Targeting Nuclear Envelope Repair Cancer Discovery

Gene Therapy of CancerDNA Repair in Cancer TherapyCancer ForumUnique Aspects of Anti-cancer Drug DevelopmentNew Research Directions in DNA RepairMolecular Targets of CNS TumorsEncyclopedia of Cell BiologyAdvances in Biological Understanding of Tumor Radiation ResistanceAdvances in DNA RepairMethods of Cancer Diagnosis, Therapy and PrognosisHandbook of Cell SignalingCancer SignalingPhysics of CancerBiomolecular Action of Ionizing RadiationOncogenes and Tumour SuppressorsEpigenetics of Cancer PreventionChemically-Induced DNA Damage, Mutagenesis, and CancerNuclear Organization in Development and DiseaseMolecular Targeted RadiosensitizersCell BiologyNuclear Pore Complexes in Genome Organization, Function and MaintenanceNuclear Signaling Pathways and Targeting Transcription in CancerThe Yeast NucleusMolecular and Cell Biology of CancerNuclear Structure and FunctionGene TherapyCancer ResearchCell Migrations: Causes and FunctionsMitochondrial DNAApoptotic Pathways as Targets for Novel Therapies in Cancer and Other DiseasesCancer Biology and the Nuclear EnvelopePhytochemicalsComparative OncologyBreast CancerTumors and Tumor-Like Lesions of the Hepatobiliary TractNuclear Import and Export in Plants and AnimalsNuclear Mechanics and Genome RegulationMetal-Enhanced FluorescenceChemical Induced ApoptosisThe Functional Nucleus

Gene Therapy of Cancer

Molecular Targets of CNS Tumors is a selected review of Central Nervous System (CNS) tumors with particular emphasis on signaling pathway of the most common CNS tumor types. To develop drugs which specifically attack the cancer cells requires an understanding of the distinct characteristics of those cells. Additional detailed information is provided on selected signal pathways in CNS tumors.

DNA Repair in Cancer Therapy

This volume examines major developments in the field of oncogenes and tumour suppresor genes which are involved in the regulation of cell cycle, with summaries by researchers on the current state of their particular areas of expertise. In the FRONTIERS OF MOLECULAR BIOLOGY series.

Cancer Forum

Global dietary recommendations emphasize the consumption of plant-based foods for the prevention and management of chronic diseases. Plants contain many biologically active compounds referred to as phytochemicals or functional ingredients. These compounds play an important role in human health. Prior to establishing the safety and health benefits of these compounds, they must first be isolated, purified, and their physico-chemical properties established. Once identified, their mechanisms of actions are studied. The chapters are arranged in the order from isolation, purification and identification to in vivo and clinical

studies, there by covering not only the analytical procedures used but also their nutraceutical and therapeutic properties.

Unique Aspects of Anti-cancer Drug Development

The nuclear envelope is the boundary between a cell’s nucleus and the surrounding cytoplasm, and consists of inner and outer membranes traversed by the nuclear pores. Underlying the inner nuclear membrane is a thin proteinaceous layer, the nuclear lamina, which comprises principally nuclear lamins - intermediate filament-type proteins. This envelope regulates several important processes: the traffic of molecules between the nucleus and the cytoplasm, nuclear morphology during the cell cycle, DNA synthesis and chromatin organization. Nine human diseases have been linked to mutations in genes encoding components of the nuclear envelope, mostly in the lamin A gene (LMNA). These diseases include cardiac and skeletal myopathies (Emery-Dreifuss muscular dystrophy, dilated cardiomyopathy and limb-girdle muscular dystrophy 1B); Dunnigan's partial lipodystrophy and mandibuloacral dysplasia; a peripheral neuropathy; Charcot-Marie-tooth disorder type 2, that affects the myelin sheath; and most recently, the premature ageing condition, Hutchinson-Gilford progeria. Another disease, Pelger-Huet anomaly, that affects nuclear morphology and skeletal development, is linked to an envelope-associated protein, the lamin B receptor. Furthermore, a recent study suggested that other diseases may be linked to many newly identified nuclear envelope-associated proteins. This important book draws together contributions from scientists who are studying these diseases from different perspectives: cell and developmental biologists, structural biologists, geneticists and clinical scientists. Topics include how nuclear structure and location within a nucleus affect gene expression, chromatin organization and cell differentiation; the nature of the interactions between the nuclear envelope and the cytoskeleton; and the extent to which the cytoskeleton mediates communication between the cell membrane and nucleus in regulating gene expression, and whether disruption of such communication might underlie the disease processes.

