Anticancer Drug Development Guide Preclinical Screening Clinical Trials And Approval Cancer Drug Discovery And Development

Frontiers in Clinical Drug Research - Anti-Cancer Agents is a book series intended for pharmaceutical scientists, postgraduate students and researchers seeking updated and critical information for developing clinical trials and devising research plans in anti-cancer research. Reviews in each volume are written by experts in medical oncology and clinical trials research and compile the latest information available on special topics of interest to oncology and pharmaceutical chemistry researchers. The seventh volume of the book features reviews on these topics: · Essential oils and monoterpenes as potential anti-cancer agents · Drug delivery systems and emerging immunotherapeutic strategies for the treatment of glioblastoma · CTDNA in solid tumors · Cholesterol treatments (including Pitavastatin) and their potential in cancer treatment

This book provides an up-to-date review of recently identified natural anti-tumor compounds from various natural origins including plants, fungi, endophytic fungi and marine organisms. It also includes discussion of new areas such as biotechnology and nanoparticles. Chapters explain the challenges and developments in anti-cancer drug discovery approaches, traditional remedies for prevention and treatment of cancer, marine-derived anti-cancer compounds, and antibiotics used as anti-cancer agents, as well as different classes of terpenoids and carbohydrates, which have been the subject of discussion in this field as efficient anti-cancer candidates. This book will be a concise guide for researchers in the field of pharmaceutical sciences, students and residents in pharmacy and medicine as well as those researching phytochemistry and natural products.

The successes that have been achieved in treating childhood cancers stand as beacons against the less dramatic improvements for adults with cancer. Progress began to accelerate in the 1960s and 1970s, as treatment regimens were built up, primarily by building combinations of chemotherapeutic drugs. However the near absence of research in pediatric cancer drug discovery threatens to halt the progress in childhood cancer treatment achieved during the past four decades. Making Better Drugs for Children with Cancer identifies the major issues to be addressed in developing new agents for childhood cancers, the gaps in research and development, and the steps that have been suggested to move the process forward. This report also makes a new proposal to capitalize on today's science to bring new treatments to children's cancers.

A critical review our current understanding of camptothecins, their shortcomings, and of the possibilities for improving their clinical performance. The authors discuss new camptothecin analog development, drug delivery issues for optimizing their anticancer activity, and their potential use in a variety of different cancers. Additional chapters describe what is known about the biochemistry, the pharmacology, and the chemistry of the camptothecins, including the mechanism of topoisomerase and how camptothecins poison this enzyme, the use of animal models in defining the anticancer potential of camptothecins, and the question of camptothecin resistance.

Metal-based Anticancer Agents

Oligonucleotide-Based Drugs and Therapeutics

Approaches and Applications

A Practical Guide to Manufacturing, Preclinical, and Clinical Development

Camptothecins in Cancer Therapy

This timely desk reference focuses on marine-derived bioactive substances which have biological, medical and industrial applications. The medicinal value of these marine natural products are assessed and discussed. Their function as a new and important resource in novel, anticancer drug discovery research is also presented in international contributions from several research groups. For example, the potential role of Spongistatin, Apratoxin A, Eribulin mesylate, phlorotannins, fucoidan, as anticancer agents is explained. The mechanism of action of bioactive compounds present in marine algae, bacteria, fungus, sponges, seaweeds and other marine animals and plants are illustrated via several mechanisms. In addition, this handbook lists various compounds that are active candidates in chemoprevention and their target actions. The handbook also places into context the demand for anticancer nutraceuticals and their use as potential anti-cancer pharmaceuticals and medicines. This study of advanced and future types of natural compounds from marine sources is written to facilitate the understanding of Biotechnology and its application to marine natural product drug discovery research.

