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Summary of the ECETOC workshop from IVIVE to PODS – translating research methods to application

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'Omic technologies have been in use by the scientific community for a quarter of a century and over that time have matured, particularly for use in research or investigative toxicology. Initial applications in the Toxicological space for the 3Rs and pathological refinement has been achieved at the research level. Translation to application in routine regulatory hazard assessment has been though more challenging. There are several reasons for this with the pre-eminent being technical and data complexity, transformation, reporting and interpretation. Technical issues have been largely addressed and data transformation and reporting are addressed with reporting frameworks from the OECD which ECETOC instigated with workshops in 2015 and 2016 and subsequent adoption by the EAGMST committee of OECD. Issues with interpretation are still to be adequately addressed for regulatory purposes. For this reason this aspect has been recently adopted onto the ECETOC work plan and in due course will be taken to OECD. In this workshop will examine dose setting using QIVIVE, a critical issue in ensuring that conclusions from complex data are meaningful and not just a reflection of cellular stress resulting from exceedance of the Maximum Tolerated Dose. Then in two omics session will examine meaningful methods to extract Benchmark Dose or point of departure data (POD) from both metabolomics and transcriptomics to inform on hazard and derive Health Based Guidance Values. These presentations will provide insight into the progress now being made in the translation of these research methods from the bench to routine application in toxicological hazard assessment for regulatory purposes and provide a useful summary of the current state of the art and future direction.

Keywords:
Transcriptomics, Metabolomics, POD, IVIE.