



Society of Toxicology

INHALATION AND RESPIRATORY SPECIALTY SECTION



Dear IRSS Members,

The annual SOT meeting in Phoenix was a great success with many interesting sessions. I liked the venue too, good food, warm weather!! In addition to plenary and MRC lectures, many state-of-the-art science sessions were offered. Several sessions pertaining to inhalational biology were offered. Unfortunately, several IRSS sponsored sessions were placed on the last day of the meeting where expectantly attendance was limited. I have brought up this issue to the SOT Program Committee Chair and hope that this issue will be addressed for future meetings. For the 2014 SOT meeting, I am proud to report that we had sponsored 11 sessions with primary sponsorship and 3 with secondary sponsorship, of which 9 were accepted in the program. Organizing CE courses and presenting lectures is not a trivial task; it takes a tremendous amount of work. So my sincere thank-you and congratulations to the organizers and presenters for their hard work and impressive showing. Both courses were highlighted in the SOT Blog during the meeting. IRSS sponsored sessions were certainly on the radar!!! SOT had press releases for some of the IRSS sponsored sessions. So good show of IRSS!!!

Bright Sun, Brilliant Science

**The 53rd Annual Meeting & ToxExpo
was held in Phoenix, Arizona
This Years Registrant Total: 6,525**

To see additional information:

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SPRING 2014

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Message from Incoming President

Urmila P. Kodavanti



Message from Incoming President:

Urmila P. Kodavanti

We all know that the field of biology has exploded with new technologies and discoveries; inhalation toxicology has no more remained the toxicology of the lung; rather the health effects occurring away from the lung have dominated the field. We, the IRSS in toxicology remain at the most significant juncture, as inhalation is an important route of entry for not only toxicants but also for drug delivery. Therefore, I encourage young scientists and students who are doing cutting edge research, to think outside the box, and propose sessions that consider the inhalation route but expand beyond the lung. This exercise provides visibility and an excellent opportunity to interact with those who do great science, network, learn and expand one's career path. Our VP, Jake McDonald (JMcDonald@lrri.org) is the Program Committee Chair, who has provided more details on how to develop proposals and submit to IRSS by April 15. If you have any questions about the proposal submission, please let one of us know. The deadline is rapidly approaching for submitting proposals to SOT by April 30 at https://www.toxicology.org/ms/SciSess_proposal.asp.

Thank you all for attending our Monday evening IRSS reception. Congratulations to our award winners!!! It is so refreshing to see rising graduates and scientists get recognized for their great science!!! I encourage the mentors of eligible IRSS members to seriously consider nominating students, post-doctoral fellows and young scientists when they have done deserving work. It not only reflects great on the winners but also on the mentors. We have learned a great deal of inhalation science from our peers who have done meritorious research and made a difference on how we estimate the risk of inhalants. My sincere congratulations goes to Dr. Juergen Pauluhn, who was our 2014 Career Achievement Award winner!!! Well deserved!!!

[CLICK HERE TO LEARN
HOW YOU
CAN GET INVOLVED WITH SOT](#)

I am excited that we have a great enthusiastic and young IRSS committee (except for me and I don't want to point more!), which is needed to improve the face of IRSS. The committee is dedicated to making the IRSS more visible, recognize good science in an unbiased manner, showcase the depth of inhalation related research, and support the goals of our SS. We have talked about updating our website within the SOT web for a couple of years. I am glad that Cara Sherwood (caras@email.arizona.edu) who is our Post-Doctoral Representative has taken a lead in this effort and already begun working with the SOT Liaison and the web developer. You will see an update from her plan below. Last but not least, I hope Annemoon will consider reapplying for the Secretary position. Thank you Annemoon for keeping our books in check and alerting us of the red zone! And, also for finding the ways to get real food for our future reception without spending our hard earned dollars. Those \$\$ can be put back into the pockets of the deserving and monetarily poor students who win awards, and for new educational opportunities. I know your work goes beyond a check!!!