This comprehensive review of existing and potential anticancer drugs and therapies by leading researchers from academia, government laboratories, and pharmaceutical companies offers essential insight into what has been accomplished and where the experimental therapy of cancer is going. The authoritative contributors illuminate the current status of the major molecules of cancer treatment, ranging from the nitrogen mustards through platinum complexes to interferons, cytokines, growth factors and their inhibitors, and on to immunotoxins, antisense oligonucleotides, and gene therapy. A companion volume by the same editor (Anticancer Drug Development Guide: Preclinical and Clinical Screening and Approval) details the processes by which new anticancer drugs are approved. These two volumes in the Cancer Drug Discovery and Development series reveal how and why molecules become anticancer drugs and thus offer a blueprint for the present and the future of the field.

Cancer cell biology research in general, and anti-cancer drug development specifically, still relies on standard cell culture techniques that place the cells in an unnatural environment. As a consequence, growing tumor cells in plastic dishes places a selective pressure that substantially alters their original molecular and phenotypic properties.The emerging field of regenerative medicine has developed bioengineered tissue platforms that can better mimic the structure and cellular heterogeneity of in vivo tissue, and are suitable for tumor bioengineering research. Microengineering technologies have resulted in advanced methods for creating and culturing 3-D human tissue. By encapsulating the respective cell type or combining several cell types to form tissues, these model organs can be viable for longer periods of time and are cultured to develop functional properties similar to native tissues. This approach recapitulates the dynamic role of cell–cell, cell–ECM, and mechanical interactions inside the tumor. Further incorporation of cells representative of the tumor stroma, such as endothelial cells (EC) and tumor fibroblasts, can mimic the in vivo tumor microenvironment. Collectively, bioengineered tumors create an important resource for the in vitro study of tumor growth in 3D including tumor biomechanics and the effects of anti-cancer drugs on 3D tumor tissue. These technologies have the potential to overcome current limitations to genetic and histological tumor classification and development of personalized therapies.

A practical guide to the design, conduction, analysis and reporting of clinical trials with anticancer drugs.

Animal Models in Cancer Drug Discovery

Biosimilars of Monoclonal Antibodies

Principles of Safety Pharmacology

Real-World Evidence in Lung Cancer

Use of 3D Models in Drug Development and Precision Medicine: Advances and Outlook

There exists a profound conflict at the heart of oncology drug development. The efficiency of the drug development process is falling, leading to higher costs per approved drug, at the same time personalised medicine is limiting the target market of each new medicine. Even as the global economic burden of cancer increases, the current paradigm in drug development is unsustainable. In this book, we discuss the development of techniques in machine learning for improving the efficiency of oncology drug development and delivering cost-effective precision treatment. We consider how to structure data for drug repurposing and target identification, how to improve clinical trials and how patients may view artificial intelligence.

When her younger sister disappears into a land of dragons and other strange creatures, eleven-year-old Sadie travels through a portal to rescue her with the aid of Mrs. Fitz Edna, a most unusual babysitter.

Mice have become the species of choice for modeling the complex interactions between tumor cells and the host environment. Mouse genetics are easily manipulated, and a growing array of technology exists for this purpose. Mouse models allow investigators to better understand causal relationships between specific genetic alterations and tumors, utilize new imaging techniques, and test novel therapies. Recent developments along these lines show great promise for the development of new anti-cancer treatments. Mouse Models of Human Cancer provides researchers and students with a complete resource on the subject, systematically presenting the principles, methodologies, applications, and challenges associated with this exciting field. Offering a survey of the latest research and a description of future areas of interest, this text: Presents real experimental data Describes organ site-specific mouse models Clearly identifies suitable models for further drug testing Critically analyzes current methodologies and their limitations Features numerous recognizable expert contributors Lists key Web sites, reagents, and companies From mouse handling and genetic engineering to preclinical trials, Mouse Models of Human Cancer is a comprehensive guide to using these models and relating them to human disease. Its uniform presentation describes organ-specific models in clinical, imaging, and molecular terms, and lays out the relevant genetics, experimental approaches, histological comparisons with human disease, and conclusions. Combining stellar chapter authors, rich illustrations, and clear, up-to-date coverage, Mouse Models of Human Cancer is an invaluable resource for advanced students and cutting-edge researchers.

