## CONTENTS

### ACCELERATED COMMUNICATIONS

**THOMAS A. GASIEWICZ AND GEORGE RUCCI.** $\alpha$-Naphthoflavone Acts as an Antagonist of 2,3,7,8-Tetrachlorodibenzo-p-dioxin by Forming an Inactive Complex with the Ah Receptor ........................................... 607

**MALCOLM L. HANDEL, ANNA DEFAZIO, COLIN K. W. WATTS, RICHARD O. DAY, AND ROBERT L. SUTHERLAND.** Inhibition of DNA Binding and Transcriptional Activity of a Nuclear Receptor Transcription Factor by Aurothiomalate and Other Metal Ions 613

### ARTICLES

**DEBRA A. SCHWINN, STELLA O. PAGE, JOHN P. MIDDLETON, WULFING LORENZ, STEPHEN B. LIGGETT, KYOHEI YAMAMOTO, EDUARDO G. LAPETINA, MARC G. CARON, ROBERT J. LEFKOWITZ, AND SUSANNA COTECCHIA.** The $\alpha_1$-Adrenergic Receptor: Characterization of Signal Transduction Pathways and Mammalian Tissue Heterogeneity . . . . 619

**STEVEN J. MCCLUE AND GRAEME MILLIGAN.** Molecular Interaction of the Human $\alpha_2$-ClO-Adrenergic Receptor, When Expressed in Rat-1 Fibroblasts, with Multiple Pertussis Toxin-Sensitive Guanine Nucleotide-Binding Proteins: Studies with Site-Directed Antisera .......... 627

**FABIAN GUSOVSKY.** Prostaglandin Receptors in NIH 3T3 Cells: Coupling of One Receptor to Adenylate Cyclase and of a Second Receptor to Phospholipase C . . . . 633

**VICKRAM RAMKUMAR, MARK E. OLAH, KENNETH A. JACOBSON, AND GARY L. STILES.** Distinct Pathways of Desensitization of $\alpha_1$- and $\alpha_2$-Adenosine Receptors in DDT, MF-2 Cells .......................................................... 639

**H. ALEX BROWN, EDUARDO R. LAZAROWSKI, RICHARD C. BOUCHER, AND T. KENDALL HARDEN.** Evidence that UTP and ATP Regulate Phospholipase C through a Common Extracellular 5′-Nucleotide Receptor in Human Airway Epithelial Cells 648

**BRIAN F. THOMAS, DAVID R. COMPTON, BILLY R. MARTIN, AND SIMON F. SEMUS.** Modeling the Cannabinoid Receptor: A Three-Dimensional Quantitative Structure-Activity Analysis .................................................. 656

**RACHEL HARING, DOMENICO E. PELLEGRINI-GIAMPIETRO, STEPHEN R. ZUKIN, R. SUZANNE ZUKIN, AND MARK A. SCHEIDLER.** High Efficiency Reconstitution of a Phencyclidine/MK-801 Receptor Binding Site Solubilized from Rat Forebrain Membranes 666

**WILLIAM G. HELFERICH AND MICHAEL S. DENISON.** Ultraviolet Photoproducts of Tryptophan Can Act as Dioxin Agonists .................. 674

**CHUL-HO YUN, TSUTOMU SHIMADA, AND F. PETER GUENGERICH.** Purification and Characterization of Human Liver Microsomal Cytochrome P-450 2A6 ......... 679

**Continued**
CONTENTS (cont’d)

FRANCESCO DE MATTEIS, SALLY J. DAWSON, ALAN R. BOOBIS, AND ADRIANA COMOGLIO. Inducible Bilirubin-Degrading System of Rat Liver Microsomes: Role of Cytochrome P450IA1 ...................................................... 686

MICHAEL P. LAWTON, THOMAS KRONBACH, ERIC F. JOHNSON, AND RICHARD M. PHILPOT. Properties of Expressed and Native Flavin-Containing Monoxygenases: Evidence of Multiple Forms in Rabbit Liver and Lung ............................................................... 692

JEAN-FRANÇOIS RIOU, PHILIPPE HELISSEY, LUCILE GRONDARD, AND SYLVIANE GIORGI-RENAULT. Inhibition of Eukaryotic DNA Topoisomerase I and II Activities by Indoloquinolinedione Derivatives ......................................................... 699

MARK A. GERHARDT AND RICHARD R. NEUBIG. Multiple G, Protein Subtypes Regulate a Single Effector Mechanism ................................................. 707

