Microbial Cell Surface Hydrophobicity

Edited by R. J. Doyle, University of Louisville, Louisville, Ky., and Mel Rosenberg, Tel Aviv University, Ramat Aviv, Israel

Despite the voluminous journal literature on the hydrophobicity of microorganisms, its structural basis, and its role in microbial adhesion to surfaces, in differentiation, and in morphogenesis, this is the first book devoted to this subject. There has been a growing realization that hydrophobic interactions play a role in many, if not most, microbial adhesion phenomena, including microbial adhesion to soft host tissues, implants and prostheses, contact lenses, glass, oil, steel, teeth, submerged aquatic surfaces, plants, and fish.

This monograph covers in clear detail the hydrophobicities of fungi, especially Candida spp., and of staphylococci, streptococci, oral bacteria, soil and aquatic bacteria, the Enterobacteriaceae, and other Gram-negative bacteria. Each chapter is richly referenced, for those interested in delving further into a specific topic. The authors in this book were selected based on their substantial contributions to the field. Medical, applied, and environmental microbiologists; environmental, microbial, and petroleum engineers; infectious-disease physicians and researchers; and oral biologists will all benefit from this excellent summary and review.

CONTENTS
1. Microbial Cell Surface Hydrophobicity: History, Measurement, and Significance (M. Rosenberg and Doyle)
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14. Hydrophobicity of Oral Bacteria (Doyle, M. Rosenberg, and Drake)

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OF VIRULENCE AND HOST RESPONSE

Editor: Elia M. Ayoub  Coeditor: Gail H. Cassell
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This useful survey and evaluation of the current status of molecular microbiology research provides readers with a convenient overview of microbial virulence. It offers a summary of recent advances in the related fields of bacteriology, mycology, immunology, and host-parasite relationships.

Based on a workshop held under the auspices of the Bacteriology and Mycology Study Section of the Division of Research Grants and the National Institute of Allergy and Infectious Diseases, the book is divided into five sections:

I. Bacterial Factors (7 chapters by Novick et al.; Boyle et al.; Hansen; Brennan et al.; Ellner et al.; Buschman et al.; and Kasper et al.).
II. Fungal Factors (5 chapters by Depeé; Wu-Hsieh and Howard; Granger et al.; Ray and Payne; and Edwards and Mayer).
III. Bacterial Factors in Sexually Transmitted Diseases (4 chapters by Swanson; Elkins and Sparling; Blanco et al.; and Morrison).
IV. Biologic Factors (4 chapters by Clark; Munford et al.; Ziegler; and Frank).
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ADP-Ribosylating Toxins and G Proteins
Insights into Signal Transduction
Edited by Joel Moss and Martha Vaughan, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, Maryland

The contents of this important synthesis and the expert contributors span the disciplines of microbiology, biochemistry, molecular biology, and pharmacology to review current knowledge about ADP-ribosylating toxins, guanine nucleotide-binding proteins, receptors, and signal transduction. Recombinant DNA technology has been applied to elucidate the molecular basis of action of these bacterial toxins, which are responsible in part for the syndromes characteristic of a number of infectious diseases.

The contents are in three main sections: I. Bacterial ADP Ribosyltransferases: Toxins and Related Proteins (9 chapters); II. Guanine Nucleotide-Binding Proteins Coupled to Signal Transduction in Animal Cells (13 chapters); and III. ADP Ribosylation in Bacteria and Animal Cells (6 chapters).

This book will very effectively update interested scientists and students on the current status of research into ADP-ribosylating toxins and related topics and will point the way for future advances.

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NEW ASPECTS OF POSITIVE-STRAND RNA VIRUSES

Edited by Margo A. Brinton and Franz X. Heinz

This major new book covers the most recent research data on viruses having a significant impact on human and veterinary medicine as well as agriculture. These include the majority of plant viruses, insect viruses, and animal viruses, including picornavirus, coronavirus, togavirus, flavivirus, polyomavirus, and rhinovirus.