Metal-based anticancer drugs are among the most successful therapeutic agents, as evidenced by the frequent prescription of selected platinum and arsenic compounds to patients. Metal-based Anticancer Agents covers the interdisciplinary world of inorganic drug discovery and development by introducing the most prominent compound classes based on different transition metals, discussing emerging concepts and enabling methods, as well as presenting key pre-clinical and clinical aspects. Recent progress on the unique features of next-generation targeted metal-based anticancer agents, including supramolecular coordination complexes used for both therapy and drug delivery, promise a bright future beyond the benefits of pure cytotoxic activity. With contributions from global leaders in the field, this book will serve as a useful reference to established researchers as well as a practical guide to those new to metallodrugs, and postgraduate students of medicinal chemistry and metallobiology.

Preclinical Safety Evaluation of Biopharmaceuticals

Phase I Cancer Clinical Trials

In Vitro Bioassay Techniques for Anticancer Drug Discovery and Development

Structure and Reactivity

Artificial Intelligence in Oncology Drug Discovery and Development

Anticancer Drug Development GuidePreclinical Screening, Clinical Trials, and ApprovalSpringer Science & Business Media

This unique volume traces the critically important pathway by which a "molecule" becomes an "anticancer agent. " The recognition following World War I that the administration of toxic chemicals such as nitrogen mustards in a controlled manner could shrink malignant tumor masses for relatively substantial periods of time gave great impetus to the search for molecules that would be lethal to specific cancer cells. Weare still actively engaged in that search today. The question is how to discover these "anticancer" molecules. Anticancer Drug Development Guide: Preclinical Screening, Clinical Trials, and Approval, Second Edition describes the evolution to the present of preclinical screening methods. The National Cancer Institute's high-throughput, in vitro disease-specific screen with 60 or more human tumor cell lines is used to search for molecules with novel mechanisms of action or activity against specific phenotypes. The Human Tumor Colony-Forming Assay (HTCA) uses fresh tumor biopsies as sources of cells that more nearly resemble the human disease. There is no doubt that the greatest successes of traditional chemotherapy have been in the leukemias and lymphomas. Since the earliest widely used in vivo drug screening models were the murine L 1210 and P388 leukemias, the community came to assume that these murine tumor models were appropriate to the discovery of "antileukemia" agents, but that other tumor models would be needed to discover drugs active against solid tumors.

Drug Repurposing in Cancer Therapy: Approaches and Applications provides comprehensive and updated information from experts in basic science research and clinical practice on how existing drugs can be repurposed for cancer treatment. The book summarizes successful stories that may assist researchers in the field to better design their studies for new repurposing projects. Sections discuss specific topics such as in silico prediction and high throughput screening of repurposed drugs, drug repurposing for overcoming chemoresistance and eradicating cancer stem cells, and clinical investigation on combination of repurposed drug and anticancer therapy. Cancer researchers, oncologists, pharmacologists and several members of biomedical field who are interested in learning more about the use of existing drugs for different purposes in cancer therapy will find this to be a valuable resource. Presents a systematic and up-to-date collection of the research underpinning the various drug repurposing approaches for a quick, but in-depth understanding on current trends in drug repurposing research Brings better understanding of the drug repurposing process in a holistic way, combining both basic and clinical sciences Encompasses a collection of successful stories of drug repurposing for cancer therapy in different cancer types

