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The Molecular Basis of Cancer E-Book

Goodman and Fuller's Pathology E-Book

Emerging immune functions of non-hematopoietic stromal cells

Advances in Food Biotechnology

Role of Oxidative Stress in Oral Diseases

Biology HL

Soybean and Nutrition

Extracellular matrix dynamics in biology, bioengineering, and pathology, volume II

The Invertebrate Tree of Life

Encyclopedia of the World's Biomes

Neurobiology of Brain Disorders

Invertebrate Learning and Memory

Vascular Biology, Haemostasis and Extracellular Nucleic Acids in Vascular Diseases and Immunity. A Tribute to Klaus T. Preissner

Bailey & Scott's Diagnostic Microbiology - E-Book

Mesophotic Coral Ecosystems

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Novel Insights into Algal Biology and Biotechnology

Ebook: Child Development: An Introduction

Multiple Roles of Alien Plants in Aquatic Ecosystems: from Processes to Modelling

Insect Physiology and Biochemistry

Understanding Tuberculosis

The Chemistry of Peroxides, Volume 3

Evolutionary Trajectories in Plant-Associated Pseudomonas and Xanthomonas Strains

Building Climate-Resilient Fisheries and Aquaculture in the Asia-Pacific Region

Interleukin-33 Biology in Tissue Development, Homeostasis and Disease

Synaptic Diseases: From Biology to Potential Therapy

Biotherapeutics  
Molecular and functional ecology of aquatic microbial symbionts  
Lyme Disease: Recent Advances and Perspectives  
Introducing the IB Diploma Programme  
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A Research Review of Interventions to Increase the Persistence and Resilience of Coral Reefs  
Essentials of Psychology  
How Tobacco Smoke Causes Disease  
Recent Advances in Symbiosis Research: Integrative Approaches  
Guide for the Care and Use of Laboratory Animals  
New Visions in Plant Science

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## **GOODMAN ESMERALDA**

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*The Molecular Basis of Cancer E-Book*  
National Academies Press

The interplay between host and pathogen is a complex co-evolutionary battle of surveillance and evasion. The pathogen continuously develops mechanisms to subvert the immune response in order to establish infection while the immune system responds with novel mechanisms of detection. Because the majority of Lyme

disease pathology is due to an over-exuberant immune response, much research in *Borrelia burgdorferi* pathogenesis has been devoted to understanding the mammalian host response to the bacterium. Immunological studies continue to be an active area of research employing emerging techniques, such as intra-vital imaging. These studies have furthered our understanding of inflammatory processes during long-term infection and provided some surprising insights, such as the continued presence of bacterial products after clearance. The

field of Lyme disease has long debated the etiology of long-term inflammation and recent studies in the murine host have shed light on relevant cell types and inflammatory mediators that participate in the pathology of Lyme arthritis. Live imaging and bioluminescent studies have allowed for a novel view of the bacterial life cycle, including the tick mid-gut, tick-to-mammal transmission and dissemination throughout a mouse. A number of tick and bacterial proteins have been shown to participate in the completion of the enzootic cycle. Novel

mechanisms of gene regulation are continuously being identified. However, *B. burgdorferi* lacks many traditional virulence factors, such as toxins or specialized secretion systems. Many genes in the *B. burgdorferi* genome have no known homolog in other bacteria. Therefore, studies focusing on host-pathogen interactions have therefore been limited by an incomplete understanding of the repertoire of bacterial virulence factors. Questions such as how the pathogen causes disease, colonizes the tick and evades host immune-surveillance have been difficult to address. Genetic studies involving single gene deletions have identified a number of important bacterial proteins, but a large-scale genomics approach to identify virulence factors has not been attempted until recently. The generation of a site-directed mutagenesis library is an important step towards a detailed analysis of the *B. burgdorferi* genome and pathogenome. Using this library, high-throughput genomic studies, utilizing techniques such as massively parallel sequencing have been promising and could be used to identify novel virulence determinants of

disease in the mammalian host or persistence in the tick vector. Continued research on this unique pathogen and its specific interaction with host and vector may have far reaching consequences and provide insights for diverse disciplines including ecology, infectious disease, and immunology. Here, several reviews will discuss the most recent advances and future studies to be undertaken in the field of *B. burgdorferi* biology.

