

Contents

ANALGESICS

- Pharmacologic Evidence That Spinal Muscarinic Analgesia is Mediated by an L-Arginine/Nitric Oxide/Cyclic GMP Cascade in Rats** Edgar T. Iwamoto and Lisa Marion 601
- Irreversible Opioid Antagonist Effects of Cloccinamox on Opioid Analgesia and *Mu* Receptor Binding in Mice** Timothy F. Burke, James H. Woods, John W. Lewis and Fedor Medzihradsky 715
- A Pharmacodynamic Model to Investigate the Structure-Activity Profile of a Series of Novel Opioid Analgesics** Michael W. Lutz, Paul H. Morgan, Michael K. James, Paul L. Feldman, Marcus F. Brackeen, Avis P. Lahey, Suzanne V. James, Joanne M. Bilotta and Joyce C. Pressley 795
- β -Endorphin-Induced Cardiorespiratory Depression is Inhibited by Glycyl-L-Glutamine, a Dipeptide Derived from β -Endorphin Processing** Can B. Unal, Medge D. Owen and William R. Millington 952
- Antinociceptive and Respiratory Effects of Nalbuphine in Rhesus Monkeys** Lisa R. Gerak, Eduardo R. Butelman, James H. Woods and Charles P. France 993

AUTONOMIC PHARMACOLOGY

- Mangafodipir (MnDPDP)- and Mn Cl₂-Induced Endothelium-Dependent Relaxation in Bovine Mesenteric Arteries** Anna Asplund, Derek Grant and Jan Olof G. Karlsson 609
- Pertussis Toxin Blocks M₂ Muscarinic Receptor-Mediated Effects on Contraction and Cyclic AMP in the Guinea Pig Ileum, but not M₃-Mediated Contractions and Phosphoinositide Hydrolysis** Elizabeth A. Thomas and Frederick J. Ehlert 1042

BEHAVIORAL PHARMACOLOGY

- Polydipsia and Dopamine: Behavioral Effects of Dopamine D1 and D2 Receptor Agonists and Antagonists** Guy Mittleman, Amy L. Rosner and Carrie L. Schaub 638
- Tandospirone and Alprazolam: Comparison of Behavioral Effects and Abuse Liability in Humans** Suzette M. Evans, Joseph R. Troisi II and Roland R. Griffiths 683
- Clozapine Antagonizes Phencyclidine-Induced Deficits in Sensorimotor Gating of the Startle Response** Vaishali P. Bakshi, Neal R. Swerdlow and Mark A. Geyer 787
- In Vivo* Apparent pA₂ Analysis for Naltrexone Antagonism of Discriminative Stimulus and Analgesic Effects of Opiate Agonists in Rats** Ellen A. Walker, Malath M. Makhay, Jeff D. House and Alice M. Young 959

CARDIOVASCULAR PHARMACOLOGY

- Effects of Estrogen on Cardiovascular Responses of Premenopausal Monkeys** J. Kouly Williams, Young D. Kim, Michael R. Adams, Ming-Fong Chen, Adam K. Myers and Peter W. Ramwell 671
- Inhibition of the Biotransformation and Pharmacological Actions of Glyceryl Trinitrate by the Flavoprotein Inhibitor, Diphenyleneiodonium Sulfate** John J. McGuire, Diane J. Anderson and Brian M. Bennett 708
- Direct Vasoconstrictor Effects of Sandimmune (Cyclosporine A) are Mediated by Its Vehicle Cremophor EL: Inhibition by the Thromboxane A₂/Prostaglandin Endoperoxide Receptor Antagonist Ifetroban** Nicholas J. Lodge 730
- Role of Vascular α -1 Adrenoceptor Subtypes in the Pressor Response to Sympathetic Nerve Stimulation in the Pithed Rat** Hugo M. Vargas, Lily Zhou and Andrew J. Gorman 748