Advances in cancer research have led to an improved understanding of the molecular mechanisms underpinning the development of cancer and how the immune system responds to cancer. This influx of research has led to an increasing number and variety of therapies in the drug development pipeline, including targeted therapies and associated biomarker tests that can select which patients are most likely to respond, and immunotherapies that harness the body's immune system to destroy cancer cells. Compared with standard chemotherapies, these new cancer therapies may demonstrate evidence of benefit and clearer distinctions between efficacy and toxicity at an earlier stage of development. However, there is a concern that the traditional processes for cancer drug development, evaluation, and regulatory approval could impede or delay the use of these promising cancer treatments in clinical practice. This has led to a number of effortsâ€"by patient advocates, the pharmaceutical industry, and the Food and Drug Administration (FDA)â€"to accelerate the review of promising new cancer therapies, especially for cancers that currently lack effective treatments. However, generating the necessary data to confirm safety and efficacy during expedited drug development programs can present a unique set of challenges and opportunities. To explore this new landscape in cancer drug development, the National Academies of Sciences, Engineering, and Medicine developed a workshop held in December 2016. This workshop convened cancer researchers, patient advocates, and representatives from industry, academia, and government to discuss challenges with traditional approaches to drug development, opportunities to improve the efficiency of drug development, and strategies to enhance the information available about a cancer therapy throughout its life cycle in order to improve its use in clinical practice. This publication summarizes the presentations and discussions from the workshop.

Toxicokinetics

ESMO Handbook

Handbook of Anticancer Drugs from Marine Origin

Tumor Progression and Metastasis

The Drug Development Paradigm in Oncology

Here in a single source is a complete spectrum of ideas on the development of new anticancer drugs. Containing concise reviews of multidisciplinary fields of research, this book offers a wealth of ideas on current and future molecular targets for drug design, including signal transduction, the cell division cycle, and programmed cell death. Detailed descriptions of sources for new drugs and methods for testing and clinical trial design are also provided. One work that can be consulted for all aspects of anticancer drug development Concise reviews of research fields, combined with practical scientific detail, written by internationally respected experts A wealth of ideas on current and future molecular targets for drug design, including signal transduction, the cell division cycle, and programmed cell death Detailed descriptions of the sources of new anticancer drugs, including combinatorial chemistry, phage display, and natural products Discussion of how new drugs can be tested in preclinical systems, including the latest technology of robotic assay systems, cell culture, and experimental animal techniques Hundreds of references that allow the reader to access relevant scientific and medical literature Clear illustrations, some in color, that provide both understanding of the field and material for teaching

Improving and Accelerating Therapeutic Development for Nervous System Disorders is the summary of a workshop convened by the IOM Forum on Neuroscience and Nervous System Disorders to examine opportunities to accelerate early phases of drug development for nervous system drug discovery. Workshop participants discussed challenges in neuroscience research for enabling faster entry of potential treatments into first-in-human trials, explored how new and emerging tools and technologies may improve the efficiency of research, and considered mechanisms to facilitate a more effective and efficient development pipeline. There are several challenges to the current drug development pipeline for nervous system disorders. The fundamental etiology and pathophysiology of many nervous system disorders are unknown and the brain is inaccessible to study, making it difficult to develop accurate models. Patient heterogeneity is high, disease pathology can occur years to decades before becoming clinically apparent, and diagnostic and treatment biomarkers are lacking. In addition, the lack of validated targets, limitations related to the predictive validity of animal models - the extent to which the model predicts clinical efficacy - and regulatory barriers can also impede translation and drug development for nervous system disorders. Improving and Accelerating Therapeutic Development for Nervous System Disorders identifies avenues for moving directly from cellular models to human trials, minimizing the need for animal models to test efficacy, and discusses the potential benefits and risks of such an approach. This report is a timely discussion of opportunities to improve early drug development with a focus toward preclinical trials.

Leading investigators synthesize the entire laboratory and clinical process of developing anticancer drugs to create a single indispensable reference that covers all the steps from the identification of cancer-specific targets to phase III clinical trials. These expert authors provide their best guidance on a wide variety of issues, including clinical trial design, preclinical screening, and the development and validation of bioanalytic methods. The chapters on identifying agents to test in phase III trials and on trial design for the approval of new anticancer agents offer a unique roadmap for moving an agent to NDA submission.

