

TWENTY-FOURTH INTERNATIONAL NEUROTOXICOLOGY CONFERENCE

Sunday 11 November 2007 1:00 – 2:30 PM

9:00 AM REGISTRATION OPENS

- All Conference functions will be held in the Holiday Inn Riverwalk Hotel Tango Ballroom
- Posters on display starting Sunday (Tango 3)
- NEUROTOXICOLOGY 24 Registrants are invited to attend the LDDI Pre-Conference Workshop

1:00 PM CONFERENCE OPENS

Sunday Early Afternoon 11 November 2007 1:00 – 2:30 PM

Tango 4

Opening

SESSION I: OPENING OF THE 24TH CONFERENCE

Conference Chair: Joan Cranmer

1:00 – 1:30 PM

Welcome, Acknowledgements and Overview

Joan Cranmer ~ University of Arkansas for Medical Sciences

1:30 – 2:15 PM **Keynote Address**



“Science and the Public Interest”

KENNETH OLDEN, PH.D.

Dr. Kenneth Olden is the former Director of the NIEHS and the National Toxicology Program. At present, he is a Yerby Professor, Harvard University, School of Public Health, and Chief of the Metastasis Section, NIEHS.

2:15 – 2:30 PM

Rationale for The Theme

Deborah Cory-Slechta ~ University of Rochester School of Medicine

Sunday Late Afternoon 11 November 2007 2:30– 3:45 PM

Tango 4

Plenary Session

SESSION II: COGNITIVE DYSFUNCTION LINKED TO LEAD EXPOSURE: MODIFIERS OF EFFECT:

Socioeconomic Status, Stress, Gender, Genetic Background and Aging

Session Chair: Deborah Cory-Slechta

Co-Chair: David Bellinger

2:30 – 3:00 PM

Interactions of Lead Exposure, Stress and Gender: Implications for Cognitive Disorders

Deborah Cory-Slechta ~ University of Rochester

3:00 – 3:30 PM

Socioeconomic Status as a Modulator of the Behavioral Toxicity of Lead

David Bellinger ~ Harvard Medical School

3:30 – 3:45 PM Break

Sunday Late Afternoon 11 November 2007 3:45– 5:15 PM

3:45 – 4:15 PM

Developmental Lead and Late Onset Alzheimer’s Disease Pathology

Nasser Zawia ~ University of Rhode Island

4:15 – 4:45 PM

Low-Level Human Equivalent Gestational Lead Exposure Produces Gender-Specific Motor and Coordination Abnormalities and Late-Onset Obesity in Year-Old Mice

Donald A. Fox ~ University of Houston

4:45 – 5:15 PM

Panel Discussion and Q&A:

- Can gender differences in the behavioral consequences of Pb exposure be used to assist in diagnosis of specific behavioral disorders and in the development of appropriate behavioral therapeutic strategies?
- Do permanent Pb-induced changes in HPA axis function from even maternal only Pb exposure mean that screening for Pb exposure should include pregnant women?
- How should future cohort studies and experimental animal models be refined in future studies to more precisely estimate risks arising from even current levels of Pb exposure?

Sunday, November 11th

5:15 PM – 7:00 PM

“MEET & GREET”

No Host Bar

Dinner on your own

Sunday Evening 11 November 2007 7:00PM – 9:30PM

Tango Ballroom 4

Thought Provokers

SESSION III: CROSS-CUTTING ISSUES: HOT NEW TOPICS

Session Chair: Richard LoPachin

Co-Chair: William Atchison

7:00 – 7:30 PM

Summarizing a Vast Literature to Identify Research Gaps – Autism as a Case Study

Martha Herbert ~ Harvard Medical School

7:30 – 7:40 PM Q&A

7:40 – 8:10 PM

Amino Acid Neurotransmission: It’s Role in Neurodegenerative Diseases and Neurotoxicity

William Atchison ~ Michigan State University

8:10 – 8:40 PM

Type-2 Alkene-Induced Nerve Terminal Damage Represents a Unified Mechanism for Neurodegenerative Diseases (Alzheimer's Disease, Parkinson's Disease, ALS)

Richard LoPachin ~ *Albert Einstein College of Medicine*

8:40 – 9:10 PM

Ketamine-Induced Neuronal Cell Death in Perinatal Rhesus Monkeys

William Slikker ~ *National Center for Toxicological Research /FDA*

9:10 – 9:30 PM

Panel Discussion and Q&A:

- How can primary nerve terminal damage lead to generalized neurodegeneration?
- How does the relative electrophilicity of the type-2 alkenes determine nervous tissue vs. systemic toxicity?
- What pharmacotherapeutic approaches can be developed based on the role of protein adduction in type-2 alkene neurotoxicity?
- Are type-2 alkene adducts other than cysteine relevant to nerve terminal toxicity?

Monday Early Morning 12 November 2007 8:00 – 10:15 AM

Tango 1 & 2

Plenary Session

SESSION IV. COGNITIVE DISORDERS LINKED TO METHYL MERCURY EXPOSURE: MODIFIERS OF EFFECT: Chemical Co-Exposures and Nutrition

Session Chair: **Deborah Rice**

Co-Chair: **M. Christopher Newland**

8:00 – 8:30 AM

Overview of Issues for Risk Assessment of Methyl Mercury Toxicity

Deborah Rice ~ *Maine Center for Disease Control*

8:30 – 9:00 AM

Interactions of Neurotoxic Contaminants in the Arctic

Joseph Jacobson ~ *Wayne State University*

9:00 – 9:30 AM

Neurodevelopmental Effects of Maternal Nutritional Status and Exposure to Methylmercury from Eating Fish during Pregnancy

Phil Davidson ~ *University of Rochester*

9:30 – 10:00 AM

Fish Nutrients and Methyl Mercury: A View from the Lab

M. Christopher Newland ~ *Auburn University*

10:00 – 10:15 AM

Panel Discussion and Q&A:

- What is the evidence for protective effects of nutrients or additive effects of chemical co-exposure?
- How do we use that information in risk assessment?

