Bacterial And Eukaryotic Porins Structure Function Mechanism

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Structural Biology of Membrane Proteins - Reinhard Grisshammer 2007-10-31
In the last few years there have been many exciting and innovative developments in the field of membrane protein structure and this trend is set to continue. Structural Biology of Membrane Proteins is a new monograph covering a wide range of topics with contributions from leading experts in the field. The book is split into three sections: the first discusses topics such as expression, purification and

crystallisation; the second covers characterisation techniques and the final section looks at new protein structures. The book will hence have wide appeal to researchers working in and around the field and provide an up-to-date reference source. Introductory sections to each topic are accompanied by more detailed discussions for the more experienced biochemist. Detailed descriptions of experimental methods are included to demonstrate practical approaches to membrane protein structure projects. The book also offers an up-to-date reference source in addition to descriptions of new and emerging developments, including state-of-the-art techniques for solving membrane protein structures. Structural Biology of Membrane Proteins encompasses both basic introductions and detailed descriptions of themes and should appeal to a wide range of biochemical scientists, both experienced and beginner.

Microbial Transport Systems - G nther Winkelmann 2008-01-08

Transport of molecules across the cell membrane is a fundamental process of all living organisms. It is essential for understanding growth, development, nutrition as well as uptake and excretion of exogenous or synthesized molecules. Microbes respresent general and basic functional systems where many transport processes have been studied on a molecular basis. Knowledge of the microbial transport processes will provide new perspectives to treatments by inhibitors, drugs, antibiotics, vitamins, growth promotion compounds, activators and toxic compunds of various kinds.

The BAM Complex - Susan Buchanan 2015-10-02

This volume is comprised of a collection of experimental protocols for common techniques and strategies used to study the biogenesis of b-barrel outer membrane proteins in Gram-negative bacteria. The BAM Complex: Methods and Protocols guides readers through methods on the function of the BAM complex, the roles played by each of the individual components, the expression and purification of the components, crystallization and structure determination of the components, and how the individual Bam components may assemble into a functional complex. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and cutting-edge, The BAM Complex: Methods and Protocols will serve as an invaluable

reference for those interested in studying the BAM complex.

Protein Secretion in Bacteria - Maria Sandkvist 2019-09-01

Protein transport into and across membranes is a fundamental process in bacteria that touches upon and unites many areas of microbiology, including bacterial cell physiology, adhesion and motility, nutrient scavenging, intrabacterial signaling and social behavior, toxin deployment, interbacterial antagonism and collaboration, host invasion and disruption, and immune evasion. A broad repertoire of mechanisms and macromolecular machines are required to deliver protein substrates across bacterial cell membranes for intended effects. Some machines are common to most, if not all bacteria, whereas others are specific to Gram-negative or Gram-positive species or species with unique cell envelope properties such as members of Actinobacteria and Spirochetes. Protein Secretion in Bacteria, authored and edited by an international team of experts, draws together the many distinct functions and mechanisms involved in protein translocation in one concise tome. This comprehensive book presents updated information on all aspects of bacterial protein secretion encompassing: Individual secretory systems–Sec, Tat, and T1SS through the newly discovered T9SS Mechanisms, structures, and functions of bacterial secretion systems Lipoprotein sorting pathways, outer membrane vesicles, and the sortase system Structures and roles of surface organelles, including flagella, pili, and curli Emerging technologies and translational implications Protein Secretion in Bacteria serves as both an introductory guide for students and postdocs and a ready reference for seasoned researchers whose work touches on protein export and secretion. This volume synthesizes the diversity of mechanisms of bacterial secretion across the microbial world into a digestible resource to stimulate new research, inspire continued identification and characterization of novel systems, and bring about new ways to manipulate these systems for biotechnological, preventative, and therapeutic applications.

