Cellular And Molecular Targets For Chemoprevention

Target Discovery and Validation Reviews and Protocols, Volumes 1 and 2 review the most progressive and current methods for drug target discovery and validation. These volumes explore how recent improvement in understanding the molecular mechanisms of human pathology is impacting drug target discovery in the laboratory and in real therapeutics, specifically for cancers and autoimmune disorders. Volume 1 focuses on novel and innovative techniques, and presents the most up-to-date protocols available for maximizing the likelihood of achieving target-selective inhibition in vivo while minimizing side effects. The profound impact of genomics, proteomics and bioinformatics on target discovery is explored, and specific attention is given to the role of transgenic and knockout animals in functional genomics and target validation. Cancer researchers will find tremendous value in the molecular classification of breast cancers and the review of protocols for tumor antigens and cancer vaccines. The methods and protocols collected here, all reviewed by leading scientists and clinicians, present the practical details necessary for translating the enormous discovery potential of the genome into real therapeutic products. Volume 2 collects all the practical details required for efficient translation of discovered targets into real pharmaceutical drugs. Specific targets in cancers and autoimmunity are described and the potential of using siRNAs, antisense oligonucleotides and RNA aptamers in patients is reviewed. This

volume explores the tremendous impact of the application of genotyping and gene expression profiling on the future of healthcare, and presents cutting-edge protocols to aid in bringing agents against specific targets closer to application in the clinic. Collectively, these volumes provide a thorough review of the most cutting-edge methods available for each step in drug target identification, validation, and clinical application. For researchers, an understanding of available methods aids in the creation of innovative experiments in the laboratory, and the successful translation of target discovery to real therapeutics.

The medicinal uses of Curcumin (also called turmeric) have been known and described for more than 5000 years. A large body of recent research suggests that curcumin is potentially useful in the treatment of inflammatory diseases, through modulation of numerous molecular targets. This is the first monograph to focus on the potential use of curcumin in the treatment of cancer, diabetes, cardiovascular diseases, arthritis, Alzheimer's, psoriasis and more.

?? ?The third edition of this critically acclaimed book has updated and expanded the survey of clinical, biological and pathological management of localized and advanced renal cell carcinoma. Internationally renowned editors and contributors explore the latest developments in molecular genetics, focusing on the novel targets that have been discovered in epithelial renal tumors. Comprehensive and authoritative, Renal Cell Carcinoma: Molecular Targets and Clinical Applications, Third Edition is the definitive

text on the rapidly evolving landscape of experimental therapeutics, written and edited by leaders of the field.?

Novel Therapeutic Concepts for Targeting Glioma offers a comprehensive collection of current information and the upcoming possibilities for designing new therapies for Glioma by an array of experts ranging from Cell Biologists to Oncologists and Neurosurgeons. A variety of topics cover therapeutic strategies based on Cell Signaling, Gene Therapy, Drug Therapy and Surgical methods providing the reader with a unique opportunity to expand and advance his knowledge of the field.

In the second edition of their critically acclaimed book, Ronald Bukowski, Robert Motzer, and Robert Figlin have thoroughly updated and expanded their survey of clinical, biological and pathological management of localized and advanced renal cell carcinoma. A panel of internationally renowned contributors explores the latest developments in molecular genetics, focusing on the novel targets that have been discovered in epithelial renal tumors. The discussion includes the specific biology of selected target molecules or receptors and the various agents that inhibit these targets, including full chapters devoted to drugs that selectively inhibit receptor tyrosine kinases, such as sunitinib and axitinib. Further attention is paid to leading-edge strategies that target and inhibit tumor associated angiogenesis and block the vascular endothelial growth factor pathway. Comprehensive and authoritative, Renal Cell Carcinoma: Molecular Targets and Clinical Applications, Second Edition is the definitive text on the

rapidly evolving landscape of experimental therapeutics, written and edited by the pioneers of the field.

The characterization of the cellular and molecular mechanisms that mediate inflammation provides a foundation that supports future studies that will de fine mechanisms more intimately. It encourages substantial optimism about the opportunities to understand the inflammatory process and to use that information to develop novel therapeutic approaches. Recent progress has defined the cells that mediate the inflammatory response, many of the inter cellular transmitters, the receptors, signal transduction processes and regula tory mechanisms. Thus, we now have the opportunity to understand inflammation in pharmacologic terms and to attack the key molecular targets to develop new therapeutics. Among the cells involved in the inflammatory response are the lympho cytes, neutrophils and endothelial cells. Maintenance of homeostasis, re sponse to proinflammatory stimuli and pathophysiologic responses are products of complex interactions between these and other elements of the immune systems. Each of these cells displays a variety of receptors to define the stimuli to which they respond. The receptors displayed that the signal transduction processes and cellular responses are regulated genetically and epigenetic ally . The critical role of membranes and particularly the phospho lipid components of the membranes is emphasized by recent studies.