New Research Directions in DNA Repair

This book edition is intended to provide a concise summary for select topics in DNA repair, a field that is ever-expanding in complexity and biologic significance. The topics reviewed ranged from fundamental mechanisms of DNA repair to the interface between DNA repair and a spectrum on cellular process to the clinical relevance of DNA repair in oncologic paradigms. The information in this text should provide a foundation from which one can explore the various topics in depth. The book serve as a supplementary text in seminar courses with focus on DNA repair as well as a general reference for scholars with an interest in DNA repair.

Molecular Targets of CNS Tumors

As our understanding of apoptotic pathway expands, we are coming to realize the great potential of utilizing this pathway to treat diseases such as cancer. The book attempts to review, summarize, and speculate on the apoptotic pathways, how are they regulated and how targeted therapies are being used to treat a wide variety

of diseases. Special emphasis is placed on cancer since new treatments either being developed or currently in the clinical setting are showing great promise to increase survival rates for cancer patients. Chapters will address the biology behind regulating the apoptotic pathways and what goes wrong in disease states whereas other chapters will concentrate on new therapies targeting apoptotic pathways. The reader by the end of the book should have greater insight into the understanding and utilization of apoptotic pathways to fight diseases such as cancer.

Encyclopedia of Cell Biology

This book covers all liver tumors and lesions that clinically and radiologically mimic liver tumors. It provides readers with a comprehensive overview of this complex and rapidly evolving field. All aspects of surgical pathology are addressed, supplemented by detailed presentations of the lesions' cell-biologic and molecular features. In addition, the methods employed for diagnosis and diagnostic algorithms are discussed. It appeals to pathologists and hepatologists and serves as an invaluable aid to diagnosis.The field of liver tumors and tumor-like lesions in adults and children has experienced tremendous advances in recent years. Specifically, the recognition of novel entities, deepened insights into known tumors, and refinement of classifications have necessitated continual updates and reappraisals. In addition, previous understanding of hepatic carcinogenesis and tumor progression has been transformed by the very rapid evolution of our understanding of cell biology, genomics, signaling pathways, cell interactions, and mechanisms of invasion and spread of hepatic tumor cells. These general pathology issues must be combined with surgical pathology if a comprehensive understanding of liver tumor pathology is to be achieved.

Advances in Biological Understanding of Tumor Radiation Resistance

Cell biology is a multidisciplinary scientific field that its modern expansion in new knowledge and applications owes to important support of new technologies with the rapid development, such as ICTs. By integrating knowledge from nano-, molecular, micro-, and macroareas, it represents a strong foundation for almost all biological sciences and disciplines, as well as for biomedical research and application. This book is a compilation of inspiring reviews/original studies, which are divided into sections: New Methods in Cell Biology, Molecular and Cellular Regulatory Mechanisms, and Cellular Basis of Disease and Therapy. The book will be very useful for students and beginners to gain insight into new area, as well as for experts and scientists to find new facts and expand their scientific horizons through biological sciences and biomedicine.

Advances in DNA Repair

The evidence of cancer in humans, animals and plant species suggests that it is as old as multicellular life on Earth. Why is it so difficult to understand and fight? Because cancer begins from the organism's own mutated single cell focused on its own survival. It would be naive to expect that cancer could be ever entirely

eliminated, but there is still hope for finding effective treatments. The book is to give a view of selected aspects of cancer like its spread in nature, novel anticancer drugs based on Chinese herbs or birch bark, novel promising targets of annexins and kinases and progress in immunotherapy. It is our hope that you will find in this book interesting, inspiring and stimulating information concerning cancer research.