CAROL DAVID AND SARA FUCHS. Antipeptide Antibodies Localize N-(4-Azido-3-['25I]iodophenethyl)spiperone Binding to the Carboxyl-Terminal Portion of the D2 Dopamine Receptor ................................................................. 712


FRANK S. MENNITI, HARUO TAKEMURA, KERRY G. OLIVER, AND JAMES W. PUTNEY, JR. Different Modes of Regulation for Receptors Activating Phospholipase C in the Rat Pancreatoma Cell Line AR4-2J ........................................... 727

WEI ZHENG, DAVID RAMPE, AND DAVID J. TRIGGLE. Pharmacological, Radioligand Binding, and Electrophysiological Characteristics of FPL 64176, a Novel Nondihydropyridine Ca2+ Channel Activator, in Cardiac and Vascular Preparations ............................................. 734

JOHN L. WERTH, LANE D. HIRNING, AND STANLEY A. THAYER. ω-Conotoxin Exerts Functionally Distinct Low and High Affinity Effects in the Neuronal Cell Line NG108-15 ................................................................. 742

YU WANG AND ROBERT L. ROSENBERG. Ethaverine, a Derivative of Papaverine, Inhibits Cardiac L-Type Calcium Channels ........................................ 750

DAVID S. RAGSDALE, TODD SCHEUER, AND WILLIAM A. CATTERALL. Frequency and Voltage-Dependent Inhibition of Type IIA Na+ Channels, Expressed in a Mammalian Cell Line, by Local Anesthetic, Antiarrhythmic, and Anticonvulsant Drugs ............................................................... 756

JAMES J. CELENTANO, MIKLOS GYENES, TERRELL T. GIBBS, AND DAVID H. FARBER. Negative Modulation of the γ-Aminobutyric Acid Response by Extracellular Zinc ................................................................. 766

KEITH WILLIAMS, JILL L. HANNA, AND PERRY B. MOLINOFF. Developmental Changes in the Sensitivity of the N-Methyl-D-Aspartate Receptor to Polyamines ................................................................. 774

STEPHEN J. WALL, ROBERT P. YASUDA, MIN LI, AND BARRY B. WOLFE. Development of an Antiserum Against m3 Muscarinic Receptors: Distribution of m3 Receptors in Rat Tissues and Clonal Cell Lines ................................................................. 783

Continued
Eiichi Tachikawa, Saburo Takahashi, Katsuro Furumachi, Takeshi Kashimoto, Akira Iida, Yasuo Nagaoka, Tetsuro Fujita, and Yoshihisa Takaishi. Trichosphorin-B-III, an α-Aminoisobutyric Acid-Containing Peptide, Causes Ca²⁺-Dependent Catecholamine Secretion from Adrenal Medullary Chromaffin Cells 790

Dana T. Aftab, Lawrence M. Ballas, Carson R. Loomis, and William N. Hait. Structure–Activity Relationships of Phenothiazines and Related Drugs for Inhibition of Protein Kinase C 798


Laura E. Nagy, Ivan Diamond, and Adrienne S. Gordon. cAMP-Dependent Protein Kinase Regulates Inhibition of Adenosine Transport by Ethanol 812

Patricia A. Harper, Cheryl L. Golas, and Allan B. Okey. Ah Receptor in Mice Genetically “Nonresponsive” for Cytochrome P4501A1 Induction: Cytosolic Ah Receptor, Transformation to the Nuclear Binding State, and Induction of Aryl Hydrocarbon Hydroxylase by Halogenated and Nonhalogenated Aromatic Hydrocarbons in Embryonic Tissues and Cells 818


Richard J. Kulmacz, Graham Palmer, and Ah-Lim Tsai. Prostaglandin H Synthase: Perturbation of the Tyrosyl Radical as a Probe of Anticyclooxygenase Agents 833

Z. Zhu, M. J. M. Hitchcock, and J. P. Sommadossi. Metabolism and DNA Interaction of 2',3'-Didehydro-2',3'-dideoxythymidine in Human Bone Marrow Cells 838

Volker Fischer, Johannes A. Haar, Laura Greiner, Roger V. Lloyd, and Ronald P. Mason. Possible Role of Free Radical Formation in Clozapine (Clozaril)-Induced Agranulocytosis 846

Wei-Wei Li, James T. Lin, Barry I. Schweitzer, and Joseph R. Bertino. Mechanisms of Sensitivity and Natural Resistance to Antifolates in a Methylcholanthrene-Induced Rat Sarcoma 854

Delmont C. Eberhart, Brian Gemzik, Michael R. Halvorson, and Andrew Parkinson. Species Differences in the Toxicity and Cytochrome P450 IIIA-Dependent Metabolism of Digitoxin 859