File Type PDF Mitochondrial Mechanisms Of Degeneration And Repair In Parkinsons Disease

Getting the books **Mitochondrial Mechanisms Of Degeneration And Repair In Parkinsons Disease** now is not type of challenging means. You could not abandoned going similar to ebook deposit or library or borrowing from your connections to read them. This is an certainly simple means to specifically acquire lead by on-line. This online notice Mitochondrial Mechanisms Of Degeneration And Repair In Parkinsons Disease can be one of the options to accompany you like having supplementary time.

It will not waste your time. assume me, the e-book will unquestionably publicize you new issue to read. Just invest little grow old to right to use this on-line revelation **Mitochondrial Mechanisms Of Degeneration And Repair In Parkinsons Disease** as well as evaluation them wherever you are now.

KEY=MITOCHONDRIAL - KARTER DESIREE

Mitochondrial Mechanisms of Degeneration and Repair in Parkinson's Disease

Springer This volume brings together various theories of how aberrations in mitochondrial function and morphology contribute to neurodegeneration in idiopathic and familial forms of Parkinson’s disease. Moreover, it comprehensively reviews the current search for therapies, and proposes how molecules are involved in specific functions as attractive therapeutic targets. It is expected to facilitate critical thought and discussion about the fundamental aspects of neurodegeneration in Parkinson’s disease and foster the development of therapeutic strategies among researchers and graduate students. Theories of idiopathic Parkinson’s etiology support roles for chronic inflammation and exposure to heavy metals or pesticides. Interestingly, as this project proposes, a case can be made that abnormalities in mitochondrial morphology and function are at the core of each of these theories. In fact, the most common approach to the generation of animal and cell-culture models of idiopathic Parkinson’s disease involves exposure to mitochondrial toxins. Even more compelling is the fact that most familial patients harbor genetic mutations that cause disruptions in normal mitochondrial morphology and function. While there remains to be no effective treatment for Parkinson’s disease, efforts to postpone, prevent and “cure” onset mitochondrial aberrations and neurodegeneration associated with Parkinson’s disease in various models are encouraging. While only about ten percent of Parkinson’s patients inherit disease-causing mutations, discovering common mechanisms by which familial forms of Parkinson’s disease manifest will likely shed light on the pathophysiology of the more common idiopathic form and provide insight to the general process of neurodegeneration, thus revealing therapeutic targets that will become more and more accessible as technology improves.

Mitochondrial Dysfunction

Mitochondrial Dysfunction in Aging and Diseases of Aging

MDPI This collection of review articles authored by international experts pulls together current information about the role of mitochondria in aging and diseases of aging. Mitochondria are vitally important cellular organelles and undergo their own aging process becoming less efficient in aged animals including humans. These changes have wide-ranging significance contributing to immune dysfunction (autoimmunity and immune deficiency), inflammation, delayed healing, skin and retinal damage, cancer and most of the degenerative diseases of aging. Mitochondrial aging predisposes to drug toxicity in the geriatric population and to many of the features of normal aging. The research detailed in this book summarizes current understanding of the role of mitochondria in the complex molecular changes of aging, moving on to specific diseases of aging. Mitochondrial dysfunction is an important target for development of treatments for aging and disease. The last article details how exercise is a treatment and combats many features of the aging process.

Cerebellar Degeneration in Harlequin Mice is Associated with Inflammation Unaltered by Low-dose Phenobarbital Treatment

Canadian population demographics are shifting to an increase in aged individuals and an increase in the prevalence of neurodegenerative diseases. The post-mitotic nature of most neurons highlights the need to understand the etiology and early mechanisms in neurodegenerative diseases and design targeted therapies. Currently, the etiologies of neurodegeneration are poorly understood but oxidative stress, mitochondrial dysfunction and inflammation are early mechanisms in Alzheimer's disease, Parkinson's disease and Amyotrophic Lateral Sclerosis. An anti-aging strategy that can be adapted for use in neurodegeneration is

