

Anticancer

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[An Introduction to the Use of Anticancer Drugs](#) - Imran Rafi
2006-01-01

This title is directed primarily towards health care professionals outside of the United States. The aim of this book is to provide an introduction to the principles of drug treatment for solid tumours in cancer medicine. Developments in the

understanding of tumour biology, molecular biology and genetics - together with the greater understanding of the pharmacology and pharmacokinetics of drugs - have combined to open up the field of medical oncology to rapid advances in the treatment of cancers. The range of drugs that are available is wide and one of the

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primary aims in drug development is to increase the therapeutic window so that drug toxicity is minimised and tolerable. Drug development of oral formulations of anticancer drugs and the use of drugs that could be given in the day patient setting means that healthcare professionals such as general practitioners - who historically might not have been involved in the drug treatment of the cancer patient - are now going to need to have a greater understanding of the principles of use of anticancer drugs. This book is primarily aimed at this market. Basic principles of drug treatment - develops an understanding of why and when anticancer drugs are used. Covers the purpose of clinical trials in oncology from Phase I to Phase IV trials in drug development. Discusses the organisation of clinical networks in the UK. Case studies in cancer treatment, allowing an understanding of when and why the typical regimes are used. NICE guidelines.

Unconventional Anticancer

Metallo drugs and Strategies to Improve their

Pharmacological Profile -

Maria Contel 2019-10-01

For the past 40 years, metal-based drugs have been widely used for the treatment of cancer. Cisplatin and follow-up drugs carboplatin (ParaplatinTM) and oxaliplatin (EloxatinTM) have been the gold standard for metallo drugs in clinical settings as antineoplastic agents. While effective, these drugs (either alone or in combination therapy) have faced a number of clinical challenges resulting from their limited spectrum of activity, high toxicity leading to significant side effects, resistance, poor water solubility, low bioavailability and short circulating time. In the past 10 years, various unconventional non-platinum metal-based agents have emerged as a potential alternative for cancer treatment. These compounds are highly effective and selective in cancers resistant to cisplatin and other chemotherapeutic agents.

Research in this area has recently exploded with a relevant number of patents and clinical trials, in addition to reports in scientific journals. Furthermore, in parallel to the synthesis of coordination and organometallic compounds comprising many different metals and unconventional platinum-based derivatives, researchers are focused on optimizing mechanistic and pharmacological features of promising drug candidates. This Special Issue aims to highlight the latest advances in anticancer metallodrugs with a focus on unconventional anticancer agents, as well as novel activation, targeting and delivery strategies aimed at improving their pharmacological profile.

The Search for New Anticancer Drugs - Michael Waring 1992-11-30

Most of the anti-cancer drugs in use today were discovered by happy accident rather than design, yet the rational design of better anti-cancer drugs remains a cherished goal, and one of the most important

challenges facing medical science. This book represents a compilation of views and progress reports which illustrate the diversity of approaches to the problem.

Recent research has confirmed the belief that critical genetic changes are at work in cancer cells. The genome, then (DNA in biochemical terms), surely represents a critical target for specific chemotherapy of cancer, and several chapters address the issue of attacking DNA, gene targetting, and the like. Others deal with principles of rational design, exploitation of novel modalities and targets, or the nuts and bolts of antitumour drug testing. While no attempt has been made to provide a comprehensive coverage of this wide-ranging and vitally important subject, the present volume in the series will provide much food for thought.

Anticancer Therapeutics - Adam Todd 2018-02-20

An integrated presentation of the basic science and clinical applications of anticancer agents Aimed at both

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undergraduate and postgraduate readers, this unique text provides readers with a fully-integrated presentation of all aspects of the science of anticancer drugs, including their chemistry, pharmacology, and clinical applications. After heart disease, cancer is the number one killer worldwide, and the tumor microenvironment is forever changing, creating an ever-greater demand for safer, more effective anticancer agents. In response to that demand, the \$100 billion cancer drug market continues to grow, with our increased understanding of cancer leading to new drugs being used clinically almost every year. Anticancer Therapeutics is divided into three sections. Section 1 is an introduction to cancer and therapeutics, and covers the etiology and cellular and molecular basis of cancer. In Section 2, the authors focus on the anticancer agents — their discovery, synthesis, mode of action, mechanisms of resistance, and adverse

reactions. Section 3 focuses on specific cancers, explaining how and why the various agents discussed in Section 2 are used, both individually and in combination, to treat different cancers. Integrates aspects of basic science, including chemistry and pharmacology and clinical medicine in relation to cancer therapeutics Written by an author team comprising specialists in medicinal chemistry, pharmacology, and oncology Features full-color images throughout illustrating how drugs bind to cellular targets and exert their pharmacological effect Divided into three sections, covering the etiology and cellular and molecular basis of cancer, anticancer agents, and drug applications for different cancers. Providing the reader with an integrated understanding of all aspects of the science of anticancer agents, this is an ideal textbook for undergraduates studying medicine, nursing, medicinal chemistry, pharmacy, pharmacology and other allied

health / life sciences. It is also a valuable bench reference for pharmacists, medics, and pharmaceutical researchers working in both academia and industry.

