Non-animal methodologies for food safety risk assessment

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New strategies for evaluating risk that are less depending on apical toxicity endpoints in animal models and relying more on knowledge of the mechanism of toxicity have been proposed. For implementing this in the risk or safety assessment of food and food ingredients, a stepwise roadmap was proposed by an ILSI-Europe working group. The most essential elements in this scheme are:
1) the need to collect information on the physico-chemical characteristics of the compound(s) or mixture under study;
2) exposure scenarios: in case of very low exposure to compounds the of toxicological concern (TTC) may be applicable;
3) the inclusion of scenarios for estimating the systemic availability of compounds;
4) on the basis of the above: building hypotheses for understanding the possible adverse effects of compounds (mode-of-action; adverse outcome pathways)
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5) exploring the need to perform appropriate *in vitro* experiments to substantiate the above
6) include biokinetic data, quantitative *in vitro-in vivo* extrapolations to estimate the doses at which *in vivo* effects can be expected.
The feasibility of the scheme will be substantiated by showing some examples of risk assessments of a number of compounds or products.

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