The book focuses on the understanding of molecular pathways by which normal cell

progress to the definable stage of cancer. The chapters explore microbiota and chronic inflammation, multiple myeloma chemoprevention, microRNAs, cancer regulation, liquid biopsies, and angiogenesis. Recent advances of molecular risk assessment, tumor microenvironment, microneoplasia, malignant gene expressions are highlighted to provide a means and design of future cancer prevention strategies and challenges thereupon. The volume also explores various receptor drugs that are in development process with the emphasis of inhibitors used to prevent malignant gene expression. The book bridges the gap between basic science and clinical application of current knowledge of cancer and emphasizes that tumor progression and cancer metastasis are not random - treatments and cure are logical and eventual. Expertly authored and drawing from a wealth of international perspectives, Molecular Targets and Strategies in Cancer Prevention is invaluable reading for clinicians and researchers in the fields of oncology and molecular biology.

Temporal Lobe Epilepsy: Cell Death and Molecular Targets.

An indispensable collection of updated classical and emerging techniques that promise to add critical knowledge to our understanding of cartilage metabolism in health and disease. Volume 1: Cellular and Molecular Tools describes proven molecular and cellular techniques for the in vitro study of normal and osteoarthritic cartilage through biochemical, biomolecular, immunological, and physical approaches, with emphasis on the genetic manipulation of cells. Volume 2: Structure and In Vivo Analysis, offers

cutting-edge procedures for the study-at the tissue level-of turnover, structure, and functioning of normal and diseased articular cartilage by invasive and noninvasive means. Comprehensive and up-to-date, the two volumes of Cartilage and Osteoarthritis provide researchers and bench scientists with readily reproducible protocols for new experiments to understand-from the cellular to the animal level-the pathophysiology of cartilage and to discover molecular targets for pharmacological intervention.

The aim of this comprehensive encyclopedia is to provide detailed information on diagnostic radiology contributing to the broad field of imaging. The wide range of entries in the Encyclopedia of Diagnostic Imaging are written by leading experts in the field. They will provide basic and clinical scientists in academia, practice, as well as industry, with valuable information about the field of diagnostic imaging, but also people in related fields, students, teachers, and interested laypeople will benefit from the important and relevant information on the most recent developments of imaging. The Encyclopedia of Diagnostic Imaging will contain around 3 559 entries in two volumes, and published simultaneously online. The entire field has been divided into 15 sections consisting of 529 fully structured essays and 2147 short definitions. All entries will be arranged in alphabetical order with extensive cross-referencing between them.

Advances in Cell and Molecular Diagnostics brings the scientific advances in the translation and validation of cellular and molecular discoveries in medicine into the clinical diagnostic setting. It enumerates the description and application of technological

advances in the field of cellular and molecular diagnostic medicine, providing an overview of specialized fields, such as biomarker, genetic marker, screening, DNA-profiling, NGS, cytogenetics, transcriptome, cancer biomarkers, prostate specific antigen, and biomarker toxicologies. In addition, it presents novel discoveries and clinical pathologic correlations, including studies in oncology, infectious diseases, inherited diseases, predisposition to disease, and the description or polymorphisms linked to disease states. This book is a valuable resource for oncologists, practitioners and several members of the biomedical field who are interested in understanding how to apply cutting-edge technologies into diagnostics and healthcare. Encompasses the current scientific advances in the translation and validation of cellular and molecular discoveries into the clinical diagnostic setting Explains the application of cellular and molecular diagnostics methodologies in clinical trials Focuses on translating preclinical tests to the bedside in order to help readers apply the most recent technologies to healthcare

Cellular and Molecular Targets for Chemoprevention provides comprehensive coverage of target mechanisms that have proved valuable in chemoprevention research, in addition to mechanisms that may prove valuable in the near future. The book discusses such topics as growth factor receptor modulation, cell-to-cell communication, differentiation modulation, antisense olgonucleotides, tumor suppressor genes, free radical scavengers, and polyamine synthesis inhibition. Cellular and Molecular Targets

for Chemoprevention will be welcomed by scientists in all areas of cancer/chemoprevention research, pharmaceutical researchers, and advanced students.

This book provides an overview of critical components of cell signaling machinery and its role in epithelial morphogenesis, proliferation, invasions and angiogenesis in human cancer and discusses novel types of protein kinase pathways.

