**Application of Physiologically Based Pharmacokinetic (PBPK) Models Within a Regulatory Context**

PBPK models have been well defined for a very long time. These models are of interest since they include physiological descriptions within body compartments of interest. Despite them being well established, their application within a risk assessment environment is rather recent. This particular interest stems from the fact that the vast majority of the toxicological research is performed in rodents (rats in particular), while the species of concern is the human population. PBPK models have been included in the set of tools used in extrapolation across species, as well as extrapolation across different routes of exposure. This talk will highlight two different examples of environmental contaminants with their associated PBPK models. The level of complexity for each case is very different. For trichloroethylene, the model becomes complex in terms of describing the many potential metabolites that could be involved in an adverse health outcome. For such a case, you could consider the final model describing a mixture of different chemicals stemming from the parent exposure. For dymethylarsenic acid (DMA), the complexity resides within the model for the parent chemical itself. In this case, collected data in mice and rats suggested that diffusion through a capillary membrane was necessary in order to describe the data adequately. Both cases represent adequate descriptions of transport and disposition for each chemical.