10:15 – 10:30 AM Break

Monday Late Morning 12 November 2007 10:30 – NOON

Tango 1 & 2

Roundtable Discussion

SESSION V. TRANSLATING RISK ASSESSMENT INTO THE REAL WORLD

Session Chair: **Bernard Weiss**

Co-Chair: **Kevin Crofton**

Questions for the Roundtable Discussants:

- We are supposed to be part of a science whose framework was constructed by the mantra that The Dose Makes the Poison. Is it now time to bid farewell to the NOAEL as it is currently applied? (Schettler, Rice, Mergler)
- We agree that exposures take place in a complex societal setting whose features help determine how the consequences of those exposures will be expressed. So what does all this mean for what is labeled as translational research? Does it mean viewing disease as an astute clinician might see it? Such a clinician would not undertake to diagnose and treat a patient without knowing the patient's home environment, his or her workplace, dietary practices, family situation, economic status, and other components of the individual's life. Is our situation parallel? (Cory-Slechta, C. Miller)
- Conversely, despite the immense volume of literature demonstrating connections between environmental exposures and clinical diseases and disorders, they still are accorded a relatively minor role in diagnosis, treatment, and, especially, prevention. How do we promote awareness of these connections among health professionals and health agencies? (E. Miller, Gilbert)
- Finally, how do we embed these new perspectives into our research, especially for those of us whose primary efforts lie in the laboratory? Who can we convince to pay for them? (Crofton, Newland)

Speakers and Roundtable Discussants:

Deborah Cory-Slechta ~ *University of Rochester*

Kevin Crofton ~ *US Environmental Protection Agency*

Steven Gilbert ~ *Inst. for Neurotoxicology and Neurological Disorders*

Donna Mergler ~ *University of Quebec at Montreal*

Elise Miller ~ *Learning and Developmental Disabilities Initiative*

Claudia Miller ~ *Univ. of Texas Health Science Center at San Antonio*

M. Christopher Newland ~ *Auburn University*

Deborah Rice ~ *Maine Center for Disease Control*

Ted Schettler ~ *Science and Environmental Health Network*

Bernard Weiss ~ *University of Rochester*

Monday Early Afternoon 12 November 2007 1:00 – 3:00 PM

Tango 1 & 2 ~ Parallel Session

Symposium

SESSION VI-A. FETAL BASIS OF ADOLESCENT AND ADULT DISEASES

Session Chair: **Evelyn Tiffany-Castiglioni**

Co-Chair: **Pamela J. Lein**

1:00 – 1:05 PM

Introduction

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

1:05 – 1:25 PM

CNS Mechanisms of Manganese in the Stimulation of Precocious Puberty

W. Les Dees ~ *Texas A&M University*

1:25 – 1:45 PM

Developmental Exposure to PCBs Alters the Response of the Adult Brain to Stress

Pamela Lein ~ *Oregon Health & Science University*

1:45 – 2:05 PM

Developmental Basis for Parkinson's Disease

Mona Thiruchelvam ~ *Environmental and Occupational Health Sciences Institutes, Rutgers and UMDNJ*

2:05 – 2:25 PM

Lead Effects on Molecular Chaperones: A Link to Neurodegenerative Diseases?

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

2:25 – 2:45 PM

Developmental Pesticide Exposure: A New Risk Factor for ADHD?

Jason R. Richardson ~ *Robert Wood Johnson Medical School*

2:45 – 3:00 PM

Panel Discussion

3:00 – 3:15 PM Break

Monday Early Afternoon 12 November 2007 1:00 – 3:00 PM

Tango 4 ~ Parallel Session

Roundtable / Open Forum

SESSION VI-B. CELL DEATH IN THE NERVOUS SYSTEM: FACTS AND ARTIFACTS

Session Chair: **David Dorman**

Co-Chair: **Jack Harkema**

It is hoped that attendees of this session with experience in these issues will also participate in an open discussion of these important topics.

Topics include:

- What are the accepted morphological, biochemical, and/or other cellular changes that may serve as criteria for neuronal cell death?

- What types of stains / staining techniques are most appropriate and reliable for directly or indirectly (e.g., glial responses) recognizing neuronal cell death in *in vivo* studies
- What are known morphological artifacts that may interfere with evaluating tissues for neuronal cell death?
- How do these artifacts occur, and how can they be minimized or avoided by tissue processing or staining techniques?

Roundtable / Open Forum Discussants:

David Dorman ~ *North Carolina State University*

Hassan El Fawal ~ *Mercy College*

Jack Harkema ~ *Michigan State University*

Kenneth Reuhl ~ *Rutgers University and UMDNJ*

Conference Participants

3:00 – 3:15 PM Break

Monday Late Afternoon 12 November 2007 3:15– 5:15PM

Tango 1 & 2 ~ Parallel Session

Platform Session

SESSION VII-A. DEVELOPMENTAL NEUROTOXICITY; NEUROPROTECTION

Session Chair: **DMG DeGroot**

Co-Chair: **Nikolay Filipov**

3:15 – 3:40 PM

Important Role for the Early Growth Response Factor 1 (EGR1) in the Potentiation of Microglial Proinflammatory Cytokine Production by Manganese Exposure

Nikolay M. Filipov ~ *Mississippi State University*

3:40 – 4:05 PM

Functional Imaging of Developmental Neurotoxicity

DMG de Groot ~ *TNO Quality of Life, Zeist, the Netherlands.*

4:05 – 4:20 PM

Developmental Phencyclidine (PCP) or Ketamine Treatment Increases the Frequency of Abnormal Activity in Sprague-Dawley Rat Pups

Sherin Y Boctor ~ *National Center for Toxicological Research/FDA and University of Arkansas for Medical Sciences*

4:20 – 4:35 PM

Paraquat Induces Oxidative Stress, Neuronal Loss and Parkinsonism in Rats: Neuroprotection by Water-Soluble COQ₁₀

Mallika Somayajulu-Nitu ~ *University of Windsor, Windsor, ON, Canada.*

4:35 – 4:50 PM

Prenatal LPS Exposure Alters the Fate of Developing Dopamine Projections

Angela J. Monahan ~ *Rush University*

4:50 – 5:15 PM

Discussion

Monday Late Afternoon 12 November 2007 3:15– 5:15 PM

Tango 4 ~ Parallel Session

Symposium

SESSION VII-B: THE OLFACTORY SYSTEM: AN OFTEN FORGOTTEN TARGET

Session Chair: David Dorman

3:15 – 3:40 PM

The Olfactory System: Anatomy and Overview

David Dorman ~ North Carolina State University – College of Veterinary Medicine

3:40 – 4:05 PM

Olfactory Transport of Xenobiotics

Melanie Struve ~ CIIT

4:05 – 4:30 PM

Toxicologic Pathology of Olfactory Sensory Neurons

Jack Harkema ~ Michigan State University

4:30 – 4:55 PM

Odor Perception

Pamela Dalton ~ Monell Chemical Senses Center

4:55 – 5:15 PM

Discussion

5:15 – 7:00 PM *Break for dinner on your own*

Monday Evening 12 November 2007 7:00PM – 9:30PM

Tango 3

SESSION VIII. POSTER SESSION

No-Host Bar & Refreshments

Session Chair: Darryl Hood

Co-Chair: Joseph Jacobson

Poster abstracts are numbered from P-58 to P-104. They are listed on pages 8-10 of the program.