The past 6 years since the first edition of this book have seen great progress in the development of genetically engineered mouse (GEM) models of cancer. These models are finding an important role in furthering our understanding of the biology of malignant disease. A comfortable position for GEM models in the routine conduct of screening for potential new therapeutics is coming more slowly but is coming. Increasing numbers of genetically engineered mice are available, some with conditional activation of oncogenes, some with multiple genetic changes providing mouse models that are moving closer to the human disease.

Drug Repurposing in Cancer Therapy

Making Better Drugs for Children with Cancer

Anticancer Drug Development Guide

A Practical Guide

The pharmaceutical industry is on the verge of an exciting and challenging century. Advances in pharmaceutical sciences have dramatically changed the processes of discovery and development of new therapeutic drugs and, in turn, resulted in an extraordinary increase in the potential prophylactic and therapeutic interventions. In this atmosphere, an

Dr. Davide Staedler is CEO of TIBIO Sagl, a consulting company, and chief scientific officer of Scitec Research S.A., a private analytical laboratory. All other Topic Editors declare no competing interests with regards to the Research Topic subject.

This book provides a detailed review of how oncology drug development has changed over the past decade, and serves as a comprehensive guide for the practicalities in setting up phase I trials. The book covers strategies to accelerate the development of novel antitumor compounds from the laboratory to clinical trials and beyond through the use of innovative mechanism-of-action pharmacodynamic biomarkers and pharmacokinetic studies. The reader will learn about all aspects of modern phase I trial designs, including the incorporation of precision medicine strategies, and approaches for rational patient allocation to novel anticancer therapies. Circulating biomarkers to assess mechanisms of response and resistance are changing the way we are assessing patient selection and are also covered in this book. The development of the different classes of antitumor agents are discussed, including chemotherapy, molecularly targeted agents, immunotherapies and also radiotherapy. The authors also discuss the lessons that the oncology field has learnt from the development of hematology-oncology drugs and how such strategies can be carried over into therapies for solid tumors. There is a dedicated chapter that covers the specialized statistical approaches necessary for phase I trial designs, including novel Bayesian strategies for dose escalation. This volume is designed to help clinicians better understand phase I clinical trials, but would also be of use to translational researchers (MDs and PhDs), and drug developers from academia and industry interested in cancer drug development. It could also be of use to phase I trial study coordinators, oncology nurses and advanced practice providers. Other health professionals interested in the treatment of cancer will also find this book of great value.

The complexity of cancer demands an integrated approach from both a cancer biology standpoint and a pharmaceutical basis to understand the different anticancer modalities. Current research has been focused on conventional and newer anticancer modalities, recent discoveries in cancer research, and also the advancements in cancer treatment. There is a current need for more research on the advances in cancer therapeutics that bridge the gap between basic research (pharmaceutical drug development processes, regulatory issues, and translational experimentation) and clinical application. Recent promising discoveries such as immunotherapies, promising therapies undergoing clinical trials, synthetic lethality, carbon beam radiation, and other exciting targeted therapies are being studied to improve and advance the studies of modern cancer treatment. The Handbook of Research on Advancements in Cancer Therapeutics serves as a comprehensive guide in modern cancer treatment by combining and merging the knowledge from both cancer biology and the pharmacology of anticancer modalities. The chapters come from multi-disciplinary backgrounds, including scientists and clinicians from both academia and various industries, to discuss nascent personalized therapies and big data-driven cancer treatment. While highlighting topic areas that include cancer prevention, cancer therapeutics, and cancer treatments through the lenses of technology, medicine/drugs, and alternate therapies, this book is ideally intended for oncologists, radiation oncologists, surgical oncologists, and cancer biologists, along with practitioners, stakeholders, researchers, academicians, and students who are interested in understanding the most fundamental aspects of cancer and the available therapeutic opportunities.