Of particular interest to molecular virologists and biologists is the book’s detailed discussion of the viruses of the sindbis, polio, and coronavirus superfamilies. These are increasingly known to share important similarities which allow them to shuffle conserved amino acid units to form new viruses. This book updates the reader on the latest advances in research on these positive-strand RNA viruses and explores the consequences for plant, animal, and human viral research, including development of vaccines and antiviral compounds.

In addition, the book gives new insights into the diversity of the structure of picornaviruses. Several color plates illustrate the structural projections of these viruses. The book is highly recommended both as an update for virologists and other investigators and as supplemental reading for basic virology courses in medical schools and universities. Arising from an international symposium held in Vienna, Austria, in June 1989, the book comprises reviews contributed by leading researchers at more than 40 laboratories worldwide.

SECTIONS

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COMMON MECHANISMS OF TRANSFORMATION BY SMALL DNA TUMOR VIRUSES

Edited by Luis P. Villarreal, Cancer Research Institute, University of California, Irvine

Small DNA tumor viruses, i.e., polyomavirus, papillomavirus, and adenovirus, have long been of major interest, primarily because they have been shown to cause cancers. Historically, and because of their structural and functional similarities, these viruses have generally been considered collectively, an approach that also has proven useful because they face common problems in infecting host cells and demonstrate common mechanisms of cell transformation. An in-depth examination of these common mechanisms of cell transformation is the focus of this volume, arising from the 1989 ICN-UCI International Conference on Virology.

The excellent introductory chapter by Villarreal and Fan makes this book useful and informative reading for students as well as virologists, molecular biologists, and oncological researchers.


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REGULATION OF PROCARYOTIC DEVELOPMENT
Structural and Functional Analysis of Bacterial Sporulation and Germination

Edited by Issar Smith, Public Health Research Institute, New York, N.Y., Ralph A. Slepecky, Syracuse University, Syracuse, N.Y., and Peter Setlow, University of Connecticut Health Center, Farmington

The process of differentiation, by which a cell of one type gives rise to cells with a different morphology, physiology, and function, raises some of the most important questions in modern biology. This book presents an up-to-date review of current research on differentiation in procaryotes, especially in Bacillus and Streptomyces species, of which sporulation is the best studied example of this process. Other phenomena, i.e., the production of extracellular enzymes, antibiotics, and other secondary metabolites such as anti-insect spore crystals, all of which are of commercial importance, are reviewed. Thus, a nearly comprehensive picture of this spore field is given. Authors with specific expertise in the areas covered were chosen so that the emphasis would be on aspects not yet covered in detail or about which another viewpoint might be useful.

Microbiologists, biotechnologists, scientists in the food and pharmaceutical industries, molecular biologists, and workers interested in cellular differentiation will greatly benefit from this book, arising from the Tenth International Spores Conference, March 1988.

Hardcover (ISBN 1-55581-011-X)
1989, 315 pages, illustrated, index
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DNA Replication and Mutagenesis

Edited by Robb E. Moses, Department of Cell Biology, Baylor College of Medicine, Houston, Texas, and William C. Summers, Department of Therapeutic Radiology, Yale University School of Medicine, New Haven, Connecticut

DNA Replication and Mutagenesis contains current approaches for studying the role of DNA replication in mutagenesis. Biochemical and genetic analyses are described for both procaryotes and eucaryotes. Most mutagenesis appears to be the result of functions occurring during DNA replication. The purpose of this book is to review recent investigations of these functions and the contribution of each of them to mutagenesis of the genome.

This book will interest researchers in molecular biology and genetics, biochemistry, nucleic acid enzymology, and toxicology and pharmacology, as well as graduate students in the biological sciences or in advanced medical school programs. Based on an ASM conference held in November 1987, on Marco Island, Florida.

Below are the condensed contents of this book. To order, contact the ASM Publication Sales Office.

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An elegant view of a complex macromolecule . . .