Nonpeptide Endothelin Receptor Antagonists. I. Effects on Binding and Signal Transduction on Human Endothelin_A and Endothelin_B Receptors	Ponnal Nambi, Nabil Elshourbagy, Hsiao-Ling Wu, Mark Pullen, Eliot H. Ohlstein, David P. Brooks, M. Amparo Lago, John D. Elliott, John G. Gleason and Robert R. Ruffolo, Jr.	755
Nonpeptide Endothelin Receptor Antagonists. II. Pharmacological Characterization of SB 209670	Eliot H. Ohlstein, George R. Beck, Jr., Stephen A. Douglas, Ponnal Nambi, M. Amparo Lago, John G. Gleason, Robert R. Ruffolo, Jr., Giora Feuerstein and John D. Elliott	762
Tolerance Development to the Vagal-Mediated Bradycardia Produced by 5-HT_{1A} Receptor Agonists	Robert B. McCall, Natalie A. Escandon, Lorri T. Harris and Mark E. Clement	776
Time Course of Losartan Blockade of Angiotensin II Hypertension Versus Blockade of Angiotensin II Fast Pressor Effects	Vyvian J. Gorbea-Oppliger, Matthew G. Melaragno, Gregg S. Potter, Renee L. Petit and Gregory D. Fink	804
Picomolar Platelet-Activating Factor Mobilizes Ca to Change Platelet Shape Without Activating Phospholipase C or Protein Kinase C; Simultaneous Fluorometric Measurement of Intracellular Free Ca Concentration and Aggregation	Marilyn R. James-Kracke, Robert B. Sexe and Shivendra D. Shukla	824
<i>In Vitro</i> Hypoxia Attenuates Vasorelaxation by Potassium Channel Opening Drugs and Nitroprusside in Isolated Pulmonary Arteries from Rats	Janet C. Wanstall	845
The L-Type Calcium Channel Current is Increased by <i>Alpha</i>-1 Adrenoceptor Activation in Neonatal Rat Ventricular Cells	Qin-Yue Liu, Edward Karpinski and Peter K. T. Pang	935
L-Channel Modulation by <i>Alpha</i>-1 Adrenoceptor Activation in Neonatal Rat Ventricular Cells: Intracellular Mechanisms	Qin-Yue Liu, Edward Karpinski and Peter K. T. Pang	944
Angiotensin II (AT₁) Vascular Binding Sites in Human Placentae from Normal-Term, Preeclamptic and Growth Retarded Pregnancies	Gregory A. Knock, Mark H. F. Sullivan, Andrew McCarthy, Murdoch G. Elder, Julia M. Polak and John Wharton	1007
Causes of Differential Cardiovascular Sensitivity to Cocaine II: Sympathetic, Metabolic and Cardiac Effects	Carrie A. Branch and Mark M. Knuepfer	1103
CELLULAR AND MOLECULAR PHARMACOLOGY		
Regulation of the Responses to Gonadotropin-Releasing Hormone, Muscarine and Substance P in Sympathetic Neurons by Changes in Cellular Constituents and Intracellular Application of Peptide Fragments of the Substance P Receptor	Mark A. Simmons, Carla R. Schneider and James E. Krause	581
Inhibition of K⁺ Channels by Chlorpromazine in Rat Ventricular Myocytes	Kimiya Kon, Elmar Krause and Heinz Gögelein	632
Species Orthologs of the <i>Alpha</i>-2A Adrenergic Receptor: The Pharmacologic Properties of the Bovine and Rat Receptors Differ from the Human and Porcine Receptors	M. F. O'Rourke, L. J. Iversen, J. W. Lomasney and D. B. Bylund	735
Contractile Serotonin-2A Receptor Signal Transduction in Guinea Pig Trachea: Importance of Protein Kinase C and Extracellular and Intracellular Calcium but Not Phosphoinositide Hydrolysis	Stephanie W. Watts, David A. Cox, Bryan G. Johnson, Darryle D. Schoepp and Marlene L. Cohen	832
Functional Reconstitution of Pharmacologically Distinct Subtypes of Nucleoside Transporters in Liposomal Membranes	James R. Hammond	906
Cloning and Pharmacologic Characterization of a Thromboxane A₂ Receptor from K562 (Human Chronic Myelogenous Leukemia) Cells	Drew D. D'Angelo, Michael G. Davis, Safdar Ali and Gerald W. Dorn, II	1034
CHEMOTHERAPY		
A Diaminoanthraquinone Inhibitor of Angiogenesis	Shingo Takano, Stephen Gately, Jack B. Jiang and Steven Brem	1027
DEVELOPMENTAL PHARMACOLOGY		
Over-Expression of CYP2C11, the Major Male-Specific Form of Hepatic Cytochrome P450, in the Presence of Nominal Pulses of Circulating Growth Hormone in Adult Male Rats Neonatally Exposed to Low Levels of Monosodium Glutamate	Nisar A. Pampori and Bernard H. Shapiro	1067