Metallo-Drugs: Development and Action of Anticancer

Agents - Astrid Sigel

2018-02-05

Volume 18, entitled Metallo-Drugs: Development and Action of Anticancer Agents of the series Metal Ions in Life Sciences centers on biological, medicinal inorganic chemistry. The serendipitous discovery of the antitumor activity of cis-diamminodichloroplatinum(II) (cisplatin) by Barnett Rosenberg in the 1960s is a landmark in metallodrug-based chemotherapy. The success of cisplatin in the clinic, followed by oxaliplatin and carboplatin, along with their drawbacks relating mainly to resistance development and severe toxicity, initiated research on polynuclear platinum complexes and on Pt(IV) complexes as prodrugs. Furthermore, the indicated shortcomings led to the

exploration of other transition and main group metal ions, among them Ru(II/III), Au(I/III), Ti(IV), V(IV/V), and Ga(III) including also the essential metal ions Fe(II/III), Cu(I/II), and Zn(II). Ionic as well as covalent and non-covalent interactions between structurally very different complexes and biomolecules like nucleic acids, proteins, and carbohydrates are studied and discussed with regard to their possible anticancer actions. Hence, MILS-18 summarizes the research at the forefront of medicinal inorganic chemistry, including studies on the next-generation, tailor-made anticancer drugs. All this and more is treated in an authoritative and timely manner in the 17 stimulating chapters of this book, written by 39 internationally recognized experts from 10 nations (from the US via Europe to China and Australia). The impact of this vibrant research area is manifested by more than 2700 references, nearly 150 illustrations (more than half in color) and several

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comprehensive tables. *Metallo-Drugs: Development and Action of Anticancer Agents* is an essential resource for scientists working in the wide range from enzymology, material sciences, analytical, organic, and inorganic biochemistry all the way through to medicine including the clinic ... not forgetting that it also provides excellent information for teaching.

The Anticancer Drugs -

William B. Pratt 1994

This is an up-to-date review of the pharmacology, mechanisms of action, development of resistance, and toxicity of cancer chemotherapeutic agents. A rationale for their clinical use, based on cancer cell biology, is given for each class of drugs.

Anticancer Agents from Natural Products, Second Edition - Gordon M. Cragg
2011-10-10

The approach to drug discovery from natural sources has yielded many important new pharmaceuticals inaccessible by other routes. In many cases the isolated natural product

may not be an effective drug for any of several reasons, but it nevertheless may become a drug through chemical modification or have a novel pharmacophore for future drug design. In summarizing the status of natural products as cancer chemotherapeutics, *Anticancer Agents from Natural Products, Second Edition* covers the: History of each covered drug—a discussion of its mechanism on action, medicinal chemistry, synthesis, and clinical applications Potential for novel drug discovery through the use of genome mining as well as future developments in anticancer drug discovery Important biosynthetic approaches to "unnatural" natural products *Anticancer Agents from Natural Products, Second Edition* discusses how complex target-oriented synthesis—enabled by historic advances in methodology—has enormously expanded the scope of the possible. This book covers the current clinically used anticancer agents that are either natural products or are

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clearly derived from natural product leads. It also reviews drug candidates currently in clinical development since many of these will be clinically used drugs in the future. Examples include the drugs etoposide and teniposide derived from the lead compound podophyllotoxin; numerous analogs derived from taxol; topotecan, derived from camptothecin; and the synthetic clinical candidates, E7389 and HTI-286, developed from the marine leads, halichondrin B and hemiasterlin.

Anticancer Living - Lorenzo Cohen 2018-05

The revolutionary, science-based plan to reclaim your health "You have cancer." These are perhaps the most feared three words that will ever come out of a doctor's mouth, and more and more people are hearing them. Yet most patients (and some doctors) do not realize that lifestyle changes can dramatically reduce risk, assist treatment and improve chances of surviving and even thriving

after a diagnosis. Over the course of a major study Servan-Schreiber designed with Dr Lorenzo Cohen at the MD Anderson Cancer Center, six key areas have emerged- love and social support, stress management, rest, movement, nutrition and avoiding environmental toxins. Each plays a role--but it's the synergies created by this potent "Mix of Six" that can bring about real shifts in health and well-being, significantly improving quality of life and positively supporting conventional cancer treatments. Dr. David Servan-Schreiber's Anticancer Living introduced a revolutionary way to understand and confront cancer, changing the lives of millions around the world. He laid out the principles of integrative care that had allowed him to live many years beyond expectations for his own cancer, but readers have long requested a specific plan to implement his approach. Anticancer Living is that book. Anticancer Drugs - Niamh M O'Boyle 2019-10-11

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The past decades have seen major developments in the understanding of the cellular and molecular biology of cancer. Significant progress has been achieved regarding long-term survival for the patients of many cancers with the use of tamoxifen for treatment of breast cancer, treatment of chronic myeloid leukaemia with imatinib, and the success of biological drugs. The transition from cytotoxic chemotherapy to targeted cancer drug discovery and development has resulted in an increasing selection of tools available to oncologists. In this Special Issue of *Pharmaceuticals*, we highlight the opportunities and challenges in the discovery and design of innovative cancer therapies, novel small-molecule cancer drugs and antibody–drug conjugates, with articles covering a variety of anticancer therapies and potential relevant disease states and applications. Significant efforts are being made to develop and improve cancer treatments and to

translate basic research findings into clinical use, resulting in improvements in survival rates and quality of life for cancer patients. We demonstrate the possibilities and scope for future research in these areas and also highlight the challenges faced by scientists in the area of anticancer drug development leading to improved targeted treatments and better survival rates for cancer patients.

[Anticancer Drug Development Guide](#) - Beverly A. Teicher
2012-08-08

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. We are still actively engaged in that search today. The question is how to

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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. *Beat Cancer Kitchen* - Chris Wark 2021-11-16
125+ recipes for prevention and healing Supply your body with an abundance of life-giving nutrients to repair, regenerate, detoxify, and heal, all while providing the comfort that all good food should.

