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| Nota di contenuto | ANNUAL PLANT REVIEWS VOLUME 35; CONTENTS; Contributors; Preface; Acknowledgements; Part I Systems Biology: An Overview; 1 Systems Biology: Principles and Applications in Plant Research; 1.1 Introduction; 1.2 Network biology; 1.3 Experimental approaches for plant systems biology; 1.4 Strategies for genomic data integration; 1.5 Systems biology in plant research; 1.6 Conclusion; 2 An Overview of Systems Biology; 2.1 Systems theory and biology; 2.2 Graph elements and network attributes; 2.3 Building biological networks: identifying nodes and mapping interactions 2.4 Building biological networks: computational methods for network inference 2.5 Biological network models: data integration; 2.6 Biological network models: from network structure to dynamics; 2.7 Perspectives; 3 Prokaryotic Systems Biology; 3.1 Introduction; 3.2 Types of questions; 3.3 A typical prokaryotic systems biology project; 3.4 Global models; 3.5 Comparative functional genomics of prokaryotes; 3.6 Review of core technologies for prokaryotic systems biology; 3.7 |

Caulobacter crescentus; 3.8 Bacillus subtilis; 3.9 Escherichia coli; 3.10 Halobacterium salinarium NRC-1; 3.11 Conclusion
4 Animal Systems Biology: Towards a Systems View of Development in C. Elegans
4.1 Why C. elegans as a model for developmental systems biology?; 4.2 Defining in vivo functions during development: towards a phenome map of C. elegans embryogenesis; 4.3 Data integration: towards a systems view of early embryogenesis; 4.4 Conclusion; Part II
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5.3 Combining visualization tools for plant systems biology
5.4 MapMan; 5.5 Genevestigator; 5.6 Cytoscape; 5.7 VirtualPlant; 5.8 Conclusion; 6 The Plant Genome: Decoding the Transcriptional Hardwiring; 6.1 Introduction; 6.2 The plant basal transcriptional apparatus; 6.3 Plant transcription factors; 6.4 Hard wiring of regulatory sequences; 6.5 Plant transcriptional regulatory motifs, modules and networks; 6.6 Conclusion; 7 The RNA World: Identifying miRNA-Target RNA Pairs as Possible Missing Links in Multi-Network Models; 7.1 Introduction; 7.2 Sequencing of small RNAs
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7.4 Identification of miRNA targets; 7.5 MicroRNA-target mRNA pairs: missing links in multi-network models?; 8 Proteomics: Setting the Stage for Systems Biology; 8.1 Introduction: the need for proteomics in systems biology; 8.2 Determination of protein location in the cell; 8.3 Identification of different protein forms; 8.4 Quantitation; 8.5 Conclusion; 9 Metabolomics: Integrating the Metabolome and the Proteome for Systems Biology; 9.1 The molecular hierarchy in biochemical networks, the concept of systems biology and functional genomics in the post-genome era
9.2 Metabolomics and proteomics: post-genome disciplines intimately bound to mass spectrometric techniques

Sommario/riassunto

Plant Systems Biology is an excellent new addition to the increasingly well-known and respected Annual Plant Reviews. Split into two parts, this title offers the reader: A fundamental conceptual framework for Systems Biology including Network Theory
The progress achieved for diverse model organisms: Prokaryotes, C. elegans and Arabidopsis
The diverse sources of "omic" information necessary for a systems understanding of plants
Insights into the software tools developed for systems biology
Interesting case studies regarding applications including nitrogen-use,
