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Membrane Transporters as Drug Targets

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Membrane Transporters as Drug Targets-Gordon L. Amidon 2006-04-11 Because progress in the field of transporters has been extraordinary, this volume will focus on recent advances in our understanding of the structure, function, physiology, and molecular biology of membrane transporters. There will be an emphasis on transporters as molecular targets for drug delivery and disposition in the body.

Membrane Transporters and Channels as Targets for Drugs-Graça Soveral 2020-01-03 Transporters and channels are membrane proteins that mediate the traffic of metabolites, water and ions across biological membranes. Membrane transport proteins are crucial to maintain homeostasis and assure cell survival upon intracellular or environmental stress. A failure of any of these transport systems may have dramatic consequences for cell function. There is increasing evidence that membrane transport proteins play important functions in healthy conditions and that their absence or dysfunction may cause diseases. In recent years much attention has been paid to diseases resulting from defective transporters ("carrier diseases") and ion channels ("channelopathies"). Very interestingly, altered expression of transporters has been described in several human pathologies. On this basis, many transport proteins are well acknowledged targets for drugs. Many others are involved in drug delivery and disposition and/or are considered potential targets. Others are off-targets for drugs and then, are responsible for side effects. Thus, membrane protein drug discovery is now an emerging field where the search for physiological mechanisms of regulation and for chemical compounds as modulators of transport activity, present new opportunities for drug development and for new therapies. This Research Topic addresses the latest research advances in membrane transport proteins, stimulating future research on these important protein families.

Transporters as Drug Targets-Gerhard F. Ecker 2017-04-10 As opposed to other books on the topic, this volume is unique in also covering emerging transporter targets. Following a general introduction to the importance of targeting transporter proteins with drugs, the book systematically presents individual transporter classes and explains their pharmacology and physiology. The text covers all transporter families with known or suspected importance as drug targets, including neurotransmitter transporters, ABC transporters, glucose transporters and organic ion transporters. The final part discusses recent advances in structural studies of transport proteins, assay methods for transport activity, and the systems biology of transporters and their regulation. With its focus on drug development issues, this authoritative overview is required reading for researchers in industry and academia targeting transport proteins for the treatment of disease.

Drug Transporters-Glynis Nicholls 2016-08-17 Understanding and quantifying the effects of membrane transporters within the human body is essential for modulating drug safety and drug efficacy. The first volume comprehensively reviewed current knowledge and techniques in the transporter sciences and their relations to drug metabolism and pharmacokinetics. In this second volume on Drug Transporters, emphasis is placed on emerging sciences and technologies, highlighting potential areas for future advances within the drug transporter field. The topics covered in both volumes ensure that all relevant aspects of transporters are described across the drug development process, from in silico models and preclinical tools through to the potential impact of transporters in the clinic. Contributions are included from expert leaders in the field, at-the-bench industrial scientists, renowned academics and international regulators. Case studies and emerging developments are highlighted, together with the merits and limitations of the available methods and tools, and extensive references to reviews on specific in-depth topics are also included for those wishing to pursue their knowledge further. As such, this text serves as an essential handbook of information for postgraduate students, academics, industrial scientists and regulators who wish to understand the role of transporters in absorption, distribution, metabolism, and excretion processes. In addition, it is also a useful reference tool on the models and calculations necessary to predict their effect on human pharmacokinetics and pharmacodynamics.

Drug Transporters-Martin F. Fromm 2010-11-19 It is increasingly recognized that various transporter proteins are expressed throughout the body and determine absorption, tissue distribution, biliary and renal elimination of endogenous compounds and drugs and drug effects. This book will give an overview on the transporter families which are most important for drug therapy. Most chapters will focus on one transporter family highlighting tissue expression, substrates, inhibitors, knock-out mouse models and clinical studies.

