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JAK tyrosine kinases and STAT transcription factors constitute a signaling pathway, which is activated by cytokines. By activating gene transcription it regulates essential biological responses to environmental cues. The Jak-Stat pathway is involved in the regulation of cell development, differentiation, proliferation and apoptosis. Improper function may contribute to hematopoietic malignancies and cancer. This book provides comprehensive insights into the latest basic and clinical developments in the field. The first part reviews recent findings and new technologies pertaining to basics of Jak-Stat function. The second part describes the evolution of Jak-Stat signaling and the role of the pathway in invertebrate organisms. The third part focuses on Jak-Stat signaling in hematopoietic cells under both physiological and pathophysiological conditions. Finally, chapters in the fourth section describe the relationship of Jak-Stat signaling to various states of disease, particularly infection, leukemias and solid cancers. The book is intended for all scientists in molecular biology, biochemistry and cell biology dealing with biomedical issues.

Liquid-crystalline phases are now known to be formed by an ever growing range of quite diverse materials, these include those of low molecular weight as well as the novel liquid-crystalline polymers, such phases can also be induced by the addition of a solvent to amphiphilic systems leading to lyotropic liquid crystals. Irrespective of the structure of the constituent molecules these numerous liquid-crystalline phases are characterised by their long range orientational order. In addition certain phases exhibit elements of long range positional order. Our understanding, both experimental and theoretical, at the molecular level of the static behaviour of these fascinating and important materials is now well advanced. In contrast the influence of the long range order; both orientational and positional, on the molecular dynamics in liquid crystals is less well understood. In an attempt to address this situation a NATO Advanced Study Institute devoted to liquid crystal dynamics was held at Cortina, Barga, Italy in September 1989. This brought together experimentalists and theoreticians concerned with the various dynamical processes occurring in all liquid crystals. The skills of the participants was impressively wide ranging; they spanned the experimental techniques used in the study of molecular dynamics, the nature of the systems investigated and the theoretical models employed to understand the results. While much was learnt it was also recognised that much more needed to be done in order to advance our understanding of molecular dynamics in liquid crystals.

Over the past few years, long-duration gamma-ray bursts (GRBs), including the subclass of X-ray flashes (XRFs), have been revealed to be a rare variety of Type Ibc supernova (SN Ibc). While all these events result from the death of massive stars, the electromagnetic luminosities of GRBs and XRFs exceed those of ordinary Type Ibc SNe by many orders of magnitude. The observed diversity of stellar death corresponds to large variations in the energy, velocity, and geometry of the explosion ejecta. Using multi-wavelength (radio, optical, X-ray) observations of the nearest GRBs, XRFs, and SN Ibc, I show that GRBs and XRFs couple at least 10^{48} erg to relativistic material while SN Ibc typically couple less than 10^{48} erg to their fastest (albeit non-relativistic) outflows. Specifically, I find that less than 3 percent of local SN Ibc show any evidence for association with a GRB or XRF. Interestingly, this dichotomy is not echoed by the properties of their optical SN emission, dominated by the radioactive decay of Nickel-56; I find that GRBs, XRFs, and SN Ibc show significant overlap in their optical peak luminosity and photospheric velocities. Recently, I identified a new class of GRBs and XRFs that are under-luminous in comparison with the statistical sample of GRBs. Owing to their faint high-energy emission, these sub-energetic bursts are only detectable nearby (z

Describes how to conduct kinetic experiments with heterogeneous catalysts, analyze and model the results, and characterize the catalysts Detailed analysis of mass transfer in liquid

phase reactions involving porous catalysts. Important to the fine chemicals and pharmaceutical industries so it has appeal to many researchers in both industry and academia (chemical engineering and chemistry departments)

Presents the broad outline of NIH organizational structure, the professional staff, and their scientific and technical publications covering work done at NIH.