DRUG METABOLISM AND DISPOSITION

- | | | |
|---|--|-----|
| Effect of Interstitial Cystitis on Drug Absorption from Urinary Bladder | Xiang Gao, C. A. Tony Buffington and Jessie L.-S. Au | 818 |
| Metabolic Disposition of Imipramine in Oriental Subjects: Relation to Metoprolol α-Hydroxylation and S-Mephenytoin 4'-Hydroxylation Phenotypes | Eriko Koyama, Dong-Ryul Sohn, Sang-Goo Shin, Kan Chiba, Jae-Gook Shin, Young-Hum Kim, Hirotochi Echizen and Takashi Ishizaki | 860 |

GASTROINTESTINAL PHARMACOLOGY

- | | | |
|--|--|------|
| Inhibition of Nitric Oxide Synthase Delays Gastric Emptying of Solid Meals | Michihiro Orihata and Sushil K. Sarna | 660 |
| The Differential Roles of Sympathetic Nerve Activity in the Pathogenesis of Antral and Corpus Lesions Induced by Indomethacin in Rats | Kazuyoshi Kuratani, Hiroshi Kodama and Isamu Yamaguchi | 695 |
| Evidence for the Involvement of 5-Hydroxytryptamine 4 Receptors in 5-Hydroxytryptophan-Induced Diarrhea in Mice | S. S. Hegde, T. M. Moy, M. R. Perry, M. Loeb and R. M. Eglon | 741 |
| Nitric Oxide (NO) Inhibits Release of Acetylcholine from Nerves of Isolated Circular Muscle of the Canine Ileum: Relationship to Motility and Release of Nitric Oxide | Larysa M. Hryhorenko, Zofia Woskowska and Jo-Ann E. T. Fox-Threlkeld | 918 |
| Functional Subtyping of Histamine Receptors on the Canine Proximal Colonic Mucosa | P. K. Rangachari and T. Prior | 1016 |
| Strychnine-Binding Proteins in Intestinal Cells: Novel Brucine Binding Site with Binding Affinities for Alkaloids | Howard Farrington, Farrell Mendelsohn, Seewai Chan, Leslie Reinlib and Sandra E. Guggino | 1074 |
| Effects of Nitric Oxide Synthase Inhibition on the Pathophysiology Observed in a Model of Chronic Granulomatous Colitis | Matthew B. Grisham, Robert D. Specian and Theodore E. Zimmerman | 1114 |

