

Manganese Health Effects on Neurodevelopment & Neurodegenerative Diseases

MANGANESE2016 Conference
September 25-28, 2016

Next to Final
Version 8/25/16

Day 1- Sunday, Sept 25

2:00 PM		Registration Opens <i>Annenberg North Lobby</i>
4:00 PM	7:20 PM	Opening Session <i>Stern Auditorium</i>
4:00 PM	15 min	Welcome Joan M. Cranmer, PhD, ATS, Department of Pediatrics and of Pharmacology/Toxicology, University of Arkansas for Medical Sciences (<i>Conference Co-Chair</i>) Roberto Lucchini, MD, Division of Occupational and Environmental Medicine, Icahn School of Medicine at Mount Sinai (<i>Conference Chair</i>)
4:15 PM	25 min	The early history of manganese and the recognition of its neurotoxicity Paul Blanc, PhD, MSPH, University of California, San Francisco
4:40 PM	25 min	Fifty years of preventive research for manganese, an essential metal Harry A. Roels, PhD, MSc, Université catholique de Louvain, Brussels, Belgium
5:05 PM	25 min	Manganese neurotoxicity from a sex and gender perspective Donna Mergler, PhD, Université du Québec à Montréal, Canada
5:30 PM	15 min	Introduction of film "Dr. Jean Rodier: Manganese in Morocco" Chafiq Hicham, MD, Moroccan Society of Neurology <i>Introductory paper prepared by:</i> Jacques Reis, AEA Physiology, MD, Service de Neurologie, HUS Strasbourg, France; Environmental Neurology Applied Research Group, WFN Paul Chambon, PhD, University of Lyon, France Peter S. Spencer, PhD, FANA, FRCPath, School of Medicine, Oregon Health & Science University Chafiq Hicham, MD, Moroccan Society of Neurology
5:45 PM	7:00 PM	Networking Reception <i>Annenberg West Lobby</i>

6:45 PM *35 min* **Dr. Jean Rodier's work on manganese in Morocco**
 Documentary Film: Le manganisme. (circa 1953) By Jean Rodier, J.Boyer and Richard Chenay – *made possible by Centre National du Cinema, Paris*

Day 2- Monday, Sept 26

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, Germany
 William Boyes, PhD, U.S. Environmental Protection Agency

Speakers

8:30 AM *5 min* **Introduction of Keynote**

8:35 AM *30 min* **Keynote Address: Manganese exposure in the workplace – OSHA's perspective**
 William Perry, CIH, Occupational Safety and Health Administration

9:05 AM *25 min* **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, France

9:30 AM *25 min* **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 *25 min* **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 *25 min* **Break**

10:45 AM *25 min* **Drinking water and manganese neurotoxicity: what is the data telling us?**
 Donna Mergler, PhD, Université du Québec à Montréal, Canada

11:10 AM *25 min* **Evolution of exposure criteria and limits for manganese**
 Franklin E. Mirer, PhD, CIH, CUNY Graduate School of Public Health

11:35 AM *25 min* **Health-based occupational exposure limits for manganese**
 Len Levy, PhD, Cranfield University, Bedfordshire, United Kingdom

12:00 PM **1:45 PM** **Networking Poster Session (Lunch provided)**
Student Posters will be judged during this time.
Annenberg West Lobby

