Minimising animal tests through education and training

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Overview

- PETA International Science Consortium Ltd.

- Education and training
  - Training sessions
  - Outreach
  - Webinars

- REACH webinar series

PETA International Science Consortium

Education and Training

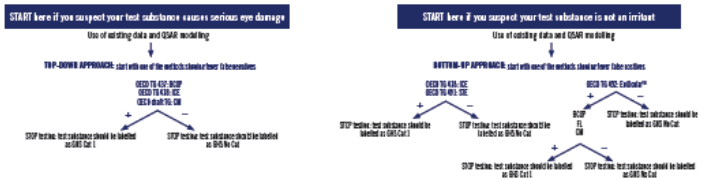
- Training sessions
- Outreach: piscltd.org.uk
- Webinars

Training Sessions

Outreach

FACTSHEETS

IN VITRO METHODS FOR SERIOUS EYE DAMAGE AND EYE IRRITATION



References

*If the substance is not classified as GHS Cat 1 or GHS No Cat, the substance is likely to be GHS Cat 2. To avoid in vivo testing, additional testing may be conducted with *in vitro* methods that allow classification of Cat 2 chemicals in a weight-of-evidence approach. *In vitro* methods such as the EASE®, PurCORN or similar ones, which address persistence in the absence of tonicity, may be suitable. For more information on tiered testing strategies for serious eye damage and eye irritation, please see: Worth A et al. 2004. Alternative methods for regulatory toxicology — a state-of-the-art review. European Union Reference Laboratory for Alternatives to Animal Testing, and Scott L. et al. 2010. A proposed eye irritation testing strategy to reduce and replace in vivo studies using bottom-up and top-down approaches. Toxicology in Vitro 24:1—9.

METHOD	PRINCIPLE OF THE TEST	APPLICABILITY DOMAIN	GHS CATEGORISATION
OECD TG 437: Bovine Corneal Opacity and Permeability (BCOP) Test Method for Identifying i) Chemicals Inducing Serious Eye Damage and ii) Chemicals Not Requiring Classification for Eye Irritation or Serious Eye Damage	Test substance is directly applied to cow eyes obtained as by-products from abattoirs. Corneal opacity (measured quantitatively as the amount of light transmission through the cornea) and permeability (measured quantitatively as the amount of sodium fluorescein dye that passes across the full thickness of the cornea) are measured. Optional histopathology can be conducted for additional information.	Applicable to solids, liquids (including semi-solids, creams and waxes) and mixtures.	For the identification of substances causing serious eye damage (GHS Cat 1) and substances not requiring classification for eye irritation or serious eye damage. OECD TG 437 training video available at www.youtube.com/watch?v=cTZbqS4DHB0
OECD TG 438: Isolated Chicken Eye (ICE) Test Method for Identifying i) Chemicals Inducing Serious Eye Damage and ii) Chemicals Not Requiring Classification for Eye Irritation or Serious Eye Damage	Test substance is directly applied to chicken eyes obtained as by-products from abattoirs. Corneal swelling, opacity and fluorescein retention are assessed.	Applicable to solids (roughen suitable or insoluble in water), liquids, emulsions and gels.	For the identification of substances causing serious eye damage (GHS Cat 1) and substances not requiring classification for eye irritation or serious eye damage.
OECD TG 460: Fluorescein Leakage (FL) Test Method for Identifying Ocular Corrosives and Severe Irritants	Epithelial monolayer Madin-Darby canine kidney (MDCK) cells are cultured on permeable inserts. The test chemical is applied for 3 minute and then removed; next, the non-toxic highly fluorescent sodium-fluorescein dye is added, and the amount of dye that passes through the cell layer is measured spectrofluorometrically and used to predict toxicity.	Applicable to water-soluble chemicals or mixtures. Limitations for colored or highly viscous substances (predictivity is improved by increasing the number of wash steps). Not applicable to strong acids and bases, cell-fixatives or highly volatile substances.	For the identification of substances causing serious eye damage (GHS Cat 1).
OECD TG 491: Short Time Exposure (STE) Assay	Measures cell viability (MTT assay) of SIRC (Statens Serum institut Rabbit Cornea) corneal epithelial cells in 96 well plates. As compounds are generally cleared from human eyes in 1 to 2 minutes or rabbit eyes in 3 to 4 minutes, this test regimen is 5-minute exposure.	Applicable to test chemicals that are soluble in saline, DMSO or mineral oil.	For the identification of substances causing serious eye damage (GHS Cat 1) and substances not requiring classification for eye irritation or serious eye damage.
OECD TG 492: Reconstructed Human Cornea-like Epithelium (RhCE) Test Method for Identifying Chemicals Not Requiring Classification and Labelling for Eye Irritation or Serious Eye Damage (eg, Epiocular™)	MatTek's EpiOcular™ tissue is reconstructed from primary human cells, which have been cultured for several days to form a stratified, highly differentiated squamous epithelium morphologically similar to that found in the human cornea. The test substance is exposed to the tissue, and cell viability (MTT assay) is used to predict toxicity.	Applicable to substances and mixtures as well as solids, liquids, semi-solids and waxes.	For the identification of substances not requiring classification for eye irritation or serious eye damage.
OECD draft TG: Cytosensor Microphysiometer (CM)	A sub-confluent monolayer of mouse L929 cells is exposed to increasing concentrations of the test chemical. The cellular metabolic rate – measured by pH change in the medium (acidification) – is used to predict toxicity.	Applicable to water-soluble chemicals (substances and mixtures) as well as non-soluble solids, viscous chemicals and suspensions that maintain uniformity during the analysis time.	For the identification of substances causing serious eye damage (GHS Cat 1) and substances that are not classified.