hormesis, where repeated low-level exposures to stressors are beneficial to the cell. Hormesis has demonstrated efficacy in inhibiting hepatocarcinoma in the rat through administration of dietary phenobarbital, which decreases DNA damage, increases DNA repair, and decreases cell proliferation. Given that phenobarbital decreases DNA damage and increases DNA repair, phenobarbital was tested as a hormetic agent in murine neurodegeneration. The harlequin (hq) mouse is a model of mitochondrial dysfunction and oxidative stress with cerebellar degeneration. One-month-old wild type (WT) and hq mice were administered phenobarbital in drinking water at 0, 2 or 4 ppm provided ad libitum, until euthanized at 3, 7, or 10 months of age. Eleven parameters of nocturnal behaviour were examined in WT and hq mice (n=9 to 14). In situ, post-mortem cerebellar tissue sections were examined for neuron loss, cell damage, and reactive oxygen species (ROS) (n=3). In vivo cerebellar mutations were detected using the Big BlueÒ cII mutation assay (n=5 or 6). The transcriptome was analyzed to survey global markers in hq cerebella and response to phenobarbital exposure (n=3). The hq phenotype had no behavioural changes, but had increased neuron loss, limited cell damage, a mutation signature of ROS, and elevated ROS with age. Phenobarbital administration did not prevent cerebellar degeneration in hq mice. Transcriptome data revealed inflammation as an early disease mechanism in hq mice. In hq mice, a down-regulation in the GABAA receptor was found which potentially limits the efficacy of phenobarbital. The hq mouse could benefit from a strategy addressing mitochondrial dysfunction through supplementation with riboflavin, thus increasing activity of complex I of the electron transport chain and increasing ATP production.

Modern Trends in Structural and Solid Mechanics 3 Non-deterministic Mechanics

John Wiley & Sons This book – comprised of three separate volumes – presents the recent developments and research discoveries in structural and solid mechanics; it is dedicated to Professor Isaac Elishakoff. This third volume is devoted to non-deterministic mechanics. Modern Trends in Structural and Solid Mechanics 3 has broad scope, covering topics such: design optimization under uncertainty, interval field approaches, convex analysis, quantum inspired topology optimization and stochastic dynamics. The book is illustrated by many applications in the field of aerospace engineering, mechanical engineering, civil engineering, biomedical engineering and automotive engineering. This book is intended for graduate students and researchers in the field of theoretical and applied mechanics.

Mitochondrial Biology and Experimental Therapeutics

Springer This book addresses the therapeutic strategies to target mitochondrial metabolism in diseases where the function of that organelle is compromised, and it discusses the effective strategies used to create mitochondrial-targeted agents that can become commercially available drug delivery platforms. The consistent growth of research focused in understanding the multifaceted role of mitochondria in cellular metabolism, controlling pathways related with cell death, and ionic/redox regulation has extended the research of mitochondrial chemical-biological interactions to include various pharmacological and toxicological applications. Not only does the book extensively cover basic mitochondrial physiology, but it also links the molecular interactions within these pathways to a variety of diseases. It is one of the first books to combine state-of-the-art reviews regarding basic mitochondrial biology, the role of mitochondrial alterations in different diseases, and the importance of that organelle as a target for pharmacological and non-pharmacological interventions to improve human health. The different chapters highlight the chemical-biological linkages of the mitochondria in context with drug development and clinical applications.

Mitochondrial Dysfunction in Ageing and Diseases

MDPI This book is a printed edition of the Special Issue "Mitochondrial Dysfunction in Ageing and Diseases" that was published in IJMS

Chemopreventive Activities of Phytochemicals

MDPI Inflammation is caused by a variety of stimuli including physical damage, UV irradiation, microbial invasion, and immune reactions. The classical key features of inflammation are redness, warmth, swelling, and pain, and their cascades can lead to the inflammatory bowel disease and psoriasis. Many inflammatory diseases are becoming common among the elderly worldwide. Clinically used anti-inflammatory drugs suffer from the disadvantages of side effects and high treatment costs in the case of biologics. Therefore, research on new anti-inflammatory molecules and the elucidation of their molecular mechanisms are being actively conducted. This Special Issue on "Chemopreventive Activities of Phytochemicals" is intended to offer anti-inflammatory active natural products as candidates and/or leads for pharmaceuticals. The research fields of this Special Issue include natural products, chemistry, phytochemistry, pharmacognosy, food chemistry, bioorganic synthetic chemistry, chemical biology, molecular biology, molecular pharmacology, and other related research fields.

