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TESSA MILLER

Drugs from Chemistry–Biology--Biodiversity Interface Academic Press
Synthesis of Best-Seller Drugs is a key reference guide for all those involved with the design, development, and use of the best-selling drugs. Designed for ease of use, this book provides detailed information on the most popular drugs, using a practical layout arranged according to drug type. Each chapter reviews the main drugs in each of nearly 40 key therapeutic areas, also examining their classification, novel structural features, models of action, and synthesis. Of high interest to all those who work in the captivating areas of biologically active compounds and medicinal drug synthesis, in particular medicinal chemists, biochemists, and pharmacologists, the book aims to support current research efforts, while also encouraging future developments in this important field. Describes methods of synthesis, bioactivity and related drugs in key therapeutic areas Reviews the main drugs in each of nearly 40 key therapeutic areas, also examining their classification, novel structural features, models of action, and more Presents a practical layout designed for use as a quick reference tool by those working in drug design, development and implementation
Stem-Cell Nanoengineering Royal Society of Chemistry
Biological and chemical sciences have undergone an unprecedented transformation, reflected by the huge use of parallel and automated technologies in key fields such as genome sequencing, DNA chips, nanoscale functional biology or combinatorial chemistry. It is now possible to generate and store from tens of thousands to millions of new small molecules, based on enhanced chemical synthesis strategies. Automated screening of small molecules is one of the technologies that has revolutionized biology, first developed for the pharmaceutical industry and recently introduced in academic laboratories. High-throughput and high-content screening allow the identification of bioactive compounds in collections of molecules (chemical libraries), being effective on biological targets defined at various organisational scales, from proteins to cells to complete organisms. These bioactive molecules can be therapeutic drug candidates, molecules for biotech, diagnostic or agronomic applications, or tools for basic research. Handling a large number of biological (genomic and post-genomic), chemical and experimental information, screening approaches cannot be envisaged without any electronic storage and mathematical treatment of the data. “Chemogenomics and Chemical Genetics” is an introductory manual presenting methods and concepts making up the basis for this recent discipline. This book is dedicated to biologists, chemists and computer scientist beginners. It is organized in brief, illustrated chapters with practical examples. Clear definitions of biological, chemical and IT concepts are given in a glossary section to help readers who are not familiar with one of these disciplines. "Chemogenomics and Chemical Genetics" should therefore be helpful for students (from Bachelor's degree level), technological platform engineers, and researchers in biology, chemistry, bioinformatics, cheminformatics, both in biotech and academic laboratories.
Chemical and Biological Synthesis John Wiley & Sons
Recent Advances in Applications of Name Reactions in Multicomponent Reactions is an ideal reference for researchers and postgraduate students studying organic chemistry, as well as synthetic organic chemists working on the development of novel methodologies for the synthesis of various heterocyclic systems, especially drug design and discovery, in both academia and industry. The book reviews recent applications of name reactions in multicomponents for the synthesis of heterocycles and examines recent advances in applications of significant name reactions, such as Ugi and Passirini, Click, Knoevenagel, Michael, Diels-Alder, Aldol, Mannich, Heck, Huisgen, and Suzuki in MCRs. These reactions can be used in the synthesis of a wide variety of novel heterocycles with different sizes and heteroatoms, as well as in the total synthesis of natural products in order to decrease the number of synthetic steps. Since chiral inductions are necessary for most of these sequential name reactions, their asymmetric catalyzed reactions are also described. Includes the synthesis of many heterocycles, which is ideal for synthetic organic chemists engaged in the synthesis of heterocyclic systems Covers the recent advances of asymmetric synthesis of a wide range of heterocycles in satisfactory enantioselectivities (ees) or distereoselectivities (des) Reviews the synthesis of a wide variety of interesting heterocycles by using a combination of different and versatile name reactions via MCRs
Combinatorial Chemistry Elsevier
Focusing on biosynthesis, this book provides readers with approaches and methodologies for modern organic synthesis. By discussing major biosynthetic pathways and their chemical reactions, transformations, and natural products applications; it links biosynthetic mechanisms and more efficient total synthesis. • Describes four major biosynthetic pathways (acetate, mevalonate, shikimic acid, and mixed pathways and alkaloids) and their related mechanisms • Covers reactions, tactics, and strategies for chemical transformations, linking biosynthetic processes and total synthesis • Includes strategies for optimal synthetic plans and introduces a modern molecular approach to natural product synthesis and applications • Acts as a key reference for industry and academic readers looking to advance knowledge in classical total synthesis, organic synthesis, and future directions in the field
The Art of Transforming Peptides in Drugs Frontiers Media SA
The Practice of Medicinal Chemistry fills a gap in the list of available medicinal chemistry literature. It is a single-volume source on the practical aspects of medicinal chemistry. Considered ""the Bible"" by medicinal chemists, the book