Membrane Proteins as Drug Targets- 2010-09-24 Membrane proteins continue to be prime drug targets because they perform essential processes in the cell including controlling the flow of information and materials between cells and mediating activities like hormone action and nerve impulses. The study of membrane proteins could lead to new and improved pharmaceutical treatments for a wide range of illnesses such as heart disease, cystic fibrosis and depression. Membrane Proteins as Drug Targets reviews the latest developments in the field. Discusses new discoveries, approaches, and ideas in the field of membrane proteins and reviews how they are being used to develop new drugs Contributions from leading scholars and industry experts Reference guide for researchers involved in molecular biology and related fields

Goodman and Gilman's Manual of Pharmacology and Therapeutics-Laurence Brunton 2007-09-28 Put the authority of Goodman & Gilman's in the palm of your hand! 5 STAR DOODY'S REVIEW! "...the most authoritative and trusted source of pharmacological information, has now spawned a portable pocket drug guide...This manual extracts the essential core drug information from the eleventh edition of the parent book, referring the reader to the online version of the parent book for historical aspects, many chemical and clinical details, and additional figures and references. This makes G & G a very useful book. This will be of use to individuals in training or practice in the fields of pharmacy, medicine, nursing, or allied health disciplines where knowledge of drug actions are important....Each chapter provides the core essential information provided in the parent book in a very readable format. Readers can use this easy to handle and read manual for essential information along with the online version of the parent book as a reference for more in-depth specific information on drugs."--Doody's Review Service The Goodman & Gilman Manual of Pharmacology and Therapeutics offers the renowned content of Goodman & Gilman's Pharmacological Basis of Therapeutics, Eleventh Edition, condensed into an ultra-handly, streamlined reference. More than just a pocket drug guide, this indispensable resource offers: A carry-along source of essential fundamental information, with all the authority of Goodman & Gilman's Pharmacological Basis of Therapeutics, Eleventh Edition The benefits of the world's leading pharmacology text in a convenient, portable format Comprehensive, yet streamlined and clinically relevant coverage of the pharmacological basis of therapeutics High-yield overview of pharmacokinetics, pharmacodynamics, and the foundations of pharmacology Expert insights into the properties, mechanisms, and uses of all the major drug classes Considerations of vital patient-specific issues

Membrane Transporters in Drug Discovery and Development-Qing Yan 2010-04-26 This text provides practical methodologies of the ongoing research on membrane transporters, considering applications of transporter technologies in drug discovery and development.

Transporters in Drug Development-Yuichi Sugiyama 2013-09-16 Transporters in Drug Development examines how membrane transporters can be dealt with in academic-industrial drug discovery and pharmaceutical development as well as from a regulatory perspective. The book describes methods and examples of in vitro characterization of single transporters in the intestines, liver and kidneys as well as characterization of substrate overlap between various transporters. Furthermore, probes and biomarkers are suggested for studies of the transporters' impact on the pharmacokinetics of drug substrates/candidates interacting on transporters. The challenges of translating in vitro observed interaction of transporters into in vivo relevance are explored, and the book highlights perspectives of applying targeted proteomics and mechanistic modeling in this process.

Advances in Malaria Research-Deepak Gaur 2016-12-27 Thoroughly reviews our current understanding of malarial biology Explores the subject with insights from post-genomic technologies Looks broadly at the disease, vectors of infection, and treatment and prevention strategies A timely publication with chapters written by global researchers leaders

Aquaporins in Health and Disease-Graca Soveral 2018-10-30 Since the discovery of Aquaporin-1 (AQP1) as a water channel, many studies have revealed the importance of aquaporins in mammalian physiology and pathophysiology as well as plant and microbial biology. The studies have also shown aquaporins as potential drug targets and targets for improving crop properties. Written by an international group of contributors at the forefront of the field, Aquaporins in Health and Disease: New Molecular Targets for Drug Discovery presents the latest research advances in aquaporins and other major intrinsic protein (MIP) channels. The first section of the book describes the general concepts of aquaporin channel function, genomic research, structure-function analysis of aquaporins and glycerol facilitators, and regulation by gating and trafficking, including yeast aquaporin regulation and function. The second section discusses the physiological and pathophysiological roles of aquaporins in humans and microbes. The final section covers the development of inhibitors of aquaporin function. The book's epilogue offers future perspectives and directions, mainly in the area of aquaporin-based diagnostics and therapeutics. Stimulating future research on this important protein family, this book facilitates a paradigm shift in the understanding and roles of aquaporin membrane proteins in all biological settings. It encourages scientists to develop novel approaches for the treatment of human diseases based on aquaporin function or dysfunction.

