The strategy outlined in the 2007 report *Toxicity Testing in the 21st Century: A Vision and a Strategy* covers chemical characterization, toxicity pathways and targeted testing, dose response and extrapolation modeling, and human exposure data. This symposium explores the challenges in achieving this vision as applicable to pharmaceutical discovery and development. We will review achievements and their relevance to safety assessment of new chemical entities intended for pharmaceutical use, and discuss current applications of the strategy from the perspective of those in various sectors. A summary discussion will provide critical analysis that may serve as a roadmap for tailoring this highly visible strategy to a pharmaceutical environment.

**Organizers**

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Mary McBride, PhD, Agilent Technologies  
Myrtle Davis Millin, DVM, PhD, The National Cancer Institute, NIH  
Maria Weetall, PhD, PTC Therapeutics  
Jennifer Henry, PhD, The New York Academy of Sciences

**Speakers**

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Kim Boekelheide, MD, PhD, Brown University  
Darrell R. Boverhof, PhD, Dow  
Gary Eichenbaum, PhD, J&J Pharmaceutical  
E. Donald Elliott, PhD, Yale Law School  
Thomas Hartung, MD, PhD, Johns Hopkins University Center for Alternatives to Animal Testing  
Michael P. Holsapple, PhD, Battelle  
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Presented by the Predicitive Toxicology Discussion Group at the New York Academy of Sciences