Following the success of *Chris Beat Cancer*, Chris Wark and his wife, Micah, share whole-food, plant-based recipes that appeal to the whole family, whether you are healing from cancer, actively eating a diet to prevent it, or simply seeking a healthy lifestyle for you and your loved ones. Fruits, vegetables, mushrooms, nuts, seeds, legumes, whole grains, herbs, and spices are the foundational ingredients of Chris's anticancer diet. Complete with tips for diet optimization, this cookbook will get you in the Beat Cancer Mindset and guide you onto the road to wellness. Inside you will find: · easy-to-make nutrient-rich recipes for healing, · family-friendly

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recipes for prevention and overall health, · full-color photos of each recipe, and · salad, juice, smoothie, soup, side, veggie bowl, breakfast, lunch, dinner, and dessert recipes galore!

Summary of Dr. David Servan-Schreiber's Anticancer -

Everest Media,

2022-03-08T22:59:00Z

Please note: This is a companion version & not the original book. Sample Book Insights: #1 I had been in Pittsburgh for seven years, and away from my native country for more than ten. I was doing my internship in psychiatry while continuing research I had begun for my PhD in neuroscience. I had never imagined what this research would reveal: my own disease. #2 I was young and ambitious, and I wanted to live a fast track life. I didn't want to leave my laboratory and my colleagues. So I lived alone in my tiny house between a bedroom and a study for a year. #3 I was working on a movie script about my experience with Doctors Without Borders, and I

was in love with Anna. But my life took a sudden turn when I was asked to participate in an experiment with student guinea pigs. #4 I was in the scanner when I discovered a tumor in my right prefrontal cortex. I didn't know what to think, so I asked the researchers what they thought it was. They said they weren't sure, but it could be a brain tumor or an abscess.

Cancer Pharmacology -

Ashkan Emadi, MD, PhD

2019-12-03

Cancer Pharmacology: An Illustrated Manual of Anticancer Drugs provides a one-stop guide to the essential basic and clinical science of all the effective, life-prolonging drug therapies in oncology. From traditional cytotoxic agents to targeted genomic, epigenomic, hormonal, and immunotherapeutic agents, this book covers the staggering advances in cancer pharmacology that are propelling new standards of care for common and uncommon malignancies.

Beautifully illustrated

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throughout, each chapter contains visually engaging figures detailing the tumor microenvironment, chemical structures of agents, pharmacodynamics, pharmacokinetics, pharmacogenomic, and molecular properties of the various agents, and their mechanisms of action. As the first illustrated book of its kind, this highly visual text uses a uniform approach to each cancer drug class and agent presented in the book, and covers alkylating agents, antimetabolites, antimetotics, epigenetic modulators, hormonal agents, targeted therapies, monoclonal antibodies, immunotherapeutic agents, and much more. Flow diagrams, clinical tables, and bulleted text further explain important information pertaining to each cancer drug class including their indications, mechanisms of action, potential adverse reactions, dosing and dose adjustments, and safety monitoring. Organized in an easy-to-digest format and

replete with detailed images, clinical pearls, and end of chapter Q&As, this evidence-based reference presents all major classes, agents, targets, and approaches to cancer pharmacotherapy. Whether you are a trainee, a clinical scientist, or a clinician in practice, the book is an ideal reference. It presents challenging information in an instructional way, illustrates key concepts for ease of retention, and poses tough questions so readers can problem solve potential scenarios and test their pharmacologic acumen. Written by leading experts in oncopharmacology, this first-of-its-kind manual is a “must have” for anyone involved in the basic, translational, or clinical aspects of oncology and hematology including clinicians, pharmacists, nurses, and trainees. KEY FEATURES: Includes visual depictions of chemical structures, pharmacokinetics, pharmacodynamics, and pharmacogenomics associated with each class of agents

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Describes how chemotherapy, targeted therapy, immunotherapy, and hormonal therapy work and why they are expected to work adjuvantly, neoadjuvantly, and in combination with other modalities Over 100 highly stylized images and numerous comprehensive tables Covers challenges related to drug development, drug approval, and regulatory issues in relation to anticancer treatments All chapters conclude with clinical pearls and detailed clinical Q&As with descriptive rationales Purchase includes access to the ebook for use on most mobile devices or computers

Anticancer Plants: Clinical Trials and Nanotechnology - Mohd Sayeed Akhtar
2018-07-03

Cancer is one of the leading causes of death in human beings. Though several synthetic medicines are used to treat cancer, they are largely inefficient and unsafe. In contrast, plants, which have been used for medicinal purposes since time

immemorial, have proved to be useful in fighting cancer, with natural compounds from plants and their derivatives offering safe and effective treatment and management for several types of cancer. Plants such as *Catharanthus roseus*, *Podophyllum peltatum*, *Taxus brevifolia*, *Camptotheca acuminata*, *Andrographis paniculata*, *Crateva nurvala*, *Croton tonkinensis*, *Oplopanax horridus* etc., are important source of chemotherapeutic compounds. These plants have proven their value in the treatment of cancer and various other infectious diseases, and several common anticancer compounds such as taxol, podophyllotoxins, camptothecin, vinblastine, vincristine, homoharringtonine etc. have been isolated and purified from these medicinal plants. Unfortunately, many of these anticancer plants have become endangered due to ruthless and irresponsible harvesting practices. Hence, there is a need to conserve these species and to propagate them on a large scale using

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plant tissue culture. Alternatively, plant cell tissue and organ culture biotechnology could be adopted to produce these anticancer compounds without the need for cultivation. A better grasp and continuing exploration of these isolated molecules and products could provide a powerful alternative means of reducing cancer risk. "Anticancer Plants: Volume 3, Clinical Trials and Nanotechnology" provides a timely review of concepts and experimental data on the application of anticancer plants and their compounds in clinical trials, and on the use of nanotechnology in cancer therapy.