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!

Posters may be put up as early as 9:00 AM on Sunday and should remain up for the duration of the conference for maximum exposure. Posters should be taken down by 1:00 PM on Wednesday.

STUDENT AWARD COMPETITION

Chair: Jason Richardson

The Student Award Competition is divided into two groups: one for post-doctoral and one for pre-doctoral competition. Awards will consist of a cash prize, plaque or certificate, plus a one year subscription to the international journal *NeuroToxicology*. A winner(s) will be chosen from each group. Competing students are asked to give an overview of their work in 2-3

minutes to the judges followed by a brief set of questions and answers. Originality, significance, hypothesis, presentation material and style, as well as knowledge of the subject, will be considered in selecting the winners. All papers in competition for the Student Awards must be presented from poster.

Judging will be done between 7:15 PM and 8:30 PM. Students please stand by your poster during this time.

GROUP 1: POST-DOCTORAL COMPETITION

Chair: Kenneth Reuhl

Post-Doctoral Student Award Committee

1. Kenneth Reuhl, *Chair*
2. Richard LoPachin
3. Kevin Crofton

Post-Doctoral Students (5)

Joan Garey, Ph.D.	<i>Mentor:</i> Merle Paule, Ph.D.
Olga Pakhomova, Ph.D.	<i>Mentor:</i> P.J. Hart, Ph.D.
Jesse Rodriguez, Ph.D.	<i>Mentor:</i> Merle Paule, Ph.D.
Fuyong Song, Ph.D.	<i>Mentor:</i> Xie Keqin, Ph.D.
TramAnh Ta, Ph.D.	<i>Mentor:</i> Robert Berman, Ph.D.

GROUP 2: PRE-DOCTORAL COMPETITION

Chair: Jason Richardson

Pre-Doctoral Student Award Committee

Sub-Group A

1. Merle Paule, *Co-Chair (Group A)*
2. Pam Lein
3. Darryl Hood

Sub-Group B

4. Anumantha Kanthasamy, *Co-Chair (Group B)*
5. Mona Thiruchelvam
6. Richard Nass

Sub-Group C

7. Gary Miller, *Co-Chair (Group C)*
8. Syed Imam
9. Nikolay Filipov

Pre-Doctoral Students (12)

Rebecca Alyea	<i>Mentor:</i> Cheryl Watson, Ph.D.
Sherin Boctor	<i>Mentor:</i> Sherry Ferguson, Ph.D.
Daniel Braunschweig	<i>Mentor:</i> Judy Van de Water, PhD
Josh Harrill	<i>Mentor:</i> Kevin Crofton, Ph.D.
Ravikumar Hosamani	<i>Mentor:</i> M. Muralidhara, PhD
Chia-Jung Hsieh	<i>Mentor:</i> Pau-Chung Chen, PhD
Ahmed Ismail	<i>Mentor:</i> Diane Rohlman, Ph.D.
Ebany Martinez	<i>Mentor:</i> Andrea Allan, Ph.D.
Angela Monahan	<i>Mentor:</i> Paul Carvey, Ph.D.
Wang QingShan	<i>Mentor:</i> Xie Keqin, Ph.D.
Pallavi Sethi	<i>Mentor:</i> Deepak Sharma, Ph.D.
Mallika Somayajulu-Nitu	<i>Mentor:</i> Siyaram Pandey, PhD

TWENTY-FOURTH INTERNATIONAL NEUROTOXICOLOGY CONFERENCE

Tuesday Morning 13 November 2007 8:30AM - Noon

Tango 1 & 2

Plenary Session

SESSION IX. MODIFIERS OF DISEASE DEVELOPMENT IN PARKINSON'S DISEASE: ROLE OF ENVIRONMENTAL TOXICANTS

Session Chair: Donato Di Monte

Co-Chair: Gary Miller

8:30 – 9:00 AM

Interactions Between Alpha-Synuclein and Environmental Toxicants in the Pathogenesis of Parkinson's Disease

Donato A. Di Monte ~ *The Parkinson's Institute*

9:00 – 9:30 AM

Environmental Risk Factors for PD Identified Through Epidemiological Studies

Caroline Tanner ~ *The Parkinson's Institute*

9:30 – 10:00 AM

The Influence of Gender and Aging on the Effects of Environmental Toxicants in Parkinson's Disease

Richard Seegal ~ *Wadsworth Center*

10:00 – 10:30 AM Break

10:30 – 11:00 AM

Cyclodiene Insecticides and Parkinson's Disease: Evidence from Mice and Men

Gary Miller ~ *Emory University*

11:00 – 11:30 AM

The Role of Inflammation in Toxicant-Induced Injury in Parkinson's Disease

Jau-Shyong Hong ~ *NIEHS*

11:30 – 12:00 NOON

Panel Discussion and Q&A:

- How strong is the association between toxicant exposure and PD risk?
- Is there a concordance between epidemiological and experimental findings related to environmental toxicants and other modifiers of PD development?
- How well do animal models reproduce the "multiple hits" hypothesis of PD pathogenesis involving environmental toxicants?
- What are the most relevant modifiers of the effects of neurotoxicants in PD?
- How does knowledge of PD modifiers influence our view of disease prevention and treatment?

Tuesday Early Afternoon 13 November 2007 1:00 – 3:30 PM

Tango 1 & 2

Platform

SESSION X: ENVIRONMENTAL LINKS TO NEUROLOGICAL DISEASES (PARKINSON'S, ALZHEIMER'S)

Session Chair: Anumantha Kanthasamy

Co-Chair: Syed Imam

1:00 – 1:20 PM

Humoral Neuroimmunity in Neurological Disorders and Neurotoxicity: Parallels, Mechanisms and Biomarkers. A Review of the Literature

Hassan El-Fawal ~ *Mercy College*

1:20 – 1:40 PM

JNK Mediates Lactacystin-Induced Dopamine Neuron Degeneration

Weidong Le ~ *Baylor College of Medicine*

1:40 – 2:00 PM

Neurotoxic Insults Modulate Oxidative Stress-sensitive PKC δ Gene Promoter Activity in Neuronal Cells: Implications for Gene-Environment Interactions in Neurodegeneration

Anumantha Kanthasamy ~ *Iowa State University*

2:00 – 2:20 PM

Human Range Dietary Aluminum Equivalents Cause Cognitive Deterioration in Aged Rats

Judie Walton ~ *Australian Institute for Biomedical Research, Australia*

2:20 – 2:40 PM

Neuroprotective Effects of Cannabinoids in MPTP-Treated Mice: Role of CB1 and CB2 Receptors

