

“Neurotoxicity in Development & Aging”

September 17-21, 2006 • DoubleTree Hotel Conference Center • Little Rock, Arkansas, USA

Sunday Afternoon 17 Sept 2006 2:00 – 5:00 PM

Opening

SESSION 1: OPENING OF THE CONFERENCE

Conference Chair: **Joan Cranmer, PhD**

2:00 – 2:15 PM

Welcome, Acknowledgements & Goals of the Conference

Joan Cranmer, PhD ~ *University of Arkansas for Medical Sciences*

Symposium

SESSION 2: CONSEQUENCES OF CHEMICAL EXPOSURE ON COGNITION IN CHILDREN: IMPORTANCE OF EFFECT MODIFIERS

Session Chair: **Deborah Rice, PhD**

Co-Chair: **David Bellinger, PhD**

2:15 – 2:45 PM

Importance of *Effect Modifiers* for the Consequences of Chemical Exposure on Cognition in Children

Deborah Rice, PhD ~ *Maine Center for Disease Control and Prevention*

2:45 – 3:15 PM

Impulsivity in PCB, MeHg and Pb Exposed Children Revealed Through Response Inhibition Paradigms: Current Behavioral Findings and Future Directions in Brain Imaging

Paul W. Stewart, PhD ~ *State University of New York at Oswego*

3:15 – 3:45 PM

Using the Tools of Genetics and Neuroimaging in Assessing Developmental Vulnerability

Kim N. Dietrich, PhD ~ *University of Cincinnati College of Medicine*

3:45 – 4:15 PM

Influence of Total Social Environment on the Outcome of Chemical Exposure

David Bellinger, PhD ~ *Harvard Medical School*

4:15 – 5:00 PM

Round-table Discussion and Q&A

Discussion Leaders: Deborah Rice, David Bellinger

Discussants:

Session Speakers plus:

Joseph Jacobson ~ *Wayne State University*

Jason Richardson ~ *UMDNJ & EOHSI*

Bernard Weiss ~ *University of Rochester*

Sunday September 17th

5:00 PM – 8:00 PM . . .

Meet & Greet

Welcoming Reception with BTS

Sunday Evening 17 Sept 2006 7:00 – 9:30 PM

Informal Workshop & Think Tank

SESSION 3: THE EPIDEMIC OF CHILDHOOD DEVELOPMENTAL DISORDERS

“Why are so many children sick . . . and what can be done to help them?”

Moderator: **Martha Herbert, MD, PhD**

7:00 - 7:15 PM

Why Are so Many Children Sick?

Mark Blaxill ~ *Vice President, SafeMinds; Research Chair*

7:15 - 8:50 PM

What Can Be Done To Help Them?

Panelists: The panelists are physicians whose primary specialty is the treatment of children with Autism

Nancy O'Hara, MD, MPH is a board certified pediatrician. Prior to her medical career she taught children with autism. Dr. O'Hara's practice is a consultative, integrative model that looks at the biochemical, immunologic, gastroenterologic and neurologic problems of each child. Each initial consultation integrates the information from a detailed history, physical exam, laboratory investigation, and dietary and behavioral evaluations to provide an individualized approach for each child. Dr. O'Hara is also the Assistant Medical Director for physician training for DAN! and the coordinator of the practitioner mentoring program.

Steve Kahler, MD is Professor of Pediatrics/Genetics at UAMS College of Medicine in Little Rock. His major interests include inborn metabolic errors. He worked at Duke for 14 years where he was part of the team that developed expanded newborn screening. He worked in Melbourne, Australia for five years, returned to the US (Johns Hopkins) in 2003, and moved to Arkansas in 2005. He has been interested in autism for many years, particularly the children who are responsive to diet changes, as they are similar in this way to children with defined metabolic errors. He has been part of the Defeat Autism Now! (DAN!) network since the first meeting in 1995. In Arkansas he is working closely with Jill James, PhD, on biochemical aspects of autism.

Jerry Kartzinel, MD is the Director of Pediatric Medicine at The Thoughtful House Center for Children. Dr. Kartzinel practiced general pediatrics in private practice for 10 years until his fourth boy was diagnosed with autism. He has since dedicated his practice of medicine to those with autism and neurodevelopmental delays. His practice is solely devoted to the research and treatment of Autism and other neurodegenerative disorders. His approach includes a comprehensive history and physical exam, and laboratory investigations that seek to find what is biologically different in a child. Once found, he implements therapeutic interventions and monitors closely how they affect restoration of health and behaviors. His current research interests include quelling chronic inflammation and the augmentation of the methylation pathway.

Elizabeth Mumper, MD is Medical Director for physician training for Defeat Autism Now! (DAN!). She is president and CEO for Advocates for Children in Lynchburg Virginia. She is also associate professor of Medical Specialties, Pediatrics at Virginia College of Osteopathic Medicine. Dr Mumper attended medical school at the Medical College of Virginia and completed her pediatric residency at the University of Virginia where she was invited to spend an additional year as Chief Resident. Her current research interests include: intestinal biopsies, natural killer cells and glutathione dysfunction, hyperbaric oxygen therapies, and methylation abnormalities in children with Autism. Dr Mumper serves on the DAN! Europe Board and also the MINDD Foundation Board in Australia.

8:50 – 9:00 PM

Video of Before and After Therapy

This session will end with a brief video of several children diagnosed with autism before and after targeted clinical interventions.

9:00 - 9:30 PM

QUESTION AND ANSWER SESSION

Monday Morning 18 Sept 2006 8:30 AM – 11:30 AM

Plenary Session

SESSION 4. ENVIRONMENT AND NEURODEVELOPMENTAL DISORDERS: CROSS-CUTTING ISSUES & TRANSLATIONAL RESEARCH

Session Co-Chairs: **Deborah Cory-Slechta, PhD**
Don Schmechel, MD

8:30 – 8:40 AM

Introduction

Deborah Cory-Slechta, PhD ~ *UMDNJ and Rutgers University*

8:40 – 9:10 AM

Bionetworks of Risk Factors in Neurotoxicology: Implications for Risk Assessment and Translational Research

Deborah Cory-Slechta, PhD ~ *UMDNJ and Rutgers University*

9:10 – 9:40 AM

Of Mercury, Microbes, Mice and Men: How Translational Thinking Can Accelerate Discovery of the Role of Environmental Factors in Neuropsychiatric Disorder Pathogenesis

Mady Hornig, MD, MA ~ *Columbia University*

9:40 – 10:10 AM

Art, Creative Energy, Memory, Mood, and Inflammation: Lessons for CNS Development and Vulnerability

Don Schmechel, MD ~ *Duke University*

10:10 – 10:30 AM Break

10:30 – 11:00 AM

Autism: A Brain Disorder or a Disorder that Affects the Brain?

