

**Thirty-Ninth Annual Meeting of the Neurobehavioral Teratology Society and the
Fifteenth Biennial Meeting of the International Neurotoxicology Association
Held in Conjunction with the 55th Annual Meeting of the Teratology Society
Hôtel Bonaventure, Montréal, Quebec, Canada
June 27—July 1, 2015**

2015 PATRICIA RODIER MID-CAREER AWARD

Gregg Stanwood, PhD (Nominated by Chip Vorhees)
Florida State University
Developmental causes and consequences of drug abuse

2015 NBTS RICHARD BUTCHER NEW INVESTIGATOR AWARD

Marissa Sobolewski, PhD (self-nominated)
University of Rochester
Enhanced reproductive, endocrine and behavioral deficits induced by maternal exposure to a mixture of low dose endocrine disrupting chemicals

NBTS CONFERENCE AWARDS

Emily Ross (Nominated by Gregg Stanwood)
Vanderbilt University
Developmental dopamine D2 receptor effects on interneuron development and behavior

Stephanie Spring (Nominated by Mary Gilbert)
United States Environmental Protection Agency
Thyroid hormone-dependent formation of a subcortical band heterotopia (SBH) in the neonatal brain is not exacerbated under conditions of low dietary iron

Saturday, June 27, 2015

NBTS Program

**8:00 AM–12:00 Noon
Teratology Society
Education Course
Session I**

*Westmount (Separate
registration required)*

**8:30 AM–4:00 PM
NBTS Registration**

*Montreal Ballroom
Foyer*

INA Program

**8:30 AM–10:10 AM Symposium 1: Neurotoxicants are in the air:
Neurotoxicity of air pollution** *Verdun*
Chairpersons: Lucio G. Costa, *University of Washington* and
Deborah Cory-Slechta, *University of Rochester School of Medicine*

**8:30-8:55 Neurotoxicity of acute diesel exhaust exposure in
adult mice (NTX1)**

Lucio G. Costa^{1,2}, Toby B. Cole¹, Jacki Coburn¹, Yu-Chin
(Rachel) Chang¹, Khoi Dao¹ and Pamela J. Roque¹, ¹*University
of Washington, Seattle, WA, USA;* ²*University of Parma
Medical School, Parma, Italy.*

**8:55-9:20 Microglia as central nervous system sentinels and
the detection of air pollution (NTX2)**

Michelle Block, *Indiana University School of Medicine,
Indianapolis, IN, USA.*

**9:20-9:45 Prenatal air pollution exposure effects on autism
spectrum disorder and neurodevelopment (NTX3)**

Heather E. Volk, Rob McConnell, Irva Hertz-Picciotto, Fred
Lurmann, Tara Kerin, Amy Kalkbrenner, Nora Lee and Gayle
Windham, *University of California, Davis, CA, USA.*

9:45-10:10 **Developmental exposure to ultrafine particle air pollution produces features of the autism phenotype (NTX4)**

Deborah A. Cory-Slechta, Joshua L. Allen and Gunter Oberdorster. *University of Rochester School of Medicine, Rochester, NY, USA.*

10:10 AM–10:30 AM Break

10:30 AM–12:30 PM Symposium 2: Neurotoxicity of small inhaled particles; From the cradle to the grave? *Verdun*
Chairpersons: Harm J. Heusinkveld, *Leibniz Research Institute for Environmental Medicine* and Arezoo Campbell, *Western University of Health Sciences*

10:30-11:00 **Epidemiological studies on outdoor air pollution exposure and neuro-psychological effects: From cradle to grave (NTX5)**

Tamara Schikowski, *IUF- Leibniz Research Institute for Environmental Medicine, Düsseldorf, Germany*; *Swiss Tropical and Public Health Institute and University of Basel, Switzerland.*

11:00-11:30 **Inhaled ultrafine particles increase inflammatory markers in rodent brains and may contribute to neurodegeneration (NTX6)**

Arezoo Campbell *Western University of Health Sciences, Pomona, CA, USA.*

11:30-12:00 **Inhaled ultrafine particulate matter and neurodegeneration; On the biological plausibility of mechanisms (NTX7)**

Harm J. Heusinkveld, *Leibniz Research Institute for Environmental Medicine, Düsseldorf, Germany*; *National Institute for Public Health and the Environment, Bilthoven, The Netherlands.*

1:00 PM–2:00 PM
NBTS Public Affairs
Committee Meeting
St. Pierre

1:30 PM–5:00 PM
Teratology Society
Education Course
Session II
Westmount
(Separate registration required)

12:00 PM–1:00 PM Lunch

1:00 PM–3:30 PM Symposium 3: The aerotoxic syndrome: Tricresyl phosphate exposure assessment, neurotoxicity and alternative explanations *Verdun*
Chairpersons: Christoph van Thriel, *IfADo-Leibniz Research Center for Working Environment and Human Factors* and Remco H.S. Westerink, *Universiteit Utrecht*

1:00-1:30 **The aerotoxic syndrome: Is there a new low-level neurotoxic syndrome in the air? (NTX8)**

Marlene Pacharra, Stefan Kleinbeck, Vanessa Hausherr, Julia Sisnaiske and Christoph van Thriel, *IfADo-Leibniz Research Center for Working Environment and Human Factors, Dortmund, Germany*

1:30-2:00 **Can ozone-initiated chemistry explain symptoms among air crewmembers? (NTX09)**

Peder Wolkoff, *National Research Centre for the Working Environment, Copenhagen, Denmark.*

2:00 PM–3:00 PM
NBTS Publications
Committee Meeting
St. Pierre

2:00-2:30 Towards a clinical diagnosis of the Aerotoxic Syndrome, possible methods and challenges (NTX10)
Evelien van Valen, Ineke Olsthoorn, Bas Sorgdrager and Teake Pal, *Netherlands Center for Occupational Diseases, Coronel Institute of Occupational Health, Academic Medical Center Amsterdam, The Netherlands.*

2:30-3:00 Neurotoxic hazard characterization and risk assessment of different TriCresyl Phosphate (TCP) isomers (NTX11)
Daniel Duarte, Joost Rutten, Regina GDM van Kleef, Fiona Wijnolts and Remco H.S. Westerink (NED), *Institute for Risk Assessment Sciences, Universiteit Utrecht, The Netherlands.*

3:00-3:30 Tri-ortho-cresylphosphate and TCP isomers – neurotoxic effects in addition to OPIDN? (NTX12)
Vanessa Hausherr¹, Julia Sisnaiske¹, Nicole Schöbel² and Christoph van Thriel¹, ¹*IfADo-Leibniz Research Center for Working Environment and Human Factors, Dortmund, Germany;* ²*Department of Animal Physiology, Ruhr-University, Bochum, Germany.*

3:00 PM–4:00 PM
NBTS Strategic Planning
Committee Meeting
St. Pierre

3:30–3:50 Break

3:50–5:10 Platform Session 1 *Verdun*

3:50-4:10 In vitro neurochemical screening assays to predict adverse outcomes of a set of potentially neurotoxic chemicals in fish, birds, and mammals (NTX13)
Adeline Arini¹, Krittika Mittal¹, Jessica Pawley¹, Jessica Head², Brandon Armstrong², Cheryl Murphy² and Nil Basu,¹ ¹*Faculty of Agricultural and Environmental Sciences, McGill University, Montreal, QC, Canada,* ²*Department of Fisheries and Wildlife, Michigan State University, East Lansing, MI, USA.*

4:10-4:30 Lead-induced disruption of brain barriers and its mechanisms (NTX14)
Jingyuan Chen, *Fourth Military Medical University, Xi'an, China.*

