

The Journal of PHARMACOLOGY

And Experimental Therapeutics

A Publication of the American Society for Pharmacology and Experimental Therapeutics

September 2011

Vol. 338, No. 3

Contents

HIGHLIGHTED PAPERS

731

BEHAVIORAL PHARMACOLOGY

- Lorcaserin, a 5-HT_{2C} Agonist, Decreases Nicotine Self-Administration in Female Rats 890
Edward D. Levin, Joshua E. Johnson, Susan Slade, Corinne Wells, Marty Cauley, Ann Petro, and Jed E. Rose
- Nicotine Reduces L-DOPA-Induced Dyskinesias by Acting at $\beta 2^*$ Nicotinic Receptors 932
Luping Z. Huang, Sharon R. Grady, and Maryka Quik

CARDIOVASCULAR

- Role of Calcium-Activated Potassium Channels in the Genesis of 3,4-Diaminopyridine-Induced Periodic Contractions in Isolated Canine Coronary Artery Smooth Muscles 974
Yasumi Uchida, Yuko Maezawa, Yoshiro Maezawa, Yasuto Uchida, and Fumitaka Nakamura

CELLULAR AND MOLECULAR

- Resveratrol Ameliorates Muscular Pathology in the Dystrophic *mdx* Mouse, a Model for Duchenne Muscular Dystrophy 784
Yusuke S. Hori, Atsushi Kuno, Ryusuke Hosoda, Masaya Tanno, Tetsuji Miura, Kazuaki Shimamoto, and Yoshiyuki Horio
- Reciprocal Potentiation of the Antitumoral Activities of FK866, an Inhibitor of Nicotinamide Phosphoribosyltransferase, and Etoposide or Cisplatin in Neuroblastoma Cells 829
Cristina Travelli, Valentina Drago, Elena Maldì, Nina Kaludercic, Ubaldina Galli, Renzo Boldorini, Fabio Di Lisa, Gian Cesare Tron, Pier Luigi Canonico, and Armando A. Genazzani
- Retinoic Acid Isomers Up-Regulate ATP Binding Cassette A1 and G1 and Cholesterol Efflux in Rat Astrocytes: Implications for Their Therapeutic and Teratogenic Effects 870
Jing Chen, Lucio G. Costa, and Marina Guizzetti
- The Soluble Guanylyl Cyclase Activator YC-1 Increases Intracellular cGMP and cAMP via Independent Mechanisms in INS-1E Cells 925
Lavoisier S. Ramos-Espiritu, Kenneth C. Hess, Jochen Buck, and Lonny R. Levin

CHEMOTHERAPY, ANTIBIOTICS, AND GENE THERAPY

- Combining Small Interfering RNAs Targeting Thymidylate Synthase and Thymidine Kinase 1 or 2 Sensitizes Human Tumor Cells to 5-Fluorodeoxyuridine and Pemetrexed 952
C. Di Cresce, R. Figueredo, P. J. Ferguson, M. D. Vincent, and J. Koropatnick



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: subscriptions@aspet.org; Web site: 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.: \$985; outside the U.S.: \$1,150. Single copy: \$85. 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 Alerts*®, *Science Citation Index*®, *SciSearch*®, and *SIIC Data Bases*. Copyright © 2011 by the American Society for Pharmacology and Experimental Therapeutics. All rights reserved. Printed in the U.S.A.