International Review of Cytology - 1999-05-11

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. Organellar RNA Polymerases of Higher Plants Eukaryotic Transmembrane Solution Transport Systems Neural Plasticity in the Adult Insect Brain Passive Membrane Permeation Plasmodesmata and Cell-to-Cell Communication in Plants

Bailey & Scott's Diagnostic Microbiology - Patricia Tille 2021-02-04

Perfect your lab skills with the essential text for diagnostic microbiology! Bailey & Scott's Diagnostic Microbiology, 15th Edition is known as the #1 bench reference for practicing microbiologists and as the preeminent text for students in clinical laboratory science programs. With hundreds of full-color illustrations and step-by-step methods for procedures, this text provides a solid, basic understanding of diagnostic microbiology and also covers more advanced techniques such as matrix-assisted laser desorption time-of-flight mass spectrometry. Written by noted CLS educator Dr. Patricia Tille, Diagnostic Microbiology has everything you need to get accurate lab test results in class and in clinical practice. More than 800 high-quality, full-color illustrations help you visualize concepts. Expanded sections on parasitology, mycology, and virology allow you to use just one book, eliminating the need to purchase other microbiology textbooks for these topics. Hands-on procedures show exactly what takes place in the lab, including step-by-step methods, photos, and expected results. Case studies allow you to apply your knowledge to diagnostic scenarios and to develop critical thinking skills. Genera and Species boxes provide handy, at-a-glance summaries at the beginning of each organism chapter. Learning objectives at the beginning of each chapter provide measurable outcomes to achieve by completing the chapter material. A glossary defines terms at the back of the book and on the Evolve companion website. New! Updated content includes infectious disease trends and new illustrations such as culture plate images of real specimens, complex gram stains, lactophenol cotton blue microscopy, and more. NEW COVID-19 information has been added. UPDATED topics include the Human Microbiome Project, expanded MALDI-TOF applications and molecular diagnostics in conjunction with traditional microbiology, additional streps, and significant news in mycology. EXPANDED glossary defines terms on the Evolve companion website.

Bacterial Cell Wall - J.-M. Ghuysen 1994-02-09

Studies of the bacterial cell wall emerged as a new

field of research in the early 1950s, and has flourished in a multitude of directions. This excellent book provides an integrated collection of contributions forming a fundamental reference for researchers and of general use to teachers, advanced students in the life sciences, and all scientists in bacterial cell wall research. Chapters include topics such as: Peptidoglycan, an essential constituent of bacterial endospores; Teichoic and teichuronic acids, lipoteichoic acids, lipoglycans, neural complex polysaccharides and several specialized proteins are frequently unique wall-associated components of Gram-positive bacteria; Bacterial cells evolving signal transduction pathways; Underlying mechanisms of bacterial resistance to antibiotics.

Transport Processes in Eukaryotic and Prokaryotic Organisms - W.N. Konings 1996-09-11

In recent years it has become evident that transport processes across membranes play a crucial role in many metabolic systems. The activities of these transport processes often determine the physiology of the organisms. This book presents a state of the art review on the analysis of a wide variety of transport systems from bacteria and eukaryotic cells. A selection has been made of those systems that have been studied at the molecular level with special emphasis paid to the energetic and other biophysical properties. The different classes of transport systems are presented in the following: primary transport, secondary transport, phosphotransferase systems, channels and porines and macromolecular transport. Within each class of transporters several systems are presented by the leading experts in the field, which has resulted in a very broad overview of transport processes in biological cells. In this way the differences in the mechanisms used for translocation become evident while on the other hand features common to the different transport systems are revealed.

Developmental Biology in Prokaryotes and Lower Eukaryotes - Tom? s Gonz? lez Villa 2021-07-31

'Developmental biology' is widely understood as processes, which mainly concern embryonic animal development and differentiation of cells and tissue. It is also often defined as the timeline for the evolutionary developmental biology of eukaryotic multicellular higher organisms, i.e., plants and animals. The development of prokaryotes and lower eukaryotes in contrary has been neglected for a long time, which was the motivation for publishing this book. This book highlights one of Darwin's most important findings: Evolution is a creative, but not a

conscious process. It also illustrates that this concept does not only apply to multicellular higher organisms, but affects every form of life. The reader shall find complex biochemical and genetic pathways of bacteria, yeasts or protozoa, comparable to those exhibited by plants or animals. The molecular mechanisms of dramatic genome rearrangements, recombination and horizontal gene transfer that are responsible for evolutionary adaptations are discussed. Additionally, the book covers bacteria of the genera Myxobacteriales and Caulobacterales, which are able to develop tissue-like cellular organization. The morphogenesis of entomopathogenic fungi and the endosymbiont theory are also addressed. The book is a useful introduction to the field for junior scientists, interested in bacteriology, protistology and fungal development. It is also an interesting read for advanced scientists, giving them a broader view of the field beyond their area of specialization.