Harry Salem, our Technical Committee leader for many years has organized the technical committee meeting each year and supported the development of newsletters. He was not able to attend the SOT meeting, but graciously organized with Jan Moser the technical meeting on Wednesday morning during SOT. The goal of this committee is to bring forth the technical issues that are very pertinent to data interpretation for inhalation toxicology. This year's presentation was given, again by Juergen Pauluhn, who has pioneered the inhalation methods for rodents and the consideration of reflexively-mediated changes in physiology that result in reduction of pulmonary delivered dose. You will see the concise summary and main message of his presentation below. My respectful appreciation for Harry and Jan for organizing the Technical Committee presentation this year.

Finally, our Councilors, in addition to reviewing dozens of award applications, provide great scientific insights through

review of our program proposals and other help when needed. At any given time, we have 4 Councilors with a 2-year term. So each year we elect two new councilors. It is obvious from our impressive acceptance of the program proposals, that their advice and feedback on the quality of proposals are crucial prior to submission to SOT. So thanks to our current and retired councilors for their expertise and help in 2013-2014. We said good-bye to our two Councilors, Dr. Mitch Cohen and Dr. Stephen Gavett, and welcomed to our two new Councilors, Dr. Mehdi Hazari and Dr. Matthew Reed, who with two other councilors in their second year, Kenneth Sexton and Amy Lambert, will assume their duties by helping with the 2015 program proposals and Awards. Our Student and Post-Doctoral representatives interact with the IRSS committee in every aspect of the work, in addition to preparing a poster for our specialty section. More importantly, I am impressed that both our representatives this past year interacted with the primary SOT and participated by volunteering and engaging in educational and communication activities for students and postdoctoral fellows, an essential component needed to expand the opportunities for our members and attract young membership for our SS.

In this newsletter letter you will find more information about the program, the technical committee, the meeting minutes from our Secretary, and some pictures that were captured during our reception. Thank you all for supporting the IRSS and making it better!!! It is the membership's involvement, and support that makes the IRSS. Looking forward to serving as the IRSS president and seeing you all in San Diego during the 2015 SOT meeting!!!

Urmila Kodavanti



Program Committee: Jake McDonald

Development of IRSS Submission for 2015

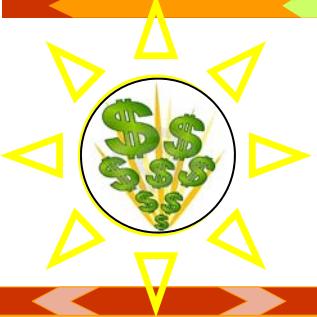
The 2014 IRSS sponsored program was a great success! We are looking into another successful year for IRSS sponsored proposals for 2015 SOT. The ideas for the technical program arise from the talent and work of you, our membership. We would like to have a balanced portfolio this year that spans the important topic areas of interest to the members of IRSS. There are a number of new and interesting research areas that are of interest to environmental toxicology, tobacco regulation, agrochemical risk assessment, and respiratory drug development. Similar to last year, each proposal will now be able to have up to 3 different Specialty Section sponsors. Proposals that are endorsed by multiple specialty

section may get preference. Proposals could be submitted in a number of categories such as symposium, workshop, roundtable, historical highlights, and continuing education courses. Also, the proposals deemed important but not accepted in prior years could be modified and considered for resubmission. Please refer to the 2015 proposal submission instructions and guidelines for preparing proposals (http://toxicology.org/main/sessionProposalSubmit_Instr.asp). The deadline for completed proposal submission at the SOT website is April 30, 2014. The proposals prepared for IRSS sponsorship should be submitted to me by April 15, 2014 (jmcdonal@lrri.org)

to allow for IRSS review and suggestions for improvement/recommendation. In addition to providing feedback, the committee may also make a suggestion for a change in the session category. The SOT also considers continuing education by sponsored webinars. The ideas for future webinars on the topics of interest to IRSS should also be submitted to Jake McDonald so that the process of soliciting and organizing Webinars can be initiated through SOT. The Program Committee hopes that the IRSS members will consider submitting innovative proposals for the 2015 scientific program.

