

The Journal of PHARMACOLOGY

And Experimental Therapeutics

A Publication of the American Society for Pharmacology and Experimental Therapeutics

September 2006

Vol. 318, No. 3

Contents

PERSPECTIVES IN PHARMACOLOGY

- Role of Matrix Metalloproteinases in Intestinal Inflammation** Carlos Medina and Marek W. Radomski 933

BEHAVIORAL PHARMACOLOGY

- Dose Effects of Propranolol on Cancellous and Cortical Bone in Ovariectomized Adult Rats** N. Bonnet, N. Laroche, L. Vico, E. Dolleans, C. L. Benhamou, and D. Courteix 1118

- Enhancement of Antidepressant-Like Effects but Not Brain-Derived Neurotrophic Factor mRNA Expression by the Novel N-Methyl-D-aspartate Receptor Antagonist Neramexane in Mice** Tomasz Kos, Beata Legutko, Wojciech Danysz, Gary Samoriski, and Piotr Popik 1128

- Effects of Intrathecally Administered Nociceptin/Orphanin FQ in Monkeys: Behavioral and Mass Spectrometric Studies** M. C. Holden Ko, Hui Wei, James H. Woods, and Robert T. Kennedy 1257

- Interactions between an N-Methyl-D-aspartate Antagonist and Low-Efficacy Opioid Receptor Agonists in Assays of Schedule-Controlled Responding and Thermal Nociception** Bradford D. Fischer and Linda A. Dykstra 1300

- Neonatal Intrahippocampal Glycoprotein 120 Injection: The Role of Dopaminergic Alterations in Prepulse Inhibition in Adult Rats** Sylvia Fitting, Rosemarie M. Booze, and Charles F. Mactutus 1352

CARDIOVASCULAR

- Chronic Matrix Metalloproteinase Inhibition Following Myocardial Infarction in Mice: Differential Effects on Short and Long-Term Survival** Francis G. Spinale, G. Patricia Escobar, Jennifer W. Hendrick, Leslie L. Clark, Sarah S. Camens, Joseph P. Mingoia, Christina G. Squires, Robert E. Stroud, and John S. Ikonomidis 966

- Beneficial Effects of Metolazone in a Rat Model of Preeclampsia** Gabriella Pridjian, Candice Pridjian, Svitlana Danchuk, Monica Ianosi-Irimie, Hop V. Vu, and Jules B. Puschett 1027

- L-Arginine Chlorination Results in the Formation of a Nonselective Nitric-Oxide Synthase Inhibitor** Jian Yang, Ruirui Ji, Yunhui Cheng, Ju-Zhong Sun, Lisa K. Jennings, and Chunxiang Zhang 1044

- Biotransformation of Glyceryl Trinitrate by Rat Hepatic Microsomal Glutathione S-Transferase 1** Yanbin Ji and Brian M. Bennett 1050

- Reduced Inotropic Effect of Nifekalant in Failing Hearts in Rats** Hideaki Endo, Masahito Miura, Masanori Hirose, Jun Takahashi, Makoto Nakano, Yuji Wakayama, Yoshinao Sugai, Yutaka Kagaya, Jun Watanabe, Kunio Shirato, and Hiroaki Shimokawa 1102

The Journal of Pharmacology and Experimental Therapeutics (ISSN 0022-3565) is published monthly by the American Society for Pharmacology and Experimental Therapeutics, 9650 Rockville Pike, Bethesda, MD 20814-3995; email: info@aspet.org; web site: www.aspet.org. Periodicals postage paid at Bethesda, MD, and at additional mailing offices. POSTMASTER: Send address changes to *The Journal of Pharmacology and Experimental Therapeutics*, 9650 Rockville Pike, Bethesda, MD 20814-3995. Subscription rates: U.S.: \$817.00 for institutions and \$356.00 for non-ASPET members. Outside the U.S.: \$964.00 for institutions and \$502.00 for non-ASPET members.

