28th International Neurotoxicology Conference

MANGANESE2016 CONFERENCE
Manganese Health Effects on Neurodevelopment & Neurodegenerative Diseases

DAY 1 - Sunday, September 25, 2016

2:00 PM  Registration Opens
          Annenberg North Lobby

4:00 PM - 7:20 PM  Opening Session
          Stern Auditorium

4:00 PM  Welcome
          Joan M. Cranmer, PhD, ATS, University of Arkansas for Medical Sciences
          Conference Co-Chair
          Roberto Lucchini, MD, Icahn School of Medicine at Mount Sinai
          Conference Chair

4:15 PM  The early history of manganese and the recognition of its neurotoxicity
          Paul Blanc, PhD, MSPH, University of California, San Francisco

4:40 PM  Fifty years of preventive research for manganese, an essential metal
          Harry A. Roels, PhD, MSc, Université catholique de Louvain

5:05 PM  Manganese neurotoxicity from a sex and gender perspective
          Donna Mergler, PhD, Université du Québec à Montréal

5:30 PM  Introduction of documentary film *Le manganisme*
          Chaâq Hicham, MD, Moroccan Society of Neurology

          Introductory paper prepared by:
          Chaâq Hicham, MD, Moroccan Society of Neurology
          Jacques Reis, AEA Physiology, MD, HUS Strasbourg, Environmental Neurology Applied Research Group, WFN
          Peter S. Spencer, PhD, FANA, FRCPath, Oregon Health & Science University
          Paul Chambon, PhD, University of Lyon

5:45 PM - 7:00 PM  Networking Reception
          Annenberg West Lobby

7:00 PM  Documentary Film: *Le manganisme* (circa 1953)
          Film by Jean Rodier, J. Boyer and Richard Chenay. In French with English subtitles (20 minutes)
          Made possible by Centre National du Cinema, Paris
International Neurotoxicology Conference

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DAY 2 - Monday, September 26, 2016

7:45 AM  Breakfast and Poster Set Up
Annenberg West Lobby

8:30 AM - 12:00 PM
Plenary Session A: Health Risk Assessment and Protective Standards
Stern Auditorium

Session Chairs
Christoph van Thriel, PhD, Leibniz Research Centre for Working Environment
William Boyes, PhD, U.S. Environmental Protection Agency

8:30 AM  Introduction of Keynote
Roberto Lucchini, MD, Icahn School of Medicine at Mount Sinai
Keynote Address: Manganese exposure in the workplace – OSHA's perspective
William Perry, CIH, Occupational Safety and Health Administration

9:05 AM  A global portrait of the manganese industry — Facts about Mn production and a socio-economic perspective on the industry
Anne Tremblay, ABD, International Manganese Institute

9:30 AM  A historical overview of the development of manganese (Mn) pharmacokinetic data under Section 211(b) of the Clean Air Act (CAA)
William Boyes, PhD, U.S. Environmental Protection Agency

9:55 AM  A tissue dose-based comparative exposure assessment for manganese: The importance of homeostatic control for an essential metal
Robinan Gentry, PhD, DABT, Ramboll Environ

10:20 AM  Break

10:45 AM  Drinking water and manganese neurotoxicity: What is the data telling us?
Donna Mergler, PhD, Université du Québec à Montréal

11:10 AM  Evolution of exposure criteria and limits for manganese
Franklin E. Mirer, PhD, CIH, CUNY Graduate School of Public Health

11:35 AM  Health-based occupational exposure limits for manganese
Len Levy, PhD, Cranfield University
12:00 PM - 1:45 PM
Networking Poster Session (Lunch provided) Student posters will be judged during this time.

*Guggenheim Atrium* — Posters
*Annenberg West Lobby* — Lunch

2:00 PM - 6:10 PM
Plenary Session B: Health Effects of Community and Workplace Exposures
*Stern Auditorium*

**Session Chairs**
Erin N. Haynes, DrPH, MS, University of Cincinnati
Brad Racette, MD, Washington University in St. Louis

2:00 PM
Introduction of Keynote
Roberto Lucchini, MD, Icahn School of Medicine at Mount Sinai

2:05 PM
Keynote Address: NIOSH manganese research and policy
John Howard, MD, MPH, JD, LLM, National Institute for Occupational Safety and Health

2:35 PM
Assessing low-level manganese exposures and effects in occupational settings
Shannon Berg, MS, National Institute for Occupational Safety and Health
Robert Park, MS, National Institute for Occupational Safety and Health

3:00 PM
Measuring the health effects of manganese smelter emissions: A pilot
Gill Nelson, PhD, University of the Witwatersrand

3:25 PM
Overview of metal work and welding practices and health of UAW worker populations
Andrew Comai, United Auto Workers

3:50 PM
Task performance of welders in neurobehavioral tests assessing basal ganglia functions
Christoph van Thriel, PhD, Leibniz Research Centre for Working Environment