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MATTEK AWARD | AOP AWARD

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EPA United States Environmental Protection Agency

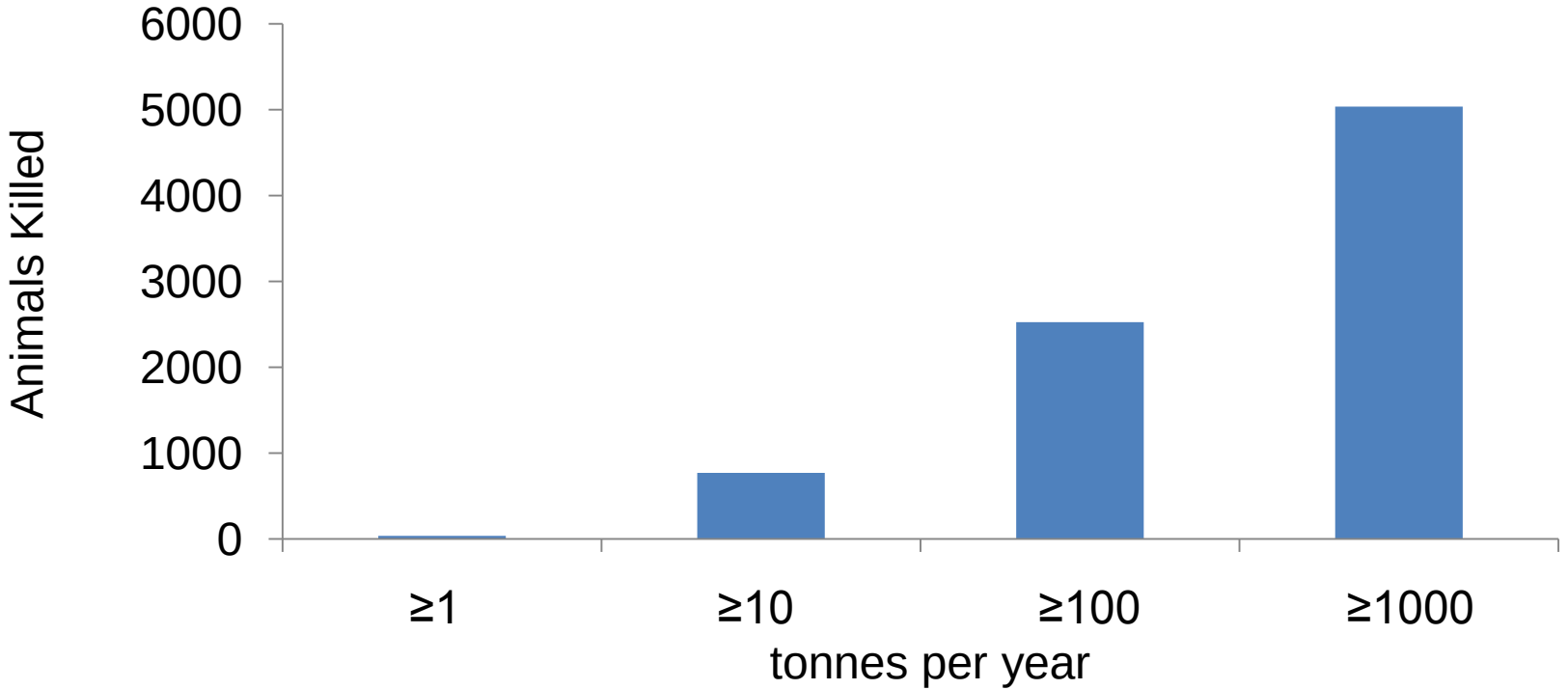
Award for Adverse Outcome Pathway Development
Provided to New Contributors to the AOP Wiki