Osteoarthritis (OA), the most common form of arthritis, is generally characterized by a slowly progressive degeneration of articular cartilage, particularly in the weight-bearing joints. It has a stronger prevalence in women, and its incidence increases with age. OA is a major and growing health concern in developed countries, owing to steadily increasing life expectancy and the demand for better quality of life. Because of its chronic nature and nonfatal outcome, OA affects the growing population of the elderly over an increasing time span. Moreover, despite its relatively benign character, OA is one of the most disabling diseases; it is responsible for increasing financial and social burdens in terms of medical treatments, forced inactivity, loss of mobility, and dependence. Despite a growing awareness of OA as a medical problem that has yet to reach its maximum impact on society, there is a surprising absence of effective medical treatments beyond pain control and surgery. So far, only symptom-modifying drugs are available, while there remains a major demand for disease-modifying treatments of proven clinical efficacy. This demand will hopefully be met in the future by some of the

drugs that have been pressed into development and are now at different stages of clinical investigation. Nevertheless, the current lack of effective treatments reflects a still insufficient knowledge of cartilage with respect to its metabolism, interactions with other joint tissues, and causes and mechanisms (possibly of very different nature) leading to failure of its turnover.

A new phase of anti-epileptic drugs (AEDs) investigation has begun in which new drugs can be designed to target specific epileptogenic mechanisms. A rational approach to therapy today requires not only a full awareness of phamacokinetics of AEDs but also a thorough knowledge of their molecular targets and of their influence on excitatory and inhibitory mechanisms in the brain. This book provides a multi-author systematic look at this subject, from neurobiological bases to clinical applications. It includes four sections dealing with fundamental aspects of cortical excitability, models of epileptic disorders, targets for anti-epileptic drugs and rational approaches to therapy. Each chapter provides a review of a specific topic prepared by well known scientists active in the field, introducing their most recent results in a concise and comprehensive form.

This issue of Neurosurgery Clinics, guest edited by Dr. Linda M. Liau, is dedicated to Glioblastoma: Molecular and Clinical Trials. This issue is one of four selected each year by the series consulting editors, Drs. Russell R. Lonser and Daniel K. Resnick. Topics will include—but are not limited to—Pathology & Molecular Markers, Cellular States & Genetic Diversity in Glioblastoma, Mismatch Repair in Glioblastoma Resistance,

Genetic Susceptibility in Brain Cancer, Pediatric Gliomas: Molecular Landscape & Emerging Targets, Molecularly Targeted Clinical Trials, Novel Radiation Sensitizers, Immunotherapy Checkpoint Inhibitors, Brain Tumor Vaccines, CAR T Cells, Oncolytic Virotherapy, Targeting Cancer Stem Cells, Therapeutic Delivery to CNS, Theranostics: Dual Modality PET Tracers, and Neuroimaging & Novel Response Assessments.
Traditional uses of spices : an overview / Ajaikumar B. Kunnumakkara ... [et al.] -- Black pepper (Piper nigrum) and its bioactive compound, piperine / Krishnapura Srinivasan -- Cardamom (Elettaria cardamomum) and its active constituent, 1,8-cineole / Archana Sengupta and Shamee Bhattacharjee -- Molecular targets and health benefits of cinnamon / Kiran Panickar ... [et al.] -- Cloves (eugenol) / Yoshinori Kadoma ... [et al.] -- Coriander / Sanjeev Shukla and Sanjay Gupta -- Fenugreek (diosgenin) / Jayadev Raju and Chinthalapally V. Rao -- Diallyl sulfide from garlic / Girija Kuttan and Punathil Thejass -- Ginger (6-gingerol) / Nidhi Nigam, Jasmine George, and Yogeshwer Shukla -- Kalonji (thymoquinone) / Ahmed O. Kaseb and Abdel-Hafez A. Selim -- Kokum (garcinol) / Manoj K. Pandey, Ajaikumar B. Kunnumakkara, and Bharat B. Aggarwal -- Capsaicin : a hot spice in the chemoprevention of cancer / Joydeb Kumar Kundu and Young-Joon Surh -- Rosemary (rosmarinic acid) / Jongsung Lee ... [et al.] -- Mint and its constituents / Ajaikumar B. Kunnumakkara ... [et al.] -- Turmeric (curcumin) / Jen-Kun Lin and Shoei-Yn Lin Shiau.
Cellular and Molecular Targets for ChemopreventionCRC Press

This book brings together contributions from key investigators in the area of Transient Receptor Potential (TRP) channel structure and function. It covers the structure, function and regulation of mammalian TRP channels and mechanisms of signal transduction. The discussions indicate research that would improve understanding of the role of TRP channels in normal cellular physiology, the involvement of TRP channels in disease states and their potential use as molecular targets for novel therapeutic agents.