2:00 PM	6:10 PM	Plenary Session B: Health Effects of Community and Workplace Exposures <i>Stern Auditorium</i>
		Session Chairs Erin N. Haynes, DrPH, MS, University of Cincinnati Brad Racette, MD, Washington University in St. Louis
2:00 PM	<i>5 min</i>	Introduction of Keynote
2:05 PM	<i>30 min</i>	Keynote Address: NIOSH manganese research and policy John Howard, MD, MPH, JD, LLM, National Institute for Occupational Safety and Health
		Speakers
2:35 PM	<i>25 min</i>	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	<i>25 min</i>	Measuring the health effects of manganese smelter emissions: A pilot study Gill Nelson, PhD, School of Public Health, University of the Witwatersrand, Johannesburg, South Africa
3:25 PM	<i>25 min</i>	Overview of metal work and welding practices and health of UAW worker populations Andrew Comai, United Auto Workers
3:50 PM	<i>25 min</i>	Task performance of welders in neurobehavioral tests assessing basal ganglia functions Christoph van Thriel, PhD, Leibniz Research Centre for Working Environment, Germany
4:15 PM	<i>15 min</i>	Break
4:30 PM	<i>25 min</i>	Health impacts from early life to old age: linking neurodevelopment to neurodegeneration Roberto Lucchini, MD, Division of Occupational and Environmental Medicine, Icahn School of Medicine at Mount Sinai
4:55 PM	<i>25 min</i>	Dose-dependent progression of Parkinsonism in manganese-exposed welders Brad Racette, MD, Washington University in St. Louis
5:20 PM	<i>25 min</i>	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	<i>25 min</i>	Impact evaluation of an environmental program on manganese exposure in a mining zone in Mexico Marlene Cortez Lugo, MSc, Instituto Nacional de Salud Pública-Mexico
6:10 PM		Dinner on your own

Day 3- Tuesday, Sept 27

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

8:30 AM **12:35 AM** **Plenary Session C: Children's Health and Development**
Stern Auditorium

Session Chair
Robert O. Wright, MD, MPH, Icahn School of Medicine at Mount Sinai
Ana Maria Mora, MD, PhD, Universidad Nacional, Costa Rica

8:30 AM *25 min* **Speakers**
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 *25 min* **Manganese exposure and neurological function among Italian children**
Birgit Claus Henn, SD, MPH, Environmental Health, Boston University School of Public Health

9:20 AM *25 min* **Tooth matrix biomarkers of pre- and postnatal manganese exposure and motor function in adolescents**
Yueh-Hsiu Mathilda Chiu, ScD, Departments of Preventive Medicine and Pediatrics, Icahn School of Medicine at Mount Sinai

9:45 AM *25 min* **Multiple heavy metal exposure and effects on intellectual function in Ecuadorian children**
José Antonio Menezes Filho, PhD, Universidade Federal da Bahia, Brazil

10:10 AM *20 min* **Break**

10:30 AM *25 min* **Elevated airborne manganese and the promotion of Executive Functioning in school-aged children in Brazil**
Chrissie Carvalho, MS, Post-graduation Program -Institute of Psychology, Federal University of Bahia, Salvador, Bahia, Brazil

10:55 AM *25 min* **Associations of childhood manganese, lead, chromium, and copper with neurodevelopment in 10.5-year-old children**
Ana Maria Mora, MD, PhD, Universidad Nacional, Costa Rica

11:20 AM *25 min* **Cord blood manganese and ADHD-related behaviors among 8-year old children**
Susan Korrick, MD, MPH, Channing Division of Network Medicine, Brigham and Women's Hospital and Harvard Medical School

11:45 AM *25 min* **Effects of manganese exposure on memory and verbal learning in schoolchildren after an environmental intervention plan**
Horacio Riojas-Rodriguez, PhD, National Institute of Public Health, Mexico

12:10 AM *25 min* **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

12:35 AM 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 Chair

Donald Smith, PhD, University of California Santa Cruz

Anumantha Kanthasamy, PhD, Department of Biomedical Sciences, Iowa State University

2:00 PM 25 min
Speakers
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 25 min
A developmental neurotoxicity investigation: inhalation exposure to manganese dichloride in Han Wistar rats
Doreen McGough, PhD, International Manganese Institute

2:50 PM 25 min
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 20 min Break

3:35 PM 25 min
Pathogenic alterations of manganese neurobiology and neurotoxicity in Huntington's disease
Aaron B. Bowman, PhD, Department of Pediatrics, Vanderbilt University Medical Center

4:00 PM 25 min
Role of manganese in protein misfolding and aggregation: Relevance to pathogenesis and mechanisms of chronic neurodegenerative diseases
Anumantha Kanthasamy, PhD, Department of Biomedical Sciences, Iowa State University

4:25 PM 25 min
Mechanisms of alpha-synuclein protein aggregate-induced neuroinflammation in neurotoxicity models
Arthi Kanthasamy, PhD, Department of Biomedical Sciences, Iowa State University