Mesenchymal Stem Cells Donate Mitochondria To Stressed Chondrocytes

U2022 Mesenchymal Stem Cells (MSCs) have been promised as therapies for skeletal diseases suchas osteoarthritis (OA) for decades. Some evidence suggests MSCs improve clinical symptomsof OA and preserve cartilage, however results of clinical trials have been variable.1u2022 Mechanisms governing the beneficial effects of implanted MSCs remain unclear, but existingevidence supports two broad theories: 1) MSCs engraft at sites of tissue damage and contributedirectly to repair; 2) MSCs are immunomodulatory and

support endogenous healingmechanisms. One or both of these paradigms are likely true under given circumstances,however neither can fully explain the range of observed responses to implanted MSCs.2u2022 Remarkably, recent evidence suggests that failing cells can recruit help from MSCs in the formof whole-organelle donation.3,4 Although the mechanisms are still largely unknown, cellsundergoing acute mitochondrial dysfunction can accept healthy mitochondria from MSCs viaactive processes involving the formation of tunneling nanotubules and gap junctions.3u2022 The phenomenon of mitochondrial transfer has been documented in several cell types in vitro, including myocytes, neurons and corneal epithelial cells.3 Furthermore, recent pivotal work demonstrated that in vivo, MSCs instilled into the acutely inflamed airway of mice donated mitochondria to alveolar epithelial cells, and mitochondrial transfer was associated with increased ATP production, improved respiratory function, and tissue repair.5u2022 Importantly, studies have identified mitochondrial dysfunction in recipient cells as a key trigger of mitochondrial transfer.3-5 In chondrocytes, mitochondrial dysfunction occurs immediately following cartilage injury, and leads to chondrocyte death, cartilage degeneration and ultimately, post-traumatic OA.5-6u2022 Intercellular mitochondrial transfer has not been investigated in the fields of OA or orthopedic regenerative medicine.

Molecular Mechanisms of Neurodegenerative Diseases

Springer Science & Business Media With the unprecedented identification of new mutation mechanisms in neurodegenerative diseases and the emergence of common mechanisms among diseases that were once considered unrelated, neurobiologists are poised for the development of new therapies based on high throughput screenings and a better understanding of the molecular and cellular mechanisms leading to neurodegeneration. In Molecular Mechanisms of Neurodegenerative Diseases, Marie-Francoise Chesselet, MD, PhD, and a panel of leading researchers and neurologists from industry and academia critically review the most recent advances from different yet complementary points of view. Focusing on Alzheimer's, Parkinson's, and CAG triplet repeat diseases, the authors show how studies of cellular and genetically engineered animal models have enhanced our understanding of the molecular mechanisms of neurodegenerative diseases and may lead to the development of new therapeutics. Topics include the role of Ab toxicity, glial cells, and inflammation in Alzheimer's disease; the formation of abnormal protein fragments across several diseases, the impact of dopamine and mitochondrial dysfunction on neurodegeneration; and the potential of genetics to identify the molecular mechanisms of neurodegenerative diseases. Authoritative and insightful, Molecular Mechanisms of Neurodegenerative Diseases synthesizes the novel ideas and concepts now emerging to create a fresh understanding of neurodegenerative disorders, one that promises to lead to powerful new therapies that prevent, delay the onset, slow the progression, or even cure these cruel diseases.

Pathologic Basis of Veterinary Disease

Mosby Incorporated Veterinary Consult The Veterinary Consult version of this title provides electronic access to the complete content of this book. Veterinary Consult allows you to electronically search your entire book, make notes, add highlights, and study more efficiently. Purchasing additional Veterinary Consult titles makes your learning experience even more powerful. All of the Veterinary Consult books will work together on your electronic "bookshelf", so that you can search across your entire library of veterinary books. Veterinary Consult: It's the best way to learn! Book Description The 4th edition of this textbook, now in full color, presents both general pathology and special pathology in one comprehensive resource. Coverage includes a brief review of basic principles related to anatomy, structure and function, followed by congenital and functional abnormalities and discussions of viral, bacterial, and parasitic infections and neoplasia. Book plus fully searchable electronic access to text.

