NTP
National Toxicology Program

NTP Associate Director's Report

Brian R. Berridge, DVM, PhD, DACVP
NTP Associate Director
Scientific Director, Division of NTP
National Institute of Environmental Health Sciences

NTP Board of Scientific Counselors Meeting
20 June 2018

Staff Changes – New Roles

John Bucher, PhD
Deputy Division
Director for Analysis

Nigel Walker, PhD
Acting Chief,
Toxicology Branch

Staff Changes – New Faces

Troy Hubbard, PhD
Toxicology Branch
postdoctoral fellow

Atlee Watson, PhD
Toxicology Branch
postdoctoral fellow

Takeshi Izawa, DVM, PhD
Cellular & Molecular Pathology Branch
visiting scientist - Japan

Natalie Bell
Biomolecular Screening Branch
summer intern

Gabrielle Scales
Cellular & Molecular Pathology Branch
summer intern

Xian Wu, PhD
NTP Laboratory
visiting scientist - China

Staff Changes – Said Goodbye

Grace Kissling, PhD
NTP Statistics
(retired)

Peggy Mooring
Toxicology Branch
(retired)

Andy Shapiro, MS
Program Operations Branch
(left NIEHS)

Awards and Recognition

Linda Birnbaum, PhD, NIEHS and NTP Director
Arnold J. Lehman Award at SOT, **AAAI Foundation** and **Dr. William W. and Judith H. Busse Lectureship**

Alison Harrill, PhD, Biomolecular Screening Branch
SOT Mentor Award for Molecular & Systems Biology Specialty Section

Sreenivasa Ramaiahgari, PhD, Biomolecular Screening Branch
SOT Best Postdoctoral Publication Award for
Three-dimensional (3D) HepaRG Spheroid Model with Physiologically-Relevant Xenobiotic Metabolism Competence and Hepatocyte Functionality for Liver Toxicity Screening". 2017. *Toxicol. Sci.*, 159(1): 124-136.

Recognition

Cynthia Rider, PhD, Toxicology Branch

Elected Vice President-elect of NC SOT Chapter

Scott Auerbach, PhD, Biomolecular Screening Branch

Invited to serve on the Editorial Board of *Toxicological Sciences*

Erik Tokar, PhD, NTP Laboratory

Invited to serve as Associate Editor for *Toxicology and Applied Pharmacology*

President of Metals Specialty Section, SOT

Arun Pandiri, BVSc & AH, PhD, Cellular & Molecular Pathology Branch

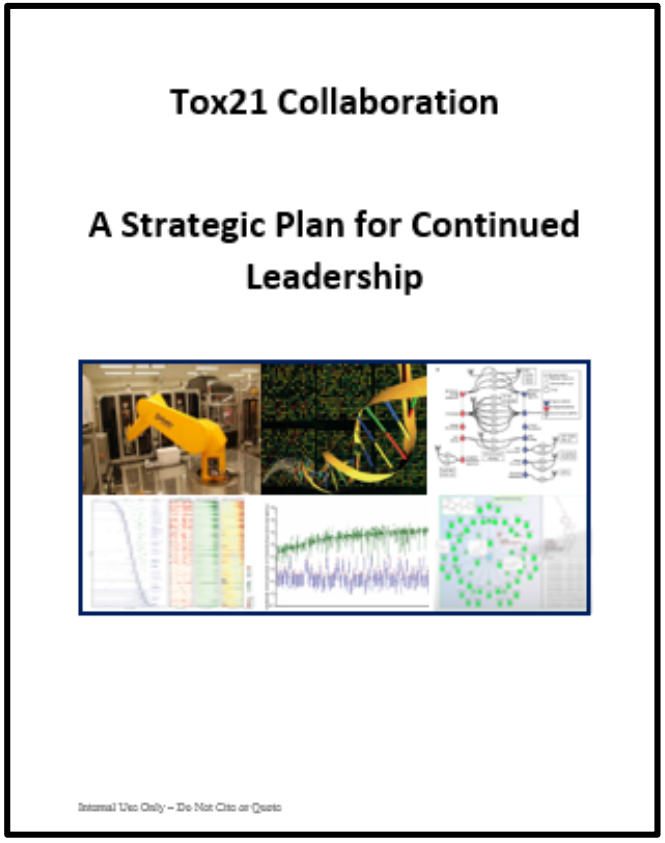
Invited to be keynote speaker at 1st Bilateral Joint NIEHS-Nanjing Medical University Symposium *Emerging Topics in Environmental Sciences*, September 8-9, 2018

Need for Refinement of Strategic Plan

- Tox21 has been a very productive interagency collaboration
  - Thousands of chemicals tested in over 50 relevant pathways; public release of millions of data points
  - Over 200 joint publications
  - Data now being used for regulatory decisions
- Decision was made to broaden the focus beyond developing and applying high throughput screening to toxicology to developing toxicology approaches for the 21st century
- Reality is that the different partners have different missions
  - No single framework or one-size-fits-all approach
- New strategic plan needs to focus on:
  - Key challenges in toxicology in the 21st century
  - Common goals with substantial benefit in each organization regardless of mission.

