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Molecular Biology of the Cell Cellular Biology of the Endoplasmic Reticulum Tumor Suppressor Par-4 Magnesium in the Central Nervous System Janeway's Immunobiology Characterization, Functions, and Roles of Antigen-Specific Regulatory T Cells in Health and Disease The Role of Microtubules in Cell Biology, Neurobiology, and Oncology Cell Physiology Source Book Annual Plant Reviews, Plant Mitochondria Connexin Cell Communication Channels The Cell: A Very Short Introduction The Role of Reactive Nitrogen- Oxygen-containing Species in Cellular Dysfunction and Death in Insulin-containing Cells International Review of Cell and Molecular Biology Structure and Function in Cell Signalling Seldin and Giebisch's The Kidney Retinoids: Their Physiological Function and Therapeutic Potential Red Blood Cell Membranes Adenosine Triphosphate Molecular Mechanisms of Adult Stem Cell Aging Genome Organization And Function In The Cell Nucleus Echinoderms Composition and Function of the Extracellular Matrix in the Human Body The Membranes of Cells Signal Transduction in Mast Cells and Basophils Goodman's Medical Cell Biology Cellular Mechanics and Biophysics Study on the Cellular Regulation and Function of Lysine Malonylation, Glutarylation and Crotonylation Thermal Stress on Cellular Structure and Function T and B Lymphocytes: Recognition and Function Mitochondrial Function in Lung Health and Disease International Review of Cytology Sertoli Cell Biology Cell Structure and Function Cellular Organelles Concepts of Biology Cell Polarity 1 Role of Cofilin in the Programmed Cell Death Induced by Oxidative Stress in Human T Lymphocytes Mechanotransduction of the Hair Cell Cell Biology by the Numbers Mast Cells

Red Blood Cell Membranes Aug 18 2021 This book is devoted to the red blood cell membrane, its structure and function, and abnormalities in disease states. It presents a well-documented and well-illustrated comprehensive picture of clinical manifestations of red blood cell disorders.

Retinoids: Their Physiological Function and Therapeutic Potential Sep 18 2021 Retinoids have received considerable attention in recent years and due cognizance has been given to their versatility as biological response modifiers, as evidenced by the virtually explosive growth of literature in this field in the past few years. This volume has been designed to give a current state-of-the-art picture of retinoids. The perceived potential of retinoids in the treatment of certain disease stated has initiated attempts at identifying and synthesizing new retinoid derivatives with definable and selective effects on aberrant biological phenomena. Appropriately, therefore, we begin with the chemistry of retinoids and their derivatives together with discussions of their biological activity. Major advances have been made in understanding the mechanisms by which retinoids modulate physiological and phenotypic traits of cells. The transduction of retinoid signaling by the mediation of nuclear receptors of the steroid/thyroid receptor superfamily has now been studied extensively and the cloning and defining the characteristics of these receptors has been a focus of discussion in this volume. Retinoids also markedly modulate the transduction of extracellular signals such as those imparted by growth factors and hormones, and thus actively influence and control cellular proliferative patterns. Retinoids can alter epidermal growth factor receptor expression (Kawaguchi et al., 1994), responsiveness to thyroid hormone (Esfandiari et al., 1994; Pallet et al., 1994), inhibit the proliferative responses of hematopoietic progenitor cells to granulocyte colony stimulating factor (Smeland et al., 1994), and modulate secretion on interleukins by leukaemic cells (Balitrand et al., 1994), among other things. This has obvious implications for pharmacological manipulation of deregulated growth (Dickens and Colletta, 1993; Mulshine et al., 1993). Apoptosis is another component in the regulation of growth control. Apoptotic cell death is influenced by several agents and retinoids may function by interfering with apoptotic pathways

of regulation of growth control and quite legitimately, therefore, the importance of this aspect of retinoid function has been duly recognized here.