IMMUNOPHARMACOLOGY

- | | | |
|---|--|------|
| Ethanol Decreases the Number and Activity of Splenic Natural Killer Cells in a Mouse Model for Binge Drinking | Wen-Jun Wu, R. Michael Wolcott and Stephen B. Pruet | 722 |
| Effect of Liposomal Methylprednisolone on Heart Allograft Survival and Immune Function in Rats | Elena V. Mishina, Jochen Binder, Jerzy W. Kupiec-Weglinski and William J. Jusko | 868 |
| Interleukin-2-Induced Enhancement of an Antigen-Specific IgM Plaque-Forming Cell Response Is Mediated by the Sympathetic Nervous System | Steve Zalcman, Julia M. Green-Johnson, Linda Murray, Weihua Wan, Dwight M. Nance and Arnold H. Greenberg | 977 |
| Effects of Cyclopentenone Prostaglandins on Myeloid Cells during Early Infection with HTLV-I. I. Cell Differentiation Determines Sensitivity to Prostaglandins and Virus Infection | Pedro M. Lecal, Antonella Puglianiello, Enzo Bonmassar and Chiara D'Onofrio | 1086 |
| Effects of Cyclopentenone Prostaglandins on Myeloid Cells during Early Infection with HTLV-I. II. Regulation of Synthesis of Inducible p72 Heat Shock Protein | Pedro M. Lecal, Carla Amici, Enzo Bonmassar and Chiara D'Onofrio | 1096 |

NEUROPHARMACOLOGY

- | | | |
|--|--|-----|
| Interleukin-1β Inhibits Synaptic Transmission and Induces Membrane Hyperpolarization in Amygdala Neurons | Baojian Yu and Patricia Shinnick-Gallagher | 590 |
| (\pm)-Epibatidine Elicits a Diversity of <i>In Vitro</i> and <i>In Vivo</i> Effects Mediated by Nicotinic Acetylcholine Receptors | James P. Sullivan, Michael W. Decker, Jorge D. Brioni, Diana Donnelly-Roberts, David J. Anderson, Anthony W. Bannon, Chae-Hee Kang, Pamala Adams, Marietta Piattoni-Kaplan, Michael J. Buckley, Murali Gopalakrishnan, Michael Williams and Stephen P. Arneric | 624 |
| Effect of Chronic Central Treatment with the Acetylcholine Analog Methylcarbamylcholine on Cortical Nicotinic Receptors: Correlation between Receptor Changes and Behavioral Function | Xiaohong Yang and Jerry J. Buccafusco | 651 |
| Steroid Potentiation and Inhibition of N-Methyl-D-Aspartate Receptor-Mediated Intracellular Ca⁺⁺ Responses: Structure-Activity Studies | Robert P. Irwin, Sui-Zhen Lin, Michael A. Rogawski, Robert H. Purdy and Steven M. Paul | 677 |

