

Abstract 146 — Poster Presentation: Session II-4 “Risk Assessment”

Leveraging Small Aquarium Fishes to Advance Understanding of Environmentally Influenced Human Disorders and Diseases

J Hamm¹, D Allen¹, W Casey^{*2}, M Behl³, D Hinton⁴, J Kanungo⁵, S Kullman⁶, C Mattingly⁶, A Planchart⁶, T Tal⁷, C Weis⁸

¹ILS/NICEATM, RTP, NC, USA; ²NIH/NIEHS/DNTP/NICEATM, RTP, NC, USA;

³NIH/NIEHS/DNTP, RTP, NC, USA; ⁴Duke University, Durham, NC, USA; ⁵FDA/NCTR/DNT, Jefferson, AR, USA; ⁶North Carolina State University, Raleigh, NC, USA; ⁷EPA/ORD/NHEERL, RTP, NC, USA; ⁸NIH/NIEHS/OD, Bethesda, MD, USA.

**Presenting author*

Abstract

Small aquarium fishes provide model organisms that recapitulate the development, physiology and specific disease processes present in humans without many of the limitations of rodent-based models currently in use. Fish models offer advantages in cost, rapid life-cycles, and external embryonic development. However, they remain relatively modest contributors to understanding the effects of environmental chemical exposures on human health. A workshop organized by NC State University, Duke University, NIH, NIEHS, EPA, and FDA explored how aquatic models could be used to (1) screen and prioritize compounds for further *in vivo* testing and (2) assess mechanisms of chemical toxicity and how this knowledge can impact environmental and human health. The workshop brought together experts from academia, industry, and government to develop a framework to assist in integrating toxicology data from aquatic models with testing initiatives currently underway to enhance risk and safety assessments of chemicals and pharmaceuticals. Workshop participants identified research initiatives that address current information gaps in risk and safety assessments for multi-organ toxicity, longitudinal studies to assess long-term consequences of chronic exposures, and the embryonic basis of adult disease.

This project was funded in whole or in part with Federal funds from the NIEHS, NIH under Contract No. HHSN27320140003C.