A [] 3

DRUG DISCOVERY AND TRANSLATIONAL MEDICINE

- ☐ Oxidative Stress Mediates through Apoptosis the Anticancer Effect of Phospho-Nonsteroidal Anti-Inflammatory Drugs: Implications for the Role of Oxidative Stress in the Action of Anticancer Agents 775
Yu Sun, Liqun Huang, Gerardo G. Mackenzie, and Basil Rigas
- ☐ Characterization of a Sphingosine 1-Phosphate Receptor Antagonist Prodrug 879
Perry C. Kennedy, Ran Zhu, Tao Huang, Jose L. Tomsig, Thomas P. Mathews, Marion David, Olivier Peyruchaud, Timothy L. Macdonald, and Kevin R. Lynch
- Neuroprotective Efficacy from a Lipophilic Redox-Modulating Mn(III) *N*-Hexylpyridylporphyrin, MnTnHex-2-PyP: Rodent Models of Ischemic Stroke and Subarachnoid Hemorrhage 906
Huaxin Sheng, Ivan Spasojevic, Hubert M. Tse, Jin Yong Jung, Jun Hong, Zhiquan Zhang, Jon D. Piganelli, Ines Batinic-Haberle, and David S. Warner
- ☐ Pharmacokinetic-Pharmacodynamic Modeling of Biomarker Response and Tumor Growth Inhibition to an Orally Available Heat Shock Protein 90 Inhibitor in a Human Tumor Xenograft Mouse Model 964
Shinji Yamazaki, Leslie Nguyen, Sylvia Vekich, Zhongzhou Shen, Min-Jean Yin, Pramod P. Mehta, Pei-Pei Kung, and Paolo Vicini
- In Vivo Pharmacology and Toxicology Evaluation of Polyethylene Glycol-Conjugated Interferon β -1a 984
Xiao Hu, Kenneth Olivier, Evelyne Polack, Mary Crossman, Katie Zokowski, Robert S. Gronke, Suzanne Parker, Zhaoyang Li, Ivan Nestorov, Darren P. Baker, Janet Clarke, and Meena Subramanyam

GASTROINTESTINAL, HEPATIC, PULMONARY, AND RENAL

- ☐ Administration of Naked Plasmid Encoding Hepatic Stimulator Substance by Hydrodynamic Tail Vein Injection Protects Mice from Hepatic Failure by Suppressing the Mitochondrial Permeability Transition 750
Shenglan Li, Zuoqing Tang, Hao Yu, Wen Li, Ying Jiang, Yutong Wang, and Wei An
- Delayed Administration of Suramin Attenuates the Progression of Renal Fibrosis in Obstructive Nephropathy 758
Na Liu, Evelyn Tolbert, Murugavel Ponnusamy, Haidong Yan, and Shougang Zhuang
- Mechanisms Underlying the Renoprotective Effect of GABA against Ischemia/Reperfusion-Induced Renal Injury in Rats 767
Shuhei Kobuchi, Ryosuke Tanaka, Takuya Shintani, Rie Suzuki, Hidenobu Tsutsui, Mamoru Ohkita, Kazuhide Ayajiki, and Yasuo Matsumura
- Inhibition of Monoacylglycerol Lipase Attenuates Nonsteroidal Anti-Inflammatory Drug-Induced Gastric Hemorrhages in Mice 795
Steven G. Kinsey, Daniel K. Nomura, Scott T. O'Neal, Jonathan Z. Long, Anu Mahadevan, Benjamin F. Cravatt, John R. Grider, and Aron H. Lichtman
- ☐ Therapeutic Effect of Lecithinized Superoxide Dismutase on Pulmonary Emphysema 810
Ken-Ichiro Tanaka, Yuta Tanaka, Yuri Miyazaki, Takushi Namba, Keizo Sato, Kazutetsu Aoshiba, Arata Azuma, and Tohru Mizushima
- Aggravation by Paroxetine, a Selective Serotonin Reuptake Inhibitor, of Antral Lesions Generated by Nonsteroidal Anti-Inflammatory Drugs in Rats 850
Koji Takeuchi, Akiko Tanaka, Kazuo Nukui, Azusa Kojo, Melinda Gyenge, and Kikuko Amagase
- Tetrahydroberberine, an Isoquinoline Alkaloid Isolated from *Corydalis* Tuber, Enhances Gastrointestinal Motor Function 917
Tae Ho Lee, Ki Hyun Kim, Sung Ok Lee, Kang Ro Lee, Miwon Son, and Mirim Jin

