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| Descrizione fisica      | 1 online resource (321 p.)  |
| Altri autori (Persone)  | AudenaertDominique <1976-><br>OvervoordePaul <1968->  |
| Disciplina              | 572/.2  |
| Soggetti                | Botanical chemistry<br>Plants - Effect of chemicals on  |
| 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       | Plant Chemical Biology; Copyright; Contents; Preface; Contributors; Part One Introduction; 1.1 From Herbal Remedies to Cutting-Edge Science: A Historical Perspective of Plant Chemical Biology; 1.1.1 Herbal Remedies and Pharmacology in the Ancient World; 1.1.2 Alchemy, Chemistry, and the Isolation of the Bioactive Metabolites; 1.1.3 The Discovery of Phytohormones and the Foundation of Modern Plant Chemical Biology; 1.1.4 The Dawn of Plant Synthetic Chemistry; 1.1.5 Serendipity Versus Rational Design of Chemical Libraries; 1.1.6 The Development of Combinatorial Chemistry<br>1.1.7 Plant Chemical Biology in the -Omics Era<br>1.1.8 Introduction of Bioinformatics and Cheminformatics; 1.1.9 Unique Challenges in the Field of Chemical Genomic Research; 1.1.10 Concluding Remarks; Acknowledgments; References; Part Two Sources of Small Molecules; 2.1 Compound Collections; 2.1.1 Introduction; 2.1.2 Commercial Sources; 2.1.3 Companies Providing Nonproprietary, Nonparallel Synthesized Libraries Sourced Externally to the Company; 2.1.4 Companies Providing In-House Designed, Parallel Synthesized Libraries; 2.1.5 Results of Database Analysis |

2.1.6 Compound Selection and Database Filtering; 2.1.7 Substructure Similarity/Dissimilarity; 2.1.8 Cluster Analysis; 2.1.9 Pharmacophore Analysis; 2.1.10 Compound Acquisition Format and Storage; Acknowledgments; References; 2.2 Combinatorial Chemistry Library Design; 2.2.1 Introduction; 2.2.2 Bioavailability; 2.2.3 Chemical Space; 2.2.4 Privileged Structures; 2.2.5 Fragment-Based Design; 2.2.6 Ligand-Based Design; 2.2.7 Structure-Based Design; 2.2.8 Conclusion and Summary; References; 2.3 Natural Product-Based Libraries; 2.3.1 Introduction; 2.3.2 Plant-Based Collections; 2.3.3 Microbial-Derived Samples; 2.3.4 Samples of Marine Origin; 2.3.5 Future Perspectives; 2.3.6 Concluding Remarks; References; Part Three Identification of New Chemical Tools by High-Throughput Screening; 3.1 Assay Design for High-Throughput Screening; 3.1.1 Introduction; 3.1.2 Approaching Assay Development; 3.1.3 Assay Development; 3.1.4 Assay Types and Considerations; 3.1.5 Automation Adaptation and Validation; 3.1.6 Closing; Acknowledgment; References; Part Four Use of Chemical Biology to study Plant Physiology; 4.1 Use of Chemical Biology to Understand Auxin Metabolism, Signaling, and Polar Transport; 4.1.1 Introduction; 4.1.2 Naturally Occurring Auxins; 4.1.3 Auxin Biosynthesis; 4.1.4 Auxin Conjugation and Release by Hydrolysis; 4.1.5 Synthetic Auxins; 4.1.6 Polar Auxin Transport; 4.1.7 Current Models of Auxin Signaling; 4.1.8 Application of Auxin-Related Molecules in Chemical Genetic Approach; 4.1.9 Chemical Probes on Auxin Signaling from Chemical Library and Natural Sources; 4.1.10 Rational Design of Auxin Antagonist on the Basis of TIR1 Structure; 4.1.11 Chemical Probes on Auxin Transport from Chemical Library and Natural Sources

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Sommario/riassunto

"The application of plant chemical biology is currently limited to specialized subfields of plant research. By examining how chemical biology can be applied to study plant biology, Plant Chemical Biology illustrates how chemical biology is a means to identify small molecules that can be used to identify the targets of currently used herbicides, as well as to develop new herbicides or plant growth regulators. The author introduces researchers and graduate students to the chemical biology toolbox required to perform successful chemical biology studies. The text also examines several chemical biology studies to show how they allowed novel insights into the field of plant physiology and plant cellular processes"--Provided by publisher.

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