



**RESEARCH CENTRE  
FOR TOXIC COMPOUNDS  
IN THE ENVIRONMENT (RECETOX)**

**Masaryk University  
Faculty of Science**  
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The Research Centre for Toxic Compounds in the Environment (**RECETOX**) of Masaryk University in Brno, Czech Republic offers interesting career development opportunities in the excellent research facilities and inspiring international environment.

Currently, RECETOX seeks highly motivated and creative researchers to fill

## **6 postdoctoral positions** related to the Human Biomonitoring and Exposome research

- **Biomonitoring and suspect screening of emerging chemicals in human matrices**
- **Pharmacokinetic modeling of organic contaminants in the human body**
- **Linking exposures and health by Adverse Outcome Pathways**
- **Assessment the potential links between exposure and effect biomarkers – DNA damage *in vivo***
- **Omics and biomedical imaging for precision medicine**
- **Development of tools for integrative analysis of omics data in exposome studies**

Earliest start date: April 1st, 2017. Applications are accepted until the positions are filled. Masaryk University is an equal opportunity employer. Women are encouraged to apply to increase their share in science. Physically handicapped persons will be favoured if they are equally qualified. The initial appointment will be made for two years and can be extended to an overall duration of five years. Candidates should hold a doctoral degree in the area related to corresponding research topic. Please send your applications including a CV, motivation letter, two contacts for reference, and a copy of diploma to Veronika Jállová: [jalova@recetox.muni.cz](mailto:jalova@recetox.muni.cz).

### **1. Biomonitoring and suspect screening of emerging chemicals in human matrices**

The goal of this project is to provide new data on human exposure of European population to toxic mixtures of chemicals. Samples (blood, urine, and as well as alternative matrices) from the regional population studies (birth cohorts, aging cohorts, cohorts focused on risks and development of cardiometabolic and neurodegenerative diseases) will be assessed. Targeted analytical methods will be combined with suspect screening and non-target approaches to characterize the complex risks. Data will be further used for pharmacokinetic modeling, assessment of risks and linking exposures to health. Further information: Prof. Jana Klánová, phone: +420-54949-5149, e-mail: [klanova@recetox.muni.cz](mailto:klanova@recetox.muni.cz)

### **2. Pharmacokinetic modeling of organic contaminants in the human body**

The project aims to identify and characterize in a comprehensive manner the various types of chemicals that contribute to the exposure of different population groups to anthropogenic chemicals. Experience and skills required for this project include: mass-balance contaminant fate modeling in the environment and/or pharmacokinetic modeling including model development, understanding of physicochemical properties of organic chemicals and how they determine chemical fate, chemical kinetics, model sensitivity and uncertainty analysis and thinking in scenarios, skills in quantitative data analysis and fitting of models to data. Candidates should hold a doctoral degree in the area of natural sciences, preferentially environmental chemistry or toxicology, ecotoxicology or related fields. Further information: Prof. Martin Scheringer, phone: +420-54949-6698 and +41-44-632-3062, e-mail: [scheringer@recetox.muni.cz](mailto:scheringer@recetox.muni.cz)

### 3. Linking exposures and health by Adverse Outcome Pathways

This project will fill in the existing gaps and contribute to the development of Adverse Outcome Pathways (AOPs), i.e. will aim to establish causal links between exposures of humans to organic contaminants (such as emerging priority compounds, flame retardants) with the mechanistic information on their toxicity mechanisms, biomarkers of effect, and ultimately impacts on human health. The project will include both experimental research (mechanistic, MoA, in vitro toxicology and investigations of biomarkers of effects) as well as theoretical synthetic work (development of AOPs by integrating existing information from human cohort studies, literature and databases). Further information: Prof. Ludek Blaha, phone: +420-54949-3194, e-mail: [blaha@recetox.muni.cz](mailto:blaha@recetox.muni.cz)

### 4. Assessment the potential links between exposure and effect biomarkers – DNA damage *in vivo*

The internal exposure determined by human biomonitoring is an excellent basis for assessing links between exposure and biomarkers of effects. The main aim of this project is to investigate DNA damage (DNA methylation, DNA repair) biomarkers in vivo in human peripheral blood and buccal cells using fully automatic high throughput system. These biomarker levels will be assessed in the light of external exposure to different environmental and lifestyle factors in human population. Further information: Assoc. Prof. Pavel Čupr, phone: +420-54949-3511, e-mail: [cupr@recetox.muni.cz](mailto:cupr@recetox.muni.cz)

### 5. Omics and biomedical imaging for precision medicine

The possibility of combining imaging modalities with gene and protein-level data opens new avenues for the development of novel biomarkers or for the identification of image-based surrogate biomarkers for gene/protein signatures. The current methods in computational pathology are, however, still under-developed for fully exploring this domain. We are looking for a strong postdoctoral candidate with proven research record in biomedical imaging – preferably pathology image analysis – to develop new approaches to computational pathology. The position involves close collaboration with both bioinformaticians and pathologists. Further information: Dr. Vlad Popovici, phone: +420-54949-6848, email: [Popovici@iba.muni.cz](mailto:Popovici@iba.muni.cz)

### 6. Development of tools for integrative analysis of omics data in exposome studies

The candidate will develop methods and SW tools for integrative mining of genomics, transcriptomics, proteomics, metabolomics, microbiome and exposomics data in correlation with health outcomes, in close interdisciplinary cooperation with all the teams of the centre. We search for candidate with proven research record in applied analysis of -omics data from different platforms (including NGS) in medicine or biology and method development in bioinformatics. The candidate should have applied knowledge of statistics, and strong programming skills in R and Python (or Perl, C++, etc.). Further information: Dr. Eva Budinska, phone: +420-54949-3993, email: [budinska@recetox.muni.cz](mailto:budinska@recetox.muni.cz)

- **New academic positions (assistant, associate or full professor) and**
- **Ph.D. student positions**

will be also opened in 2017 in environmental chemistry, toxicology, and bioinformatics. More information on academic opportunities can be obtained upon request from Prof. Jana Klánová, phone: +420-54949-5149 e-mail: [klanova@recetox.muni.cz](mailto:klanova@recetox.muni.cz). Ph.D. positions will be linked to all topics described above.