Anticancer Living - Lorenzo Cohen PhD 2019-05-07

"The health-care revolution continues . . . an accessible, science-based approach to wellness." —Andrew Weil, MD
What if we could make basic, sustainable lifestyle changes that could prevent us from getting cancer? What if those with cancer could improve their chances of living long,

vibrant lives? The evidence is now clear: at least 50 percent of cancer deaths can be prevented by making healthy lifestyle changes. But many—patients and doctors included—still don't realize the simple changes we can make to increase chances of survival, or aid in the healing process for those with a diagnosis. Introducing the concept of the "Mix of Six," Lorenzo Cohen and Alison Jefferies make an informed case that by focusing on six key areas of health and wellness, you can support treatment or reduce your risk for developing cancer altogether. An accessible, prescriptive guide to wellness based on the latest scientific findings, *Anticancer Living* outlines a path to radically transform health, delay or prevent many cancers, support conventional treatments, and significantly improve quality of life. "Anticancer Living will empower millions of people with information they can use to reduce their risk of getting cancer and improve their chances of surviving a cancer

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diagnosis. Highly recommended!" —Dean Ornish, MD, author of *The Spectrum Anticancer Therapeutics* -

Sotiris Missailidis 2008-10-13
Written by the winner of the 2008 Mike Price Fellowship

"This volume provides a comprehensive overview of the wealth of information now available in this important and fast-moving subject."

Anticancer Research,
November - December 2008

This book provides a clear introduction to the area, with an overview of the various drug design and development approaches for cancer therapeutics and their progress in today's multidisciplinary approach to cancer treatment. Clearly structured throughout, the book not only provides information on currently used molecular treatment approaches, but also describes the various agents that are currently at various stages of development and clinical trials, thus making them the drugs of tomorrow. The book goes on to present current therapeutic regimes including their

indications and side effects, as well as their position in the international market in terms of sales and development costs. Furthermore, coverage of our advancement in the understanding of cancer biology and how this has driven the drug discovery process is clearly discussed. Modern drug discovery aspects, through genomic, proteomic and metabolomic approaches are referred to as well as combinatorial chemistry techniques and discovery of chemotherapeutic agents from plant extracts, re-use of old drugs and drugs from other indications, or de novo rational drug design. Including contributions from leading experts in the field, this book provides the reader with a complete overview of the various types of therapeutic agents, current and emerging, as well as other aspects associated with anticancer therapy, drug design, resistance and clinical trials in oncology.

Anticancer - David Servan-Schreiber, MD, PhD

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2009-12-31

The revolutionary, New York Times bestselling guide to the powerful lifestyle changes that fight and prevent cancer—an integrative approach based on the latest scientific research “A common-sense blueprint for healthy living.” —Chicago Tribune “Resonating with cancer support communities and recommended nationwide.” —Los Angeles Times “Life affirming . . . filled with practical advice.” —The Seattle Times David Servan-Schreiber was a rising neuroscientist with his own brain imaging laboratory when, in the middle of an equipment test, he discovered a tumor the size of a walnut in his own brain. Forced to confront what medicine knows about cancer, and all that we still do not know, Servan-Schreiber marshaled his will to live and set out to understand the complex inner workings of the body’s natural cancer-fighting capabilities. He soon found himself on a decades-long journey from disease and relapse into scientific

exploration and, finally, a new view of health. Anticancer is at once the moving story of one doctor’s inner and outer search for wellness and a radical exposition of the roles that lifestyle, environment, and trauma play in our health. Drawing on the latest research in integrative medicine that blends conventional and alternative approaches, Servan-Schreiber concisely explains what makes cancer cells thrive, what inhibits them, and how we can empower ourselves to prevent their growth. His advice details how to develop a science-based anticancer diet (and the small changes that can make a big difference); how to reap the benefits of exercise, yoga, and meditation; which toxic, unsafe products to replace in your home; and how to stave off the effects of helplessness and unhealed wounds to regain balance. Anticancer’s synthesis of science and personal experience marks a transformation in the way we understand and confront cancer. A long-running

bestseller that has changed the lives of millions around the world, Anticancer remains a pioneering and peerless resource, an inspirational and revolutionary guide to “a new way of life.”

The Enzymes - 2015-08-21
Volume 37 will provide details on the major chemical constituents of medicinal plants and their mechanism of action as the anticancer compounds. This special issue, in addition to the previous volume (volume 36 of the Enzyme series was on the topic of Natural Products and Cancer Signaling Targets: Isoprenoids, Polyphenols and Flavonoids), will highlight the significant advance made in the field in elucidating mechanisms of anticancer effect of the major phytochemicals. Contributions from leading authorities informs and updates on all the latest developments in the field
Principles of Cancer Treatment and Anticancer Drug Development - Wolfgang Link
2019-09-10

This book explains how current medicines against cancer work

and how we find new ones. It provides an easy-to-understand overview of current options to treat patients with cancer, which includes Surgery, Radiation therapy, Chemotherapy, Targeted therapy and Immunotherapy. The efficiency of all these treatments is limited by the capacity of cancer cells to escape therapy. This book explains the mechanisms of anti-cancer drug resistance and strategies to overcome it. The discovery and development process of a new drug is detailed beginning with the identification and validation of a therapeutic target, the identification of an inhibitor of the target and its subsequent preclinical and clinical development until its approval by regulatory authorities. Particular emphasis has been given to specific aspects of the development process including lead generation and optimization, pharmacokinetics, ADME analysis, pharmacodynamics, toxicity and efficacy assessment, investigational

new drug (IND) and new drug application (NDA) and the design of clinical trial and their phases. The book covers many aspects of modern personalized oncology and discusses economic aspects of our current system of developing new medicines and its impact on our societies and on future drug research. The author of this book, Dr. Link counts with more than 20 years of experience in biomedical research reflected in numerous publications, patents and key note and plenary presentations at international conferences. Interested readers, students and teachers should read this book as it provides a unique way to learn/teach about basic concepts in oncology and anti-cancer drug research.

