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

CALCIUM AS AN INTRACELLULAR MESSENGER IN EUCAKYOTIC 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 microorganisms, signalling, and transduction.

CONTENTS

PART I. INTRODUCTION: Calcium as an Intracellular Messenger in Eucaryotic Microbes (O'Day); From Protozoa to Mammals: Cytoplasmic Membrane Systems Involved in Calcium Regulation (Franciolini)

PART II. SIGNAL TRANSDUCTION VIA INOSITOL PHOSPHATES: Role of Calcium, Cyclic Nucleotides, and Phosphatidylinositol Metabolites in Tentacle Contraction in Suctoriant Protozoa (Butler and McCrohan); Role of Phosphatidylinositol Metabolites in Proliferation of Yeast Cells (Uno and Ishikawa); Calcium and the Inositol Cycle in Dictyostelium discoideum (Bominaar and Van Haastert)

PART III. CALCIUM AND CELL FUNCTION: Intracellular Calcium during Mating in Chlamydomonas reinhardtii (Kaska and Gibr); Oscillator Control of Cell Division Cycles in Euglena (Edmunds and Tannen); Calcium and Membrane Excitation in Paramecium (Schultz et al.); Release of Lysosomal Enzymes in Tetrahymena (Florin-Christensen et al.); Calcium- and Phospholipid-Dependent Protein and Lipid Kinases in Neospora crassa (Turian and Pavel); A Novel Ca++-Activated Protease from an Aquatic Fungus, Allomyces arbuscula (Ojha); Regulation of Microfilamentous Cytoskeleton by Calcium in Flagellates of Physarum polycephalum (Uyeda and Furuya); Calcium Oscillations in Dictyostelium discoideum (Wurster et al.)

PART IV. CALMODULIN AND OTHER CALCIUM-BINDING PROTEINS: Caltractin: a Basal Body-Associated Calcium-Binding Protein in Chlamydomonas (Lee and Huang); Role of Actin, Myosin, Microtubules, and Calmodulin in Regulating the Cellular Shape of Euglena gracilis (Loneragan); Calcium as a Second Messenger in Actinobacteria (Vanden Driesche); Calcium, Calmodulin, and Cell Differentiation in the Amoeboid Flagellate Naegleria (Fulton); Calcium-Dependent Regulatory Pathways in Trypanosoma brucei (Ruben and Hahgheit); Calcium-Binding Proteins and Ciliary Movement Regulation in Tetrahymena (Watanabe et al.); Role of Calcium and Calmodulin in Morphogenesis of Candida albicans (Paranjape and Datta); Calmodulin Structure, Localization, and Expression in Dictyostelium discoideum (Clarke); Calcium, Calmodulin, and the Antagonistic Action of an Endogenous Autoinhibitor of Cell and Pheromone Fusion in Dictyostelium discoideum (Lydan et al.)


Please send me Calcium as an Intracellular Messenger in Eucaryotic Microbes (offer number MCB 1190 -023-3).

Check price

□ Member: $54.00 × Quantity ______ = $________
□ Nonmember: $72.00 × Quantity ______ = $________

If ordering at member price, give member number:

Check payment method
□ Payment enclosed
□ MasterCard Card number: __________
□ Visa Expiration date: __________
□ American Express Signature: __________

Please print or type mailing information
Name ____________________________________________
Address ____________________________________________
City __________________ State/Province________
Zip/Postal code __________ Country __________

Send to:

Publication Sales
American Society for Microbiology
1325 Massachusetts Avenue, N.W.
Washington, DC 20005-4171

ASM books may also be ordered by phone (202-737-3600) or fax (202-737-0368). When ordering, specify the offer number.
U.S. Department of Energy
Office of Health and Environmental Research

Human Genome

Distinguished

POSTDOCTORAL FELLOWSHIPS

Research Opportunities in Biology, Chemistry, Physics, Mathematics, Engineering, and Information Science

- Research related to Human Genome Program
- Tenable at various national and university laboratories
- Stipends $35,000
- Doctoral degree received after May 1, 1988
- U.S. citizens or permanent resident aliens eligible
- Information and applications:

Human Genome Postdoctoral Fellowships
Science/Engineering Education Division
Oak Ridge Associated Universities
P.O. Box 117
Oak Ridge, Tennessee 37831-0117
(615) 576-4805