4:30-4:50 NMDA R/+VDR pharmacological phenotype as a novel therapeutic target in relieving motor-cognitive impairments in Parkinsonism (NTX15)
¹ Olalekan Michael Ogundele, ¹ Ednar Tarebi Nanakumo, ² Azeez Olakunle Ishola, ¹ Oluwafemi Michael Obende, ¹ Linus Anderson Enye, ² Wasii Gbolahan Balogun, ² Emmanuel Cobham Ansa and ² Abdulbasit Amin, ¹Afe Babalola University, Ekiti State Ado-Ekiti, Nigeria; ²University of Ilorin, Ilorin, Kwara State, Nigeria

4:50-5:10 Deficits in neural responses to manganese exposure in Huntington's Disease models (NTX16)
AM Tidball¹, KK Kumar¹, MR Bryan¹, TJ Bichell¹, K Horning¹, MA Uhouse¹, CR Goodwin¹, J Bornhorst², T Schwerdtle², MD Neely¹, JA McClean¹, MA Aschner³ and AB Bowman¹, ¹*Vanderbilt University Medical Center, Nashville, TN, USA,* ²*University of Potsdam, Germany and*

4:00 PM–6:30 PM
NBTS Council Meeting
St. Pierre

5:30–7:00 PM Soccer Game

Sunday, June 28, 2015

NBTS AND INA PROGRAM

- 7:30 AM–6:00 PM **NBTS/INA Registration** *Montreal Ballroom Foyer*
- 8:00 AM–8:15 AM **Presidents' Welcome** *Outremont*
Lori L. Driscoll, Colorado College and Christoph van Thriel, IfADo - Leibniz Research Centre for Working Environment and Human Factors
- 8:30 AM–10:40 AM **Symposium 4: Neurotoxicity of brominated flame retardants and the quest for safer alternatives** *Verdun*
Chairpersons: Paul Eubig, University of Illinois and Remco H.S. Westerink, Universiteit Utrecht
- 8:30 AM–8:48 AM **Introduction to Session on the Neurotoxicity of Brominated Flame Retardants and the Quest for Safer Alternatives (NTX17):** Paul A. Eubig, University of Illinois, Urbana-Champaign, IL, USA
- 8:48 AM–9:16 AM **Cognitive and motivational impacts of developmental PBDE exposure in rats (NTX18)**
Lori L. Driscoll, Colorado College, Colorado Springs, CO, USA.
- 9:16 AM–9:44 AM **Neurobehavioral function and low-level exposure to brominated flame retardants in adolescents: A cross-sectional study (NTX19)**
Michal Kicinski¹, Mineke Viaene², Elly Hond³, Greet Schoeters^{3,4}, Adrian Covaci⁴, Alin Dirtu⁴, Vera Nelen⁵, Liesbeth Bruckers¹, Kim Croes⁶, Isabelle Sioen⁶, Willy Baeyens⁶, Nicolas Van Larebeke⁷, Tim Nawrot^{1,8}. ¹Hasselt University, Hasselt, Belgium, ²Sint Dimphna Hospital, Geel, Belgium, ³Flemish Institute for Technological Research, Environmental Risk and Health, Mol, Belgium, ⁴University of Antwerp, Antwerp, Belgium, ⁵Provincial Institute for Hygiene, Antwerp, Belgium, ⁶Brussels Free University, Brussels, Belgium, ⁷University Ghent, Ghent, Belgium, ⁸KU Leuven, Leuven, Belgium.
- 9:44 AM–10:12 AM **Halogenated organophosphate flame retardants: Developmental neurotoxicity and possible mechanisms of action (NTX20)**
Laura Dishaw, Heather Stapleton. Duke University, Durham, NC, USA.
- 10:12 AM–10:40 AM **Neurotoxicity assessment of 15 brominated- and halogen-free flame retardants (NTX21)**
Hester S. Hendriks¹, Regina GDM van Kleef¹, Milou ML Dingemans¹, Mareike Meijer¹, Mirthe Muilwijk¹, Martin van den Berg¹, Geert M Ramakers², Lucas A. Koolen², Pim E. Leonards³, Henrik Viberg⁴, Iwa Lee⁴, Remco HS Westerink.¹ ¹Utrecht University, Utrecht, The Netherlands, ²University Medical Center, Utrecht, The Netherlands, ³VU University, Amsterdam, The Netherlands, ⁴Uppsala University, Uppsala, Sweden
- 10:40 AM–11:00 AM **Break**

NBTS Program

11:00 AM–12:00 Noon

Platform Session 2 *Outremont*

11:00-11:15 **Prenatal cocaine, alcohol, and tobacco effects on adolescent attention/inhibition (NTX22)**

Lynn T. Singer, Sonia Minnes, Meeyoung O. Min, Barbara Lewis, Adelaide Lang, and Miaoping Wu, *Case Western Reserve University, Cleveland, OH, USA*.

11:15-11:30 **Effects of prenatal cocaine exposure and externalizing behavior on adolescent substance use (15-17 years) (NTX23)**

Sonia Minnes, Meeyoung O. Min, Lynn T. Singer, Barbara Lewis, Adelaide Lang, and Miaoping Wu, *Case Western Reserve University, Cleveland, OH, USA*

11:30-11:45 **Neonatal (+)-methamphetamine exposure impairs egocentric, allocentric, and working memory in rats (NTX24)**

Charles Vorhees, Sarah Jablonski, Arnold Gutierrez, Trisha Tee, Kathryn Suttling, and Michael Williams, *Cincinnati Children's Research Foundation & University of Cincinnati, OH, USA*

11:45-12:00 **Loss of dopamine D2 receptors increases parvalbumin-positive interneurons in the anterior cingulate cortex (NTX25)**

Devon Graham¹, Heather Durai², Jamie Garden², Evan Cohen², Franklin Echevarria², and Gregg Stanwood¹, ¹*Florida State University, Tallahassee, FL, USA*, ²*Vanderbilt University, Nashville, TN, USA*

INA Program

11:00 AM–12:00 Noon

Platform Session 3 *Verdun*

11:00-11:20 **Use of non-mammalian animal models in neurotoxicology testing in the National Toxicology Program (NTX26)**

Mamta Behl¹, Jui-Hua Hsieh¹, Timothy J. Shafer², William R. Mundy², Julie Rice¹, Windy Boyd¹, Jonathan Freedman¹, E. Sidney Hunter III², Kimberly Jarema², Stephanie Padilla², Raymond Tice¹
¹*National Institute of Environmental Health Sciences, Research Triangle Park, NC, USA*, ²*S. Environmental Protection Agency, Research Triangle Park, NC, USA*.

11:20-11:40 **The RAS/PI3K Pathway Involved in the Damage on Long-term Potentiation of Acute Aluminum Treatment (NTX27)**

Jing Song, Ying Liu, Hui Fang Zhang and Qiao NIU, *Shanxi Medical University, Taiyuan, Shanxi, China*.

11:40-12:00 **Lysosomal dysfunction caused by the environmental neurotoxicant manganese increases exosome-mediated cell-to-cell transfer of α -synuclein by a prion-like mechanism (NTX28)**

Dilshan S. Harischandra, Vivek Lawana, Dharmin Rhokad, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy and Anumantha Kanthasamy, *Iowa State University, Ames, IA, USA*.