Retinal Degenerative Diseases

Mechanisms and Experimental Therapy

Springer The blinding diseases of inherited retinal degenerations have no treatments, and age-related macular degeneration has no cures, despite the fact that it is an epidemic among the elderly, with 1 in 3-4 affected by the age of 70. The RD Symposium will focus on the exciting new developments aimed at understanding these diseases and providing therapies for them. Since most major scientists in the field of retinal degenerations attend the biennial RD Symposia, they are known by most as the “best” and “most important” meetings in the field. The volume will present representative state-of-the-art research in almost all areas of retinal degenerations, ranging from cytopathologic, physiologic, diagnostic and clinical aspects; animal models; mechanisms of cell death; candidate genes, cloning, mapping and other aspects of molecular genetics; and developing potential therapeutic measures such as gene therapy and neuroprotective agents for potential pharmaceutical therapy. While advances in these areas of retinal degenerations will be described, there will be many new topics that either were in their infancy or did not exist at the time of the last RD Symposium, RD2014. These include the role of inflammation and immunity, as well as other basic mechanisms, in age-related macular degeneration, several new aspects of gene therapy, and revolutionary new imaging and functional testing that will have a huge impact on the diagnosis and following the course of retinal degenerations, as well as to provide new quantitative endpoints for clinical trials. The retina is an approachable part of the central nervous system (CNS), and there is a major interest in neuroprotective and gene therapy for CNS diseases and neurodegenerations, in general. It should be noted that with successful and exciting initial clinical trials in neuroprotective and gene therapy, including the restoration of sight in blind children, the retinal degeneration therapies are leading the way towards new therapeutic measures for neurodegenerations of the CNS. Many of the successes recently reported in these areas of retinal degeneration sprang from collaborations established at previous RD Symposia, and many of those will be reported at the RD2018 meeting and included in the proposed volume. We anticipate the excitement of those working in the field and those afflicted with retinal degenerations will be reflected in the volume.

Brain Aging

Models, Methods, and Mechanisms

CRC Press Recognition that aging is not the accumulation of disease, but rather comprises fundamental biological processes that are amenable to experimental study, is the basis for the recent growth of experimental biogerontology. As increasingly sophisticated studies provide greater understanding of what occurs in the aging brain and how these changes occur

Retinal Degenerative Diseases

Mechanisms and Experimental Therapy

Springer Contains the proceedings of the XVI International Symposium on Retinal Degeneration (RD2014), to be held July 13-18, 2014 at the Asilomar Conference Center in Pacific Grove, California. A majority of those who will speak and present posters at the meeting will contribute to this volume. The Symposium addresses the blinding diseases of inherited retinal degenerations, which have no effective treatments and age-related macular degeneration, which has no cures, despite the fact that it is an epidemic among the elderly, with 1 in 3-4 affected by the age of 75. The RD2014 Symposium will focus on the exciting new developments aimed at understanding these diseases and providing therapies for them. The volume will present representative state-of-the-art research in almost all areas of retinal degenerations, ranging from cytopathologic, physiologic, diagnostic and clinical aspects; animal models; mechanisms of cell death; molecular genetics; and developing potential therapeutic measures such as gene therapy and neuroprotective agents for potential pharmaceutical therapy; and several sight restoration approaches, including optogenetics. While advances in these areas of retinal degenerations will be included, several new topics either were in their infancy or did not exist at the time of the last RD Symposium, RD2012. These include many new developments in sight restoration using optogenetics, retinal or RPE cell transplantation, stem cell approaches and visual prosthetic devices. In addition, major advances will be presented in other basic mechanisms in age-related macular degeneration, several new aspects of gene and antioxidant therapy and revolutionary new imaging and functional testing that will have a huge impact on the diagnosis and following the course of retinal degenerations, as well as to provide new quantitative endpoints for clinical trials. The retina is an approachable part of the central nervous system (CNS), and there is a major interest in neuroprotective and gene therapy for CNS diseases and neurodegenerations, in general. It should be noted that with successful and exciting initial clinical trials in neuroprotective and gene therapy, including the restoration of sight in blind children, the retinal degeneration therapies are leading the way towards new therapeutic measures for neurodegenerations of the CNS. Many of the successes recently reported in these areas of retinal degeneration sprang from collaborations established at previous RD Symposia, and many of those will be reported at the RD2014 meeting and included.

Handbook of the Biology of Aging

Elsevier The Handbook of the Biology of Aging, Sixth Edition, provides a comprehensive overview of the latest research findings in the biology of aging. Intended as a summary for researchers, it is also adopted as a high level textbook for graduate and upper level undergraduate courses. The Sixth Edition is 20% larger than the Fifth Edition, with 21 chapters summarizing the latest findings in research on the biology of aging. The content of the work is virtually 100% new. Though a selected few topics are similar to the Fifth Edition, these chapters are authored by new contributors with new information. The majority of the chapters are completely new in both content and authorship. The Sixth Edition places greater emphasis and coverage on competing and complementary theories of aging, broadening the discussion of conceptual issues. Greater coverage of techniques used to study biological issues of aging include computer modeling, gene profiling, and demographic analyses. Coverage of research on Drosophilia is expanded from one chapter to four. New chapters on mammalian models discuss aging in relation to skeletal muscles, body fat and carbohydrate metabolism, growth hormone, and the human female reproductive system. Additional new chapters summarize exciting research on stem cells and cancer, dietary restriction, and whether age related diseases are an integral part of aging. The Handbook of the Biology of Aging, Sixth Edition is part of the Handbooks on Aging series, including Handbook of the Psychology of Aging and Handbook of Aging and the Social Sciences, also in their 6th editions.

