

Toxicological Sciences

CONTENTS

Volume 100, Number 1, November 2007

EDITORIAL

Paraquat: The Red Herring of Parkinson's Disease Research

Gary Wright Miller. 1

PROFILES IN TOXICOLOGY

Emil Alvin Pfitzer

R. Michael McClain and Bernard M. Wagner. 3

TOXICOLOGICAL HIGHLIGHT

Bringing Biomarkers to the Masses: An Elegant Approach to Discover Potential Biomarkers of Vascular Injury

Robert Francis Stachlewitz 5

REVIEW

The Dynamic Epigenome and its Implications in Toxicology

Moshe Szyf. 7

FORUM

Recent Developments in the Risk Assessment of Potentially Genotoxic Impurities in Pharmaceutical Drug Substances

Charles D. N. Humfrey 24

Inclusion of Biomarkers for Detecting Perturbations in the Heart and Lung and Lipid/Carbohydrate Metabolism in National Toxicology Program Studies

June K. Dunnick, Kristina A. Thayer, and Gregory S. Travlos. 29

BIOTRANSFORMATION AND TOXICOKINETICS

Glutathione-Dependent Reduction of Arsenate by Glycogen Phosphorylase—A Reaction Coupled to Glycogenolysis

Balázs Némethi and Zoltán Gregus 36

Glutathione-Dependent Reduction of Arsenate by Glycogen Phosphorylase—Responsiveness to Endogenous and Xenobiotic Inhibitors

Zoltán Gregus and Balázs Némethi 44

ENDOCRINE TOXICOLOGY

Evaluation of the Antiandrogenic Effects of Flutamide, DDE, and Linuron in the Weanling Rat Assay Using Organ Weight, Histopathological, and Proteomic Approaches

Helen Tinwell, Claire Friry-Santini, David Rouquié, Sara Belluco, Laetitia Elies, Catherine Pallen, and Remi Bars 54

ENVIRONMENTAL TOXICOLOGY

Characterization of Arecoline-Induced Effects on Cytotoxicity in Normal Human Gingival Fibroblasts by Global Gene Expression Profiling

Shang-Lun Chiang, Shih-Sheng Jiang, Yi-Jou Wang, Horn-Che Chiang, Ping-Ho Chen, Hung-Pin Tu, Kun-Yen Ho, Yu-Shan Tsai, I-Shou Chang, and Ying-Chin Ko 66

Continued

Exposure to Arsenic at Levels Found in U.S. Drinking Water Modifies Expression in the Mouse Lung Angeline S. Andrew, Viviane Bernardo, Linda A. Warnke, Jennifer C. Davey, Thomas Hampton, Rebecca A. Mason, Jessica E. Thorpe, Michael A. Ihnat, and Joshua W. Hamilton	75
GENETIC TOXICOLOGY	
Quinoid Metabolites of 4-Monochlorobiphenyl Induce Gene Mutations in Cultured Chinese Hamster V79 Cells Markus Alexander Zettner, Susanne Flor, Gabriele Ludewig, Jörg Wagner, Larry W. Robertson, and Leane Lehmann	88
IMMUNOTOXICOLOGY	
Th2 Cytokines in Skin Draining Lymph Nodes and Serum IgE Do Not Predict Airway Hypersensitivity to Intranasal Isocyanate Exposure in Mice Aimen K. Farraj, Elizabeth Boykin, Najwa Haykal-Coates, Stephen H. Gavett, Donald Doerfler, and MaryJane Selgrade	99
IN VITRO TOXICOLOGY AND ALTERNATIVE TESTING	
Thimerosal-Induced Apoptosis in Human SCM1 Gastric Cancer Cells: Activation of p38 MAP Kinase and Caspase-3 Pathways without Involvement of [Ca²⁺]_i Elevation Shiuh-Inn Liu, Chorng-Chih Huang, Chun-Jen Huang, Being-Whey Wang, Po-Min Chang, Yi-Chien Fang, Wei-Chuan Chen, Jue-Long Wang, Yih-Chau Lu, Sau-Tung Chu, Chiang-Ting Chou, and Chung-Ren Jan	109
NEUROTOXICOLOGY	
Altered Muscarinic Acetylcholine Receptor Subtype Binding in Neonatal Rat Brain following Exposure to Chlorpyrifos or Methyl Parathion Shirley X. Guo-Ross, Janice E. Chambers, Edward C. Meek, and Russell L. Carr	118
Concentration-Dependent Binding of Chlorpyrifos Oxon to Acetylcholinesterase Lester G. Sultatos	128
Aging Pathways for Organophosphate-Inhibited Human Butyrylcholinesterase, Including Novel Pathways for Isomalathion, Resolved by Mass Spectrometry He Li, Lawrence M. Schopfer, Florian Nachon, Marie-Thérèse Froment, Patrick Masson, and Oksana Lockridge	136
Quantitative Comparisons of the Acute Neurotoxicity of Toluene in Rats and Humans Vernon A. Benignus, William K. Boyes, Elaine M. Kenyon, and Philip J. Bushnell	146
Proteomic Analysis of Rat Striatal Synaptosomes during Acrylamide Intoxication at a Low Dose Rate David S. Barber, Stanley Stevens, and Richard M. LoPachin	156
REPRODUCTIVE AND DEVELOPMENTAL TOXICOLOGY	
Matrix Metalloproteinase-13 Is Required for Zebra fish (<i>Danio rerio</i>) Development and Is a Target for Glucocorticoids Jedd Michael Hillegass, Caren Melissa Villano, Keith Raymond Cooper, and Lori Anne White	168
Role of AHR2 in the Expression of Novel Cytochrome P450 1 Family Genes, Cell Cycle Genes, and Morphological Defects in Developing Zebra Fish Exposed to 3,3',4,4',5-Pentachlorobiphenyl or 2,3,7,8-Tetrachlorodibenzo-<i>p</i>-dioxin Maria E. Jönsson, Matthew J. Jenny, Bruce R. Woodin, Mark E. Hahn, and John J. Stegeman	180
Effects of Altered Food Intake during Pubertal Development in Male and Female Wistar Rats Susan C. Laws, Tammy E. Stoker, Janet M. Ferrell, Michelle G. Hotchkiss, and Ralph L. Cooper	194

