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

Jenna Sprowles (Nominated by Helen Sable)
University of Memphis
Gestational exposure to diethylstilbestrol does not elicit alterations in anxiety- and depressive-like behaviors in C57Bl/6 mice

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*

8:30-9:00 **Neurotoxicity of acute diesel exhaust exposure in adult mice (NTX1)**
Lucio G. Costa[1,2], Toby B. Cole[1], Jacki Coburn[1], Yu-Chin (Rachel) Chang[1], Khoi Dao[1] and Pamela J. Roque[1], *[1]University of Washington, Seattle, WA, USA; [2]University of Parma Medical School, Parma, Italy.*

9:00-9:30 **Microglia as central nervous system sentinels and the detection of air pollution (NTX2)**
Michelle Block, *Indiana University School of Medicine, Indianapolis, IN, USA*.

9:30-10:00 **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.*
10:00-10:10 **Discussion**

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.*

12:00 PM–1:00 PM Lunch

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)

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)**

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

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

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 Hausherr[1], Julia Sisnaiske[1], Nicole Schöbel[2] and Christoph van Thriel[1], *[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 Arini[1], Krittika Mittal[1], Jessica Pawley[1], Jessica Head[2], Brandon Armstrong[2], Cheryl Murphy[2] 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] Wasiu Gbolahan Balogun, [2] Emmanuel Cobham Ansa and [2] Abdulbasit Amin, [1]Afe Babalola University, Ekiti State Ado-Ekiti, Nigeria; [2]University of Ilorin, Ilorin, Kwara State, Nigeria

4:50-5:10 **Environmental Neurotoxicants induced Epigenetic Hyperacetylation in Dopaminergic System**
Anumantha Kanthasamy, Chunjun Song, Adhithiya Charlie, Huajun Jin, and Arthi Kanthasamy, Dept. of Biomed Sciences, Iowa Center for Advanced Neurotoxicology, Ames, Iowa 50011, USA

4:00 PM–6:30 PM **5:30–7:00 PM Soccer Game**
NBTS Council Meeting
St. Pierre

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 Kicinski[1], Mineke Viaene[2], Elly Hond[3], Greet Schoeters[3,4], Adrian Covaci[4], Alin Dirtu[4], Vera Nelen[5], Liesbeth Bruckers[1], Kim Croes[6], Isabelle Sioen[6], Willy Baeyens[6], Nicolas Van Larebeke[7], Tim Nawrot[1,8]. *[1]Hasselt University, Hasselt, Belgium, [2]Sint Dimphna Hospital, Geel, Belgium, [3]Flemish Institute for Technological Research, Environmental Risk and Health, Mol, Belgium, [4]University of Antwerp, Antwerp, Belgium, [5]Provincial Institute for Hygiene, Antwerp, Belgium, [6]Brussels Free University, Brussels, Belgium, [7]University Ghent, Ghent, Belgium, [8]KU 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. Hendriks[1], Regina GDM van Kleef[1], Milou ML Dingemans[1], Mareike Meijer[1], Mirthe Muilwijk[1], Martin van den Berg[1], Geert M Ramakers[2], Lucas A. Koolen[2], Pim E. Leonards[3], Henrik Viberg[4], Iwa Lee[4], Remco HS Westerink.[1]
[1]Utrecht University, Utrecht, The Netherlands, [2]University Medical Center, Utrecht, The Netherlands, [3]VU University, Amsterdam, The Netherlands, [4]Uppsala 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 Graham[1], Heather Durai[2], Jamie Garden[2], Evan Cohen[2], Franklin Echevarria[2], and Gregg Stanwood[1], *[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 Behl[1], Jui-Hua Hsieh[1], Timothy J. Shafer[2], William R. Mundy[2], Julie Rice[1], Windy Boyd[1], Jonathan Freedman[1], E. Sidney Hunter III[2], Kimberly Jarema[2], Stephanie Padilla[2], Raymond Tice[1] *[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 **Deficits in neural responses to manganese exposure in Huntington's Disease models** (**NTX16)**
AM Tidball[1], KK Kumar[1], MR Bryan[1], TJ Bichell[1], K Horning[1], MA Uhouse[1], CR Goodwin[1], J Bornhorst[2], T Schwerdtle[2], MD Neely[1], JA McClean[1], MA Aschner[3] and AB Bowman[1], *[1]Vanderbilt University Medical Center, Nashville, TN, USA, [2]University of Potsdam, Germany and [3]Albert Einstein College of Medicine, New York, NY, 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 Schmallenberg, Germany.*