The most comprehensive review available today, Marshall's Physiology of Reproduction is the classic reference source for teachers and researchers of animal reproduction. Internationally recognised leaders in their respective fields provide an analytical synopsis of the area, review current research and outline their philosophical approach to the subject. Volume 3 of the fourth edition reviews the processes of pregnancy and lactation in mammals, incorporating marsupials, non-primate eutherians and primates including man. Book one covers pregnancy from ovulation to pre-parturition, book two reviews fetal physiology, parturition and lactation. The extensive coverage of the physiology of human reproduction and lactation makes this volume a particularly important reference source for researchers in human fertility control, while the review of large animal reproduction is relevant to veterinary and para-veterinary workers.

Originally published: Boston: McGraw-Hill, 2003.

Now in an extensively revised third edition with 65% new material, this is the authoritative reference on posttraumatic stress disorder (PTSD). Contributors examine the breadth of current knowledge on the mechanisms by which stressful events can alter psychological processes, brain function, and individual behavior. Risk and protective factors across development and in specific populations are explored. Reviewing the state of the science of assessment and treatment, the volume covers early intervention and evidence-based individual, couple/family, and group therapies. Conceptual and diagnostic issues are addressed and key questions for the next generation of researchers are identified. New to This Edition *Thoroughly revised to reflect the accelerating pace of scientific and clinical progress; includes a range of new authors. *Chapters on new topics: treatment of PTSD with comorbid disorders, and postmortem brain banking. *New chapters on previously covered topics, including DSM-5 and ICD-11 diagnostic criteria, the psychoneurobiology of resilience, and challenges in implementing clinical best practices. *New or updated discussions of such timely issues as treatment of refugees, telemental health, and technology-based interventions.

This textbook covers the classification, causes, treatment and prevention of psychological disorders in the infant through the adolescent years. Chapters balance the social and historical context of psychopathology with the physiological roots of abnormal behavior, leading students to a comprehensive understanding of child psychopathology. The book is totally up-to-date, including coverage of the DSM-5 and criticisms of it. In four parts, this textbook describes the empirical bases of child psychopathology as well as the practice of child psychologists, outlining the classification and causes of disorders in addition to methods of assessment, intervention and treatment. Students will be able to evaluate the treatments used by professionals and debunk popular myths about atypical behavior and its treatment.

Complementing the lively writing style, text boxes, clinical case studies and numerous examples from international cultures and countries add context to chapter material. Study questions, diagrams and a glossary offer further learning support.

This book discusses unique ion channels and transporters that are located within epithelial tissues of various organs including the kidney, intestine, pancreas and respiratory tract. As the authors show, these channels and transporters play crucial roles in transepithelial ion and fluid transport across epithelia and their contribution to maintaining homeostasis. Readers will be introduced to the fundamentals of ion transport in terms of function, modelling, regulation, structure and pharmacology. This is the first of three volumes highlighting the importance of epithelial ion channels and transporters in basic physiology and pathophysiology of human

diseases. This volume focuses on basic fundamentals of epithelial transport physiology. There is a range of chapters dedicated to specific aspects of epithelial ion transport and cell function. Accordingly, the authors discuss techniques used to determine epithelial function, principles of epithelia transport, polarization of epithelial cells, mathematical modelling of epithelial ion transport, protein folding of ion channels, degradation epithelial ion channels, fundamentals of epithelial sodium, potassium and chloride transport, fundamentals of bicarbonate secretion, volume regulation, and microRNA regulation of epithelial channels and transporters. Given its scope, Volume 1 offers a valuable resource for physiology students, scientists and clinicians alike.