**Goodman and Fuller's Pathology E-Book** John Wiley & Sons

Fisheries and aquaculture is a sector of special importance to food security, nutrition and livelihood in the Asia-Pacific Region, which can be significantly impacted by climate changes and related disaster risks. Effectively addressing climate change impacts and managing disaster risks in fisheries and aquaculture sector are vitally important to building resilience of the sector for sustained and greater contribution to Sustainable Development Goals (SDGs) related to ending hunger, poverty eradication and sustainable use of natural resources. FAO member countries in the region have been making good effort and significant

progress in addressing climate change impacts and related disaster risks with support of international communities. A FAO regional consultative workshop was convened to bring together a wide range of players including country governments, regional organizations and other partners to share their knowledge and good practices in addressing climate change implications for fisheries and aquaculture in the region, to assess the progress made in addressing issues with marine capture fisheries, inland capture fisheries, coastal aquaculture and inland aquaculture in the context of climate change adaptation and mitigation in implementing the national plan of actions for addressing climate change in fisheries and aquaculture, and to recommend strategies for addressing institutional and capacity gaps in building climate-resilience fisheries and aquaculture industry in the region. The publication is the compilation of the workshop executive report, background technical papers, extended summary of presentations by representatives from participating government and FAO partners, and the workshop conclusions and recommendations.

Emerging immune functions of non-hematopoietic stromal cells Frontiers Media SA

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](http://frontiersin.org/about/contact).

*Advances in Food Biotechnology* Frontiers Media SA

Mycobacterium tuberculosis in an attempt to understand the extent to which the bacilli has adapted itself to the host and to its final target. On the other hand, there is a section in which other specialists discuss how to manipulate this immune response to obtain innovative prophylactic and therapeutic approaches to truncate the

intimal co-evolution between Mycobacterium tuberculosis and the Homo sapiens.

### **Role of Oxidative Stress in Oral Diseases** BoD – Books on Demand

Employing the clear, student-friendly style that made previous editions so popular, *Insect Physiology and Biochemistry*, Fourth Edition presents an engaging and authoritative guide to the latest findings in the dynamic field of insect physiology. The book supplies a comprehensive picture of the current state of the function, development, and reproduction of insects. Expanded and updated, now in full colour, this fourth edition adds three new chapters on the role of the nervous system in behavior; the 'Genomics Revolution' in entomology; and global climate changes which have a major effect on insects, including warming and weather. It continues to challenge conventional entomological wisdom with the latest research and analytical interpretations. The text will appeal to upper undergraduate and graduate students and to practicing biologists who need to possess a firm knowledge of the broad principles of insect physiology. With

detailed full colour illustrations to help explain physiological concepts and important anatomical details, it remains the most easily accessible guide to key concepts in the field.

Biology HL National Academies Press

The understanding of functional groups is key for the understanding of all organic chemistry. In the tradition of the Patai Series each volume treats all aspects of functional groups. Each volume contains chapters on the theoretical and physicochemical foundations; on analytical aspects; on reaction mechanisms; on applications in synthesis. Depending on the functional group there are additional chapters on industrial use, on medical use, and on human and environmental toxicity issues. The last volume in the series on the topic (Peroxides Vol. 2) was published in 2006. In the eight years since then a lot of developments have taken place, especially in the areas of synthesis, analysis and a better theoretical understanding of the reaction mechanism, all of which are covered here. As with all new volumes, the chapters are first published online in Patai's Chemistry of Functional Groups. Once a volume is

completed online, it is then published in print format. The printed book offers the traditional quality of the Patai Book Series, complete with an extensive index.

#### *Soybean and Nutrition* Frontiers E-books

A respected resource for decades, the Guide for the Care and Use of Laboratory Animals has been updated by a committee of experts, taking into consideration input from the scientific and laboratory animal communities and the public at large. The Guide incorporates new scientific information on common laboratory animals, including aquatic species, and includes extensive references. It is organized around major components of animal use: Key concepts of animal care and use. The Guide sets the framework for the humane care and use of laboratory animals. Animal care and use program. The Guide discusses the concept of a broad Program of Animal Care and Use, including roles and responsibilities of the Institutional Official, Attending Veterinarian and the Institutional Animal Care and Use Committee. Animal environment, husbandry, and management. A chapter on this topic is now divided into sections on terrestrial

and aquatic animals and provides recommendations for housing and environment, husbandry, behavioral and population management, and more. Veterinary care. The Guide discusses veterinary care and the responsibilities of the Attending Veterinarian. It includes recommendations on animal procurement and transportation, preventive medicine (including animal biosecurity), and clinical care and management. The Guide addresses distress and pain recognition and relief, and issues surrounding euthanasia. Physical plant. The Guide identifies design issues, providing construction guidelines for functional areas; considerations such as drainage, vibration and noise control, and environmental monitoring; and specialized facilities for animal housing and research needs. The Guide for the Care and Use of Laboratory Animals provides a framework for the judgments required in the management of animal facilities. This updated and expanded resource of proven value will be important to scientists and researchers, veterinarians, animal care personnel, facilities managers, institutional administrators, policy makers involved in

research issues, and animal welfare advocates.