Methods of Cancer Diagnosis, Therapy and Prognosis

Cell migration plays an important role during development and in many physiological and pathological processes, from wound healing to cancer. This edited volume presents a collection of contributions meant to illustrate the state of the art on this topic from an interdisciplinary perspective. Readers will find a detailed discussion of the properties of individual and collective cell migration, including the associated biochemical regulation and important biophysical and biomechanical aspects. The book includes information on the latest experimental techniques employed to study cell migration, from microfluidics to traction force microscopy, as well as the latest theoretical and computational models used to interpret the experimental data. Finally, the role of cell migration in cancer and in development is also reviewed. The contents of this work should appeal to students and researchers in biology and biophysics who want to get up to date on the latest interdisciplinary development in this broad field of research. The chapters are written in a self-contained form and can also be used as individual articles.

Handbook of Cell Signaling

Gene therapy is becoming a promising technology for the management of many human diseases. Hereditary and acquired disorders can both be tackled using the technique of gene therapy. This book provides detailed, up-to-date topics addressing basic principles of gene therapy and discussing some of the challenges encountered by scientists in developing this relatively novel technology. The development of new and efficient gene transfer vectors is of utmost importance in the progress of the field of gene therapy. Both viral and non-viral vectors are extensively discussed. A detailed chapter elaborates the problem of host immune rejection of transplanted donor cells or engineered tissue that can be avoided using the encapsulation of transgenic cells, thus avoiding the use of drugs that achieve immunosuppression.

Cancer Signaling

Physics of Cancer

Each year, tens of millions of people are respectively. The following data indicate diagnosed worldwide with cancer, and the burden (seriousness) of gastrointestinal more than half of these patients eventu- cancer, liver cancer, and colorectal cancers ally die from this disease. The severity of globally and in the United States. (Table 1) the burden of cancer becomes really clear Surgical and molecular therapies and pr- by knowing that there were ? 10, 862, 496 nostic markers for gastrointestinal stromal new cancer cases (excluding skin cancer) tumors are

discussed in this volume. Role in the world in 2002, and the number of of anticancer drugs and monoclonal an- deaths caused by this disease in the same bodies specific for these tumors are also year was ? 6,723,887 (GLOBOCAN). discussed. Imaging modality assessing the The number of deaths due to cancer in the effect of anticancer imatinib on these tumors United States was estimated to be 559, 650 is included. Diagnostic and prognostic (Am. Cancer Soc.). Cancer is caused by markers of clinical outcomes using che- both external factors (tobacco, chemicals, therapy and hormone replacement therapy radiation, and infectious organisms) and for gastric adenocarcinoma are detailed. internal factors (inherited mutations, hor- Also, are discussed immunohistochem- mones, immune conditions, and mutations try of esophageal cancer progression, and that occur from metabolism). diagnostic and therapeutic methodologies All cancer types caused by cigarette for biliary tumors.

Biomolecular Action of Ionizing Radiation

Discover how metal-enhanced fluorescence is changing traditional concepts of fluorescence This book collects and analyzes all the current trends, opinions, and emerging hot topics in the field of metal-enhanced fluorescence (MEF). Readers learn how this emerging technology enhances the utility of current fluorescence-based approaches. For example, MEF can be used to better detect and track specific molecules that may be present in very low quantities in either clinical samples or biological systems. Author Chris Geddes, a noted pioneer in the field, not only explains the fundamentals of metal-enhanced fluorescence, but also the significance of all the most recent findings and models in the field. Metal-enhanced fluorescence refers to the use of metal colloids and nanoscale metallic particles in fluorescence systems. It offers researchers the opportunity to modify the basic properties of fluorophores in both near- and far-field fluorescence formats. Benefits of metal-enhanced fluorescence compared to traditional fluorescence include: Increased efficiency of fluorescence emission Increased detection sensitivity Protect against fluorophore photobleaching Applicability to almost any molecule, including both intrinsic and extrinsic chromophores Following a discussion of the principles and fundamentals, the author examines the process and applications of metal-enhanced fluorescence. Throughout the book, references lead to the primary literature, facilitating in-depth investigations into particular topics. Guiding readers from the basics to state-of-the-technology applications, this book is recommended for all chemists, physicists, and biomedical engineers working in the field of fluorescence.