Andrea Giuffrida ~ *University of Texas Health Science Center at San Antonio*

2:40 – 3:00 PM

Chemo Brain: A Translational Challenge for Neurotoxicology

Bernard Weiss ~ *University of Rochester School of Medicine and Dentistry*

3:00 – 3:20 PM

Vascular and membrane pathology in neurodegenerative disorders: red cells as target and biomarker

Donald E. Schmechel ~ *Falls Neurology and Memory Center, Granite falls, NC*

3:20 – 3:40 PM Break

Tuesday Late Afternoon 13 November 2007 3:40 – 5:45 PM

Tango 1 & 2

Symposium

SESSION XI: AN ECOSYSTEM APPROACH TO EXPOSURE TO NEUROTOXIC SUBSTANCES IN LATIN AMERICA

Session Chair: Donna Mergler

Co-Chair: Maryse Bouchard ~ *Harvard University*

3:40 – 4:00 PM

Neurotoxic Effects of Mercury in the Brazilian Amazon: An Ecosystem Approach to Exposure Reduction and Effects

Donna Mergler ~ *University of Quebec at Montreal*

4:00 – 4:20 PM

An Ecosystem Approach to Neuropsychological Effects of Manganese Exposure on Children Living in Communities Near to Processing Plants in Mexico.

Rodolfo Solís ~ *National Institute of Public Health, Mexico*

4:40 PM

An Ecosystem Approach to Environmental Pesticide Exposure and Neurological Effects in Children

Berna van Wendel de Joode ~ *Central American Institute for Studies on Toxic Substances, Universidad Nacional, Costa Rica*

4:40 – 5:00 PM

Pesticide Exposure and Neurobehavioral Development in Ecuadorian Infants and Children: An Ecohealth Approach

Alexis Handal ~ *National Institute for Child Health and Human Development, NIH*

5:00 – 5:20 PM

Feasibility for Studying Parkinson's Disease in Relation to Pesticide Exposure in Costa Rica

Ana Mora ~ *Central American Institute for Studies on Toxic Substances, Universidad Nacional, Costa Rica*

5:20 – 5:45 PM

Discussion

Tuesday Evening 13 November 2007 6:15 – 10:30 PM

Skyline Atrium

*Hosted
Social Evening
Dinner & Award Ceremonies*

Entertainment by the Jalapeño Honey Band!

“SIX FLAGS OVER TEXAS - NEUROTOX STYLE!”

Texas was governed at various times under six different flags: France, Spain, Mexico, The Republic of Texas, The Confederate States of America, and the United States of America. Many other countries and cultures are also represented in Texas, so the playlist will be wide, varied & fun!

Evelyn Tiffany-Castiglioni

Chair of Music & Entertainment for
“Six Flags Over Texas - Neurotox Style!”

Members of the Jalapeño Honey Band:

John Ivy – *fiddle, mandolin*

Renata Meyers – *guitar*

Eden Schmeichel – *flute*

Evelyn Tiffany-Castiglioni – *accordion, celtic harp, mandolin*



Wednesday Morning 14 November 2007 8:30AM - Noon

Tango 1 & 2

Plenary Session

SESSION XII: OXIDATIVE STRESS IN AUTISM - CAUSE OR CONSEQUENCE?

Session Chair: **Isaac Pessah**

Co-Chair: **Jill James**

8:30 – 8:40 AM

Introduction

Isaac Pessah ~ *University of California, Davis*

8:40 – 9:10 AM

Redox Imbalance and the Metabolic Pathology of Autism

S. Jill James ~ *University of Arkansas for Medical Sciences*

9:10 – 9:40 AM

Lipid Biomarkers of Enhanced Oxidative Stress: Relationship to Platelet and Vascular Endothelium Activation

Domenico Pratico ~ *Temple University*

9:40 – 10:10 AM

Regulation of CNS Progenitors by Redox State: Implications for Autism and Understanding the Interplay Between Genes and Environment

Mark Noble ~ *University of Rochester*

10:10 – 10:20 AM Break

10:20 – 10:50 AM

The Relationship Between Oxidative Stress, Immune Cells and Inflammation in Autism.

Paul Ashwood ~ *The UC Davis M.I.N.D. Institute*

10:50 – 11:20 AM

Redox Sensing of Calcium Channels – A Convergence of Genes and Environment

Isaac Pessah ~ *University of California, Davis*

11:20 – NOON

Panel Discussion and Q&A:

- How do nutritional factors influence autism? Does diet (supplements) mitigate autistic phenotypes and/or co-morbidities?
- What are the sources of heavy metal exposure (mercury, lead, cadmium, arsenic)?
- What are the sources of organic quinones and epoxides
- Household chemicals as pro-oxidants; what are they?
- What are the new pesticides of particular concern to autistic children?

Wednesday Afternoon 14 November 2007 1:00 – 3:00PM

Tango 1 & 2

Platform

SESSION XIII: AUTISM SPECTRUM DISORDERS

Session Chair: **Cindy Lawler**
Co-Chair: **Martha Herbert**

1:00 – 1:20 PM

An Emerging Gene-Environment Interaction Model: Autism Spectrum Disorder Resulting From Exposure to Environmental Contaminants During Gestation

Darryl B. Hood ~ *Meharry Medical College*

1:20 – 1:40 PM

Divergent Effects of PBDE-47 on T Cell Immune Responses in Autistic and Typically Developing Children

Judy Van de Water ~ *University of California, Davis*

1:40 – 2:00 PM

Brain Levels of Oxidative Stress Markers, Mercury and Selenium in Autism

Elizabeth M. Sajdel-Sulkowska ~ *Harvard Medical School and BWH*

2:00 – 2:20 PM

The Autistic Phenotype Exhibits a Remarkable Localized Modification of Brain Proteins by Products of Free Radical-Induced Lipid Oxidation

George Perry ~ *University of Texas at San Antonio OR*

Xiongwei Zhu ~ *Case Western Reserve University*

2:20 – 2:35 PM

Autism: Maternally Derived Antibodies Specific for Fetal Brain Proteins

Daniel Braunschweig ~ *The M.I.N.D. Institute, University of California at Davis. NIEHS Center for Children's Environmental Health*

Wednesday Afternoon 14 November 2007 3:15 – 5:30PM

Tango 1 & 2

Roundtable Discussion / Consensus Building

SESSION XIV: WHAT IS THE WEIGHT OF EVIDENCE THAT ENVIRONMENTAL CONTAMINANTS AND/OR GENETIC FACTORS INFLUENCE THE ETIOLOGY OF NEUROLOGICAL DISORDERS?