2:15 PM–2:40 PM **Neurogenetics of toluene in *Drosophila* (NTX32)**
[1]P. Bushnell, [2]T. Morozova, [1]S. Hester, [1]W. Ward, [1]W. Oshiro, [3]M. Lin, [1]J. McKee, [1]M. Higuchi, [1]W. Boyes, [4]R. Judson, [3]K. Tatum-Gibbs, [2]T.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, Ottowa, ON, Canada.*

9:55-10:20 **Hypothesis driven testing and statistical analysis: Auditory startle as a case study (NTX39)**
Kathleen Raffaele[1], E Lau[2], T Vidmar[3], A Li[2]. [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. Moser[1], A Hofstra[2]. [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*

10:45-11:10 **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, [2]Syngenta Canada Inc, Guelph, ON, Canada.

11:00-11:25 **Weight of evidence and benchmark dose analysis: Brain morphometry and startle data case study (NTX41)**
Abby A. Li[1], RH Garman[2], W Kaufmann[3], RN Auer[4], B Bolon[5]. *[1]Exponent Health Sciences, San Francisco, CA, USA, [2]Veterinary Pathology, Murrysville, PA, USA, [3]Merck KGaA Global Pathology & Reproductive Toxicology, Darmstadt, Germany, [4]Hôpital Saint Justine, Montreal, QC, Canada, [5]The 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.*

University School of Medicine, Shanghai, China.

11:10-11:35 **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.*

11:35-12:00 **Reversible and long-lasting alterations of the vestibular calyx synapse during chronic ototoxicity and recovery**
Jordi Llorens[1], Paulina Jedynak[1], Pere Boadas-Vaello[2], Lara Sedó-Cabezón[1]
[1]Departament de Ciències Fisiològiques II, Universitat de Barcelona and [2]Departament de Ciències Mèdiques, Universitat de Girona, Catalunya, Spain

12:00 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 Xu[1], Joseph Braun[2], Kim Cecil[1,3], Aimin Chen[3], Bruce Lanphear[4], Jane Khoury[1,3], Heidi Sucharew[1,3], *[1]Cincinnati Children's Hospital Medical Center, Cincinnati, OH, USA, [2]Brown University, Providence, RI, USA, [3]University of Cincinnati, Cincinnati, OH, USA, [4]Simon 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 Vines[1], John Basgen[3], Mayra Gisel Flores Montoya[1]
[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 McGlothan 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 Barenys[1], Kathrin Gassmann[1], Christine Baksmeier[1], Sabrina Heinz[1], Martin Schmuck[1], Sivaraj Sundaram[1], Maria Teresa Colomina[2], Heike Heuer[1], Ellen Fritsche[1], *[1]IUF - Leibniz Research Institiute 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 Benbrik[1], Vincent Bonneterre[2], Jacques Reis[3] and Peter S Spencer[4]. *[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 Henn[1], Brent A. Coull[2], Robert O. Wright[3] and Manish Arora[3], *[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. Ward[1];, Sandy Snyder[1] , S. Elizabeth Zauber[3], Frank Rosenthal[1], 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-Bonilla[1], C. Escamilla-Nuñez[1], Donna Mergler[3]; A. Schilmann-Halbinger[1], S. Rodríguez-Dozal[1], S. Montes[2] and H. Riojas-Rodríguez[1], *[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 Lacerda[1], Denise Maria Vaz Romano França[1], Tony Leroux[2] , and Adrian Fuente[2], *[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 Larcerda[1], Patricia Arruda de Souza Alcarás[1], Jair Mendes Marques[1], and Tony Leroux[2], *[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 Maurice[1], Jean-Charles Olry[1], Ronan Cariou[2], Philippe Marchand[2], Gaud Dervilly-Pinel[2], Bruno Le Bizec[2], Angélique Travel[3], Catherine Jondreville[1], and Henri Schroeder[1], *[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: Neurodevelopmental toxicity of perinatal exposure to a food matrix contaminated with the six indicator non-dioxin-like polychlorinated biphenyls in a mouse model
J. Peiffer, F. Desor, A. A. Elnar, H. Schroeder, R. Soulimani.
URAFPA/INRA UC340, Neurotoxicology of Food and Bioactivity, Lorraine University, France