NBTS AND INA PROGRAM

12:00 Noon–1:00 PM **Lunch**

1:00 PM–3:00 PM **Symposium 5: Complementary neurotoxicological insights from fish, flies, and worms** *Verdun*
Chairpersons: Edward Levin, *Duke University, Durham, NC, USA* and Mamta Behl, *National Institute for Environmental Sciences, Research Triangle Park, NC, USA*

1:00 PM–1:25 PM **Can zebrafish be used to identify developmentally neurotoxic chemicals? (NTX29)**

Stephanie Padilla, *US-Environmental Protection Agency, Research Triangle Park, NC, USA.*

- 1:25 PM–1:50 PM **Persisting Impacts of organophosphate and neonicotinoid pesticides on neurobehavioral function in zebrafish (NTX30)**
Edward Levin, Jordan Bailey, Anthony Oliveri and Emily Crosby. *Duke University Medical Center, Durham, NC, USA.*
- 1:50 PM–2:15 PM **Detection and validation of molecular biomarkers for neurotoxicity in fish embryos (NTX31)**
Martina Fenske, Elke Muth-Köhne, Vera Delov, Laura Sonnack, Sebastian Kampe and Christoph Schäfers. *Fraunhofer Institute for Molecular Biology and Applied Ecology IME, Aachen and Schmallingenberg, Germany.*
- 2:15 PM–2:40 PM **Neurogenetics of toluene in *Drosophila* (NTX32)**
P. Bushnell, ²T. Morozova, ¹S. Hester, ¹W. Ward, ¹W. Oshiro, ³M. Lin, ¹J. McKee, ¹M. Higuchi, ¹W. Boyes, ⁴R. Judson, ³K. Tatum-Gibbs, ²T.F.C. Mackay. ¹*National Health and Environmental Effects Research Laboratory, US-EPA, Research Triangle Park, NC, USA;* ²*North Carolina State University Raleigh, NC, USA;* ³*ORISE Fellowship Program;* ⁴*National Center for Computational Toxicology, US-EPA, Research Triangle Park, NC, USA.*
- 2:40 PM–3:05 PM **Molecular neurotoxicology insights from *C. elegans* (NTX33)**
Michael Aschner, *Albert Einstein College of Medicine, Bronx, NY, USA.*
- 3:05 PM–3:20 PM **Break**
- 3:20 PM–4:20 PM **INA 2015 Jacob Hooisma Lecture *Verdun***
The objective measurement of drug and environmental influences on brain function (NTX34)
Barbara Sahakian, *University of Cambridge, Cambridge, United Kingdom.*

NBTS Program

4:30 PM–5:30 PM
Unveiling of name change and celebration of
the Developmental Neurotoxicology
Society *Fontaine H*

5:30 PM–6:00 PM
2015 Patricia Rodier Mid-Career Award in
Research and Mentoring *Westmount*
Developmental causes and
consequences of drug abuse (NTX35)
Gregg D. Stanwood, *Florida State
University, Tallahassee, FL, USA.*

6:00 PM–7:30 PM
NBTS/INA/TS Welcome Reception, Silent
Auction, and Exhibits Attended
Fontaine B

INA Program

4:30 PM–5:30 PM
INA Business Meeting *Verdun*

6:00 PM–7:30 PM
NBTS/INA/TS Welcome Reception, Silent
Auction, and Exhibits Attended
Fontaine B

Monday, June 29, 2015

NBTS Program

7:30 AM–5:00 PM

Registration *Montreal Ballroom Foyer*

9:00 AM–12:00 Noon NBTS/TS Joint Symposium: Regulatory neurodevelopmental testing: New guiding principles for harmonization of data collection and analysis
Westmount

Chairpersons: Alan M. Hoberman, *Charles River* and Abby A. Li, *Exponent, Inc.*

9:00-9:10 Reexamining the Developmental Neurotoxicity Study and risk assessment (NTX36)

Francis Bailey, *Health Canada Pest Management Regulatory Agency, Canada.*

9:10-9:35 Evaluating data variability for neurobehavioral measure (NTX37)

Larry P. Sheets, *Bayer CropScience, Durham, NC, USA.*

9:35-9:55 New insights into analysis of highly variable data: Motor activity as a case study (NTX38)

Wayne Bowers, *Health Canada* and *Carleton University, Ottawa, ON, Canada.*

9:55-10:20 Hypothesis driven testing and statistical analysis: Auditory startle as a case study (NTX39)

Kathleen Raffaele¹, E Lau², T Vidmar³, A Li². ¹*Office of Solid Waste and Emergency Response, US Environmental Protection Agency, Washington, DC, USA, ,* ²*Exponent, San Francisco, CA, USA,* ³*BioSTAT, Kalamazoo, MI, USA.*

10:20–10:35 Break

10:35-11:00 Standardization of SOPs to evaluations: Impacts on regulatory decisions using learning and memory as case studies (NTX40)

Virginia C. Moser¹, A Hofstra². ¹*Office of Research and Development, US*

INA Program

7:30 AM–5:00 PM

Registration *Montreal Ballroom Foyer*

8:30 AM–10:30 AM Symposium 6: Occupational and environmental toxicant-induced retinal/visual system deficits: From man to mice to fish

Verdun

Chairpersons: Donald A. Fox, *University of Houston* and Dora Fix Ventura, *University of São Paulo*

8:30-9:00 A retrospective of studies on toxic induced loss of color vision and contract sensitivity: What have we learned? (NTX42)

Donna Mergler, *CINBIOSE, Université du Québec à Montréal, Canada.*

9:00-9:30 Gestational lead exposure in humans and experimental animals: Novel functional and morphological phenotype and late-onset retinal degeneration (NTX43)

Donald A. Fox, *University of Houston, Houston, TX, USA.*

9:30-10:00 Impact of mercury vapor toxicity on vision and visual structures: Human and experimental studies (NTX44)

Dora Fix Ventura, *University of São Paulo, SP, Brazil.*

10:00-10:30 Mechanisms underlying ocular abnormalities in zebrafish embryos exposed to ethanol (NTX45)

D.L. Stenkamp, *University of Idaho, Moscow, ID, USA.*

10:30–10:45 Break

10:45 AM–12:05 PM

Platform Session 4 *Verdun*

10:45-11:05 The role of the age in mediating the efficacy of chelation therapy in lead poisoned young rats (NTX46)

Jian Xu, Shufang Li, Shuangyuan Sun, Chonghuai Yan, Xiaoming Shen, *Xinhua Hospital, Shanghai Jiao Tong*

Environmental Protection Agency, RTP,
NC, USA, ²Syngenta Canada Inc, Guelph,
ON, Canada.

University School of Medicine,
Shanghai, China.

11:00-11:25 **Weight of evidence and benchmark
dose analysis: Brain morphometry and
startle data case study (NTX41)**

Abby A. Li¹, RH Garman², W Kaufmann³,
RN Auer⁴, B Bolon⁵. ¹Exponent Health
Sciences, San Francisco, CA, USA,
²Veterinary Pathology, Murrysville, PA,
USA, ³Merck KGaA Global Pathology &
Reproductive Toxicology, Darmstadt,
Germany, ⁴Hôpital Saint Justine, Montreal,
QC, Canada, ⁵The Ohio State University,
Columbus, OH, USA.

11:25-12:00 **Discussion**

Francis Bailey, Health Canada Pest
Management Regulatory Agency, Ottawa,
ON, Canada; Alan M. Hoberman, Charles
River, Wilmington, MA, USA; Angela
Hofstra, Syngenta Canada, Guelph, ON,
Canada; Susan L. Makris, US
Environmental Protection Agency,
Washington, DC, USA.

11:05-11:25 **Relationship between prenatal
mercury exposure and development of
18-month-old children (NTX47)**

Wei Wu, Meiqin Wu, Jian Xu,
Chonghuai Yan, Shanghai Jiao Tong
University School of Medicine,
Shanghai, China.

11:25-11:45 **Fenazaquin aggravates tau
pathology in P301S transgenic mice
(NTX48)**

Mohamed M. Salama¹, Thomas W.
Rösler², Seham Gad El Hak¹ and
Gunter U. Höglinger^{2,3}. ¹Mansoura
University, Mansoura, Egypt; ²German
Center for Neurodegenerative
Diseases (DZNE), Munich, Germany;
³Technical University, Munich,
Germany

11:45-12:05 **Role of glutamatergic
receptors and associated signaling in
arsenic induced neurotoxicity and
protective efficacy of curcumin in rat
primary cultured hippocampal neurons.
(NTX49)**

Pranay Srivastava, Vivek Kumar,
Rajendra Shukla, Yogesh Dhuriya,
Richa Gupta, AB Pant, Vinay K
Khanna, CSIR- Indian Institute of
Toxicology Research, Marg, Lucknow,
India.