Rising occurrences of various diseases and epidemics have pressurized the already-burdened health system across the globe, and this imposes an unprecedented challenge on our current research in identifying disease-specific biomarkers and molecular targets, in particular for cancers, neurological disorders and unexplained infertility. Despite decades of efforts in deciphering the fundamental biology underlying various diseases at discrete levels using an array of advanced technologies, attempts to identify reliable and disease-indicating markers for detection and biomolecules or cellular structures for targeting are still in vain. This monograph describes and discusses the updated findings in this field with a specific aim to compile prior and recent literature and from there to acquire some insights to facilitate future research to expand options of understanding, detecting and treating diseases. Among the many possible areas of biomedical research, this content comprises two themes: disease biomarkers and molecular targets. The book also covers topics that are more advanced

in development to emerging scientific discoveries. In particular, this monograph includes concepts on the renovated use of oncofetal molecules in cancer prediction and treatment, the evolving development in cancer biology at the cellular and molecular levels and the recent involvement on new classes of molecules in diseases. This book renews established concepts in the field, and at the same time leads to important insights for research and development of drugs, diagnostics, and interventions for managing diseases of unmet medical needs.

Natural products have a long history of use as folk medicines in several systems of traditional medicine. Extensive evidence from modern pharmacological studies has confirmed traditional applications, and unveiled the vast potential of naturally occurring compounds, particularly plant-derived phytochemicals, in the management of chronic human diseases. The past decade has witnessed a surge of findings from randomized controlled trials testifying the safety and efficacy of natural products as adjuncts or alternatives to standard-of-care medications for several illnesses. Biomolecular studies have unveiled hundreds of cellular and molecular targets for phytochemicals including key transcription factors, receptors, enzymes, hormones, neurotransmitters, cytokines, lipids, and non-coding RNAs. Extensive research on the preventative and therapeutic effects of natural products necessitates regular updating of the literature as to the developing potential roles of these compounds in different human diseases. This new book provides an overview of the current pharmacological and clinical features of

natural products, and the role of phytopharmaceutical compounds in health and diseases. Chapters cover a wide scope, from cancers, to chronic and age-related disorders, and are written by leading international subject experts. Collectively, chapters will provide useful insights on the regulatory effects of phytochemicals and nutraceuticals on pathogenic molecular signatures associated with pathologies, disease biomarkers, and aging-related pathways.

Genistein is a major isoflavone constituent of soy that has been shown to inhibit growth proliferation and induce apoptosis in cancer cells. The mechanism of genistein-induced cell death and potential molecular targets for genistein in LNCaP prostate cancer cells was investigated using several techniques. The chemosensitivity of genistein towards prostate cancer cells was investigated using the ATP and MTS assays and apoptosis induction was determined using apoptosis and caspase assays. Several molecular targets were also identified using cDNA microarray and RT-PCR analysis.

The prevalence of allergies, asthma, and related allergic diseases has dramatically increased in recent decades. It is no longer true that only developed countries are affected - these diseases are now placing an enormous strain on the health resources in many developing countries around the world. At the same time, there has been rapid progress in translating molecular science into diagnostic and therapeutic applications. Even with these tremendous developments, large gaps still remain in the way that allergists practice medicine in the office. One of the aims of the Collegium

Internationale Allergologicum's biennial symposium and of this book is to bridge this ever-widening gap. Every two years, 200 of the world's leading allergists gather for an intimate and friendly symposium organized by the Collegium Internationale Allergologicum to discuss cutting-edge results of allergy research and future therapeutic options. This volume collects a series of excellent papers presented there, covering topics such as gene-environment interaction, T cell regulation, basic mechanisms of effector cell function, mast cells, psychoneuroallergology, asthma, food allergy, eczema, drug reactions, diagnostics and the latest progress in pharmacotherapy, as well as nonspecific and specific immunotherapy.

It is now established that dysregulated cell stress response pathways play a critical role in tumorigenesis, and a refined mechanistic understanding of this phenomenon at the molecular level promises to open new avenues for targeted therapeutic strategies that may benefit cancer patients in the near future. Coauthored by recognized leaders in cancer research from five continents, this novel book provides a comprehensive perspective on cell stress response pathways and therapeutic opportunities. Focusing on the role of genotoxic, proteotoxic, oxidative, metabolic, and inflammatory stress in tumorigenesis, the book is essential reading for students, basic researchers, and biomedical health care professionals interested in cancer and therapeutic development.