Axon Degeneration

Methods and Protocols

Humana This book is a collection of classical as well as innovative methods used to investigate axon degeneration with a particular focus on addressing the common challenges encountered while performing these procedures. Particular attention is devoted to the study of axon loss in several model organisms, as each poses unique challenges and provides powerful advantages. Written for the highly successful Methods in Molecular Biology series, chapters include introductions to their respective topics, lists of the necessary materials, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and practical, Axon Degeneration: Methods and Protocols is an ideal guide for facilitating the application and further development of these protocols, which will help the scientific community tackle important questions regarding axon degeneration. Chapters 2, 3, and 20 are available Open Access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Underlying Mechanisms of Epilepsy

BoD – Books on Demand This book is a very provocative and interesting addition to the literature on Epilepsy. It offers a lot of appealing and stimulating work to offer food of thought to the readers from different disciplines. Around 5% of the total world population have seizures but only 0.9% is diagnosed with epilepsy, so it is very important to understand the differences between seizures and epilepsy, and also to identify the factors responsible for its etiology so as to have more effective therapeutic regime. In this book we have twenty chapters ranging from causes and underlying mechanisms to the treatment and side effects of epilepsy. This book contains a variety of chapters which will stimulate the readers to think about the complex interplay of epigenetics and epilepsy.

Ryan's Retina E-Book

Elsevier Health Sciences Through six outstanding and award-winning editions, Ryan’s Retina has offered unsurpassed coverage of this complex subspecialty—everything from basic science through the latest research, therapeutics, technology, and surgical techniques. The fully revised 7th Edition, edited by Drs. SriniVas R. Sadda, Andrew P. Schachat, Charles P. Wilkinson, David R. Hinton, Peter Wiedemann, K. Bailey Freund, and David Sarraf, continues the tradition of excellence, balancing the latest scientific research and clinical correlations and covering everything you need to know on retinal diagnosis, treatment, development, structure, function, and pathophysiology. More than 300 global contributors share their knowledge and expertise to create the most comprehensive reference available on retina today. Features sweeping content updates, including new insights into the fundamental pathogenic mechanisms of age-related macular degeneration, advances in imaging including OCT angiography and intraoperative OCT, new therapeutics for retinal vascular disease and AMD, novel immune-based therapies for uveitis, and the latest in instrumentation and techniques for vitreo-retinal surgery. Includes five new chapters covering Artificial Intelligence and Advanced Imaging Analysis, Pachychoroid Disease and Its Association with Polypoidal Choroidal Vasculopathy, Retinal Manifestations of Neurodegeneration, Microbiome and Retinal Disease, and OCT-Angiography. Includes more than 50 video clips (35 new to this edition) highlighting the latest surgical techniques, imaging guidance, and coverage of complications of vitreoretinal surgery. New videos cover Scleral Inlay for Recurrent Optic Nerve Pit Masculopathy, Trauma with Contact Lens, Recurrent Retinal Detachment due to PVR, Asteroid Hyalosis, and many more. Contains more than 2,000 high-quality images (700 new to this edition) including anatomical illustrations, clinical and surgical photographs, diagnostic imaging, decision trees, and graphs.

Advances in CNS Repair, Regeneration, and Neuroplasticity: From Basic Mechanisms to Therapeutic Strategies

Frontiers Media SA

Innate Immune Responses in CNS Inflammation

Frontiers Media SA

Central Nervous System: From Aging to Repair and Regeneration

Frontiers Media SA

Clinical Mitochondrial Medicine

Cambridge University Press This interactive clinical textbook takes a system- and case-based approach in understanding mitochondrial disorders in clinical practice.