Focus on Cross-Cutting Issues of Environmental Exposures related to Autism, Alzheimer's and Parkinson's

Discussion Leaders: **Richard Seegal**
Isaac Pessah
Ted Schettler

Roundtable Discussants and Disease Focus:

Autism

S. Jill James
M. Christopher Newland

Parkinson's

Syed Imam
Anumantha Kanthasamy
Caroline Tanner

Alzheimer's

Donald Schmechel
Judie Walton

IOM Criteria. USING THE CRITERIA DEVELOPED BY THE IOM, WHAT DEGREE OF CERTAINTY/ASSOCIATION CAN BE ASSIGNED TO THE ROLE OF ENVIRONMENTAL CONTAMINANTS IN THE ETIOLOGY OF AUTISM, ALZHEIMER'S AND PARKINSON'S?

Sufficient Evidence of a Causal Relationship

Evidence from available studies is sufficient to conclude that a causal relationship exists between exposure to a specific agent and a specific health outcome in humans, and the evidence is supported by experimental data. The evidence fulfills the guidelines for sufficient evidence of an association (below) and satisfies several of the guidelines used to assess causality: strength of association, dose-response relationship, consistency of association, and a temporal relationship.

Sufficient Evidence of an Association

Evidence from available studies is sufficient to conclude that there is a positive association. A consistent positive association has been observed between exposure to a specific agent and a specific health outcome in human studies in which chance and bias, including confounding, could be ruled out with reasonable confidence. For example, several high-quality studies report consistent positive associations, and the studies are sufficiently free of bias, including adequate control for confounding.

Limited/Suggestive Evidence of an Association

Evidence from available studies suggests an association between exposure to a specific agent and a specific health outcome in human studies, but the body of evidence is limited by the inability to rule out chance and bias, including confounding, with confidence. For example, at least one high-quality study reports a positive association that is sufficiently free of bias, including adequate control for confounding. Other corroborating studies provide support for the association, but they were not sufficiently free of bias, including confounding. Alternatively, several studies of less quality show consistent positive associations, and the results are probably not due to bias, including confounding.

Inadequate/Insufficient Evidence to Determine Whether an Association Exists

Evidence from available studies is of insufficient quantity, quality, or consistency to permit a conclusion regarding the existence of an association between exposure to a specific agent and a specific health outcome in humans.

Limited/Suggestive Evidence of No Association

Evidence from available studies is consistent in not showing a positive association between exposure to a specific agent and a specific health outcome after exposure of any magnitude. A conclusion of no association is inevitably limited to the conditions, magnitudes of exposure, and length of observation in the available studies. The possibility of a very small increase in risk after exposure studied cannot be excluded.

Consensus Not Reached on Category of Association

If the entire committee did not agree on a conclusion, then the association was not assigned a category.

Monday Evening 12 November 2007 7:00 – 9:30PM

Tango 3

SESSION VIII. POSTER SESSION

No-Host Bar & Refreshments

Session Chair: **Darryl Hood**
Co-Chair: **Joseph Jacobson**

Poster abstracts are numbered from P-58 to P-104.

STUDENT AWARD COMPETITION

Chair: **Jason Richardson**

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A winner(s) will be chosen from each group. Competing students are expected to give an overview of their work in 2-3 minutes to the judges followed by a brief set of questions and answers. Originality, significance, hypothesis, presentation material and style, as well as knowledge of the subject, will be considered in selecting the winners. All papers in competition for the Student Awards must be presented from poster.

PAPERS PRESENTED FROM POSTER

P-58

THE COMBINED EFFECT OF TRANSCULTURAL MARRIAGE AND BREAST FEEDING ON CHILDREN'S NEUROBEHAVIORAL DEVELOPMENT AT 6 AND 18 MONTHS OF AGE. Li-Ching Chu, Pau-Chung Chen. *Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University College of Public Health, Taipei, Taiwan*

P-59

LEAD IN UMBILICAL CORD BLOOD, VDR-FokI POLYMORPHISM AND CHILDREN'S NEURODEVELOPMENT AT THE AGE OF TWO YEARS. Chen-Chung Ko,¹ Yaw-Huei Hwang,¹ Hua-Fang Liao,² Wu-Shiun Hsieh,³ Suh-Fang Jeng,² Yi-Ning Su,⁴ Hui-Chen Wu,¹ Pau-Chung Chen¹. ¹*Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University College of Public Health, Taipei,* ²*School and Graduate Institute of Physical Therapy, National Taiwan University College of Medicine, Taipei,* ³*Department of Pediatrics, and* ⁴*Department of Medical Genetics, National Taiwan University Hospital and National Taiwan University College of Medicine, Taipei, Taiwan*

P-60 *Pre-Doc Award Competition*

COTININE IN UMBILICAL CORD BLOOD, GENETIC POLYMORPHISMS, AND NEURODEVELOPMENT AT THE AGE OF TWO YEARS. Chia-Jung Hsieh,¹ Hua-Fang Liao,² Kuen-Yuh Wu,³ Wu-Shiun Hsieh,⁴ Yi-Ning Su,⁵ Suh-Fang Jeng,² Shih-Ni Yu,¹ Pau-Chung Chen¹. ¹*Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University College of Public Health, Taipei,* ²*School and Graduate Institute of Physical Therapy, National Taiwan University College of Medicine, Taipei,* ³*Division of Environmental Health and Occupational Medicine, National Health Research Institutes, Miaoli,* ⁴*Department of Pediatrics, and* ⁵*Department of Medical Genetics, National Taiwan University Hospital and National Taiwan University College of Medicine, Taipei, Taiwan*

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PRENATAL AND POSTNATAL EXPOSURE TO ENVIRONMENTAL TOBACCO SMOKE AND CHILDREN'S NEUROBEHAVIORAL DEVELOPMENT AT 6 TO 18 MONTHS OF AGE. Shan-An Chou, Pau-Chung Chen. *Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University College of Public Health, Taipei, Taiwan*

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PRENATAL EXPOSURE TO MANGANESE AND PSYCHOMOTOR DEVELOPMENT AT 6 AND 24 MONTHS OF AGE. Feng-Chiao Su¹, Hua-Fang Liao², Yaw-Huei Hwang¹, Wu-Shiun Hsieh³, Hui-Chen Wu¹, Suh-Fang Jeng², Yi-Ning Su⁴, Pau-Chung Chen¹. ¹*Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University College of Public Health, Taipei, Taiwan,* ²*School and Graduate Institute of Physical Therapy, National Taiwan University College of Medicine, Taipei, Taiwan,* ³*Department of Pediatrics, and* ⁴*Department of Medical Genetics National Taiwan University Hospital and National Taiwan University college of Medicine, Taipei, Taiwan.*