Pharmacogenomics An Introduction and Clinical Perspective-Joseph S. Bertino 2012-10-12 A COMPLETE INTRODUCTORY TEXT TO THE FIELD OF PHARMACOGENOMICS The only pharmacogenomics resource to feature a global author team comprised of PharmDs, MDs, PhDs and social scientists, Pharmacogenomics offers an essential, highly accessible survey of this dynamic discipline. You will find thorough coverage of all need-to-know topics, from individual molecules to systemic diseases, plus an examination of the latest technologies that are constantly reshaping the field. Pharmacogenomics is cohesively organized into two sections, the first of which reviews basic aspects of pharmacogenomics, including ethics, regulatory, science, and drug metabolism, along with a "mini" course in molecular genetics and testing. The second section highlights the practical application of pharmacogenomics in cardiovascular medicine, immunology, neurology, and other specialties. FEATURES Important overview of general pharmacogenomics and pharmacogenetics concepts, including genetic variation in signal transduction and targets, plus a review of the genetic concepts of pharmacogenomics Discussion of regulatory considerations in pharmacogenomics Focus on the role of health care professionals along with a review of related privacy issues, as well as broader ethical, legal, and social considerations In-depth chapters on drug metabolism and transporters Practical, step-by-step guidance on public access to pharmacogenomic testing and patient counseling Up-to-date coverage of non-genetic influences on pharmacogenomics Emphasis on gene-drug interactions Numerous tables and figures Chapter-ending references Concise learning objectives at the beginning of each chapter Case studies to familiarize you with the clinical relevance of pharmacogenomics in each specialty

Mitochondrial Dysfunction Caused by Drugs and Environmental Toxicants-Yvonne Will 2018-03-23 Developed as a one-stop reference source for drug safety and toxicology professionals, this book explains why mitochondrial failure is a crucial step in drug toxicity and how it can be avoided. • Covers both basic science and applied technology / methods • Allows readers to understand the basis of mitochondrial function, the preclinical assessments used, and what they reveal about drug effects • Contains both in vitro and in vivo methods for analysis, including practical screening approaches for drug discovery and development • Adds coverage about mitochondrial toxicity underlying organ injury, clinical reports on drug classes, and discussion of environmental toxicants affecting mitochondria

Viral Membrane Proteins: Structure, Function, and Drug Design-Wolfgang B. Fischer 2007-08-02 In Viral Membrane Proteins: Structure, Function, and Drug Design, Wolfgang Fischer summarizes the current structural and functional knowledge of membrane proteins encoded by viruses. In addition, contributors to the book address questions about proteins as potential drug targets. The range of information covered includes signal proteins, ion channels, and fusion proteins. This book has a place in the libraries of researchers and scientists in a wide array of fields, including protein chemistry, molecular biophysics, pharmaceutical science and research, bioanotechnology, molecular biology, and biochemistry.

Phosphodiesterases as Drug Targets-Sharron H. Francis 2011-06-21 Cyclic nucleotide phosphodiesterases (PDEs) are promising targets for pharmacological intervention. Multiple PDE genes, isoform diversity, selective expression and compartmentation of the isoforms, and an array of conformations of PDE proteins are properties that challenge development of drugs that selectively target this class of enzymes. Novel characteristics of PDEs are viewed as unique opportunities to increase specificity and selectivity when designing novel compounds for certain therapeutic indications. This chapter provides a summary of the major concepts related to the design and use of PDE inhibitors.

Basic Principles of Drug Discovery and Development-Benjamin Blass 2015-04-24 Basic Principles of Drug Discovery and Development presents the multifaceted process of identifying a new drug in the modern era, providing comprehensive explanations of enabling technologies such as high throughput screening, structure based drug design, molecular modeling, pharmaceutical profiling, and translational medicine, all areas that have become critical steps in the successful development of marketable therapeutics. The text introduces the fundamental principles of drug discovery and development, also discussing important drug targets by class, in vitro screening methods, medicinal chemistry strategies in drug design, principles in pharmacokinetics and pharmacodynamics, animal models of disease states, clinical trial basics, and selected business aspects of the drug discovery process. It is designed to enable new scientists to rapidly understand the key fundamentals of drug discovery, including pharmacokinetics, toxicology, and intellectual property." Provides a clear explanation of how the pharmaceutical industry works Explains the complete drug discovery process, from obtaining a lead, to testing the bioactivity, to producing the drug, and protecting the intellectual property Ideal for anyone interested in learning about the drug discovery process and those contemplating careers in the industry Explains the transition process from academia or other industries