emphasizes the methods that chemists use to conduct their research and design new drug entities. It serves as a practical handbook about the drug discovery process, from conception of the molecules to drug production. The first part of the book covers the background of the subject matter, which includes the definition and history of medicinal chemistry, the measurement of biological activities, and the main phases of drug activity. The second part of the book presents the road to discovering a new lead compound and creating a working hypothesis. The main parts of the book discuss the optimization of the lead compound in terms of potency, selectivity, and safety. The Practice of Medicinal Chemistry can be considered a ""first-read"" or ""bedside book"" for readers who are embarking on a career in medicinal chemistry. NEW TO THIS EDITION: * Focus on chemoinformatics and drug discovery * Enhanced pedagogical features * New chapters including: - Drug absorption and transport - Multi-target drugs * Updates on hot new areas: NEW! Drug discovery and the latest techniques NEW! How potential drugs can move through the drug discovery/ development phases more quickly NEW! Chemoinformatics

Small Molecule Drug Discovery Diversity-Oriented SynthesisBasics and Applications in Organic Synthesis, Drug Discovery, and Chemical Biology

Presents both the fundamental concepts and the most recent applications in solid-phase organic synthesis With its emphasis on basic concepts, Solid-Phase Organic Synthesis guides readers through all the steps needed to design and perform successful solid-phase organic syntheses. The authors focus on the fundamentals of heterogeneous supports in the synthesis of organic molecules, explaining the use of a solid material to facilitate organic synthesis. This comprehensive text not only presents the fundamentals, but also reviews the most recent research findings and applications, offering readers everything needed to conduct their own state-of-the-art science experiments. Featuring chapters written by leading researchers in the field, Solid-Phase Organic Synthesis is divided into two parts: Part One, Concepts and Strategies, discusses the linker groups used to attach the synthesis substrate to the solid support, colorimetric tests to identify the presence of functional groups, combinatorial synthesis, and diversity-oriented synthesis. Readers will discover how solid-phase synthesis is currently used to facilitate the discovery of new molecular functionality. The final chapter discusses how using a support can change or increase reaction selectivity. Part Two, Applications, presents examples of the solid-phase synthesis of various classes of organic molecules. Chapters explore general asymmetric synthesis on a support, strategies for heterocyclic synthesis, and synthesis of radioactive organic molecules, dyes, dendrimers, and oligosaccharides. Each chapter ends with a set of conclusions that underscore the key concepts and methods. References in each chapter enable readers to investigate any topic in greater depth. With its presentation of basic concepts as well as recent findings and applications, Solid-Phase Organic Synthesis is the ideal starting point for students and researchers in organic, medicinal, and combinatorial chemistry who want to take full advantage of current solid-phase synthesis techniques.

Concepts and Case Studies in Chemical Biology John Wiley & Sons

Combinatorial Chemistry encompasses both the design of compounds for specific pharmacological use and the screening of molecules in high throughput automated tests to find active agents with specific functions. *Analytical techniques *Direct sorting split and pool combinatorial synthesis *Linkers and their applications *Microwave assisted synthesis *Oligosaccharide chemistry *Peptide Synthesis and Screening *Polymer assisted approaches *Small molecule and heterocycle synthesis

A User's Introduction for Biologists, Chemists and Informaticians John Wiley & Sons

Here, probably the most important functional group in organic chemistry is discussed in one handy volume. The monograph covers its application -- from natural products to synthetic pharmaceuticals -- detailing complex syntheses using the amino group as templates and modern techniques focussing on the introduction of the amino group. A definitive must-have for every chemist.

Amino Group Chemistry Elsevier

This volume gives an overview of state of the art technologies and future developments in the field of preclinical pharmaceutical research. A balanced mix of experts from academia and industry give insight in selected new developments in the drug discovery pathway. The topics cover the different parts of the drug discovery process, starting with new developments in the target identification and validation area. The lead generation part as a next step focuses on the requirements and technologies to identify new small molecules as lead compounds for further optimization; in a second section the technologies to identify biologics as leads are addressed. The final part focuses on the pharmacological models and technologies to characterize new compounds and the impact of biomarkers to facilitate the transfer of drug candidates into the development phase.