Mitochondria and Longevity

Academic Press Mitochondria and Longevity, Volume 340, the latest release in the International Review of Cell and Molecular Biology series reviews and details current advances in cell and molecular biology. The IRCMB series has a worldwide readership, maintaining a high standard by publishing invited articles on important and timely topics with this release focusing on topics such as Mitochondria metabolism and aging, Mitohormesis, Mitochondrial dynamics in the aging stem cell compartment, Mitochondrial proteostasis and aging, Mitochondrial DNA mutations and aging, Mitochondrial sirtuins, NAD+, NADH and aging, Mitophagy and aging, Mitochondria, calcium transport and aging. Publishes only invited review articles on selected topics in cell and molecular biology Authored by established and active cell and molecular biologists Drawn from international sources Offers a wide range of perspectives on specific subjects

DNA Repair

An Update

BoD – Books on Demand This book offers a collection of chapters addressing different studies on DNA repair from a cellular and molecular point of view. The various contributions highlight the vastness of DNA repair process and the need for a deeper understanding. To this end, the recent considerations here presented can be a cue for scientists and students working on, or interested in, the subject of DNA repair in human cells. This book may suggest to readers new avenues of interplay between different kinds of DNA damage and cellular response for maintaining nuclear and mitochondrial genomic stability.

Retina

Elsevier Health Sciences 2013 BMA Medical Book Awards Highly Commended in Surgical Specialties! Unequalled in scope, depth, and clinical precision, Retina, 5th Edition keeps you at the forefront of today's new technologies, surgical approaches, and diagnostic and therapeutic options for retinal diseases and disorders. Comprehensively updated to reflect everything you need to know regarding retinal diagnosis, treatment, development, structure, function, and pathophysiology, this monumental ophthalmology reference work equips you with expert answers to virtually any question you may face in practice. The chapters demonstrate clarity, authority, and breadth which together with superb illustrations and videos result in an outstanding book. Reviewed by: B.R.Masters, Independent Scholar on behalf of Graefe's Archive for Clinical and Experimental Ophthalmology journal, Jan 2014 Benefit from the extensive knowledge and experience of esteemed editor Dr. Stephen Ryan, five expert co-editors, and a truly global perspective from 358 other world authorities across Europe, Asia, Australasia the Americas. Examine and evaluate the newest diagnostic technologies and approaches that are changing the management of retinal disease, including future technologies which will soon become the standard. Put the very latest scientific and genetic discoveries, diagnostic imaging methods, drug therapies, treatment recommendations, and surgical techniques to work in your practice. Make the best use of new technologies with expanded and updated coverage of optical coherence tomography (OCT), fundus imaging, and autofluorescence imaging. Apply the latest knowledge on anti-VEGF therapy for age related macular degeneration, diabetic retinopathy and vein disease. Learn about artificial vision, drug delivery to the posterior segment, advances in macular surgery, vitrectomy, and complex retinal detachment, with updates on tumors, retinal genetics, cell biology, important basic science topics, and much more. Get the most out of new pharmacologic approaches in the management of age-related macular degeneration and diabetic retinopathy. In your practice, diagnostic evaluations, and now even treatments, will be influenced by recent scientific discoveries such as in the areas of nanotechnology, neuro protection, stem cells and gene therapy, among other scientific contributions. View videos of surgical procedures and access the complete contents of Retina, 5th Edition online at www.expertconsult.com, fully searchable, with regular updates and a downloadable image gallery.

Mitochondrial Function

Mitochondria and Cancer

Springer Science & Business Media Nearly a century of scientific research has revealed that mitochondrial dysfunction is one of the most common and consistent phenotypes of cancer cells. A number of notable differences in the mitochondria of normal and cancer cells have been described. These include differences in mitochondrial metabolic activity, molecular composition of mitochondria and mtDNA sequence, as well as in alteration of nuclear genes encoding mitochondrial proteins. This book, Mitochondria and Cancer, edited by Keshav K. Singh and Leslie C. Costello, presents thorough analyses of mitochondrial dysfunction as one of the hallmarks of cancer, discusses the clinical implications of mitochondrial defects in cancer, and as unique cellular targets for novel and selective anti-cancer therapy.

Age-related Macular Degeneration

A Comprehensive Textbook

Lippincott Williams & Wilkins A renowned group of retina surgeons presents promising new developments in age-related macular degeneration, with emphasis on the most significant advances in the past five years. Content addresses all aspects of management, including anatomy, physiology, and pathophysiology; imaging of the macula in age-related macular degeneration; prevention measures and treatment; treatment; and future directions. Abundantly illustrated and superbly organized, this book serves as an excellent reference and textbook.