Single copy: \$82.00. GST Tax Number for Canadian subscribers: BN:13489 2330 RT. Indexed or abstracted by *Biochemistry & Biophysics Citation Index*®, *Biological Abstracts*, *BIOSIS Previews Database*, *BioSciences Information Services*, *Current Awareness in Biological Sciences*, *Current Contents*®/Life Sciences, *EMBASE/Excerpta Medica*, *Index Medicus*, *Medical Documentation Service*®, *PsycINFO*, *Reference Update*®, *Research Alert*®, *Science Citation Index*®, *SciSearch*®, and *SIIC Data Bases*. Copyright © 2006 by the American Society for Pharmacology and Experimental Therapeutics. All rights reserved. Printed in the U.S.A.

Intravenous Insulin-like Growth Factor-I Receptor Antisense Treatment Reduces Angiotensin Receptor Expression and Function in Spontaneously Hypertensive Rats	Tien Thuy Nguyen, Nga Cao, Jennifer Lynn Short, and Paul James White	1171
Bradykinin and Its Metabolite Bradykinin 1-5 Inhibit Thrombin-Induced Platelet Aggregation in Humans	Laine J. Murphey, Hector A. Malave, Jeff Petro, Italo Biaggioni, Daniel W. Byrne, Douglas E. Vaughan, James M. Luther, Mias Pretorius, and Nancy J. Brown	1287
Substituted Adamantyl-Urea Inhibitors of the Soluble Epoxide Hydrolase Dilate Mesenteric Resistance Vessels	Jeffrey J. Olearczyk, Mary B. Field, In-Hae Kim, Christophe Morisseau, Bruce D. Hammock, and John D. Imig	1307
Effects of Adrenomedullin on Cardiac Oxidative Stress and Collagen Accumulation in Aldosterone-Dependent Malignant Hypertensive Rats	Matlubur Rahman, Akira Nishiyama, Peng Guo, Yukiko Nagai, Guo-Xing Zhang, Yoshihide Fujisawa, Yu-Yan Fan, Shoji Kimura, Naohisa Hosomi, Koji Omori, Youichi Abe, and Masakazu Kohno	1323
Mitochondrial Arginase II Modulates Nitric-Oxide Synthesis through Nonfreely Exchangeable L-Arginine Pools in Human Endothelial Cells	Gökce Topal, Annie Brunet, Laurence Walch, Jean-Luc Boucher, and Monique David-Dufilho	1368
CELLULAR AND MOLECULAR		
α_2C-Adrenergic Receptors Exhibit Enhanced Surface Expression and Signaling upon Association with β_2-Adrenergic Receptors	Steven C. Prinster, Tomas G. Holmqvist, and Randy A. Hall	974
Collagenase-2 and -3 Mediate Epidermal Growth Factor Receptor Transactivation by Bradykinin B₂ Receptor in Kidney Cells	Yurii V. Mukhin, Monika Gooz, John R. Raymond, and Maria N. Garnovskaya	1033