Biomedical Index to PHS-supported Research: pt. A. Subject access A-H - 1994

Mechanisms of antibiotic resistance - Jun Lin 2015-06-01

Antibiotics represent one of the most successful forms of therapy in medicine. But the efficiency of antibiotics is compromised by the growing number of antibiotic-resistant pathogens. Antibiotic resistance, which is implicated in elevated morbidity and mortality rates as well as in the increased treatment costs, is considered to be one of the major global public health threats (www.who.int/drugresistance/en/) and the magnitude of the problem recently prompted a number of international and national bodies to take actions to protect the public (http://ec.europa.eu/dgs/health_consumer/docs/road-map-amr_en.pdf: http://www.who.int/drugresistance/amr_global_action_plan/en/; http://www.whitehouse.gov/sites/default/files/docs/carb_national_strategy.pdf). Understanding the mechanisms by which bacteria successfully defend themselves against the antibiotic assault represent the main theme of this eBook published as a Research Topic in Frontiers in Microbiology, section of Antimicrobials, Resistance, and Chemotherapy. The articles in the eBook update the reader on various aspects and mechanisms of antibiotic resistance. A better understanding of these mechanisms should facilitate the development of means to potentiate the

efficacy and increase the lifespan of antibiotics while minimizing the emergence of antibiotic resistance among pathogens.

Molecular Biology and Biotechnology - Robert A. Meyers 1995-06-29

This is one volume 'library' of information on molecular biology, molecular medicine, and the theory and techniques for understanding, modifying, manipulating, expressing, and synthesizing biological molecules, conformations, and aggregates. The purpose is to assist the expanding number of scientists entering molecular biology research and biotechnology applications from diverse backgrounds, including biology and medicine, as well as physics, chemistry, mathematics, and engineering.

Prokaryotology - Sorin Sonea 2000

Prokaryotes are profoundly original, highly efficient microorganisms that have played a decisive role in the evolution of life on Earth. Although disjunct, taken together their cells form one global superorganism or biological system. One of the results of their non-Darwinian evolution has been the development of enormous diversity and bio-energetic variety. Prokaryotic cells possess standardized mechanisms for easy gene exchanges (lateral gene transfer) and they can behave like receiving and broadcasting stations for genetic material. Ultimately, the result is a global communication system based on the prokaryotic hereditary patrimony, by analogy, a two-billion-year-old world wide web for their benefit. Eukaryotes have evolved from the association of at least three complementary prokaryotic cells, and their subsequent development has been enriched and accelerated by symbioses with other prokaryotes. One of these symbioses was responsible for the origin of vascular plants which transformed vast sections of the continental surface of the Earth from deserts to areas with luxuriant, life-supporting vegetation. All forms of life on our planet are directly or indirectly sustained and enriched by the positive contribution of prokaryotes. Sorin Sonea and L�o G. Mathieu have been professors at the Department of Microbiology and Immunology (Faculty of Medicine) at the Universit� de Montr�al. They have long been advocates of the ideas presented in this book.

The Periplasm - Dr. Michael Ehrmann 2007

Provides a thorough, state-of-the-art review of the periplasm, the extracytoplasmic compartment found in gram-negative bacteria. - Details important aspects of the physiology of pathogenic microorganisms, a selection of current drug resistance strategies, and

lipopolysaccharide biosynthesis. - Provides insights into the evolution of cellular compartments and their benefit to living organisms. - Discusses the basic biological functions of the periplasm and their physiological relevance, including protein transport, folding, and quality control; bioenergetics; solute transport; stress responses; cell division; and cell architecture. - Serves as a resource for medical practitioners and students of biology, microbiology, biochemistry, structural biology, and biotechnology