Martha Herbert, MD, PhD ~ *Massachusetts General Hospital; Harvard Medical School*

11:00 – 11:30 AM

Toward Understanding Autism's Complexities

Isaac Pessah, PhD ~ *University of California, Davis*

11:30 – 12:00 PM

Discussion

Monday Afternoon 18 Sept 2006 1:00 – 5:00 PM

Symposium

SESSION 5-A. ENVIRONMENTAL MODULATION OF NEUROTOXICANTS IN MILITARY-RELEVANT OPERATIONAL ENVIRONMENTS

Session Co-Chairs: **Susan P. Proctor, DSc**
COL Karl E. Friedl, PhD

This session is sponsored by the US Army Research Institute of Environmental Medicine (USARIEM) and the Neurotoxin Treatment Research Program of the US Army Medical Research and Materiel Command (USAMRMC).

1:00 – 1:20 PM

Overview: Environmental Modulation of Neurotoxicants in Military-Relevant Environments

Susan P. Proctor, DSc and COL Karl E. Friedl, PhD ~ *U.S. Army Research Institute of Environmental Medicine*

1:20 – 2:00 PM

Role of Environmental Heat and Cold Stress on the Physiological Response to Organophosphates and Other Toxicants

Christopher J. Gordon, PhD ~ *US EPA*

2:00 – 2:40 PM

Human Metabolic Interactions of Deployment-Related and Other Environmental Chemicals

Ernest Hodgson, PhD ~ *North Carolina State University*

2:40 – 3:00 PM Break

3:00 – 3:40 PM

The Effects of Diesel Exhaust and Stress on the Acute Phase Response and Symptoms in the Chemically Intolerant

Nancy Fiedler, PhD ~ *EOHSI/Robert Wood Johnson Medical School*

3:40 – 4:20 PM

Persistent Biomarkers of Exposure of Potentially Neurotoxic Compounds

Daniel Noort, PhD ~ *TNO Defense, Security & Safety*

4:20 – 5:00 PM

Discussion, Session Summary and Research Needs

Monday Afternoon 18 Sept 2006 1:00 – 5:00 PM

Platform Session

SESSION 5-B. ADVANCING THE SCIENCE OF AUTISM SPECTRUM DISORDERS

Session Co-Chairs: **Martha Herbert, MD, PhD**
Isaac Pessah, PhD

1:00 – 1:10 PM

Advancing the Science of Autism Spectrum Disorders: Introduction and Overview

Martha Herbert, MD, PhD and Isaac Pessah, PhD

1:10 - 1:40 PM

Autism: The Clinical Picture

Jeff Bradstreet, MD ~ *ICDRC – Florida Hospital, Celebration*

1:40 – 2:10 PM

Evidence and Implications of Redox Imbalance in Autistic Children

Jill James, PhD ~ *Arkansas Children's Hospital Research Institute*

2:10 - 2:30

Glutathione- Dependant Methionine Synthase Activity: A Sensitive Target for Neurodevelopmental Toxins and its Role in Autism Spectrum Disorders

Richard Deth, PhD ~ *Northeastern University, Boston*

2:30 – 2:45 PM Break

2:45 - 3:15 PM

How Genetic and Temporal Factors Constrain Outcomes after Environmental Exposures: Immune-mediated Mouse Models of Neurodevelopmental Disorders

Mady Hornig, MD, MA ~ *Columbia University*

3:15 – 3:45 PM

Critical Mechanisms, Moving Targets: Understanding Immune System Modulation in Autism Risk

Isaac Pessah, PhD ~ *University of California, Davis*

3:45 – 4:05 PM

Hyperbaric Oxygen Therapy in Autistic Children Improves Symptomology, Decreases Markers of Inflammation, and Has Neutral Effects on Oxidative Stress.

Dan Rossignol, MD ~ *University of Virginia*

4:05 – 4:30 PM

Summary of Sunday Evening Workshop

Martha Herbert, MD, PhD ~ *Massachusetts General Hospital; Harvard Medical School*

4:30 – 5:00 PM

Roundtable Discussion:

Discussion Leaders:

Isaac Pessah, PhD

Martha Herbert, MD, PhD

“Advancing the Science of Autism Spectrum Disorders”

Identify the evidentiary gaps in knowledge and brainstorm necessary next steps.

Questions to be Addressed:

1. Can we be more systematic about identifying environmentally vulnerable pathways in autism?
2. Do environmental factors affect brain function in labile ways that can be affected or reversed by treatment?
3. How can we encourage researchers to study the physiology (biochemistry, toxicology, immunology) of autism?
4. In order to get biological data on a large number of autistic individuals and correlate it with other findings, would it be feasible to develop a basic biomarker panel that brain and psychology oriented researchers could use when they are drawing blood for genetic samples that they commonly collect?
5. What brain biomarkers would be most sensitive to toxic insult and to treatment response?

6. How do we rigorously address the great biological and phenotypic heterogeneity in autism?
7. How can we integrate research on cause and mechanism with research on treatment?

5:00 PM – Adjourn Monday Scientific Sessions.

Outside the Front of the Doubletree Hotel:

Take the bus or trolley or hotel van to the Clinton Presidential Library for camaraderie, tour and dinner. This special social evening is included in the conference registration fee.

Bus #1 Departs at 5:15 PM

Bus #2 Departs at 5:40 PM

Monday Evening 18 Sept 2006 5:45 – 9:45 PM

5:45 PM – 9:45 PM

**Hosted Social Evening
Tours & Dinner
at the
William J. Clinton
Presidential Library**

Tuesday Morning 19 Sept 2006 8:30 AM – 11:50

Plenary Session

SESSION 6. NEUROTOXICITY AND THE PATH FROM EARLY BRAIN DEVELOPMENT TO AGING

Session Chair: **Bernard Weiss, PhD**

8:30 – 8:40 AM

Introduction

Bernard Weiss, PhD ~ *University of Rochester*

8:40 – 9:10 AM

Neurotoxic Byways on the Path to Aging

Bernard Weiss, PhD ~ *University of Rochester*

9:10 – 9:40 AM

Inflammation and Repair in the Aging Brain: What a Difference a Decade Makes

Jean Harry, PhD ~ *NIEHS*

9:40 – 10:10 AM

Cumulative Impact of Lead Exposure and Stress Over the Lifespan

Deborah Cory-Slechta, PhD ~ *UMDNJ and Rutgers University*

10:10 – 10:30 AM Break

10:30 – 11:00 AM

Translational Research in Alzheimer's Disease and Parkinson's Disease

Don Schmechel, MD ~ *Duke University*

11:00 – 11:30 AM

Aging and Environmental Health: EPA's Plan for Exposure-Dose-Response Research.

Andrew M. Geller, PhD ~ *NHEERL, US EPA*

11:30 – 11:50 AM

Roundtable Discussion

"Aging and Environmental Health"

Moderator: **Deborah Rice, PhD**

Despite our acknowledgement that development--and aging--are basically identical and continuous processes across the total lifespan, it would be deceptive to model them as smooth curves. Although they might not reveal sharp discontinuities, the road, so to speak, is bumpy and pitted (the seven ages of man--and woman?). It traverses periods of both diminished and aggravated vulnerabilities. Adolescence is one such period. Menopause is another. How many such periods can be distinguished? How can they be modeled in our usual laboratory rodents? And are calendar years a proper definition of age? Do such questions deserve more attention than we usually give them?