This book covers a wide range of novel biochemical targets that appear to be the best leads in terms of designing novel targets for anticancer drug design. New Molecular

Targets for Cancer Chemotherapy is a unique, multi-disciplinary effort, with internationally respected authors from the fields of growth factor-receptor interaction, phosphoinositide and phospholipase signal transduction, and DNA-drug binding interactions. The science is placed in clinical context and illustrations explain how clinicians can incorporate a mechanistic, pharmacodynamic approach into early clinical trial design.

The loss of skeletal muscle mass and strength substantially impairs physical performance and quality of life. This book details some approaches to the treatment of muscle wasting. It also reviews novel applications against pulmonary arterial hypertension such as cell reprogramming and the use of anticancer drugs that induce programmed cell death. Vascular smooth muscle cells (VSMCs) are the most prevalent cell types in blood vessels and serve critical regulatory roles. This publication also introduces mathematical models concerning the molecular mechanism and targets of cyclic guanosine 3?,5?-monophosphate (cGMP) in the contraction of VSMCs. This book will be of interest to professionals in clinical practice, medical and health care students, and researchers working in muscle-related fields of science.

Resveratrol is a structurally simple, grape-derived polyphenol with seemingly boundless biological activities. The Editors have assembled a group of renowned scientists who have illustrious careers and lifelong passions for studies of this compound. Each chapter covers topics using published and, at times, unpublished data to provide

scholarly and comprehensive reviews and perspectives. Several areas with basic clinical and public health interests are highlighted. The book is intended to serve as a text and reference covering recent research findings and clinical applications in the field.The content is presented in several parts: mechanistic leads provided by laboratory studies of resveratrol; cellular and molecular targets of resveratrol; modulation of disease states by resveratrol; virtual leads and drug discovery.

This book describes the three gasotransmitters nitric oxide (NO), hydrogen sulphide (H2S) and carbon monoxide (CO) and their function as intracellular signalling molecules in plants. Common properties are shared by NO, H2S and CO: they are beneficial at low concentrations but hazardous in higher amounts; they are small molecules of gas; they can freely cross cell membranes; their effects do not rely on receptors; they are generated enzymatically and their production is regulated; their functions can be mimicked by exogenous application; and their cellular effects may or may not be mediated by second messengers, but have specific cellular and molecular targets. In plants, many aspects of the biology of gasotransmitters remain completely unknown and generate intriguing questions, which will be discussed in this book.

Since the discovery of Aquaporin-1 (AQP1) as a water channel, many studies have revealed the importance of aquaporins in mammalian physiology and pathophysiology as well as plant and microbial biology. The studies have also shown aquaporins as potential drug targets and targets for improving crop

properties. Written by an international group of contributors at the forefront of the field, Aquaporins in Health and Disease: New Molecular Targets for Drug Discovery presents the latest research advances in aquaporins and other major intrinsic protein (MIP) channels. The first section of the book describes the general concepts of aquaporin channel function, genomic research, structure-function analysis of aquaporins and glycerol facilitators, and regulation by gating and trafficking, including yeast aquaporin regulation and function. The second section discusses the physiological and pathophysiological roles of aquaporins in humans and microbes. The final section covers the development of inhibitors of aquaporin function. The book's epilogue offers future perspectives and directions, mainly in the area of aquaporin-based diagnostics and therapeutics. Stimulating future research on this important protein family, this book facilitates a paradigm shift in the understanding and roles of aquaporin membrane proteins in all biological settings. It encourages scientists to develop novel approaches for the treatment of human diseases based on aquaporin function or dysfunction. This readily comprehensible book explains the identification of molecular targets via cellular assays, reporter genes or transgenic models, as well as surveying recent advances in the synthesis, separation and analysis of drugs. A special section is devoted to molecular genetics methods. With its examination of these

novel methods and generous practical advice, this is essential reading for all pharmaceutical chemists, molecular biologists and medical researchers using molecular methods to study drugs and their action.

Despite wide recognition as a serious public health problem, anaphylaxis and hypersensitivity reactions remain under-recognized and under-diagnosed. This book fills the gaps in our understanding of the identification of triggers, recognition of clinical presentations, understanding of the natural history of these reactions, and selection of treatment strategies including those focused on cellular and molecular targets. The book provides a detailed examination of disease etiology, pathogenesis, and pathophysiology and their correlation to clinical practice. Forefront knowledge of the mediators and mechanisms of anaphylaxis is covered with an emphasis on how new discoveries shape our current and emerging therapies.