12:00 Noon–1:00 PM Lunch

12:05 PM–1:00 PM Lunch

NBTS AND INA PROGRAM

1:00 PM–2:30 PM

Symposium 7: Environmental toxicants and psychiatric disease Verdun
Chairpersons: Tomas Guilarte, Columbia University and Lori L. Driscoll, Colorado
College

1:00 PM–1:10 PM

Introduction
Lori L. Driscoll, Colorado College, Colorado Springs, CO, USA.

1:10 PM–1:30 PM

**Gestational exposures to common environmental toxicants and internalizing
symptoms among school-age children (NTX50)**
Kimberly Yolton^{1,3}, Yingying Xu¹, Joseph Braun², Kim Cecil^{1,3}, Aimin Chen³, Bruce
Lanphear⁴, Jane Khoury^{1,3}, Heidi Sucharew^{1,3}, ¹Cincinnati Children's Hospital
Medical Center, Cincinnati, OH, USA, ²Brown University, Providence, RI, USA,
³University of Cincinnati, Cincinnati, OH, USA, ⁴Simon Fraser University, Vancouver,
BC, Canada

- 1:30 PM–1:50 PM **Do peripheral inflammatory responses link early chronic low-level lead exposure and later psychiatric disease? (NTX51)**
Christina Sobin^{1,2}, Charlotte Vines¹, John Basgen³, Mayra Gisel Flores Montoya¹
¹*University of Texas at El Paso, El Paso, TX, USA*, ²*Rockefeller University, New York, NY, USA*, ³*Charles Drew University, Los Angeles, CA, USA*
- 1:50 PM–2:10 PM **Neurotoxic effects on attention deficit and hyperactivity in rodent models (NTX52)**
Edward Levin, Brandon Hall and Marty Cauley, *Duke University, Durham, NC, USA*.
- 2:10 PM–2:30 PM **Early Life Lead Exposure and Schizophrenia Neuropathology: Effects on Parvalbumin-Positive GABAergic Interneurons and Subcortical Dopaminergic Activity (NTX53)**
Tomás R Guilarte, Kirstie H Stansfield, Barbara D Soares, Jennifer L McGlothlan and Xinhua Liu, *Mailman School of Public Health, Columbia University, New York, NY, USA*
- 2:30 PM–2:50 PM Break**
- 2:50 PM–5:00 PM Symposium 8: Application of the Adverse Outcome Pathway (AOP) concept to neurotoxicology** *Verdun*
 Chairpersons: Anna Price, *Institute for Health and Consumer Protection, European Commission* and Ellen Fritsche, *Leibniz Research Institute for Environmental Medicine*
- 2:50 PM–3:15 PM **Developing and evaluating AOPs for research and regulatory application (NTX54)**
Bette Meek, *McLaughlin Centre for Population Health Risk Assessment, University of Ottawa, Ottawa, ON, Canada*.
- 3:15 PM–3:40 PM **Binding of antagonist to NMDA receptors during brain development (synaptogenesis) induces impairment of learning and memory abilities (NTX55)**
Anna Price and Magdalini Sachana, *Institute for Health and Consumer Protection, European Commission, JRC, Ispra, Italy*.
- 3:40 PM–4:05 PM **Binding of epigallocatechin gallate to the laminin- β -integrin binding site decreases neural progenitor cell adhesion and migration: Adverse Outcome Pathway framework supporting neurodevelopmental toxicity research and risk assessment (NTX56)**
Marta Barenys¹, Kathrin Gassmann¹, Christine Baksmeier¹, Sabrina Heinz¹, Martin Schmuck¹, Sivaraj Sundaram¹, Maria Teresa Colomina², Heike Heuer¹, Ellen Fritsche¹, ¹*IUF - Leibniz Research Institute of Environmental Medicine, Germany*; ²*“Rovira i Virgili” University, Spain*
- 4:05 PM–4:30 PM **Adverse Outcome Pathway on: Binding of pyrethroids to voltage-gated sodium channels induces acute neurotoxicity (NTX57)**
Timothy J. Shafer, *U.S. Environmental Protection Agency, USA*.
- 4:30 PM–4:55 PM **The developmental neurotoxicity of non-dioxin-like PCBs: Sensitization of ryanodine receptors interferes with neurodevelopmental processes that determine neuronal connectivity (NTX58)**
Pamela J. Lein, *University of California-Davis, Davis, CA, USA*.
- 5:30 PM–7:30 PM INA/NBTS/TS/OTIS Joint Poster Session** *Fontaine B*

NTX59: The neurobehavioral toxicity of FireMaster 550® in zebrafish (*Danio rerio*): Chronic developmental and acute adolescent exposures
Jordan M. Bailey and Edward D. Levin. *Duke University Medical Center, Durham, NC, USA.*

NTX60: Solvents and Parkinson syndromes
Eric Benbrik¹, Vincent Bonneterre², Jacques Reis³ and Peter S Spencer⁴. ¹*UFR de Médecine et de Pharmacie de Poitiers, France;* ²*Département de Médecine et Santé au travail Pôle Santé publique, CHU Grenoble, France;* ³*Chargé de cours Université de Strasbourg, France;* ⁴*Peter S. Spencer. School of Medicine, Oregon Health & Science University, Portland, Oregon, USA.*

NTX61: Gestation-only trichloroethylene exposure induced differential brain region-specific neurotoxicity in male offspring
Sarah J. Blossom, Ming Li, Grant Chandler, Stepan Melnyk and William D. Wessinger, *University of Arkansas for Medical Sciences, Little Rock, AR, USA.*

NTX62: Combined exposure to impulse noise and styrene
Pierre Campo, Thomas Venet, Aurélie Thomas, Chantal Cour, and Frédéric Cosnier, *Institut National de Recherche et de Sécurité, Vandœuvre Cedex, France.*

NTX63: Alteration of juvenile rat emotional behavior and social play following preweanling exposure to inhibitors of FAAH
R.L. Carr, N.H. Armstrong, A.T. Buchanan, K.A. De Leon, J.B. Eells, L. Loyant, A.N. Mohammed, M.K. Ross, and C.A. Nail. *Mississippi State University, Mississippi State, MS, USA.*

NTX64: Low-dose paraquat exposure inhibits cell proliferation and induced apoptosis in human neural progenitor cells
Xiuli Chang, Tingting Dou, Xinjin Wang and Zhijun Zhou, *Fudan University, Shanghai, China.*

NTX65: Neurodevelopmental effects of manganese and lead co-exposure: a case study of teeth as a novel exposure biomarker
Birgit Claus Henn¹, Brent A. Coull², Robert O. Wright³ and Manish Arora³, ¹*Boston University School of Public Health, Boston, MA, USA;* ²*Harvard University School of Public Health, Cambridge, MA, USA;* ³*Icahn School of Medicine at Mount Sinai, New York, NY, USA.*

NTX66: Increased GABA levels in manganese-exposed welders correlate with exposure, brain manganese, cognitive function, and motor function
David Edmondson^{1,2}, Ruoyun Ma^{1,2}, Chien-Lin Yeh^{1,2}, Eric J. Ward¹, Sandy Snyder¹, S. Elizabeth Zaubert³, Frank Rosenthal¹, and Ulrike Dydak^{1,2}. ¹*School of Health Sciences, Purdue University, West Lafayette, IN, USA;* ²*Radiology and Imaging Sciences, Indiana University School of Medicine, Indianapolis, IN, USA;* ³*Neurology, Indiana University School of Medicine, Indianapolis, IN, USA.*