Panel Discussants: Session Speakers plus:

Sue Griffin, PhD ~ *Univ of Arkansas for Medical Sciences & VAMC*

Mady Hornig, MD, MA ~ *Columbia University*

Tuesday Afternoon 19 Sept 2006 1:15 – 3:15 PM

Focus Session

SESSION 7-A-1: DEVELOPMENTAL NEUROTOXICITY I

Session Chair: **Didima de Groot, PhD**

Co-Chair: **Darryl B. Hood, PhD**

1:15 – 1:35 PM

Linkages between Early Childhood Lead Exposure and Performance on End of Grade Exams.

Eric Tassone, JD, PhD ~ *Duke University*

1:35 – 1:55 PM

Gestational Environmental Contaminant Exposure Effects on NMDA/AMPA-Dependent Plasticity Mechanisms in Adult Rat Hippocampus and Sensory Cortex.

Darryl B. Hood, PhD ~ *Meharry Medical College*

1:55 – 2:15 PM

Effects of Maternal Diet on Offspring's Vulnerability to Environmental Exposure

Didima de Groot, PhD ~ *TNO Quality of Life, Zeist, The Netherlands*

2:15 – 2:35 PM

A Proxy Measure of Prenatal Testosterone Exposure is Related to Gray Matter Volume in Human Neonates

Rebecca C. Knickmeyer, PhD ~ *University of North Carolina*

2:35 – 2:50 PM

Discussion

2:50 – 3:05 PM Break

Tuesday Afternoon 19 Sept 2006 3:05 – 5:00 PM

Platform Session

SESSION 7-A-2: ROLE OF ENVIRONMENTAL CONTAMINANTS IN THE ETIOLOGY OF ADHD-LIKE BEHAVIORS

Session Chair: **Richard Seegal, PhD**

Co-Chair: **Paul W. Stewart, PhD**

3:05 – 3:20 PM

An Overview: Developmental Neuroendocrine Effects of PCBs and PBDEs: Parallels with ADHD

Richard Seegal, PhD ~ *Wadsworth Center, NYSDOH*

3:20 – 3:40 PM

Perinatal PCB Exposure, Deficits in Inhibitory Control and Hypofunction of Prefrontal Dopamine: Parallels with ADHD

Susan L. Schantz, PhD ~ *University of Illinois at Urbana*

3:40 – 3:55 PM

Is Impulsive Behavior and Impaired Response Control a Final Common Path for PCB, MeHg and Pb Neurotoxicity in Children?

Paul W. Stewart, PhD ~ *State University of New York at Oswego*

3:55 – 4:15 PM

Developmental Pesticide Exposure Reproduces Features of Attention-Deficit Hyperactivity Disorder

Jason R. Richardson, PhD ~ *University of Medicine and Dentistry-New Jersey/Robert Wood Johnson Medical School and Environmental and Occupational Health Sciences Institute*

4:15 – 4:35 PM

Smoking During Pregnancy: Effects on Arousal and Attentional Brain Systems

Edgar Garcia-Rill, PhD ~ *University of Arkansas for Medical Sciences*

4:35 – 5:00 PM

Discussion

Tuesday Afternoon 19 Sept 2006 1:15 – 5:00 PM

Symposium

SESSION 7-B: NEUROPROTECTION BY ALZHEIMER'S DRUGS

Session Chair: **Toshio Narahashi, PhD**

Co-Chair: **Edward D. Levin, PhD**

1:15 – 1:30 PM

Overview: Neuroprotection by Alzheimer's Drugs

Toshio Narahashi ~ *Northwestern University Medical School*

1:30 – 2:10 PM

Synuclein-linked neuroimmunity and the pathogenesis of Parkinson's disease

Howard E. Gendelman ~ *University of Nebraska, Omaha*

2:10 – 2:50 PM

Galantamine-Memantine Co-application: Beneficial Effect

Toshio Narahashi, PhD ~ *Northwestern University Medical School*

2:50 – 3:05 PM Break

3:05 – 3:45 PM

A Novel Approach for the Treatment of Organophosphorous Compound Poisoning: Implications for Alzheimer's Disease

Edson X. Albuquerque, PhD ~ *University of Maryland, Baltimore*

3:45 – 4:25 PM

Nicotinic Treatment for Both Symptomatic Relief and Attenuation of Cognitive Decline with Aging and Alzheimer's Dementia

Edward D. Levin, PhD ~ *Duke University Medical Center*

4:25 – 5:00 PM

Open Discussion, Session Summary and Research Needs

Tuesday Evening 19 Sept 2006 7:00 – 9:00 PM

Cash Bar & Desserts

Poster Session

SESSION 8: GENERAL POSTER SESSION

Session Chair: Lisa Opanashuk, Ph.D

The Poster Session is a highlight of this conference series. It has proven to be an effective venue for informal, in-depth discussion and collaboration building -- as well as an important networking opportunity for all participants. Papers on any aspect of neuroscience, toxicology, children's environmental health, public health & policy are welcome!

Student Award Competition! *Judging and selection of Pre-Doctoral and Post-Doctoral Student Awardees will be made during the poster session. Abstracts have been divided into two groups: (1) Pre-Doctoral and (2) Post-Doctoral. There will be a 1st, 2nd, and 3rd place winner chosen from each group for a total of six awards.*

PUT UP POSTERS SUNDAY OR UPON ARRIVAL
Posters remain on display throughout the conference

**Judging of Pre- and Postdoctoral Students
will be made from 7:00 - 8:00PM.**

GROUP 1: PRE-DOCTORAL COMPETITION

Group 1: Pre-Doctoral Student Award Committee

1. Lisa Opanashuk, PhD ~ *Chair*
2. Randy LoPachin, PhD
3. Rich Seegal, PhD

Group 1: Pre-Doctoral Students (6)

Carlos Collares *Mentor: Paulo Cesar Trevisol-Bittencourt, PhD*

3rd Place Winner

Derek Drechsel *Mentor: Manisha Patel, PhD*

Amar Jyoti *Mentor: Deepak Sharma, PhD*

Brandon Kersh *Mentor: Barbara Clancy, PhD*

2nd Place Winner

Lisa Miyatake *Mentors: Vanessa Fitsanakis, PhD
Michael Aschner, PhD*

1st Place Winner

Victor Wang *Mentor: Susan Schantz, PhD*

GROUP 2: POST-DOCTORAL COMPETITION

Group 2: Post-Doctoral Student Award Committee

1. Anumantha Kanthasamy, PhD ~ *Chair*
2. Virginia (Ginger) Moser, PhD
3. Toshio Narahashi, PhD

Group 2: Post-Doctoral Students (7)

