Showcasing Impact of Science and Technology
US EPA's Computational Toxicology pilot effort using traditional and alternative metrics

Presented by:
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US EPA National Center for Computational Toxicology

The views expressed in this presentation are those of the presenter and do not necessarily reflect the views or policies of the U.S. Environmental Protection Agency
Metrics

• Classical metrics
• Alternative metrics
• Usage of research
  – Usage of research for decision-making
  – Presence of research or reference to it in influential documents such as budget or statutory language.
EPA Computational Toxicology Impact

EPA Computational Toxicology Research Impact Chemical safety has been a major priority for EPA since it was established in 1970. As the number of chemicals entering the marketplace has increased, evaluating chemicals for potential health effects has become a formidable challenge. Today, some 80,000 chemicals are listed or registered under the Toxic Substance Control Act (TSCA), and hundreds of new chemicals are introduced every year. EPA’s computational toxicology research has had successes addressing this challenge by developing scientific approaches that can be used to evaluate thousands of chemicals for potential health effects. Approaches are faster, more efficient, and far less costly than traditional methods. Learn more about how EPA’s Computational Toxicology research has made tremendous impacts by exploring the successes achieved and metrics demonstrating those successes.

Scientists  
Publications and Presentations  
Data and Tools  
Impact
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Bio

Area of Expertise:
Dr. Williams' present focus at NCCT is as part of the Chemical Safety for Sustainability (CSS) Research Program to develop a cheminformatics architecture for the center. This work has already produced the publicly accessible website, the iCSS Chemistry Dashboard, providing access to chemistry related data for over 700,000 chemicals (https://comptox.epa.gov/dashboard).

Education:
- B.S., Liverpool University, Liverpool, UK; Chemistry, 1985
- Ph.D., University of London, London, UK; Chemistry, 1988

Professional Experience:
- North Carolina ACS Distinguished Lecturer, 2016
- Microsoft eScience Jim Gray Award, 2012
- Fellow of the Royal Society of Chemistry, 2009
- University of London Bourne Medal for Best Chemistry Thesis, 1968
- Morris Ranger Undergraduate scholarship, 1983
Publications


The CompTox Dashboard contains information on over 700,000 chemicals currently in use. Users can access chemical structures, experimental, and predicted physiochemical and toxicity data, and additional links to relevant websites and applications.
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**Region:**
- USA
- World

**Time Period:**
- Apr 2019
- 2018

- **Geographics**
  - California Count: 10677
News Articles

Impact News

Altered expression of ionotropic L-Glutamate receptors in aged sensory neurons of Aplysia californica
Plos.org
2019-05-23

Using the concordance of in vitro and in vivo data to evaluate extrapolation
Plos.org
2019-05-28

Altered expression of ionotropic L-Glutamate receptors in aged sensory neurons of Aplysia californica
Plos.org
2019-05-23

Nitrosylation vs. oxidation – How to modulate cold physical plasmas for
Plos.org
2019-05-28

What Are the Alternatives to Animal Testing?
LiveScience.com
2019-05-04
Take Home Messages

- Identify the research products to track
- Determine the appropriate and available metrics
- Investigate metric sources such as Web of Science, PlumX, AltMetric, Dimensions, VIVO, Google Analytics
- Gather metrics through APIs and other existing sources
- Products may need a Digital Object Identifier (DOI) for tracking purposes
- Use lessons learned to continually refine approach