P-63 *Pre-Doc Award Competition*

AUTISM: MATERNALLY DERIVED ANTIBODIES SPECIFIC FOR FETAL BRAIN PROTEINS. D. Braunschweig,^{1,7,8} P. Ashwood,^{2,7,8} P. Krakowiak,^{3,7,8} I. Hertz-Picciotto,^{3,7,8} R. Hansen,^{4,7,8} L. Croen,^{5,7,8} I.N. Pessah,^{6,7,8} and J. Van de Water^{1,7,8} ¹*Division of Rheumatology, Allergy and Clinical Immunology, University of California at Davis,* ²*Department of Medical Microbiology and Immunology, University of California at Davis,* ³*Department of Public Health Sciences, Division of Epidemiology, University of California at Davis,* ⁴*Department of Pediatrics, University of California at Davis,* ⁵*Division of Research, Kaiser Permanente Northern California, Oakland, CA,* ⁶*Department of Veterinary Molecular Biosciences, University of California at Davis,* ⁷*The M.I.N.D. Institute, University of California at Davis,* ⁸*NIHES Center for Children's Environmental Health, University of California, Davis, Davis, CA 95616 USA*

P-64

ADDRESSING NEUROINFLAMMATION IN AUTISM AND PDD WITH IV LIPID THERAPY. Kane PC, Braccia D, Cartaxo, A, Kane E. *Haverford Wellness Center Havertown, PA and Kinnelon, NJ USA*

P-65 *Pre-Doc Student Award*

NEUROBEHAVIORAL EFFECTS AMONG ADOLESCENT PESTICIDES APPLICATORS IN EGYPT. AA Ismail^{1,2}, DS Rohlman², ME Abou Salem¹, AA Mechael¹, OM Hendy³, GM Abdel Rasoul¹. ¹*Community, Environmental and Occupational Medicine Department, Faculty of Medicine, Menoufiya University, Shebin Elkom, Egypt;* ²*Center for Research on Occupational and Environmental Toxicology, Oregon Health & Science University, Portland, OR, USA;* ³*Clinical Pathology Department, National Liver Institute, Menoufiya University, Shebin Elkom, Egypt.*

P-66

NEUROANTIBODIES IN POPULATIONS EXPOSED TO PESTICIDES. HAN EL-Fawal¹, NAN El-Fawal², NMB El-Fawal³ and MY Shamy⁴. ¹*Neurotoxicology Laboratory, Mercy College, Dobbs Ferry, NY,* ²*Faculty of Dentistry, University of Alexandria, Alexandria, Egypt,* ³*Purchase College, SUNY, Purchase, NY,* ⁴*High Institute of Public Health, University of Alexandria, Alexandria, Egypt.*

P-67 *Pre-Doc Award Competition*

MODERATE PERINATAL ARSENIC PERTURBS THE HPA AXIS AND HAS LONG-TERM AFFECTS ON LEARNING AND MEMORY BEHAVIOR. Ebany J. Martinez, *University of New Mexico Health Sciences Center Department of Neurosciences and College of Pharmacy Department of Toxicology and Andrea Allan, PhD, University of New Mexico Health Sciences Center Department of Neurosciences, Albuquerque, New Mexico, USA*

P-68 *Pre-Doc Award Competition*

PRENATAL LPS EXPOSURE ALTERS THE FATE OF DEVELOPING DOPAMINE PROJECTIONS. Angela J. Monahan, Zaodung Ling, and Paul M. Carvey. *Rush University Chicago, IL 60605*

P-69

PERINATAL EXPOSURE TO 2,2',3,5',6'-PENTACHLOROBIPHENYL (PCB95) ALTERS SEIZURE SENSITIVITY AND PERSISTENTLY CHANGES HIPPOCAMPAL CA1 EXCITABILITY. Kyung Ho Kim¹, Salim Yalcin Inan², Robert F. Berman², and Isaac N. Pessah¹. ¹Departments of Molecular Biosciences, School of Veterinary Medicine and ²Department of Neurological Surgery, School of Medicine, University of California, Davis, California, USA

P-70 Post-Doc Award Competition

PERINATAL EXPOSURE TO 2,2',4,4'-TETRABROMODIPHENYL ETHER (PBDE-47) RETARDS GROWTH AND DELAYS NEURODEVELOPMENT OF C57BL/6J MICE. TramAnh N. Ta, Pavel Aronov, Mari S. Golub, Jozsef Lango, Isaac N. Pessah, Robert F. Berman. *Center for Children's Environmental Health, University of California Davis, Davis, California 95618, USA.*

P-71

COMPARATIVE GENE EXPRESSION ANALYSIS IN DEVELOPING RAT BRAIN EXPOSED TO MIXTURES OF METHYL MERCURY, POLYCHLORINATED BIPHENYLS AND ORGANOCHLORINE PESTICIDES. B.K. Padhi¹, G. Pelletier¹, A. Williams², C. Yauk¹, W.J. Bowers¹. ¹Environment and Occupational Toxicology Division, ²Biostatistics and Epidemiology Division, HECSB, Health Canada, Ottawa, Canada, K1A 0K9.

P-72 Pre-Doc Award Competition

ALUMINUM INDUCED ELECTROPHYSIOLOGICAL, BIOCHEMICAL AND COGNITIVE MODIFICATIONS IN THE HIPPOCAMPUS OF AGING RATS. Pallavi Sethi^{1,2}, Amar Jyoti¹, Rameshwar Singh¹, Ejaz Hussain² and Deepak Sharma¹. ¹Neurobiology Laboratory, School of Life Sciences, Jawaharlal Nehru University, New Delhi, 1110067. ²Department of Biosciences, Jamia Millia Islamia, New Delhi, India.