"Dedicated to Creating a Safer and Healthier World by Advancing the Science of Toxicology"

Message from your Treasurer, Annemoon van Erp:



WHAT IS TOXICOLOGY?

Toxicology is the study of the adverse effects of chemical, physical, or biological agents on people, animals, and the environment.

Toxicologists are scientists trained to investigate, interpret, and communicate the nature of those effects.

As I mentioned during the business meeting on Monday March 24 (see minutes elsewhere in this newsletter), the IRSS finances took a minor hit last year due to the cost of the reception at the Annual meeting in San Antonio TX, which was unfortunately not offset by the income from membership and meeting attendance. Total expenses for 2013 (including reception and the IRSS Awards) were \$8,041 and the total income (including interest) was \$6,848, which means the IRSS lost \$1,193 during 2013. As a result, you may have noticed that we had to scale back the food provided at the reception in Phoenix AZ.

To revive our financial situation, we hope to attract sponsorship for the meeting next year in San Diego CA. Sponsorship is possible within the following SOT guidelines: (1) we can thank sponsors during the reception; (2) we can print their logo on the business meeting agenda; (3) we can thank them in our newsletter. Restrictions are that sponsors *cannot* hand out fliers or other materials at the reception, and we cannot approach corporate headquarters of official SOT sponsors (<http://www.toxicology.org/ms/sponsors.asp>). However, individual departments of official SOT sponsors are allowed as sponsors of specialty sections. SOT officers said that they will provide detailed guidelines later this month. If you know companies who might be interested in sponsoring the IRSS, please forward their contact information to Annemoon van Erp (avanerp@healtheffects.org or +1-617-488-2346) or another IRSS officer, or they can contact one of us directly. Thank you in advance for your help.

Meet SOT Leaders: SOT is led by a group of full-time board members, called Councilors, who are elected by ballot by the full membership and who manage the affairs of SOT. [CLICK HERE](#) to learn more about SOT Leaders!

Message from Cara Sherwood

"All substances
are poisons;
there is none
which is not a
poison. The
right dose
differentiates a
poison and a
remedy."
Paracelsus
(1493-1541)

IRSS Post-Doctoral Representative

As your Post-Doctoral Representative, I have been tasked with giving the IRSS website a makeover! We plan to upgrade the functionality, informational content and overall appearance of the site. We will keep our website up to date with ongoing activities associated with our chapter (e.g. webinars, relevant deadlines). If you have any comments or suggestions as to how we can improve our IRSS website please email me at caras@email.arizona.edu.



I am a medical student currently doing a rotation in toxicology at the poison control center. Today, this woman called in very upset because she caught her little daughter eating ants.

I quickly reassured her that the ants are not harmful and there would be no need to bring her daughter into the hospital. She calmed down, and at the end of the conversation happened to mention that she gave her daughter some ant poison to eat in order to kill the ants. I told her that she better bring her daughter in to the Emergency room right away.

2014 TECHNICAL COMMITTEE PRESENTATION

Inhalation Exposure Methodologies for Rodents and Non-rodents to accommodate Measurements of cardiopulmonary Function.

Jürgen Pauluhn, Bayer HealthCare/Pharma, Wuppertal, Germany

Cardiopulmonary endpoints inhalation bioassays yield invaluable diagnostic and prognostic information in a variety of drug-, particle- or chemical-induced cardiovascular disorders. These endpoints have been highlighted in many research-based inhalation bioassays to be important for a more refined risk characterization and assessment. These endpoints are receiving increasing attention as they may interrelate complex rodent-specific nociceptive reflexes with toxicological outcomes. Notably, such reflexes are operative in a rodent-specific protective manner to either minimize the inhaled dose or its distribu-