Ethanol Destabilizes Liver Galβ1, 4GlcNAc α2,6-Sialyltransferase, mRNA by Depleting a 3'-Untranslated Region-Specific Binding Protein	Mamatha Garige, Maokai Gong, and M. Raj Lakshman	1076
In Vitro and in Vivo Antitumor Effects of Cytotoxic Camptothecin-Bombesin Conjugates Are Mediated by Specific Interaction with Cellular Bombesin Receptors	Terry W. Moody, Li-Chun Sun, Samuel A. Mantey, Tapas Pradhan, L. Vienna Mackey, Nieves Gonzales, Joseph A. Fuselier, David H. Coy, and Robert T. Jensen	1265
Cocaine Alters Proliferation, Migration, and Differentiation of Human Fetal Brain-Derived Neural Precursor Cells	Shuxian Hu, Maxim C.-J. Cheeran, Wen S. Sheng, Hsiao T. Ni, James R. Lokensgard, and Phillip K. Peterson	1280
Greater Susceptibility of the Sarcoplasmic Reticulum to H₂O₂ Injuries in Diaphragm Muscle from <i>mdx</i> Mice	Aude Lafoux, Alexandra Divet, Pascal Gervier, and Corinne Huchet-Cadiou	1359
CHEMOTHERAPY, ANTIBIOTICS, AND GENE THERAPY		
Effect of a Novel Vacuolar-H⁺-ATPase Inhibitor on Cell and Tumor Response to Camptothecins	Giovanna Petrangolini, Rosanna Supino, Graziella Pratesi, Laura Dal Bo, Monica Tortoreto, Anna Cleta Croce, Paola Misiano, Pietro Belfiore, Carlo Farina, and Franco Zunino	939
Evaluation of Original Dual Thromboxane A₂ Modulators as Antiangiogenic Agents	Xavier de Leval, Thibaut Dasse,se, Jean-Michel Dogné, David Waltregny, Akeila Bellahcène, Valérie Benoit, Bernard Pirotte, and Vincent Castronovo	1057
Antitumor Activity of Plant Cannabinoids with Emphasis on the Effect of Cannabidiol on Human Breast Carcinoma	Alessia Ligresti, Aniello Schiano Moriello, Katarzyna Starowicz, Isabel Matias, Simona Pisanti, Luciano De Petrocellis, Chiara Laezza, Giuseppe Portella, Maurizio Bifulco, and Vincenzo Di Marzo	1375
ENDOCRINE AND DIABETES		
Novel Mechanism of Chronic Exposure of Oleic Acid-Induced Insulin Release Impairment in Rat Pancreatic β-Cells	Takanori Kudo, Jie Wu, Yoshiji Ogawa, Sechiko Suga, Noriyuki Hasegawa, Toshihiro Suda, Hiroki Mizukami, Soroku Yagihashi, and Makoto Wakui	1203
GASTROINTESTINAL, HEPATIC, PULMONARY, AND RENAL		
Policosanol Inhibits Cholesterol Synthesis in Hepatoma Cells by Activation of AMP-Kinase	Dev K. Singh, Li Li, and Todd D. Porter	1020