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 Sisnaiske[1], Denise Schäfer[1], Vanessa Hausherr[1], Marcel Leist[2], Tzutzuy Ramirez-Hernandez[3], Robert Landsiedel[3], and Christoph van Thriel[1], *[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 Valen[1], Ellie Wekking[1], Moniek van Hout[2], Gert van der Laan[1], Gerard Hageman[3], Frank van Dijk[1], and Mirjam Sprangers[4]. *[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 Valen[1], Moniek van Hout[2], Ellie Wekking[1], Gert van der Laan[1], Gerard Hageman[3], Frank van Dijk[1], Mirjam Sprangers[4], and Ben Schmand[5], *[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
Hiromi 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 Chen[3], Wu-Shiun Hsieh[4], and Pau-Chung Chen[2], *[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 Floria 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 Floria 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 Floria 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 Thriel[3], Thomas Brüning[1], Beate Pesch[1], and Christian Beste[4], *[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: Oxidative stress and cell death induction in cerebral cells of juvenile mice following perinatal exposure to eel matrix contaminated with the ∑6 NDL-PCBs
Arpiné A. ElNar, Nidhal Soualeh, Frédéric Desor, Julie Peiffer, Rachid Soulimani
Université de Lorraine, Neurotoxicologie Alimentaire et Bioactivité, MRCA/UR AFPA/INRA, BP 4102, 57040 Metz, France.

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 Ross[1], Devon Graham[2],and Gregg Stanwood[2]
[1]Vanderbilt University, Chemical and Physical Biology Program, USA, [2]Florida 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 Gilbert[1], Wendy Oshiro[1], Stephanie Spring[1], Michelle Hotchkiss[1], Joe Korte[2], Patricia Kosian[2], and Sigmond Degitz[2]
[1]US EPA, NHEERL, TAD, USA, [2]US 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 Spring[1], TW Bastian[2], Grant Anderson[2], and Mary Gilbert[1]
[1]US EPA, NHEERL, TAD, USA, [2]Univeristy of Minnesota, USA

NTX98: Impact of shift work on attention and female estrous cycling: Initial findings in a rat model
Rekha Balachandran[1], Audrey Robertson[1], Michael Leventhal[1], Stephane Beaudin[2], Megan Mahoney[1], and Paul Eubig[1]
[1]University of Illinois at Urbana-Champaign, USA, [2]University 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-Montoya[1], Juan Alvarez[1], and Christina Sobin[1,2]
[1]University of Texas, USA, [2]The 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. Renaud[1], Megan E. Miller[1], Laura R.G. Pickens[2], and Stephen B. Fountain[1]
[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 Gadad[2], Wenhao Li[2], Stephen Grady[2], Britni Curtis[3], Vernon Yutuc[3], Clayton Ferrier[3], Gene Sackett[3,4], and Dwight German[2]
[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 Rosofsky[1], Patricia Janulewicz[1,2], Christina Chambers[3,4], Junenette Peters[1], Kerri Bertrand[3], Kelly Kao[3], Kenneth Jones[3], and Jane Adams[2]
[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 Bertrand[1], Patricia Janulewicz[2], Christina Chambers[1], Kelly Kao[1], Kenneth Lyons Jones[1], and Jane Adams[3]
[1]University of California San Diego, USA, [2]Boston University, USA, [3]University 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 Chen[1], Mei-Huei Chen[2], Wu-Shiun Hsieh[3,4],and Pau-Chung Chen[1]
[1]Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University College of Public Health, Taiwan, [2]Department of Pediatrics, National Taiwan University Hospital Yun-Lin Branch, Taiwan, [3]Department of Pediatrics, National Taiwan University Hospital and National Taiwan University College of Medicine, Taiwan,[4]National 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 Rao[1], Wu-Shiun Hsieh[2,4], Mei-Huei Chen[3], and Pau-Chung Chen[1]
[1]Institute of Occupational Medicine and Industrial Hygiene, National Taiwan University College of Public Health, Taiwan, [2]Department of Pediatrics, National Taiwan University Hospital, Taiwan, [3]Department of Pediatrics, National Taiwan University Hospital Yun-Lin Branch Secretariat, Taiwan, [4]National 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 Adamo[1], Eric Doucet[2], Peter Fried[3], and Gary Goldfield[1,2]
[1]Children's Hospital of Eastern Ontario, Canada, [2]University of Ottawa, Canada, [3]Carleton 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.

