Challenges and opportunities for increasing the confidence in computational NAMs

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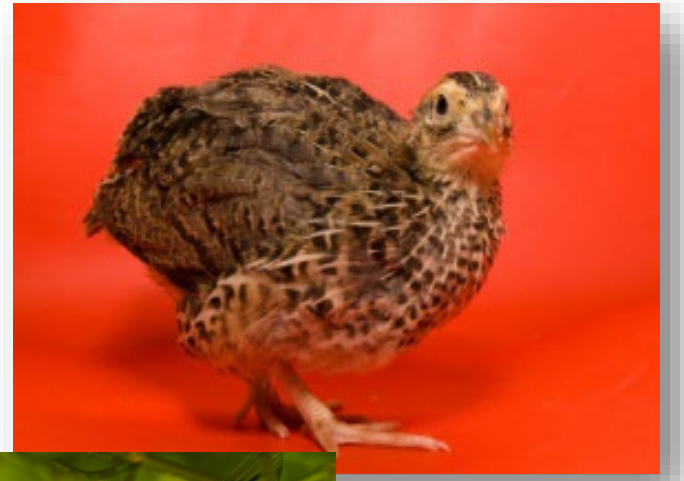
May 17th, 2022

Knowledge of Toxicity to Understand Chemical Safety



US EPA Examples:

Clean Air Act
Clean Water Act
Resource Recovery Act
Endangered Species Act
Food Quality Protection Act
Endocrine Disruptor Screening Program
Federal Insecticide, Fungicide, and Rodenticide Act
Frank R. Lautenberg Chemical Safety for the 21st Century Act
Comprehensive Environmental Response, Compensation, and Liability Act
Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses

EPA United States Environmental Protection Agency

TOXICOLOGICAL SCIENCES, 153(2), 2016, 228–245

doi: 10.1093/toxsci/kfw119
Advance Access Publication Date: June 30, 2016
Research article

OXFORD SOT Society of Toxicology
www.toxsci.oxfordjournals.org

https://seqapass.epa.gov/seqapass/

Sequence Alignment to Predict Across Species Susceptibility (SeqAPASS)

Sequence Alignment to Predict Across Species Susceptibility (SeqAPASS): A Web-Based Tool for Addressing the Challenges of Cross-Species Extrapolation of Chemical Toxicity

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Pillars for Taking on a New Approach

TIME/CHAMPIONS

CONFIDENCE

TRAINING

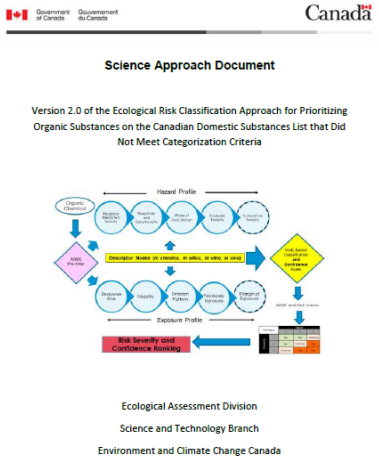
SUPPORT

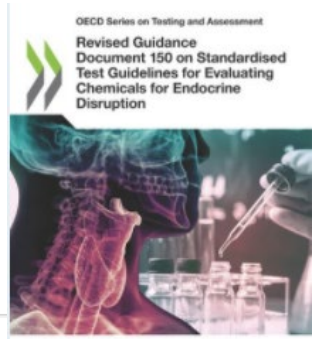
Demonstrated Application
Defined limitations
Define domain of applicability
Transparency
MIE
KE
KE
KE
AO

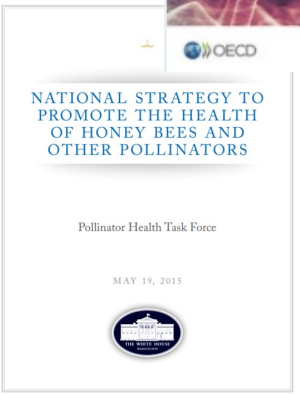
EPA United States Environmental Protection Agency

Bioinformatics for Chemical Safety Evaluation

- Science Approach Document Version 2.0 of the Ecological Risk Classification Approach for Prioritizing Organic Substances on the Canadian Domestic Substances List that Did Not Meet Categorization Criteria
- The Organisation for Economic Co-operation and Development (OECD) published the Revised Guidance Document 150 on Standardised Test Guidelines for Evaluating Chemicals for Endocrine Disruption
- Appendices of the White House National Strategy to Promote the Health of Honey Bees and Other Pollinators







Government

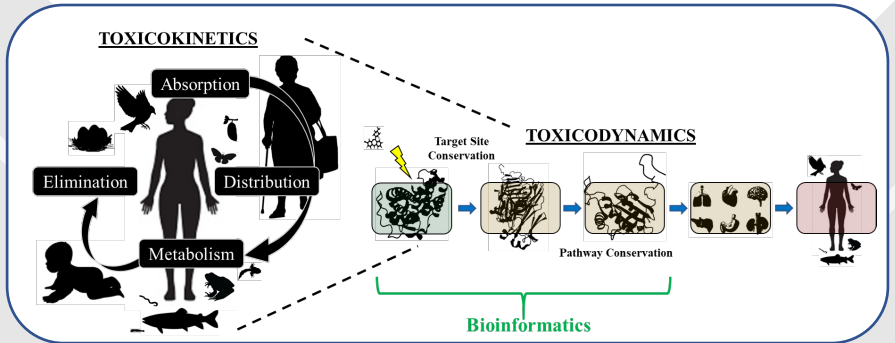
Industry

International Consortium to Advance Cross Species Extrapolation in Regulation (ICACSER)

Steering Committee:
Carlie LaLone (US EPA)
Geoff Hodges (Unilever)
Nil Basu (McGill U)
Steve Edwards (RTI)
Fiona Sewell (NC3Rs)
Michelle Embry (HESI)
Patience Browne (OECD)

1. Define the taxonomic domain of applicability
2. Define the global regulatory landscape/need
3. Develop a bioinformatics toolbox
4. Communicate a shared scientific vision

Interested in Learning more or Joining: Contact LaLone.Carlie@epa.gov or Geoff.Hodges@unilever.com



Academia

NGO

Acknowledgements

GDIT

Cody Simmons

Audrey Wilkinson

Wilson Melendez

SeqAPASS v6.0

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https://seqapass.epa.gov/seqapass/