Human Health Hazard Indicators Workshop

March 15-16, 2010

Day 2 - Workshop

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CA Green Chemistry Mandates

- SB 509 Legislation requires establishing a Toxics Information Clearinghouse (TIC)
- OEHHA is required to "evaluate and specify hazard traits, toxicological and environmental endpoints and other relevant data" that should be included in the TIC
- DTSC has the mandate to build the TIC

Hazard Traits

- OEHHA viewing hazard traits as the “icities”, e.g., carcinogenicity, developmental toxicity, neurotoxicity, etc.
- Endpoints measured in toxicological studies can be grouped under the “icities”.
- Other relevant data can function as indicators of hazard traits

What is the Role of Toxicology in Green Chemistry?

- Primary Green ChemistryPrinciple is to use and generate *chemicals with little to no toxicity*
  - *Substitute "bad actor" with "safer" chemicals*
- **Need to know what constitutes a "safer" chemical**

But, so little data to decide what is a “safer” chemical

- **Need to use old information about chemical reactivity, computational toxicity, and new info from cell-based assays as these assays emerge.**

Yesterday, we

Explored existing and emerging methods to identify chemical hazards

- inherent chemical properties indicating potential toxicity
- computational toxicology and basic structural activity
- screening methods already in use in the pharmaceutical sector
- application of specific screening methods for carcinogenicity, developmental toxicity, and endocrine disruption

Today, we will discuss

- what available information from the toxicity testing paradigms we explored yesterday can be used as hazard indicators to inform hazard traits
  - Chemical reactivity
  - Results of specific screens, including perturbation of toxicity pathways
  - Computational toxicology
- what is available and usable now for hazard identification
- and what may be available in the near future

Discussion Question

- Which assays and models are sufficiently well developed to indicate potential for carcinogenicity, developmental toxicity or endocrine disruption?