NTX67: Peripheral and central auditory dysfunction associated with solvent exposure in humans
Adrian Fuente, *Université de Montréal, Montréal, Quebec, Canada.*

NTX68: Low dose tobacco smoke extract exposure during development causes long-term behavioral dysfunction in rats
Brandon J. Hall, Marty Cauley, Abtin Kiany, Dennis A. Burke and Edward D. Levin, *Duke University Medical Center, Durham, NC, USA.*

NTX69: Effects of environmental exposure to manganese on the visuoperception and visual memory in Mexican children
D. Hernández-Bonilla¹, C. Escamilla-Nuñez¹, Donna Mergler³, A. Schilman-Halbinger¹, S. Rodríguez-Dozal¹, S. Montes² and H. Riojas-Rodríguez¹, ¹*National Institute of Public Health;* ²*National Institute of Neurologic and Neurosurgery Manuel Velasco Suarez;* ³*CINBIOSE, Université du Québec à Montréal, Canada.*

NTX70: The effects of lead (Pb) and methylmercury (MeHg) on neurochemistry and behavior in chicken hatchlings

Theresa Johnston, Kimmo Mäenpää., and Nil Basu, *McGill University, Montréal, Canada.*

NTX71: The adverse effects of pesticides on the central auditory nervous system in tobacco growers

Adriana Bender Moreira de Lacerda¹, Denise Maria Vaz Romano França¹, Tony Leroux², and Adrian Fuente², ¹*Universidade Tuiuti do Paraná – UTP – Curitiba, Brazil;* ²*Université de Montréal – UdeM – Montréal, Canada.*

NTX72: Study of evoked otoacoustic emissions and suppression: Effect on workers exposed to pesticides and noise

Adriana Bender Moreira de Lacerda¹, Patricia Arruda de Souza Alcarás¹, Jair Mendes Marques¹, and Tony Leroux², ¹*Universidade Tuiuti do Paraná – UTP – Curitiba, Brazil;* ²*University of Montreal – UdeM, Montreal, Canada.*

NTX73: Assessment of the short-term neurobehavioral toxicity of a perinatal exposure to the HexaBromoCycloDoDecane (HBCDD) α -isomer in rats

Nicolas Maurice¹, Jean-Charles Olry¹, Ronan Cariou², Philippe Marchand², Gaud Dervilly-Pinel², Bruno Le Bizec², Angélique Travel³, Catherine Jondreville¹, and Henri Schroeder¹, ¹*URAFPA, INRA UC340, Université de Lorraine, Vandoeuvre-lès-Nancy, France;* ²*LUNAM Université, Oniris, USC INRA 1329, LABERCA, Nantes, France;* ³*ITAVI, Centre INRA de Tours, Nouzilly, France.*

NTX74: Role of opioids in hemin-induced neurotoxicity

Hannah Mick and Shekher Mohan, *Marshall University, Huntington, WV, USA.*

NTX75: Characterizations of 3' splice variants of *Acetylcholinesterase (AChE)* gene in rat: Implications for neurotoxicology studies

Bhaja K Padhi, Manjeet Singh and Guillaume Pelletier, *Health Canada, Ottawa, ON, Canada.*

NTX76: Tremor and movement disorders from carbon monoxide exposure - case report and review of the literature

Jonathan S. Rutchik, *University of California, San Francisco, CA, USA;* *Environmental and Occupational Medicine Associates, Mill Valley, CA, USA.*

NTX77: Maturation dependent susceptibility to the herbicide paraquat in 3d rat brain cell cultures

Jenny Sandström von Tobel and Florianne Monnet-Tschudi, *University of Lausanne, Switzerland.*

NTX78: Neuronal cell models and methods simulating nervous system function to screen for neurotoxic compounds

Julia Sisnaiske¹, Denise Schäfer¹, Vanessa Hausherr¹, Marcel Leist², Tzutzuy Ramirez-Hernandez³, Robert Landsiedel³, and Christoph van Thriel¹, ¹*IfADo, Dortmund, Germany;* ²*University of Konstanz, Konstanz, Germany;* ³*BASF, Ludwigshafen, Germany.*

NTX79: DNTox-21c 3D brain models to predict DNT and study neurodegeneration

L. Smirnova, H. Hogberg, G. Harris, L. Zhao, K. Block, C.A. Pardo, P. Barreras, K.M. Christian, C. Zhang, K. Kyro, T. Hartung, and D. Pamies, *Johns Hopkins University, Baltimore MD, USA.*

NTX80: Chronic solvent induced encephalopathy; Course and prognostic factors

Evelien van Valen¹, Ellie Wekking¹, Moniek van Hout², Gert van der Laan¹, Gerard Hageman³, Frank van Dijk¹, and Mirjam Sprangers⁴. ¹*Coronel Institute for Occupational Health, Academic Medical Center Amsterdam, the Netherlands;* ²*Medical Psychology, Medical Spectrum Twente, the Netherlands;* ³*Neurology, Medical Spectrum Twente, The Netherlands;* ⁴*Medical Psychology, Academic Medical Center Amsterdam, The Netherlands.*

NTX81: Performance validity in patients suspected of chronic solvent-induced encephalopathy

Evelien van Valen¹, Moniek van Hout², Ellie Wekking¹, Gert van der Laan¹, Gerard Hageman³, Frank van Dijk¹, Mirjam Sprangers⁴, and Ben Schmand⁵, ¹*Coronel Institute for Occupational Health, Academic Medical Center Amsterdam, The Netherlands*; ²*Medical Psychology, Medical Spectrum Twente, The Netherlands*; ³*Neurology, Medical Spectrum Twente, The Netherlands*; ⁴*Medical Psychology, Academic Medical Center Amsterdam, The Netherlands*; ⁵*Neurology, Academic Medical Center Amsterdam, The Netherlands*.

NTX82: Perinatal hypothyroidism and ultrasonic vocalization in rat pups
Hiroshi Wada, *Hokkaido University, Sapporo, Japan*.

NTX83: The association of early exposure to phenols and neuro-behavior development in school-aged children
Jen Wang^{1,2}, Mei-Huei Chen³, Wu-Shiun Hsieh⁴, and Pau-Chung Chen², ¹*Department of Psychiatry, Taipei City Hospital Jen-Ai branch, Taipei, Taiwan*; ²*Institute of Occupational Medicine and Industrial Health, National Taiwan University College of Public Health, Taipei, Taiwan*; ³*Department of Pediatrics, National Taiwan University Hospital Yun-Lin Branch, Yunlin, Taiwan*; ⁴*Department of Pediatrics, National Taiwan University Hospital, Taipei, Taiwan*.

NTX84: Solvents effects on the stapedial reflex
L. Wathier, T. Venet and P. Campo, *INRS, Vandoeuvre-les-Nancy, France*.

NTX85: Role of the PON1_{Q192R} polymorphism in the cognitive performance of agricultural workers exposed to organophosphate pesticides in the north of Chile (Coquimbo Region).
Liliana Zúñiga, Sebastián Corral and Flórida Pancetti, *Universidad Católica del Norte, Coquimbo, Chile*; *Department of Psychology, Faculty of Social Sciences, University of Chile, Santiago, Chile*.

NTX86: Effect of dichlorvos in spatial learning and memory during the ontogeny of Sprague-Dawley rats
Fernando Gámiz and Flórida Pancetti, *Universidad Católica del Norte, Coquimbo, Chile*.

NTX87: Assessing exposure to organophosphate pesticides, biomarkers and neuropsychological outcomes in rural populations of Chile
Muriel Ramírez-Santana, Liliana Zúñiga, Sebastián Corral, Rodrigo Sandoval and Flórida Pancetti, *Universidad Católica del Norte, Coquimbo, Chile*.

