

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



ICCVAM 2014-2015 Biennial Progress Report



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





Synthetic Turf/Crumb Rubber Research Program

- 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

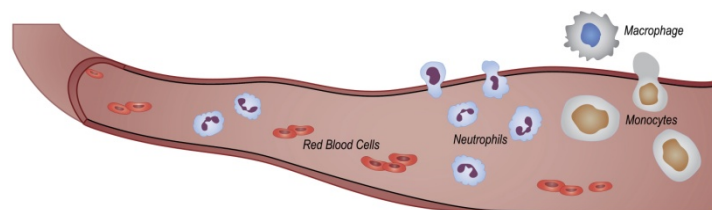




Requests for Data and Information

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

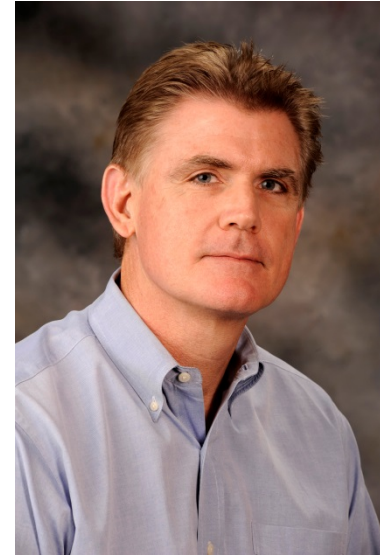




Ray Tice
**Alternatives Research
and Development
Foundation**



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



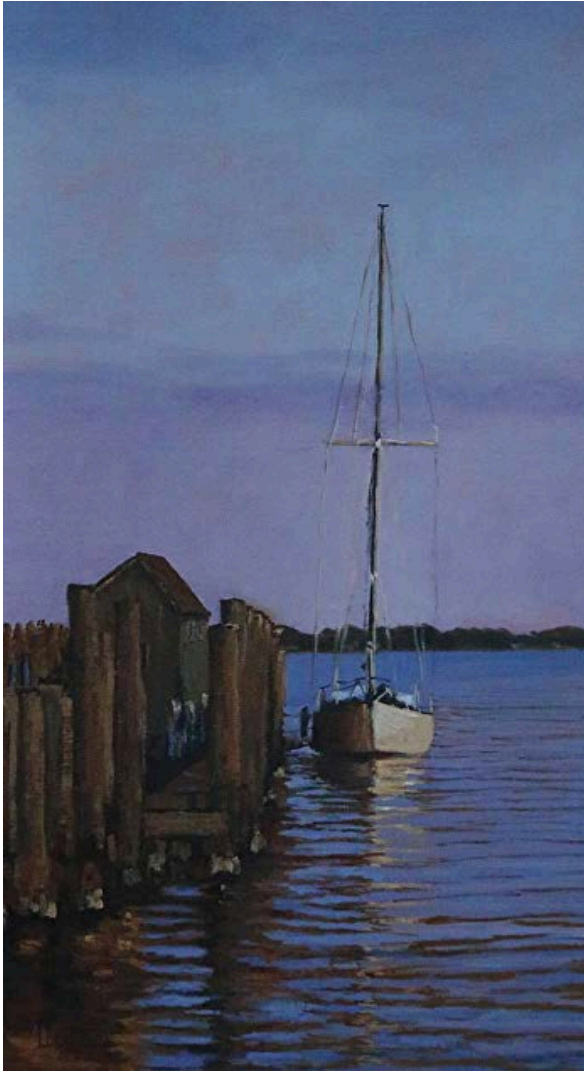
Georgia Roberts
Program
Operations Branch



Alison Harrill
Biomolecular
Screening Branch



Retirements



Lori White
Office of Liaison,
Policy, and Review





Questions?