#### Extracellular matrix dynamics in biology, bioengineering, and pathology, volume II Academic Press

Topic Editor Prof. Ritva Tikkanen Receives Research Funding From Neurogene Inc. and GC Pharma for Studies Unrelated to the Subject. Topic Editor Prof. Carl Blobel is Co-Inventor on a Patent Describing a Method of Identifying Agents for Combination With Inhibitors of iRhoms. He and the Hospital for Special Surgery (New York, USA) are Investigating Suitable Approaches to Identify iRhom Inhibitors, and are Co-Founders of a Small Company Called SciRhom in Munich to Pursue These Efforts. Topic Editor Dr. Sylvia Fischer Declares no Competing Interests With Regards to the Research Topic Subject. The Invertebrate Tree of Life Frontiers Media SA  
Neurobiology of Brain Disorders: Biological Basis of Neurological and Psychiatric Disorders, Second Edition provides basic scientists a comprehensive overview of neurological and neuropsychiatric disease. This book links basic, translational, and clinical research, covering the genetic,

developmental, molecular and cellular mechanisms underlying all major categories of brain disorders. It offers students, postdoctoral fellows, and researchers in diverse fields of neuroscience, neurobiology, neurology, and psychiatry the tools they need to obtain a basic background in the major neurological and psychiatric diseases. Topics include developmental, autoimmune, central, and peripheral neurodegeneration, infectious diseases, and diseases of higher function. Organized by individual disorder, each chapter includes coverage of the clinical condition, diagnosis, treatment, underlying mechanisms, relevant basic and translational research, and key unanswered questions. This volume reflects progress in the field since publication of the first edition, with fully updated chapters, and new chapters on isolation, aging, global diseases, vascular diseases, and toxic/metabolic disease. New disorder coverage includes fibromyalgia, chronic fatigue, Restless Legs Syndrome, myasthenia gravis, and more. Links basic, translational and clinical research on disorders of the nervous

system Covers a vast array of neurological and psychiatric disorders, including Down syndrome, autism, muscular dystrophy, diabetes, TBI, Parkinson's, Huntington's, Alzheimer's, OCD, PTSD, schizophrenia, depression and pain Features new chapters on the effects of aging and isolation on brain health Expands coverage on disorders, including new chapters on fibromyalgia, chronic fatigue, and restless legs syndrome Features in-text summary points, special feature boxes and research questions  
*Encyclopedia of the World's Biomes*  
 Frontiers E-books  
 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](http://frontiersin.org/about/contact).

*Neurobiology of Brain Disorders* Royal Society of Chemistry

This book summarizes what is known about mesophotic coral ecosystems (MCEs) geographically and by major taxa. MCEs are characterized by light-dependent corals and associated communities typically found at depths ranging from 30-40 m. and extending to over 150 m. in tropical and subtropical ecosystems. They are populated with organisms typically associated with shallow coral reefs, such as macroalgae, corals, sponges, and fishes, as well as specialist species unique to mesophotic depths. During the past decade, there has been an increasing scientific and management interest in MCEs expressed by the exponential increase in the number of publications studying this unique environment. Despite their close proximity to well-studied shallow reefs, and the growing evidence of their importance, our scientific knowledge of MCEs is still in its early stages. The topics covered in the book include: regional variation in MCEs; similarities and differences between

mesophotic and shallow reef taxa, biotic and abiotic conditions, biodiversity, ecology, geomorphology, and geology; potential connectivity between MCEs and shallow reefs; MCE disturbances, conservation, and management challenges; and new technologies, key research questions/knowledge gaps, priorities, and future directions in MCE research.

*Invertebrate Learning and Memory*  
Elsevier

Traditionally, symbiosis research has been undertaken by researchers working independently of one another and often focused on a few cases of bipartite host-symbiont interactions. New model systems are emerging that will enable us to fill fundamental gaps in symbiosis research and theory, focusing on a broad range of symbiotic interactions and including a variety of multicellular hosts and their complex microbial communities. In this Research Topic, we invited researchers to contribute their work on diverse symbiotic networks, since there are a large variety of symbioses with major roles in the proper functioning of terrestrial or aquatic ecosystems, and we wished the Topic to

provide a venue for communicating findings across diverse taxonomic groups. A synthesis of recent investigations in symbiosis can impact areas such as agriculture, where a basic understanding of plant-microbe symbiosis will provide foundational information on the increasingly important issue of nitrogen fixation; climate change, where anthropogenic factors are threatening the survival of marine symbiotic ecosystems such as coral reefs; animal and human health, where unbalances in host microbiomes are being increasingly associated with a wide range of diseases; and biotechnology, where process optimization can be achieved through optimization of symbiotic partnerships. Overall, our vision was to produce a volume of works that will help define general principles of symbiosis within a new conceptual framework, in the road to finally establish symbiology as an overdue central discipline of biological science.