4:50 PM 25 min
The effect of high dose oral manganese exposure on manganese, copper, iron, and zinc levels in rats
David Dorman, DVM, PhD, NC State, College of Veterinary Medicine

5:15 PM Break

6:30 PM 9 PM Awards Banquet
New York Academy of Medicine
Chairs
Joan M. Cranmer, PhD, ATS, Department of Pediatrics and of Pharmacology/Toxicology

University of Arkansas for Medical Sciences
Michael Aschner, PhD, Albert Einstein College of Medicine
Lucio G. Costa, PharmD, University of Washington

Keynote Address: Neurotoxicology and NIEHS - A 30-Year retrospective
Annette Kirshner, PhD, NIEHS-NIH

Presentation of Pre-Doctoral and Post-Doctoral Student Awards
Joan and Morris Cranmer and Chairs of Judging Committees

Day 4- Wednesday, Sept 28

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, Division of Pharmacology, University of Texas at Austin

Speakers

8:30 AM *25 min* **Untangling the manganese alpha-synuclein relationship**
Michael Aschner, PhD, Albert Einstein College of Medicine

8:55 AM *25 min* **Mechanism of manganese-induced repression of astrocytic glutamate transporters at the transcriptional level**
Eunsook Lee, PhD, Department of Physiology, Meharry Medical College

9:20 AM *25 min* **Role of the efflux transporter SLC30A10 in regulating manganese homeostasis**
Somshuvra Mukhopadhyay, MBBS, PhD, Division of Pharmacology, University of Texas at Austin

9:45 AM *25 min* **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, Sweden

10:10 AM *15 min* **Break**

10:25 AM **12:35 PM** **Plenary Session F: Imaging and Biomarkers**

Stern Auditorium

Session Chairs

Gill Nelson, PhD, University of Witwatersrand, South Africa

José Antonio Menezes Filho, PhD, Universidade Federal da Bahia, Brazil

Speakers

10:25 AM	<i>25 min</i>	Exposure to manganese in career welders: A longitudinal neuroimaging study Ulrike Dydak, PhD, School of Health Sciences, Purdue University
10:50 AM	<i>25 min</i>	6-[18F]fluoro-L-DOPA positron emission tomography and T1-weighted magnetic resonance imaging in manganese-exposed workers Susan R. Criswell, MD, MSCI, Department of Neurology, Washington University School of Medicine in St. Louis
11:15 AM	<i>25 min</i>	[18F] FP-CIT dopamine transporter PET findings in liver cirrhosis patients with Parkinsonism Yangho Kim, MD, MPH, PhD, Ulsan University Hospital, South Korea
11:40 AM	<i>25 min</i>	Tooth matrix biomarkers for reconstructing early life manganese exposure Manish Arora, MPH, PhD, Departments of Preventive Medicine and Pediatrics, Icahn School of Medicine at Mount Sinai
12:10	<i>25 min</i>	Determinants of hair manganese concentrations in children from the CHAMACOS study Ana Maria Mora, MD, PhD, Universidad Nacional, Costa Rica
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 <i>Chairs from each plenary will synthesize session talks, identify critical gaps in knowledge, and suggest how to advance the field.</i> Chairs Joan M. Cranmer, PhD, ATS, Department of Pediatrics and of Pharmacology/Toxicology, University of Arkansas for Medical Sciences Philip Landrigan, MD, 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, Germany 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, Universidad Nacional, 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, Department of Biomedical Sciences, Iowa State University Plenary Session E: Genetic and Mechanistic Influences Tomas R. Guilarte, PhD, Florida International University Somshuvra Mukhopadhyay, MBBS, PhD, Division of Pharmacology, University of Texas, Austin Plenary Session F: Biomarkers, Models, and Imaging Gill Nelson, PhD, University of Witwatersrand, South Africa José Antonio Menezes Filho, PhD, Universidade Federal da Bahia, Brazil
3:00 PM		Adjournment of Conference

Roberto Lucchini, MD, Division of Occupational and Environmental Medicine
Icahn School of Medicine at Mount Sinai (*Conference Chair*)