Current Topics in Malaria-Alfonso J. Rodriguez-Morales 2016-11-30

Pharmacology for Anaesthesia and Intensive Care-Tom E. Peck 2008-01-31 The third edition of this market leading book has been thoroughly updated and expanded, with additional contributions from experts in the field, to include all new drugs available to the anaesthetist and intensive care specialist. Basic pharmacological principles, vital to understanding how individual drugs actually have their effects, are dealt with methodically and with many highly annotated diagrams and tables. With hospital infections becoming increasingly prevalent, the important section on antibiotics has been further expanded. With the third edition, this well established title continues to provide its readers with the most concise yet comprehensive coverage of all aspects of pharmacology. An ideal aid to study and practice for junior and trainee anaesthetists, critical care nurses and all physicians and healthcare professionals working in theatre, accident and emergency departments or intensive care units.

Host - Pathogen Interaction-Gottfried Unden 2016-09-06 In light of the rapidity increasing incidence rate of bacterial and fungal infections with multi-resistant pathogens, the metabolic changes associated with host-pathogen interactions offer one of the most promising starting points for developing novel antibiotics. . Part one of this comprehensive guide describes the metabolic adaptation of pathogenic microbes in humans, while part two points to routes for the development of novel antibiotics. This is volume six of the book series on drug discovery in infectious diseases by Paul Selzer.

Encyclopedia of Molecular Pharmacology-Stefan Offermanns 2008-08-14 An essential text, this is a fully updated second edition of a classic, now in two volumes. It provides rapid access to information on molecular pharmacology for research scientists, clinicians and advanced students. With the A-Z format of over 2,000 entries, around 350 authors provide a complete reference to the area of molecular pharmacology. The book combines the knowledge of classic pharmacology with the more recent approach of the precise analysis of the molecular mechanisms by which drugs exert their effects. Short keyword entries define common acronyms, terms and phrases. In addition, detailed essays provide in-depth information on drugs, cellular processes, molecular targets, techniques, molecular mechanisms, and general principles.

General and Molecular Pharmacology-Francesco Clementi 2015-07-01 With a focus on functional relationships between drugs and their targets, this book covers basic and general pharmacology, from a cellular and molecular perspective, with particular attention to the mechanisms of drug action - the fundamental basis for proper clinical use- without neglecting clinical application, toxicology and pharmacokinetics. • Covers cell and molecular pharmacology, bringing together current research on regulation of drug targets, at a level appropriate for advanced undergrad and graduate students • Discusses the relevance of pharmacokinetics and drug development for the clinical application of drugs • Presents material from the perspective of drug targets and interaction, the theoretical basis of drug action analysis, and drug properties • Focuses on structure-function relationships of drug targets - informing about their biochemical and physiologic functions and experimental and clinical pathways for drug discovery and development • Has a companion website that offers a host of resources: short additional chapters about methodology, topics at the forefront of research, and all figures and tables from the book

Epileptology-Vladimir Kalinin 2016-10-12 Epilepsy seems to represent one of the most frequent neurological diseases and occurs in about 1% of the general population. Although epilepsy is known since antiquity, the precise data on its pathogenesis and effective treatment are still collected and nowadays represents an interest for neurologists and psychiatrists. Being a neurological disease, epilepsy is characterized by a broad palette of comorbid psychiatric disorders (affective and anxiety disorders, psychoses) that reduce the quality of life. Moreover, the risk of suicidal attempts in persons with epilepsy is much higher than in general population that once again increases the actuality of epilepsy research in many aspects. The book contains 13 chapters written by different authors from all over the world on different topics, including phenomenology, pathogenesis, and treatment in epilepsy. The modern data on these topics may be helpful for many specialists in the domain of epileptology.

Introduction to Basics of Pharmacology and Toxicology-Gerard Marshall Raj 2019-11-16 This book illustrates, in a comprehensive manner, the most crucial principles involved in pharmacology and allied sciences. The title begins by discussing the historical aspects of drug discovery, with up to date knowledge on Nobel Laureates in pharmacology and their significant discoveries. It then examines the general pharmacological principles - pharmacokinetics and pharmacodynamics, with in-depth information on drug transporters and interactions. In the remaining chapters, the book covers a definitive collection of topics containing essential information on the basic principles of pharmacology and how they are employed for the treatment of diseases. Readers will learn about special topics in pharmacology that are hard to find elsewhere, including issues related to environmental toxicology and the latest information on drug poisoning and treatment, analytical toxicology, toxicovigilance, and the use of molecular biology techniques in pharmacology. The book offers a valuable resource for researchers in the fields of pharmacology and toxicology, as well as students pursuing a degree in or with an interest in pharmacology.