Metabolism and Bacterial Pathogenesis - Tyrrell Conway 2020-07-24

Groundbreaking thinking on how bacterial metabolism is foundational to pathogenesis For too long, bacterial metabolism and bacterial pathogenesis have been studied as separate entities. However, the scientific community is beginning to realize that not only are bacterial nutrient acquisition and utilization essential for pathogenesis, but that interfering with the pathogen-specific metabolic pathways used during infection can regulate virulence factor expression and might lead to effective breakthroughs in a variety of treatments. Editors Paul Cohen and Tyrrell Conway, who pioneered the use of metabolic mutants in competitive colonization assays, an approach now widely used to investigate the nutrition of pathogens in vivo, are uniquely qualified to advance our knowledge of this integrative field of research. They convened a group of contributors who are breaking new ground in understanding how bacterial metabolism is foundational to pathogenesis to share their expert perspectives and outlook for the future. Beginning with overviews, Metabolism and Bacterial Pathogenesis covers a wide range of diseases and both Gram-positive and -negative bacteria that serve as model systems for in vitro and in vivo investigations intracellular, respiratory, and enteric pathogens pathogen-specific nutrient acquisition in hosts mechanisms of host-driven metabolic adaptation by pathogens metabolic regulation of virulence gene expression Useful for specialists in bacterial pathogenesis and specialists in metabolism as well as molecular biologists, physicians, veterinarians, dentists, graduate and undergraduate students, and laboratory technicians, Metabolism and Bacterial Pathogenesis is also essential reading for scientists studying the microbiome.

Molecular Microbiology of Heavy Metals - Dietrich H. Nies 2007-03-24

This book covers allocation of metals in cells, metal transporter, storage and metalloregulatory

proteins, cellular responses to metal ion stress, transcription of genes involved in metal ion homeostasis, uptake of essential metals, metal efflux and other detoxification mechanisms. The book also discusses metal bioreporters for the nanomolar range of concentration and tools to address the metallome. In addition, coverage details specific metals.

Microbial Stress: From Sensing to Intracellular and Population Responses - Daniela De Biase 2020-09-18

This eBook is a collection of articles from a Frontiers Research Topic. Frontiers Research Topics are very popular trademarks of the Frontiers Journals Series: they are collections of at least ten articles, all centered on a particular subject. With their unique mix of varied contributions from Original Research to Review Articles, Frontiers Research Topics unify the most influential researchers, the latest key findings and historical advances in a hot research area! Find out more on how to host your own Frontiers Research Topic or contribute to one as an author by contacting the Frontiers Editorial Office: frontiersin.org/about/contact.

Discovery-Based Learning in the Life Sciences - Kathleen M. Susman 2015-09-28

For nearly a decade, scientists, educators and policy makers have issued a call to college biology professors to transform undergraduate life sciences education. As a gateway science for many undergraduate students, biology courses are crucial to addressing many of the challenges we face, such as climate change, sustainable food supply and fresh water and emerging public health issues. While canned laboratories and cook-book approaches to college science education do teach students to operate equipment, make accurate measurements and work well with numbers, they do not teach students how to take a scientific approach to an area of interest about the natural world. Science is more than just techniques, measurements and facts; science is critical thinking and interpretation, which are essential to scientific research. Discovery-Based Learning in the Life Sciences presents a different way of organizing and developing biology teaching laboratories, to promote both deep learning and understanding of core concepts, while still teaching the creative process of science. In eight chapters, the text guides undergraduate instructors in creating their own discovery-based experiments. The first chapter introduces the text, delving into the necessity of science education reform. The chapters that follow address pedagogical goals and desired outcomes,

incorporating discovery-based laboratory experiences, realistic constraints on such lab experiments, model scenarios, and alternate ways to enhance student understanding. The book concludes with a reflection on four imperatives in life science research-- climate, food, energy and health-- and how we can use these laboratory experiments to address them. Discovery-Based Learning in the Life Sciences is an invaluable guide for undergraduate instructors in the life sciences aiming to revamp their curriculum, inspire their students and prepare them for careers as educated global citizens.

Research Awards Index - 1989

Principles of Medical Biochemistry E-Book - Gerhard Meisenberg 2016-09-28

For nearly 30 years, Principles of Medical Biochemistry has integrated medical biochemistry with molecular genetics, cell biology, and genetics to provide complete yet concise coverage that links biochemistry with clinical medicine. The 4th Edition of this award-winning text by Drs. Gerhard Meisenberg and William H. Simmons has been fully updated with new clinical examples, expanded coverage of recent changes in the field, and many new case studies online. A highly visual format helps readers retain complex information, and USMLE-style questions (in print and online) assist with exam preparation. Just the right amount of detail on biochemistry, cell biology, and genetics – in one easy-to-digest textbook. Full-color illustrations and tables throughout help students master challenging concepts more easily. Online case studies serve as a self-assessment and review tool before exams. Online access includes nearly 150 USMLE-style questions in addition to the questions that are in the book. Glossary of technical terms. Clinical Boxes and Clinical Content demonstrate the integration of basic sciences and clinical applications, helping readers make connections between the two. New clinical examples have been added throughout the text.

