Mixtures Specialty Section Newsletter

Volume 8, Issue 2 **March 2018**

President's Message

Cynthia Rider, PhD
MixSS President
NIEHS/NTP

Dear Members,

This is my last time putting together the MixSS Newsletter, as my term as President ends in May. It has been such an honor to serve on the MixSS board over the past many years! The MixSS Newsletter has been a favorite hobby (despite a release date that keeps creeping toward the SOT meeting). **I hope that in the future, we can find a MixSS member that wants to take on editing the Newsletter.** If you are that person, who loves writing blurbs and collecting photos of your fellow mixtures pals, please let us know! In the meantime, we will likely cut back to one issue per year to ease pressure on the new team.

Speaking of which, please join me in welcoming the new MixSS Officers for the 2018-2019 Board (page 3). They are going to do a great job leading the MixSS in the coming years. If you have ideas for how to expand membership or increase visibility, please share them with us.

One of the best ways to introduce mixtures concepts to a wider audience is to submit many high-quality mixtures session proposals (see the 2018 mixtures line-up on page 2). We will not have a mixtures CE course at

Flash Mentoring

We are once again trying something new at the 2018 Annual Meeting Mixtures Specialty Section Reception. Last year, everyone did an amazing job with the 3-minute science talks (see pictures in the October 2017 newsletters). This year, we wanted to spread the mentoring wealth by hosting a flash mentoring session.
Here is how it will work:

- We will invite our more experienced MixSS members to spread out around the room (aiming for 2 experts per table).
- We will then invite trainees and junior members to fill seats at the tables.
- We start the 10-min timer – you chat.
- When the timer goes off, trainees will rotate to the next table
- Voila! Connections made, wisdom absorbed

Get to know mixtures researchers from academia, government, not-for-profits, and industry. Entering the job market can be daunting and decisions can seem overwhelming. Find out about the long and winding road of other mixtures experts. What are the lessons learned from the collective experience of our MixSS members?

Inside This Issue

this year's meeting, so it would be great to submit one for 2019. Some of the areas that have been identified as high-demand for a CE course in last year's CE survey are very relevant to mixtures (e.g., combination drug toxicology, microbiome).

Additionally, MixSS is guaranteed one session proposal at the 2019 meeting – this is a relatively new effort by SOT to ensure that specialty sections have a secure session at least once every three years and the rotation includes MixSS in 2019. So, let's submit some fantastic sessions this year (deadline is May 15th, 2018).

Hope you have a perfectly mixed 2018 SOT meeting – I look forward to seeing you in San Antonio!

Sincerely,
Cynthia

2018 SOT Annual Meeting

The What's What of Mixtures at SOT

We have done the sifting, so you don't have to…

Monday, March 12

The **Officers' Meeting** is closed meeting, but you are welcome to let us know if there is something you would like addressed (cynthia.rider@nih.gov).
When: 7:30 – 8:30 am

Symposium Session: Cancer Risk Assessment of PAH Mixtures: Current and Future Directions
Session chairs: M. Margaret Pratt (US EPA) and Cynthia Rider (NIEHS)
Speakers: M. Pratt (US EPA), C. Rider (NIEHS), P. White (Health Canada), S. Tilton (Oregon State University), and J. Lambert (US EPA)
When: 9:15 am – 12:00 pm
Where: CC Hemisfair Ballroom C2

Symposium Session: Chemical Grouping for 21st-Century Toxicology, Risk Assessment, and Decision Making
Session chairs: Jane Ellen Simmons (US EPA) and Mark D. Nelms (ORISE)
Speakers: J.E. Simmons (US EPA), I. Ali (Karolinska Institutet), M.D. Nelms (ORISE), K.N. De Abrew (Proctor and Gamble Company), T.E. Allen (University of Cambridge), J. Swartout (US EPA)
When: 1:45 – 4:30 pm
Where: CC Hemisfair Ballroom C2

MixSS reception – Be there!

Come for the company, stay for the fun. We will start with hors d'oeuvres and socializing, have a flash networking session, and give out awards. You do not have to be a member to join us, so feel free to bring a friend to the reception.
MixSS Meeting/Reception
When: 6:00 – 7:30 pm
Where: Grand Hyatt Lone Star F

Tuesday, March 13

Poster Session: Mixtures
When: displayed 9:15 am – 4:30 pm, attended 1:30 - 3:00 pm (Block C)
Where: Exhibit Hall
Abstract Numbers: 2080-2087b
Poster Board Numbers: P414-P423

Workshop Session: Safety Evaluation of Plant-Based Color Additives Used in Foods
Session chairs: Yu Janet Zang (US FDA) and Maria Bastaki (IACM)
Speakers: M. Bastaki (IACM), G. Pugh Jr. (The Coca Cola Company), S. Talcott (Texas A&M University), H. Oketch-Rabah (USP), Y. Zang (US FDA), S. McAvoy (Sensient Colors LLC)