Membrane Physiology-Thomas E. Andreoli 2012-12-06 Membrane Physiology (Second Edition) is a soft-cover book containing portions of Physiology of Membrane Disorders (Second Edition). The parent volume contains six major sections. This text encompasses the first three sections: The Nature of Biological Membranes, Methods for Studying Membranes, and General Problems in Membrane Biology. We hope that this smaller volume will be helpful to individuals interested in general physiology and the methods for studying general physiology. THOMAS E. ANDREOLI JOSEPH F. HOFFMAN DARRELL D. FANESTIL STANLEY G. SCHULTZ vii Preface to the Second Edition The second edition of Physiology of Membrane Disorders represents an extensive revision and a considerable expansion of the first edition. Yet the purpose of the second edition is identical to that of its predecessor, namely, to provide a rational analysis of membrane transport processes in individual membranes, cells, tissues, and organs, which in tum serves as a frame of reference for rationalizing disorders in which derangements of membrane transport processes playa cardinal role in the clinical expression of disease. As in the first edition, this book is divided into a number of individual, but closely related, sections. Part V represents a new section where the problem of transport across epithelia is treated in some detail. Finally, Part VI, which analyzes clinical derangements, has been enlarged appreciably.

Application of Nanotechnology in Drug Delivery-Ali Demir Sezer 2014-07-25 This book collects reviews and original articles from eminent experts working in the interdisciplinary arena of nanotechnology use in drug delivery. From their direct and recent experience, the readers can achieve a wide vision on the new and ongoing potentialities of nanotechnology application of drug delivery. Since the advent of analytical techniques and capabilities to measure particle sizes in nanometer ranges, there has been tremendous interest in the use of nanoparticles for more efficient methods of drug delivery. On the other hand, this reference discusses advances in design, optimization, and adaptation of gene delivery systems for the treatment of cancer, cardiovascular, pulmonary, genetic, and infectious diseases, and considers assessment and review procedures involved in the development of gene-based pharmaceuticals.

Textbook of Membrane Biology-Rashmi Wardhan 2018-01-10 This book provides a comprehensive overview of the basic principles, concepts, techniques and latest advances in the field of biomembranes and membrane-associated processes. With new emerging technologies and bioinformatics tools, this is a promising area for future study and research. The book discusses the composition, fluidity and dynamic nature of phospholipid bilayers, which vary with cell/organelle type and function. It describes the various types of transport proteins that facilitate the transport of polar and nonpolar molecules across the membrane actively or passively via ion-channels or through porins. It also explores the many cellular functions membranes participate in: (1) energy transduction, which includes the electron transport chain

in inner membrane of mitochondria and bacterial cytoplasmic membrane and photosynthetic electron transport in thylakoid membranes in chloroplast and photosynthetic bacterial membranes; (2) cell-cell communication involving various signal transduction pathways triggered by activated membrane receptors; (3) cell-cell interactions involving various types of adhesion and receptor proteins; (4) nerve transmission involving opening and closing of voltage gated ionic channels; and (5) intracellular transport involving the processes of endocytosis, exocytosis, vesicular transport of solutes between intracellular compartments, membrane fusion and membrane biogenesis.

Metabolism in Cancer-Thorsten Cramer 2016-08-24 This textbook presents concise chapters written by internationally respected experts on various important aspects of cancer-associated metabolism, offering a comprehensive overview of the central features of this exciting research field. The discovery that tumor cells display characteristic alterations of metabolic pathways has significantly changed our understanding of cancer: while the first description of tumor-specific changes in cellular energetics was published more than 90 years ago, the causal significance of this observation for the pathogenesis of cancer was only discovered in the post-genome era. The first 10 years of the twenty-first century were characterized by rapid advances in our grasp of the functional role of cancer-specific metabolism as well as the underlying molecular pathways. Various unanticipated interrelations between metabolic alterations and cancer-driving pathways were identified and currently await translation into diagnostic and therapeutic applications. Yet the speed, quantity, and complexity of these new discoveries make it difficult for researchers to keep up to date with the latest developments, an issue this book helps to remedy.

