

Partnership for the Assessment of Risks from Chemicals

Training Course

Chemical Exposure & Modeling

Course Details



Partnership
FOR THE
Assessment
OF
Risks
FROM
Chemicals



Co-funded by
the European Union

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Chemical Exposure & Modeling

Summary	<p>Exposure assessment is a key component of the risk assessment process, and integrated exposure models rely on environmental data and exposure factors to produce relevant exposure assessments. Understanding the availability and uncertainties in these data is crucial to allow correct selection of inputs and prioritization of exposure pathways within an exposure modeling framework. Implementation of current exposure models requires a breadth of knowledge across diverse pathways, chemicals, and matrices, covering dietary exposure, exposures from consumer products, and environmental levels in indoor and outdoor environments. In recent years, Physiologically Based Kinetic (PBK, also pharmacokinetic PBPK or toxicokinetic PBTK) models have been used in the context of risk assessment to determine biomonitoring equivalents (BE) relevant as regulatory threshold values linked with HBM data. Modelling results can be used to refine the safety levels, either as exposure concentration or tissue concentration under which no adverse effect is expected according to state-of-the art knowledge. PBK models can also compare population subgroups, characterize inter-individual variability, perform extrapolations, and support read-across between similar substances by comparing their concentration kinetic profiles. An integral part of PBK models is their validation and evaluation of uncertainty propagation throughout the modelling process, considering the inaccuracy of input data, model parameters and model structure, necessary for achieving relevant results with a known degree of certainty.</p>
Tentative Contents	<p>The first part of the training will focus on identifying input data necessary for exposure assessments, including food, indoor and outdoor environments and consumer products. A critical overview will be given to exposure factors and how environmental data can be interpreted and spatially evaluated in the context of exposure assessment. The second part of the training program focuses on learning about the modelling processes, identifying the input data required for model parameterisation and using PBPK models for selected substances to reconstruct or estimate the amount of a chemical to which a person has been exposed (i.e. the exposure dose).</p>
Learning outcomes	<p>Upon completion of the course, the participant should be able to:</p> <ul style="list-style-type: none"> - identify sources of exposure data relevant for exposure modelling - understand spatial data and be able to process and display such data - critically assess exposure factors and model input data - perform basic exposure assessment for example compounds - describe the basic concepts and principles of PBPK models - use models for estimation of internal levels of chemicals - critically assess model uncertainties
Target audience	Researchers and students
Duration	3 days
Difficulty level	Beginner
Pre-requisites /Requirements	Basic knowledge on data use Have a personal computer
Selection process	Selection based on written request which will include participant's background, working experience and motivation. Priority will be on PARC partners.
Maximum number of participants	20
Scientific coordinator & contacts	Masaryk University RECETOX, CZ Petra Růžičková (petra.ruzickova@recetox.muni.cz) Klára Komprdová (klara.komprdova@recetox.muni.cz)
Dates and location	10-12 June 2024 Brno, Czech Republic, Masaryk University, RECETOX

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