Cellular Organelles Mar 01 2020 The purpose of this volume is to provide a synopsis of present knowledge of the structure, organisation, and function of cellular organelles with an emphasis on the examination of important but unsolved problems, and the directions in which molecular and cell biology are moving. Though designed primarily to meet the needs of the first-year medical student, particularly in schools where the traditional curriculum has been partly or wholly replaced by a multi-disciplinary core curriculum, the mass of information made available here should prove useful to students of biochemistry, physiology, biology, bioengineering, dentistry, and nursing. It is not yet possible to give a complete account of the relations between the organelles of two compartments and of the mechanisms by which some degree of order is maintained in the cell as a whole. However, a new breed of scientists, known as molecular cell biologists, have already contributed in some measure to our understanding of several biological phenomena notably interorganelle communication. Take, for example, intracellular membrane transport: it can now be expressed in terms of the sorting, targeting, and transport of protein from the endoplasmic reticulum to another compartment. This volume contains the first ten chapters on the subject of organelles. The remaining four are in Volume 3, to which sections on organelle disorders and the extracellular matrix have been added.

Mitochondrial Function in Lung Health and Disease Jul 05 2020 Mitochondria, often referred to as the "powerhouses" of the cell, generate adenosine triphosphate (ATP) by oxidative phosphorylation or OXPHOS, and maintain cellular homeostasis. In addition to generating ATP, mitochondria are involved in regulation of cell cycle, proliferation, free radical production, innate immune responses and apoptosis. Mitochondrial Function in Lung Health and Disease fills the current gap in the literature and outlines the growing clinical relevance of mitochondrial dysfunction. Currently, there is no overview on the role of mitochondria in pulmonary diseases and this volume focuses on the mitochondrial metabolism, redox signaling, and mechanisms of mitochondrial pathways in lung injury, inflammation, repair and remodeling. Furthermore, in addition to their well-recognized role in cellular energy production and apoptosis, mitochondria appear to play a role in many respiratory diseases and lung cancer. Chapters are written by top notch researchers and clinicians and outline the evidence for mitochondrial biogenesis in inhalational lung injury, COPD and asthma.

Goodman's Medical Cell Biology Dec 10 2020 Goodman's Medical Cell Biology, Fourth Edition, has been student tested and approved for decades. This updated edition of this essential textbook provides a concise focus on eukaryotic cell biology (with a discussion of the microbiome) as it relates to human and animal disease. This is accomplished by explaining general cell biology principles in the context of organ systems and disease. This new edition is richly illustrated in full color with both descriptive schematic diagrams and laboratory findings obtained in clinical studies. This is a classic reference for moving forward into advanced study. Includes five new chapters: Mitochondria and Disease, The Cell Biology of the Immune System, Stem Cells and Regenerative Medicine, Omics, Informatics, and Personalized Medicine, and The Microbiome and Disease Contains over 150 new illustrations, along with revised and updated illustrations Maintains the same vision as the prior editions, teaching cell biology in a medically relevant manner in a concise, focused textbook

The Role of Microtubules in Cell Biology, Neurobiology, and Oncology Jun 27 2022 This book presents the first comprehensive exploration of the dynamic potential of microtubules anti-cancer targets. Written by leading anti-cancer researchers, this groundbreaking volume collects the most current microtubule research available and investigates the potential of microtubules in cancer therapy.

Cell Biology by the Numbers Sep 26 2019 A Top 25 CHOICE 2016 Title, and recipient of the CHOICE Outstanding Academic Title (OAT) Award. How much energy is released in ATP hydrolysis? How many

mRNAs are in a cell? How genetically similar are two random people? What is faster, transcription or translation?Cell Biology by the Numbers explores these questions and dozens of others provid

Signal Transduction in Mast Cells and Basophils Jan 11 2021 Mast cells and basophils are responsible for inflammatory and allergic reactions. As such, the signals that generate these responses and how their pathways of action work are the focus of much present day research into allergy and inflammation. This book focuses primarily on the molecular mechanisms that govern mast cell and basophil cell biology and function, as well as providing a comprehensive summary of the field of signal transduction and also giving insights into areas that have therapeutic potential. The book provides detailed insights into mast cell and basophil growth and development, their activation by allergens, including details of receptor activation and downstream events, and the regulators of morphology and degranulation. The metabolic pathways involved in prostaglandin and leukotriene production are discussed as is the role of transcription factors in mast cell growth and cytokine production. Written by leaders in the field, this volume will provide the reader with an up-to-date account of a topic where the rapid progress makes conventional information gathering difficult.

