



INVITATION TO LECTURE

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21st Century Chemical Risk Assessment – Toxicogenomics and the Adverse Outcome Pathway Concept

Date: 17. April 2018, 9:00 h

Venue: lecture room RCX1 (A29/252), 2nd floor, RECETOX, Kamenice 5, Brno

Syllabus of lecture:

Legislation in North America and Europe, such as the REACH program, mandates the assessment of risks of chemicals to the environment and human health. Current testing strategies within these legislations rely on extensive animal testing, and on extrapolation from laboratory model species to native species of relevance in local ecosystems or humans. In addition to the huge costs and large numbers of animals needed, it becomes apparent that these approaches are often not adequately predictive, and thus, protective of organisms of interest. To address these shortcomings, there have been increasing efforts to use mechanistic data in support of chemical risk assessments as it can be generated more rapidly and cost-effectively. One approach that has been proposed in this context is that of the adverse outcome pathway (AOP). AOPs organize toxicological knowledge and describe the causal linkages between a molecular initiating event (the first interaction of a chemical with a biological macromolecule such as an enzyme or a receptor) and subsequent measurable responses across biological levels of organization that occur as a result of this interaction, which culminate in an adverse outcome of regulatory significance. Over the past decade the AOP framework has matured significantly and has increasingly been recognized by the scientific and regulatory communities as a powerful approach for organizing toxicological information into a format applicable for chemical risk assessment in both a human health and environmental context.

About the lecturer:

Markus Hecker is a Professor and Canada Research Chair in Predictive Aquatic Toxicology, with 21 years of experience in conducting research in ecotoxicology. He is considered a global expert in ecotoxicogenomics, hazard characterization of contaminants in native fishes and amphibians, and development of alternatives to live animal testing. Dr. Hecker served as an expert to the US-EPA EDSP and the OECD Validation & Management Group for Non Animal Testing, and is a member of the College of the Royal Society of Canada. He is a visiting/guest professor at the Peking Union Medical College and Xiamen University, China, and serves as an editor for Environmental Science and Pollution Research and Environmental Science Europe. Markus has authored or co-authored over 160 peer-reviewed papers, review articles, editorials and book chapters, and currently serves on the board of directors of the Society of Toxicology and Chemistry (North America).