Endocrine Disruptors: Exposure, Hazard & Risk Assessment

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Since the 1990's, research into environmental endocrine disrupters has diversified to include legacy contaminants and emerging chemicals of concern. A variety of natural and synthetic chemicals have been found to interfere with the hypothalamic-pituitary-gonadal/thyroidal (HPG/T) axes of laboratory animals. Extensive weight of evidence assessments indicate that fish and other wildlife species in the field have been affected by HPG/T-active toxicants, resulting in developmental and reproductive problems. Consequently, in the US the Food Quality Protection Act (1996) was passed, requiring that the US Environmental Protection Agency (EPA) screen certain types of chemicals (e.g., pesticides) for their potential to affect HPG/T function. The EPA announced the initial list of chemicals to be screened for their potential endocrine effects (Tier I testing) in April 2009 and initial findings are now available to inform regulatory considerations. The Organisation for Economic Cooperation and Development (OECD) is also working to develop test guidelines to detect endocrine disrupters relevant to both human and wildlife health. Test guidelines for certain modes-of-action (e.g., oestrogens) are well established; however, there is a need to continue to address other less well known endocrine modes of action (e.g., affecting hormone metabolism). Progress in exposure assessment is also an important challenge in order to address diverse inputs of endocrine disrupters into aquatic and terrestrial environments. Exposure assessments need to take into account complex mixtures (e.g., concentrated animal feeding operations, landfill leachate, runoff and wastewater effluents). Importantly, now that several OECD test guidelines have been adopted, and the US screening program is generating significant new data, a key challenge involves the integration of hazard and exposure data. In Europe, for example, there is a need to provide scientific and regulatory advice on assessing endocrine-active chemicals under the Biocides Regulation, the Plant Protection Product Regulation, REACH and the Water Framework Directive. This session will provide a platform to discuss the state of the science and key knowledge gaps regarding the fate, exposure and population relevant effects of endocrine disrupters. Attention will be given to innovative new research that uses a weight of evidence approach (combining bioassays, Toxicity Identification and Evaluation (TIE) and analytical chemistry) to support risk and hazard assessments in the context of recent regulatory discussions.

SESSION TYPE: Platform and Poster

ADVISORY GROUP: Global Advisory Group on Endocrine Disrupter Testing and Risk Assessment