NTX88: Delayed neurobehavioral effects caused by zebrafish embryonic exposure to low levels of PCB-126
L. Glazer, N Aluru and M.E. Hahn, *Woods Hole Oceanographic Institution and Woods Hole Center for Oceans and Human Health, 45 Water Street, Woods Hole, MA, 02543, USA*.

NTX89: Screening for potential developmental neurotoxicity based on changes in the ontogeny of activity in rat cortical neural networks using multi well microelectrode arrays
Jasmine P Brown, Kathleen A Wallace, Diana Hall, William R. Mundy and Timothy J. Shafer, *US-EPA, Research Triangle Park, NC, USA*.

NTX90: Screening the ToxCast Phase I and II libraries for acute neurotoxicity using cortical neurons grown on multi-well microelectrode array (mwMEA) plates
Jenna Strickland, Matt Martin, Keith Houck and Tim Shafer, *Axion Biosystems, Atlanta, GA, USA*; *US-EPA, Research Triangle Park, NC, USA*.

NTX91: Early-life exposure to organophosphate flame retardants alters behavior in adult zebrafish: a comparison with organophosphate pesticides
Anthony Oliveri and Edward D. Levin, *Duke University School of Medicine, Durham, NC, USA*.

NTX92: Neurobehavioral and physiological effects of manganese exposure in welders
Clara Quetscher^{1,2}, Christoph van Thriel³, Thomas Brüning¹, Beate Pesch¹, and Christian Beste⁴,

¹ Institute for Prevention and Occupational Medicine of the German Social Accident Insurance (IPA), Ruhr-University Bochum, Bochum, Germany ² Institute for Cognitive Neuroscience, Biopsychology, Ruhr-University Bochum, Bochum, Germany ³ IfADo - Leibniz Research Centre for Working Environment and Human Factors, TU Dortmund, Dortmund, Germany ⁴ Cognitive Neurophysiology, Department of Child and Adolescent Psychiatry, Faculty of Medicine of the TU Dresden, Dresden, Germany.

NTX93: Domoic acid targets developing oligodendrocytes to potentially mediate toxicity in the nervous system

Jennifer Martinez Panlilio^{1,2}, Neelakanteswar Aluru^{2,3}, and Mark E. Hahn^{2,3}, ¹MIT/WHOI Joint Graduate Program in Oceanography and Oceanographic Engineering, Woods Hole, MA, USA; ²Woods Hole Oceanographic Institution, Woods Hole, MA, USA; ³Woods Hole Center for Oceans and Human Health, Woods Hole, MA, USA.

NTX94: Role of lead-induced Src activation in regulation of occludin expression level and the permeability of brain barriers

Han Song, Gang Zheng, Xue-Feng Shen, Xin-Qin Liu, Wen-Jing Luo, and Jing-Yuan Chen, *Fourth Military Medical University, Xi'an, China.*

NTX95: Developmental dopamine D2 receptor effects on interneuron development and behavior

Emily Ross¹, Devon Graham², and Gregg Stanwood²

¹Vanderbilt University, Chemical and Physical Biology Program, USA, ²Florida State University College of Medicine, Department of Biomedical Sciences, USA.

NTX96: Structural abnormalities and learning impairments induced by low level thyroid hormone insufficiency: A cross-fostering study

Mary Gilbert¹, Wendy Oshiro¹, Stephanie Spring¹, Michelle Hotchkiss¹, Joe Korte², Patricia Kosian², and Sigmond Degitz²

¹US EPA, NHEERL, TAD, USA, ²US EPA, NHEERL, MED, USA.

NTX97: Thyroid hormone-dependent formation of a subcortical band heterotopia (SBH) in the neonatal Brain is not Exacerbated Under Conditions of Low Dietary Iron

Stephanie Spring¹, TW Bastian², Grant Anderson², and Mary Gilbert¹

¹US EPA, NHEERL, TAD, USA, ²Univeristy of Minnesota, USA

NTX98: Impact of shift work on attention and female estrous cycling: Initial findings in a rat model
Rekha Balachandran¹, Audrey Robertson¹, Michael Leventhal¹, Stephane Beaudin², Megan Mahoney¹, and Paul Eubig¹

¹University of Illinois at Urbana-Champaign, USA, ²University of Santa Cruz, USA.

NTX99: Chronic MPTP treatment produces hyperactivity in male mice which is not alleviated by concurrent trehalose treatment

Sherry Ferguson, Delbert Law, and Sumit Sarkar

National Center for Toxicological Research/FDA, USA.

NTX100: Perinatal exposure to polychlorinated biphenyls alters cocaine behavioral sensitization and dopamine transporter (DAT) expression in the striatum and medial prefrontal cortex of Long-Evans rats

Mellessa Miller, Jenna Sprowles, Abby Meyer, Jason Voeller, Sean Matthews, and Helen Sable
University of Memphis, USA.

NTX101: A study of the object-in-place visual recognition paradigm for measuring memory impairment in Young C57BL6J Mice with Early Chronic Low-level Lead Exposure.

Mayra Gisel Flores-Montoya¹, Juan Alvarez¹, and Christina Sobin^{1,2}

¹University of Texas, USA, ²The Rockefeller University, USA.

NTX102: Gestational exposure to diethylstilbestrol does not elicit alterations in anxiety- and depressive-like behaviors in C57Bl/6 mice

Jenna Sprowles, Mellessa Miller, Abby Meyer, and Helen Sable
University of Memphis, USA.

NTX103: The impact of enrichment on spatial memory in Long Evans rats exposed to ethanol

Shayla Percy and Laura Pickens
Thiel College, USA

NTX104: The effect of adolescent nicotine exposure on Morris water maze spatial learning and retention in the adult male Long-Evans rat: A pilot study

Michelle Blose and Laura Pickens
Thiel College, USA.

NTX105: Effects of adolescent nicotine exposure on memory precision in middle-aged female rats

Jessica Sharp, Samantha M. Renaud, Megan E. Miller, Stephen B. Fountain and David C. Riccio
Kent State University, USA.

NTX106: Sex-specific differences in the persistence of cognitive impairments caused by adolescent nicotine exposure

Samantha M. Renaud¹, Megan E. Miller¹, Laura R.G. Pickens², and Stephen B. Fountain¹
¹*Kent State University, USA,* ²*Thiel College, USA.*

NTX107: Effects of acute nicotine on larval zebrafish exploratory behavior in a complex environment

Brandon Chen and Frank Scalzo
Bard College, USA.

NTX108: Does administration of thimerosal-containing vaccines to infant rhesus macaques result in an autism-like neuropathology?

Laura Hewitson^{1,2}, Bharathi Gadad², Wenhao Li², Stephen Grady², Britni Curtis³, Vernon Yutuc³, Clayton Ferrier³, Gene Sackett^{3,4}, and Dwight German²

¹*The Johnson Center for Child Health and Development, USA,* ²*University of Texas Southwestern, USA,* ³*Washington National Primate Research Center, USA,* ⁴*University of Washington, USA.*

NTX109: Sleep disturbance as detected by actigraphy in juvenile monkeys receiving therapeutic doses of fluoxetine.

Mari Golub and Casey Hogrefe
University of California Davis, USA.

NTX110: Treatment with the antidepressant fluoxetine increases peer social interaction in juvenile rhesus monkeys.

Mari Golub, Alicia Bulleri, and Casey Hogrefe
University of California Davis, USA.