Induction of Rat Intestinal P-glycoprotein by Spironolactone and Its Effect on Absorption of Orally Administered Digoxin	Carolina I. Ghanem, Paula C. Gómez, María C. Arana, María Perassolo, Griselda Delli Carpini, Marcelo G. Luquita, Luis M. Veggi, Viviana A. Catania, Laura A. Bengochea, and Aldo D. Mottino	1146
Effect of Barley Endoprotease EP-B2 on Gluten Digestion in the Intact Rat	Jonathan Gass, Harmit Vora, Michael T. Bethune, Gary M. Gray, and Chaitan Khosla	1178
Increased Apical Insertion of the Multidrug Resistance Protein 2 (MRP2/ABCC2) in Renal Proximal Tubules following Gentamicin Exposure	Sylvia Notenboom, Alfons C. Wouterse, Bram Peters, Leon H. Kuik, Suzanne Heemskerk, Frans G. M. Russel, and Rosalinde Masereeuw	1194
Differential Roles for Cytosolic and Microsomal Ca²⁺-Independent Phospholipase A₂ in Cell Growth and Maintenance of Phospholipids	Geraldine Saavedra, Wenliang Zhang, Brianna Peterson, and B. S. Cummings	1211
INFLAMMATION, IMMUNOPHARMACOLOGY, AND ASTHMA		
Apolipoprotein E-Derived Peptides Ameliorate Clinical Disability and Inflammatory Infiltrates into the Spinal Cord in a Murine Model of Multiple Sclerosis	Feng-Qiao Li, Gregory D. Sempowski, Suzanne E. McKenna, Daniel T. Laskowitz, Carol A. Colton, and Michael P. Vitek	956
☐ Periplocoside E Inhibits Experimental Allergic Encephalomyelitis by Suppressing Interleukin 12-Dependent CCR5 Expression and Interferon-γ-Dependent CXCR3 Expression in T Lymphocytes	Yi-Na Zhu, Xiang-Gen Zhong, Jia-Quan Feng, Yi-Fu Yang, Yun-Feng Fu, Jia Ni, Qun-Fang Liu, Wei Tang, Wei-Min Zhao, and Jian-Ping Zuo	1153
Effect of Natriuretic Peptide Receptor Antagonist on Lipopolysaccharide-Induced Fever in Rats: Is Natriuretic Peptide an Endogenous Antipyretic?	Michio Miyoshi, Yoshinori Kitagawa, Toshiaki Imoto, and Tatsuo Watanabe	1163
Modulation of Thrombin-Induced Neuroinflammation in BV-2 Microglia by Carbon Monoxide-Releasing Molecule 3	Mohamed G. Bani-Hani, David Greenstein, Brian E. Mann, Colin J. Green, and Roberto Motterlini	1315
METABOLISM, TRANSPORT, AND PHARMACOGENOMICS		
☐ Metabolism of Bergamottin by Cytochromes P450 2B6 and 3A5	Ute M. Kent, Hsia-lien Lin, Kathleen R. Noon, Danni L. Harris, and Paul F. Hollenberg	992
Ritonavir, Saquinavir, and Efavirenz, but Not Nevirapine, Inhibit Bile Acid Transport in Human and Rat Hepatocytes	Mary Peace McRae, Carolina M. Lowe, Xianbin Tian, David L. Bourdet, Richard H. Ho, Brenda F. Leake, Richard B. Kim, Kim L. R. Brouwer, and Angela D. M. Kashuba	1068
Acetoxymethoxycarbonyl Nitroxides as Electron Paramagnetic Resonance Proimaging Agents to Measure O₂ Levels in Mouse Brain: A Pharmacokinetic and Pharmacodynamic Study	Minoru Miyake, Jiangang Shen, Shimin Liu, Honglian Shi, Wenlan Liu, Zhongrui Yuan, Aaron Pritchard, Joseph P. Y. Kao, Ke Jian Liu, and Gerald M. Rosen	1187
Intestinal and Hepatic Metabolic Activity of Five Cytochrome P450 Enzymes: Impact on Prediction of First-Pass Metabolism	Aleksandra Galetin and J. Brian Houston	1220
Disposition and Sterol-Lowering Effect of Ezetimibe in Multidrug Resistance-Associated Protein 2-Deficient Rats	Stefan Oswald, Sabine Westrup, Markus Grube, Heyo K. Kroemer, Werner Weitschies, and Werner Siegmund	1293
Urinary Metabolite Profiling Reveals CYP1A2-Mediated Metabolism of NSC686288 (Aminoflavone)	Chi Chen, Linghua Meng, Xiaochao Ma, Kristopher W. Krausz, Yves Pommier, Jeffrey R. Idle, and Frank J. Gonzalez	1330
An Initial Assessment of the Systemic Pharmacokinetics of Botulinum Toxin	Easwaran Ravichandran, Yujing Gong, Fetweh H. Al Saleem, Denise M. Ancharski, Suresh G. Joshi, and Lance L. Simpson	1343
NEUROPHARMACOLOGY		
☐ Evaluation of Gabapentin and Ethosuximide for Treatment of Acute Nonconvulsive Seizures following Ischemic Brain Injury in Rats	Anthony J. Williams, Charisma C. Bautista, Ren-Wu Chen, Jitendra R. Dave, Xi-Chun M. Lu, Frank C. Tortella, and Jed A. Hartings	947
☐ Sodium Orthovanadate Enhances Proliferation of Progenitor Cells in the Adult Rat Subventricular Zone after Focal Cerebral Ischemia	Jun Matsumoto, Motohiro Morioka, Yu Hasegawa, Takayuki Kawano, Yutaka Yoshinaga, Tatsumi Maeda, Shigetoshi Yano, Yutaka Kai, Kohji Fukunaga, and Jun-ichi Kuratsu	982