Genome Organization And Function In The Cell Nucleus May 15 2021 By way of its clear and logical structure, as well as abundant highresolution illustrations, this is a systematic survey of the players and pathways that control genome function in the mammalian cell nucleus. As such, this handbook and reference ties together recently gained knowledge from a variety of scientific disciplines and approaches, dissecting all major genomic events: transcription, replication, repair, recombination and chromosome segregation. A special emphasis is put on transcriptional control, including genome-wide interactions and non-coding RNAs, chromatin structure, epigenetics and nuclear organization. With its focus on fundamental mechanisms and the associated biomolecules, this will remain essential reading for years to come.

Cell Structure and Function Apr 01 2020

Cellular Biology of the Endoplasmic Reticulum Dec 02 2022 This book provides a comprehensive overview of the biology of the endoplasmic reticulum (ER) and the associated ER proteins, it discusses their structure, function and signaling mechanisms in the cell and their role in disease. This book also offers insights into the practical aspects of research and demonstrates the use of non-mammalian models to study the structure and function of the ER. Written by leading experts in the field, the book enables readers to gain a thorough understanding of current ER biology. It is intended for scientists and clinical researchers working on the endoplasmic reticulum in all its various roles and facets in health and disease.

Sertoli Cell Biology May 03 2020 Sertoli Cell Biology, Second Edition summarizes the progress since the last edition and emphasizes the new information available on Sertoli/germ cell interactions. This information is especially timely since the progress in the past few years has been exceptional and it relates to control of sperm production in vivo and in vitro. Fully revised Written by experts in the field Summarizes 10 years of research Contains clear explanations and summaries Provides a summary of references over the last 10 years

*Seldin and Giebisch's The Kidney Oct 20 2021 A classic nephrology reference for over 20 years, Seldin & Giebisch's The Kidney, is the acknowledged authority on renal physiology and pathophysiology. The fourth edition follows the changed focus of nephrology research to the study of how individual molecules work together to affect cellular and organ function, emphasizing the mechanisms of disease. With over 40 new chapters and over 1000 illustrations, this edition offers the most in-depth discussion anywhere of the physiologic and pathophysiologic processes of renal disease. Comprehensive, authoritative coverage progresses from molecular biology and cell physiology to clinical issues regarding renal function and dysfunction. If you research the development of normal renal function or the mechanisms underlying renal disease, Seldin & Giebisch's The Kidney is your number one source for information. * Offers the most comprehensive coverage of fluid and electrolyte regulation and dysregulation in 51 completely revised chapters unlike Brenner & Rector's The Kidney which devotes only 7 chapters to this topic. * Includes 3*

*sections, 31 chapters, devoted to regulation and disorders of acid-base homeostasis, and epithelial and nonepithelial transport regulation. Brenner & Rector's only devotes 5 chapters to these topics. * Previous three editions edited by Donald Seldin and Gerhard Giebisch, world renowned names in nephrology. The title for the fourth edition has been changed to reflect their considerable work on previous editions and they have also written the forward for this edition. * Over 20 million adults over age 20 have chronic kidney disease with the number of people diagnosed doubling each decade making it America's ninth leading cause of death.*

International Review of Cell and Molecular Biology Dec 22 2021 International Review of Cell and Molecular Biology presents current advances and comprehensive reviews in cell biology--both plant and animal. Articles address structure and control of gene expression, nucleocytoplasmic interactions, control of cell development and differentiation, and cell transformation and growth. Impact factor for 2009: 6.088. Authored by some of the foremost scientists in the field Provides up-to-date information and directions for future research Valuable reference material for advanced undergraduates, graduate students and professional scientists