ith the advent of emerging technologies and the adoption of a new vision for the science of toxicity testing, modern toxicology is oving away from the animal tests scientists have traditionally relied upon to identify chemical hazards. Tests using animals are often onsidered to be "black box" studies that determine whether a chemical is toxic to animals, but they do not necessarily reveal the echanism by which the substance caused toxicity or whether it would cause similar toxicity in humans. In recent years, however, non-imal testing strategies have been developed that are geared towards probing the specific mechanism of chemical toxicity. These esting strategies can be based on Adverse Outcome Pathways (AOPs), which are a conceptual framework describing a sequential chain f causally linked events at different levels of biological organisation that lead to an adverse health or ecotoxicological effect.

s part of a collaborative effort between the European Commission's Joint Research Centre, the US Environmental Protection Agency, nd the Organisation for Economic Co-operation and Development, an AOP Wiki has been created to provide an interactive and virtual latform for AOP development and to promote international consensus on the developed AOPs. Working with the organisers of the OP Wiki, the PETA International Science Consortium Ltd. (PISC) is launching a data challenge to encourage *new* contributors to add to xisting entries in the AOP Wiki using available data.

Launch of the AOP Award at the European Commission's Joint Research Centre (JRC) booth at the 51st annual EUROTOX Congress held in Porto, Portugal on 13-16 September, 2015.