4:15 PM
Break

4:30 PM
Health impacts from early life to old age: Linking neurodevelopment to neurodegeneration
Roberto Lucchini, MD, Icahn School of Medicine at Mount Sinai

4:55 PM
Dose-dependent progression of parkinsonism in manganese-exposed welders
Brad Racette, MD, Washington University in St. Louis

5:20 PM
Validation of self-reported concentration and memory problems with objective neuropsychological performance in manganese-exposed residents
Rosemarie Bowler, PhD, MPH, San Francisco State University

5:45 PM
Impact evaluation of an environmental program on manganese exposure in a mining zone in Mexico
Marlene Cortez Lugo, MSc, National Institute of Public Health, Mexico

6:10 PM
Dinner on your own
28th International Neurotoxicology Conference

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Manganese Health Effects on Neurodevelopment & Neurodegenerative Diseases

DAY 3 - Tuesday, September 27, 2016

7:45 AM  Breakfast
Annenberg West Lobby

8:30 AM - 12:10 PM  Plenary Session C: Children’s Health and Development
Stern Auditorium

Session Chairs
Robert O. Wright, MD, MPH, Icahn School of Medicine at Mount Sinai
Ana Maria Mora, MD, PhD, National University of Costa Rica

8:30 AM  Manganese exposure, neurodevelopment and planned neuroimaging in school-aged children
Erin N. Haynes, DrPH, MS, University of Cincinnati
Kim M. Cecil, PhD, Cincinnati Children’s Hospital Medical Center

8:55 AM  Manganese exposure and neurological function among Italian children
Birgit Claus Henn, SD, MPH, Boston University School of Public Health

9:20 AM  Tooth matrix biomarkers of pre- and postnatal manganese exposure and motor function in adolescents
Yueh-Hsiu Mathilda Chiu, ScD, Icahn School of Medicine at Mount Sinai

9:45 AM  Multiple heavy metal exposure and effects on intellectual function in Ecuadorian children
José Antonio Menezes-Filho, PhD, Federal University of Bahia

10:10 AM  Break

10:30 AM  Elevated airborne manganese and the promotion of Executive Functioning in school-aged children in Brazil
Chrissie Carvalho, MS, Federal University of Bahia

10:55 AM  Associations of childhood manganese, lead, chromium, and copper with neurodevelopment in 10.5-year-old children
Ana Maria Mora, MD, PhD, National University of Costa Rica

11:20 AM  Cord blood manganese and ADHD-related behaviors among 8-year-old children
Susan Korrick, MD, MPH, Brigham and Women’s Hospital and Harvard Medical School

11:45 AM  Prenatal co-exposure to manganese and maternal depression and neurodevelopment in 24-month-old Mexican children
Marcela Tamayo y Ortiz, PhD, National Institute of Public Health, Mexico

12:10 PM - 2:00 PM  Lunch on your own
### 2:00 PM - 5:15 PM

**Plenary Session D: New Aspects of Toxicity in Animal Models and Cellular Functions**

*Stern Auditorium*

#### Session Chairs
Donald Smith, PhD, University of California, Santa Cruz  
Anumantha Kanthasamy, PhD, Iowa State University

#### 2:00 PM
**Selective and focused attention, and fine motor function deficits caused by developmental manganese exposure, and the efficacy of oral methylphenidate for the treatment of those deficits**  
Donald Smith, PhD, University of California, Santa Cruz

#### 2:25 PM
**A developmental neurotoxicity investigation: inhalation exposure to manganese dichloride in Han Wistar rats**  
Doreen McGough, PhD, International Manganese Institute

#### 2:50 PM
**A mechanistic understanding of manganese effects on motor and cognitive function: A central role of the dopaminergic system**  
Tomás R. Guilarte, PhD, Florida International University

#### 3:15 PM
**Break**

#### 3:35 PM
**Pathogenic alterations of manganese neurobiology and neurotoxicity in Huntington's disease**  
Aaron B. Bowman, PhD, Vanderbilt University Medical Center

#### 4:00 PM
**Role of manganese in protein misfolding and aggregation: Relevance to pathogenesis and mechanisms of chronic neurodegenerative diseases**  
Anumantha Kanthasamy, PhD, Iowa State University

#### 4:25 PM
**Mechanisms of alpha-synuclein protein aggregate-induced neuroinflammation in neurotoxicity models**  
Arthi Kanthasamy, PhD, Iowa State University

#### 4:50 PM
**The effect of high dose oral manganese exposure on manganese, copper, iron & zinc levels in rats**  
David Dorman, DVM, PhD, North Carolina State University

#### 5:15 PM
**Break**

### 6:30 PM - 9:00 PM

**Awards Banquet**

*New York Academy of Medicine — 1216 Fifth Avenue*

#### Introduction of Keynote
Robert O. Wright, MD, MPH, Icahn School of Medicine at Mount Sinai

#### Keynote Address: Lead and Public Health: A Cautionary Tale
Annette Kirshner, PhD, Program Administrator, NIEHS-DERT (Retired)