tion to vital organs. Any combination of over-stimulated self-protection, combined with local pulmonary toxicity, may produce adverse physiological conditions. Examples were presented that nociceptive sensory C-fiber stimulation may lead in rats to hypothermia, bradypnea, bradycardia, and arterial pulmonary hypertension with resultant hemodynamic changes that include vasoconstriction and clogging of pulmonary capillaries. So far, such pathologies are addressed in their terminal phenotype only and without any clear understanding of the sequence of (neuro-) physiological events involved. Jürgen's



juergen.pauluhn@bayer.com

talk spanned methodological aspects to accommodate such endpoints in rodent and non-rodent inhalation bioassays to the significance of cardiopulmonary endpoints for human risk assessment.

TECHNICAL COMMITTEE

Dr. Jan Moser moderated the Technical Committee meeting on Wednesday morning during SOT. And Juergen Pauluhn made a presentation on inhalation exposure methodologies for rodents and non-rodents to accommodate measurement of cardiopulmonary function. He has kindly provided the synopsis of his presentation is on previous page.

The technical committee met on Wednesday morning from 0800-0930. Jan Moser from CSAC (DHS) chaired this year's meeting since Harry Salem was not able to attend.

The "OECD Guidelines for Deposition and Kinetics of Nanoparticles" was presented by Juergen Pauluhn who was awarded the IRSS Career Achievement Award.

DEADLINE TO SUBMIT A SCIENTIFIC SESSION PROPOSAL FOR 2015 SOT ANNUAL MEETING IS APRIL 30, 2013
[CLICK HERE FOR MORE DETAILS](#)

Issues Discussed:

1. It was suggested that a US Inhalation expert should be present at the OECD meeting.
2. Europe is considering an unusual approach with nanoparticles. They are considering the same oral or systematic dose as the inhalation doses. This appears to be a problem.
3. OECD is writing up standards based on this approach.
4. Perhaps we should suggest a workshop or even offer to assist.
5. Technical Committee or Specialty Section should prepare a Position Paper on Nanoparticles and Kinetics before OECD drafts their regulatory guidelines.
6. As a second topic, the Technical Committee or Specialty Section should also prepare a paper on Guidance for Alternative Techniques for Nanoparticles

AWARDS

Awards: Jake McDonald, Vice-President Elect, mentioned that there were many high quality nominations, and especially among the younger folks there were many deserving applications that competed for the honors. He presented the following awards:

The Student Award went to Desinia Miller, from the University of North Carolina, for her abstract: "Metabolomic profiling and liver transcriptomic analysis provides mechanistic evidence of ozone (O_3)-induced systemic metabolic impairment."

The Mary Amdur Award, which is supported by the Mary Amdur Endowment Fund, is awarded to the student who submits an abstract that best addresses the environmental health issues that were the focus of Dr. Amdur's research. The winner of the 2014 Mary Amdur Award was Mary Popovech, from New York University, for her abstract: "Acute and subchronic, *in vivo*, exposure to inhaled silver-nanoparticles results in alterations in gene expression, gene-specific promoter methylation, and inner and outer mitochondrial membrane integrity."

The Postdoctoral Award went to Melissa Badding, from the National Institute for Occupational Safety and Health, for her abstract: "Compounds collected from indium-tin oxide production induce inflammatory responses from cultured macrophages and bronchial epithelial cells."

The IRSS Paper of the Year award, which is given to the best paper in the area of respiratory / inhalation toxicology (published in the previous calendar year) was awarded to Chad Weldy, from the University of Washington. Full citation: Weldy CS, Liu Y, Chang YC, Medvedev IO, Fox JR, Larson TV, Chien WM, Chin MT. *In utero and early life exposure to diesel exhaust air pollution increases adult susceptibility to heart failure in mice*. Part Fibre Toxicol. 2013 Nov 26;10(1):59.

SEE PICTURES ON Page 7 & 8

Next, Dr. McDonald introduced the IRSS Young Investigator Award, which is given to a scientist with less than 15 years experience since obtaining their highest degree, who has made significant contributions to the field of inhalation and respiratory toxicology. The winner of the 2014 Young Investigator Award was Timothy Nurkiewicz of West Virginia University.



