

Exposure-Based Screening and Priority-Setting

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The U.S. National Academy of Sciences report “Using 21st Century Science to Improve Risk-Related Evaluations” recognized that high-throughput screening (HTS) for bioactivity and high-throughput exposure prediction provide necessary components for prioritizing thousands of chemicals with the potential to pose human health risk. High-throughput models can make predictions of human exposure rates based upon chemical structure and use and machine learning tools trained to fill critical gaps. These models can be calibrated to existing exposure monitoring data to allow evaluation of their predictive ability and empirical assessment of their certainty. These tools provide real-world context for in vitro HTS efforts for bioactivity. In addition, both new informatics tools and suspect-screening/non-targeted analytical chemistry allow surveillance of the environment to identify new candidates for HTS. Together, exposure prediction and surveillance allow HTS to be more timely and relevant to human health risks. *This abstract does not necessarily reflect U.S. EPA policy.*