Rebecca Erickson, PhD *Mentor: Karen Steinmetz, PhD*

Wenceslao Kiat, PhD *Mentor: Irma Makalinao, PhD*

Rebecca Knickmeyer, PhD *Mentor: John Gilmore, MD*

1st Place Winner

Ruth Jameson, PhD *Mentor: Ted Slotkin, PhD*

2nd Place Winner

Tin Tin Win Shwe, PhD *Mentor: Hidekazu Fujimaki, PhD*

Jianyong Wang, MD, PhD *Mentor: Syed F. Ali, PhD*

Xiaoju Zou, PhD *Mentor: Cheng Wang, MD, PhD*

3rd Place Winner

Sarah Owens, PhD *Mentor: Michael Aschner, PhD*

8:45PM ~ Presentation of Student Awards

Wednesday Morning 20 Sept 2006 8:30 AM – 12:00 NOON

Symposium

SESSION 9-A. HEALTH EFFECTS OF MANGANESE EXPOSURE: HUMANS & ANIMAL MODELS I

*Session Chair: Michael Aschner, PhD
Co-Chair: Anumantha Kanthasamy, PhD*

*This session is sponsored by the
Manganese Health Research Program (MHRP)*

Theme: This multidisciplinary session will address contemporary research issues associated with the health effects of manganese (Mn) both in humans and animal models. Speakers will discuss recent findings on the specific cellular, molecular, and physiologic mechanisms by which manganese mediates its adverse effects. Speakers will also note factors, such as age, pre-existing disease, and genetics, as conditions that might predispose individuals to enhanced susceptibility to manganese toxicity. The session will span studies in various tissue culture models to non-human primates, incorporating diversity of techniques, from molecular biology to imaging.

Timely Topics to be Addressed:

- Consideration of the relevant health issues associated with over exposure to manganese.
- Characterization of exposures
- Development of appropriate biomarkers of exposure.
- Quantifying the relationships between exposure and ill health, including pharmacokinetics.
- Understanding the mechanisms of transport, damage and repair
- Understanding and utilizing invertebrate models such as the *c. elegans* to probe for mechanisms of Mn neurotoxicity

8:30 – 8:40 AM

Health Effects of Manganese Exposure: Humans & Animal Models: Introduction

Michael Aschner, PhD ~ *Vanderbilt University*

8:40 – 9:15 AM

Potential Neurotoxic Responses in Rats After Pulmonary Administration of Welding Fume With Varying Concentrations of ManganeseJames Antonini, PhD ~ *NIOSH*

9:15 – 9:50 AM

Where Does Mn²⁺ Inhibit Oxidative Phosphorylation?Thomas Gunter, PhD ~ *University of Rochester Medical School*

9:50 – 10:20 AM Break

10:20 – 10:55 AM

Manganese Upregulates Cellular Prion Proteins and Inhibits the Rate of Proteinase-K Dependent Proteolysis in Cell Culture Models of Prion Diseases.Anumantha Kanthasamy, PhD ~ *Iowa State University*

10:55 – 11:30 AM

Changes in Dietary Iron Levels Affect Brain Manganese Accumulation and DistributionMichael Aschner, PhD ~ *Vanderbilt University*

11:30 – 12:00 PM

Discussion**Wednesday Morning 20 Sept 2006 8:30 – 12:00 NOON****Platform Session:****SESSION 9-B: DEVELOPMENTAL NEUROTOXICITY II**

Session Chair:

Merle G. Paule, PhD

Co-Chair:

Mary Ann Wilson, PhD

8:30 – 8:35 AM

Introduction & OverviewMerle G. Paule, PhD ~ *National Center for Toxicological Research/FDA*

8:35 – 9:00 AM

A Novel Rat Brain Atlas for Neurotoxicity TestingDidima de Groot, PhD ~ *TNO Quality of Life, Zeist, The Netherlands*

9:00 – 9:25 AM

Low Dose Early Postnatal Diazinon Exposure Causes Impaired Working Memory on the Radial-Arm Maze in Rats During Adulthood.Edward D. Levin, PhD ~ *Duke University Medical Center*

9:25 – 9:50 AM

Neonatal Lead Exposure Impairs Plasticity in Developing Rat Somatosensory CortexMary Ann Wilson, PhD ~ *Kennedy Krieger Research Institute*

9:50 – 10:15 AM

Neurobehavioral Assessment Using A Functional Observational Battery and Motor Activity in Rats Perinatally Exposed to DE-71.Virginia (Ginger) C Moser, PhD ~ *NHEERL/ORD, US EPA*

10:15 – 10:30 AM Break

10:30 – 10:55 AM

NMDA-Type Glutamate Receptors and Anesthetic-Induced Neuronal Oxidative Stress During DevelopmentCheng Wang, MD, PhD ~ *National Center for Toxicological Research/FDA*

10:55 – 11:20 AM

Cross-Cultural Comparison of a Neurobehavioral Test Battery for ChildrenDiane S Rohlman, PhD ~ *Oregon Health & Science University*

11:20 – 11:45 AM

Neuropsychological Effects of Dental Amalgam in Children: A Randomized TrialDavid C. Bellinger, PhD, MSc ~ *Harvard Medical School*

11:45 – 12:00 PM

Discussion**Wednesday Afternoon 20 Sept 2005 1:15 – 5:00 PM****Platform Session****SESSION 10-A: HEALTH EFFECTS OF MANGANESE EXPOSURE: HUMANS AND MODELS II**

Session Chair:

Nick M. Filipov, PhD

Co-Chair:

Donna Mergler, PhD

1:15 – 1:50 PM

Enhanced Proinflammatory Cytokine Production by Striatal Slices Exposed to Manganese and LPS *In Vitro*Nick M Filipov, PhD ~ *Mississippi State University*

1:50 – 2:25 PM

Manganese Exposure and Effects Over the Lifespan : Age and Gender ConsiderationsDonna Mergler, PhD ~ *University of Quebec at Montreal, Canada*

2:25 – 3:00 PM Break

3:00 – 3:30 PM

Neuroimaging and Neurodevelopmental Correlates of Intravenous Manganese Exposure in Parenterally-Fed Infants: A Clinical Trial in the Neonatal Intensive Care UnitJudy L Aschner, MD ~ *Vanderbilt University Medical Center*

3:30 – 4:00 PM

High Signal Intensities on T1-Weighted MRI in the Spectrum of Manganese SymptomatologyYangho Kim, MD ~ *University of Ulsan College of Medicine, Ulsan, South Korea.*

4:00 – 4:20 PM

Utilization of Behavioral Testing, Atomic Absorption Spectroscopy (AAS) and Isoprostane Analysis to Determine the Effects of Brain Manganese (Mn) Accumulation in Male C57BL/6J Mice.LA Miyatake ~ *Vanderbilt University School of Medicine*

4:20 – 5:00 PM

Discussion

Wednesday Afternoon 20 Sept 2005 1:15 – 5:00 PM

Symposium

SESSION 10-B. THE SEYCHELLES CHILD DEVELOPMENT STUDY OF METHYLMERCURY EXPOSURE FROM FISH CONSUMPTION: NEW RESULTS AND CONCLUSIONS

Session Chair: Christopher Cox, PhD

Session 10-B is sponsored by the National Institute of Environmental Health Sciences (NIEHS)

1:15 – 1:20 PM

Introduction

Christopher Cox, PhD ~ *Johns Hopkins Bloomberg School of Public Health*

1:20 – 1:40 PM

Overview of Child Development Studies in Seychelles, Past, Present and Planned

Conrad F Shamlaye, MD, MPH, M Econ ~ *Ministry of Health, Republic of Seychelles*