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When: 1:30 – 4:15 pm
Where: CC Room 301

Wednesday, March 15

Poster Session: Metals and Metal Mixtures
When: displayed 9:15 am – 4:30 pm, attended 10:45 am – 12:15 pm (Block B)
Where: Exhibit Hall
Abstract Numbers: 2984-3015
Poster Board Numbers: P536 - P567

Roundtable Session: Is a Common Mechanism of Action Essential to Conduct a Cumulative Risk Assessment or Just Nice to Have?
Session chairs: Suzanne Fitzpatrick (US FDA) and Elaine M. Faustman (University of Washington)
Speakers: E.M. Faustman (University of Washington), E. Raig (US EPA), A. Hayes (Harvard T.H. Chan School of Public Health), A. Boobis (Imperial College London), S. Fitzpatrick (US FDA)
When: 11:00 am – 12:20 pm
Where: CC Hemisfair Ballroom C2

Symposium Session: Atherosclerosis as a Model to Understand the Combined Effects of Environmental Chemical and Non-Chemical Stressors
Session chairs: Danielle Carlin (NIEHS) and Michelle Olive (NHLBI)
Speakers: W. Cascio (US EPA), M. Olive (NHLBI), S. Srivastava (University of Louisville), B. Hennig (University of Kentucky), C. Menzie (Exponent)
When: 1:30 – 4:15 pm
Where: CC Hemisfair Ballroom C3

Regional Interest Session: Toxicology and Public Health Solutions for Environmental Emergency-Related Contamination Events
Session chairs: Ivan Rusyn (Texas A&M University) and Michael Honeycutt (Texas Commission on Environmental Quality)
Speakers: M. Honeycutt (Texas Commission on Environmental Quality), R. Judson (US EPA), S. Masten (NIEHS), J. Wignall (ICF International), E. Baker (Pacific Northwest National Laboratory), G. Sansom (Texas A&M University)
When: 1:30 – 4:15 pm
Where: CC Stars at Night Ballroom B2

New MixSS Officers

Vice President-Elect: Tom Webster, PhD, DABT
Tom Webster is Professor of Environmental Health at Boston University School of Public Health (BUSPH). He received his BS from MIT and DSc from BU. Dr. Webster has been interested in mixtures since he was a graduate student when he was warned that the problem was too hard! Not discouraged, Tom has been studying mixtures from several angles: toxicology (combining mathematical modeling with experimental tests); exposure (investigating the patterns of joint exposures in human populations); and epidemiology (methods for analyzing epidemiologic data of the effects of mixtures). Dr. Webster, Dr. Jennifer Schlezinger and other colleagues developed an approach called generalized concentration addition for use with mixtures of full and partial agonists. He is PI of a new grant using such component-based methods to estimate the combined effect of ligands for a number of receptors including the androgen and estrogen receptors. Tom believes that the SOT Mixtures Section is unique in bringing together investigators that are interested in this problem and wants to build on that strength by increasing our membership both from within SOT and from other societies.

Councilor: Jennifer Schlezinger, PhD
Dr. Schlezinger received her B.S. in Biology from Boston College and her Ph.D. from the Massachusetts Institute of Technology and Woods Hole

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Oceanographic Institution Joint Program in Biological Oceanography in 1998. Dr. Schlezinger completed her post-doctoral training in Immunotoxicology in the laboratory of Dr. David Sherr at Boston University's School of Public Health (BUSPH), in the department of Environmental Health. Dr. Schlezinger currently is an Associate Professor of Environmental Health at BUSPH. Her laboratory investigates the mechanisms by which environmental contaminants perturb bone and adipose physiology. An important aspect of this research is understanding how the effect of mixtures of nuclear receptor ligands can be predicted. This is a critical question given that a growing number of environmental contaminants are being recognized for their ability to activate nuclear receptors and to impact bone and metabolic health. In collaboration with Dr. Tom Webster (BUSPH), Dr. Schlezinger has validated use of Generalized Concentration Addition (GCA) to model effects of mixtures of AhR ligands and PPARγ ligands. She is an active member of the Society of Toxicology, most recently serving as the Councilor for the Metals Specialty Section. She is striving to contribute in a more substantial way in the Society of Toxicology, by participating in the leadership of the Mixtures Specialty Section, with an eye to helping to develop young scientists and to increase public appreciation and awareness of environmental health science.