Deadline January 15, 1991
Molecular Aspects of Picornavirus Infection and Detection

Edited by Bert L. Semler,
University of California, Irvine, and
Ellie Ehrenfeld, University of
Utah Medical School, Salt Lake City

In the past two years, giant strides have been made in our knowledge of the molecular biology and structure of picornaviruses. The complete three-dimensional structures of rhinovirus and poliovirus have now been solved through X-ray crystallographic studies, yielding much important information about the antigenic regions of viral proteins and the relationship of viral structure to antibody accessibility, with important implications for vaccine design. These three-dimensional structures have provided new insight into the mechanism of action of several antiviral compounds.

This very timely book presents our current understanding of the biology of these viruses in the context of clinical implications. Virologists, molecular biologists, and clinical researchers will all find this book useful and interesting reading. Based on the 1988 ICN-UCI International Conference on Virology, Newport Beach, Calif.

CONDENSED CONTENTS
I. Molecular Biology of Viral Replication (6 chapters)
II. Virion Structure and Cell Surface Interactions (6 chapters)
III. Genetic Determinants of Viral Disease and Applications to Diagnosis (6 chapters)

Hardcover (ISBN 1-55581-009-8)
Publication date: March 1989
Member: $49.00; Nonmember: $68.00
335 pages, illustrated, color plates, index

Contact: Publication Sales
American Society for Microbiology
1325 Massachusetts Avenue, N.W.
Washington, DC 20005

Latest research on some virus “superfamilies”
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, poliovirus, 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 insight 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
Overview: Positive-Stranded RNA Viruses: Early History and the Role of Model Viruses; I. Viral Evolution; II. Genome Replication; III. DI-RNAs and Infectious Clones; IV. Protein Translation, Cleavage, and Modification; V. Virion Structure and Assembly; VI. Viral Receptors, Uptake, and Disassembly; VII. Antigenic Structure and Functions; VIII. Molecular Aspects of Pathogenesis and Virulence; IX. Strategies for Control of Virus Disease.

Ordering Instructions
June 1990, hardcover (ISBN 1-55581-022-5), 405 pages, illustrated, color plates, index. Member: $59.00; Nonmember: $75.00. When ordering, specify order number MCB 1190-022-5. Credit card orders for ASM books may be placed by phone (202-737-3600) or by fax (202-737-0388). All other orders must be prepaid in U.S. dollars drawn on a U.S. bank. Institutional purchase orders should include the order number above.
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; Stöffler-Melilcke and Stöffler; Yonath et al.; Ehresmann et al.; Draper, Egeb erg, Larsen, and Garrett; Oakes et al.; Serdyuk et al.; and Wool et al.). Probing rRNA Function (4 chapters by Rau et al.; Taprich et al.; Cunningham et al.; and Hill et al.). Initiation (5 chapters by Van Knippenberg; Hartz, McPheeters, and Gold; Gualerzi et al.; Merrick; and Munroe and Jacobson). Elongation (8 chapters by Liljas; Rheinberger et al.; Zimmermann, Thomas, and Wower; Wintermeyer, Lill, and Robertson; Barta, Kuechler, and Steinert; 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 Schlesinger; Musters et al.; Warner 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 Lazo). 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; Wittmann-Liebold et al.; Mattheson et al.; Finley, Bartel, and Varshavsky; Amils et al.; and Subramanian, Smoooker, and Giese).

August 1990
Hardcover (ISBN 1-55581-020-9)
696 pages, large format, illustrated, color plates, index

To order, complete the form below and mail to ASM. Institutional purchase orders should include the offer number below. Credit card orders for ASM books may also be placed by phone (202-737-3600) or by fax (202-737-3668).

Please send me ____ copy(ies) of The Ribosome at
□ $57.00 (Member) / □ $64.00 (Nonmember) per copy (offer number MCB 1190-020-9).

Member number (if applicable) _______________________

Check payment method:
□ Check enclosed
□ MasterCard  □ VISA  □ American Express

Card Number ___________________________ Expires ____________

Signature ____________________________ Date ____________

Complete shipping information

Name ____________________________________________

Address _________________________________________

City/State/Zip or Postal code ______________

Country ____________________________

Send to:

ASM
Publication Sales
American Society for Microbiology
1325 Massachusetts Avenue, N.W.
Washington, DC 20005-4171
**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 ADPribosylating 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.