Echinoderms Apr 13 2021 Echinoderms, Volume 151, the latest release in the Methods in Cell Biology series, highlights advances in the field, with this update presenting chapters on Echinoderm Genome Databases, analysis of gene regulatory networks, using ATAC-seq and RNA-seq to increase resolution in GRN connectivity, multiplex cis-regulatory analysis, experimental approaches GRN/signal pathways, BACs, analysis of chromatin accessibility using ATAC-seq, analysis of sea urchin proteins /Click IT, CRISPR/Cas9-mediated genome editing in sea urchins, super-resolution and in toto imaging of echinoderm embryos, and methods for analysis of intracellular ion signals in sperm, eggs and embryos. Presents clear, concise protocols provided by experts who have established the echinoderms as a model systems Highlights new advances in the field, with this update presenting interesting chapters on echinoderms

*The Membranes of Cells Feb 09 2021 In this new edition of The Membranes of Cells, all of the chapters have been updated, some have been completely rewritten, and a new chapter on receptors has been added. The book has been designed to provide both the student and researcher with a synthesis of information from a number of scientific disciplines to create a comprehensive view of the structure and function of the membranes of cells. The topics are treated in sufficient depth to provide an entry point to the more detailed literature needed by the researcher. Key Features * Introduces biologists to membrane structure and physical chemistry * Introduces biophysicists to biological membrane function * Provides a comprehensive view of cell membranes to students, either as a necessary background for other specialized disciplines or as an entry into the field of biological membrane research * Clarifies ambiguities in the field*

Tumor Suppressor Par-4 Nov 01 2022 Par-4 is a tumor suppressor protein first discovered and identified in 1993 by Dr. Vivek Rangnekar's laboratory in prostate cancer cells undergoing apoptosis. Par-4 (later also known as PAWR) is a naturally occurring tumor suppressor. Studies have indicated that Par-4 selectively induces apoptosis in cancer cells while leaving normal, healthy, cells unaffected. Mechanisms contributing to the cancer-selective action of Par-4 have been associated with protein kinase A activation of intracellular Par-4 in cancer cells or GRP78 expression primarily on the surface of cancer cells. Par-4 is downregulated, inactivated or mutated in diverse cancers. This first of two volumes will be the first on the market on the topic of Par-4, and will provide the opportunity for researchers to discuss the future direction of studies, broaden the scope of research, and contribute a more complete understanding of the molecule's structural features, key functional domains, regulation and relevant basic and clinical/translational facets.

The Role of Reactive Nitrogen- Oxygen-containing Species in Cellular Dysfunction and Death in Insulin-containing Cells Jan 23 2022

Thermal Stress on Cellular Structure and Function Sep 06 2020

Characterization, Functions, and Roles of Antigen-Specific Regulatory T Cells in Health and Disease Jul 29

2022

Cell Physiology Source Book May 27 2022 This authoritative book gathers together a broad range of ideas and topics that define the field. It provides clear, concise, and comprehensive coverage of all aspects of cellular physiology from fundamental concepts to more advanced topics. The Third Edition contains substantial new material. Most chapters have been thoroughly reworked. The book includes chapters on important topics such as sensory transduction, the physiology of protozoa and bacteria, the regulation of cell division, and programmed cell death. Completely revised and updated - includes 8 new chapters on such topics as membrane structure, intracellular chloride regulation, transport, sensory receptors, pressure, and olfactory/taste receptors Includes broad coverage of both animal and plant cells Appendixes review basics of the propagation of action potentials, electricity, and cable properties Authored by leading experts in the field Clear, concise, comprehensive coverage of all aspects of cellular physiology from fundamental concepts to more advanced topics

