

Contents

ACCELERATED COMMUNICATIONS

- 219 Differential Expression of Sumatriptan-Sensitive 5-Hydroxytryptamine Receptors in Human Trigeminal Ganglia and Cerebral Blood Vessels
Isabelle Bouchelet, Zvi Cohen, Bruce Case, Philippe Séguéla, and Edith Hamel
- 224 Uridine Nucleotide Selectivity of Three Phospholipase C-Activating P₂ Receptors: Identification of a UDP-Selective, a UTP-Selective, and an ATP- and UTP-Specific Receptor
Robert A. Nicholas, William C. Watt, Eduardo R. Lazarowski, Qing Li, and T. Kendall Harden
- 230 Leptin, the *Obese* Gene Product, Rapidly Modulates Synaptic Transmission in the Hypothalamus
Steven R. Glaum, Manami Hara, Vytautas P. Bindokas, Chong C. Lee, Kenneth S. Polonsky, Graeme I. Bell, and Richard J. Miller

ARTICLES

- 236 Treatment of Glioblastoma U-87 by Systemic Administration of an Antisense Protein Kinase C- α Phosphorothioate Oligodeoxynucleotide
Takahito Yazaki, Shakeel Ahmad, Ali Chahlavi, Ester Zylber-Katz, Nicholas M. Dean, Samuel D. Rabkin, Robert L. Martuza, and Robert I. Glazer

Continued

MOLECULAR PHARMACOLOGY (MOL/ISSN 0026-895X) is an official publication of The American Society for Pharmacology and Experimental Therapeutics and is published monthly, two volumes a year, beginning in January and July, by Williams & Wilkins, 351 West Camden Street, Baltimore, MD 21201-2436. Periodicals Postage paid at Baltimore, MD and at additional mailing offices. POSTMASTER: Send address changes to MOLECULAR PHARMACOLOGY, 351 West Camden Street, Baltimore, MD 21201-2436. **Subscription Rates: U.S.: Personal \$115; Institutional \$250; Single copy \$23. Outside the U.S., except for Japan: Personal \$150; Institutional \$285; Single copy \$26.** Foreign prices exclude Japan. **See Information for Subscribers for detailed instructions.** The GST Tax Number for Canadian subscribers is 123394371. Country of origin USA. C.P.C. Int'l Publication Mail #0059870. **PRICES ARE SUBJECT TO CHANGE.** Indexed by *Index Medicus*, *Current Contents (Life Sciences)*, *Excerpta Medica*, *Reference Update/Research Information Systems*, and *Current Awareness in Biological Sciences*. Copyright © 1996 by The American Society for Pharmacology and Experimental Therapeutics.

CONTENTS (cont'd)

- 243 Resistance to Etoposide in Human Leukemia HL-60 Cells: Reduction in Drug-Induced DNA Cleavage Associated with Hypophosphorylation of Topoisomerase II Phosphopeptides
Ram Ganapathi, Andreas Constantinou, Narayana Kamath, George Dubyak, Dale Grabowski, and Kim Krivacic
- 249 Inhibition of 12-*O*-Tetradecanoylphorbol-13-acetate-Induced Ornithine Decarboxylase Activity by Genistein, a Tyrosine Kinase Inhibitor
Ching-Ping Tseng and Ajit K. Verma
- 258 A Novel G Protein-Coupled P₂ Purinoceptor (P_{2Y3}) Activated Preferentially by Nucleoside Diphosphates
Tania E. Webb, Duncan Henderson, Brian F. King, Shuyan Wang, Joseph Simon, Alan N. Bateson, Geoffrey Burnstock, and Eric A. Barnard
- 266 Inability to *N*-Glycosylate the Human Norepinephrine Transporter Reduces Protein Stability, Surface Trafficking, and Transport Activity but Not Ligand Recognition
Haley E. Melikian, Sammanda Ramamoorthy, Christopher G. Tate, and Randy D. Blakely
- 277 Characterization of Hepatic Nitric Oxide Synthase: Identification as the Cytokine-Inducible Form Primarily Regulated by Oxidants
Dawn L. Duval, Danette R. Miller, John Collier, and Ruth E. Billings
- 285 Neuropeptide Y and the Nonpeptide Antagonist BIBP 3226 Share an Overlapping Binding Site at the Human Y₁ Receptor
Martine Sautel, Klaus Rudolf, Helmut Wittneben, Herbert Herzog, Raquel Martinez, Miguel Munoz, Wolfgang Eberlein, Wolfhard Engel, Philippe Walker, and Annette G. Beck-Sickinger
- 293 Differential Blockade of Opioid Analgesia by Antisense Oligodeoxynucleotides Directed against Various G Protein α Subunits
Kelly M. Standifer, Grace C. Rossi, and Gavril W. Pasternak
- 299 Irreversible Inhibition of Forskolin Interactions with Type I Adenylyl Cyclase by a 6-Isothiocyanate Derivative of Forskolin
Elizabeth McHugh Sutkowski, Joan D. Robbins, Wei-Jen Tang, and Kenneth B. Seamon
- 306 Rapid Agonist-Induced Internalization of the 5-Hydroxytryptamine_{2A} Receptor Occurs via the Endosome Pathway *In Vitro*
Sally A. Berry, Margi C. Shah, Naseem Khan, and Bryan L. Roth
- 314 A Nonantisense Sequence-Selective Effect of a Phosphorothioate Oligodeoxynucleotide Directed against the Epidermal Growth Factor Receptor in A431 Cells
Judy M. Coulson, David R. Poyner, Andrew Chantry, William J. Irwin, and Saghir Akhtar
- 326 Tienilic Acid-Induced Autoimmune Hepatitis: Anti-Liver and -Kidney Microsomal Type 2 Autoantibodies Recognize a Three-Site Conformational Epitope on Cytochrome P4502C9
S. Lecoeur, C. André, and P. H. Beaune

