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

**CALCIUM AS AN INTRACELLULAR MESSENGER IN EUCA PrimaryMicrobes**

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**

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 Tenticle Contraction in Suctorian 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 Gibor); Oscillator Control of Cell Division Cycles in *Euglena* (Edmunds and Tamponnet); Calcium and Membrane Excitation in *Paramaecium* (Schultz et al.); Release of Lysozyme Enzymes in *Tetrahymena* (Florin-Christensen et al.); Calcium- and Phospholipid-Dependent Protein and Lipid Kinases in *Neurospora crassa* (Turjan and Favre); A Novel Ca2+-Activated Protease from an Aquatic Fungus, *Allomyces arbuscula* (Okita); 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: Caltracin: 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* (Loranger); Calcium as a Second Messenger in *Acetabularia* (Van Driessche); Calcium, Calmodulin, and Cell Differentiation in the Amoeboflagellate *Naegleria* (Fulton); Calcium-Dependent Regulatory Pathways in *Trypanosoma brucei* (Ruben and Haghjat); 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 Auto inhibit of Cell and Pronuclear Fusion in *Dictyostelium discoideum* (Lydman et al.)


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UNIT 16.2 Expression Using the T7 RNA Polymerase Promoter System, S. Tabor, Harvard Medical School


UNIT 16.4 Introduction to Expression by Fusion Protein Vectors, P. Riggs, New England Biolabs

UNIT 16.5 Expression and Purification of lacZ and trpE Fusion Proteins, T. Hoey, University of California, Berkeley

UNIT 16.6 Expression and Purification of Maltose-Binding Protein Fusions, P. Riggs, New England Biolabs

UNIT 16.7 Expression and Purification of Glutathione-S-Transferase Fusion Proteins, D. B. Smith, University of Dundee, and L. M. Corcoran, Whitehead Institute

UNIT 16.8–16.11 Expression of Proteins in Insect Cells Using Baculoviral Vectors, H. Piwnica-Worms, Tufts Medical School

Other topics include high-efficiency transfection of mammalian cells, preparation of nuclear and cytoplasmic extracts, λ DNA prep using column chromatography, and an updated table of restriction enzymes.

The upcoming Supplement 12 will include such topics as use of luciferase in mammalian transfection, synthesis and use of biotinylated probes, chemical and UV mutagenesis of yeast, and several charts and tables on the properties of amino acids and nucleic acids. Not only are these topics on the cutting edge of science, but the presentations are highly accessible to the novice experimenter. As an early review in Nature noted, CPMB is "very user friendly and well laid out." Recently, it was cited in The Scientist, "Following in Merck's Footsteps," as one of 17 classic books that have a "winning combination of thoroughness, timeliness, and lucid explanations."

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A significant update on signalling processes in immunoregulation

LIGANDS, RECEPTORS, AND SIGNAL TRANSDUCTION IN REGULATION OF LYMPHOCYTE FUNCTION

Edited by John C. Cambier

THE ROLE of the physiologic ligands, including immunogens, major histocompatibility complex class I and class II molecule-associated peptides, and lymphoid cell-associated ligands, has been the focus of intense research over the last decade. Immunologists concur that one necessary precursor to intelligent therapeutic intervention in immunologic diseases is a full understanding of the means by which these ligands and their receptors engage in the transduction of signals across the plasma membrane, with subsequent alteration of gene expression.

This book provides a comprehensive update of the current state of knowledge about the molecular basis of the intervening events between receptor-ligand interaction and biologic responses. The chapters addressing antigen, interleukin-2, and interleukin-1 receptors provide relatively complete descriptions of their operative processes, while the chapters on B-cell regulatory lymphokines reflect the more limited current knowledge of the processes. The book also addresses the phenomenon of cross-modulation of signalling and the ability of members of the family of "cluster of differentiation" antigens to act as signal transducers.

Researchers, postdoctoral fellows, and graduate students in the fields of immunology and cell biology will find this discussion of the signalling processes operative in physiologic regulation of lymphocytes useful both as a summary of present knowledge and as a roadmap for future research.

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An object of a controversial subject—

IDIOTYPIC NETWORK AND DISEASES

Editors: Jan Cerny and Jacques Hermaux

SINCE Nobel Laureate Niels Jerne postulated that the immune system is an idiotypic—a self-specific—network, controversy has surrounded this concept which is frequently either overstated or oversimplified. This new book, which clearly states the issues, reviews the evidence, and presents future research directions, will therefore find an enthusiastic response in the immunology, infectious disease, and medical microbiology communities.

The book opens with two general introductory chapters, discussing the evolution of antibody idiotypes and current concepts of the idiotypic network, including problems associated with reconciling these concepts with present immunological paradigms. Then follow seven chapters contributed by leading scientists in the areas of viral infections, autoimmunity, allergy, tumor immunology, mycobacterial infections, and bacterial infections.

Of particular importance to an informed view of the field is the discussion of whether or not the idiotypic network is activated by an autologous mechanism. While still in the empirical stage, research studies described in the book will eventually permit investigators to predict which outcomes of the host’s idiotypic response will be positive and which negative. As a consequence, manipulation of the idiotypic network in the control of chronic infectious and autoimmune diseases becomes a possible medical answer to the exigencies of certain viral, bacterial, and parasitic infections.

The book, with its balanced perspective of a difficult and controversial subject, will be especially useful to immunopathologists, immunologists, and infectious disease specialists. In addition, it is appropriate for advanced graduate level students.