The Cell: A Very Short Introduction Feb 21 2022 All living things on Earth are composed of cells. A cell is the simplest unit of a self-contained living organism, and the vast majority of life on Earth consists of single-celled microbes, mostly bacteria. These consist of a simple 'prokaryotic' cell, with no nucleus. The bodies of more complex plants and animals consist of billions of 'eukaryotic' cells, of varying kinds, adapted to fill different roles - red blood cells, muscle cells, branched neurons. Each cell is an astonishingly complex chemical factory, the activities of which we have only begun to unravel in the past fifty years or so through modern techniques of microscopy, biochemistry, and molecular biology. In this Very Short Introduction, Terence Allen and Graham Cowling describe the nature of cells - their basic structure, their varying forms, their division, their differentiation from initially highly flexible stem cells, their signalling, and programmed death. Cells are the basic constituent of life, and understanding cells and how they work is central to all biology and medicine. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Concepts of Biology Jan 29 2020 Concepts of Biology is designed for the single-semester introduction to biology course for non-science majors, which for many students is their only college-level science course. As such, this course represents an important opportunity for students to develop the necessary knowledge, tools, and skills to make informed decisions as they continue with their lives. Rather than being mired down with facts and vocabulary, the typical non-science major student needs information presented in a way that is easy to read and understand. Even more importantly, the content should be meaningful. Students do much better when they understand why biology is relevant to their everyday lives. For these reasons, Concepts of Biology is grounded on an evolutionary basis and includes exciting features that highlight careers in the biological sciences and everyday applications of the concepts at hand.We also strive to show the interconnectedness of topics within this extremely broad discipline. In order to meet the needs of today's instructors and students, we maintain the overall organization and coverage found in most syllabi for this course. A strength of Concepts of Biology is that instructors can customize the book, adapting it to the approach that works best in their classroom. Concepts of Biology also includes an innovative art program that incorporates critical thinking and clicker questions to help students understand--and apply--key concepts.

Structure and Function in Cell Signalling Nov 20 2021 "This book contains extremely detailed and informative content on structure and function of ligands, receptors, and signalling intermediates plus interactions ... the extent of detail and appropriate referencing is impressive." –Microbiology Today, July 2009 "A very well-written book suitable for use as a reference or textbook for an undergraduate subject in cell signalling. For researchers interested in the molecular basis of cell signalling and how aberrant regulation of cell signalling proteins causes diseases, this is an excellent resource of biochemical and

structural information." –Australian Biochemist, August 2009 "From basics to details, this is an elegantly written and carefully edited book. The chapters on cell cycle control and oncogenesis are particularly fascinating and valuable to biomedical research. This is the book to have if you are interested in molecular mechanisms of signal transduction. It is a great introduction to the literature that will be welcomed by students and experts alike." –Doody's, January 2009 This text is a concise and accessible introduction to the dynamic but complex field of signal transduction. Rather than simply cataloguing all signalling molecules and delineating every known pathway, this book aims to break signalling down into common elements and activities – the 'nuts and bolts' of cellular information exchange. With an emphasis on clarity of presentation throughout, the book teaches the basic principles focusing on a mature core of knowledge, providing students with a foundation of learning in this complex and potentially confusing subject. It also addresses the issue of variation in the numbering of key amino acids as well as featuring interaction with RasMol software, and exercises to aid understanding. An accessible introduction to the complex field of cell signalling Interacts with RasMol software – freely downloadable for viewing structures in 3D Includes exercises and clear instructions in the use of RasMol Well illustrated in full colour throughout Structure and Function in Cell Signalling is an invaluable resource to students across a range of life science degree programmes including biochemistry, cell and molecular biology, physiology, biomedicine and oncology. This book provides a clear, accessible introduction to this rapidly expanding field.

Composition and Function of the Extracellular Matrix in the Human Body Mar 13 2021 The extracellular matrix (ECM) is an ensemble of non-cellular components present within all tissues and organs of the human body. The ECM provides structural support for scaffolding cellular constituents and biochemical and biomechanical support for those events leading to tissue morphogenesis, differentiation and homeostasis. Essential components of all ECMs are water, proteins and polysaccharides. However, their composition, architecture and bioactivity greatly vary from tissue to tissue in relation to the specific role the ECM is required to assume. This book overviews the role of the ECM in different tissues and organs of the human body.