Cancer Therapeutics

Clinical Trials of Drugs and Biopharmaceuticals

New Approaches to Natural Anticancer Drugs

Frontiers in Clinical Drug Research - Anti-Cancer Agents: Volume 7

Beyond the Dragon Portal

Frontiers in Anti-Cancer Drug Discovery is a book series devoted to publishing the latest advances in anti-cancer drug design and discovery. In each volume, eminent scientists contribute reviews relevant to all areas of rational drug design and drug discovery including medicinal chemistry, in-silico drug design, combinatorial chemistry, high-throughput screening, drug targets, recent important patents, and structure-activity relationships. The book series should prove to be of interest to all pharmaceutical scientists involved in research in anti-cancer drug design and discovery. The book series is essential reading to all scientists involved in drug design and discovery who wish to keep abreast of rapid and important developments in the field. The eleventh volume of the series focuses on reviews on targeted therapies and drug delivery systems. This volume covers the following topics: - PI3K/Akt/mTOR Pathway in Acute Lymphoblastic Leukemia Targeted Therapies - Polymeric Nanomedicines in Treatment of Breast Cancer: Review of Contemporary Research - Treatment of Lung Cancer in the New Era - Oral Administration of Cancer Chemotherapeutics Exploiting Self-Nanoemulsifying Drug Delivery System: Recent Progress and Application - Targeting Approaches for the Diagnosis and Treatment of Cancer.

Animal Models in Cancer Drug Discovery brings forward the most cutting-edge developments in tumor model systems for translational cancer research. The reader can find under this one volume virtually all types of existing and emerging tumor models in use by the research community. This book provides a deeper insight on how these newer models could de-risk modern drug discovery. Areas covered include up to date information on latest organoid derived models and newer genetic models. Additionally, the book discusses humanized animal tumor models for cancer immunotherapy and how they leverage personalized therapies. The chapter on larger animal, canine models and their use in and their use in pre-investigational new drug (pre-IND) development makes the volume unique. Unlike before, the incorporation of several simplified protocols, breeding methodologies, handling and assessment procedures to study drug intervention makes this book a must read. Animal Models in Cancer Drug Discovery is a valuable resource for basic and translational cancer researchers, drug discovery researchers, contract research organizations, and knowledge seekers at all levels in the biomedical field. Encompasses discussions on innovative animal models, xenograft, genetic models, primary models, organoid systems, humanized and other models in modern biology paradigms that are enhancing research in the field of drug discover Covers the use of these models in personalized medicine, immunotherapy, toxicology, pre-IND assessments and related drug development arenas Presents protocols, procedures, and a comprehensive glossary to help new readers understand technical terms and specialized nomenclature

Pharmaceutical Perspectives of Cancer Therapeutics covers a wide variety of therapeutic approaches including gene therapy, immunological therapy; cancer vaccines; strategy for solid tumors as well as for hematological cancers; methods to suppress tumor angiogenesis and metastasis; development and utilization of relevant animal models; introduction of new concepts such as cancer stem cells and new technologies, such as DNA and tissue microarrays; and RNA interference. In addition, clinical application, the development of DNA diagnosis biomarkers and cancer prevention, as well as the utilization of imaging in cancer therapy are also discussed. The use of synthetic carriers, such as lipids, polymers, and peptides for delivery and targeting of small molecules, proteins, and nucleic acids to cancer cells in vivo are discussed. Pharmaceutical Perspectives of Cancer Therapeutics also includes cancer therapy modality in surgery, chemotherapy, and radiotherapy, as well as in combination or multi-modality, giving our book a more focused view of cancer therapy.