Bacterial and Eukaryotic Porins - Roland Benz 2006-03-06

This first book dedicated to the topic relates the known physiological functions of porins to their molecular structure and mechanism, as documented by various in vitro and in vivo methods, including the generation of null mutants in mice. For the first time, it brings together biophysical evidence with studies performed in a cellular context, presenting a unified picture of the fundamental importance of porins for cellular function. With 16 contributions by an

interdisciplinary team of leading porin researchers, this reference is essential reading for every molecular or structural biologist with an interest in this essential protein family.

Biochemistry of Signal Transduction and Regulation - Gerhard Krauss 2006-03-06

This all-new edition of a classic text has been thoroughly revised to keep pace with the rapid progress in signal transduction research. With didactic skill and clarity the author relates the observed biological phenomena to the underlying biochemical processes. Directed to advanced students, teachers, and researchers in biochemistry and molecular biology, this book describes the molecular basis of signal transduction, regulated gene expression, the cell cycle, tumorigenesis and apoptosis. "Provides a comprehensive account of cell signaling and signal transduction and, where possible, explains these processes at the molecular level" (Angewandte Chemie) "The clear and didactic presentation makes it a textbook very useful for students and researchers not familiar with all aspects of cell regulation." (Biochemistry) "This book is actually two books: Regulation and Signal Transduction." (Drug Research)

The Pathogenic Yersiniae – Advances in the Understanding of Physiology and Virulence, Volume II - Matthew S Francis 2019-10-09

Pathogenic Yersinia consist of the prominent human pathogens Y. pestis, Y. enterocolitica, and Y. pseudotuberculosis, the fish pathogen Y. ruckeri, as well as a number of insect pathogens. Facilitated by the ease of in vitro culturing, genetic tractability, and availability of relevant infection models, studies of pathogenic Yersinia have revealed a great deal about physiological processes at the molecular level that contribute to pathogen adaptation to the ever changing environments both inside and outside of the host. Comprehensive genome sequencing analyses has further benefitted understanding of this bacterial pathogen evolution. Critically, many of these detailed molecular studies also identified potential targets for the design and development of anti-bacterial therapeutic drugs that could help to fight the ever-increasing problem of resistance to conventional antibiotics. New developments in several of these areas are highlighted in this edition of the Research Topic "The Pathogenic Yersiniae – Advances in the Understanding of Physiology and Virulence, Second Edition".

Metal Transporters - 2012-10-05

This volume of Current Topics in Membranes focuses

on metal transmembrane transporters and pumps, a recently discovered family of membrane proteins with many important roles in the physiology of living organisms. The book summarizes the most recent advances in the field of metal ion transport and provides a broad overview of the major classes of transporters involved in homeostasis of heavy metals. Various families of the transporters and metal specificities are discussed with the focus on the structural and mechanistic aspects of their function and regulation. The reader will access information obtained through a variety of approaches ranging from X-ray crystallography to cell biology and bioinformatics, which have been applied to transporters identified in diverse biological systems, such as pathogenic bacteria, plants, humans and others. Field is cutting-edge and a lot of the information is new to research community Wide breadth of topic coverage Contributors of high renown and expertise

Bacterial Membrane Vesicles - Maria Kaparakis-Liaskos 2020-03-31

This book focuses on the multitude of functions bacterial membrane vesicles perform in bacterial ecology and pathogenesis as well as in emerging medical and biotechnological applications. Both Gram-negative and Gram-positive bacteria produce membrane-bound nanostructures, known as membrane vesicles, which have a range of functions that include serving as delivery vehicles, providing a means of communication over both spatial and temporal scales, and contributing to bacterial survival and evolution. Topics covered in this book range from the biogenesis and composition of bacterial membrane vesicles to their abundance and biological roles in microbial ecosystems, such as marine environments. In the individual chapters, the involvement of bacterial membrane vesicles in host-pathogen interactions, promoting virulence and in facilitating the establishment of infection is explained. In addition, current knowledge regarding membrane vesicles produced by commensal bacteria and their role in the maturation of the host immune system, as well as the therapeutic potential of bacterial membrane vesicles as delivery systems and innovative nanotechnology-based therapeutics are discussed. This work appeals to a wide readership of students and researchers interested in microbial ecology, mechanism underlying pathogenesis and new avenues in applied microbiology and nanotechnology.

