President’s Message

Hello members of SOT’s Ocular Toxicology Specialty Section (OTSS),

Happy New Year and welcome to 2018. I trust everyone is making plans to attend the 57th Annual Meeting of the Society of Toxicology in San Antonio, Texas, March 11-15. In addition to the main meeting, the OTSS will be holding our Annual Reception from 6:00 PM - 7:30 PM on March 12. I hope all will be able to attend the reception, socialize with old and new fellow members, hear about the excellent work being done by your Specialty Section and celebrate our award recipients.

The OTSS Executive Committee (EC) has been working hard this past year developing and endorsing Workshops and Symposia on topics of interest to our membership. For the first time, the OTSS EC reviewed papers published in Cutaneous and Ocular Toxicology in the past year and recommended to Taylor and Francis the “best” ocular paper for this journal in 2017. I would like to encourage OTSS members to be involved in this and other activities by volunteering on our various committees and by providing suggestions and ideas on topics of interest.

As we continue working to identify additional initiatives to further strengthen and enhance our mission of promoting a forum for interaction among toxicologists and other professionals involved in ocular studies, and to strengthen the ocular leadership, and promote education and mentoring opportunities in ocular toxicology, I would like to encourage you to share your ideas with us. The OTSS EC is here to serve you, and we want to know what matters most to you.

Additionally, I would like to invite everyone to the symposium the OTSS Program Committee put together for this year entitled “Advanced Imaging and Microscopy for Retinal Disease and Toxicity” to be held in March 12 from 8:30 AM to 11:15 AM. This Symposium will be chaired by Drs. Melva Rios-Blanco and Donald Fox.

Once again, I want to acknowledge the hard work of the OTSS leadership and the generous support of our sponsors. The OTSS continues to grow and have an increasing impact on the fields of ocular drug delivery, safety assessment, and ocular toxicology. It has been my privilege to serve as your President over the past year and I thank the membership for the opportunity. Starting in May of this year Dr. Brenda Smith will be taking over as your President.

See you in San Antonio,

Mercedes Salvador-Silva, Ph.D. DABT
OTSS President

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Mark your Calendar

Society of Toxicology
Ocular Toxicology Specialty Section (OTSS) Reception

WHAT: Ocular Toxicology Specialty Section (OTSS) Reception
WHEN: Monday, March 11, 6-7:30pm
WHO: Open to all OTSS and SOT members interested in Ocular Toxicology
WHERE: Grand Hyatt Lone Star B.

Symposium

“Advanced Imaging and Microscopy for Retinal Disease and Toxicity”

Monday, March 12 - 9:15 AM to 12:00 Noon- Grand Hyatt Lone Star B1

Session Description:
The three major challenges in the study of acquired and innate diseases, as well as drugs and toxicants that affect the retina in man and experimental animals, are difficulty in early noninvasive detection of decreased visual function and/or loss with conventional tools and techniques; determination of the cellular site(s) and mechanism(s) of action; and monitoring of progression and/or repair following different treatment/therapeutic regimens. Advances in ocular imaging techniques, for man and experimental animals, provide the ability to noninvasively image individual retinal cells, the optic nerve, and retinal vasculature in living eyes. These new noninvasive techniques enable the clinician and scientist to detect, monitor, and treat retinal disease and injury earlier; to visualize the site of action with greater specificity; and to follow the progress of treatment longitudinally. Moreover, the visualization and determination of the cellular, subcellular, and ultrastructural site and mechanisms of injury in retinas from donated human eyes and experimental animals require a variety of different sophisticated imaging techniques. These newer noninvasive and experimental techniques are readily applicable to the study of drugs and toxicants that produce pathophysiological alterations similar to known retinal and neurodegenerative diseases, or that exacerbate such existing conditions. The objective of the session is to present state-of-the-art research approaches to clinical and experimental animal model imaging and their utility in toxicological research and to show how the obtained data can be utilized for translational research. The presentations will cover the study of different cell populations within the retina and of the supporting vascular networks. Each presentation will share the fundamental aspects of the retina and imaging modalities employed in their work. The first speaker will demonstrate the utility of various optical coherence tomography (OCT) techniques and adaptive optics (AO) to assess morphological and functional changes associated with glaucoma disease progression and treatment in experimental models and evaluation of changes in the retinal nerve fiber layer for early detection. The second speaker will show the utility of AO techniques coupled to advanced imaging techniques to precisely deliver visual stimuli to individual photoreceptors, such that visual function and retinal
structure can be studied with cellular resolution in normal and diseased retinas. The third speaker will describe a combination of microscopic techniques from the cellular to ultrastructural to three-dimensional sub-structural levels that elucidate mechanisms of mitochondrial-mediated retinotoxicity in both human and experimental animals. The final speaker will present research focused on the role of hematopoietic stem cells (HSCs) in the physiological and pathological vascular repair in the retina and the utility of imaging and other techniques to study this phenomenon in experimental animals. Overall, the session will accomplish three goals. First, it will introduce and educate the scientific community on the use of state-of-the-art approaches to noninvasive ocular imaging for the early detection, assessment, progression, and treatment of retinal and vascular damage in man and experimental animals. Second, it will enhance the understanding of retinal sites and mechanisms of action of injury. Third, it will provide a basis for determining the translatability of experimental data to humans. The session will be of interest to basic scientists, clinicians, and researchers engaged in drug development and testing.