Tox21

Primary Goals for Tox21 in Next 5 Years



ALTEX. March 8, 2018
doi: 10.14573/altex.1803011

1. Develop and deploy alternative test systems that are predictive of human toxicity and dose response
2. Address key technical limitations of current *in vitro* test systems
3. Consolidate chemical compound library management
4. Curate and characterize legacy *in vivo* toxicity studies to serve as a resource for interpreting Tox21 data
5. Develop framework for efficient validation of Tox21 approaches
6. Refine and deploy *in vitro* methods for characterizing pharmacokinetics to increase predictivity and reduce uncertainty

Implementation of New Strategic Plan

Progress to Date

- Official roll-out at the SOT Annual Meeting, San Antonio, March 2018
- 3 teams formed and active
  - Communications (new unified website: https://tox21.gov)
  - Chemical Selection & Library
  - Assay Evaluation & Screening
- Cross-partner projects – initiated & active
  - Cross-partner projects are limited to 3-year terms
  - Driven by specific aims that match primary goals
  - Partner resource driven
  - Proposed time-line with benchmarks for “Go – No Go” decisions
  - Cross Partner Project members can recommend “No Go” based on science or resource priorities

Recent Events

- Tox21 Spring Face-To-Face General Meeting, May 15-16, at NIEHS
  - Tox21 federal partners from NTP, NCATS, EPA, and FDA attended

- ICCVAM Public Forum – May 24, at NIH
  - Slides and videocast recording available at https://ntp.niehs.nih.gov/go/iccvamforum-201

- Satellite Symposium Pathology Potpourri at Society of Toxicologic Pathology – June 16, Indianapolis, IN

Society of Toxicology Annual Meeting

NIEHS/NTP staff participation

- 44 staff
- 5 talks at continuing education courses
- 3 symposium/workshop chairpersons
- 13 platform/symposium/workshop/information sessions
- 60 posters
- 5 poster-session chairpersons
- 1 exhibitor-hosted session: Implementing New Approaches to Evaluate the Safety of Chemicals and Medical Products in United States
- ToxExpo exhibit with staff-hosted tutoring sessions on BMDExpress 2.0 and the Tox21 toolbox

ICCVAM – NICEATM

Integrate Processes that:

- **Ensure adoption and use of new methods by both regulators and industry**
- **Establish new validation approaches that are more flexible and efficient**
- **Connect end users with the developers of alternative methods**

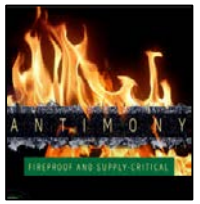
https://ntp.niehs.nih.gov/go/natl-strategy

US Strategic Roadmap Implementation

- FDA's Predictive Toxicology Roadmap (published Dec 2017)
  - https://www.fda.gov/downloads/scienceresearch/specialtopics/regulatoryscience/ucm587831.pdf
- EPA's Draft Strategic Plan to Promote the Development and Implementation of Alternative Test Methods Within TSCA (publication June 22, 2018)
  - https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/alternative-test-methods-and-strategies-reduce
- International collaboration of ICCVAM with ICATM and OECD to develop defined approaches (DA) for skin sensitization testing, based on analysis provided by NICEATM
  - DAs describe specific approaches for integrating data from multiple in vitro assays
  - US EPA is first agency world-wide to adopt a DA for skin sensitization, using data from 2 in vitro methods
  - NTP is currently testing agency-nominated mixtures and formulations in 2 in vitro methods to expand the applicability domain of the EPA-adopted DA

NTP Reports – Peer Reviews

- Report on Carcinogens Monograph on Antimony Trioxide, Jan 24, 2018 (panel)