INFLAMMATION, IMMUNOPHARMACOLOGY, AND ASTHMA

- ☐ Synergistic Effects of p38 Mitogen-Activated Protein Kinase Inhibition with a Corticosteroid in Alveolar Macrophages from Patients with Chronic Obstructive Pulmonary Disease 732
J. Armstrong, C. Harbron, S. Lea, G. Booth, P. Cadden, K. A. Wreggett, and D. Singh
- Targeting Cannabinoid Receptors as a Novel Approach in the Treatment of Graft-versus-Host Disease: Evidence from an Experimental Murine Model 819
Rupal Pandey, Venkatesh L. Hegde, Mitzi Nagarkatti, and Prakash S. Nagarkatti
- ☐ Inflammatory Stimuli Inhibit Glucocorticoid-Dependent Transactivation in Human Pulmonary Epithelial Cells: Rescue by Long-Acting β_2 -Adrenoceptor Agonists 860
Christopher F. Rider, Elizabeth M. King, Neil S. Holden, Mark A. Giembycz, and Robert Newton
- A Role for the Low-Affinity A_{2B} Adenosine Receptor in Regulating Superoxide Generation by Murine Neutrophils 1004
Dharini van der Hoeven, Tina C. Wan, Elizabeth T. Gizewski, Laura M. Kreckler, Jason E. Maas, Jordan Van Orman, Katya Ravid, and John A. Auchampach
- Luteolin, a Novel Natural Inhibitor of Tumor Progression Locus 2 Serine/Threonine Kinase, Inhibits Tumor Necrosis Factor- α -Induced Cyclooxygenase-2 Expression in JB6 Mouse Epidermis Cells 1013
Jong-Eun Kim, Joe Eun Son, Young Jin Jang, Dong Eun Lee, Nam Joo Kang, Sung Keun Jung, Yong-Seok Heo, Ki Won Lee, and Hyong Joo Lee

METABOLISM, TRANSPORT, AND PHARMACOGENOMICS

- Polymorphic Variants of Cytochrome P450 2B6 (CYP2B6.4–CYP2B6.9) Exhibit Altered Rates of Metabolism for Bupropion and Efavirenz: A Charge-Reversal Mutation in the K139E Variant (CYP2B6.8) Impairs Formation of a Functional Cytochrome P450-Reductase Complex 803
Haoming Zhang, Chitra Sridar, Cesar Kenaan, Hemali Amunugama, David P. Ballou, and Paul F. Hollenberg

NEUROPHARMACOLOGY

- Therapeutic Effect of Nicotine in a Mouse Model of Intracerebral Hemorrhage 741
Masanori Hijioka, Hideaki Matsushita, Akinori Hisatsune, Yoichiro Isohama, and Hiroshi Katsuki
- Subchronic Administration and Combination Metabotropic Glutamate and GABA_B Receptor Drug Therapy in Fragile X Syndrome 897
Laura K. K. Pacey, Sujeenthar Tharmalingam, and David R. Hampson

TOXICOLOGY

- Direct Evidence for the Formation of Diastereoisomeric Benzylpenicilloyl Haptens from Benzylpenicillin and Benzylpenicillenic Acid in Patients 841
Xiaoli Meng, Rosalind E. Jenkins, Neil G. Berry, James L. Maggs, John Farrell, Catherine S. Lane, Andrew V. Stachulski, Neil S. French, Dean J. Naisbitt, Munir Pirmohamed, and B. Kevin Park
- 2-(Naphthalene-1-yl)-6-pyrrolidinyl-4-quinazolinone Inhibits Skin Cancer M21 Cell Proliferation through Aberrant Expression of Microtubules and the Cell Cycle 942
Yang C. Wu, Mann J. Hour, Wing C. Leung, Chi Y. Wu, Wen Z. Liu, Yu H. Chang, and Hong Z. Lee
- The Repressor Element 1-Silencing Transcription Factor Is a Novel Molecular Target for the Neurotoxic Effect of the Polychlorinated Biphenyl Mixture Aroclor 1254 in Neuroblastoma SH-SY5Y Cells 997
Luigi Formisano, Natascia Guida, Stefania Cocco, Agnese Secondo, Rossana Sirabella, Luca Ulianich, Flora Paturzo, Gianfranco Di Renzo, and Lorella M. T. Canzoniero

ERRATUM

- Correction to “Donepezil Improves Cognitive Function in Mice by Increasing the Production of Insulin-Like Growth Factor-I in the Hippocampus” 1023

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

About the cover: Light microscopy of the inner zone (A–E), the outer zone inner stripe (F–J), and the outer zone outer stripe (K–O) of the medulla of the kidney of AKI rats treated with intravenous injection of vehicle, GABA, GABA + bicuculline, and GABA + CGP52432 at 29 h after reperfusion and sham-operated rats. See the article by Kobuchi et al. on page 767 of this issue.