Continued

RESPIRATORY TOXICOLOGY

- Pulmonary and Systemic Immune Response to Inhaled Multiwalled Carbon Nanotubes**
Leah A. Mitchell, Jun Gao, Randy Vander Wal, Andrew Gigliotti, Scott W. Burchiel, and Jacob D. McDonald 203
- High Dietary Inorganic Phosphate Affects Lung through Altering Protein Translation, Cell Cycle, and Angiogenesis in Developing Mice**
Hua Jin, Seung -Hee Chang, Cheng-Xiong Xu, Ji-Young Shin, Youn-Sun Chung, Sung-Jin Park, Yeon-Sook Lee, Gil-Hwan An, Kee-Ho Lee, and Myung-Haing Cho 215

RISK ASSESSMENT

- An Adaptable Internal Dose Model for Risk Assessment of Dietary and Soil Dioxin Exposures in Young Children**
Brent D. Kerger, Hon-Wing Leung, Paul K. Scott, and Dennis J. Paustenbach 224

SAFETY EVALUATION

- Investigation of the Molecular Mechanisms Preceding PDE4 Inhibitor-Induced Vasculopathy in Rats: Tissue Inhibitor of Metalloproteinase 1, a Potential Predictive Biomarker**
Nicolas Daguès, Valérie Pawlowski, Cécile Sobry, Gilles Hanton, Françoise Borde, Sylvain Soler, Jean-Louis Freslon, and Stephan Chevalier 238
- Nonclinical Safety Evaluation of Muraglitazar, a Novel PPAR α / γ Agonist**
Crystal R. Waites, Mark A. Dominick, Thomas P. Sanderson, and Beth E. Schilling 248

SYSTEMS TOXICOLOGY

- Lipopolysaccharide and Trovafloxacin Coexposure in Mice Causes Idiosyncrasy-Like Liver Injury Dependent on Tumor Necrosis Factor-Alpha**
Patrick J. Shaw, Marie J. Hopfensperger, Patricia E. Ganey, and Robert A. Roth 259
- The Role of Tumor Necrosis Factor Alpha in Lipopolysaccharide/Ranitidine-Induced Inflammatory Liver Injury**
Francis F. Tukov, James P. Luyendyk, Patricia E. Ganey, and Robert A. Roth 267
- Muscarinic Receptor Dysfunction Induced by Exposure to Low Levels of Soman Vapor**
Paul A. Dabisch, Michael S. Horsmon, William T. Muse, Robert J. Mioduszewski, and Sandra Thomson 281
- Toxicogenomics of Drug-Induced Hemolytic Anemia by Analyzing Gene Expression Profiles in the Spleen**
Masatomo Rokushima, Kazuo Omi, Kae Imura, Akiko Araki, Naoko Furukawa, Fumio Itoh, Masako Miyazaki, Junko Yamamoto, Makiko Rokushima, Manabu Okada, Mikinori Torii, Ikuo Kato, and Jun Ishizaki 290
- Adsorbed Proteins Influence the Biological Activity and Molecular Targeting of Nanomaterials**
Debamitra Dutta, Shanmugavelayutham Kamakshi Sundaram, Justin Gary Teeguarden, Brian Joseph Riley, Leonard Sheldon Fifield, Jon Morrell Jacobs, Shane Raymond Addleman, George Alan Kaysen, Brij Mohan Moudgil, and Thomas Joseph Weber 303