Animal Testing for REACH



Webinar Series: Leading Experts

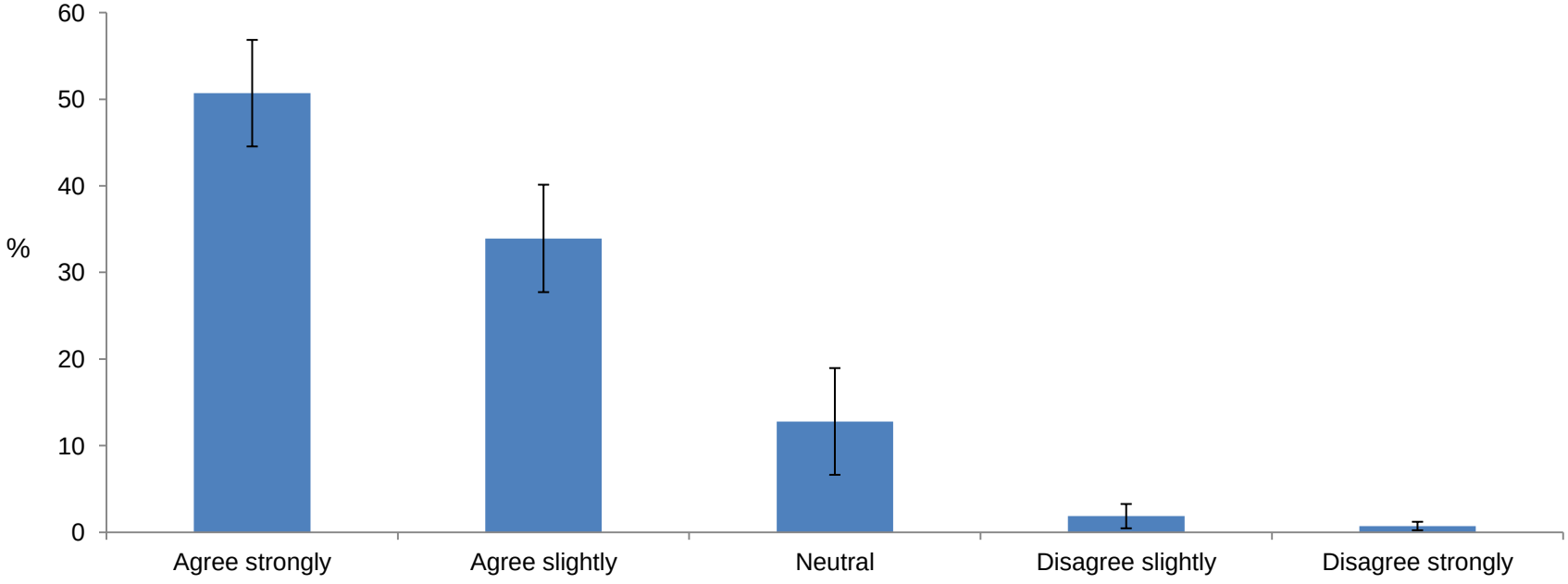
Webinars

WEBINAR 1	OECD QSAR TOOLBOX AND READ-ACROSS	Dr. Grace Patlewicz, formerly of DuPont Prof. Mark Cronin, Liverpool John Moores University
WEBINAR 2	SKIN IRRITATION AND CORROSION	Dr. Gertrude-Emilia Costin, Institute for In Vitro Sciences Dr. Costanza Rovida, REACH Mastery and CAAT Europe
WEBINAR 3	SERIOUS EYE DAMAGE AND EYE IRRITATION	Dr. Kim Norman, Institute for In Vitro Sciences Dr. João Barroso, EURL ECVAM
WEBINAR 4	SKIN SENSITISATION	Dr. Susanne Kolle, BASF SE Dr. Silvia Casati, EURL ECVAM
WEBINAR 5	ALTERNATIVE APPROACHES TO MAMMALIAN ACUTE SYSTEMIC TOXICITY TESTING	Dr. Pilar Prieto, EURL ECVAM Dr. Lawrence Milchak, 3M
WEBINAR 6	(ZEBRA)FISH EMBRYO ACUTE TOXICITY TEST TO PREDICT SHORT-TERM TOXICITY TO FISH (AND BEYOND	Dr. Marlies Halder, EURL ECVAM Prof. Thomas Braunbeck, University of Heidelberg Dr. Scott Belanger, Procter & Gamble
WEBINAR 7	THE REGULATORY PROCESSES INVOLVED IN ACCEPTANCE OF NON-ANIMAL TESTS	Dr. Derek Knight, ECHA Ms. Karin Kilian, European Commission

