Adverse Outcome Pathways: From Definition to Application. Gerald Ankley, USEPA, NHEERL, MED, Duluth, MN, USA.

A challenge for both human health and ecological toxicologists is the transparent application of mechanistic (e.g., molecular, biochemical, histological) data to risk assessments. The adverse outcome pathway (AOP) is a conceptual framework designed to meet this need. Specifically, AOPs portray causal and predictive linkages between molecular-cellular disruption (initiation of a toxicity or disease pathway) and adverse outcomes of regulatory significance in individuals or populations. Collecting, analyzing and communicating toxicological data through the use of AOPs enhances aspects of risk assessments related to extrapolation of chemical effects across biological levels of organization, species and chemical structures. AOPs also provide a platform for assessing cumulative risk of chemical mixtures. This presentation will provide an overview of the AOP concept relative to other frameworks (e.g., mechanism/mode of action, toxicity pathways), review the outcomes of various meetings and workshops focused on the development and utility of AOPs, and present an overview of potential applications of the concept to different risk assessment/regulatory scenarios. *The contents of this abstract do not reflect USEPA policy.*