#### Presentation of Pre-Doctoral and Post-Doctoral Student Awards
- **Post-Doctoral Awards:** Joan M. Cranmer, Morris Cranmer, Anumantha Kanthasamy
- **Pre-Doctoral Awards:** Joan M. Cranmer, Morris Cranmer, Rosemarie Bowler

#### 9:10 PM
Bus pick up to return to Hotel Wales and Courtyard Marriott UES
**International Neurotoxicology Conference**

**MANGANESE 2016 CONFERENCE**

Manganese Health Effects on Neurodevelopment & Neurodegenerative Diseases

**DAY 4 - Wednesday, September 28, 2016**

**7:45 AM**  
Breakfast  
*Annenberg West Lobby*

**8:30 AM - 10:10 AM**

**Plenary Session E: Genetic and Mechanistic Influences**  
*Stern Auditorium*

**Session Chairs**  
Tomas R. Guilarte, PhD, Florida International University  
Somshuvra Mukhopadhyay, MBBS, PhD, University of Texas at Austin

**8:30 AM**  
Untangling the manganese alpha-synuclein relationship  
Michael Aschner, PhD, Albert Einstein College of Medicine

**8:55 AM**  
Mechanism of manganese-induced repression of astrocytic glutamate transporters at the transcriptional level  
Eunsook Lee, PhD, Florida A&M University

**9:20 AM**  
Role of the efflux transporter SLC30A10 in regulating manganese homeostasis  
Somshuvra Mukhopadhyay, MBBS, PhD, University of Texas at Austin

**9:45 AM**  
Common SNPs in the transporter SLC38A9 and SLC30A10 genes are strongly associated with blood manganese in children and influence their IQ, motor function and behavior  
Karin Broberg, PhD, Karolinska Institute

**10:10 AM**  
Break

**10:25 AM - 12:35 PM**

**Plenary Session F: Imaging and Biomarkers**  
*Stern Auditorium*

**Session Chairs**  
Gill Nelson, PhD, University of the Witwatersrand  
José Antonio Menezes-Filho, PhD, Federal University of Bahia

**10:25 AM**  
Exposure to manganese in career welders: A longitudinal neuroimaging study  
Ulrike Dydak, PhD, Purdue University

**10:50 AM**  
6-[18F]fluoro-L-DOPA positron emission tomography and T1-weighted magnetic resonance imaging in manganese-exposed workers  
Susan R. Criswell, MD, MSCI, Washington University School of Medicine in St. Louis
### Day 4 - Wednesday, September 28, 2016

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>11:15 AM</td>
<td>[18F] FP-CIT dopamine transporter PET findings in liver cirrhosis patients with parkinsonism</td>
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<td>Yangho Kim, MD, MPH, PhD, Ulsan University Hospital</td>
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<td>11:40 AM</td>
<td>Tooth matrix biomarkers for reconstructing early life manganese exposure</td>
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<td>Manish Arora, MPH, PhD, Icahn School of Medicine at Mount Sinai</td>
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<td>12:10 PM</td>
<td>Determinants of hair manganese concentrations in children from the CHAMACOS study</td>
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<td>Ana Maria Mora, MD, PhD, National University of Costa Rica</td>
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**12:35 PM - 2:00 PM**  
**Lunch on your own**

**2:00 PM - 3:00 PM**  
**Synthesis of Meeting Outcomes, Next Steps, and Research Needs**

_Stern Auditorium_

**Chairs**

- Roberto Lucchini, MD, Icahn School of Medicine at Mount Sinai
- Philip J. Landrigan, MD, MSc, FAAP, Icahn School of Medicine at Mount Sinai

**Plenary Session A: Health Risk Assessment and Protective Standards**

- Christoph van Thriel, PhD, Leibniz Research Centre for Working Environment
- William Boyes, PhD, U.S. Environmental Protection Agency

**Plenary Session B: Health Effects of Community and Workplace Exposures**

- Erin N. Haynes, DrPH, MS, University of Cincinnati
- Brad Racette, MD, Washington University in St. Louis

**Plenary Session C: Children's Health and Development**

- Robert O. Wright, MD, MPH, Icahn School of Medicine at Mount Sinai
- Ana Maria Mora, MD, PhD, National University of Costa Rica

**Plenary Session D: New Aspects of Toxicity in Animal Models and Cellular Functions**

- Donald Smith, PhD, University of California Santa Cruz
- Anumantha Kanthasamy, PhD, Iowa State University

**Plenary Session E: Genetic and Mechanistic Influences**

- Tomas R. Guilarte, PhD, Florida International University
- Somshuvra Mukhopadhyay, MBBS, PhD, University of Texas at Austin

**Plenary Session F: Biomarkers, Models, and Imaging**

- Gill Nelson, PhD, University of the Witwatersrand, South Africa
- José Antonio Menezes-Filho, PhD, Federal University of Bahia

3:00 PM  
Adjournment of Conference

Roberto Lucchini, MD, Icahn School of Medicine at Mount Sinai