1:45 – 2:10 PM

Biomarkers for Methyl Mercury

Thomas W Clarkson, PhD ~ *University of Rochester, NY*

2:10 – 2:35 PM

Potential Benefits of Maternal Fish Consumption to Fetal and Child Development

J.J. Strain, PhD ~ *University of Ulster, Northern Ireland*

2:35 – 3:00 PM

Findings From the Seychelles Child Development and Nutrition Study

Philip W. Davidson, PhD ~ *University of Rochester, NY*

3:00 – 3:15 PM

Break

3:15 – 3:40 PM

Postnatal Exposure Issues

Gary Myers, MD ~ *University of Rochester, NY*

3:40 – 4:05 PM

Methylmercury and Blood Pressure

Sally Thurston, PhD ~ *University of Rochester, NY*

4:05 – 5:00 PM

Panel Discussion of Child Development Studies in Seychelles

Panelists: Session Speakers plus Representatives from governmental agencies

Michael Bolger, PhD ~ *FDA*

Christopher DeRosa, PhD ~ *ATSDR*

Kevin Teichman, PhD ~ *EPA*

Annette Kirshner, PhD ~ *NIEHS/NIH*

Wednesday Evening 20 Sept 2006 7:00 – 9:20 PM

Symposium

SESSION 11-A: THE FETAL BRAIN ON ALCOHOL

Session Chair: Cynthia (Cindy) J.M. Kane

7:00 – 7:05 PM

The Fetal Brain On Alcohol: Introduction

Cynthia (Cindy) J.M. Kane ~ *University of Arkansas for Medical Sciences*

7:05 – 7:30 PM

Latent Effects of Fetal Alcohol Exposure on Neural Stem Cells: Brainstem Neurons

Michael W. Miller ~ *Upstate Medical University*

7:30 – 7:55 PM

The Relationship of Cortical Development to Prenatal Alcohol Exposure and NMDA-NR1 Receptors: New Mechanisms for Toxic Effects of Ethanol.

Andrea J. Elberger ~ *The University of Tennessee Health Science Center*

7:55 – 8:20 PM

The Influence of Genetics in Ethanol's Teratogenic Actions

Kristin M. Hamre, PhD ~ *The University of Tennessee Health Science Center*

8:20 – 8:45 PM

The Cholinergic System in Astrocytes is a Target for Ethanol

Marina Guizzetti ~ *University of Washington*

8:45 – 9:05 PM

Developmental Interactions Between Microglia and Neurons Are Disrupted by Ethanol

Cynthia (Cindy) J.M. Kane ~ *University of Arkansas for Medical Sciences*

9:05 – 9:20 PM

Discussion

Wednesday Evening 20 Sept 2006 7:00 – 9:00 PM

Platform Session

SESSION 11-B: MERCURY TOXICITY, DITHIOCARBAMATES AND OXIDATIVE STRESS

**Session Co-Chairs: W. M. Valentine, PhD
Nick VC Ralston, PhD**

7:00 – 7:05 PM

Introduction

William M Valentine, PhD ~ *Vanderbilt University Medical Center*

7:05 – 7:30 PM

Dithiocarbamate-Mediated Oxidative Stress in Peripheral Nerve

William M Valentine, PhD ~ *Vanderbilt University Medical Center*

7:30 – 7:55 PM

Selenium's Protective Effect Against Mercury Toxicity

Nick VC Ralston, PhD ~ *University of North Dakota*

7:55 – 8:20 PM

Selenium Prevents and Reverses Methylmercury Toxicity

Laura J Raymond, PhD ~ *University of North Dakota*

8:20 – 8:45 PM

Evidence of Impaired Mercury Efflux in Autism

Dan Rossignol, MD ~ *University of Virginia*

8:45 – 9:00 PM

Discussion

Thursday Morning 21 Sept 2006 8:30 – 12:00 PM

Plenary Session

SESSION 12. NEUROTOXICITY IN DEVELOPMENT AND AGING: TRANSLATIONAL RESEARCH

Session Chair: **Evelyn Tiffany-Castiglioni, PhD**

Co-Chair: **Richard M. LoPachin, PhD**

8:30 – 8:40 AM

Levels of Biological Complexity in the Translational Research Scheme: Session Overview

Evelyn Tiffany-Castiglioni, PhD ~ *Texas A&M University*

8:40 – 9:00 AM

Translational Medicine and the NIEHS Strategic Plan

Annette Kirshner, PhD ~ *NIEHS/NIH*

9:00 – 9:25 AM

Are Age-Related Neurodegenerative Diseases Mediated by Thiol Adduct Formation in Nerve Terminals?

Richard M. LoPachin, PhD ~ *Albert Einstein College of Medicine*

9:25 – 9:50 AM

Neuroinflammation and Neurodegenerative Conditions.

W. Sue T. Griffin, PhD ~ *University of Arkansas for Medical Sciences and Geriatric Research Education Clinical Center, VAMC*

9:50 – 10:05 **BREAK**

10:05– 10:30 AM

Is Polychlorinated Biphenyl Exposure a Risk Factor for Parkinson's Disease?

10:30 – 10:50 AM

Use of Ca²⁺ Modeling as a Predictive Measure of Neurotoxicity

Rola Barhoumi Mounime, PhD ~ *Texas A&M University*

10:50 – 11:10 AM

What Is That In Rat Days? A Web Based Approach to the Translation of Neurodevelopmental Time Across Mammalian Species

Barbara Clancy, PhD ~ *University of Central Arkansas, and University of Arkansas for Medical Sciences*

11:10 – 11:40AM

Roundtable Discussion

“Translational Research in Neurotoxicology”

Facilitator: Evelyn Tiffany-Castiglioni, PhD

This Roundtable will address strategies to integrate data from in vitro models, animal models and epidemiologic studies to understand the mechanisms by which toxicants and host responses to these agents

during brain maturation and aging may act as triggers or amplifying factors in the pathogenesis of some neurodevelopmental and neuropsychiatric conditions. Strategies include: 1) the use of findings from in vitro systems to identify mechanisms of cell damage and possible biomarkers, 2) use of animal models to sharpen the focus of investigations in human cohorts, creating the basis for translation into novel biomarkers and intervention strategies, and 3) rigorous testing in animal models with differing genetic susceptibilities of hypotheses generated from epidemiologic studies.

Panel Discussants: Session Speakers plus:

David C. Bellinger, Ph.D., MSc ~ *Harvard Medical School*

Edgar Garcia-Rill, PhD ~ *University of Arkansas Medical School*

Sue Griffin, PhD ~ *University of Arkansas Medical School*

Mady Hornig, MD ~ *Columbia University*

Annette Kirshner, PhD ~ *NIEHS/NIH*

Don Schmechel, M.D. ~ *Duke University Medical School*

Questions to Invited Experts:

- How do reductionist models, including –omics, cell culture, and animal models, relate to translational research?
- How do epidemiologic studies relate to translational research?
- How can the “disease first” approach advocated by NIEHS lead to more rapid knowledge that would benefit human health?
- How can we prospectively identify interdisciplinary opportunities in environmental health studies that will most substantially improve human health?

11:40 – 11:50 AM

Shifting Emphasis from Exposures and Toxicants to Pathophysiologic Endpoints: a Step in the Right Direction or Not?

