Strategic approaches to adverse outcome pathway development

Teresa Lettieri[1], Daniel L. Villeneuve[2]*

[1]European Commission – DG Joint Research Centre, Institute for Environment and Sustainability, T.P. 270, Via E. Fermi 2749, 21027 Ispra (VA), Italy
[2] US EPA, Mid-Continent Ecology Division, 6201 Congdon Blvd, Duluth, MN, 55804, USA.

Adverse outcome pathways (AOPs) are conceptual frameworks for organizing biological and toxicological knowledge in a manner that supports extrapolation of data pertaining to the initiation or early progression of toxicity to an apical adverse outcome that occurs at a level of organization relevant to risk assessment and/or regulatory decision-making. In order to support a more predictive paradigm in regulatory toxicology, organizations like the Organization for Economic Cooperation and Development (OECD), have initiated efforts to develop and disseminate AOP knowledge within the scientific community. While guidance on describing and evaluating AOPs has been provided, to date, generalized strategies for rapidly and systematically synthesizing available scientific evidence and knowledge into relevant AOPs are lacking. This presentation will report on results from an expert working group convened as part of an International Workshop on Advancing AOPs for Integrated Toxicology and Regulatory Applications to be held March 2-7, 2014. The workgroup will take the example of AOP development related to adverse impacts on avian reproduction as a case study to explore different strategies for AOP development. In particular, the group aims to examine (1) the use of molecular screening data to identify relevant molecular targets/potential initiating events; (2) the relative utility of biological systems knowledge versus literature and data-mining approaches to key event identification; (3) particular challenges related to development of AOPs for less studied organism classes (e.g. birds, aquatic organisms). An overview of approaches that did and did not work and a set of general recommendations for other AOP developers will be provided. *The contents of this abstract neither constitute, nor necessarily reflect, official positions or policies of the authors' employers or institutions*.
**This abstract includes the workgroup co-chairs only – see the poster presentation for a list of all contributing co-authors.*

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10 – Tracking and Planning Task	2.1.1 2.1.1: Adverse outcome pathway (AOP) discovery and definition
10 – Tracking and Planning Product	(5) Recommendations regarding the use of pathway-based data (e.g., in silico, in vitro, omics, and/or biomarkers), in the context of an AOP knowledge-base, to predict chemical reproductive or developmental hazards in support of risk assessment.
11 – Copyright permission	No
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	Screening and prioritization Risk assessment

Author	**e-mail**
Teresa Lettieri	teresa.lettieri@jrc.ec.europa.eu