Role of Cofilin in the Programmed Cell Death Induced by Oxidative Stress in Human T Lymphocytes Nov 28 2019

Connexin Cell Communication Channels Mar 25 2022 Plasma membrane-associated channels known as gap junctions, along with their protein building blocks-connexins-have an important functional role in a range of immunological processes, including heart function, cell growth and specialization, and early development. Spanning basic science and potential clinical applications, Connexin Cell Communicati

International Review of Cytology Jun 03 2020 International Review of Cytology presents current advances and comprehensive reviews in cell biology-both plant and animal. Articles address structure and control of gene expression, nucleocytoplasmic interactions, control of cell development and differentiation, and cell transformation and growth. Authored by some of the foremost scientists in the field, each volume provides up-to-date information and directions for future research. How the Assembly Dynamics of the Nematode Major Sperm Protein Generate Amoeboid Cell Motility Functional Specificity of Actin Isoforms Cell Biology of Cardiac Development Role of Programmed Cell Death in Development Reversible Vacuolation of T-Tubules in Skeletal Muscle: Mechanisms and Implications for Cell Biology

Magnesium in the Central Nervous System Sep 30 2022 The brain is the most complex organ in our body. Indeed, it is perhaps the most complex structure we have ever encountered in nature. Both structurally and functionally, there are many peculiarities that differentiate the brain from all other organs. The brain is our connection to the world around us and by governing nervous system and higher function, any disturbance induces severe neurological and psychiatric disorders that can have a devastating effect on quality of life. Our understanding of the physiology and biochemistry of the brain has improved dramatically in the last two decades. In particular, the critical role of cations, including magnesium, has become evident, even if

incompletely understood at a mechanistic level. The exact role and regulation of magnesium, in particular, remains elusive, largely because intracellular levels are so difficult to routinely quantify. Nonetheless, the importance of magnesium to normal central nervous system activity is self-evident given the complicated homeostatic mechanisms that maintain the concentration of this cation within strict limits essential for normal physiology and metabolism. There is also considerable accumulating evidence to suggest alterations to some brain functions in both normal and pathological conditions may be linked to alterations in local magnesium concentration. This book, containing chapters written by some of the foremost experts in the field of magnesium research, brings together the latest in experimental and clinical magnesium research as it relates to the central nervous system. It offers a complete and updated view of magnesiums involvement in central nervous system function and in so doing, brings together two main pillars of contemporary neuroscience research, namely providing an explanation for the molecular mechanisms involved in brain function, and emphasizing the connections between the molecular changes and behavior. It is the untiring efforts of those magnesium researchers who have dedicated their lives to unraveling the mysteries of magnesiums role in biological systems that has inspired the collation of this volume of work.

Mechanotransduction of the Hair Cell Oct 27 2019 This book summarizes the emerging experimental evidence on hair-cell mechanotransduction, and covers hair's cellular structure, biophysical properties, molecular components and functions. Auditory hair cells convert sound-induced vibration into electrical signals. This biological process, mechanotransduction, is what allows us to hear and communicate in our daily lives. However, our grasp of hair-cell mechanotransduction is still far from complete. Recent advances in molecular genetics and biophysics have helped us gain deeper insights into this process, especially the molecular constituent and operation of the channel complex. This book provides a cutting-edge snapshot for all readers who are interested in or studying how auditory hair cells detect sound.