Smart Drug Delivery System-Ali Demir Sezer 2016-02-10 This contribution book collects reviews and original articles from eminent experts working in the interdisciplinary arena of novel drug delivery systems and their uses. From their direct and recent experience, the readers can achieve a wide vision on the new and ongoing potentialities of different smart drug delivery systems. Since the advent of analytical techniques and capabilities to measure particle sizes in nanometer ranges, there has been tremendous interest in the use of nanoparticles for more efficient methods of drug delivery. On the other hand, this reference discusses advances in the design, optimization, and adaptation of gene delivery systems for the treatment of cancer, cardiovascular, diabetic, genetic, and infectious diseases, and considers assessment and review procedures involved in the development of gene-based pharmaceuticals.

Informatics Support for Human Membrane Transporter Pharmacogenics Studies-Qing Yan 2001

Vitamin K2-Jan Gordeladze 2017-03-22 This book serves as a comprehensive survey of the impact of vitamin K2 on cellular functions and organ systems, indicating that vitamin K2 plays an important role in the differentiation/preservation of various cell phenotypes and as a stimulator and/or mediator of interorgan cross talk. Vitamin K2 binds to the transcription factor SXR/PXR, thus acting like a hormone (very much in the same manner as vitamin A and vitamin D). Therefore, vitamin K2 affects a multitude of organ systems, and it is reckoned to be one positive factor in bringing about "longevity" to the human body, e.g., supporting the functions/health of different organ systems, as well as correcting the functioning or even "curing" ailments striking several organs in our body. Vitamin K2 - Vital for Health and Wellbeing has been produced and distributed through the support from Kappa Bioscience, Norway.

Ion Channels in Health and Sickness-Fatima Shad Kaneez 2018-10-10 Ion channels are proteins that make pores in the membranes of excitable cells present both in the brain and the body. These cells are not only responsible for converting chemical and mechanical stimuli into the electrical signals but are also liable for monitoring vital functions. All our activities, from the blinking of our eyes to the beating of our heart and all our senses from smell to sight, touch, taste and hearing are regulated by the ion channels. This book will take us on an expedition describing the role of ion channels in congenital and acquired diseases and the challenges and limitations scientist are facing in the development of drugs targeting these membrane proteins.

Transporters as Drug Carriers-Gerhard F. Ecker 2009-09-03 This reference handbook is the first to provide a comprehensive overview, systematically characterizing all known transporters involved in drug elimination and resistance. Combining recent knowledge on all known classes of drug carriers, from microbes to man, it begins with a look at human and mammalian transporters. This is followed by microbial, fungal and parasitic transporters with special attention given to transport across those physiological barriers relevant for drug uptake, distribution and excretion. As a result, this key resource lays the foundations for understanding and investigating the molecular mechanisms for multidrug resistance in cancer cells, microbial resistance to antibiotics and pharmacokinetics in general. For anyone working with antibiotics and cancer chemotherapeutics, as well as being of prime interest to biochemists and biophysicists.

Biomimetic Lipid Membranes: Fundamentals, Applications, and Commercialization-Fatma N. Kök 2019-04-16 This book compiles the fundamentals, applications and viable product strategies of biomimetic lipid membranes into a single, comprehensive source. It broadens its perspective to interdisciplinary realms incorporating medicine, biology, physics, chemistry, materials science, as well as engineering and pharmacy at large. The book guides readers from membrane structure and models to biophysical chemistry and functionalization of membrane surfaces. It then takes the reader through a myriad of surface-sensitive techniques before delving into cutting-edge applications that could help inspire new research directions. With more than half the world's drugs and various toxins targeting these crucial structures, the book addresses a topic of major importance in the field of medicine, particularly biosensor design, diagnostic tool development, vaccine formulation, micro/nano-array systems, and drug screening/development. Provides fundamental knowledge on biomimetic lipid membranes; Addresses some of biomimetic membrane types, preparation methods, properties and characterization techniques; Explains state-of-art technological developments that incorporate microfluidic systems, array technologies, lab-on-a-chip-tools, biosensing, and bioprinting techniques; Describes the integration of biomimetic membranes with current top-notch tools and platforms; Examines applications in medicine, pharmaceutical industry, and environmental monitoring.