NTX150: Grouping of polychlorinated biphenyls according to inhibition of neural crest cell migration
Johanna Nyffeler, Heidrun Leisner, Christiaan Karreman, Tanja Waldmann, and Marcel Leist
University of Konstanz, Germany

Tuesday, June 30, 2015

NBTS AND INA PROGRAM

8:00 AM–2:00 PM **Registration** *Montreal Ballroom Foyer*

9:00 AM–12:30 PM **TS/NBTS/OTIS/INA Public Affairs Symposium: Microbiomes: An underappreciated organ for teratologists** *Westmount*
Chairpersons: Lori L. Driscoll*, Colorado College, USA* and Carl L. Keen*, University of California, Davis, USA*

9:00 AM–9:05 AM **Introduction**
Lori L. Driscoll, *Colorado College, Colorado Springs, CO, USA.*

9:05 AM–9:45 AM **Measuring the impact of diet and environment on infant metabolism and microbiome (NTX118)**
Carolyn M. Slupsky, *University of California-Davis, Davis, CA, USA.*

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. Rand[1], Sara Montgomery[1], Daria Vorojeikina[1], Wen Huang[2], Trudy F.C. MacKay[2] and Robert R.H. Anholt[2], *[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 Aschner[1], Ebany Martinez-Finley[2], *[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

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**

3:30–4:00 Break

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)*

Jessica Head, *McGill University, Montreal, QC, Canada.*

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.*

4:00–6:00 INA Social event

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 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 Paule[1], Mi Li[1], Xuan Zhang[1], Shuliang Liu[1], Joseph Hanig[2], William Slikker[1], and Cheng Wang[1], *[1]National Center for Toxicological Research US FDA, USA, [2]Center 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 Curtis[2], Vernon Yutuc[2], Clayton Ferrier[2], Nate Marti[4], and Gene Sackett[2,5], *[1]The Johnson Center for Child Health and Development, USA, [2]Washington National Primate Research Center, USA, [3]University of Texas Southwestern, USA, [4]Abacist Analytics, LLC, USA, [5]University 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 Peiffer[1], Marie-Josèphe Decret[2], Hervé Nunge[2], Guido Rychen[1], Frédéric Cosnier[2] and Henri Schroeder[1], *[1]Université de Lorraine, Vandoeuvre-lès-Nancy, France, [2]INRS, 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 Adeniyi[1], Babawale Peter Olatunji[2], Azeez Olakunle Ishola[3],

exposure to VPA: Behavioral and anatomical evidence (NTX140)
Sonya K. Sobrian, Monee Mickens, Natondra Powell, and Eva Polston, *Howard University College of Medicine, USA.*

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*

Duyilemi Chris Ajonijebu[4] and Olalekan Michael Ogundele[1], *[1]College of Medicine and Health Sciences, Afe Babalola University, Ado-Ekiti, Ekiti State, Nigeria, [2]College of Sciences, Afe Babalola University, Ado Ekiti, Nigeria, [3]College of Health Sciences, University of Ilorin, Ilorin, Nigeria, [4]College of Medicine and Health Sciences, Afe Babalola University, Ado Ekiti, Nigeria.*

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*

1:00-1:10 Introduction Christoph van Thriel

1:10-1:30: 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.*

1:30-1:50: Grouping of polychlorinated biphenyls according to inhibition of neural crest cell migration
Johanna Nyffeler, Heidrun Leisner, Christiaan Karreman, Tanja Waldmann, Marcel Leist
Doerenkamp-Zbinden Chair for *in vitro* Toxicology and Biomedicine, University of Konstanz, Germany

1:50 PM–2:10 PM **Early-life exposure to organophosphate flame retardants alters behavior in adult zebrafish: a comparison with organophosphate pesticides** NTX91:
Anthony Oliveri and Edward D. Levin, *Duke University School of Medicine, Durham, NC, USA*

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!***