From humble beginnings over 25 years ago as a lipid kinase activity associated with certain oncoproteins, PI3K (phosphoinositide 3-kinase) has been catapulted to the forefront of drug development in cancer, immunity and thrombosis, with the first clinical trials of PI3K pathway inhibitors now in progress. Here we give a brief overview of some key discoveries in the PI3K area and their impact, and include thoughts on the current state of the field, and where it could go from here

This innovative and comprehensive reference book provides the most up-to-date information pertaining to the translational research field of oxidative stress and aging. The book focuses on understanding the molecular basis of oxidative stress and its associated age-related diseases with the goal being the development of new and novel methods in treating the human aging processes. The book charts the course of this new and rapidly emerging field of Oxidative Stress Diagnostics and Therapeutics that will have a significant impact on the future economics, science and practice of medicine. Over 100 of the leading experts in this field whose specialty includes biogerontology, geriatric medicine, free radical chemistry and biology, oncology, cardiology, neurobiology, dermatology, pharmacology, nutrition, and molecular medicine, have contributed information to this book. This reference book is an essential reading material to a broad range of individuals including researchers, physicians, corporate industry leaders, graduate and medical school students, as well as the many health conscious individuals who wish to know more about the emerging field of oxidative stress and aging with an emphasis on diagnostics and intervention.

Marcel Grossmann Meetings are formed to further the development of General Relativity by promoting theoretical understanding in the fields of physics, mathematics, astronomy and astrophysics and to direct future technological, observational, and experimental efforts. In these meetings are discussed recent developments in classical and quantum gravity, general relativity and relativistic astrophysics, with major emphasis on mathematical foundations and physical predictions, with the main objective of gathering scientists from diverse backgrounds for deepening the understanding of spacetime structure and reviewing the status of test-experiments for Einstein's theory of gravitation. The range of topics is broad, going from the more abstract classical theory, quantum gravity and strings, to the more concrete relativistic astrophysics observations and modeling. The three volumes of the proceedings of MG12 give a broad view of all aspects of gravitational physics and astrophysics, from mathematical issues to recent observations and experiments. The scientific program of the meeting includes 29 plenary talks stretched over 6 mornings, and 74 parallel sessions over 5 afternoons. Volume A contains plenary and review talks ranging from the mathematical foundations of classical and quantum gravitational theories including recent developments in string theories, to precision tests of general relativity including

progress towards the detection of gravitational waves, to relativistic astrophysics including such topics as gamma ray bursts, black hole physics both in our galaxy, in active galactic nuclei and in other galaxies, neutron stars, pulsar astrophysics, gravitational lensing effects, neutrino physics and ultra high energy cosmic rays. The rest of the volumes include parallel sessions on dark matter, neutrinos, X-ray sources, astrophysical black holes, neutron stars, binary systems, radiative transfer, accretion disks, alternative gravitational theories, perturbations of collapsed objects, analog models, black hole thermodynamics, cosmic background radiation & observational cosmology, numerical relativity & algebraic computing, gravitational lensing, variable “constants” of nature, large scale structure, topology of the universe, brane-world cosmology, early universe models & cosmic microwave background anisotropies, inhomogeneous cosmology, inflation, gamma ray burst modeling, supernovas, global structure, singularities, cosmic censorship, chaos, Einstein–Maxwell systems, inertial forces, gravitomagnetism, wormholes & time machines, exact solutions of Einstein's equations, gravitational waves, gravitational wave detectors & data analysis, precision gravitational measurements, history of relativity, quantum gravity & loop quantum gravity, Casimir effect, quantum cosmology, strings & branes, self-gravitating systems, gamma ray astronomy, cosmic rays, gamma ray bursts and quasars. Sample Chapter(s) Space-Time from the Spectral Point of View (467k) Contents: Space-Time from the Spectral Point of View (Ali H Chamseddine and Alain Connes)The Formation of Black Holes in General Relativity (Demetrios Christodoulou)Matching Conditions in Relativistic Astrophysics (Hernando Quevedo)Black Holes as a Source of Information (Juan Maldacena)Black Hole Microstate Counting and Its Macroscopic Counterpart (Ipsita Mandal and Ashoke Sen)Transplanckian String Collisions: An Update (Gabriele Veneziano)Ultraviolet Divergences and Scale-Dependent Gravitational Couplings (Herbert W Hamber)The Black Hole Stability Problem for Linear Scalar Perturbations (Mihalis Dafermos and Igor Rodnianski)The Global Network of Laser Interferometer Gravitational Wave Detectors (David H Reitze)Analytical Relativity of Black Holes (Thibault Damour)Detection of Gravitational Waves Using Pulsar Timing (Richard N Manchester)Relativistic Spin-Precession in Binary Pulsars (Michael Kramer)Supernovae and Gamma-Ray Bursts: 10 Years of Observations (Massimo Della Valle)Gamma-Ray Bursts as Relativistic Objects (Tsvi Piran)Fundamental Physics from Black Holes, Neutron Stars and Gamma-Ray Bursts (Remo Ruffini)The Fascinating TeV Sky (Felix Aharonian)Galaxy Clusters and Their Central Supermassive Black Holes: Case of M87 (Eugene Churazov, Sergey Sazonov, Rashid Sunyaev, William Forman, Christine Jones and Hans Böhringer)Intergalactic Shock Fronts (Maxim Markevitch)Studies of Dark Energy with X-Ray Observations of Galaxy Clusters (Alexey Vikhlinin)and other papers Keywords:General Relativity;Gravitation;Astrophysics;Quantum Gravity;Particle Physics;Cosmology;Theoretical Physics