Continued

CONTENTS (cont'd)

- 334 **Attenuation of Inducible Nitric Oxide Synthase Gene Expression by Δ^9 -Tetrahydrocannabinol Is Mediated through the Inhibition of Nuclear Factor- κ B/Rel Activation** Young J. Jeon, Kyu-H. Yang, Jim T. Pulaski, and Norbert E. Kaminski
- 342 **Cytochrome P4502D4 in the Brain: Specific Neuronal Regulation by Clozapine and Toluene** Eva Hedlund, Adrian Wyss, Tommi Kainu, Maria Backlund, Christer Köhler, Markku Pelto-Huikko, Jan-Åke Gustafsson, and Margaret Warner
- 351 **Structural Requirements for G_o Activation by Receptor-Derived Peptides: Activation and Modulation Domains of the α_2 -Adrenergic Receptor i3c Region** Susan M. Wade, Mary K. Scribner, Hiroko Mori Dalman, Joan M. Taylor, and Richard R. Neubig
- 359 **Potent Inhibition of Human Immunodeficiency Virus and Herpes Simplex Virus Type 1 by 9-(2-Phosphonylmethoxyethyl)adenine in Primary Macrophages Is Determined by Drug Metabolism, Nucleotide Pools, and Cytokines** Carlo-Federico Perno, Emanuela Balestra, Stefano Aquaro, Stefania Panti, Alessandra Cenci, Giuseppe Lazzarino, Barbara Tavazzi, Donato Di Pierro, Jan Balzarini, and Raffaele Caliò
- 367 **Thrombin-Stimulated Phospholipase C Activity Is Inhibited without Visible Delay by a Rapid Increase in the Cyclic GMP Levels Induced by Sodium Nitroprusside** F. J. Azula, E. S. Alzola, M. Conde, M. Trueba, J. M. Macarulla, and A. Marino
- 380 **Mapping the Block of a Cloned Human Inward Rectifier Potassium Channel by Dofetilide** J. Kiehn, B. Wible, A. E. Lacerda, and A. M. Brown
- 388 **Transport of the Antiviral Nucleoside Analogs 3'-Azido-3'-deoxythymidine and 2',3'-Dideoxycytidine by a Recombinant Nucleoside Transporter (rCNT1) Expressed in *Xenopus laevis* Oocytes** Sylvia Y. M. Yao, Carol E. Cass, and James D. Young
- 394 **Highly Favorable Antiviral Activity and Resistance Profile of the Novel Thiocarboxanilide Pentenyloxy Ether Derivatives UC-781 and UC-82 as Inhibitors of Human Immunodeficiency Virus Type 1 Replication** J. Balzarini, H. Pelemans, S. Aquaro, C.-F. Perno, M. Witvrouw, D. Schols, E. De Clercq, and A. Karlsson
- 402 **A Single Amino Acid Determines Differences in Ethanol Actions on Strychnine-Sensitive Glycine Receptors** Maria Paola Mascia, S. John Mihic, C. Fernando Valenzuela, Peter R. Schofield, and R. Adron Harris
- 407 **α_2 -Adrenergic Receptors Activate Phospholipase C in Renal Epithelial Cells** Frank A. Gesek
- 415 **Inhibition of Receptor/G Protein Coupling by Suramin Analogues** Wolfgang Beindl, Thomas Mitterauer, Martin Hohenegger, Adriaan P. Ijzerman, Christian Nanoff, and Michael Freissmuth

Continued

CONTENTS (cont'd)

- | | | |
|-----|---|--|
| 424 | Receptor Internalization Delays m4 Muscarinic Acetylcholine Receptor Resensitization at the Plasma Membrane | Galina S. Bogatkewitsch, Wolfgang Lenz, Karl H. Jakobs, and Chris J. Van Koppen |
| 430 | Novel Natriuretic Peptide Receptor/Guanylyl Cyclase A-Selective Agonist Inhibits Angiotensin II- and Forskolin-Evoked Aldosterone Synthesis in a Human Zona Glomerulosa Cell Line | Linda J. Olson, David G. Lowe, and James G. Drewett |
| 436 | Identification of Cholecystokinin-B/Gastrin Receptor Domains that Confer High Gastrin Affinity: Utilization of a Novel <i>Xenopus laevis</i> Cholecystokinin Receptor | Frank Schmitz, Daniel S. Pratt, Ming-Juan Wu, Lee F. Kolakowski, Jr., Martin Beinborn, and Alan S. Kopin |

Visit *Molecular Pharmacology* on the World-Wide Web at:
http://www.wwilkins.com/molec_pharm/

About the cover: Targeting of δ -opioid receptor to surface membranes. COS-1 cells were transfected with a mouse δ -opioid receptor mutant (D128A), for which the conserved aspartate in the third membrane domain is replaced by alanine. Cells were double-labeled with fluorescein-conjugated concanavalin A to label the plasma membrane (*green*) and with an anti- δ -opioid receptor antibody followed by rhodamine-conjugated streptavidin (*red*). *Yellow* shows the region of colocalization. This mutant exhibited reduced expression and subtle changes in its ability to bind certain agonist ligands. From Befort, K., L. Tabbara, S. Bausch, C. Chavkin, C. Evans, and B. Kieffer. The conserved aspartate residue in the third putative transmembrane domain of the δ -opioid receptor is not the anionic counterpart for cationic opiate binding but is a constituent of the receptor binding site. *Mol. Pharmacol.* **49**: 216–223 (1996).