Crocin (Crocetin Di-Gentiobiose Ester) Prevents the Inhibitory Effect of Ethanol on Long-Term Potentiation in the Dentate Gyrus <i>in Vivo</i>	Minoru Sugiura, Yukihiko Shoyama, Hiroshi Saito and Kazuho Abe	703
Characterization of U-92016A as a Selective, Orally Active, High Intrinsic Activity 5-Hydroxytryptamine_{1A} Agonist	R. B. McCall, A. G. Romero, M. J. Bienkowski, D. W. Harris, J. C. McGuire, M. F. Piercey, M. E. Shuck, M. W. Smith, K. A. Svensson, P. J. K. D. Schreur, A. Carlsson and P. F. Von Voigtlander	875
Effect of NS-3, A Thyrotropin-Releasing Hormone Analog, on <i>In Vivo</i> Acetylcholine Release in Rat Brain: Regional Differences and Its Sites of Action	Yoshinori Itoh, Takashi Ogasawara, Takeshi Mushiroi, Akira Yamazaki, Yojiro Ukai and Kiyoshi Kimura	884
Studies on the Role of K⁺, Cl⁻ and Na⁺ Ion Permeabilities in the Acetylcholine Release Enhancing Effects of Linopirdine (DuP 996) in Rat Cerebral Cortical Slices	Carla M. Maciag, Andrew R. Logue, William J. Tinker, Joel A. Saydoff, S. William Tam and Robert Zaczek	891
Alcohols and Anesthetics Enhance the Function of 5-Hydroxytryptamine₃ Receptors Expressed in <i>Xenopus laevis</i> Oocytes	Tina K. Machu and R. Adron Harris	898
Further Studies on the Relationship between Dopamine Cell Density and Haloperidol-Induced Catalepsy	B. Hitzemann, K. Dains, S. Kanes and R. Hitzemann	969
γ-Aminobutyric Acid Receptor-Mediated Regulation of Periventricular-Hypophysial Dopaminergic Neurons: Possible Role in Mediating Stress- and 5-Hydroxytryptamine-Induced Decreases in Neuronal Activity	John L. Goudreau, Edward J. Wagner, Keith J. Lookingland and Kenneth E. Moore	1000
Induction Patterns of Fos-Like Immunoreactivity in the Forebrain as Predictors of Atypical Antipsychotic Activity	George S. Robertson, Hiroko Matsumura and Hans C. Fibiger	1058
<i>In Vitro</i> Neuroprotection by Substituted Guanidines with Varying Affinities for the N-Methyl-D-Aspartate Receptor Ionophore and for <i>Sigma</i> Sites	C. J. Kirk, N. L. Reddy, J. B. Fischer, T. C. Wolcott, A. G. Knapp and R. N. McBurney	1080
m-Chlorophenylpiperazine and m-Trifluoromethylphenylpiperazine are Partial Agonists at Cloned 5-HT_{2A} Receptors Expressed in Fibroblasts	Michael S. Grotewiel, Hsin Chu and Elaine Sanders-Bush	1122
PROSTAGLANDINS, LEUKOTRIENES AND OTHER EICOSANOIDS		
Inhibitor of Phospholipase A₂ Blocks Eicosanoid and Platelet Activating Factor Biosynthesis and Has Topical Anti-Inflammatory Activity	K. M. Trampusch, F. H. Chilton, P. L. Stanley, R. C. Franson, M. B. Havens, D. O. Nettleton, L. B. Davern, I. M. Darling and R. J. Bonney	852
Differential Inhibition of Human Prostaglandin Endoperoxide H Synthases-1 and -2 by Nonsteroidal Anti-inflammatory Drugs	Odette Laneuville, Debra K. Breuer, David L. DeWitt, Tim Hla, Colin D. Funk and William L. Smith	927
PULMONARY PHARMACOLOGY		
Interactions between Leukotrienes and Histamine in the Anaphylactic Contraction of Guinea Pig Lung Parenchyma	Eva Wikström Jonsson and Sven-Erik Dahlén	615
Effect of Potassium Channel Blockers on Relaxations to a Nitric Oxide Donor and to Nonadrenergic Nerve Stimulation in Guinea Pig Trachea	James L. Ellis and Norlando D. Conanan	782
Inhibition of Neurally Mediated Nonadrenergic, Noncholinergic Contractions of Guinea Pig Bronchus by Isozyme-Selective Phosphodiesterase Inhibitors	Bradley J. Udem, Sonya N. Meeker and Jason Chen	811
RENAL PHARMACOLOGY		
Nonpeptide Endothelin Receptor Antagonists. III. Effect of SB 209670 and BQ123 on Acute Renal Failure in Anesthetized Dogs	David P. Brooks, P. Dennis DePalma, Miklos Gellai, Ponnal Nambi, Eliot H. Ohlstein, John D. Elliott, John G. Gleason and Robert R. Ruffolo, Jr.	769
Attenuation by α,β-Methylenadenosine-5'-Triphosphate of Periarterial Nerve Stimulation-Induced Renal Vasoconstriction is Not Due to Desensitization of Purinergic Receptors	Elmir Sehic, Ying Ruan and Kafait U. Malik	983
TOXICOLOGY		
Methamphetamine Potentiation of Carbon Tetrachloride Hepatotoxicity in Mice	Stephen M. Roberts, Raymond D. Harbison and Robert C. James	1051