Moving Towards Version 2.0 of Toxicity Testing in the 21st Century and Application to Regulatory Decision-Making

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Tens of thousands of chemicals are currently in commerce, and hundreds more are introduced every year. Because current chemical testing is resource intensive, only a small fraction of chemicals have been adequately evaluated for potential human health effects. To address this challenge, the U.S. National Research Council (NRC) released a report in 2007 entitled "Toxicity Testing in the 21st Century: A Vision and a Strategy" with the objectives of developing a testing approach that has broad chemical and biological coverage, reduced time and costs, fewer use of animals, and a more robust scientific basis for assessing human health effects. In addition, multiple efforts in the U.S. and Europe have assembled substantial datasets from new technologies, incorporated computational modeling, and begun to apply the resulting alternative approaches to regulatory decision-making. Both the NRC report and these research efforts were based on an initial vision involving specific technologies and computational approaches. This vision has evolved considerably over the past decade as we have learned what components may not be necessary, what components were missing, how to apply new technologies, and how the various pieces can be incorporated into better assessments of chemical safety. In the next two years, a new strategy developed at the U.S. EPA will begin to be implemented that provides a more integrated and comprehensive approach for chemical safety testing and risk-based evaluation that incorporates much of what has been learned over the previous ten years. This talk will outline the key components of the new strategy as well as provide progress on implementing the approach. *This abstract does not necessarily reflect U.S. EPA policy.*