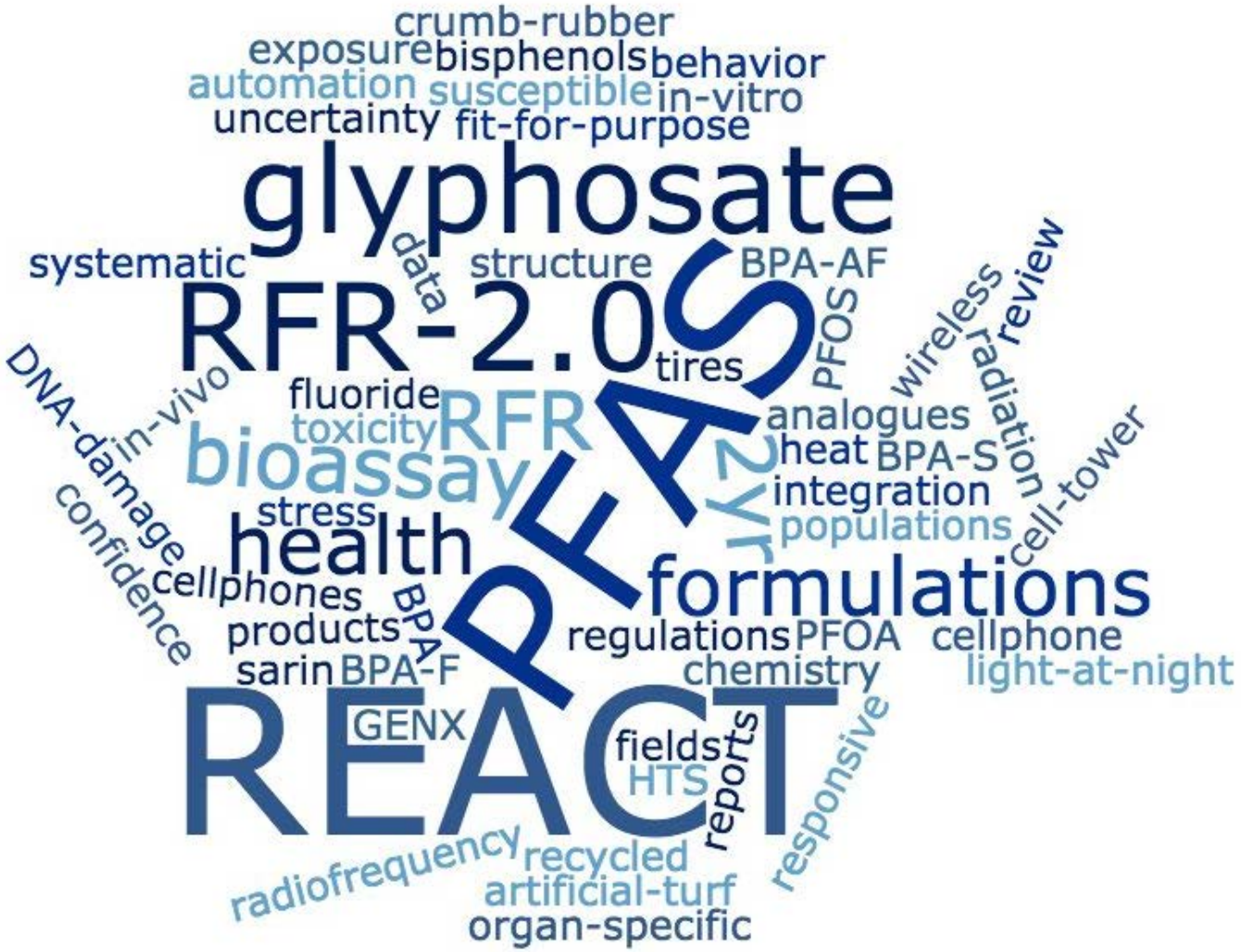


- NTP Technical Reports, March 26-28, 2018 (panel)
  - Cell Phone Radiofrequency Radiation Exposure in Rats
  - Cell Phone Radiofrequency Radiation Exposure in Mice

- NTP Research Report on CLARITY-BPA Core Study, April 26, 2018 (panel)

- NTP Monograph on Occupational Exposure to Cancer Chemotherapy Agents and Adverse Health Outcomes spring (letter)
  - Systematic review of published literature

Hot Topics


crumb-rubber
exposure
bisphenols
behavior
automation
susceptible
in-vitro
uncertainty
fit-for-purpose
glyphosate
systematic
data
structure
BPA-AF
RFR-2.0
PFAS
tires
PFOS
wireless
review
radiation
DNA-damage
in-vivo
fluoride
RFR
toxicity
bioassay
2yr
analogues
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cellphones
BPA
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regulations
PFOA
cellphone
sarin
BPA-F
chemistry
light-at-night
REACT
GENX
fields
HTS
reports
responsive
radiofrequency
recycled
artificial-turf
organ-specific

Thank You!