Richard M. LoPachin, PhD ~ *Albert Einstein College of Medicine*

Translational Research in Neuroscience

E. Garcia-Rill, PhD ~ *University of Arkansas for Medical Sciences, Arkansas*

Thursday Noon 21 Sept 2006 Noon

NOON: CLOSING OF THE CONFERENCE

Conference Chair: **Joan M. Cranmer, PhD**

**PUT UP POSTERS SUNDAY OR UPON ARRIVAL
Posters remain on display throughout the conference**

Poster Session 7:00 – 9:00 PM Tuesday Evening

Tuesday Evening 19 Sept 2006 7:00 – 9:00 PM

Cash Bar & Snacks

Poster Session

SESSION 8: GENERAL POSTER SESSION

POSTER GROUP 1:

Health Effects / Imaging / Human Studies

P-83

ENVIRONMENTAL EXPOSURES AND HEALTH EFFECTS IN ADOLESCENT AND ADULT AGRICULTURAL WORKERS. DS Rohlman¹, M Lasarev¹, J Muniz², WK Anger¹, L McCauley². ¹Center for Research on Occupational and Environmental Toxicology, Oregon Health & Science University, Portland, OR, USA; ²University of Pennsylvania, Philadelphia, PA, USA

P-84

QUANTITATIVE MAGNETIC RESONANCE BRAIN IMAGING OF US ARMY VETERANS WITH PRESUMPTIVE EXPOSURES TO SARIN AND CYCLOSARIN DURING THE 1991 GULF WAR. KJ Heaton^{1,2,3}, CL Palumbo^{1,4}, SP Proctor^{1,2,3}, RJ Killiany^{4,5,6}, DA Yurgelun-Todd^{6,7}, RF White^{1,2,4}. ¹United States Army Research Institute of Environmental Medicine, Military Performance Division, Natick, MA; ²Boston Environmental Hazards Research Center, VA Boston Healthcare System, Boston, MA; ³Boston University School of Public Health, Department of Environmental Health, Boston, MA; Boston University School of Medicine, Departments of ⁴Neurology and ⁵Anatomy & Neurobiology, Boston, MA; ⁶Harvard Medical School, Department of Psychiatry, Boston, MA; ⁷Neuroimaging and Neuropsychology, Brain Imaging Center, McLean Hospital, Belmont, MA

P-85

Pre-doc Award Competition

CHEMICAL INTOLERANCE IN BRAZIL: BEYOND THE DICHOTOMY. Collares CF, Trevisol-Bittencourt, PC. Sao Paulo Poison Control Center. Federal University of Santa Catarina. Brazil.

P-86

A CASE OF ACUTE ORGANOTIN POISONING. CI Yoo¹, J Kim², Y Endo³, Y Kim¹. Department of Occupational and Environmental Medicine¹, Department of Neurology², Ulsan University Hospital, University of Ulsan College of Medicine, Ulsan, South Korea. Research Center for Occupational Poisoning, Tokyo Rosai Hospital, Japan³

P-87

PALLIDAL SIGNALS IN PATIENTS WITH BILE DUCT OBSTRUCTION. SJ Bang¹, SH Choi², Y Kim³. ¹Department of Internal Medicine ²Department of Radiology ³Department of Occupational and Environmental Medicine Ulsan University Hospital, University of Ulsan College of Medicine, Ulsan, South Korea.

P-88 *Post-doc Award Competition*

A PROXY MEASURE OF PRENATAL TESTOSTERONE EXPOSURE IS RELATED TO GRAY MATTER VOLUME IN HUMAN NEONATES Rebecca C. Knickmeyer¹, Y. Sampath K. Vetsa², Bradley Moore², Guido Gerig^{1,2} and John Gilmore¹ ¹Dept. of Psychiatry, University of North Carolina, Chapel Hill, NC 27599, ²Dept. of Computer Science, University of North Carolina, Chapel Hill, NC 27599.

P-89

BODY BURDENS OF NEUROTOXIC HEAVY METALS AMONG A COHORT OF AFRICAN-AMERICAN NEONATES: IMPLICATIONS FOR NEUROLOGICAL DEVELOPMENT Bryan L. Williams, PhD; Melina S. Magsumbol, MA; Ramasubbareddy Dhanireddy, MD¹, Dana Barr, PhD², Brian Buckley, PhD³. ¹University of Tennessee Health Science Center

Department of Pediatrics, ²Centers for Disease Control and Prevention, Division of Laboratory Sciences, ³Rutgers University; Environmental Occupational Health Sciences Institute

P-90

NEONATAL ABSTINENCE SYNDROME AFTER INTRAUTERINE EXPOSURE TO FLUOXETINE CASE REPORT AND LITERATURE REVIEW. A H Khan, R Ranganna, R Kadalraja and R Mehta, Department of Paediatrics and Child Health, Bedford Hospital NHS Trust, Bedford, MK42 9DJ, UK

P-91 *Post-doc Award Competition*

ACUTE DELIBERATE ORGANOPHOSPHATE (COUMAPHOS) POISONING WITH INTERMEDIATE SYNDROME IN A ONE YEAR OLD CHILD. Kiat, WK, Toxicology Unit, St. Luke's Medical Center, Quezon City, Philippines
Mentor: Dr. Irma Makalinao

P-92

NEUROTOXIC EFFECTS DURING ARSENIC EXPOSURE. Ligia Fat¹, L. Gyortfy², ¹Institute of Public Health, Cluj-Napoca, Romania, ²District Hospital, Baia-Mare, Romania

POSTER GROUP 2

Behavioral Assessment / Animal Studies

P-93

METHAMPHETAMINE EXPOSURE IN FEMALE C57BL/6 MICE: NEUROBEHAVIORAL CONSEQUENCES. T. J. Zarcone, L. A. Opanashuk, M. Tubbs, A. Shapiro, S.A. Notter, B. Weiss; Department of Environmental Medicine and Environmental Health Sciences Center, University of Rochester School of Medicine and Dentistry, Rochester, NY.

P-94 *Post-doc Award Competition*

VALIDATION OF THE DELAYED-NON-MATCH-TO-POSITION 8-ARM RADIAL MAZE (8ARM) TASK WITH SCOPOLAMINE, NICOTINE, AND ETHANOL. RI Erickson, EB Defensor, DR Middaugh, LL Rausch, JC Mirsalis, and KL Steinmetz. SRI International, Menlo Park, CA, USA.
Mentor: Karen Steinmetz, PhD, DABT

P-95

BEHAVIORAL EFFECTS OF ACRYLAMIDE IN RATS EXPOSED TO DAILY LOW DOSES FROM GESTATION DAY 6 THROUGH 6 MONTHS OF AGE. J Garey, SA Ferguson and MG Paule. Division of Neurotoxicology, National Center for Toxicological Research/FDA, Jefferson, AR, USA

P-96

EFFECTS OF CHRONIC LOW-DOSE ACRYLAMIDE EXPOSURE ON PROGRESSIVE RATIO PERFORMANCE IN RATS. J. Garey, S.A. Ferguson and M.G. Paule. Division of Neurotoxicology, National Center for Toxicological Research/FDA, Jefferson, AR, USA