Oncogenes and Tumour Suppressors

Cancer, which has become the second-most prevalent health issue globally, is essentially resulting from a malfunction of cell signaling. Understanding how the intricate signaling networks of cells and tissues allow a cancer to thrive - and how these networks can be turned into potent weapons against it - is the key to managing cancer in the clinic and improving the outcome of cancer therapies. In their ground-breaking textbook, the authors tell a compelling story of how cancer works at the molecular level, and how targeted therapies - using kinase inhibitors and other modulators of signaling pathways - can contain and eventually cure it. The first part of the book gives an introduction into the cell and molecular biology

of cancer, focusing on the key mechanisms of cancer formation. The second part of the book introduces the main signaling transduction mechanisms responsible for carcinogenesis and compares their functions in healthy versus cancer cells. Coloured figures and the text which is written in plain style make the complex topic easy to understand. Specially prepared teaching videos on key concepts and pathways in cancer signaling illustrate the most relevant aspects and are available online.

Epigenetics of Cancer Prevention

In recent years new discoveries have made this an exciting and important field of research. This exhaustive volume presents comprehensive chapters and detailed background information for researchers working with in the field of nuclear mechanics and genome regulation. Both classic and state-of-the-art methods readily adaptable and designed to last the test of time Relevant to clinicians and scientists working in a wide range of fields

Chemically-Induced DNA Damage, Mutagenesis, and Cancer

This book is concerned with the various nuclear activities of two yeasts: Saccharomyces cerevisiae and Schizosaccharomyces pombe. Both are excellent models for higher eukaryotes, including humans.

Nuclear Organization in Development and Disease

Breast Cancer - From Biology to Medicine thoroughly examines breast cancer from basic definitions, to cellular and molecular biology, to diagnosis and treatment. This book also has some additional focus on preclinical and clinical results in diagnosis and treatment of breast cancer. The book begins with introduction on epidemiology and pathophysiology of breast cancer in Section 1. In Section 2, the subsequent chapters introduce molecular and cellular biology of breast cancer with some particular signaling pathways, the gene expression, as well as the gene methylation and genomic imprinting, especially the existence of breast cancer stem cells. In Section 3, some new diagnostic methods and updated therapies from surgery, chemotherapy, hormone therapy, immunotherapy, radiotherapy, and some complementary therapies are discussed. This book provides a succinct yet comprehensive overview of breast cancer for advanced students, graduate students, and researchers as well as those working with breast cancer in a clinical setting.

Molecular Targeted Radiosensitizers

Epigenetics of Cancer Prevention, Volume Ten is the first to look at epigenetics and chemoprevention together. Although there is numerous scientific data available on how epigenetics can lead to cancer and how chemoprevention can be beneficial in the treatment of, or improvement of quality of life, together they will set an advanced understanding for the reader in this upcoming field of chemoprevention influencing epigenetics. This book discusses molecular epigenetic targets of natural products, such as green tea polyphenols, curcumin and resveratrol, and

organ specific epigenetic targets related to diverse types of cancer, for example prostate, colorectal, breast, lung and skin cancers. Additionally, it encompasses a discussion on research methods and limitations to study epigenetics and epigenomics of chemopreventive drugs and personalized cancer treatment with phytochemicals. The book is ideal for cancer researchers, health care professionals and all individuals who are interested in cancer prevention research and its clinical applications, especially in natural remedies. Lists natural agents, including nutraceuticals, and their effects on normal or tumor genome Addresses various epigenetic systems and mechanisms in the regulation and support of the mammalian genome Discusses how various parts of dietary phytochemicals can influence or modify epigenetic mechanisms in several types of cancer

Cell Biology

"Nuclear envelope (NE) defects have been linked to cancer biology since the mid-1800s, but it was not until the last few years that we have begun to understand these historical links and to realize that there are myriad ways that the NE impacts on tumorigenesis. The NE is a complex double membrane system that encloses the genome while providing structural support through the intermediate filament lamin polymer and regulating protein/ mRNA trafficking and signaling between the nucleus and cytoplasm via the nuclear pore complexes (NPCs). These functions already provide some mechanisms for NE influences on cancer biology but work in the past few years has elucidated many others. Lamins and many recently identified NE transmembrane proteins (NETs) have been now shown to function in DNA repair, regulation of cell cycle and signaling, apoptosis, cell migration in metastasis and nuclear architecture and morphology. This volume presents a comprehensive overview of the wide range of functions recently identified for NE proteins and their relevance in cancer biology, providing molecular mechanisms and evidence of their value as prognostic and diagnostic markers and suggesting new avenues for the treatment of cancer. Indeed some of these recent links are already yielding promising therapies, such as the current clinical trial of selective inhibitors of the nuclear export factor exportin in certain types of leukemia, melanoma and kidney cancer."