Protein Bioinformatics-M. Michael Gromiha 2011-04-21 One of the most pressing tasks in biotechnology today is to unlock the function of each of the thousands of new genes identified every day. Scientists do this by analyzing and interpreting proteins, which are considered the task force of a gene. This single source reference covers all aspects of proteins, explaining fundamentals, synthesizing the latest literature, and demonstrating the most important bioinformatics tools available today for protein analysis, interpretation and prediction. Students and researchers of biotechnology, bioinformatics, proteomics, protein engineering, biophysics, computational biology, molecular modeling, and drug design will find this a ready reference for staying current and productive in this fast evolving interdisciplinary field. Explains all aspects of proteins including sequence and structure analysis, prediction of protein structures, protein folding, protein stability, and protein interactions Presents a cohesive and accessible overview of the field, using illustrations to explain key concepts and detailed exercises for students.

Drug Transporters in Drug Disposition, Effects and Toxicity-Xiaodong Liu 2019-09-30 This book provides with a comprehensive overview of the role of drug transporters in drug disposition and efficacy/toxicity, as well as drug-drug interactions and recent advances in the field. Transporters are known determinants of drug disposition and efficacy/toxicity. In general, they are divided into solute carrier (SLC) and ATP binding cassette (ABC) families, and are located along cell membranes, where they mediate drug uptake into cells and export out of cells. Drug transporters are essential in maintaining cell homeostasis, and their gene mutations may cause or contribute to severe human genetic disorders, such as cystic fibrosis, neurological disease, retinal degeneration, anemia, and cholesterol and bile transport defects. Conversely, some diseases may also alter transporter functions and expressions, in turn aggravating disease process. Further, since over-expression of some ABC transporters is a potential contributor to multidrug-resistance (MDR), the book presents a number of strategies to overcome MDR, including ABC transporter inhibitors and applying epigenetic methods to modulate transporter expressions and functions. This book is useful for graduate students and professionals who are looking to refresh or expand their knowledge of this exciting field.

Cell Signaling & Molecular Targets in Cancer-Malay Chatterjee 2011-12-02 This book provides an overview of critical components of cell signaling machinery and its role in epithelial morphogenesis, proliferation, invasions and angiogenesis in human cancer and discusses novel types of protein kinase pathways.

Drug Discovery from Nature-S. Grabley 1998-11-26 This book is unique in covering the present status and future potential of natural products in drug discovery. It provides readers with recent information regarding the impact on drug discovery, development and strategies, technical and automation aspects, and methods based on biochemistry as well as molecular biology, highlighting compounds from natural sources. Special emphasis is placed on the various strategies to gain access to natural compounds and combinatorial approaches by making use of both synthetic and biological methods.

An Overview of Tropical Diseases-Amidou Samie 2015-12-02 Tropical diseases affect millions of people throughout the world and particularly in the developing countries. The millennium development goals had specifically targeted HIV/AIDS and Malaria for substantial reduction as well as Tuberculosis while many other tropical diseases have been neglected. The new sustainable development goals have not made such distinction and have targeted all diseases for elimination for the improvement of the quality of life of human beings on earth. The present book was developed to provide an update on issues relevant to the treatment of selected tropical diseases such as tuberculosis, malaria, leishmaniasis, schistosomiasis and ectoparasites such as chiggers which are widely distributed throughout the world. The control of these infections has been hampered by the development of drug resistance and the lack of the development of new and more effective drugs. The

understanding of the biochemical processes underlying drug activity is therefore essential for the potential elimination of these infections.

How Drugs Work-Hugh McGavock 2017-10-19 This fourth edition of How Drugs Work equips readers with a set of clear concepts for matching the pharmacology to the diagnosis, and has been completely revised and updated to reflect the latest knowledge and terminology. Rather than providing overwhelmingly comprehensive information, it condenses the aspects of pharmacology directly relevant to everyday practice into a concise, accessible volume, including material on the half life of drugs, patient non-compliance and severe chronic inflammation.

Glutathione in Health and Disease-Pinar Erkekoglu 2018-10-31 Reduced glutathione (GSH) is the most important thiol in living organisms. It is the key component of antioxidant system and serves as a free radical scavenger. There is a cycle of GSH in biological systems and this cycle provides higher intracellular levels of GSH. GSH depletion and apparent oxidative stress may cause toxicity and can affect the general well-being of the organism. GSH was shown to be preventive against aging, cancer, heart disease, infections and dementia. This book is mainly focused on GSH in health and disease. The readers will gain qualified scientific knowledge on the diverse functions of GSH, the importance of GSH status against oxidative stress and the interaction between GSH and nervous system-related infections from this book.