**Program:**

- **Cellular and Structural Imaging Techniques in Glaucoma Diagnosis and Treatment**  
  *Stuart McKinnon, MD, PhD. Duke University, Durham, NC*

- **Adaptive Optics Imaging to Study Retinal Degeneration and Response to Treatment**  
  *Jacque Duncan, MD. University of California, San Francisco, San Francisco*

- **Mitochondria-Mediated Retinotoxicity: Determining Pathophysiological Mechanisms Using Multifaceted Image Analysis and Biochemical Techniques**  
  *Donald A. Fox, PhD, ATS – Robson Forensic, Inc., Philadelphia, PA*

- **“Seeing” iPSCs in the Retina during Retinal Repair**  
  *Maria Grant, MD. University of Alabama at Birmingham, Birmingham, AL*

**Session Endorsers:**
Ocular Toxicology Specialty Section, Clinical and Translational Toxicology Specialty Section  
Neurotoxicology Specialty Section  
Innovations in Applied Toxicology (IAT)  
**Chair:** Melva Rios-Blanco  
**Co-Chair:** Donald Fox
Workshop

“Mechanisms of Ocular Sulfur Mustard Toxicity and Potential Therapies”

Wednesday, March 14 - 8:00 AM to 10:45 – CC Stars at Night Ballroom Star B1

Session Description:
Sulfur mustard is a chemical weapon used in World War I and the Iran-Iraq War of the 1980s. The US government still lists it as a potential warfare and terrorist agent. While exposures are often not lethal, long-term or recurrent damage to the eyes, skin, and lungs can occur. Sulfur mustard is presently a concern because it has been reported that ISIS has produced and used sulfur mustard against its adversaries. In an ISIS conflict with Syrians on August 21, 2015, unsuspecting victims developed blisters, and sulfur mustard residue was confirmed on pieces of artillery shells. Individuals do not usually feel exposure to sulfur mustard exposure until a few hours after it has occurred. This results in confusion and panic, making mustard an ideal terrorist agent. To date, there are no US Food and Drug Administration-approved therapies to treat sulfur mustard exposure of any organ, partly due to the fact that the mechanisms of toxicity of mustards are not yet well-understood. Because of government restrictions on the use of sulfur mustard, academics often use nitrogen mustard for preliminary exposures experiments and subsequently confirm their results with sulfur mustard exposures performed by companies or the Department of Defense, who are authorized to use the agent. The goal of this session is to highlight: 1) research resulting in new information on molecular pathways activated by mustard exposure; 2) new developments in how ocular exposures are performed to attain the most reliable and reproducible injury; and 3) research efforts using the newer molecular pathway information to identify potential therapies for ocular sulfur mustard exposure. Speakers will include an industry representative providing a new method of ocular mustard exposure, as well as researchers from academic, federal, and private institutions who are using the recently-identified mechanisms of mustard toxicity to identify potential ocular therapies.

Program:
- **CounterACT: Countermeasures against Chemical Threats: Ocular Exposures**
  *H. Araj. National Eye Institute (NEI), Bethesda, MD.*

- **Acute and Chronic Pathologies in the Corneal Endothelium Following Ocular Sulfur Mustard Exposure: A New Model of Corneal Injury Progression.**  *P. McNutt. US Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD.*

- **Ocular Injuries by Vesicating Agents: Models and Development of Medical Countermeasures.**  *N. Tewari-Singh. University of Colorado, Aurora, CO.*

- **Engineered FGF-1s as Therapeutics for Ocular Vesicant Injury.**  *D. Eveleth. Trefoil Therapeutics, LLC, San Diego, CA. Sponsor: V. Vasiliou*

Session Endorsers:
- Ocular Toxicology Specialty Section and Women in Toxicology Special Interest Group

**Chair:** Vasilis Vasiliou

**Co-Chair:** Marion K. Gordon, Rutgers
Poster Sessions

Ocular Toxicology

WHAT: Ocular Toxicology Posters
WHEN: Monday, March 12, 9:15am-4:30pm
WHAT: Poster #1487–1497 Poster Boards P701 – P711
WHERE: CC Exhibit Hall.

Alternatives to Mammalian Models III: Liver, Ocular, and Skin Alternatives

WHAT: Alternatives to Mammalian Models III: Liver, Ocular, and Skin Alternatives Posters
WHEN: Wednesday, March 14, 9:15am-4:30pm
WHAT: Poster #3138–3166 Poster Boards P771 – P799
WHERE: CC Exhibit Hall.

Renew your Membership!

It is that time of the year when people are planning to register for the Annual Meeting and to renew their SOT membership, so we wanted to remind you to re-register as an OTSS member. The OTSS committee actively seeks to enhance and promote ocular toxicology and related sessions at the SOT. Additionally, by sponsoring the Covance-OSOD Graduate Student/Postdoctoral Fellow Research Award and the Trainee Travel Award, the OTSS is committed to growing and supporting our young scientists. Please renew today, and encourage your colleagues to join!

Click here for a direct link
This year there were no nominations for the Ocular Toxicology SS Career Achievement Award. The OTSS would like to recognize lifetime achievements for contribution of a particularly influential body of work to the field of ocular toxicology. We are inviting to the OTSS members to nominate colleagues and mentors or self-nominate potential Career Achievement Award for 2019 and beyond. The award nominees will be selected based on the depth and breadth of scientific contributions and significance of contributions for advancing the field of ocular toxicology. Among the factors included are the education/training/mentorship of young scientists, influence on regulatory and risk/safety assessment decisions related to ocular toxicology, and leadership and service to the ocular toxicology field.

Supporters

We sincerely thank you for your generous support!!

2017 – 2018 Supporters