

Contents

ANALGESICS

- Heroin Acts on Different Opioid Receptors than Morphine in Swiss Webster and ICR Mice to Produce Antinociception Jodie J. Rady, Sandra C. Roerig and James M. Fujimoto 448

AUTONOMIC PHARMACOLOGY

- CGP 12177A Modulates Brown Fat Adenylate Cyclase Activity by Interacting with Two Distinct Receptor Sites James G. Granneman and Christopher J. Whitty 421
- Reserpine-Induced Supersensitivity in Rat Caudal Artery: Influence of Age Sue Piper Duckles 513
- Effects of Pirenzepine and AF-DX 116 on Ganglionic Transmission in the Cardiac Sympathetic Nerves of the Dog: Interaction of M₁ and M₂ Receptors with Nicotinic Receptors Osamu Mukaiyama, Akihiko Takeuchi, Tomohiko Kimura and Susumu Satoh 525
- Enantiomers of Oxybutynin: *In Vitro* Pharmacological Characterization at M₁, M₂ and M₃ Muscarinic Receptors and *in Vivo* Effects on Urinary Bladder Contraction, Mydriasis and Salivary Secretion in Guinea Pigs L. Noronha-Blob and J. F. Kachur 562
- Selective Distribution of *Alpha*-1 and *Beta*-Adrenoceptors in Pregnant Rat Uterus Visualized by Autoradiography C. Legrand, V. Vivat, C. Rigolot and J.-P. Maltier 767
- Peripheral *Alpha*-1 and *Alpha*-2 Adrenergic Receptors in Three Models of Hypertension in Rats: An *in Vitro* Autoradiography Study Stephen K. Wilson 801

BEHAVIORAL PHARMACOLOGY

- Effects of Spiperone, Raclopride, SCH 23390 and Clozapine on Apomorphine Inhibition of Sensorimotor Gating of the Startle Response in the Rat N. R. Swerdlow, V. A. Keith, D. L. Braff and M. A. Geyer 530
- Behavioral and Neurochemical Changes in Rats Dosed Repeatedly with Diisopropylfluorophosphate Philip J. Bushnell, Stephanie S. Padilla, Thomas Ward, Carey N. Pope and Valerie B. Olszyk 741

CARDIOVASCULAR PHARMACOLOGY

- Characterization of K⁺ Channel-Dependent as Well as -Independent Components of Pinacidil-Induced Vasodilation Kaushik D. Meisheri, Michael A. Swirtz, Surender S. Purohit, Loretta A. Cipkus-Dubray, Sajida A. Khan and Joseph J. Oleynek 492
- Superoxide Production in the Isolated Rabbit Aorta and the Effect of Alloxan, Indomethacin and Nitrovasodilators Kurt F. Heim, George Thomas and Peter W. Ramwell 537
- Mutual-Effect Amplification of Contractile Responses Elicited by Simultaneous Activation of *Alpha*-1 Adrenergic and 5-Hydroxytryptamine₂ Receptors in Isolated Rat Aorta George J. Christ and Michelle Jean-Jacques 553
- Evidence for a Functional Tissue Renin-Angiotensin System in the Rat Mesenteric Vasculature and Its Involvement in Regulating Blood Pressure Ronald E. Weishaar, Robert L. Panek, Terry C. Major, John Simmerman, Stephen T. Rapundalo and David G. Taylor, Jr. 568
- The Role of *Alpha* Adrenoceptor Subtypes in Sympathetic Control of the Acral-Cutaneous Microcirculation Robert N. Willette, J. Paul Hieble and Charles F. Sauermelech 599
- An Imidazoline-Specific Mechanism for the Hypotensive Effect of Clonidine: A Study with Yohimbine and Idazoxan Eduardo Tibiriça, Josiane Feldman, Claire Mermet, François Gonon and Pascal Bousquet 606
- Comparative Effects of Angiotensin II and Angiotensin III in Rabbit Adrenal and Aortic Tissues Robert G. Pendleton, George Gessner and Eugene Horner 614