THE RIBOSOME
STRUCTURE, FUNCTION, & EVOLUTION

Edited by Walter E. Hill, University of Montana, Missoula; Albert Dahlberg, Brown University, Providence, R.I.; Roger A. Garrett, University of Copenhagen, Copenhagen, Denmark; Peter B. Moore, Yale University, New Haven, Conn.; David Schlessinger, Washington University School of Medicine, St. Louis, Mo.; and Jonathan R. Warner, Albert Einstein College of Medicine, Bronx, N.Y.

This comprehensive overview is a major new addition to literature on the ribosome, covering the structure, function, and evolution of this complex macromolecule in both procaryotic and eucaryotic systems. The authors, an international group of leading experts representing 13 countries, have written and illustrated their chapters for use by all life scientists, including those outside the field.

The book opens with a personal, historical retrospective and summary by Masayasu Nomura, followed by historical insights on ribosome preparation by Alexander S. Spirin. From there, chapters turn to recent developments in every arena of research into the ribosome. Much of the current knowledge about the detailed mechanisms by which the ribosome is involved in protein biosynthesis has only recently been delineated thanks to a host of new research techniques. Additional information about how antibiotics and ribosomes interact and a view of the ribosome in its evolutionary context are also included.

Arising from the August 1989 International Conference on Ribosomes, this reference will be extremely useful to advanced students as well as investigators whose work either directly or indirectly touches on this subject.

CONDENSED CONTENTS

Historical (2 chapters by Nomura and Spirin). Structure of Ribosomes and rRNA (12 chapters by Noller et al.; Brimacombe et al.; Frank et al.; Boublik, Mandiyan, and Tumminia; Stoffler-Mellicke and Stoffler; Yunath et al.; Ehresmann et al.; Draper; Egelberg, Larsen, and Garrett; Oakes et al.; Serdyuk et al.; and Wool et al.). Probing rRNA Function (4 chapters by Rauf et al.; Tapprich et al.; Cunningham et al.; and Hill et al.). Initiation (5 chapters by Van Knapenberg; Hartz, McPherets, and Gold; Gualeni et al.; Merriod; and Munroe and Jacobson). Elongation (8 chapters by Liljas; Rheinberger et al.; Zimmermann, Thomas, and Wöber; Wintermeier, Lill, and Robertson; Barta, Kuechler, and Stein; Hardesty, Odom, and Czworkowski; Ehrenberg et al.; and Möller). Termination (2 chapters by Tate, Brown, and Kastner and Murgola et al.). Ribosome Formation (7 chapters by Nilsson et al.; Pace and Burgin; Srivastava and Schlessinger; Musters et al.; Wärner et al.; Gerbi et al.; and Ware and Khanna-Gupta). Antibiotic Mechanisms and Probes (3 chapters by Cundiff; Cooperman, Weitzmann, and Fernández; and Ballesta and Lazaro). Translational Fidelity (6 chapters by Kurland et al.; Dix, Thomas, and Thompson; Weiss et al.; Buckingham et al.; Bogosian et al.; and Culbertson et al.). Evolution of Ribosomes (8 chapters by Gouy and Li; Lake; Gray and Schnare; Wirtmann-Liebold et al.; Mattheson et al.; Finley, Bartel, and Varshavsky; Amils et al.; and Subramanian, Smooker, and Giese).

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The first book to focus specifically on the role of calcium in lower eucaryotes... 

**CALCIUM AS AN INTRACELLULAR MESSENGER IN EUCARYOTIC MICROBES**

Edited by Danton H. O'Day, Erindale College, University of Toronto, Mississauga, Ontario, Canada

The 22 chapters in this unique work review current research on the role of calcium in the cellular functions of over 15 eucaryotic microorganisms of great recent interest. The ways calcium levels are regulated and how calcium can serve as an intracellular signal are closely examined.

Each chapter begins with a general review which progresses to the authors' current research and culminates with an assessment of the present and, in some cases, future status of the topic being addressed. This well-defined structure makes the book very accessible to graduate and advanced undergraduate students. The primary intended audience includes cell biologists, physiologists, and biochemists studying signalling and transduction; researchers focusing on intracellular regulation and the role of calcium; and other scientists interested in eucaryotic microbes, signalling, and transduction.

**CONTENTS**

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