**Vascular Biology, Haemostasis and Extracellular Nucleic Acids in Vascular Diseases and Immunity. A Tribute to Klaus T. Preissner** BoD – Books on Demand

Schools wishing to introduce the IB diploma programme are faced with major investment in terms of time, effort and money in order to become authorised. This manual is a resource for schools already offering the diploma, as well as for prospective diploma schools.

**Bailey & Scott's Diagnostic Microbiology - E-Book** Frontiers Media SA

The strict relationships between bacteria and plants represent one of the major facets of terrestrial ecology. Depending on the type of interaction and amount of metabolic advantage one organism can obtain from such relationships, these are classified as mutualistic, commensal or parasitic interactions. Within this context, *Pseudomonas* and *Xanthomonas* are bacterial genera with a worldwide spread, capable of establishing all of the above mentioned interactions with plants. Therefore, they represent good models for studying different lifestyles and, accordingly, deciphering distinct evolutionary trajectories followed by different lineages of a single genus to infect and/or to establish a mutualistic relationships with the plant. Some

members of these two genera are regulated pests that are recognized as economically major threats for their host crop(s) both in temperate and tropical environments. Some *Pseudomonas* and *Xanthomonas* are key examples of different lifestyles (i.e., mesophyll or vessel-colonizing pathogens, epiphytic pathogens, plant growth-promoting rhizobacteria, non-pathogenic strains of recognized pathogenic species, etc). Refining our knowledge on the ecology and epidemiology of these bacterial groups, as well as deciphering their evolutionary dynamics are keys for understanding their contrasting lifestyles and consequently improving plant disease control. At the same time, insights on the activation of different plant defense mechanisms as challenged by the different repertoires of virulence factors displayed by pseudomonads and xanthomonads, would yield new achievements to reduce the threats they pose to cultivated and wild plant species. This Research Topic focuses on microbial and evolutionary ecology of plant associated *Pseudomonas* and *Xanthomonas*, as well as the genomic and molecular diversity of lineages and

the virulence and fitness features involved in the interaction with the host-plant. Most of the literature available for this Research Topic has been performed for strains isolated in temperate zones. In line with the long-recognized high social and environmental impact of pests and pathogens in tropical countries, we have welcomed submissions of studies covering such situations for these areas. This Research Topic gathers high-quality contributions (Original Research, Methods, Protocols, Hypothesis & Theory, Reviews, Mini Reviews, Focused Reviews) and in order to promote complementary and original research approaches to improve our knowledge on pseudomonads and xanthomonads-host interactions and their control, it benefited from the scientific communities currently working on *Pseudomonas* and *Xanthomonas* such as the teams dealing with the *Pseudomonas syringae* species complex and the French Network on *Xanthomonads* (FNX). *Mesophotic Coral Ecosystems* Cambridge University Press

Sirtuins comprise a family of NAD<sup>+</sup>-dependent enzymes that have been shown to impact longevity in a number of

eukaryotic organisms. Sir2 (Silent Information Regulator 2) was the first sirtuin protein discovered. The discovery that Sir2 requires NAD<sup>+</sup> for its activity suggested a link between Sir2 activity and the phenomenon of caloric restriction in prolonging longevity. This link was strengthened by the observation that lifespan extension by caloric restriction requires Sir2 protein. Under conditions of caloric restriction, NAD<sup>+</sup> levels are high, Sir2 is activated, and the rate of aging is decreased. These effects have been replicated in invertebrate organisms, where a close structural and functional homologue of Sir2 was found in *C. elegans* and *Drosophila*. The sirtuin-dependent effects on metabolism and ageing, observed in lower organisms, have ignited intensive investigation of their biological and therapeutic roles in mammals. There are seven known mammalian sirtuins, SIRT1-7, the most studied of which is SIRT1, a close structural and functional homologue of yeast Sir2. Enhancement of organismal longevity and other health-promoting effects of mammalian SIRT1 have frequently been attributed to the regulation of metabolism. A recognized