Visual Impairment and Blindness

What We Know and What We Have to Know

BoD – Books on Demand Blindness and vision impairment affect at least 2.2 billion people worldwide with most individuals having a preventable vision impairment. The majority of people with vision impairment are older than 50 years, however, vision loss can affect people of all ages. Reduced eyesight can have major and long-lasting effects on all aspects of life, including daily personal activities,

interacting with the community, school and work opportunities, and the ability to access public services. This book provides an overview of the effects of blindness and visual impairment in the context of the most common causes of blindness in older adults as well as children, including retinal disorders, cataracts, glaucoma, and macular or corneal degeneration.

Mitochondrial Dysfunction in Neurodegenerative Disorders

Springer This second edition brings together up-to-date contributions from leaders in the field internationally on the various ways in which mitochondrial dysfunction contributes to the pathogenesis of neurodegenerative diseases, including Parkinson’s disease, Alzheimer’s disease and multiple sclerosis. The reader is guided through the basic functions of mitochondria and the mechanisms that lead to their dysfunction, and on to the consequences of this dysfunction for neuronal function before finishing with the modelling of these disorders and discussion of new potential therapeutic targets. Additional chapters have been added to the book to reflect advances in the field and there are many new contributors and topics, including how mitochondria are degraded and the interaction of the mitochondria with pathologically relevant proteins. Mitochondrial Dysfunction in Neurodegenerative Disorders provides an accessible, authoritative guide to this important area for neurologists; research and clinical neuroscientists; neuropathologists; and residents with an interest in clinical research.

DNA Replication, Recombination, and Repair Molecular Mechanisms and Pathology

Springer This book is a comprehensive review of the detailed molecular mechanisms of and functional crosstalk among the replication, recombination, and repair of DNA (collectively called the "3Rs") and the related processes, with special consciousness of their biological and clinical consequences. The 3Rs are fundamental molecular mechanisms for organisms to maintain and sometimes intentionally alter genetic information. DNA replication, recombination, and repair, individually, have been important subjects of molecular biology since its emergence, but we have recently become aware that the 3Rs are actually much more intimately related to one another than we used to realize. Furthermore, the 3R research fields have been growing even more interdisciplinary, with better understanding of molecular mechanisms underlying other important processes, such as chromosome structures and functions, cell cycle and checkpoints, transcriptional and epigenetic regulation, and so on. This book comprises 7 parts and 21 chapters: Part 1 (Chapters 1–3), DNA Replication; Part 2 (Chapters 4–6), DNA Recombination; Part 3 (Chapters 7–9), DNA Repair; Part 4 (Chapters 10–13), Genome Instability and Mutagenesis; Part 5 (Chapters 14–15), Chromosome Dynamics and Functions; Part 6 (Chapters 16–18), Cell Cycle and Checkpoints; Part 7 (Chapters 19–21), Interplay with Transcription and Epigenetic Regulation. This volume should attract the great interest of graduate students, postdoctoral fellows, and senior scientists in broad research fields of basic molecular biology, not only the core 3Rs, but also the various related fields (chromosome, cell cycle, transcription, epigenetics, and similar areas). Additionally, researchers in neurological sciences, developmental biology, immunology, evolutionary biology, and many other fields will find this book valuable.

Mitochondrial DNA and Diseases

Springer The book describes molecular principles and mechanisms by which mitochondrial DNA (mtDNA) can drive the occurrence of diseases and the latest understanding of mtDNA biology. The book explores roles of mtDNA mutation and genetic changes in cancer, with a special focus on lung cancer, and the significance of approach, application, and bioethics of mtDNA sequencing. Authors made a great effort to overview roles of mtDNA signaling pathways, base excision repair, methylation, USP30-mediated regulation, mitochondrial ribosome, autophagy pathways, or ROS-dependent signaling in the pathogenesis, diagnosis, prevention and treatment of diseases. It also demonstrates the importance of basic mitochondrial genetics and the relationship between mutations and disease phenotypes and ageing. This book covers not only the basic information of mtDNA, the relationship of mtDNA and disease, but also mtDNA in stem cell and mitochondria and metabolism etc. The book is written for biological and clinical students and researchers in the field of mtDNA–associated diseases.