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.

**CONDENSED CONTENTS**

I. **Bacterial ADP-Ribosyltransferases: Toxins and Related Proteins** (9 chapters by Collier, Bodley and Veldman, Wick and Iglewski, Uliaktories and Just, Aktories et al., Mekalanos and DiRita, Fishman, and Murphy and Strom)

II. **Guanine Nucleotide-Binding Proteins Coupled to Signal Transduction in Animal Cells** (13 chapters by Raymond et al., Kaziro, Spiegel, Birnbaumer et al., De Vivo and Gershengorn, Snyderman et al., Serventi et al., Manning, Gautam and Simon, Gibbs et al., Price et al., Takai et al., and Boback et al.)

III. **ADP Ribosylation in Bacteria and Animal Cells** (6 chapters by Lowery and Ludden, Jacobson et al., Williamson and Moss, Iglewski and Fendrick, Ueda, and Miwa and Sugimura)

Hardcover (ISBN 1-55581-017-9) March 1990 585 pages, illustrated, color plate, index

To order, complete the form below and mail to ASM. Institutional purchase order forms should include the catalog number below. Credit card orders for ASM books may also be placed by phone (202-737-3600) or by fax (202-737-0368).

Please send me ADP-Ribosylating Toxins and G Proteins (catalog number MCB 11 90 017-9).

Check payment method

☐ Payment enclosed
☐ MasterCard
☐ Visa
☐ American Express

Card number: __________________________
Expiration date: __________________________
Signature: __________________________

Check price

☐ Member: $69.00 × ______ = $
☐ Nonmember: $79.00 × ______ = $

If ordering at member price, give member number: __________________________

Please print or type mailing information

Name __________________________
Address __________________________
City __________________________ State/Province __________________________
Zip/Postal code __________________________ Country __________________________

Send to: Publication Sales
American Society for Microbiology
1325 Massachusetts Avenue, N.W.
Washington, DC 20005
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)
2. Nature of the Hydrophobic Effect (Duncan-Heckitt)
3. Microbial Hydrophobicity and Fermentation Technology (Mozes and Rouxhet)
4. Role of Hydrophobic Interactions in Microbial Adhesion to Plastics Used in Medical Devices (Klotz)
5. Hydrophobicity of Proteins and Bacterial Fimbriae (Irvin)
6. Adhesion of Bacteria to Plant Cells (Smit and Stacey)
7. Hydrophobicity in the Aquatic Environment (Bar-Or)
8. Changes in Bacterial Surface Hydrophobicity during Morphogenesis and Differentiation (E. Rosenberg and Sar)
9. Cell Surface Hydrophobicity of Medically Important Fungi, especially Candida Species (Hazen)
10. Significance of Hydrophobicity in the Adhesiveness of Pathogenic Gram-Negative Bacteria (Lachica)
11. Hydrophobic Characteristics of Staphylococci (Wadstrom)
12. Relative Importance of Surface Free Energy as a Hydrophobicity Measure in Bacterial Adhesion to Solid Surfaces (Busscher, Sjöland, and van der Mei)
13. Hydrophobicity of Group A Streptococci and Its Relationship to Adhesion of Streptococci to Host Cells (Courtney, Hasty, and Ofek)
14. Hydrophobicity of Oral Bacteria (Doyle, M. Rosenberg, and Drake)

Hardcover (ISBN 1-55581-028-4). November 1990. 435 pages, illustrated, index. Member, $52.00; Nonmember, $65.00. Charge card orders may also be placed by telephone (202-737-3600) or by fax (202-737-0368). Institutional purchase orders should include the offer number below.

Please send me ______ copy(ies) of Microbial Cell Surface Hydrophobicity at (check one) □ $52.00 member; □ $65.00 non-member each (offer number 361B 11 90-028-4).
Check payment method
□ Check enclosed
Charge to my □ MasterCard □ Visa □ American Express
Card number: ___________________________ Expire: __________________
Signature: ___________________________ Date: ______________
Member number (if applicable) ___________________________
Ship to
Name ________________________________________________
Address ________________________________________________
City State Zip or Postal Code ___________________________
Country ________________________________________________

Send to: Publication Sales
American Society for Microbiology
1325 Massachusetts Avenue, N.W.
Washington, DC 20005-4171