Cytotoxic Anticancer Drugs: Models and Concepts for Drug Discovery and Development -
Frederick A. Valeriote
1992-03-31

The focus of the 22nd Annual Detroit Cancer Symposium was the presentation and discussion of cytotoxic agents, with a significant portion of the

symposium including the exciting frontiers of drug discovery being explored by the National Cooperative Drug Discovery Groups (NCDDG) Program. The symposium brought together a large number of investigators from government, universities and pharmaceutical companies involved in the discovery and development of new anticancer agents. Exciting new leads were presented and the status of others presently under development was discussed. Of particular significance has been the initiation of renewed efforts in the area of natural product drug discovery, where the discovery of new cytotoxics is very promising at the moment. A number of major changes have occurred during the last decade in research on drug discovery of cytotoxic agents. Critical reviews of a number of the models and concepts underlying drug discovery represented a continuous thread throughout the meeting, being constantly discussed in terms of their advantages, disadvantages and

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capabilities of discovering solid tumor active anticancer agents. A recent development which is to be much applauded and which portends to great discoveries is the new relationship formed between Government, University of Industry. The NCDDG mechanism which stimulates this interaction is an inexpensive manner to greatly magnify the drug discovery and development effort nationally. Cytotoxic Anticancer Drugs: Models and Concepts for Drug Discovery and Development represents a forum which will become the major mode for bringing together these three different components in the equation to regularly discuss new results and ideas.

Doxorubicin - Federico Arcamone 1981

Assessing the Economic Value of Anticancer Therapies - Niels Neymark 2011-12-10

With ever increasing demands on the constrained resources available for health care services, no one involved in

decision making in health care can continue to ignore the economic costs of the services provided or the relative value for money offered by the available treatments. Economic evaluation has therefore become an important and indispensable tool for medical decision making, alongside the well-known methods for clinical evaluation. This is also true for cancer, despite the aura of sanctity often of surrounding this dreaded disease and the apparent willingness the general population to spend large sums in this area and do "everything possible" for the patients. In recent years, articles dealing with assessing the costs and benefits of various cancer treatments have begun to appear in scientific medical and economic journals. This book provides a comprehensive survey and assessment of the current state of the art of economic evaluations and cost analyses in cancer. It gives an introduction to the methods available for economic evaluations, before surveying

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and assessing the available publications. Separate chapters are devoted to the most prevalent cancers, and in each chapter the current clinical practice and research problems are summarized in order to provide a background for the economic analyses. At the end, a summary assessment of the literature is provided along with some suggestions for a future research agenda.

New Anticancer Drugs - S.K. Carter 2011-12-08

Rethinking Platinum Anticancer Drug Design: Towards Targeted and Immuno-chemotherapeutic Approaches - Daniel Yuan

Qiang Wong 2018-06-18
This thesis describes the authors' pioneering efforts in the conceptualization and implementation of combined platinum-based immuno-chemotherapeutics, which represent a significant paradigm shift from the conventional approach of directly targeting cancer. The work described has opened up

a rich and largely unexplored area for platinum-based drug design, and ultimately paves the way for superior immuno-chemotherapeutics with better clinical outcome for patients. Historically, the contribution of the immune system to chemotherapy outcomes has been neglected, as anticancer drugs were believed to be immunosuppressive. However, this has been challenged by contemporary evidence suggesting that many chemotherapeutics, including platinum-based agents, stimulate the innate and/or adaptive immune system and that these "secret allies" contribute tangibly to clinical outcomes. A multi-pronged immuno-chemotherapeutic approach not only shrinks tumors, but more importantly, reactivate dormant immune responses to malignancies, eliminating residual cancer cells.

Handbook of Anticancer Drugs from Marine Origin - Se-Kwon Kim 2014-11-27

This timely desk reference focuses on marine-derived

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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.

Cisplatin - Bernhard Lippert
1999

30 years after its discovery as an antitumor agent, cisplatin represents today one of the most successful drugs in chemotherapy. This book is intended to reminisce this event, to take inventory, and to point out new lines of development in this field. Divided in 6 sections and 22 chapters, the book provides an up-to-date account on topics such as - the chemistry and biochemistry of cisplatin, - the clinical status of Pt anticancer drugs, - the impact of cisplatin on inorganic and coordination chemistry, - new developments in drug design, testing and delivery. It also includes a chapter describing the historical development of the discovery of cisplatin. The ultimate question - How does

cisplatin kill a cell? - is yet to be answered, but there are now new links suggesting how Pt binding to DNA may trigger a cascade of cellular reactions that eventually result in apoptosis. p53 and a series of damage recognition proteins of the HMG-domain family appear to be involved. The book addresses the problem of mutagenicity of Pt drugs and raises the question of the possible relevance of the minor DNA adducts, e.g. of interstrand cross-links, and the possible use of trans-(NH₃)₂Pt(II)-modified oligonucleotides in antisense and antigene strategies. Our present understanding of reactions of cisplatin with DNA is based upon numerous model studies (from isolated model nucleobases to short DNA fragments) and application of a large body of spectroscopic and other physico-chemical techniques. Thanks to these efforts there is presently no other metal ion whose reactions with nucleic acids are better understood than Pt. In a series of chapters, basic

studies on the interactions of Pt electrophiles with nucleobases, oligonucleotides, DNA, amino acids, peptides and proteins are reported, which use, among others, sophisticated NMR techniques or X-ray crystallography, to get remarkable understanding of details on such reactions. Reactivity of cisplatin, once bound to DNA and formerly believed to be inert enough to stay, is an emerging phenomenon. It has (not yet) widely been studied but is potentially extremely important. Medicinal bioinorganic chemistry - the role of metal compounds in medicine - has received an enormous boost from cisplatin, and so has bioinorganic chemistry as a whole. There is hardly a better example than cisplatin to demonstrate what bioinorganic chemistry is all about: The marriage between classic inorganic (coordination) chemistry and the other life sciences - medicine, pharmacy, biology, biochemistry. Cisplatin has left its mark also on areas that are generally considered

