



**CITTÀ DI CARPI**



DA VENIAM SCRIPTIS QUORUM NON GLORIA NOBIS  
CAUSA, SED UTILITAS OFFICIUMQUE FUIT

## **RAMAZZINI DAYS 2008**

***“New Chemicals, Nanotechnology and Health Protection:  
Confronting the Challenges of the 21st Century”***

**24-26 OCTOBER 2008  
CARPI, ITALY**

**SCHEDULE OF EVENTS  
SCIENTIFIC PROGRAM  
ABSTRACTS BY SESSION**

**RAMAZZINI DAYS 2008**  
**SCIENTIFIC PROGRAM**

**SATURDAY, 25 OCTOBER 2008**

9:00-12:15 Council of Fellows Statutory Session  
(Fellows and Emeritus members of the Collegium Ramazzini only)  
*Town Hall of Carpi*

9:30 Guided tour of the municipal museum for spouses/guests  
*Meet in the courtyard, Palazzo dei Pio*

12:30-13:45 Participant lunch  
*Sala dei Cervi, Palazzo dei Pio*

**Session I: Chemical Toxicity Assessment/Beyond REACH**

*Sala delle Vedute, Palazzo dei Pio*

*Piano interlude by M. Alessandra Fogliani*

14:00-14:20 The use of MMT in gasoline  
**Mr. Michael Walsh, USA**

14:20-14:40 Transplacental and developmental genotoxicology: complex dynamics  
of carcinogenesis  
**Dr. Aleksandra Fucic, Croatia**

14:40-15:00 The IARC Monographs: some recent evaluations of occupational carcinogens  
**Dr. Kurt Straif, France**

**Session II: Work of the Fellows Platform Presentations**

*Sala delle Vedute, Palazzo dei Pio*

15:00-15:15 Estimating the prevalence of clinical manganism from a cascaded screening process in  
a South African ferromanganese smelter  
**Prof. Jonathan Myers, South Africa**

15:15-15:30 Breast cancer and hormonal intake among Egyptian females  
**Dr. Wagida Anwar, Egypt**

15:30-15:45 Manganese as a paradigm of lifetime exposure inducing late-onset neurodegenerative  
effects  
**Dr. Roberto Lucchini, Italy**

**Work of the Fellows Attended Poster Session (Group 1), coffee and refreshments served**

*Foyer Sala delle Vedute, Palazzo dei Pio*

15:45-16:15 Employability and HIV infection: can the military claim to be an exception?  
**Leslie London, South Africa**

Industrial food animal production: food safety, socioeconomic, and environmental  
health concerns  
**Ellen Silbergeld, USA**

**RAMAZZINI DAYS 2008**  
**ABSTRACTS BY SESSION**

**Manganese as a paradigm of lifetime exposure inducing late-onset neurodegenerative effects**

Roberto Lucchini, Elisa Albini

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Manganese is an essential element for humans and animals. Homeostatic mechanisms regulate the absorption and excretion rates in order to keep manganese concentration within a strict range. Occupational exposure to air concentration higher than 1 mg/m<sup>3</sup> can determine the clinical picture of manganism, an atypical parkinsonism with psychiatric features. Long-term exposure to much lower doses of the same metal can determine an overload in the central nervous system, given the slow elimination rate from this organ based on passive diffusion mechanism. In cases of overload, manganese accumulates in the globus pallidus of the basal ganglia where it causes cellular damage on the GABAergic and dopaminergic pathways. As a consequence, motor function and coordination of fine movements are affected, and mood regulation as well with marked aggressivity. After prolonged and lifetime exposure manganese may act as an environmental trigger and favour the onset of Parkinsonian disturbances. This can be determined by a damage of the dopaminergic neurons of the substantia nigra - pars compacta, which is located very closely to the globus pallidus and shares various interconnections within the basal ganglia.

Recent studies have shown increased prevalence of parkinsonism due to industrial emissions of Mn and the use of methylcyclopentadienyl manganese tricarbonyl (MMT) as fuel additive.

In our experience, the prevalence of parkinsonian disturbances increased in the vicinities of ferroalloy industries as a function of manganese concentration in settled dust. The analysis of the exposed patients showed an impairment of cognitive functions, and disturbances in copper and zinc metabolism, mediated by impairment of liver functions compared to non exposed patients. Since manganese is excreted almost totally through the biliaric pathways, subjects with liver impairment may be more at risk for developing parkinsonian disturbances related to manganese overload.

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**SESSION III: NANOTECHNOLOGY**

**The anticipated spectrum of human disease from exposure to novel nanoparticles**

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Nanoparticles can be defined as discrete objects with one of more dimensions < 100nm. The spectrum of disease that may be caused by engineered nanoparticles is likely to be determined by their size, shape, surface texture, composition and bio-persistence. We have always been exposed to inorganic nano-particles, mainly consisting of marine aerosol, minute crystals of soluble salts windblown from waves in the sea. However, there were relatively few other inorganic nano-particles of less than 100 nm in the air throughout our prehistory. The main biological nanoparticles were viruses and some other biological particles. That changed when man harnessed fire about 150,000 years ago and combustion nanoparticles became a common part of man's environment. Our