New Approaches to Chemical Risk Assessment for Foods & Food Ingredients Task Force

About the Task Force

New tools in the assessment of toxicity focus on developing a better mechanistic understanding of the biological interactions and pathways involved, through the application of cellular and molecular based methods, combined with computational approaches. These methods are designed to measure biological perturbations, rather than toxicity per se. Hence, some changes may reflect desirable effects whilst others may reflect untoward effects, depending on the concentration of the chemical present. This is particularly important when considering food. Hence, this task force is investigating how these new approaches can be applied in risk assessments that are relevant to the development of safe foods and food ingredients.

What's new?

EVENT

The task force plans to have a workshop in late 2018 on Adverse Outcome Pathways and their potential application in risk assessments.

WEBINAR

The task force will organise a webinar on their ToxCast activity in 2018.

Activities

Application of Adverse Outcome Pathways (AOPs) for Foods and Food Ingredients in Risk Assessment

The activity aims to:

- understand the coverage of existing AOPs for foods and/or food ingredients; and
- identify the necessary additional information required to enable AOPs to be implemented for quantitative risk assessment and regulatory use to support the shift from animal testing to non-animal approaches in food safety risk assessment.

As a first step, a group of experts will investigate the coverage by available AOPs of the toxicological endpoints used (by authorities) to derive Acceptable Daily Intakes. This will result in the identification of potential further work areas in AOP development which are of particular relevance for the food industry. In parallel, a second group of experts will work to provide guidance on AOP development such that they would incorporate relevant information to facilitate their application in quantitative risk assessment for foods and/or food ingredients. As these topics are already being pursued elsewhere more generally, the context of food relevant AOPs identified in the first step would serve as a specific focus area for this activity.

The outcome of the activity is expected to provide guidance for industry and risk assessors in the food sector to maximise the utilisation of emerging toxicological science that is more human relevant and less animal dependent.

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Member Companies

- BASF SE
- Danone
- DSM
- Firmenich
- Mars Chocolate
- Mayr-Melnhof Karton
- Nestlé
- Unilever

Recent Publications

Exploitation of ToxCast Data on Food Chemicals for Safety Risk Assessment

A high throughput screening programme of chemicals for potential toxicity (ToxCast) was performed by the Environmental Protection Agency (EPA). The ToxCast Expert Group aims to exploit the data relevant to the food industry from the ToxCast programme and assess the utility of the data and methods for their use in the safety risk assessment of food chemicals. The intention is to build on earlier work commissioned by ILSI North America in which approximately 800 food relevant chemicals within the ToxCast programme were identified through conducting approximately 860 *in vitro* biological assays / endpoints. This activity will draw conclusions from the chemical structure of food-relevant compounds to assess their safety for human consumption and handling. An Adverse Outcome Pathway (AOP) may be developed based on these conclusions.

B.J. Blaauboer, A.R. Boobis, B. Bradford, A. Cockburn, A. Constable, M. Daneshian, G. Edwards, J.A. Garthoff, B. Jeffery, C. Krul, J. Schuermans. **Considering New Methodologies in Strategies for Safety Assessment of Foods and Food Ingredients**. *Food and Chemical Toxicology* 2016; doi:10.1016/j.fct.2016.02.019.

B. Schilter, R. Benigni, A. Boobis, A. Chiodini, A. Cockburn, M.T. Cronin, E. Lo Piparo, S. Modi, A. Thiel and A. Worth. **Establishing the Level of Safety Concern for Chemicals in Food Without the Need for Toxicity Testing**. *Regulatory Toxicology and Pharmacology* 2014;68:275-96.

All publications commissioned by this task force are available on our website: www.ilsi.eu.

For more information on ILSI Europe's activities, don't forget to follow us on Twitter @ILSI_Europe and connect with us on LinkedIn.

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