



# Metallomics Technology Conference 2015

## Recent Advances and Strategies



Date: 14<sup>th</sup> - 18<sup>th</sup> June 2015  
Laboratory of Metallomics and Nanotechnology, Mendel University in Brno

Brno 2015

## Sunday 14/6/2015

15.00 - 18.00 Registration of participants  
Olga Kryštofová





## Monday 15/5/2015

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**Where: Department of Chemistry and Biochemistry, Mendel University in Brno ( Zemědělská 1, bulding D )**

**8.00 - 10.00** Registration of participants and Welcoming Coffee  
*Olga Kryštofová*

**10.00 – 10.30** **Opening**  
*Prof. RNDr. Ladislav Havel, CSc. - Rector of Mendel University in Brno*

### Invited lectures

**10.20 – 11.00** Zinc signals and the control of immune cell functions  
*Hajo Haase, Aachen University, Germany*

**11.00 – 11.20** Metallothionein and neuroinflammation  
*Juan Hidalgo, Autonomous University of Barcelona, Spain*

**12.00 – 13.00** Lunch

### Plenary lectures

## **Metallothionein- latest advances**

**13.00 – 13.20** Metallothionein in cancer development  
*Michal Masarik, CEITEC, Czech Republic*

**13.20 – 13.40** Pathways in Zinc resistance  
*Monika Holubova, CEITEC, Czech Republic*

- 13.40 – 14.00** Metallothionein – Immunohistochemical cancer biomarker:  
a meta-analysis  
*Jaromír Gumulec, CEITEC, Czech Republic*
- 14.00 - 14.15** Electrochemistry of metallothioneins  
*Vojtech Adam, LMaN, Czech Republic*
- 14.30 – 14.40** Metallothionein and oxidative stress  
*Branislav Ruttkay-Nedecky LMaN, Czech Republic*
- 14.35 – 15.00** Coffee Break
- 15.00 – 15.30** Merck presentation
- 15.30 - 17.00**  
LABORATORY OF METALLOMICS AND  
NANOTECHNOLOGIES – LABTOUR  
Ondřej Zítka, LMaN, Czech Republic
- 18.00** GUIDED BRNO TOUR  
Vlastimil Sochor, LMaN, Czech Republic



**Tuesday 16/6/2015**

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**Presentations of partners**

**Where: Department of Chemistry and Biochemistry, Mendel University in Brno ( Zemědělská 1, bulding D )**

- 9.00 – 9.30**      Opening remarks  
*Vojtěch Adam, LMaN, Czech Republic*
- 9.30 – 10.30**    Immunodetection of metallothionein  
*Gabriella Emri, University of Debrecen, Hungary*
- 10.30 – 11.30**    Cappillary electrophoresis of metallothionein  
*Marta Kepinska, Wroclaw Medical University, Poland*
- 11.30 – 13.30**    Coffee Break
- 13.30 – 14.30**    Modern electrochemical method for metallothionein analysis  
*Ján Labuda, Slovak Technology University, Slovakia*
- 14.30 – 15.00**    Coffee Break
- 15.00 – 16.30**    Stand up Posters Presentation  
*Ondřej Zítka, LMaN, Czech Republic*
- 16.30 – 18.00**    Laboratory tours

## Wednesday 17/6/2015

### Zinc resistant prostate cancer cell lines and methods for their analysis

Where: Faculty of Medicine MU, Department of pathological physiology  
(Kamenice 5, bldg. A18)

- 9.00 – 9.30** Opening remarks  
*Michal Masarik, CEITEC, Czech Republic*
- 9.30 – 10.45** Laboratory tour I - Zinc resistant prostate cancer cell lines cell (derived from wt PC3 and wt 22Rv1); manipulation with cells; cytotoxicity tests (MTT, xCELLigence); scratch assays  
*Monika Holubova, Marketa Sztalmachova, Michal Masarik, CEITEC, Czech Republic*
- 10.45 – 12.00** Laboratory tour II – Determination of apoptosis and autophagy of zinc resistant prostate cancer cell line by flow cytometry and multimodal holographic microscopy.  
*Jan Balvan, Jaromir Gumulec, Michal Masarik, CEITEC, Czech Republic*
- 12.00 – 13.00** LUNCH (Campus River - [www.campusriver.cz/](http://www.campusriver.cz/))
- 13.00 – 14.15** Laboratory tour III – Expression analysis of selected genes involved in zinc resistance – qRT-PCR  
*Kristyna Hudcova, Jan Balvan, Michal Masarik, CEITEC, Czech Republic*

**14.15 – 15.30** Laboratory tour IV – Induction of tumors in immunodeficient (nu/nu) mice. Manipulation with animals, application of anesthesia (i.p.), application of tumor cells (i.v. and s.c.)  
*Marketa Sztalmachova, Monika Holubova, Michal Masarik, CEITEC, Czech Republic*

**15.30 – 16.00 Discussion and concluding remarks**

## Thursday 18/6/2015

### Round table: Research and future of metallomics

Where: Department of Chemistry and Biochemistry, Mendel University in Brno ( Zemědělská 1, bulding D )

**9.00 – 12.00** Round table: Research and future of metallomics  
*Vojtěch Adam, René Kizek, LMaN, Czech Republic*

**12.00 – 13.30** Coffee break

**13.30 – 14.30** Conclusion and summary  
*Vojtěch Adam, René Kizek, LMaN, Czech Republic*

**14.30 – 15.00** End of Metallomics technology conference 2015  
*Vojtěch Adam, René Kizek, LMaN, Czech Republic*





## **Poster section**

- 1) The composites of graphene oxide with metal or semimetal nanoparticles and their effect on pathogenic microorganisms – Dagmar Chudobová
- 2) Electrochemical detection of Cr(III) using activated glassy carbon electrode - Hoai Viet Nguyen
- 3) Magnetic beads based isolation and electrochemical detection of specific influenza sequence labelled by metal QDs - Ludmila Krejčová
- 4) Influence of oxidation stage and exfoliation extent of carbon-based materials on electrochemical detection of As(III) - Monika Kremplová
- 5) Study of the interaction of graphene oxide with selenite anion using DPV - Monika Kremplová
- 6) Study of the interaction of graphene oxide with chromate anion using AAS – Renata Kenšová
- 7) Biological activity and molecular structures of bis(benzimidazoles) and trithiocyanurate complexes - Pavel Kopel
- 8) Automatic electrochemical determination of soils contaminated with heavy metal ions (Cd(II) and Pb(II)) – Lukáš Nejdl
- 9) UV tuning of cadmium telluride quantum dots (CdTe) – assessed by spectroscopy and electrochemistry – Lukáš Nejdl
- 10) Quantum dots-fluorescence resonance energy transfer-based nanosensors and their application – Markéta Vaculovičová

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