P-73

MOLECULAR AND GENETIC ANALYSIS IN NOVEL MODELS OF METHYLMERCURY NEUROTOXICITY Grimes, KA.¹, Henry, TB.², Braun, K.³, Nass, R.¹. Depts. of Pediatrics and Pharmacology¹, Vanderbilt University Medical Center, Nashville, TN, USA; Center for Environmental Biotechnology², The University of Tennessee, Knoxville, TN, USA; Dept. of Zoology/Developmental Neurobiology³, Otto von Guericke University Magdeburg, Germany

P-74

METHYLMERCURY EXPOSURE INDUCES HYPERACTIVITY AND NEURONAL LOSS IN THE CAUDATE PUTAMEN IN MICE. Masumi Sawada, Masatake Fujimura and Akira Yasutake. *National Institute for Minamata Disease, 4058-18 Hama, Minamata, Kumamoto 867-0008, JAPAN*

P-75

SELENIUM PREVENTION & TREATMENT OF MERCURY TOXICITY NVC Ralston and LJ Raymond. *Energy & Environmental Research Center, University of North Dakota, Grand Forks, ND, U.S.A.*

P-76

METHYLMERCURY, DIETARY FISH OILS, AND BRAIN FATTY ACIDS MC Craig-Schmidt¹, CA Teodorescu¹, EE Eckley¹, A Inniss¹, and MC Newland² *Departments of Nutrition and Food Science¹ and Psychology², Auburn University, Auburn, AL USA*

P-77

AIR POLLUTION, OXIDATIVE STRESS AND NEUROTOXICITY. Arezoo Campbell¹, Sheba M. J. MohanKumar² and Bellina Veronesi³ ¹Department: of Pharmaceutical Sciences, Western University of Health Sciences, Pomona, CA., ²Department of Pharmacology and Toxicology, Michigan State University, E. Lansing, MI and ³Neurotoxicology Division, NHEERL, US. EPA, RTP, NC.

P-78 Pre-Doc Award Competition

PARAQUAT INDUCES OXIDATIVE STRESS, NEURONAL LOSS AND PARKINSONISM IN RATS: NEUROPROTECTION BY WATER-

SOLUBLE COQ₁₀. Mallika Somayajulu-Nitu¹; T. S. Sridhar¹; Anca Matei²; Vera Parameswarann³; Jerome Cohen²; Jagdeep Sandhu¹;Henryk Borowy-Borowski³; Marianna Sikorska³ and Siyaram Pandey¹. ¹Chemistry & Biochemistry, University of Windsor, Windsor, ON, Canada. ²Psychology, University of Windsor, Windsor, ON, Canada. ³Institute for Biological Sciences, National Research Council of Canada, Ottawa, ON, Canada. *Current address: St John's Medical College, Bangaluru. India.

P-79

EXACERBATION OF PARKINSON'S DISEASE WITH EXPOSURE TO NEUROTOXINS MAY BE RESPONSIVE TO LIPID THERAPY. Kane PC, Braccia D, Kane E. *Haverford Wellness Center, Havertown, PA USA*

P-80 Pre-Doc Award Competition

PROTECTIVE EFFICACY OF BACOPA MONNIERI EXTRACT AGAINST ROTENONE INDUCED NEUROTOXIC EFFECTS IN DROSOPHILA. Ravikumar Hosamani, K.N Chandrashekar and Muralidhara. *Biochemistry & Nutrition, Central Food Technological Research Institute, Mysore, India*

P-81 Post-Doc Award Competition

STRUCTURAL STUDIES OF WORM CU/ZN SUPEROXIDE DISMUTASE. O. N. Pakhomova¹, J. P. Schuermann¹, L. T. Jensen², V. Cizewski Culotta², P. J. Hart¹. ¹Department of Biochemistry, University of Texas Health Science Center, San Antonio, USA, ²Department of Environmental Health Sciences, John Hopkins University Bloomberg School of Public Health, Baltimore, USA.

P-82

UTILIZATION OF DROSOPHILA SYSTEM TO UNDERSTAND THE EMERGING ROLE OF PHYTOCHEMICALS AS NEUROMODULATORS. Dr. Muralidhara. *Biochemistry & Nutrition, Central Food Technological Research Institute, Mysore, Karnataka, India*

P-83 Pre-Doc Award Competition

SPLICE VARIANT SPECIFIC UPREGULATION OF CA+2/CALMODULIN DEPENDENT PROTEIN KINASE 1G BY PYRETHROID INSECTICIDES IN VIVO. J A Harrill¹, K M Crofton². ¹Curriculum in Toxicology, UNC-CH, Chapel Hill, NC, ²Neurotoxicology Division, NHEERL, ORD, USEPA, RTP, NC.

P-84

EFFECT OF 1-BROMOPROPANE EXPOSURE ON GENE EXPRESSION OF NEUROTRANSMITTER RECEPTORS AND EXPLORATION OF BIOMARKERS FOR THE CENTRAL NERVOUS SYSTEM TOXICITY. S Sahabudeen and G Ichihara. *Department of Occupational & Environmental Health, Nagoya University Graduate School of Medicine, Nagoya, Japan*

P-85 Pre-Doc Award Competition

EXPRESSIONS CHANGES OF CYTOSKELETAL PROTEIN AND RELATED PROTEIN KINASES IN CEREBRUM CORTEX OF 2,5-HEXANEDIONE SUBCHRONIC TREATED RATS. Wang QingShan Student and Xie KeQin Advisor. *Institute of Toxicology, Shandong University, Jinan, ShanDong, China.*

P-86

INVOLVEMENT OF CALPAINS IN THE PERIPHERAL AXONOPATHY INDUCED BY 2,5-HEXANEDIONE. Song Fuyong and Xie KeQin. *Institute of Toxicology, Shandong University, Jinan, ShanDong, China.*

P-87 Post-Doc Award Competition

THE REVERSIBILITY OF NEUROFILAMENTS DECLINE INDUCED BY 2,5-HEXANEDIONE IN RAT SCIATIC NERVES. Song Fuyong and Xie KeQin. *Institute of Toxicology, Shandong University, Jinan, ShanDong, China.*

P-88 *Post-Doc Award Competition*

CHRONIC LOW-DOSE ACRYLAMIDE EXPOSURE REDUCES APPETITIVE MOTIVATION IN FISHER 344 RATS BETWEEN 8 TO 12 MONTHS OF AGE. J. Garey and M.G. Paule. *Division of Neurotoxicology, National Center for Toxicological Research/FDA, Jefferson, AR, USA.*

P-89

EFFECTS OF CHRONIC ORAL ACRYLAMIDE EXPOSURE ON INCREMENTAL REPEATED ACQUISITION (LEARNING) PERFORMANCE IN ADULT FISCHER 344 RATS. M.G. Paule and J. Garey. *Division of Neurotoxicology, National Center for Toxicological Research/FDA, Jefferson, AR, USA*

P-90

THE ROLE OF NMDA RECEPTOR REGULATION IN PCP-INDUCED CORTICAL APOPTOSIS. Cheng Wang¹, Natalya Sadovova², Xiaoju Zou¹, Sherry Ferguson¹, Merle Paule¹ and William Slikker¹. ¹*Division of Neurotoxicology, NCTR, FDA and* ²*Toxicologic Pathology Associates, Jefferson, Arkansas*