"The goal is to provide a comprehensive reference book for thepreclinicaldiscovery and development scientist whoseresponsibilities span target identification, lead candidateselection, pharmacokinetics, pharmacology, and toxicology, and forregulatory scientists whose responsibilities include the evaluationof novel therapies." —From the Afterword by Anthony D. Dayan Proper preclinical safety evaluation can improve the predictivevalue, lessen the time and cost of launching newbiopharmaceuticals, and speed potentially lifesaving drugs tomarket. This guide covers topics ranging from lead candidateselection to establishing proof of concept and toxicity testing tothe selection of the first human doses. With chapters contributedby experts in their specific areas, Preclinical SafetyEvaluation of Biopharmaceuticals: A Science-Based Approach toFacilitating Clinical Trials: Includes an overview of biopharmaceuticals with information onregulation and methods of production Discusses the principles of ICH S6 and their implementation inthe U.S., Europe, and Japan Covers current practices in preclinical development andincludes a comparison of safety assessments for small moleculeswith those for biopharmaceuticals Addresses all aspects of the preclinical evaluation process,including: the selection of relevant species; safety/toxicityendpoints; specific considerations based upon class; and practicalconsiderations in the design, implementation, and analysis ofbiopharmaceuticals Covers transitioning from preclinical development to clinicaltrials This is a hands-on, straightforward reference for professionalsinvolved in preclinical drug development, including scientists,toxicologists, project managers, consultants, and regulatorypersonnel.

Frontiers in Anti-Cancer Drug Discovery: Volume 11

Phase I Oncology Drug Development

Preclinical and Clinical Considerations for Development

Tumor Models in Cancer Research

The Assessment of Systemic Exposure in Toxicity Studies

Addressing a significant need by describing the science and process involved to develop biosimilars of monoclonal antibody (mAb) drugs, this book covers all aspects of biosimilar development: preclinical, clinical, regulatory, manufacturing. • Guides readers through the complex landscape involved with developing biosimilar versions of monoclonal antibody (mAb) drugs • Features flow charts, tables, and figures that clearly illustrate processes and makes the book comprehensible and accessible • Includes a review of FDA-approved mAb drugs as a quick reference to facts and useful information • Examines new technologies and strategies for improving biosimilar mAbs

Experienced cancer researchers from pharmaceutical companies, government laboratories, and academia comprehensively review and describe the arduous process of cancer drug discovery and approval. They focus on using preclinical in vivo and in vitro methods to identify molecules of interest, detailing the targets and criteria for success in each type of testing and defining the value of the information obtained from the various tests. They also define each stage of clinical testing, explain the criteria for success, and outline the requirements for FDA approval. A companion volume by the same editor (Cancer Therapeutics: Experimental and Clinical Agents) reviews existing anticancer drugs and potential anticancer therapies. These two volumes in the Cancer Drug Discovery and Development series reveal how and why molecules become anticancer drugs and thus offer a blueprint for the present and the future of the field.

Perhaps no area of pharmacology has progressed further or faster than that of anticancer drugs. With this concise and informative resource, you'll explore the full spectrum of anticancer drug evolution -- from research and development, through clinical trials, to licensure and utilization.

Part A.: Overviews of biological inorganic chemistry : 1. Bioinorganic chemistry and the biogeochemical cycles -- 2. Metal ions and proteins: binding, stability, and folding -- 3. Special cofactors and metal clusters -- 4. Transport and storage of metal ions in biology -- 5. Biominerals and biomineralization -- 6. Metals in medicine. -- Part B.: Metal ion containing biological systems : 1. Metal ion transport and storage -- 2. Hydrolytic chemistry -- 3. Electron transfer, respiration, and photosynthesis -- 4. Oxygen metabolism -- 5. Hydrogen, carbon, and sulfur metabolism -- 6. Metalloenzymes with radical intermediates -- 7. Metal ion receptors and signaling. -- Cell biology, biochemistry, and evolution: Tutorial I. -- Fundamentals of coordination chemistry: Tutorial II.