largely inorganic. The subject of mixed-valence Pt compounds is an example: From the sleeping beauty it made its way to the headlines of scientific journals, thanks to a class of novel Pt antitumor agents, the so-called "platinum pyrimidine blues". In the aftermath diplatinum (III) compounds were recognized and studies in large numbers, and now an organometallic chemistry of these diplatinum (III) species is beginning to emerge. The final section of the book is concerned with new developments such as novel di- and trinuclear Pt(II) drugs with DNA binding properties different from those of cisplatin, with orally active Pt(IV) drugs which are presently in clinical studies, and with attempts to modify combinatorial chemistry in such a way that it may become applicable to fast screening of Pt antitumor drugs. The potential of including computational methods in solving questions of Pt-DNA interactions is critically dealt with in the concluding chapter.

Anticancer Plants: Mechanisms and Molecular Interactions -

Mohd Sayeed Akhtar

2018-07-03

This book summarizes the application of plant derived anticancer compounds as chemopreventives to treat several cancer types, focusing on the molecular mechanisms of action of phytochemicals and providing an overview of the basic processes at the cellular and molecular level that are involved in the progression of the cancer and can be employed in targeted preventive therapies. In addition, it highlights the development of novel anticancer drugs from plant sources using bioinformatics approaches. The compiled chapter data aids readers understanding of issues related to bioavailability, toxic effects and mechanisms of action of phytochemicals, and helps them identify the leads and utilize them against various cancer types effectively. Furthermore, it promotes the use of bioinformatics tools in medicinal plants to expedite

their use in plant breeding programs to develop molecular markers to distinguish disease subtypes and predicting mutation, which in turn improves cancer diagnosis and prognosis, and to develop new lead compounds computationally. The book provides scientific verifications of plant compounds mechanisms of action against various cancers and offers useful information for students, teachers, and healthcare professionals involved in drug discovery, and clinical and therapeutic research.

Novel Anticancer Agents - Alex A. Adjei 2006

Novel Anticancer Agents offers pertinent basic science information on strategies used for the rational design and discovery of novel anticancer agents, and, in addition, translational studies involving clinical trial design and execution with these novel, mostly cytostatic agents. This book covers basic science strategies that are being used in drug discovery and preclinical evaluation focused

on novel molecular targets, as well as clinical trial methodology including clinical pharmacokinetics and imaging to address issues of efficacy evaluation of the new, relatively non-cytotoxic anticancer agents. At present, there is no book that provides such an integration of basic and clinical studies of novel anticancer agents, covering both drug discovery and translational research extensively. Addresses the critical issues involved in the development of novel agents for cancer therapy by experts in the field Presents drug discovery strategies Discusses regulatory issues surrounding drug development

Histone Deacetylase Inhibitors in Combinatorial Anticancer Therapy - Shabir Ahmad Ganai 2020-11-23

This book reviews the latest developments in the design, synthesis, and molecular mechanism of action of Histone Deacetylase (HDAC) inhibitors in the context of potential cancer therapy. HDAC inhibitors are emerging as

promising anticancer drug molecules that promote growth arrest, differentiation and apoptosis of cancer cells with tumor selective toxicity. The book begins with an overview of various epigenetic modifying enzymes that are involved in cancer transition and progression; before exploring the potential of HDACs in cancer treatment. It provides a classification of HDAC inhibitors based on their structural attributes, and addresses HDAC-induced cytotoxicity.. Lastly, it discusses and assesses the rationale behind therapies that combine HDAC inhibitors with other anticancer agents to treat solid tumors. Given its scope, it offers a valuable resource for all researchers, clinicians, and students working in formulation, drug discovery, oncology, and personalized medicine.

Organ Directed Toxicities of Anticancer Drugs - Miles Hacker 2011-11-24

The addition of chemotherapy as an effective means to treat cancer has had a major impact

on selected human malignancies. Due to a general inability to differentiate between normal and neoplastic cells, little selectivity exists in currently used oncolytic drugs. Consequently, significant toxicity to the patient is expected when systemic cancer chemotherapy is chosen as an appropriate therapeutic intervention. Much of this toxicity, such as damage to the bone marrow, gastrointestinal tract, or hair follicles, is predictable based upon the fact that anticancer drugs kill actively dividing cells. These types of toxicities, while serious, are usually manageable and reversible and are, therefore, not often considered to be dose limiting. Unfortunately, several of the most important anticancer drugs also damage tissues in which the growth fraction is relatively small. Such toxicities can not be predicted based on the chemical structure of the drugs, are often not detected in preclinical studies, and are encountered frequently for the first time in clinical studies.

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Further, unlike most of the proliferative-dependent toxicities, the unpredicted toxicities are usually irreversible or only partially reversible upon cessation of drug administration. Because of this, the unpredicted toxicities are referred to as dose limiting. They represent a significant barrier to the ultimate efficacy of several of our most important anticancer drugs.

Medicinal Chemistry of Anticancer Drugs - Carmen Avendano 2015-06-11
Medicinal Chemistry of Anticancer Drugs, Second Edition, provides an updated treatment from the point of view of medicinal chemistry and drug design, focusing on the mechanism of action of antitumor drugs from the molecular level, and on the relationship between chemical structure and chemical and biochemical reactivity of antitumor agents. Antitumor chemotherapy is a very active field of research, and a huge amount of information on the topic is generated every year.

