant cell contains three independent genomes the plant cell contains three independent genomes; 1.3 A gene is a complete set of instructions for building an RNA molecule; 1.4 Genes include coding sequences and regulatory sequences 1.5 Nuclear genome size in plants is variable but the numbers of protein-coding, non-transposable element genes are roughly the same 1.6 Genomic DNA is packaged in chromosomes; 1.7 Summary; 1.8 Problems; References; Chapter 2: The Shifting Genomic Landscape; 2.1 The genomes of individual plants can differ in many ways; 2.2 Differences in sequences between plants provide clues about gene function; 2.3 SNPs and length mutations in simple sequence repeats are useful tools for genome mapping and marker assisted selection; 2.4 Genome size and chromosome number are variable

2.5 Segments of DNA are often duplicated and can recombine
2.6 Some genes are copied nearby in the genome;
2.7 Whole genome duplications are common in plants;
2.8 Whole genome duplication has many effects on the genome and on gene function;
2.9 Summary;
2.10 Problems; Further reading; References;
Chapter 3: Transposable Elements;
3.1 Transposable elements are common in genomes of all organisms;
3.2 Retrotransposons are mainly responsible for increases in genome size;
3.3 DNA Transposons create small mutations when they insert and excise
3.4 Transposable elements move genes and change their regulation
3.5 How are transposable elements controlled?;
3.6 Summary;
3.7 Problems; References;
Chapter 4: Chromatin, Centromeres and Telomeres;
4.1 Chromosomes are made up of chromatin, a complex of DNA and protein;
4.2 Telomeres make up the ends of chromosomes;
4.3 The chromosome middles - centromeres;
4.4 Summary;
4.5 Problems; Further reading; References;
Chapter 5: Genomes of Organelles;
5.1 Plastids and mitochondria are descendants of free-living bacteria;
5.2 Organellar genes have been transferred to the nuclear genome
5.3 Organellar genes sometimes include introns
5.4 Organellar mRNA is often edited;
5.5 Mitochondrial genomes contain fewer genes than chloroplasts;
5.6 Plant mitochondrial genomes are large and undergo frequent recombination
5.7 All plastid genomes in a cell are identical;
5.8 Plastid genomes are similar among land plants but contain some structural rearrangements;
5.9 Summary;
5.10 Problems; Further reading; References;
Part II: Transcribing Plant Genes;
Chapter 6: RNA;
6.1 RNA links components of the central dogma;
6.2 Structure provides RNA with unique properties
6.3 RNA has multiple regulatory activities

Sommario/riassunto

Plant Genes, Genomes and Genetics provides comprehensive treatment of all aspects of plant gene expression. Unique in explaining the subject from a plant perspective, it highlights the importance of gene expression in how plants interface with the modern world, and notes the many aspects of gene expression that were first discovered in plants. This reference covers topics ranging from plant genome structure and the key control points in how genes are expressed, to the mechanisms by which proteins are generated and how their activities are controlled and altered by posttranslational modificatio