Cardiac Adenylate Cyclase Activity, Positive Chronotropic and Inotropic Effects of Forskolin Analogs with Either Low, Medium or High Binding Site Affinity	John W. Hubbard, Paul G. Conway, Laura C. Nordstrom, Harold B. Hartman, Y. Lebedinsky, Gerard J. O'Malley and Raymond W. Kosley, Jr.	621
Effects of the Putative Potassium Channel Activator WAY-120,491 on ⁸⁶Rb Efflux from the Rabbit Aorta	N. J. Lodge, R. B. Cohen, C. N. Havens and T. J. Colatsky	639
Endothelial Cyclic GMP and Cyclic AMP Do Not Regulate the Release of Endothelium-Derived Relaxing Factor/Nitric Oxide from Bovine Aortic Endothelial Cells	Michaela Kuhn, Anita Otten, Jürgen C. Frölich and Ulrich Förstermann	677
Endothelium-Independent and Endothelium-Dependent Contractions Mediated by P_{2X}- and P_{2Y}-Purinoceptors in Canine Basilar Arteries	Hiroaki Shirahase, Hachiro Usui, Hisanobu Shimaji, Kazuyoshi Kurahashi and Motohatsu Fujiwara	683
The Hemodynamic Effects of S-Nitrosocaptopril in Anesthetized Dogs	Joel E. Shaffer, Frank Lee, Stephen Thomson, Ba-Jin Han, John P. Cooke and Joseph Loscalzo	704
Dopaminergic Structure-Activity Relationships of 2-Aminoindans and Cardiovascular Action and Dopaminergic Activity of 4-Hydroxy, 5-Methyl, 2-di-N-Propylaminoindan (RD-211)	Shengxing Ma, John P. Long, Jan R. Flynn, Paul A. Leonard and Joseph G. Cannon	751
Therapeutic Defibrination with Ancrod Does Not Protect the Canine Myocardium from Reperfusion Injury	Paul J. Simpson, Judith A. Schelm and Gerald F. Smith	780
CELLULAR AND MOLECULAR PHARMACOLOGY		
A Functional Assay to Measure Postsynaptic γ-Aminobutyric Acid_B Responses in Cultured Spinal Cord Neurons: Heterologous Regulation of the Same K⁺ Channel	Ganesan L. Kamatchi and Maharaj K. Ticku	426
L-651,582 Inhibition of Intracellular Parasitic Protozoal Growth Correlates with Host-Cell Directed Effects	Donald J. Hupe, Elmer R. Pfefferkorn, Nancy D. Behrens and Kristine Peters	462
Allosteric Interactions at the m1, m2 and m3 Muscarinic Receptor Subtypes	Norman H. Lee and Esam E. El-Fakahany	468
Endothelin Binding and Receptor Down Regulation in Rat Glomerular Mesangial Cells	Elisabetta Baldi and Michael J. Dunn	581
Characterization of the Endothelin Binding Site on Bovine Adrenomedullary Chromaffin Cells: Comparison with Vascular Smooth Muscle Cells. Evidence for Receptor Heterogeneity	Lesley C. Wilkes and Michael R. Boarder	628
Evidence for Intraluminal Ca⁺⁺ Regulatory Site Defect in Sarcoplasmic Reticulum from Malignant Hyperthermia Pig Muscle	Thomas E. Nelson, Marina Lin and Pompeo Volpe	645
Pharmacologic Comparison of Selected Agonists for the M₁ Muscarinic Receptor in Transfected Murine Fibroblast Cells (B82)	Lin Mei, Josephine Lai, Henry I. Yamamura and William R. Roeske	689
Effect of Chronic D-Ala,² D-Leu⁵-Enkephalin or Pertussis Toxin Treatment on the High-Affinity State of Δ-Opioid Receptor in Neuroblastoma \times Glioma NG108-15 Hybrid Cells	P. Y. Law, D. S. Hom and H. H. Loh	710
DEVELOPMENTAL PHARMACOLOGY		
Role of Thyroid Hormone in the Development of β Adrenergic Control of Ornithine Decarboxylase in Rat Heart and Kidney	J. B. Pracyk, S. E. Lappi and T. A. Slotkin	757
DRUG METABOLISM AND DISPOSITION		
Fate of Diastereomeric Glutathione Conjugates of Alpha-Bromoisovalerylurea in Blood in the Rat <i>in Vivo</i> and in the Perfused Liver. Stereoselectivity in Biliary and Urinary Excretion	Martine Polhuijs, Dirk K. F. Meijer and Gerard J. Mulder	458

