Report of the NTP Associate Director

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NTP Board of Scientific Counselors Meeting
December 15, 2016
• Publications
• Update on selected projects
  – Synthetic turf/crumb rubber
  – Glyphosate
  – Low-dose mixtures
• Recent/upcoming meetings
• Requests for Information
• Awards
• Hires/retires

14th Report on Carcinogens
Synthetic Turf/Crumb Rubber Research Program

- Requested by California OEHHA to complement an extensive field sampling and exposure monitoring effort

- Coordinating with other efforts (US EPA, CDC/ATSDR, CPSC)

- Goals
  - Chemically and physically characterize crumb rubber provided by OEHHA
  - Determine the bioaccessibility and bioavailability of chemical components of crumb rubber in simulated biological fluids and from samples from animals following exposure
  - Assess the feasibility of several routes of exposure for in vivo and in vitro toxicological testing
  - For exposure scenarios deemed feasible, conduct short-term exposure characterization studies
NTP is assessing feasibility of *in vitro* and *in vivo* exposures

- Incubation with cell culture media
  - Cultured skin keratinocytes, alveolar/bronchial-derived lung epithelial cells, intestinal epithelial cells and human bone marrow-derived WBC progenitors
- Housing with crumb rubber
- Nose only inhalation of vapor (VOCs/SVOCs)
- Oral gavage (size issue)
- Dermal - intact and mildly abraded
- Mixing into feed (consumption issue)
- Inhalation of particulate (silica issue)
• Widely used herbicide
• Recent health evaluations differ in outcome
• NTP reported toxicity studies in 1992
• Genotoxicity and mechanistic studies and literature mining activities of the parent and formulations are underway
• Goal is within 6-9 months to provide additional data specific to the potential toxicity of the parent vs formulations to inform the ongoing worldwide evaluations
Low-dose mixtures hypothesis of carcinogenesis

• Hanahan & Weinberg Hallmarks of Cancer 2000, 2011
• Halifax project 2012-2015 Low-dose exposures
• Smith et al, Key Characteristics of Carcinogens 2015
• NIEHS Workshop- August 2015
  – Scientific support for low dose hypothesis
  – Research agenda to identify and address information gaps
• Miller et al, EHP DOI: 10.1289/EHP411
• Formal nomination to NTP
• Many scoping meetings
Recent Meetings

• Peer Review of the Draft NTP Monograph on Immunotoxicity Associated with Exposure to Perfluorooctanoic Acid or Perfluorooctane Sulfonate: NIEHS, July 19

• Scientific Advisory Committee on Alternative Toxicological Methods Meeting: NIEHS, Sept 27

• Alternative Approaches for Acute Inhalation Toxicity to Address Global Regulatory and Non-regulatory Data Requirements: webinar series, June 28, July 12, Sept 8
Upcoming Meetings

- ICCVAM Communities of Practice Webinar - Incorporating Chemical Information: Resources, Limitations, and Characterizing the Domain of Applicability for 21st Century Toxicity Testing: Jan 24

- ICCVAM Ontology webinar series
  - Introduction to Zebrafish Screening: Feb 2
  - Ontology 101: Feb 16
  - A Review of Relevant Ontologies and Applications of Reasoners: Mar 2
Requests for Data and Information

To assess the state of the science and determine technical needs for non-animal test methods

- Zebrafish Embryo Chemical Screening
- Technologies Used for Identifying Potential Developmental Toxicants
- Technologies Used to Identify Substances With the Potential To Cause Acute Systemic Toxicity
- Short-term Alternative Animal Models or *In Vitro* Tests Used to Identify Substances with the Potential to Cause Excessive Inflammation or Exaggerated Immune Responses
Awards

Ray Tice
Alternatives Research and Development Foundation

Nicole Kleinstreuer
Lush Cosmetics’ Young Researcher Prize

Warren Casey
Tar Heel of the Week
Raleigh News and Observer
Linda Birnbaum
Governor’s North Carolina Award for Science
New Hires

Georgia Roberts
Program Operations Branch

Alison Harrill
Biomolecular Screening Branch
Retirements

Lori White
Office of Liaison, Policy, and Review
Questions?