NTX111: Neurodevelopmental outcome following prenatal exposure to anti-depressant medications
Anna Rosofsky¹, Patricia Janulewicz^{1,2}, Christina Chambers^{3,4}, Junenette Peters¹, Kerri Bertrand³, Kelly Kao³, Kenneth Jones³, and Jane Adams²

¹*Department of Environmental Health, Boston University, USA,* ²*Department of Psychology, University of Massachusetts Boston, USA,* ³*Department of Pediatrics, University of California San Diego, USA,* ⁴*Department of Family and Preventive Medicine, University of California San Diego, USA.*

NTX112: Prenatal exposure to acetaminophen and child neurodevelopment using a maternal self-report questionnaire

Kerri Bertrand¹, Patricia Janulewicz², Christina Chambers¹, Kelly Kao¹, Kenneth Lyons Jones¹, and Jane Adams³

¹University of California San Diego, USA, ²Boston University, USA, ³University of Massachusetts Boston, USA.

NTX113: Childhood and adolescent fish consumption and adult neuropsychological performance: An analysis from the Cape Cod Health Study

Lindsey Butler, Patricia Janulewicz, Jenny Carwile, Michael Winter, Roberta White, and Ann Aschengrau

Boston University School of Public Health, USA.

NTX114: Prenatal exposure lead and manganese and the intelligence of 7 year-old children. Yu-Chun Chen¹, Mei-Huei Chen², Wu-Shiun Hsieh^{3,4}, and Pau-Chung Chen¹

¹Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University College of Public Health, Taiwan, ²Department of Pediatrics, National Taiwan University Hospital Yun-Lin Branch, Taiwan, ³Department of Pediatrics, National Taiwan University Hospital and National Taiwan University College of Medicine, Taiwan, ⁴National Taiwan University College of Medicine, Taiwan.

NTX115: Prenatal exposure to environmental tobacco smoke and attention deficit/hyperactivity symptoms in children at 7 years of age

Pei-Yu Rao¹, Wu-Shiun Hsieh^{2,4}, Mei-Huei Chen³, and Pau-Chung Chen¹

¹Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University College of Public Health, Taiwan, ²Department of Pediatrics, National Taiwan University Hospital, Taiwan, ³Department of Pediatrics, National Taiwan University Hospital Yun-Lin Branch Secretariat, Taiwan, ⁴National Taiwan University College of Medicine, Taiwan.

NTX116: Effects of prenatal exposure to cigarette smoke on adiposity and metabolism: preliminary evidence of attenuated energy metabolism

Jameason Cameron^{1,2}, Kristi Adamo¹, Eric Doucet², Peter Fried³, and Gary Goldfield^{1,2}

¹Children's Hospital of Eastern Ontario, Canada, ²University of Ottawa, Canada, ³Carleton University, Canada.

NTX117: Effects of prenatal cocaine exposure on early sexual activity: Gender difference in externalizing behavior as a mediator

Meeyoung Min, Sonia Minnes, Miaoping Wu, and Lynn Singer
Case Western Reserve University, USA.

Tuesday, June 30, 2015

NBTS AND INA PROGRAM

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|-------------------------|---|
| 8:00 AM–2:00 PM | Registration <i>Montreal Ballroom Foyer</i> |
| 9:00 AM–12:30 PM | TS/NBTS/OTIS/INA Public Affairs Symposium: Microbiomes: An underappreciated organ for teratologists <i>Westmount</i>
Chairpersons: <u>Lori L. Driscoll</u> , <i>Colorado College, USA</i> and <u>Carl L. Keen</u> , <i>University of California, Davis, USA</i> |
| 9:00 AM–9:05 AM | Introduction
<u>Lori L. Driscoll</u> , <i>Colorado College, Colorado Springs, CO, USA.</i> |
| 9:05 AM–9:45 AM | Measuring the impact of diet and environment on infant metabolism and microbiome (NTX118)
<u>Carolyn M. Slupsky</u> , <i>University of California-Davis, Davis, CA, USA.</i> |

- 9:45 AM–10:25 AM **Impact of intrapartum antibiotic prophylaxis and other perinatal interventions on the infant gut microbiome (NTX119)**
Anita Kozyrskyj, University of Alberta, Alberta, ON, Canada.
- 10:25 AM–10:40 AM **Break**
- 10:40 AM–11:20 PM **Maternal stress and the neonate gut microbiome: Effects on early life programming and neurodevelopment (NTX120)**
Eldin Jasarevic, University of Pennsylvania, Philadelphia, PA, USA.
- 11:20 AM–12:20 PM **NBTS Elsevier Distinguished Lecturer
Microbiota-gut-brain axis: From neurodevelopment to behavior (NTX121)**
John F. Cryan and Ted Dinan University College Cork, Cork, Ireland.
- 12:20 AM–12:30 PM **Discussion: What does the future hold?**
- 12:30 PM–1:30 PM **Lunch**
(Neurotoxicology and Teratology Editorial Board Luncheon—Board Members Only)

NBTS Program

1:30 PM–3:30 PM Symposium 9: Nicotine and alternative tobacco products in adolescence *Outremont*

Chairperson: Diana Dow-Edwards, *SUNY Downstate Medical Center*

1:30-1:35 Introduction

Diana Dow-Edwards, *SUNY Downstate Medical Center, Brooklyn, NY, USA.*

1:35-2:00 Neurobiological consequences of nicotine exposure during adolescence: Mechanisms of short and long-term effects (NTX122)

Laura O'Dell, *University of Texas at El Paso, TX, USA.*

2:00-2:25 Age and sex differences in starting nicotine self-administration in early, mid or late adolescence vs. adulthood: Cause and effect relationships determined in a rat model (NTX123)

Edward Levin, *Duke University, Durham, NC, USA.*

2:25-2:50 Understanding adolescent E-cigarette use behaviors: Implications for tobacco regulatory efforts (NTX124)

Suchitra Krishnan-Sarin, Grace Kong, Meghan Morean, Deepa Camenga, Dana Cavallo, *Yale University, New Haven, CT, USA.*

INA Program

1:30 PM–3:35 PM Symposium 10: Complimentary Models Enhance the Understanding of Mechanisms Leading to Methylmercury-Induced Neurodevelopmental Effects *Verdun*

Chairpersons: Sandra Ceccatelli and Michael Aschner

1:30-1:55 Identification of conserved developmental pathways targeted by methylmercury in Drosophila melanogaster (NTX126)

Matthew D. Rand¹, Sara Montgomery¹, Daria Vorojeikina¹, Wen Huang², Trudy F.C. MacKay² and Robert R.H. Anholt²,
¹*University of Rochester School of Medicine and Dentistry, Rochester, NY;*
²*North Carolina State University, Raleigh, NC, USA.*

1:55-2:20 The Role of skn-1 in methylmercury-induced latent dopaminergic neurodegeneration (NTX127)

Michael Aschner¹, Ebany Martinez-Finley², ¹*Albert Einstein College of Medicine, Bronx, NY, USA;* ²*Vanderbilt University Medical Center, Nashville, TN, USA.*

2:20-2:45 Avian species as alternate models to understand the neurodevelopmental effects of methylmercury (NTX128)

Nil Basu, Theresa Johnston, and
Jessica Head, *McGill University*,
Montreal, QC, Canada.

2:50-3:15 **The waterpipe: A new way of
hooking youth on nicotine (NTX125)**
Wasim Maziak, *University of Memphis*,
Memphis, TN, USA.

3:15-3:30 **Discussion**

2:45-3:10 **Neural stem cells provide new
insights into the mechanisms of MeHg
developmental neurotoxicity (NTX129)**
Sandra Ceccatelli, Marilena Raciti,
Natalia Onishchenko and Raj Bose,
Karolinska Institutet Stockholm,
Sweden.

