

ExpoCast: Exposure Science for Prioritization and Toxicity Testing

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The US EPA National Center for Computational Toxicology (NCCT) has a mission to integrate modern computing and information technology with molecular biology to improve Agency prioritization of data requirements and risk assessment of chemicals. Recognizing the critical need for exposure information to inform chemical design, evaluation and health risk management, the ExpoCast™ program has been initiated by the NCCT in collaboration with partners and stakeholders. The aim of ExpoCast is to ensure that required exposure science and computational tools are developed and ready to address global needs for rapid characterization of exposure potential arising from the manufacture and use of thousands of chemicals, and to meet challenges posed by new toxicity testing approaches. The goal of research conducted is to advance characterization of exposure required to translate findings in computational toxicology to information that can be directly used to support exposure and risk assessment for decision making and improved public health. ExpoCast is providing an overarching context within ORD--and the larger exposure science community--for the science required to characterize biologically-relevant exposure for improved chemical risk management. Broadly and long-term, the ExpoCast program will foster novel exposure science research to: (1) inform chemical prioritization; (2) improve understanding of system response to chemical perturbations resulting from environmental exposures and how these translate to relevant biological changes at the individual and population levels; and (3) link information on potential toxicity of environmental contaminants to real-world health outcomes. Under ExpoCast we are identifying, evaluating and applying a range of promising tools and approaches. Emphasis is on thinking broadly and adapting methods from disciplines outside the traditional exposure science arena.

This work has been reviewed and approved by the US EPA for publication but does not necessarily reflect Agency policies.