P-97

DEVELOPMENTAL NEUROTOXICITY ASSESSMENT OF LOW-LEVEL ACRYLAMIDE EXPOSURE IN FISCHER 344 RATS. MG Paule, SA Ferguson and J Garey. Division of Neurotoxicology, National Center for Toxicological Research/FDA, Jefferson, Arkansas, USA

P-97 Pre-doc Award Competition

AGE-DEPENDENT IMPAIRMENTS OF CHRONIC ESTROGEN EXPOSURE ON DSA AND DRL OPERANT TASKS. VC Wang and SL Schantz. *Neuroscience Program, University of Illinois, Urbana-Champaign, Urbana, IL*
Mentor: Susan Schantz, PhD

P-98

DEVELOPMENTAL EFFECTS OF IN UTERO AND LACTATIONAL EXPOSURE TO A MIXTURE OF PERSISTENT ORGANIC POLLUTANTS. S. Gill¹, H. Marri¹, W. Bowers², J. Nakai², R. Mueller¹ and O Pulido¹. ¹*Toxicology Research Division, Bureau of Chemical Safety, Health Products and Foods Branch, Health Canada.* ²*Environmental Health Sciences Bureau, Healthy Environments and Consumer Safety Branch, Health Canada.*

POSTER GROUP 3:

Testing / Verification / Methodologies

P-99

EXAMINING DATABASES USED TO EVALUATE TRENDS IN NEURO DEVELOPMENT DISORDERS. A ter Schure and J Yager. *Air Quality Health & Risk Assessment, Environment, Electric Power Research Institute (EPRI), Palo Alto, California, USA.*

P-99

A TOOL FOR REGULATORY SAFETY TESTING: INTERVAL SCALE FOR DEVELOPMENT OF RATS AGED 0-70 DAYS. Didima de Groot¹, Gert Jacobusse², Jan Lammers¹, André Wolterbeek¹, Stef van Buuren² *TNO Quality of Life, Zeist¹ / Leiden², The Netherlands*

P-100

TOWARDS AN ES-D3 STEM CELL ASSAY FOR QUANTITATIVE *IN VITRO* DEVELOPMENTAL NEUROTOXICITY TESTING. Didima de Groot¹, Johan van Burgsteden¹, Andreas Freidig¹, Laura Hondebrink¹, Jan Lammers¹, Andrea Seiler², Henk Vijverberg³, Remco Westerink³, Andre Wolterbeek¹ ¹*TNO Quality of Life, Zeist, NL;* ²*ZEBET at the BfR, Berlin, FRG;* ³*IRAS, Utrecht, NL*

POSTER GROUP 4:

Autism / LDDI / ASA / AAMR / LDAA

P-101

THE LEARNING AND DEVELOPMENTAL DISABILITIES INITIATIVE: PREVENTING TOXIC THREATS TO CHILD DEVELOPMENT. Elise Miller, MEd, *Executive Director Institute for Children's Environmental Health, Freeland, Washington, USA*

P-102

TOXIC EXPOSURES IN HOMES OF CHILDREN WITH DEVELOPMENTAL DISABILITIES (DD). Michele (Gagnon) Wagner, *Director, Environmental Health Initiative, American Association on Mental Retardation, 444 North Capitol Street, NW, Suite 846, Washington, DC 20001*

P-103

THE HEALTHY CHILDREN PROJECT OF THE LEARNING DISABILITIES ASSOCIATION OF AMERICA. Kathy Lawson, *Healthy Children Project, Learning Disabilities Association of America, 4156 Library Road, Suite One, Pittsburgh, PA 15234-1349*

P-104

GENETIC SUSCEPTIBILITY IN AUTISM. SE Owens¹, ML Summar², JL Haines² and M Aschner¹. ¹*Department of Pediatrics, Vanderbilt*

University School of Medicine, Nashville, TN, USA. ²*Center for Human Genetics Research, Vanderbilt University School of Medicine, Nashville, TN, USA.*

P-105

MICROARRAY ANALYSIS OF TNFRSF AND OTHER CYTOKINE MRNAS DIFFERENTIALLY REGULATED IN AUTISTIC, EBV-IMMORTALIZED B-LYMPHOCYTES. JT Graves and SJ Walker. *Department of Physiology and Pharmacology, Wake Forest University School of Medicine, Winston-Salem, NC 27101*

P-106

PEPTIDURIA IN AUTISM AND RELATED DISORDERS: AN EXPLORATORY STUDY. S.G. Kahler^{1,2}, E. Cooper², D. Gaylor³. 1) *University of Arkansas for Medical Sciences, Little Rock, AR;* 2) *Murdoch Childrens Research Institute Parkville, VIC, Australia;* 3) *Gaylor and Associates Eureka Springs, AR.*

POSTER GROUP 5:

Mechanisms / Genomics

P-107

TRANSPORT OF ETHYLMERCURY AND METHYLMERCURY IN AN *IN VITRO* BLOOD-BRAIN BARRIER MODEL. SJ Walker, A Nelson, M Blaxill and M Aschner. *Department of Physiology and Pharmacology, Wake Forest University School of Medicine, Winston-Salem, NC 27101*

P-108

EFFECTS OF LOW-LEVEL FORMALDEHYDE EXPOSURE ON APOPTOSIS-RELATED MOLECULES IN THE HIPPOCAMPUS OF MICE. S Tsukahara¹, S Yamamoto¹, Tin-Tin-Win-Shwe¹, S Ahmed¹, N Kunugita² and H Fujimaki¹. 1: *National Institute for Environmental Studies, Tsukuba, Japan;* 2: *University of Occupational and Environmental Health, Fukuoka, Japan*

P-109

VAST DIFFERENCE IN GENE EXPRESSION FOR NEURONAL AND HEPATIC CELLS FOLLOWING MICROMOLAR PCB EXPOSURES HIGHLIGHT THE NEED FOR ORGAN-SPECIFIC DATA IN RISK ASSESSMENT. MS Maier, WH Hanneman, and ME Legare. ~ *Colorado State University*

P-110 Post-doc Award Competition

ARE NONENZYMATIC FUNCTIONS OF ACETYLCHOLINESTERASE (ACHE) INVOLVED IN THE DEVELOPMENTAL NEUROTOXICITY OF ORGANOPHOSPHATES? EFFECTS OF CHLORPYRIFOS AND DIAZINON ON EXPRESSION OF ACHE SPLICE VARIANTS *IN VITRO* AND *IN VIVO*. RR Jameson, FJ Seidler and TA Slotkin. *Department of Pharmacology & Cancer Biology, Duke University Medical Center, Durham, NC, USA.*
Mentor: Ted Slotkin, PhD

P-111

EVALUATION OF HIPPOCAMPAL GENE EXPRESSION CHANGES ASSOCIATED WITH CHRONIC KETAMINE OR REMACEMIDE EXPOSURE IN RATS. LKM Wright^{2,1}, TA Patterson¹, E Pearson³, T Hammond³ and MG Paule^{1,2}. ¹*Division of Neurotoxicology, National Center for Toxicological Research, Jefferson, AR, USA,* ²*Department of Pharmacology and Toxicology, University of Arkansas for Medical Sciences, Little Rock, AR, USA and* ³*AstraZeneca Safety Assessment, Loughborough, England (UK).*