3:10-3:35 **Developmental toxicity of
methylmercury is associated with
reduced antioxidant status and cofilin
phosphorylation (NTX130)**
Beatriz Caballero, Nair Olguin, Aina
Palou-Serra, Iolanda Vendrell,
Francisco Campos, Marcelo Farina,
Ferran Ballester, Eduard Rodríguez-
Farré and Cristina Suñol, *Institut
d'Investigacions Biomèdiques de
Barcelona, Spain; FISABIO-UJI-
University of Valencia Joint Research
Unit, CIBERESP, Valencia, Spain.*

3:30-4:00 **Break**

4:00-6:00 **INA Social event**

4:00-4:30 **2015 Richard Butcher New
Investigator Award** *Outremont*
**Enhanced reproductive, endocrine and
behavioral deficits induced by maternal
exposure to a mixture of low dose
endocrine disrupting chemicals (NTX131)**
Marissa Sobolewski, Joshua Allen,
Katherine Conrad, Deborah Cory-Slechta,
University of Rochester, Rochester, NY,
USA.

4:30-5:30 **NBTS Business meeting and
award presentations** *Outremont*

6:00-10:00 **INA/NBTS Social event: Dinner
cruise** (*Separate registration required*)

6:00-10:00 **INA/NBTS Social event: Dinner
cruise** (*Separate registration required*)

Wednesday, July 1, 2015

NBTS AND INA PROGRAM

8:15 AM-11:00 AM

Symposium 11 *Verdun*
**Epigenetic mechanisms as link between early life stress/toxicant exposure and
later consequences for health and behavior-- sponsored by CAAT Europe**
Chairpersons: Jerrold S. Meyer, *University of Massachusetts Amherst* and Marcel
Leist, *Universität Konstanz*

- 8:15 AM–8:40 AM **Epigenetic and neurobiological consequences of prenatal exposure to Bisphenol A (NTX132)**
Frances Champagne, Columbia University, New York NY, USA.
- 8:40 AM–9:05 AM **Maternal smoking during pregnancy and offspring methylation: Preliminary data from a case-crossover design (NTX133)**
Valerie Knopik, Brown University, Providence, RI, USA.
- 9:05 AM–9:30 AM **Brain epigenetic and telomere alterations associated with early-life adversity (NTX134)**
Tania L. Roth, University of Delaware, Newark, DE, USA.
- 9:30 AM–9:55 AM **Epigenetic effects of drugs on early human neural development (NTX135)**
Marcel Leist, University of Konstanz, Konstanz, Germany.
- 9:55 AM–10:20 AM **DNA methylation mediating the impact of exposure on behavior (NTX136)**
Moshe Szyf, McGill University Medical School, Montréal, QC, Canada.
- 10:20 AM–10:45 AM **Alzheimer's disease: Environmental risk factors and epigenetic mechanisms (NTX137)**
William Renehan and Nasser Zawia, University of Rhode Island, Kingston, RI, USA.
- 10:45 AM–11:00 AM Break**

NBTS Program

11:00 AM–12:00 Noon

Platform Session 5 *Outremont*

11:00-11:15 **Long-lasting cognitive deficits in rhesus monkeys after neonatal general anesthesia induced by isoflurane plus nitrous oxide (NTX138)**

Merle Paule¹, Mi Li¹, Xuan Zhang¹, Shuliang Liu¹, Joseph Hanig², William Slikker¹, and Cheng Wang¹, ¹National Center for Toxicological Research US FDA, USA, ²Center for Drug Evaluation and Research US FDA, USA.

11:15-11:30 **Social behavior in non-human primate infants and juveniles following administration of thimerosal-containing vaccines (NTX139)**

Laura Hewitson^{1,3}, Britni Curtis², Vernon Yutuc², Clayton Ferrier², Nate Marti⁴, and Gene Sackett^{2,5}, ¹The Johnson Center for Child Health and Development, USA, ²Washington National Primate Research Center, USA, ³University of Texas Southwestern, USA, ⁴Abacist Analytics, LLC, USA, ⁵University of Washington, USA.

11:30-11:45 **Sex-specific effects of prenatal**

INA Program

11:00 AM–12:00 Noon

Platform Session 6 *Verdun*

11:00-11:20 **Development of an in vitro co-culture model of the chicken Hypothalamic-Pituitary-Gonadal-Liver (HPG-L) axis to study neuroendocrine disruption (NTX142)**

Krittika Mittal, Theresa Johnston and Niladri Basu, McGill University, Montreal, QC, Canada.

11:20-11:40 **Short- and long-term neurobehavioral toxicity of fluorene after a nose-only exposure during the lactating period (14 days) in F1 Wistar rats (NTX143)**

Julie Peiffer¹, Marie-Josèphe Decret², Hervé Nunge², Guido Rychen¹, Frédéric Cosnier² and Henri Schroeder¹, ¹Université de Lorraine, Vandoeuvre-lès-Nancy, France, ²INRS, Vandoeuvre-lès-Nancy, France.

11:40-12:00 **Nicotine - cadmium exposure alters working memory, motor function and increased anxiety in adolescent female mice (NTX144)**

Philip Adeyemi Adeniyi¹, Babawale Peter Olatunji², Azeez Olakunle Ishola³,

exposure to VPA: Behavioral and anatomical evidence (NTX140)

Sonya K. Sobrian, Monee Mickens, Natondra Powell, and Eva Polston, Howard University College of Medicine, USA.

Duyilemi Chris Ajonijebu⁴ and Olalekan Michael Ogundele¹, ¹College of Medicine and Health Sciences, Afe Babalola University, Ado-Ekiti, Ekiti State, Nigeria, ²College of Sciences, Afe Babalola University, Ado Ekiti, Nigeria, ³College of Health Sciences, University of Ilorin, Ilorin, Nigeria, ⁴College of Medicine and Health Sciences, Afe Babalola University, Ado Ekiti, Nigeria.

11:45-12:00 Behavioral effects in male and female mice following high-dose taurine consumption during adolescence (NTX141)

Christine Curran, Josephine Brown, Jamie Weimer, and Clare Ludwig, Northern Kentucky University, USA

12:00-1:00: Lunch

12:00 Noon

NBTS 2015 Meeting Adjourned

Thank you for joining us! Have an excellent and productive year ahead.

See you in Antonio in 2016!

INA PROGRAM

- 1:00 PM–2:10 PM** **Symposium 12: David Ray student symposium** *Verdun*
- 2:10 PM–2:30 PM** **Break**
- 2:30 PM–5:00 PM** **Symposium 13: Manganese and the brain** *Verdun*
Chairpersons: Donna Mergler and Rosemarie Bowler
- 2:30 PM–3:00 PM** **Brain GABA concentrations and their relation to exposure, movement and cognition in manganese exposure (NTX145)**
Ulrike Dydak, Purdue University, Bloomington, IN; Indiana University School of Medicine, Indianapolis, IN, USA.
- 3:00 PM–3:30 PM** **Motor and verbal learning and naming slowing of active welders in relation to manganese exposure and MRI imaging results (NTX146)**
Rosemarie M. Bowler, San Francisco State University, San Francisco, CA, USA.
- 3:30 PM–4:00 PM** **Manganese-induced parkinsonism does not involve degeneration of nigrostriatal dopaminergic neurons: Evidence from genetic mutations and environmental exposure in humans and non-human primates (NTX147)**
Tomás R. Guilarte, Columbia University, New York, USA.
- 4:00 PM–4:30 PM** **Pre- and post-synaptic dopaminergic function in Mn-exposed humans (NTX148)**
Brad A. Racette, Washington University, St. Louis, MO, USA; University of the Witwatersrand, Johannesburg, South Africa.
- 4:30 PM–5:00 PM** **Decreased brain volumes in manganese-exposed welders (NTX149)**

Yangho Kim, *University of Ulsan College of Medicine, Ulsan, South Korea.*

5:00 PM

INA 2015 Meeting Adjourned

Thank you for joining us! We hope to see you in Florianópolis, Brazil for INA16 in 2017!