Chemical Genomics Academic Press

Combinatorial Chemistry encompasses both the design of compounds for specific pharmacological use and the screening of molecules in high throughput automated tests to find active agents with specific functions. *Analytical techniques *Direct sorting split and pool combinatorial synthesis *Linkers and their applications *Microwave assisted synthesis *Oligosaccharide chemistry *Peptide Synthesis and Screening *Polymer assisted approaches *Small molecule and heterocycle synthesis

Green Synthetic Approaches for Biologically Relevant Heterocycles John Wiley & Sons

Building on the success of the previous editions, the Textbook of Drug Design and Discovery, Fifth Edition, has been thoroughly revised and updated to provide a complete source of information on all facets of drug design and discovery for students of chemistry, pharmacy, pharmacology, biochemistry, and medicine. The information is presented in an up-to-date review form with an underlying and fundamental focus on the educational aspects. Beginning with an introduction to drug design and discovery, the first eight chapters cover molecular recognition, ligand-based drug design, and biostructure-based drug design. The authors also discuss drug-like properties and decision making in medicinal chemistry, chemical biology, natural products in drug discovery, and in vivo imaging in drug discovery. The middle six chapters provide an overview of peptide and protein drug design, prodrugs in drug design and development, and enzyme inhibitors. The authors also go through receptors (structure, function, and pharmacology), ion channels (structure and function), and neurotransmitter transporters (structure, function, and drug binding). The following chapters address important neurotransmitter systems, GABA and glutamic acid receptors and transporter ligands, acetylcholine, histamine, dopamine and serotonin, and opioid and cannabinoid receptors. The book concludes with an examination of neglected diseases, anticancer agents, tyrosine kinase receptors, and antibiotics.

Diversity-Oriented Synthesis Springer Science & Business Media

This book is for readers with some background in science, concerning the search for drugs, starting from molecular diversity in nature or molecular wilderness. Drug molecules may be used as such, or as starting points for improved drugs obtained from the interface of chemistry and biology. In some cases, the

essential molecular features for drug properties from natural molecules may be identified and modified to more effective ones. In other cases, nature provides the targets, such as essential enzymes from infectious microorganisms, from which synthetic drugs can be designed. The mechanisms of action of drugs can be discerned by studying target–drug interactions. Nature may fight back, as in cases when microorganisms become resistant to drugs, but we can again use the chemistry–biology interface to obtain drugs which overcome the resistance. The battle goes on, hopefully with victory for both humans and balance of nature. This book differs from those available on the subject of natural products and drugs derived therefrom in that it looks at the broad picture on how materials and organisms from nature affect our health and how we have combined our knowledge in chemistry, biology, and biodiversity to promote our wellness from resources in the "molecular wilderness," with caveats on sustainable utilization of these resources. It is therefore suitable, not only for readers interested in science and medicine, but also for those with interest in policy issues concerning sustainable development, environment, and issues concerning interaction of science and society in general.

Concepts and Applications for Design and Synthesis CRC Press

Advances in Organic Synthesis is a book series devoted to the latest advances in synthetic approaches towards challenging structures. The series presents comprehensive reviews written by eminent authorities on different synthetic approaches to selected target molecules and new methods developed to achieve specific synthetic transformations or optimal product yields. Advances in Organic Synthesis is essential for all organic chemists in academia and the industry who wish to keep abreast of rapid and important developments in the field. Contents of this volume include: - Metal-Free and Acid-Free Activation of Carbonyl Moiety Using Molecular Halogens or N-Halamines - Anti-algal Study on Polymeric Coating Containing Metal-Metal Oxide Core-shell Nanoparticles - Functionalized Catalyst for Efficient Nucleophilic and Electrophilic Fluorination - Synthesis and Applications of Small Fluorescent Molecules - Recent Achievements in the Synthesis of Aromatic Five-Membered Heterocycles Containing One Heteroatom - Basic Ionic Liquid Catalyzed Cycloaddition Reactions for the Synthesis of 1, 2, 3-Triazoles

Multicomponent Reactions Cambridge University Press

Emerging as a discipline in the first half of the twentieth century, the information sciences study how people, groups, organizations, and governments create, share, disseminate, manage, search, access, evaluate, and protect information, as well as how different technologies and policies can facilitate and constrain these activities. Given the broad span of the information sciences, it is perhaps not surprising that there is no consensus regarding its underlying theory—the purposes of it, the types of it, or how one goes about developing new theories to talk about new research questions. Diane H. Sonnenwald and the contributors to this volume seek to shed light on these issues by sharing reflections on the theory-development process. These reflections are not meant to revolve around data collection and analysis; rather, they focus on the struggles, challenges, successes, and excitement of developing theories. The particular theories that the contributors explore in their essays range widely, from theories of literacy and reading to theories of design and digital search. Several chapters engage with theories of the behavior of individuals and groups; some deal with processes of evaluation; others reflect on questions of design; and the rest treat cultural and scientific heritage. The ultimate goal, Sonnenwald writes in her introduction, is to “encourage, inspire, and assist individuals striving to develop and/or teach theory development.”