Postdoctoral Representative: Courtney Roper, PhD

Courtney Roper is currently working as a NIEHS post-doctoral fellow at Oregon State University. Courtney's research is focused on air pollution, specifically particulate matter, is inherently present as a mixture of chemicals in the environment. Her research focuses on chemical composition and developmental toxicity of particulate matter. In addition to her post-doctoral work, Courtney currently serves as the postdoctoral representative for a regional SOT chapter. She graduated with a PhD in Environmental and Occupational Health from the University of Pittsburgh in 2015, and an M.S. in Biology from New York University in 2011.

Graduate Student Representative: Dami Adebambo, MEM – Doctoral candidate, NC State University

Dami Adebambo is a doctoral candidate in Biology with a minor in Toxicology at North Carolina State University (NCSU), where she has been investigating the association between toxic environmental exposures and placental disorders of pregnancy. She has specifically been focused on exposures to toxic heavy metal mixtures that are of interest because of their ability to cross the placental barrier and accumulate. Her research has elucidated the role of metal-induced oxidative stress, mitochondrial dysfunction and disrupted TGF-beta pathway in utero–placental tissues in disease development. She received her Master's in environmental management with a concentration in ecotoxicology from Duke University and has been carrying out her dissertation research in the laboratories of Dr. Damian Shea at NCSU and Dr. Rebecca Fry at UNC Chapel Hill. She is an author of multiple peer-reviewed articles and has been a member of SOT since 2015.

2019 Mixture Session Proposals

Do you have a great idea for a session, but no time/energy to put it together? Alternatively, do you have the time and energy, but a lack of inspiration? Either way, we want to hear from you. We are actively soliciting mixtures-related CE and session proposals of all types. Email Danielle Carlin (Danielle.carlin@nih.gov) with your ideas to get feedback from the MixSS before submitting. See guidelines for preparing a successful proposal here: https://www.toxicology.org/events/am/AM2018/proposal_guidelines.asp

Upcoming Events

Workshop: Understanding the Combined Effects of Environmental Chemical and Non-Chemical Stressors: Atherosclerosis as a Model

Date: April 3-4, 2018
Location: NIEHS Campus, RTP, NC

Meeting Purpose:
A critical research area that requires further exploration is the biological mechanisms and effects of exposure to both environmental chemicals (e.g., air pollution, polycyclic aromatic hydrocarbons, metals, pesticides) and non-chemical stressors (e.g., psychosocial, lifestyle, quality of life, poor nutrition, infectious agents, physical stressors) over time and the roles they may play in the development of disease (e.g., cancer, cardiac, metabolic, neurological). The goal of this workshop is to identify key biological mechanisms/pathways of the combined effects of chemical and non-chemical stressors associated with atherosclerosis, a disease known to be initiated by both types of stressors. This workshop will bring together experts to discuss the state of the science pertaining to underlying biological pathways associated with, when combined, chemical and non-chemical stressors in relation to this disease.

The workshop will utilize the Adverse Outcome Pathway (AOP) framework to assist in the discussion of key biological mechanisms/pathways associated with this disease. For more information about the AOP framework and its use in the workshop, we ask that all registered participants watch the following webinars before participating in the workshop:

Website:
https://partners.niehs.nih.gov/atherosclerosis/index.htm

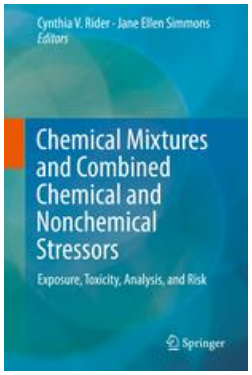
Joint H2020 Workshop: Advancing the Assessment of Chemical Mixtures and their Risks for Human Health and the Environment

Date: May 29-30, 2018
Location: Joint Research Centre, Ispra, Italy

Meeting Purpose:
The purpose of the workshop is to create a joint forum for researchers and policy-makers to discuss and identify gaps in risk assessment and governance of chemical mixtures. It will address how the state-of-the-art knowledge can be used to prioritise new initiatives and strategies to limit unwanted impact on human health and the environment from combined exposure to multiple chemicals.

Website: Not yet available

New Mixtures Book



Many MixSS members contributed to this book. Therefore, we thought it would be fitting to raffle off one copy to attendees of the MixSS reception! **Attend the reception for your chance to win.**

Editors: Cynthia V. Rider and Jane Ellen Simmons
Description: In this book, both basic and advanced concepts are discussed for considering mixtures from initial exposure characterization through evaluation of risk associated with combined exposures. This book will provide an introduction to key issues and multiple options for evaluating both the toxicity of mixtures as well as the risk associated with exposure to mixtures. Additionally, promising tools adapted from other disciplines will be discussed in the context of mixtures toxicology and risk assessment. Finally, the discussion will move beyond chemical mixtures to address incorporating non-chemical stressors into toxicity studies and cumulative risk assessments. Although exposure to multiple chemical and non-chemical stressors is the rule, not the exception, consideration of mixtures in toxicology and risk assessment continues to be a significant challenge.