PSYCHOLOGY: FOUNDATIONS AND FRONTIERS offers a fresh and updated approach that combines the appealing content, visuals, and effective features of Douglas Bernstein's two previous introductory psychology textbooks. Focusing on active learning, the text presents important findings from established and current research, emphasizes the many ways psychological theory and research results are being applied to benefit human welfare, and integrates extensive pedagogy. The

integrated pedagogical system helps students master the material by supporting the elements of the PQ4R (Preview, Question, Read, Recite, Review, and Reflect) study system. Try This activities illustrate psychological principles or phenomena by encouraging students to learn by doing. Other features designed to promote efficient learning include Linkages diagrams and sections that show how topics in psychology are interrelated, Thinking Critically sections that apply a five-question approach to various topics, and Focus on Research sections that help students think objectively about research questions and results. To offer flexibility in a single-term course, the book includes eighteen chapters that may be assigned in whatever order meets instructors' needs. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Urban Ecology: An Introduction seeks to open the reader's mind and eyes to the way in which nature permeates everyday urban living, and how it has to be understood, cared for, and managed in order to make our towns and cities healthier places to visit and in which to live and work. The authors examine how nature can improve our physical and mental health, the air we breathe and the waters we use, as well as boosting our enjoyment of parks and gardens. Urban Ecology sets out the science that underlies the changing natural scene and the tools used to ensure that cities become both capable of adapting to climate change and more beautiful and resilient. The book begins with a discussion of the nature of urban places and the role of nature in towns and cities. Part 1 looks at the context and content of urban ecology, its relationship to other foci of interest within ecology and other environmental sciences, and the character of city landscapes and ecosystems. In Part 2 the authors set out the physical and chemical components of urban ecosystems and ecological processes, including urban weather and climate, urban geomorphology and soils, urban hydrology and urban biogeochemical cycles. In Part 3 urban habitats, urban flora and fauna, and the effects of, deliberate and inadvertent human action on urban biota are examined. Part 4 contains an exploration of the identification and assessment of ecosystem services in urban areas, emphasising economic evaluation, the importance of urban nature for human health and well-being, and restoration ecology and creative conservation. Finally, in Part 5 the tasks for urban ecologists in optimising and sustaining urban ecosystems, providing for nature in cities, adapting to climate change and in developing the urban future in a more sustainable manner are set out. Within the 16 chapters of the book – in which examples from around the world are drawn upon - the authors explore current practice and future alternatives, set out procedures for ecological assessment and evaluation, suggest student activities and discussion topics, provide recommended reading and an extensive bibliography. The book contains more than 150 tables and over 150 photographs and diagrams.

This three-volume handbook describes the core competency areas in providing psychological services relevant to practitioners as well as clinical researchers. It covers assessment and conceptualization of cases, the application of evidence-based methods, supervision, consultation, cross-cultural factors, and ethics.