Hydrolysis of [Leu]Enkephalin by Chick Plasma <i>in Vitro</i>	Shinji Shibanoki, Susan B. Weinberger, Duncan Beniston, Kenneth A. Nudelman, Gery Schulteis, Edward L. Bennett, Mark R. Rosenzweig, Koichi Ishikawa and Joe L. Martinez, Jr.	650
GASTROINTESTINAL PHARMACOLOGY		
Release of Nitric Oxide Upon Stimulation of Nonadrenergic Noncholinergic Nerves in the Rat Gastric Fundus	Guy E. Boeckxstaens, Paul A. Pelckmans, Johannes J. Bogers, Hidde Bult, Joris G. De Man, Luc Oosterbosch, Arnold G. Herman and Yvan M. Van Maercke	441
Prostaglandin E₂-Induced Diarrhea in Mice: Importance of Colonic Secretion	Pierre J. M. Rivière, Steven C. Farmer, Thomas F. Burks and Frank Porreca	547
Extremely Long Protection By Pyrazole Derivatives Against Chemically Induced Gastric Mucosal Injury	Joshua Hauser and Sandor Szabo	592
CCK-8, CCK-4 and Gastrin-Induced Contractions in Guinea Pig Ileum: Evidence for Differential Release of Acetylcholine and Substance P by CCK-A and CCK-B Receptors	Virginia L. Lucaites, Laurane G. Mendelsohn, Norman R. Mason and Marlene L. Cohen	695
Gastrointestinal Serotonin: Depletion due to Tetrahydrobiopterin Deficiency Induced by 2,4-Diamino-6-Hydroxypyrimidine Administration	Takaaki Kobayashi, Hiroyuki Hasegawa, Eizo Kaneko and Arata Ichiyama	773
IMMUNOPHARMACOLOGY		
Differential Regulation of Human Basophil and Lung Mast Cell Function by Adenosine	Peter T. Peachell, Lawrence M. Lichtenstein and Robert P. Schleimer	717
NEUROPHARMACOLOGY		
Anticonvulsant and Behavioral Effects of Two Novel Competitive NMDA Receptor Antagonists, CGP 37849 and CGP 39551, in the Kindling Model of Epilepsy. Comparison with MK-801 and Carbamazepine	Wolfgang Löscher and Dagmar Hönack	432
<i>Kappa</i> Opioid Receptor-Mediated Regulation of Dopaminergic Neurons in the Rat Brain	Jorge Manzanares, Keith J. Lookingland and Kenneth E. Moore	500
Competitive and Noncompetitive Antagonists at N-Methyl-D-Aspartate Receptors Protect Against Methamphetamine-Induced Dopaminergic Damage in Mice	Patricia K. Sonsalla, Dawn E. Riordan and Richard E. Heikkila	506
Interactions of <i>Sigma</i> and Phencyclidine Receptor Ligands with the Norepinephrine Uptake Carrier in Both Rat Brain and Rat Tail Artery	Tania Massamiri and Sue Piper Duckles	519
D-2 Dopamine Receptors Inhibit Release of Aspartate and Glutamate in Rat Retina	Yoshinori Kamisaki, Takatoshi Hamahashi, Chiharu Mita and Tadao Itoh	634
Serotonergic Neurons Do Not Influence the Regulation of <i>Beta</i> Adrenoceptors Induced by Either Desipramine or Isoproterenol	Julie G. Hensler, Gregory A. Ordway, Carla Gambarana, Pilar Areso and Alan Frazer	656
Antagonist Binding Profiles of Five Cloned Human Muscarinic Receptor Subtypes	Frank Dörje, Jürgen Wess, Günter Lambrecht, Reinhold Tacke, Ernst Mutschler and Mark R. Brann	727
Pharmacological Characteristics of High-Affinity Serotonin Uptake Systems Established Through Gene Transfer	Jerome Victor Frnka, Albert Shu-Sen Chang and Dominic Man-Kit Lam	734
The 5-Hydroxytryptamine₂ Agonist, (±)-1-(2,5-Dimethoxy-4-Bromophenyl)-2-Aminopropane Stimulates the Hypothalamic-Pituitary-Adrenal (HPA) Axis. I. Acute Effects on HPA Axis Activity and Corticotropin-Releasing Factor-Containing Neurons in the Rat Brain	Michael J. Owens, David L. Knight, James C. Ritchie and Charles B. Nemeroff	787