Biomembranes - Robert B. Gennis 2013-04-17

New textbooks at all levels of chemistry appear with

great regularity. Some fields like basic biochemistry, organic reaction mechanisms, and chemical thermodynamics are well represented by many excellent texts, and new or revised editions are published sufficiently often to keep up with progress in research. However, some areas of chemistry, especially many of those taught at the graduate level, suffer from a real lack of up-to-date textbooks. The most serious needs occur in fields that are rapidly changing. Textbooks in these subjects usually have to be written by scientists actually involved in the research which is advancing the field. It is not often easy to persuade such individuals to set time aside to help spread the knowledge they have accumulated. Our goal, in this series, is to pinpoint areas of chemistry where recent progress has outpaced what is covered in any available textbooks, and then seek out and persuade experts in these fields to produce relatively concise but instructive introductions to their fields. These should serve the needs of one semester or one quarter graduate courses in chemistry and biochemistry. In some cases, the availability of texts in active research areas should help stimulate the creation of new courses.

Bacterial Physiology - Walid El-Sharoud 2007-12-07

The application of new molecular methodologies in the study of bacterial behavior and cell architecture has enabled new revolutionary insights and discoveries in these areas. This new text presents recent developments in bacterial physiology that are highly relevant to a wide range of readership including those interested in basic and applied knowledge. Its chapters are written by international scientific authorities at the forefront of the subject. The value of this recent knowledge in bacterial physiology is not only restricted to fundamental biology. It also extends to biotechnology and drug-discovery disciplines.

Membrane Protein Assembly - Gunnar von Heijne 1997-01-01

The structure and function of membrane proteins, although ignored by structural biologists for a long time, are now in the forefront of current research. The 3D structure of an integral membrane protein is intimately dependent on the way the protein assembles into the membrane; in this respect, the insertion of the nascent chain into the lipid bilayer is analogous to the formation of the compact folding intermediates in globular proteins. Containing chapters on 3D structure and assembly, as well as recent methods for modeling and simulation of membrane protein

structures, this book serves as an up-to-date introduction to membrane protein assembly and structure.

The Mycobacterial Cell Envelope - Mamadou Daffé 2008

Explains the unique characteristics that cause this large group of bacteria responsible for tuberculosis and leprosy to function differently; serves as a valuable reference for those working in the areas of biochemistry, genetics, genomics, and immunology.

Molecular System Bioenergetics - Valdur Saks 2007-10-29

In this first integrated view, practically each of the world's leading experts has contributed to this one and only authoritative resource on the topic. Bringing systems biology to cellular energetics, they address in detail such novel concepts as metabolite channeling and medical aspects of metabolic syndrome and cancer.

Membrane Proteins - Rossen Donev 2022-01-13

Membrane Proteins, Volume 128 in the Advances in Protein Chemistry and Structural Biology series highlights new advances in the field, with this new volume presenting interesting chapters written by an international board of authors. Provides the authority and expertise of leading contributors from an international board of authors Presents the latest release in the Advances in Protein Chemistry and Structural Biology series Updated release includes the latest information on the membrane proteins

Protein Export and Membrane Biogenesis - R.E. Dalbey 1995-08-31

The incentive for putting together Volume 4 of this series was to review the wealth of new information that has become available in prokaryotic organisms in protein export and membrane biogenesis. Just in the last several years, protein translocation has now been efficiently reconstituted using defined components and the mechanism by which proteins are moved across membrane bilayers is now being examined at a higher resolution. In addition, because of a new technical breakthrough using osmolytes, it is now possible to reconstitute a number of channel proteins, ATPase, receptors, and transporters. In many cases, it is possible to successfully predict the membrane topology of these types of proteins using both "hydrophobicity analysis" and the "positive inside" rule. In this volume, two chapters focus on protein translocation across membranes (Biochemical Analyses of Components Comprising the Protein Translocation Machinery of E. Coli; Protein

Translocation Genetics), while several others on how proteins assemble into the ineer membrane of E. Coli (Membrane Protein Assembly; Membrane Insertion of Small Proteins: Evolutionary and Functional Aspects; Pigment-Protein Complex Assembly in Rhodobacter sphaeroides and Rhodobacter Capsulatus). Other sections review recent progress on transporters (Identification and Reconstitution of Anion Exchange Mechanisms in Bacteria; Helic Packing in the C-Terminal Half of Lactose Permease) and signal transduction (Mechanism of Transmembrane Signaling in Osmoregulation) as well as the assembly of prints into the outer membrane (Export and Assembly of Outer Membrane Proteins in E. coli). Although the emphasis of the book is on proteins, the role of phospholipids in controlling various cell surface processes is reviewed (Role of Phospholipids in coli Cell Function). I should point out the reason for the rapid progress in bacteria research is because of the possibility to apply biochemistry and genetics in this organism.