Molecular Biology of the Cell Jan 03 2023

Study on the Cellular Regulation and Function of Lysine Malonylation, Glutarylation and Crotonylation Oct 08 2020 This book presents pioneering findings on the characterization of cellular regulation and function for three recently identified protein posttranslational modifications (PTMs): lysine malonylation (Kmal), glutarylation (Kglu) and crotonylation (Kcr). It addresses three main topics: (i) Detecting Kmal substrates using a chemical reporter, which provides important information regarding the complex cellular networks modulated by Kmal; (ii) Identifying Kglu as a new histone PTM and assessing the direct impact of histone Kglu on chromatin structure and dynamics; and (iii) Revealing Sirt3's value as a regulating enzyme for histone Kcr dynamics and gene transcription, which opens new avenues for examining the physiological significance of histone Kcr. Taken together, these studies provide information critical to understanding how these protein PTMs are associated with various human diseases, and to identifying therapeutic targets for the dysregulation of these novel protein markers in various human diseases.

Adenosine Triphosphate Jul 17 2021 Every organism needs energy for life. To satisfy this need, the so-called "molecular currency" adenosine triphosphate (ATP), is ubiquitously used for intracellular chemical energy transfer processes and therefore constitutes the universal form of directly available energy within cells. In this book, the authors discuss the chemical properties, biosynthesis and functions in cells of ATP. Topics include ATP as a sperm movement energizer; the hydrolysis reaction of adenosine triphosphate molecules and bio-energy transport in the cell; the use of exogenous ATP to stimulate the growth of human tissue engineered cartilage; ATP in experimental liver surgery; the functional role of cerebral ATP levels in body weight regulation; ATP as a potential mediator of the aging process; and involvement of extracellular ATP and derivates in trichomonas vaginalis infection.

Cellular Mechanics and Biophysics Nov 08 2020 This book focuses on the mechanical properties of cells, discussing the basic concepts and processes in the fields of immunology, biology, and biochemistry. It introduces and explains state-of-the-art biophysical methods and examines the role of mechanical properties

in the cell/protein interaction with the connective tissue microenvironment. The book presents a unique perspective on cellular mechanics and biophysics by combining the mechanical, biological, physical, biochemical, medical, and immunological views, highlighting the importance of the mechanical properties of cells and biophysical measurement methods. The book guides readers through the complex and growing field of cellular mechanics and biophysics, connecting and discussing research findings from different fields such as biology, cell biology, immunology, physics, and medicine. Featuring suggestions for further reading throughout and addressing a wide selection of biophysical topics, this book is an indispensable guide for graduate and advanced undergraduate students in the fields of cellular mechanics and biophysics.

Mast Cells Aug 25 2019 Resident mast cells are uniquely positioned in multiple organ systems at either the tissue and/or external environment or located near nerve endings and/or blood vessels. These locations allow the mast cell to serve as a sentinel and thus play a critical role in not only inflammatory situations to promote recruitment and infiltration of other immune cells, but also homeostatic maintenance. Although mast cells have several conserved characteristics, the authors provide evidence that the micro-environment influenced differences in the phenotype of tissue-specific mast cells, control the various responses to injury, inflammation and remodelling. This book brings together the work from experts across multiple tissue/organ systems and inflammatory causes (viral, bacterial, and auto-immune) to present the most up to date knowledge regarding the role of mast cells in these regulatory and disease events.

Janeway's Immunobiology Aug 30 2022

Molecular Mechanisms of Adult Stem Cell Aging Jun 15 2021 There is growing evidence that adult stem cells age. This process can result in alterations in the number and function of stem cells, leading to distinct phenotypic outcomes in different organ systems. This publication provides an outstanding overview of this emerging field.The molecular causes of stem cell aging remain to be defined. Stem cell aging can involve cell-intrinsic as well as cell-extrinsic alterations affecting the stem cell niche or the macroenvironment. Stem cells have a longer life span than other cell populations and retain a capacity to proliferate and differentiate in adult organs. The aging of adult stem cells plays a key role in the decline of organ maintenance and regenerative potential during aging and during the end stage of chronic diseases. In addition, it can contribute to stem cell transformation and carcinogenesis.Molecular Mechanisms of Adult Stem Cell Aging will appeal to scientists working in the fields such as stem cells, aging, regeneration and cancer. This subject matter should be of interest to physicians and scientists specializing in geriatric medicine, internal medicine, and surgery. It is also likely to be an invaluable resource for medical students and biologists who wish to enhance their understanding of molecular and stem cell biology.