Nuclear Pore Complexes in Genome Organization, Function and Maintenance

This book gives an in-depth overview on nuclear structure and function. It clearly shows that the epigenome and the three-dimensional organization of the nucleus are not independent properties. The intimate relationship between the location and the epigenetic modifications of gene loci is highlighted. Finally, it shows that the complex three-dimensional organization of the nucleus is not just of academic interest: The structure, composition and function of virtually all of the sub-nuclear compartments identified so far can be implicated to a list of human genetic diseases. Hence, a detailed elucidation of how these domains are assembled and function will provide new opportunities for therapeutic intervention in clinical practice.

Nuclear Signaling Pathways and Targeting Transcription in

Cancer

The Yeast Nucleus

At the moment, there is no dedicated book to summarize the roles, the significance, and potential therapeutic targeting of transcriptional factors from the perspective of signaling cascade, and thus, directly impacting the functionality of transcriptional factors in cancer. In addition, this book will offer a comprehensive basic and clinical science behind the functions of representative core transcriptional factors. These chapters will serve as a treasure for all those who have an interest in the basis, progression, and targeting of human cancer. Each chapter will be intended to provide comprehensive, up-to-date information by the leaders about the physiologic and pathologic roles of TFs in specific representative organ systems of prime importance. The book will consist of chapters that will give biomedical students, under and graduate students, basic sciences and clinical cancer fellows, residents and researchers, and oncology educators will get a thorough summary of the overall subject. The readers will be able to understand the important current information and views on specific TFs and its role in cancer in areas outside their own expertise or experience. A special emphasis will be also placed on the "classic" papers as well as perspectives on future directions for the field.

Molecular and Cell Biology of Cancer

Nuclear Structure and Function

The Encyclopedia of Cell Biology offers a broad overview of cell biology, offering reputable, foundational content for researchers and students across the biological and medical sciences. This important work includes 285 articles from domain experts covering every aspect of cell biology, with fully annotated figures, abundant illustrations, videos, and references for further reading. Each entry is built with a layered approach to the content, providing basic information for those new to the area and more detailed material for the more experienced researcher. With authored contributions by experts in the field, the Encyclopedia of Cell Biology provides a fully cross-referenced, one-stop resource for students, researchers, and teaching faculty across the biological and medical sciences. Fully annotated color images and videos for full comprehension of concepts, with layered content for readers from different levels of experience Includes information on cytokinesis, cell biology, cell mechanics, cytoskeleton dynamics, stem cells, prokaryotic cell biology, RNA biology, aging, cell growth, cell Injury, and more In-depth linking to Academic Press/Elsevier content and additional links to outside websites and resources for further reading A one-stop resource for students, researchers, and teaching faculty across the biological and medical sciences

Gene Therapy

This book is intended for students and scientists working in the field of DNA repair.

Select topics are presented here to illustrate novel concepts in DNA repair, the cross-talks between DNA repair and other fundamental cellular processes, and clinical translational efforts based on paradigms established in DNA repair. The book should serve as a supplementary text in courses and seminars as well as a general reference for biologists with an interest in DNA repair.

Cancer Research

The Second Edition of Gene Therapy of Cancer provides crucial updates on the basic science and ongoing research in this field, examining the state of the art technology in gene therapy and its therapeutic applications to the treatment of cancer. The clinical chapters are improved to include new areas of research and more successful trials. Chapters emphasize the scientific basis of gene therapy using immune, oncogene, antisense, pro-drug activating, and drug resistance gene targets, while other chapters discuss therapeutic approaches and clinical applications. This book is a valuable reference for anyone needing to stay abreast of the latest advances in gene therapy treatment for cancer. Key Features * Provides in-depth description of targeted systems and treatment strategies * Explains the underlying cancer biology necessary for understanding a given therapeutic approach * Extensively covers immune therapeutics of vaccines, cytokines, and peptide-induced responses * Presents translational focus with emphasis on requirements for clinical implementation * Incorporates detailed illustrations of vectors and therapeutic approaches ideal for classroom presentations and general reference

