Session 4 speaker:

Opportunities and challenges of using New Approach Methodologies for identification of endocrine disrupting chemicals

Marta Axelstad, Senior Researcher, Technical University of Denmark, Denmark

Marta Axelstad is a senior researcher with more than 20 years of experience in the field of reproductive toxicology and endocrine disruption. She has expert knowledge on thyroid hormone disruption, beginning with her PhD work form 2011 and continuing in several subsequent projects in this area, including work as PI on projects funded by the Danish EPA and by the DG Environment and as work package lead in the H2020 project ATHENA. Marta has extensive experience with design, execution, evaluation and management of large developmental toxicity studies in rodents, aimed at investigating the effects of endocrine disrupting chemicals on reproductive health and brain development. She is also very experienced in toxicological consultancy for both Danish and international regulatory agencies, performing hazard- and risk assessments of reproductive toxicants and endocrine disrupting chemicals.

Short abstract

The identification of endocrine disrupting chemicals (EDCs) is important for chemical regulation within the EU. Traditionally, test methods for identifying EDCs have relied almost entirely on animal testing, but in recent years new approach methodologies (NAMs) have emerged as promising alternatives. While NAMs offer several advantages over traditional methods, there are also significant challenges to their use for EDC identification. The endocrine system is highly complex, with many different pathways and mechanisms by which EDCs can interfere with endocrine function. Combined with critical windows of development, it is likely that currently available NAMs do not yet capture the full complexity of these pathways. Likewise, metabolism and other ADME characteristics need to be considered when trying to predict adverse outcomes based solely on NAMs. Many NAMs are still in the early stages of development, which means that best practices for their use have not yet been finalized, potentially leading to large variability in results across laboratories. In time this will be resolved, but when more NAMs become included in the REACH standard information requirements, and into OECD test guidelines, it is possible that new challenges may arise, as recently shown with in vivo testing. While NAMs offer great promise for identifying EDCs, there are still significant challenges that must be addressed before they realize their full potential. Addressing these challenges will be critical for improving our ability to identify and manage the risks associated with EDCs.