Cytotoxic chemotherapy is gradually being supplemented by a new generation of drugs that recognize specific targets on the surface or inside cancer cells, and resistance to antitumor drugs continues to be investigated. While these therapies are in their infancy, they hold promise of more effective therapies with fewer side effects. Although many books are available that deal with clinical aspects of cancer chemotherapy, this book provides a sorely needed update from the point of view of medicinal chemistry and drug design. Presents information in a clear and concise way using a large number of figures. Historical background provides insights on how the process of drug discovery in the anticancer field has evolved. Extensive references to primary literature.

Gold and its Complexes in Anticancer Chemotherapy - Mohmmad Younus Wani
2021-02-11

This book presents an overview of cancer and the genesis, and

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development of different treatment strategies and modalities against cancer. The emergence of gold and its complexes as promising anticancer chemotherapeutic agents have the potential to substitute or replace the platinum based chemotherapeutic agents. Gold complexes have demonstrated considerable anti-proliferative properties, chiefly attributed to their anti-mitochondrial effects, they make gold complexes excellent candidates as anti-cancer agents compared to their platinum-based counterparts. This book provides a critical review of recent advances made in the development of gold complexes as anti-cancer agents. In this context, it examines a number of different ligand architectures, provides comprehensive information on gold complexes' mechanism of action and toxicity issues and, in closing, outlines future research directions.

Heterocyclic Anticancer Agents

- Bimal Krishna Banik

2022-06-21

Cancer is an incredibly diverse and difficult disease to treat, and even after decades of research there is no definitive cure. Therefore, it is highly crucial to search for novel and new organic molecules with high potency, low toxicity, and low mutagenicity with selective anticancer properties that are able to overcome frequently developed resistance to available drugs. Heterocyclic anticancer agents are an important class of drugs for cancer therapies. This book explores different heterocycles and their use as anticancer therapies. Topics covered include different heterocyclic derivatives, the impact of heterocycles on anticancer agent development, and naturally occurring heterocycles.

Macromolecular Anticancer Therapeutics - L. Harivardhan Reddy 2009-11-12

In spite of the development of various anticancer drugs, the therapy of cancer has remained challenging for decades. The current therapy of cancer is overwhelmed because of the

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inability to deliver therapeutics to all regions of a tumor in effective therapeutic concentrations, intrinsic or acquired resistance to the treatment with currently available agents via genetic and epigenetic mechanisms, and toxicity. As a result, cancer therapy using conventional therapeutics and different types of treatment regimens using this therapeutics has not led to a convincing survival benefit of the patients. In this context, Macromolecular therapeutics offer several advantages over conventional low molecular therapeutics by various ways such as, enable the use of larger doses of these agents by limiting the toxicity, by enhanced permeability and retention into tumors, by tumor targeting using tumor-specific antibodies, by specific inhibition of oncogenes using anticancer oligonucleotides etc. Cancer treatment using this macromolecular therapeutics has considerably improved the survival benefit for patients. As a result, various macromolecular

therapeutics are already commercialized or are under clinical development. Although we are far from a real magic bullet today, looking at the pace of research and current success in this field of macromolecular therapeutics, it appears that we are approaching a magic bullet for the efficient treatment of cancer. Thus, we believe that the subject of this book is very timely, and that the book will fill an unmet need in the market. This book is unique and assembles various types and aspects of macromolecular anticancer therapeutics for cancer therapy in one shell and conveys the importance of this interdisciplinary field to the broad audience. Thus, in a nutshell, this book details the basics of cancer, and various therapeutic strategies such as those based on macromolecular therapeutics hence can become an important reference for practitioners, oncologists, medical pharmacologists, medicinal chemists, biomedical scientists, experimental pharmacologists,

pharmaceutical technologists, and particularly it can essentially become a handbook of macromolecular therapeutics for cancer therapy for graduates, post-graduates and Ph.D. students in these fields.

In Vitro Bioassay Techniques for Anticancer Drug Discovery and Development - Dhanya Sunil

2017-05-18

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.

Handbook of Anticancer Pharmacokinetics and Pharmacodynamics -

Michelle A. Rudek 2016-08-23

There are many steps on the road from discovery of an anticancer drug to securing its final approval by the Food and Drug Administration. In this thoroughly updated and expanded second edition of the Handbook of Anticancer Pharmacokinetics and Pharmacodynamics, leading investigators synthesize an invaluable overview of the experimental and clinical processes of anticancer drug development, creating a single indispensable reference that covers all the steps from the identification of cancer-specific molecular targets to screening techniques and the development and validation of bioanalytical methods to clinical trial design and all phases of clinical trials. The

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authors have included new material on phase 0 trials in oncology, organ dysfunction trials, drug formulations and their impact on anticancer drug PK/PD including strategies to improve drug delivery, pharmacogenomics and cancer therapy, high throughput platforms in drug metabolism and transport pharmacogenetics, imaging in drug development and nanotechnology in cancer. Authoritative and up-to-date, Handbook of Anticancer Pharmacokinetics and Pharmacodynamics, 2nd Edition provides in one comprehensive and highly practical volume a detailed step-by-step guide to the successful design and approval of anticancer drugs. Road map to anticancer drug development from discovery to NDA submission Discussion of molecular targets and preclinical screening Development and validation of bioanalytical methods Chapters on clinical trial design and phase 0, I, II, III clinical trials Pharmacokinetics,

pharmacodynamics, pharmacogenomics, and pharmacogenetics of anticancer agents Review of the drug development process from both laboratory and clinical perspectives New technological advances in imaging, high throughput platforms, and nanotechnology in anticancer drug development

Anticancer Plants: Natural Products and Biotechnological Implements - Mohd Sayeed Akhtar 2018-07-02

This volume provides summarized scientific evidence of the different classes of plant-derived phytochemicals, their sources, chemical structures, anticancer properties, mechanisms of action, methods of extraction, and their applications in cancer therapy. It also discusses endophyte-derived compounds as chemopreventives to treat various cancer types. In addition, it provides detailed information on the enhanced production of therapeutically valuable anticancer metabolites using

biotechnological interventions such as plant cell and tissue culture approaches, including in vitro-, hairy root- and cell-suspension culture; and metabolic engineering of biosynthetic pathways.