Now in its 4th edition, Kirklin/Barratt-Boyes Cardiac Surgery remains your indispensable source for definitive, state-of-the-art answers on every aspect of adult and pediatric cardiac surgery. This dynamic medical reference thoroughly and systematically covers the full range of new and classic surgical procedures-including the latest alternate and minimally invasive surgical techniques-and presents the up-to-date clinical evidence you need to make effective

management decisions. Be certain with expert, dependable, accurate answers for every stage of your career from the most comprehensive, definitive text in the field! Get comprehensive coverage of cardiac surgery, including ischemic, valvular, and congenital heart disease; cardiac tumors; constrictive pericarditis; thoracic aortic surgery; cardiac transplantation; coronary artery disease, aortic valve disease, cardiac rhythm disturbances, heart failure and transplantation, disease of the thoracic aorta, tetralogy of Fallot, anesthesia, and postoperative care. Make the most well-informed decisions and achieve optimal outcomes by exploring each condition's natural history; diagnostic criteria; indications for surgery; operative techniques; and follow-up care. Visually grasp and better understand critical information with the aid of a new, full-color design that includes an abundance of detailed charts and graphs. Stay current with the latest advancements and practices. Comprehensive updates throughout include new information on endovascular management of thoracic aorta disease; new data on clinical outcomes; the most recent minimally invasive procedures; non-invasive CT angiography; new alternative surgical approaches to mitral valve surgery; and many other hot topics! Reference information quickly thanks to a new, streamlined format and easily searchable online access to the complete text, downloadable image library, reference links, and more at www.expertconsult.com. Master cardiac surgery with the Gold Standard for Cardiac Surgery - the most definitive and clinically comprehensive resource on cardiologic procedures including latest alternate and minimally invasive surgical procedures

Committee Serial No. 75. Investigates GAO allegations of inefficiency in Army military vehicle contracting procedures. Focuses on Army contract with Chrysler for the production of M-48 tanks and subsequent mechanical failures with that tank. Sept. 26 hearing was held at Fort Hood, Tex.; and Sept. 27 hearing was held at Camp Lejeune, N.C. Includes GAO report "Review of Development and Procurement of New Combat and Tactical Vehicles by the Department of the Army" May 1960 (p. 7591-7788)

February issue includes Appendix entitled Directory of United States Government periodicals and subscription publications; September issue includes List of depository libraries; June and December issues include semiannual index

Recognized as the definitive reference, this handbook brings together leading experts from multiple psychological subdisciplines to examine one of today's most dynamic areas of research. Coverage encompasses the biological and neuroscientific underpinnings of emotions, as well as developmental, social and personality, cognitive, and clinical perspectives. The volume probes how people understand, experience, express, and perceive affective phenomena and explores connections to behavior and health across the lifespan. Concluding chapters present cutting-edge work on a range of specific emotions. Illustrations include 10 color plates. New to This Edition *Chapters on the mechanisms, processes, and influences that contribute to emotions (such as genetics, the brain, neuroendocrine processes, language, the senses of taste and smell). *Chapters on emotion in adolescence and older age, and in neurodegenerative dementias. *Chapters on facial expressions and emotional body language. *Chapters on stress, health, gratitude, love, and empathy. *Many new authors and topics; extensively revised with the latest theoretical and methodological innovations. A Choice Outstanding Academic Title

This book sheds new light on the physiology, molecular biology and pathophysiology of epithelial ion channels and transporters. It combines the basic cellular models and functions by means of a compelling clinical perspective, addressing aspects from the laboratory bench to the bedside. The individual chapters, written by leading scientists and clinicians, explore specific ion channels and transporters located in the epithelial tissues of the kidney, intestine, pancreas and respiratory tract, all of which play a crucial part in maintaining

homeostasis. Further topics include the fundamentals of epithelial transport; mathematical modeling of ion transport; cell volume regulation; membrane protein folding and trafficking; transepithelial transport functions; and lastly, a discussion of transport proteins as potential pharmacological targets with a focus on the pharmacology of potassium channels.

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