Cell Polarity 1 Dec 30 2019 This work provides a state-of-the art overview on the most relevant aspects of cell polarity. Volume 1 addresses cell polarity and cell migration (front-rear polarity), cell polarity and barrier formation (apico-basal polarity) and neuronal polarity. It particularly focuses on cell polarity at the molecular level and the underlying molecular mechanisms. It also elaborates the common principles and mechanisms that regulate cellular polarization in different cell types and contexts. Both volumes are intended for professors, group leaders and researchers in cell biology as well as medical professionals in the fields of anatomy, cell biology, physiology, pathology and tumor biology.

Annual Plant Reviews, Plant Mitochondria Apr 25 2022 This long-awaited second edition covers the major changes that have occurred in the field over the last decade Completely revised with the most up-to-date research and including brand new chapters, Annual Plant Reviews, Volume 50: Plant Mitochondria, 2nd Edition presents the multifaceted roles of mitochondria in plants. The book starts with a short history of plant mitochondrial research; discusses how coevolution shaped plant mitochondrial gene expression; explains control of number, shape, size, and motility of mitochondria; delves into stress responses and roles in stress alleviation in mitochondrial biochemistry; covers the damage repair pathway of the Calvin-Benson cycle; and more. Containing sections written by many of the world's leading researchers in this area, this

book brings together and reviews for the first time many recent advances. It offers chapters on: Bioblasts, Cytomikrosomen & Chondriosomes; The Crosstalk Between Genomes; The Dynamic Chondriome; Metal Homeostasis in Plant Mitochondria; RNA Metabolism and Transcript Regulation; Mitochondrial Regulation and Signalling in the Photosynthetic Cell; Mitochondrial Biochemistry; Ecophysiology of Plant Respiration; Photorespiration; and Mitochondria and Cell Death. Annual Plant Reviews, Volume 50: Plant Mitochondria, 2nd Edition is an extremely important and timely book that will be of great use and interest to plant scientists, cell and molecular biologists, and biochemists.

T and B Lymphocytes: Recognition and Function Aug 06 2020 T and B Lymphocytes: Recognition and Function is the 16th volume of the 1979 ICN-UCLA Symposia on Molecular and Cellular Biology. This book is organized into seven sections, encompassing 74 chapters that summarize molecular level progress in the field of immunobiology. It emphasizes cell membrane, techniques developed for its analysis, and varied products of the major histocompatibility complex, as well as other receptors on cells of the immune system. The book starts by describing two approaches for molecular association evaluation. First is the use of artificial membranes or lipid vesicles for the incorporation of antigens for recognition by T-lymphocytes both at the afferent and efferent levels. Second is the chemical crosslinking of cell surface components with a variety of different crosslinking reagents. This is followed by a discussion on the molecular nature of a T-cell receptor that provides insights of the target(s) recognized by T-lymphocytes. Several chapters discuss data dealing with the issue of the apparent differential recognition by T- and B-cells while both use the same VH genes. Antiidiotypic sera, together with the activity of ""regulator"" T-cells, are also discussed, with regard to their role in networks of regulation of the immune response. This book presents works demonstrating that human T-lymphocytes can also be cloned and both noncytotoxic proliferating T-lymphocytes and Tc can be so obtained. This is along with the continuing studies regarding heterogenity of B-lymphocytes as well as macrophages. Part V focuses on the interaction between lymphocyte and virus and molecular modifications of viral-infected cells. The subsequent section deals with recognition, reactivities, and function of T- and B-lymphocytes. Considerable chapters in this section discuss T-cell cytotoxicity, dichotomy of MHC control over anti H-Y cytotoxic T-cell responses, mouse alloantibodies, and mixed lymphocyte reactions. The concluding part describes immunological tools, such as synthetic membranes and cloned T-cells with biological function.