The 5-Hydroxytryptamine₂ Agonist, (±)-1-(2,5-Dimethoxy-4-Bromophenyl)-2-Aminopropane Stimulates the Hypothalamic-Pituitary-Adrenal (HPA) Axis. II. Biochemical and Physiological Evidence for the Development of Tolerance after Chronic Administration	Michael J. Owens, David L. Knight, James C. Ritchie and Charles B. Nemeroff	795
Quantitative Autoradiographic Characterization of the Binding of (+)-5-Methyl-10,11-dihydro-5H-dibenzo[a,d]cyclohepten-5,10-imine ([³H]MK-801) in Rat Brain: Regional Effects of Polyamines	Swaminathan Subramaniam and Paul McGonigle	811
PHARMACOLOGY OF SUBSTANCE ABUSE		
The Role of Opioid Receptor Density in Morphine Tolerance	Kabirullah Lutfy and Byron C. Yoburn	575
PULMONARY PHARMACOLOGY		
RP 49356 and Cromakalim Relax Airway Smooth Muscle <i>in Vitro</i> by Opening a Sulphonylurea-Sensitive K⁺ Channel: A Comparison with Nifedipine	D. Raeburn and T. J. Brown	480
Classification of Postjunctional <i>Beta</i> Adrenoceptors Mediating Relaxation of Canine Bronchi	Luke J. Janssen and Edwin E. Daniel	670
RENAL PHARMACOLOGY		
Intrarenally Produced Angiotensin II Opposes the Natriuretic Action of the Dopamine-1 Receptor Agonist Fenoldopam in Rats	Chang-Jian Chen, Subramaniam Apparsundaram and Mustafa F. Lokhandwala	486
Contrasting Effects of Changes in Salt Balance on the Renovascular Response to A₁-Adenosine Receptor Stimulation <i>in Vivo</i> and <i>in Vitro</i> in the Rat	Alan S. Nies, M. Lee Beckmann and John G. Gerber	542
Micropuncture Evaluation of the Site of Action of 2-Aminomethyl-4-(1,1-Dimethylethyl)-6-Iodophenol Hydrochloride (MK447) in the Rat Kidney	Paul A. Johnston and Sen T. Kau	587
TOXICOLOGY		
Nephrotoxicity of the Glutathione Conjugate of Menadione (2-Methyl-1,4-Naphthoquinone) in the Isolated Perfused Rat Kidney. Role of Metabolism by γ-Glutamyltranspeptidase and Probenecid-Sensitive Transport	Frank A. M. Redegeld, Gerard A. Hofman, Peet G. F. van de Loo, Andries Sj. Koster and Jan Noordhoek	665