The KCNQ Channel Opener Retigabine Inhibits the Activity of Mesencephalic Dopaminergic Systems of the Rat	Henrik H. Hansen, Christina Ebbesen, Claus Mathiesen, Pia Weikop, Lars Christian Rønn, Olivier Waroux, Jacqueline Scuvée-Moreau, Vincent Seutin, and Jens D. Mikkelsen	1006
Pharmacology of 2-[4-(4-Chloro-2-fluorophenoxy)phenyl]-pyrimidine-4-carboxamide: A Potent, Broad-Spectrum State-Dependent Sodium Channel Blocker for Treating Pain States	Victor I. Ilyin, James D. Pomonis, Garth T. Whiteside, James E. Harrison, Michelle S. Pearson, Lilly Mark, Paul I. Turchin, Susan Gottshall, Richard B. Carter, Phong Nguyen, Derk J. Hogenkamp, Shakira Olanrewaju, Elfrida Benjamin, and Richard M. Woodward	1083
Identification of Structures within GABA_A Receptor α Subunits That Regulate the Agonist Action of Pentobarbital	Brandon C. Drafts and Janet L. Fisher	1094
Identification and Pharmacological Profile of a New Class of Selective Nicotinic Acetylcholine Receptor Potentiators	Lisa M. Broad, Ruud Zwart, Kathy H. Pearson, Martin Lee, Louise Wallace, Gordon I. McPhie, Renee Emkey, Sean P. Hollinshead, Colin P. Dell, S. Richard Baker, and Emanuele Sher	1108
The Effects of Long Chain-Length <i>n</i>-Alcohols on the Firing Frequency of Dopaminergic Neurons of the Ventral Tegmental Area	Sarah B. Appel, Leon Wise, John McDaid, Susumu Koyama, Maureen A. McElvain, and Mark S. Brodie	1137
Pharmacological Characterization of Novel Water-Soluble Cannabinoids	Billy R. Martin, Jenny L. Wiley, Irina Beletskaya, Laura J. Sim-Selley, Forrest L. Smith, William L. Dewey, Jean Cottney, Julia Adams, James Baker, David Hill, Bijali Saha, John Zerkowski, Anu Mahadevan, and Raj K. Razdan	1230
A Novel Phospholipid Derivative of Indomethacin, DP-155 [Mixture of 1-Steroyl and 1-Palmitoyl-2-{6-[1-(<i>p</i>-chlorobenzoyl)-5-methoxy-2-methyl-3-indolyl acetamido]hexanoyl}-<i>sn</i>-glycero-3-phosphatidyl Choline], Shows Superior Safety and Similar Efficacy in Reducing Brain Amyloid β in an Alzheimer's Disease Model	E. Dvir, J. E. Friedman, J. Y. Lee, J. Y. Koh, F. Younis, S. Raz, I. Shapiro, A. Hoffman, A. Dahan, G. Rosenberg, I. Angel, A. Kozak, and R. Duvdevani	1248
The Novel, Orally Active, Delta Opioid RWJ-394674 Is Biotransformed to the Potent Mu Opioid, RWJ-413216	E. E. Codd, J. R. Carson, R. W. Colburn, S. L. Dax, D. Desai-Krieger, R. P. Martinez, L. A. McKown, L. A. Neilson, P. M. Pitis, P. L. Stahle, D. J. Stone, A. J. Streeter, W. N. Wu, S. P. Zhang	1273
TOXICOLOGY		
Adenovirus-Mediated Gene Therapy to Restore Expression and Functionality of Multiple UDP-Glucuronosyltransferase 1A Enzymes in Gunn Rat Liver	Kristini K. Miles, Fay K. Kessler, Laura J. Webb, Philip C. Smith, and Joseph K. Ritter	1240
ERRATUM		
Correction to "Interactions of Functionalized Superparamagnetic Iron Oxide Nanoparticles with Brain Structures"	Feride Cengelli, Dusica Maysinger, Florianne Tschudi-Monnet, Xavier Montet, Claire Corot, Alke Petri-Fink, Heinrich Hofmann, and Lucienne Juillerat-Jeanneret	1388

 Supplemental material is available online at <http://jpet.aspetjournals.org>.

About the cover: Energy-based docking of BG into models of P450 2B6 and 3A5: differential exposure of geranyl side chain atoms. See the article by Kent et al. on page 992 of this issue.