MINUTES FROM THE IRSS MEETING

Society of Toxicology Conference, Phoenix AZ

March 24, 2014; 6:00-7:30 pm by IRSS Secretary, Annemoon van Erp

The meeting was called to order at 6:35 pm.

Welcome and Opening Comments: Ian Gilmour, president of IRSS, welcomed the IRSS members. He mentioned that he had asked SOT whether the meeting could be held on Monday night and that he might poll IRSS members to ask whether they like the new time slot. He mentioned that the IRSS had been quite successful in getting sessions accepted by SOT for the 2014 meeting.

[CLICK HERE FOR MORE INFORMATION ON THE IRSS](#)

Treasurer's and Endowment Report: Annemoon van Erp, Secretary / Treasurer, announced that the IRSS account on January 1, 2014 was \$5,684, which was \$1,193 less than the funds on January 1, 2013 (at \$6,877). Even though membership has increased to 316 from 283 in the past year, the incoming funds did not cover the increasing costs of the reception. This is the reason that the reception this year was scaled back to "chips and dips" instead of appetizers. In contrast, the Mary Amdur Endowment Fund is doing very well: current funds are \$72,123, which is an increase of \$11,075 from last year. Dr. van Erp thanked the members who contributed to the fund; all contributions were matched by SOT. To alleviate the budgetary issues, the IRSS is currently looking into possible sponsorship of the reception.

Program Report: Urmila Kodavanti, Vice-President, mentioned the tremendous success this year regarding the number of session accepted for the SOT program. She listed the sessions (two symposia, four workshops, one roundtable, and two Continuing Education courses). She encouraged people to start thinking about session proposals for next year, and explained that they will be reviewed by the IRSS officers (led by Vice-President Elect, Jake McDonald) before submission to SOT. She kindly requested that members submit their proposal to Dr. McDonald

(jmcdonal@irri.org) by April 15, so the IRSS has time to provide feedback to improve proposals before the SOT deadline on April 30. The IRSS may also make recommendations about the session format (symposium versus workshop etc.) because spreading sessions across different formats has shown to be a more successful strategy.

Introduction of Incoming Officers:

Ian Gilmour took the floor on behalf of Michael Kleinman, Past President, who could not be present, to introduce the incoming officers:

Vice President-Elect: *Flemming Cassee*
Councilors: *Mehdi Hazari*
Matt Reed

Postdoc Representative: *Cara Sherwood*
Student Representative: *Desinia Miller* (back by popular demand, but with a name change)

He then asked for a moment of silence to remember Paul Morrow, emeritus professor at the University of Rochester, who passed away in December 2013.

Acknowledgment of

Outgoing Officers: Urmila Kodavanti thanked the outgoing officers for their services to the IRSS. They share all the work in reviewing session proposals and award nominations. Plaques of appreciation to:

Mitch Cohen – Councilor
Steve Gavett – Councilor
Samantha Snow – Postdoc Rep
Desinia Miller – Student Rep
Ian Gilmour – President

Dr. Kodavanti extended a special thank-you to Dr. Gilmour for his leadership and efforts to increase membership and improve the success rate of session proposals.

Trainee Activity Report: Desinia Miller said that she had been a representative at the graduate student council and had been part of the professional development committee, which had held a webinar for science writing. She had also prepared the IRSS poster and displayed it at the postdoc and graduate student mixer. She had spoken with other students to encourage them to submit session proposals and mentioned some topics that were suggested: 1) Redefining ROS involvement in cell signaling; 2) Gaps between epidemiological and experimental approaches in studying health effects of air pollution and possible solutions, 3) The role of air pollution in thrombosis and clotting factors.