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PROTECTIVE EFFECTS OF 7-NITROINDAZOLE ON KETAMINE-INDUCED NEUROTOXICITY IN RAT FOREBRAIN CULTURE. N. Sadovova¹, C. Wang², T.A. Patterson², X. Zou², X. Fu³, J.P. Hanig⁴, M.G. Paule², S.F. Ali² and W. Slikker, Jr.² ¹*Toxicologic Pathology Associates, Jefferson, AR;* ²*Division of Neurotoxicology and* ³*Division of Biochemical Toxicology, National Center for Toxicological Research/U.S. Food & Drug Administration, Jefferson, AR;* and ⁴*Center for Drug Evaluation and Research/U.S. Food & Drug Administration, Silver Spring, MD*

P-92 *Pre-Doc Award Competition*

DEVELOPMENTAL PHENCYCLIDINE (PCP) OR KETAMINE TREATMENT INCREASES THE FREQUENCY OF ABNORMAL ACTIVITY IN SPRAGUE-DAWLEY RAT PUPS. SY Boctor^{1,2}, N Sadovova³, X Zou², C Wang², SA Ferguson²; ¹*Dept. of Interdisciplinary Biomedical Science, UAMS, Little Rock, AR, USA;* ²*Div. of Neurotoxicology, National Center for Toxicological Research/FDA, Jefferson, AR, USA;* ³*Toxicologic Pathology Associates, Jefferson, AR, USA*

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CO-EXPOSURE OF HEAVY METALS AND PSYCHOSTIMULANTS ALTER DOPAMINE TRANSPORTER (DAT) DENSITY WITHOUT CHANGES IN DAT FUNCTION. AN Hood and DR Wallace. *Department of Forensic Science, Oklahoma State University Center for Health Sciences, Tulsa, Oklahoma, USA*

P-94 *Pre-Doc Award Competition*

EFFECTS OF ESTRADIOL AND XENOESTROGENS ON DOPAMINE TRANSPORT. Rebecca A. Alyea¹, Kathryn A. Cunningham², and Cheryl S. Watson¹. *Department of Biochemistry & Molecular Biology, Univ. of Texas Medical Branch, Galveston TX 77555-0645;* ² *Department of Pharmacology & Toxicology, Univ. of Texas Medical Branch, Galveston TX 77555-1031*

P-95 *Post-Doc Award Competition*

THE EFFECTS OF METHYLPHENIDATE ON RHESUS MONKEY PERFORMANCE IN AN OPERANT TEST BATTERY. JS Rodriguez^a, SM Morris^b, CE Hotchkiss^c, DR Mattison^d and MG Paule^a. ^a*Division of Neurotoxicology,* ^b*Division of Genetic and Reproductive Toxicology,* and ^c*The Bionetics Corporation; National Center for Toxicological Research, FDA, Jefferson, AR,* and ^d*Obstetric and Pediatric Pharmacology Branch, National Institute of Child Health and Human Development, NIH, Bethesda, MD*

P-96

USING OPERANT RESPONSE ACQUISITION TO ASSESS MOUSE MODELS OF ALZHEIMER'S PATHOLOGY. TJ Zarcone³, A Sagare¹, R Deane¹, RD Bell¹, N Paquette¹, D Carbonari³, R Pendu², PJ Lenting², Z Wu¹, & BV Zlokovic¹. ¹ *Frank P. Smith Laboratory for Neuroscience and Neurosurgical Research, Department of Neurosurgery, University of Rochester Medical School, Rochester, New York 14642, USA.* ² *Laboratory for Thrombosis and Haemostasis, Department of Hematology, University Medical Center Utrecht, 3584 CX Utrecht, The Netherlands.* ³ *Neurobehavioral Facility Laboratory, Department of Environmental Medicine, University of Rochester Medical School, Rochester, New York, USA.*

P-97

ASSESSING THE EFFECTS OF CHRONIC DOPAMINERGIC (D3) AGONIST ADMINISTRATION ON COMPLEX BRAIN FUNCTIONS IN JUVENILE RHESUS MONKEYS USING THE NCTR OPERANT TEST BATTERY. T.A. Patterson¹, M. Li¹, C.E. Hotchkiss², A. Mauz³, M. Eddie³ and M.G. Paule¹. ¹*Division of Neurotoxicology, National Center for Toxicological Research/U.S. FDA, Jefferson, AR,* ²*The Bionetics Corporation, Jefferson, AR* and ³*Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach/Riss, Germany*

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RACE-GENE-ENVIRONMENT INTERACTIONS AND NEUROTOXICOLOGY: MULTIPLE ENVIRONMENTAL AND GENETIC VULNERABILITIES TO TOXINS. Roger D. Masters. *Department of Government, Dartmouth College, Hanover, NH 03755, USA*

P-99

TOXICOLOGY IN THE KITCHEN: POLYHEDRAL GRAPHIC MODELING IN FOOD TOXICOLOGY, ENVIRONMENTAL NEUROSCIENCE AND NUTRITION. BW Whitman, *Mental Health and Behavioral Sciences Services, Carl T. Hayden VA Medical Center, Phoenix, Arizona*

P-100

FROM SCIENCE TO POLICY: THE LEARNING AND DEVELOPMENTAL DISABILITIES INITIATIVE. Elise Miller, MEd, *Executive Director, Institute for Children's Environmental Health, Freeland, Washington, USA.*

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TOXIPEDIA: CONNECTING SCIENCE AND PEOPLE. SG Gilbert. *Institute of Neurotoxicology and Neurological Disorders, Seattle, Washington, USA*

P-102

ALTERNATIVE COMMUNITY BASED APPROACH - PRECAUTIONARY ASSESSMENT. SG Gilbert. *Institute of Neurotoxicology & Neurological Disorders, Seattle, WA, USA*

P-103

NEUROTOXICITY OF ARSENIC ON EXPOSED WORKERS L. Fat¹ and M. Ghita². ¹*Occupational Health Department, Institute of Public Health, Cluj-Napoca, Romania,* ²*Neurological Department, County Hospital, Baia Mare, Romania*

P-104

SERUM FLUORIDE LEVEL AND CHILDREN'S INTELLIGENCE QUOTIENT IN TWO VILLAGES IN CHINA. Xiang Quanyong^a, Liang Youxin^b, Chen Bingheng^b, Chen Liansheng^a, Wang Caisheng^a, Chen Xiaodong^a, Zhou Mingsheng^c. ^a *For correspondence: Xiang Quanyong, Department of Environmental Health, Jiangsu Province Centers for Diseases Control and Prevention, 172 Jiangsu Road, Nanjing, Jiangsu Province, 210009, P.R. China.* ^b *Department of Occupational Health, School of Public Health, Fudan University, P.R. China.* ^c *Center for Disease Control and Prevention, Sihong County, Jiangsu Province, Nanjing, P.R. China. 210009 P.R. China*