Recent Advances Springer Nature

The Ionotropic Glutamate Receptors provides the first detailed survey of the biochemical, physiological, and pharmacological properties of recombinant ionotropic glutamate receptors. The distinguished contributors show how the molecular characteristics of these receptors account for many of the properties of native ionotropic glutamate receptors. They also examine in detail the properties of glutamate receptor subunits, including receptor modulation by phosphorylation and the anatomical localization of specific glutamate receptor subunits as determined by in situ hybridization and immunochemistry. The Ionotropic Glutamate Receptors conveys the first clear insights into the molecular bases underlying the wealth of pharmacological and physiological data on these receptors.

Synthesis of Best-Seller Drugs Springer

Stressing strategic and technological solutions to medicinal chemistry challenges, this book presents methods and practices for optimizing the chemical aspects of drug discovery. Chapters discuss benefits, challenges, case studies, and industry perspectives for improving drug discovery programs with respect to quality and costs. • Focuses on small molecules and their critical role in medicinal chemistry, reviewing chemical and economic advantages, challenges, and trends in the field from industry perspectives • Discusses novel approaches and key topics, like screening collection enhancement, risk sharing, HTS triage, new lead finding approaches, diversity-oriented synthesis, peptidomimetics, natural products, and high throughput medicinal chemistry approaches • Explains how to reduce design-make-test cycle times by integrating medicinal chemistry, physical chemistry, and ADME profiling techniques • Includes descriptive case studies, examples, and applications to illustrate new technologies and provide step-by-step explanations to enable them in a laboratory setting

Textbook of Drug Design and Discovery, Fifth Edition John Wiley & Sons

Chemical Genomics: Reviews and Protocols covers all of the important roles chemical genomics plays in the challenges of extracting the maximum human benefit from genome sequencing projects. The first section presents a series of reviews that describe this important field in detail setting the stage for the protocols chapters that follow. The protocols begin with a classical example of chemical genomics in the design of small molecules as affinity ligands for specific protein families.

Efficiency in Natural Product Total Synthesis Springer Science & Business Media

Retaining the proven didactic concept of the successful "Chemical Biology - Learning through Case Studies", this sequel features 27 new case studies, reflecting the rapid growth in this interdisciplinary topic over the past few years. Edited by two of the world's leading researchers in the field, this textbook introduces students and researchers to the modern approaches in chemical biology, as well as important results, and the techniques and methods applied. Each chapter presents a different biological problem taken from everyday lab work, elucidated by an international team of renowned scientists. With its broad coverage, this is a valuable source of information for students, graduate students, and researchers working on the borderline between chemistry, biology, and biochemistry.

Tapping Molecular Wilderness Wiley-VCH

Methods in Enzymology series, highlights new advances in the field, with this new volume presenting interesting chapters. Each chapter is written by an international board of authors. Provides the authority and expertise of leading contributors from an international board of authors Presents the latest release in the

Methods of Enzymology series Updated release includes the latest information on the Synthetic and Enzymatic Modifications of the Peptide Backbone

Small Molecule Medicinal Chemistry CRC Press

Small Molecule Drug Discovery: Methods, Molecules and Applications presents the methods used to identify bioactive small molecules, synthetic strategies and techniques to produce novel chemical entities and small molecule libraries, chemoinformatics to characterize and enumerate chemical libraries, and screening methods, including biophysical techniques, virtual screening and phenotypic screening. The second part of the book gives an overview of privileged cyclic small molecules and major classes of natural product-derived small molecules, including carbohydrate-derived compounds, peptides and peptidomimetics, and alkaloid-inspired compounds. The last section comprises an exciting collection of selected case studies on drug discovery enabled by small molecules in the fields of cancer research, CNS diseases and infectious diseases. The discovery of novel molecular entities capable of specific interactions represents a significant challenge in early drug discovery. Small molecules are low molecular weight organic compounds that include natural products and metabolites, as well as drugs and other xenobiotics. When the biological target is well defined and understood, the rational design of small molecule ligands is possible. Alternatively, small molecule libraries are being used for unbiased assays for complex diseases where a target is unknown or multiple factors contribute to a disease pathology. Outlines modern concepts and synthetic strategies underlying the building of small molecules and their chemical libraries useful for drug discovery Provides modern biophysical methods to screening small molecule libraries, including high-throughput screening, small molecule microarrays, phenotypic screening and chemical genetics Presents the most advanced chemoinformatics tools to characterize the structural features of small molecule libraries in terms of chemical diversity and complexity, also including the application of virtual screening approaches Gives an overview of structural features and classification of natural product-derived small molecules, including carbohydrate derivatives, peptides and peptidomimetics, and alkaloid-inspired small molecules