Building Confidence in Alternative Methods Through ICE

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New approach methodologies (NAMs) are generally defined as non-animal methods or approaches using one or more in vitro or in silico methods to provide insight on chemical hazard. While scientific and policy advances have enabled adoption of some NAMs for specific applications, barriers remain to broader acceptance of NAMs for regulatory purposes, where animal-based testing paradigms remain the standard. The National Toxicology Program's Integrated Chemical Environment (ICE) addresses these barriers to build confidence in NAMs. ICE provides access to high-quality, curated, regulatory-relevant data and in silico predictions of chemical properties. ICE computational tools allow users to search for, visualize, and obtain context for these data. ICE data acquisition and curation processes are transparent and include citations to original data sources. Efforts are underway to apply controlled vocabularies during curation to increase interoperability of data. High-throughput screening assays from the ToxCast and Tox21 programs have been annotated to mechanistic targets and modes of action to provide biological context for assay results. Curated data from these assays can easily be viewed in concentration-response format using the Curve Surfer tool. Other computational tools available in ICE allow users to run physiologically based pharmacokinetics and in vitro to in vivo extrapolation models and to search for structurally similar chemicals. These tools are designed to be accessed by diverse end-users through simple user interfaces. This project was funded with federal funds from the NIEHS, NIH under Contract No. HHSN273201500010C.