P-112 *Post-doc Award Competition*

T CELL-MEDIATED NEUROPROTECTIVE RESPONSE IN TOXIC CHEMICAL INDUCED MEMORY-RELATED GENE EXPRESSIONS IN A MOUSE HIPPOCAMPUS. Tin-Tin-Win-Shwe¹, S. Ahmed¹, S. Tsukahara², S. Yamamoto², M. Kakeyama¹, D. Nakajima², S. Goto², T. Kobayashi¹, H. Fujimaki² ¹*Environmental Health Sciences Division, National Institute for Environmental Studies, 16-2 Onogawa, Tsukuba, Ibaraki 305-8506, Japan* ²*Center for Environmental Risk Research, National Institute for Environmental Studies, 16-2 Onogawa, Tsukuba, Ibaraki 305-8506, Japan*
Mentor: Dr. Hidekazu Fujimaki

P-113 *Post-doc Award Competition*

GASEOUS ANESTHETIC DRUG COMBINATIONS INDUCE DEVELOPMENTAL NEURO-APOPTOSIS IN THE RAT FRONTAL CORTEX. X Zou, N Sadovova, AC Scallet, B Divine, C Hotchkiss, TA Patterson, MG Paule, W Slikker and C Wang. *Division of Neurotoxicology, NCTR/FDA, Jefferson, Arkansas, 72079*
Mentor: Cheng Wang, MD, PhD

P-114

THE RECOVERY OF DOPAMINERGIC INNERVATION AND THE REPAIR OF NEURODEGENERATION IS NEARLY COMPLETE IN THE BASAL GANGLIA WITHIN 6 MONTHS AFTER A SEVERE ACUTE NEUROTOXIC EXPOSURE TO AMPHETAMINE. John F. Bowyer. *Division of Neurotoxicology, National Center for Toxicological Research/ FDA, Jefferson, AR 72079-9502.*

P-115 *Post-doc Award Competition*

GENE EXPRESSION PROFILING OF MPP⁺-TREATED MN9D CELLS: A MECHANISM OF TOXICITY STUDY. Jianyong Wang, Zengjun Xu, Hong Fang, Helen M. Duhart, Tucker A. Patterson, and Syed F. Ali. *Neurochemistry Laboratory, Division of Neurotoxicology, National Center for Toxicological Research, Jefferson, Arkansas, USA*
Mentor: Syed F. Ali, PhD

P-116 *Pre-Doc Award Competition*

AGING ACCELERATES THE PROGRESSION AND MANIFESTATION OF SEIZURES IN POST-TRAUMATIC MODEL OF EPILEPSY. Amar Jyoti, Pallavi Sethi and Deepak Sharma. *Neurobiology Laboratory, School of Life Sciences, Jawaharlal Nehru University, New Delhi-67, India.*
Mentor: Dr. Deepak Sharma

P-117 *Pre-Doc Award Competition*

UTILIZATION OF BEHAVIORAL TESTING, ATOMIC ABSORPTION SPECTROSCOPY (AAS) AND ISOPROSTANE ANALYSIS TO DETERMINE THE EFFECTS OF BRAIN MANGANESE (MN) ACCUMULATION IN MALE C57BL/6J MICE. LA Miyatake¹, V Fitsanakis¹, D Milatovic¹, J Anderson², KM Erikson², M McDonald³, and M Aschner^{1, 4, 5}. ¹*Department of Pediatrics, Vanderbilt University School of Medicine, Nashville, TN.* ²*Department of Nutrition, University of North Carolina – Greensboro, Greensboro North Carolina.* ³*Department of Pharmacology, Vanderbilt University, Nashville, TN.* ⁴*Department of Pharmacology and the* ⁵*Kennedy Center, Vanderbilt University Medical Center, Nashville, TN.*
Mentor: Dr. Vanessa Fitsanakis

P-118 *Pre-Doc Award Competition*

EQUATING NEURODEVELOPMENT ACROSS MAMMALIAN SPECIES USING NEUROINFORMATICS. Brandon M. Kersh, James R. Hyde, Barbara Clancy. *University of Central Arkansas, Conway AR /INBRE, University of Arkansas for Medical Sciences, Little Rock, AR*
Mentor: Barbara Clancy, PhD

POSTER GROUP 6:

Redox State / Oxidative Stress

P-119

COMPARING THE RELATIVE IMPORTANCE OF GLUTATHIONE V. ASCORBATE IN PROTECTING THE DEVELOPING BRAIN. CP Curran, Y Chen, EH Johansson, DW Nebert, TP Dalton. *Department of Environmental Health, University of Cincinnati Medical Center, Cincinnati, Ohio, USA*

P-120

IMPAIRMENT IN OXIDATIVE BIOTRANSFORMATION OF A REACTIVE INTERMEDIATE OF DOPAMINE METABOLISM. JA Doorn, VR Florang, JN Rees, DG Anderson, and NK Brogden. *Division of Medicinal and Natural Products Chemistry, College of Pharmacy, The University of Iowa, Iowa City, Iowa, USA.*

P-121

KETAMINE PRODUCES OXIDATIVE DNA DAMAGE AND LOSS OF MONKEY FRONTAL CORTICAL NEURONS IN CULTURE. C. Wang, N. Sadovova, X. Zou, A.C. Scallet, C. Hotchkiss, T.A. Patterson, J. Hanig, M.G. Paule and W. Slikker. *Division of Neurotoxicology, NCTR, FDA, Jefferson, Arkansas, 72079*

P-122 *Pre-Doc Award Competition*

1-METHYL-4-PHENYLPYRIDINIUM-INDUCED ALTERATIONS OF GLUTATHIONE AND REDOX ENVIRONMENT IN IMMORTALIZED RAT DOPAMINERGIC NEURONS. DA Drechsel, LP Liang, and M Patel. *Department of Pharmaceutical Sciences, University of Colorado at Denver and Health Sciences Center, Denver, CO, USA.*

P-123

INCREASED INTRACELLULAR FREE RADICAL PRODUCTION AND DECREASED GLUTATHIONE REDOX RATIO IN LYMPHOBLASTOID CELL LINES FROM AUTISTIC CHILDREN. Stepan Melnyk, Stefanie Jernigan, Alena Savenka, and S. Jill James. *Arkansas Children's Hospital Research Institute, University of Arkansas for Medical Sciences, Little Rock, AR*

P-124

METHYLMERCURY CAUSES GLIAL OXIDATIVE STRESS AND IL-6 SECRETION. JY Chang *Department of Neurobiology and Developmental Sciences, University of Arkansas for Medical Sciences, Little Rock, Arkansas.*

P-125

EFFECTS OF ETHANOL ON OXIDATIVE STRESS IN THE NEONATAL RAT CEREBELLUM. Cynthia J.M. Kane, Jason Y. Chang, Tarun K. Garg, and Lihong Han. *Dept. of Neurobiology & Developmental Sciences, University of Arkansas for Medical Sciences, Little Rock, AR 72205*