Principles of Anticancer Drug Development

Experimental and Clinical Agents

Biological Inorganic Chemistry

Handbook of Anticancer Pharmacokinetics and Pharmacodynamics

A Science-Based Approach to Facilitating Clinical Trials

This book illustrates, in a comprehensive manner, the most current areas of importance to Safety Pharmacology, a burgeoning unique pharmacological discipline with important ties to academia, industry and regulatory authorities. It provides readers with a definitive collection of topics containing essential information on the latest industry guidelines and overviews current and breakthrough topics in both functional and molecular pharmacology. An additional novelty of the book is that it constitutes academic, pharmaceutical and biotechnology perspectives for Safety Pharmacology issues. Each chapter is written by an expert in the area and includes not only a fundamental background regarding the topic but also detailed descriptions of currently accepted, validated models and methods as well as innovative methodologies used in drug discovery.

This comprehensive and useful handbook represents a definitive up-to-date compendium of key in vitro bioassay methods that are employed to quantify and validate the anticancer activity of a drug candidate before it makes its way in to animal or clinical trials. In Vitro Bioassay Techniques for Anticancer Drug Discovery and Development covers the screening and evaluation of potential drug candidates in a wide category of anticancer assays demonstrating the specific ways in which various pharmaceutical bioassays interpret the activity of drug molecules. The major emphasis of the book is to present those bioassays which can be readily set up and practiced in any laboratory with limited funds, facilities or technical know-how.

Preceded by Phase I cancer clinical trials: a practical guide / Elizabeth A. Eisenhauer, Christopher Twelves, Marc Buyse. 1st ed. 2006.

A comprehensive review of contemporary antisense oligonucleotides drugs and therapeutic principles, methods, applications, and research Oligonucleotide-based drugs, in particular antisense oligonucleotides, are part of a growing number of pharmaceutical and biotech programs progressing to treat a wide range of indications including cancer, cardiovascular, neurodegenerative, neuromuscular, and respiratory diseases, as well as other severe and rare diseases. Reviewing fundamentals and offering guidelines for drug discovery and development, this book is a practical guide covering all key aspects of this increasingly popular area of pharmacology and biotech and pharma research, from the basic science behind antisense oligonucleotides chemistry, toxicology, manufacturing, to safety assessments, the design of therapeutic protocols, to clinical experience. Antisense oligonucleotides are single strands of DNA or RNA that are complementary to a chosen sequence. While the idea of antisense oligonucleotides to target single genes dates back to the 1970's, most advances have taken place in recent years. The increasing number of antisense oligonucleotide programs in clinical development is a testament to the progress and understanding of pharmacologic, pharmacokinetic, and toxicologic properties as well as improvement in the delivery of oligonucleotides. This valuable book reviews the fundamentals of oligonucleotides, with a focus on antisense oligonucleotide drugs, and reports on the latest research underway worldwide. • Helps readers understand antisense molecules and their targets, biochemistry, and toxicity mechanisms, roles in disease, and applications for safety and therapeutics • Examines the principles, practices, and tools for scientists in both pre-clinical and clinical settings and how to apply them to antisense oligonucleotides • Provides guidelines for scientists in drug design and discovery to help improve efficiency, assessment, and the success of drug candidates • Includes interdisciplinary perspectives, from academia, industry, regulatory and from the fields of pharmacology, toxicology, biology, and medicinal chemistry Oligonucleotide-Based Drugs and Therapeutics belongs on the reference shelves of chemists, pharmaceutical scientists, chemical biologists, toxicologists and other scientists working in the pharmaceutical and biotechnology industries. It will also be a valuable resource for regulatory specialists and safety assessment professionals and an important reference for academic researchers and post-graduates interested in therapeutics, antisense therapy, and oligonucleotides.

Improving and Accelerating Therapeutic Development for Nervous System Disorders

Proceedings of a Workshop

Handbook of Research on Advancements in Cancer Therapeutics

Handbook of Anticancer Drug Development

Pharmaceutical Perspectives of Cancer Therapeutics