Contemporary Concepts in Toxicology: Elaina Kenyon introduced herself as the contact for the CCT committee, which is reaching out to all specialty sections to develop proposals for CCT meetings or webinars. She explained that SOT provides \$25,000 seed money per meeting, and provides full logistical support so the specialty section can focus on the science. If there are proceeds above \$25K, then the SOT and specialty section will share the profits. Specialty sections, individuals, and collaborating groups of specialty sections can propose meeting topics, which should be about emerging science, somewhat controversial, and of global interest. The CCT committee will review pre-proposals to streamline the proposal submission, providing quick feedback about the viability of a topic. Preferably, the proposal should include balanced sectors of representation (government, academia, industry). A CCT member will mentor the person submitting the proposal. An example of a successful CCT meeting was the recently held FutureTox II meeting in North Carolina. More information is available at www.toxicology.org/ms/cctMeetings.asp.

Technical Committee Report: Ian Gilmour stood in for Harry Salem, who unfortunately did not receive travel approval in time to attend the meeting this year. Dr. Gilmour explained that Dr. Salem develops newsletters and selects topics for the Technical Committee meeting. The Committee discusses topics relevant to inhalation toxicology and writes white papers as appropriate. This year, the meeting was led by Jan Moser and took place on Wednesday morning from 8-9:30 AM in Room 230. Juergen Pauhlun discussed OECD guidelines for testing nanoparticles.

New Business: Dr. Kodavanti, the incoming IRSS President opened the floor for any new business or comments from the membership. No topics were brought forward. She then announced that the IRSS would work on improving the website, and update the list of officer duties to clarify what each person's tasks are. She also asked members again to think about session proposals. Finally, she mentioned that the IRSS would prepare a newsletter that would list the deadlines.

AWARDS PICTURES (presented by Jake McDonald)



LEFT: The Student Award went to Desinia Miller, from the University of North Carolina, for her abstract: "Metabolomic profiling and liver transcriptomic analysis provides mechanistic evidence of ozone (O_3)-induced systemic metabolic impairment."



ABOVE: The Mary Amdur Student Award went to Mary Popovech, from New York University, for her abstract: "Acute and subchronic, *in vivo*, exposure to inhaled silver-nanoparticles results in alterations in gene expression, gene-specific promoter methylation, and inner and outer mitochondrial membrane integrity."



ABOVE: The Postdoctoral Award went to Melissa Badding, from the National Institute for Occupational Safety and Health, for her abstract: "Compounds collected from indium-tin oxide production induce inflammatory responses from cultured macrophages and bronchial epithelial cells."



MORE PICTURES ON NEXT PAGE

AWARDS PICTURES (presented by Jake McDonald & Urmila Kodavanti)



RIGHT: The IRSS Young Investigator Award went to Timothy Nurkiewicz of West Virginia University.

BELOW: Dr. McDonald on behalf of Harry Salem presenting the IRSS Career Achievement Award, to Juergen Pauluhn from *Bayer HealthCare/Pharma, Wuppertal, Germany*.



ABOVE: The IRSS Paper of the Year award went to Chad Weldy, from the University of Washington for his paper: Weldy CS, Liu Y, Chang YC, Medvedev IO, Fox JR, Larson TV, Chien WM, Chin MT. *In utero and early life exposure to diesel exhaust air pollution increases adult susceptibility to heart failure in mice*. Part Fibre Toxicol. 2013 Nov 26;10(1):59.



BELOW: Dr. Kodavanti extended a special thank-you to Dr. Gilmour for his leadership and excellent service for 3 years.



KEY DEADLINES

2015 Session Proposal
Deadline: April 30, 2014

Access Information and
Guidelines for Scientific
Session Proposal Submission

Abstract Submission
Deadline: October 7, 2014

SOT Award Nominations
Deadline: October 9, 2014

2015 Annual Meeting
Registration and
Housing Reservation
open in early July.

Your support helps SOT
keep registration fees low.
Learn more about
becoming a Supporter.



[CLICK HERE FOR DETAILS ON
THE 54th SOT IN SAN DIEGO!](#)