

## **Risk Assessment Roadmaps & Methods for Using 21<sup>st</sup> Century Data**

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### **Abstract**

As the 21<sup>st</sup> Century is now well under way, risk assessment methods also need to change. Change implies knowing traditional & contemporary risk methods well enough to see how 21<sup>st</sup> century toxicology methods might help, however. For example, 'omics sciences can substantially aid in mixtures assessment and increase the use of Mode of Action (MOA) data for low dose response assessment, *but* only if one knows how the existing methods work. 'Omics sciences will also only be helpful if they come with a better mapping of human disease to the genome and sorting important genomic signals related to adverse effects among the plethora of findings.

In fact, 21<sup>st</sup> century 'omics data need to both improve the biological basis of low dose response assessments and to also lead to more credible extrapolations, *or they will not be used.*

This future will only be created by collaborative research and development. Several examples exist of such R&D, including the International Programme on Chemical Safety (IPCS) series of risk assessment methods documents, the International Life Science Institute development of risk assessment methods, and the Alliance for Risk Assessment (ARA) series of collaborative projects devoted to specific risk problems (e.g., endocrine disruptors, ranges in noncancer risk). A roadmap is suggested as one way forward.