Cellular and molecular mechanisms of motor neuron death in amyotrophic lateral sclerosis

Frontiers Media SA Amyotrophic lateral sclerosis (ALS), which was described since 1869 by Jean Martin Charcot, is a devastating neurodegenerative disease characterized by the selective and progressive loss of upper and lower motor neurons of the cerebral cortex, brainstem and the spinal cord. The cognitive process is not affected and is not merely the result of aging because may occur at young ages. The only known cause of the disease is associated with genetic mutations, mainly in the gene encoding superoxide dismutase 1 (familial ALS), whereas there is no known cause of the sporadic form of ALS (SALS), which comprises >90% of cases. Both ALS types develop similar histopathological and clinical characteristics, and there is no treatment or prevention of the disease. Because effective treatments for ALS, as for other neurodegenerative diseases, can only result from the knowledge of their cellular and molecular pathophysiological mechanisms, research on such mechanisms is essential. Although progress in neurochemical, physiological and clinical investigations in the last decades has identified several mechanisms that seem to be involved in the cell death process, such as glutamate-mediated excitotoxicity, alterations of inhibitory circuits, inflammatory events, axonal transport

deficits, oxidative stress, mitochondrial dysfunction and energy failure, the understanding of the origin and temporal progress of the disease is still incomplete and insufficient. Clearly, there is a need of further experimental models and approaches to discern the importance of such mechanisms and to discover the factors that determine the selective death of motor neurons characteristic of ALS, in contrast to other neurodegenerative diseases such as Parkinson’s and Alzheimer’s disease. Whereas studies in vitro in cell cultures, tissue slices or organotypic preparations can give useful information regarding cellular and molecular mechanisms, the experiments in living animal models obviously reflect more closely the situation in the human disease, provided that the symptoms and their development during time mimics as close as possible those of the human disease. It is necessary to correlate the experimental findings in vitro with those in vivo, as well as those obtained in genetic models with those in non-genetic models, aiming at designing and testing therapeutic strategies based on the results obtained.

Mitochondrial Diseases

BoD – Books on Demand Mitochondria are crucial organelles for any cell type. Mitochondria take responsibility for not only energy production but also regulation of cell death, also called apoptosis; calcium storage; and heat production. Therefore, mitochondrial disease is implicated in the mode of action of many harmful factors for cells such as drugs and environmental contaminants, dysfunction of the oxygen transport system, malnutrition, intense exercise, and genetic variations. This book presents up-to-date knowledge about mitochondrial disease and its complex relation to some diseases such as cardiac failure, cancer, and Alzheimer's and Parkinson's diseases. This book will, therefore, be essential for readers who are interested in life sciences, especially in medicine.

Models, Molecules and Mechanisms in Biogerontology

Physiological Abnormalities, Diseases and Interventions

Springer This book examines the basic cellular and molecular mechanisms associated with aging. It comprehensively describes the genetic, epigenetic, biochemical and metabolic regulation of aging, as well as some important age-related diseases. Divided into two major sections, it takes readers through the various aspects of aging in a story-like manner and suggests various interventions for healthy aging, such as dietary restriction, regular exercise, nutrition and maintaining a balanced and a non-stressful lifestyle. It describes the implications of aging on the nervous system, metabolism, immunity and stem cells as well as care for the elderly. The book is an ideal companion for both new and established researchers in the field and is also useful for educators, clinicians and policy makers.

Retinal Degenerative Diseases

Springer Science & Business Media This book will contain the proceedings of the XIV International Symposium on Retinal Degeneration (RD2010), held July 13-17, 2010, in Mont-Tremblant, Quebec, Canada. The volume will present representative state-of-the-art research in almost all areas of retinal degenerations, ranging from cytopathologic, physiologic, diagnostic and clinical aspects; animal models; mechanisms of cell death; candidate genes, cloning, mapping and other aspects of molecular genetics; and developing potential therapeutic measures such as gene therapy and neuroprotective agents for potential pharmaceutical therapy.

Mitochondria in Health and Disease

CRC Press It was once assumed that mitochondrial diseases were rare and that few people were affected. As knowledge has grown about these organelles and their function, it became clear that mitochondrial malfunction could be linked to several chronic diseases. Diabetes has been associated with DNA mutation and can cause mutation itself. This text discusses findings involving the effects of disease on mitochondrial number, mitogenesis, and the base sequence of mitochondrial DNA. Experts discuss their study of mitochondria and what happens when it malfunctions. This book also explores the idea that mutated mitochondrial DNA can result in disease, and vice versa.

Mitochondria at the Crossroads of Immunity and Inflammatory Tissue Damage

Frontiers Media SA

Biomedical Index to PHS-supported Research

Index Medicus