Developmental Biology in Prokaryotes and Lower Eukaryotes - Tom? s Gonz? lez Villa 2022-08-02 'Developmental biology' is widely understood as processes, which mainly concern embryonic animal development and differentiation of cells and tissue. It is also often defined as the timeline for the evolutionary developmental biology of eukaryotic multicellular higher organisms, i.e., plants and animals. The development of prokaryotes and lower eukaryotes in contrary has been neglected for a long time, which was the motivation for publishing this book. This book highlights one of Darwin's most important findings: Evolution is a creative, but not a conscious process. It also illustrates that this concept does not only apply to multicellular higher organisms, but affects every form of life. The reader shall find complex biochemical and genetic pathways of bacteria, yeasts or protozoa, comparable to those exhibited by plants or animals. The molecular mechanisms of dramatic genome rearrangements, recombination and horizontal gene transfer that are responsible for evolutionary adaptations are discussed. Additionally, the book covers bacteria of the genera Myxobacteriales and Caulobacterales, which are able to develop tissue-like cellular organization. The morphogenesis of entomopathogenic fungi and the endosymbiont theory are also addressed. The book is a useful introduction to the field for junior scientists, interested in bacteriology, protistology and fungal development. It is also an interesting read for advanced scientists, giving them a

broader view of the field beyond their area of specialization.

Yeast - Horst Feldmann 2012-09-06

Finally, a stand-alone, all-inclusive textbook on yeast biology. Based on the feedback resulting from his highly successful monograph, Horst Feldmann has totally rewritten he contents to produce a comprehensive, student-friendly textbook on the topic. The scope has been widened, with almost double the content so as to include all aspects of yeast biology, from genetics via cell biology right up to biotechnology applications. The cell and molecular biology sections have been vastly expanded, while information on other yeast species has been added, with contributions from additional authors. Naturally, the illustrations are in full color throughout, and the book is backed by a complimentary website. The resulting textbook caters to the needs of an increasing number of students in biomedical research, cell and molecular biology, microbiology and biotechnology who end up using yeast as an important tool or model organism.

Prokaryotic Metabolism and Physiology - Byung Hong Kim 2019-05-16

Extensive and up-to-date review of key metabolic processes in bacteria and archaea and how metabolism is regulated under various conditions.

Lipid Rafts and Caveolae - Christopher J. Fielding 2006-12-13

This keenly awaited first overview of the field represents a complete guide to the structure and function of the most important mammalian cell membrane organelles. Filling a huge gap in the primary literature, this book is the first to cover the subject in detail. Following an introduction by Kai Simons, the discoverer of lipid rafts and the most prominent scientist in the field, chapters include: Historical background Distinct structures and functions Structural basis Signaling Viral entry and virion budding Cholesterol transport Caveolins Lipid shells Cell polarity and intracellular trafficking Cancer cells Of prime importance to molecular and cell biologists, biochemists, membrane scientists, cancer researchers, and virologists.

Cumulated Index Medicus - 1990

Bacterial Physiology and Metabolism - Byung Hong Kim 2008-02-21

Recent determination of genome sequences for a wide range of bacteria has made in-depth knowledge of prokaryotic metabolic function essential in order to give biochemical, physiological, and ecological

meaning to the genomic information. Clearly describing the important metabolic processes that occur in prokaryotes under different conditions and in different environments, this advanced text provides an overview of the key cellular processes that determine bacterial roles in the environment, biotechnology, and human health. Prokaryotic structure is described as well as the means by which nutrients are transported into cells across membranes. Glucose metabolism through glycolysis and the TCA cycle are discussed, as well as other trophic variations found in prokaryotes, including the use of organic compounds, anaerobic fermentation, anaerobic respiratory processes, and photosynthesis. The regulation of metabolism through control of gene expression and control of the activity of enzymes is also covered, as well as survival mechanisms used under starvation conditions.

Biomedical Index to PHS-supported Research - 1990

Molecular Biology of the Cell - Bruce Alberts 2004