The Human Toxicology Project Consortium (HTPC) is a multi-stakeholder coalition working to accelerate the global implementation of a new paradigm in toxicity testing. Grounded in a mechanistic, pathway-based understanding of chemical-biological interactions, this new testing paradigm allows a more predictive approach to risk assessment, and promises to generate better data more efficiently on the potential risks of chemicals to humans and the environment, all while moving away from a reliance on animal testing.

Recent activities include:
- A workshop on Building Shared Experience to Advance Practical Application of Pathway-Based Toxicology: Liver Toxicity Mode-of-Action. This workshop brought together experts in pathway concepts, systems biology, liver biology and toxicology, and regulators to focus on elements necessary for building predictive pathways for liver fibrosis and steatosis. Two publications are in preparation.
- Talks on developing Adverse Outcome Pathway (AOP) models for liver toxicity, and presentations on the development and use of AOPs in the Tox21 program, including ToxCast for use of pathway-based approaches in hazard and risk assessment.
- Several presentations on the development and use of AOPs that discuss how to build pathways, present case studies, and explore what additional information is needed to use pathways for different levels of decision-making.

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Communicating the Science:
Building understanding and consensus among stakeholders is essential to advancing a new approach to toxicity testing. The HTPC is redesigning its website to serve as an educational platform that will introduce both the basics of toxicology and the rationale for this new approach, using infographics and video tutorials.

Implementing the science:
The HTPC works to identify gaps in knowledge that will benefit from additional focus, and directs attention to those areas through scientific presentations and publications, and through organizing and/or co-sponsoring targeted workshops and meetings.

Members of the Human Toxicology Project Consortium agree to the following key policy points to support improved toxicological assessment approaches:
- A focus on human biology-based science to ensure relevance for human health risk assessment
- A focus on pathway approaches as an organizing principle
- To link mode-of-action to adverse outcome
- To provide the basis for integrated testing strategies
- To provide testable hypotheses for hazard and risk assessment
- To provide transparency in risk assessment decision process
- To encourage an information-sharing and research partnership between U.S. federal agencies and the European Directorate-General for Research and Innovation, and similar bodies in other economies as appropriate
- A goal of replacing animal testing with scientifically robust alternative assessment tools

Bibliography

Lobbying/Advocacy for Financial Support & Regulatory Acceptance:
To speed the adoption and acceptance of new paradigm technologies, the HTPC works in the US and internationally to effect policy changes and cultivate research funding opportunities.

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Lobbying/Advocacy in the US and Europe:
HTPC partners, the HSUS family of organizations, contributed report appropriations language to the U.S. House and Senate in 2012, 2013 and 2014 – encouraging support for incorporation of advanced molecular biological and computational methods in lieu of animal toxicity tests for endocrine testing (EPAs) and to expand commitment to the Tox21 program (including ToxCast) and for use of pathway-based approaches in hazard and risk assessment.

In Europe, Humane Society International has been lobbying for the incorporation of pathway-based approaches as an organizing principle for Horizon 2020, the European Commission’s upcoming Framework Program for Research and Innovation, and has published an informational report, Advancing Safety Science and Health Research with Innovative Non-animal Tools.

HTPC-sponsored related activities:
International Workshop on Cosmetics & Alternative Methods, November 29 -30, 2012, Brasilia, DF, Brazil

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Advancing a new paradigm for assessing chemical safety
Marilyn Matevia & Catherine Willett, The Humane Society of the United States