International Audience

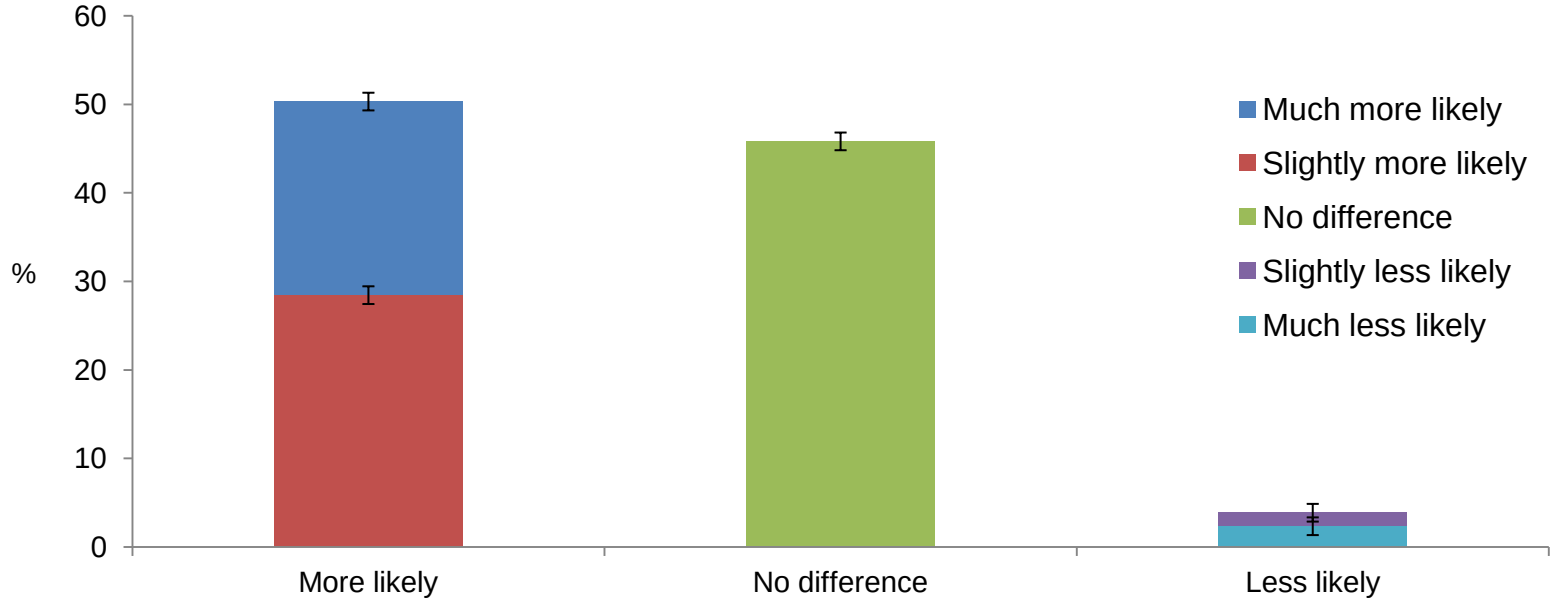
Awareness of Testing Strategies

Q: “I gained some useful guidance on how to incorporate non-testing/non-animal methods into a testing strategy”.



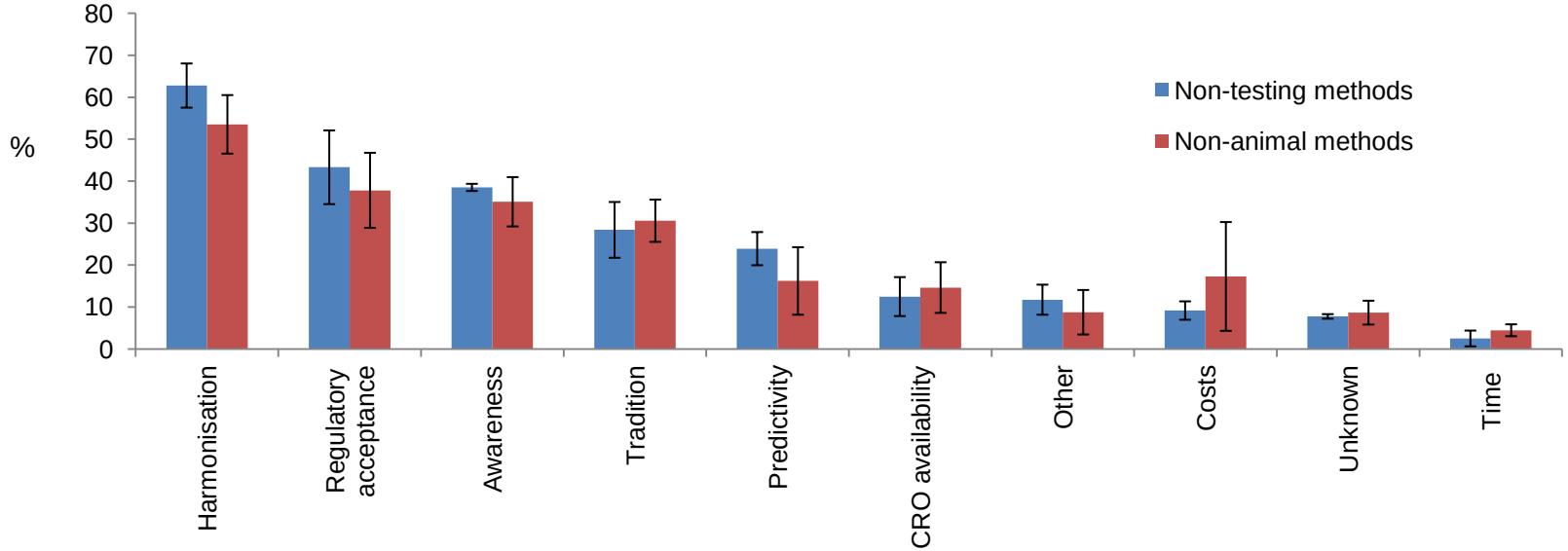
Likely Use of Non-Testing Methods

Q: “As a result of attending this webinar, are you more or less likely to use non-testing methods for REACH 2018”?



Barriers to Uptake of Non-Testing and Non-Animal Methods

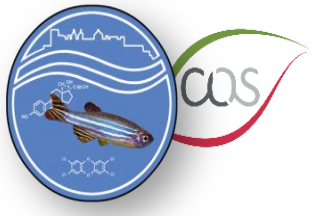
Q: “What do you think are the main barriers to the uptake of a) non-testing and b) non-animal testing methods for REACH”?



Conclusions

- The Science Consortium uses a multifaceted approach to education and training, including:
  - Training sessions
  - Outreach
  - Webinars
- REACH webinar series
  - The Science Consortium teamed up with Chemical Watch and leading experts
  - Feedback indicates that the webinars were effective in increasing the intent of companies to use of non-animal methods.

Acknowledgements



Thank you!

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