Cell Migrations: Causes and Functions

Mitochondrial DNA

This collection of 101 short communications, submitted by some of the participants at the 11th Nuclear Workshop held in Suzdal, USSR, 18-23 September, 1989, provides a representative survey of the material presented at the Workshop. Articles have been submitted by both those who delivered lectures and those who had poster presentations. The order of presentation at the Nuclear Workshop is roughly maintained within this proceedings book, but the session titles within the scientific program have not been utilized as discrete subdivisions within the book, because of the considerable overlap of subject matter. The overall sequence is as follows: Genome structure, Gene Structure and Expression, Nucleolar Genes, Structure and Proteins, Chromatin and Nuclear Granules, Nuclear Matrix and Nuclear Proteins, Replication and Transcription and finally Nuclear Envelope and Nuclear Cytoplasmic Transport. Several articles on Nuclear Lipids are also included, stemming from an evening round-table discussion on lipids. The third Wilhelm Bernhard Lecture was delivered in Suzdal by Professor Harris Busch, who can be seen in the photograph above (on the left) in the presence of Professor Ilya B. Zbarsky, President of the organizing committee for the 11th Nuclear Workshop. (Previous Wilhelm Bernhard lecturers have been Ronald H. Reeder, in Krakow, Poland, 1985 and Oscar L. Miller, Jr. , in Stevensbeek, The Netherlands, in 1987).

Apoptotic Pathways as Targets for Novel Therapies in Cancer and Other Diseases

Embracing the transformation of radiation sciences by the recent surge of developments in molecular biology, this progressive text offers an up-to-date analysis of in vitro and in vivo molecular responses in the body induced by ionizing radiation. With a unique emphasis on medical physics applications, Biomolecular Action of Ionizing Radiation also presents a much needed, in-depth perspective on clinical applications for the treatment of cancer and radiation injuries. Based on a popular course given by the author at McGill University,the bookplaces the traditional tenets of radiation biology in the context of contemporary cell and molecular biology. Using terms that non-experts in molecular biology can understand, it clarifies the underlying mechanisms of radiation effects on molecular interactions including signal transduction pathways, modes of cell killing, and non-targeted effects. The author subsequently associates key principles and advances with potential applications, including the use of ionizing radiation as a cytotoxic and cytostatic agent, and radiosensitization by targeting molecular intermediates or signaling molecules involved in radiation-induced processes. Raising the standard for radiation biology texts that are currently available, Biomolecular Action of Ionizing Radiation is an outstanding resource for advanced undergraduate and graduate students in medical physics, radiation oncology, radiation biology, and those who have an interest in the radiation sciences and in cancer treatment.

Cancer Biology and the Nuclear Envelope

Phytochemicals

Nuclear Import and Export in Plants and Animals provides insight into the remarkable mechanisms of nuclear import and export. This book covers a range of topics from the nuclear pore structure, to nuclear import and export of macromolecules in plant and animal cells. In addition, the book covers the special cases of nuclear import of Agrobacterium T-DNA during plant genetic transformation, nuclear import and export of animal viruses, and nuclear intake of foreign DNA. A chapter on research methods to study nuclear transport concludes the book.

Comparative Oncology

DNA Repair and Cancer Therapy: Molecular Targets and Clinical Applications, Second Edition provides a comprehensive and timely reference that focuses on the translational and clinical use of DNA repair as a target area for the development of diagnostic biomarkers and the enhancement of cancer treatment. Experts on DNA repair proteins from all areas of cancer biology research take readers from bench research to new therapeutic approaches. This book provides a detailed discussion of combination therapies, in other words, how the inhibition of repair pathways can be coupled with chemotherapy, radiation, or DNA damaging drugs. Newer areas in this edition include the role of DNA repair in chemotherapy induced peripheral

neuropathy, radiation DNA damage, Fanconi anemia cross-link repair, translesion DNA polymerases, BRCA1-BRCA2 pathway for HR and synthetic lethality, and mechanisms of resistance to clinical PARP inhibitors. Provides a comprehensive overview of the basic and translational research in DNA repair as a cancer therapeutic target Includes timely updates from the earlier edition, including Fanconi Anemia cross-link repair, translesion DNA polymerases, chemotherapy induced peripheral neuropathy, and many other new areas within DNA repair and cancer therapy Saves academic, medical, and pharma researchers time by allowing them to quickly access the very latest details on DNA repair and cancer therapy Assists researchers and research clinicians in understanding the importance of the breakthroughs that are contributing to advances in disease-specific research

