US EPA - ToxCast and the Tox21 program: perspectives

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ToxCast is a large-scale project being conducted by the U.S. EPA to screen ~2000 chemicals against a large battery of *in vitro* high-throughput screening (HTS) assays. ToxCast is complemented by the Tox21 project being jointly carried out by the U.S. NIH Chemical Genomics Center (NCGC), the U.S. National Toxicology Program (NTP) and the EPA. Tox21 is screening a library of over 8,000 unique chemicals, including those in the ToxCast library against a smaller set of HTS assays. These programs have several scientific goals, among which are: (1) To build predictive models (toxicity signatures) of chemical toxicity linking *in vitro* activity to *in vivo* adversity; (2) to use these signatures to prioritize data-poor chemicals for more in-depth testing; and (3) to support systems biology models that can provide better understanding of the mechanistic basis of chemical toxicity. This presentation will describe the chemical library and assay battery used in ToxCast and Tox21; will outline the development of toxicity signatures; and will describe applications in areas including developmental and reproductive toxicity, cancer and endocrine signaling.
This abstract does not necessarily reflect Agency policy.