Anticancer Plants: Natural Products and Biotechnological Implements - Volume 2"

explores the natural bioactive compounds isolated from plants as well as fungal endophytes, their chemistry, and preventive effects to reduce the risk of cancer. Moreover, it highlights the genomics/proteomics approaches and biotechnological implementations. Providing solutions to deal with the challenges involved in cancer therapy, the book benefits a wide range of readers including academics, students, and industrial experts working in the area of natural products, medicinal plant chemistry, pharmacology, and biotechnology.

Anticancer Treatments and Cardiotoxicity - Patrizio Lancellotti 2016-11-11

Anticancer Treatments and Cardiotoxicity: Mechanisms, Diagnostic and Therapeutic Interventions presents cutting edge research on the adverse cardiac effects of both radiotherapy and chemotherapy, brought together by leaders in the field. Cancer treatment-related cardiotoxicity is the leading cause of treatment-associated mortality in cancer survivors and is one of the most common post-treatment issues among survivors of adult cancer. Early detection of the patients prone to developing cardiotoxicity, taking in to account the type of treatment, history and other risk factors, is essential in the fight to decrease cardiotoxic mortality. This illustrated reference describes the most effective diagnostic and imaging tools to evaluate and predict the development of cardiac dysfunction for those patients undergoing cancer treatment. In addition, new guidelines on imaging for the screening and monitoring of these patients are also presented. Anticancer

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Treatments and Cardiotoxicity is an essential reference for those involved in the research and treatment of cardiovascular toxicity. Provides algorithms essential for the use of imaging, and biomarkers for the screening and monitoring of patients. Written by world-leading experts in the field of cardiotoxicity. Includes high-quality images, case studies, and test questions. Describes the most effective diagnostic and imaging tools to evaluate and predict the development of cardiac dysfunction for those patients undergoing cancer treatment.

Anticancer Agents - Qiao-Hong Chen 2021-03-02

This book is a printed edition of the Special Issue entitled "Anticancer Agents: Design, Synthesis and Evaluation" that was published in *Molecules*. Two review articles and thirty research papers are included in the Special Issue. Three second-generation androgen receptor antagonists that have been approved by the U.S. FDA for the treatment of prostate

cancer have been reviewed. Identification of mimics of protein partners as protein-protein interaction inhibitors via virtual screening has been summarized and discussed. Anticancer agents targeting various protein targets, including IGF-1R, Src, protein kinase, aromatase, HDAC, PARP, Toll-Like receptor, c-Met, PI3Kdelta, topoisomerase II, p53, and indoleamine 2,3-dioxygenase, have been explored. The analogs of three well-known tubulin-interacting natural products, paclitaxel, zampanolide, and colchicine, have been designed, synthesized, and evaluated. Several anticancer agents representing diverse chemical scaffolds were assessed in different kinds of cancer cell models. The capability of some anticancer agents to overcome the resistance to currently available drugs was also studied. In addition to looking into the in vitro ability of the anticancer agents to inhibit cancer cell proliferation, apoptosis, and cell cycle, in vivo antitumor efficacy in

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animal models and DFT were also investigated in some papers.

Anticancer plants: Properties and Application - Mohd Sayeed Akhtar 2018-06-29

Cancer is one of the leading death cause of human population increasingly seen in recent times. Plants have been used for medicinal purposes since immemorial times. Though, several synthetic medicines are useful in treating cancer, they are inefficient and unsafe. However, plants have proved to be useful in cancer cure. Moreover, natural compounds from plants and their derivatives are safe and effective in treatment and management of several cancer types. The anticancer plants such as *Catharanthus roseus*, *Podophyllum peltatum*, *Taxus brevifolia*, *Camptotheca acuminata*, *Andrographis paniculata*, *Crateva nurvala*, *Croton tonkinensis*, *Oplonanax horridus* etc., are important source of chemotherapeutic compounds. These plants have proven their significance in the

treatment of cancer and various other infectious diseases. Nowadays, several well-known anticancer compounds such as taxol, podophyllotoxins, camptothecin, vinblastine, vincristine, homoharringtonine etc. have been isolated and purified from these medicinal plants. Many of them are used effectively to combat cancer and other related diseases. The herbal medicine and their products are the most suitable and safe to be used as an alternative medicine. Based on their traditional uses and experimental evidences, the anticancer products or compounds are isolated or extracted from the medicinally important plants. Many of these anticancer plants have become endangered due to ruthless harvesting in nature. Hence, there is a need to conserve these species and to propagate them in large scale using plant tissue culture. Alternatively, plant cell tissue and organ culture biotechnology can be adopted to produce these anticancer

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compounds without cultivation. The proper knowledge and exploration of these isolated molecules or products could provide an alternative source to reduce cancer risk, anti-tumorigenic properties, and suppression of carcinogen activities. Anticancer plants: Volume 1, Properties and Application is a very timely effort in this direction. Discussing the various types of anticancer plants as a source of curative agent, their pharmacological and nutraceutical properties, cryo-preservation and recent

trends to understand the basic cause and consequences involved in the diseases diagnosis. We acknowledge the publisher, Springer for their continuous inspiration and valuable suggestions to improvise the content of this book. We further extend our heartfelt gratitude to all our book contributors for their support, and assistance to complete this assignment. I am sure that these books will benefit the scientific communities including academics, pharmaceuticals, nutraceuticals and medical practitioners.