Breast Cancer

The three-dimensional organization of the DNA inside the eukaryotic cell nucleus has emerged a critical regulator of genome integrity and function. Increasing evidence indicates that nuclear pore complexes (NPCs), the large protein channels that connect the nucleus to the cytoplasm, play a critical role in the establishment and maintenance of chromatin organization and in the regulation of gene activity. These findings, which oppose the traditional view of NPCs as channels with only one: the facilitation of nucleocytoplasmic molecule exchange, have completely transformed our understanding of these structures. This book describes our current knowledge of the role of NPCs in genome organization and gene expression regulation. It starts by providing an overview of the different compartments and structures of the nucleus and how they contribute to organizing the genome, then moves to examine the direct roles of NPCs and their components in gene expression regulation in different organisms, and ends by describing the function of nuclear pores in the infection and genome integration of HIV, in DNA repair and telomere maintenance, and in the regulation of chromosome segregation and mitosis. This book provides an intellectual backdrop for anyone interested in understanding how the gatekeepers of the nucleus contribute to safeguarding the integrity and function of the eukaryotic genome.

Tumors and Tumor-Like Lesions of the Hepatobiliary Tract

This revised second edition is improved linguistically with multiple increases of the number of figures and the inclusion of several novel chapters such as actin filaments during matrix invasion, microtubuli during migration and matrix invasion, nuclear deformability during migration and matrix invasion, and the active role of the tumor stroma in regulating cell invasion.

Nuclear Import and Export in Plants and Animals

Nuclear Mechanics and Genome Regulation

The very short genomes of mitochondria summarize the complexity of molecular biology and its interactions with cellular and whole organism biology. Studies of

mitogenomes contribute to the understanding of molecular biology and evolution, and to health management. Despite or even due to their small sizes, mitogenomes continue to surprise us. Studies of mitogenomes reveal the details of molecular organization and its evolution under constraints for miniaturization.

Metal-Enhanced Fluorescence

This book is a printed edition of the Special Issue " Chemically-Induced DNA Damage, Mutagenesis, and Cancer" that was published in IJMS

Chemical Induced Apoptosis

Handbook of Cell Signaling, Three-Volume Set, 2e, is a comprehensive work covering all aspects of intracellular signal processing, including extra/intracellular membrane receptors, signal transduction, gene expression/translation, and cellular/organotypic signal responses. The second edition is an up-to-date, expanded reference with each section edited by a recognized expert in the field. Tabular and well illustrated, the Handbook will serve as an in-depth reference for this complex and evolving field. Handbook of Cell Signaling, 2/e will appeal to a broad, cross-disciplinary audience interested in the structure, biochemistry, molecular biology and pathology of cellular effectors. Contains over 350 chapters of comprehensive coverage on cell signaling Includes discussion on topics from ligand/receptor interactions to organ/organism responses Provides user-friendly, well-illustrated, reputable content by experts in the field

The Functional Nucleus

This textbook takes you on a journey to the basic concepts of cancer biology. It combines developmental, evolutionary and cell biology perspectives, to then wrap-up with an integrated clinical approach. The book starts with an introductory chapter, looking at cancer in a nut shell. The subsequent chapters are detailed and the idea of cancer as a mass of somatic cells undergoing a micro-evolutionary Darwinian process is explored. Further, the main Hanahan and Weinberg “Hallmarks of Cancer” are revisited. In most chapters, the fundamental experiments that led to key concepts, connecting basic biology and biomedicine are highlighted. In the book’s closing section all of these concepts are integrated in clinical studies, where molecular diagnosis as well as the various classical and modern therapeutic strategies are addressed. The book is written in an easy-to-read language, like a one-on-one conversation between the writer and the reader, without compromising the scientific accuracy. Therefore, this book is suited not only for advanced undergraduates and master students but also for patients or curious lay people looking for a further understanding of this shattering disease

ROMANCE ACTION & ADVENTURE MYSTERY & THRILLER BIOGRAPHIES & HISTORY CHILDREN'S YOUNG ADULT FANTASY HISTORICAL FICTION HORROR LITERARY FICTION NON-FICTION SCIENCE FICTION