CONTENTS
1. Ontogeny of the Antibody Repertoire. Anthony J. Weido, Joshy Jacob, and Garnett Kelsoe
2. Concept of Idiotypic Network: Description and Functions. Jan Cerny and Jacques Hermaux
3. Viral Infections. Glen N. Gaulton and David B. Weiner
4. Occurrence, Roles, and Uses of Idiotypes and Anti-Idiotypes in Parasitic Diseases. Daniel G. Colley
5. Anti-Idiotype Antibodies to Bacterial Capsular Polysaccharides. M. A. J. Westerink, E. Muller, and M. A. Apicella
7. The Idiotypic Network and Immediate Hypersensitivity. Jean-Marie R. Saint-Remy
8. Idiotypy in Autoimmunity. Maurizio Zanetti, Nebojsa Dovezeuski, Petar Lenert, and Maurizio Sollazzo

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MICROBIAL DETERMINANTS OF VIRULENCE AND HOST RESPONSE

Editor: Elia M. Ayoub  Coeditor: Gail H. Cassell
Associate Editors: William C. Branche, Jr., and Timothy J. Henry

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 Deepe; 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).
V. Antibiotic Resistance (4 chapters by Smith; Tomasz; Jacoby; and Levy).

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Fc RECEPTORS AND THE ACTION OF ANTIBODIES

Edited by Henry Metzger

Written for investigators, postdoctoral fellows, and graduate students in immunology, this exciting new ASM book details the mechanisms by which antibodies react with Fc receptors and regulate their own biosynthesis, transport, and catabolism. In addition, the monograph provides fresh insights into how these receptors can initiate the complement cascade, stimulate phagocytosis, trigger release of cellular mediators, and promote cell-mediated killing of other cells and of microorganisms.

Sections include:
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- Fc Receptor-Mediated Secretion
- Fc Receptor-Mediated Killing
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ESCHERICHIA COLI
LINKAGE MAP

Call for reprints

The 1990 Escherichia coli linkage map, edition 8 (Microbiol. Rev. 54:130–197, 1990), was 2 years out of date at the time of publication. One of the major problems in revising the map is that of obtaining copies of all the papers containing mapping data. While edition 8 was being prepared, the Yale University science libraries cancelled their subscriptions to many journals, and they cannot afford to subscribe to many new ones. It would be immensely helpful if authors of papers containing mapping data of any sort would send to me reprints of their papers from all journals other than the Journal of Bacteriology. This might permit publication of map revisions in a more timely fashion.

Barbara J. Bachmann
Department of Biology
OML 355
Yale University
P.O. Box 6666
New Haven, CT 06511-7444

E. COLI WALL MAP AVAILABLE

A limited supply of the following will be available from ASM: reprints of the article “Linkage Map of Escherichia coli K-12, Edition 8,” by Barbara J. Bachmann (Microbiol. Rev. 54:130–197, 1990) and wall charts (ca. 21 × 24½") of the E. coli linkage map. Shipped together in a mailing tube. $10.50, U.S. and Canada; $12.50, foreign (surface).

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PHYSICAL AND GENETIC MAP OF
ESCHERICHIA COLI

Call for Contributions

The Journal of Bacteriology will publish in brief text or tabular form and on a quarterly basis the physical locations of genes and loci assigned to the Escherichia coli chromosome. This information can be presented by the unambiguous identification of a matching restriction pattern or by the assignment of a gene or locus to a particular λ phage from the “Miniset” library. Manuscript should be submitted in duplicate to the ASM Publications Department. All parts must be typed double spaced. Galley proofs will not be sent to the authors, and no page charge(s) will be assessed for these contributions. Reprints will not be available. For a more complete description of these submissions, see the January 1990 issue of ASM News, p. 6–7.

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. An in-depth examination of their common mechanisms of cell transformation is the focus of this volume, arising from the 1989 ICN-UCI International Conference on Virology.

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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.

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, Ui, Aktores and Just, Aktories et al., Mekalanos and Di-Rita, 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

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THE LATEST INFORMATION ON SOME VIRUS "SUPERFAMILIES"—

EDITED BY MARGO A. BRINTON
AND FRANZ X. HEINZ

THIS BOOK presents the latest thinking on positive-strand RNA viruses. These include the majority of plant viruses, insect viruses, and animal viruses, including picornavirus, corona- virus, togavirus, flavivirus, poliovirus, and rhinovirus. Arising from the 2nd International Symposium on Positive-Strand RNA Viruses, held in Vienna, Austria, in June 1989, the book is a compendium of reviews of exciting research in this dynamic field currently being performed at over 40 laboratories.

At one time considered divergent in structure, the viruses of the sindbis, polio, and coronavirus superfamilies are increasingly known to share important similarities which allow them to shuffle conserved amino acid units to form new viruses. The implications for plant, animal, and human viral studies, including vaccine and antiviral-compound development, are serious. In addition, the book gives new insight into the diversity of the structure of picornaviruses. The first animal viruses to be crystallized, the picornaviruses have had enormous influence on subsequent discussions of viral structure. Several color plates illustrate the structural projections of these viruses and add to the book's overall usefulness.

The book will be valued both as an update for virologists, molecular biologists, viral immunologists, medical virologists, and researchers in vaccine development and antiviral compounds and as supplemental reading for basic virology courses in medical schools and universities. In addition, it is highly recommended for advanced courses in positive-strand RNA virology.

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