molecular link between metabolism and aging stimulated a firestorm of investigations, aiming to combat metabolic and age-dependent human diseases. It has become clear, however, that the sirtuin family of proteins regulates a diverse repertoire of cellular functions in mammals. Mounting evidence implicating SIRT1 in important clinical indications, such as diabetes, cancer, cardiovascular dysfunction and neurodegenerative disease, suggest that modality as attractive therapeutic target. Subsequently, drug discovery and development, targeting sirtuin activation, has been intensified in the recent years. Despite rapid progress and accumulation of new data, the biological roles of other mammalian sirtuins have been less studied and remain poorly understood. There are several important questions that remain to be addressed. What are the functions of sirtuins in different cell types and tissues? Are all sirtuins involved in the regulation of metabolism and aging? What is the functional relationship between different sirtuins? What are the mechanisms of regulation of sirtuin activities? What is the role of sirtuins in

disease and therapy? This issue aims to address these and other critical questions, relevant to Research Topic on sirtuin biology and therapeutics. To that end the issue solicits expert opinions of sirtuin research on structural biology, biochemistry, cell biology, animal genetics, pharmacology, medicinal chemistry and drug discovery, and on areas of investigation studying human conditions, like diabetes, cancer, cardiovascular, and neurodegeneration. Of particular interest are the new methods and assays to study sirtuins in various organisms and developing sirtuin-based therapeutics. Furthermore, we propose to encourage contributors to discuss new concepts and paradigms, and to express their perspectives on the future development of the sirtuin research field. Altogether, we believe this issue provides a unique opportunity for comprehensive and diverse coverage of the topic, and will be of broad interest for the journal's readership.

**Sirtuins in Biology and Disease** John Wiley & Sons  
Stay current with the latest discoveries in molecular and genomic research.

Sweeping revisions throughout include eight brand-new chapters on: Tumor Suppressor Genes; Inflammation and Cancer; Cancer Systems Biology: The Future; Biomarkers Assessing Risk of Cancer; Understanding and Using Information About Cancer Genomes; The Technology of Analyzing Nucleic Acids in Cancer; Molecular Abnormalities in Kidney Cancer; and Molecular Pathology. [Novel Insights into Algal Biology and Biotechnology](#) Cambridge University Press  
Over the past decade, progress in plant science and molecular technologies has grown considerably. This book focuses on plant biotechnology applications specializing in certain aspects of breeding and molecular marker-assisted selection processes, omic strategies, usage of bioinformatic tools, and nanotechnological improvements in agricultural sciences. Most farmers and breeders can no longer simply turn to the older strategies, and new instructions are needed to adapt their systems to achieve their production goals. The book covers new information on using metabolomics and nanotechnology in agriculture. In these circumstances, all new data and technology are very

important in plant science. The topics in this book are practical and user-friendly. They allow practitioners, students, and academicians with specific background knowledge to feel confident about the principles presented on a new generation of molecular plant biotechnology applications.

**Ebook: Child Development: An Introduction** Frontiers Media SA

The development and function of the immune system is dependent on interactions between haematopoietic cells and non-hematopoietic stromal cells. The non-hematopoietic stromal cells create the microenvironment in which the immune system operates, providing an architectural landscape for hematopoietic cell-cell interactions and molecular cues governing haematopoietic cell positioning, growth and survival. Not surprisingly, therefore, aberrant stromal cell function has recently been shown to play a key role in the development of disease pathologies associated with immune dysfunction. For example, remodelling of lymphoid tissue stroma and the development of ectopic tertiary lymphoid tissues are characteristic of many infectious and inflammatory

diseases and stromal cells have a recognised role in lymphoma and tumour development and resistance to therapy. An increased understanding of the molecular basis of stromal cell differentiation and function in these varied contexts will provide new tools to promote research on stromal cell biology and immune dysfunction, and potential new targets for therapeutic intervention in diseases with a major impact on public health. The importance of stromal cells and the molecular mechanisms of stromal cell function in the regulation of immune responses have only recently been appreciated and thus represent an exciting new area in immunology.

Multiple Roles of Alien Plants in Aquatic Ecosystems: from Processes to Modelling  
Springer

This report considers the biological and behavioral mechanisms that may underlie the pathogenicity of tobacco smoke. Many Surgeon General's reports have considered research findings on mechanisms in assessing the biological plausibility of associations observed in epidemiologic studies. Mechanisms of disease are important because they may

provide plausibility, which is one of the guideline criteria for assessing evidence on causation. This report specifically reviews the evidence on the potential mechanisms by which smoking causes diseases and considers whether a mechanism is likely to be operative in the production of human disease by tobacco smoke. This evidence is relevant to understanding how smoking causes disease, to identifying those who may be particularly susceptible, and to assessing the potential risks of tobacco products.

**Insect Physiology and Biochemistry**

Food & Agriculture Org.

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