

ONLINE



Communiqué

Spring Issue 2013

SOT News

President's Message



*President
Lois D. Lehman-
McKeeman*

Spring is a season of transformation. For those of us living in regions that enjoy four unique seasons, spring particularly brings a sense of renewal as flowers, leaves, and grasses (and possibly allergies) bud and grow. Perhaps it is only fitting that for the Society of Toxicology (SOT), spring also brings the start of the new administrative year for the Society. With that, I am both honored and humbled to begin my term as President of the SOT.

The highly integrative nature of toxicology research and risk assessment is one of the attributes that attracted me to this science many years ago. One of the best, most visible examples of the multi-disciplinary nature of our field is the content of our Annual Meeting, and I hope that most of you were able to attend and enjoy our recent meeting in San Antonio. The meeting featured diverse sessions, from outstanding keynote speakers, symposia featuring the latest science, and sessions to enhance career development, along with opportunities to network, mentor, and in that perpetual motion way, begin planning for the next year's meeting. During the past year, SOT Council considered a variety of ways to continue to improve the Annual Meeting, both scientifically and professionally, and I hope you saw some of those efforts in action in San

Antonio. However, this job is not yet finished, and I want to personally thank those of you who took the time to complete several surveys that were distributed after the meeting. We are evaluating your responses to such issues as how to present posters to help ensure that attendees get to see everything they are interested in, to consider the overall meeting length and schedule, and to garner feedback on the overall quality of the sessions. The results of these surveys along with any plans to modify current meeting practices will be shared with you as SOT Council and the Scientific Program Committee complete the review of your feedback.

Before leaving the subject of the Annual Meeting, I am pleased to report that we have confirmed the Plenary Opening Lecturer for the 2014 Annual Meeting. Sir John B. Gurdon, recipient of the 2012 Nobel Prize in Physiology or Medicine for his seminal work on pluripotent stem cells, has agreed to join us in Phoenix. The Scientific Program Committee, under the leadership of SOT Vice President, Norbert E. Kaminiski and Vice President-Elect, Peter L. Goering, are now in the active phase of reviewing session proposals and making plans for another outstanding slate of sessions for the 2014 Annual Meeting. The work of this committee is challenging, as it tries to develop a diverse, well-rounded program, and I know we all look forward to learning more about the content of the scientific program for our Annual Meeting in Phoenix next March.

A major accomplishment of the Society in the past several months has been the completion of an issues statement regarding the human and environmental health implications of hydraulic fracturing (fracking). The statement, entitled "The Role of Toxicological Science in Meeting the Challenges and Opportunities of Hydraulic Fracturing" is objective, informative, and succinct, and provides perspective on the needs and challenges for fully understanding both the benefits and potential risks of this enterprise. More importantly, however, the statement defines how toxicology can and

should be integrated in ongoing safety and regulatory discussions on this emerging issue, as our collective expertise is essential to protecting human and environmental health. The draft statement was made available for member comments until early May, and the document is undergoing final revisions for release in the near future. The Communications Committee has developed a preliminary plan for disseminating this statement in order to reach audiences in the general public, key regulators, and members of Congress. You can look for the final version of the issues statement on the SOT website, and we certainly hope to bring attention to it through a comprehensive communication strategy.

My final perspective for this message is to briefly describe a major area of focus and strategic planning for the next year, and it follows from the issues statement described above. Our current strategic plan places considerable emphasis on promoting the recognition and communicating the value of toxicology, and our Communications Committee is charged with leading this outreach to external audiences. During this next year, SOT Council will be working closely with the Communications Committee to critically evaluate our efforts in this important area. In a recent editorial on communicating science, Alan Leshner noted that “Public understanding of science not only affects people’s ability to appreciate and make full use of the products of science, it also contributes to the extent of support for scientific research¹.” I think that sentiment captures how important an effective external communication strategy is to our entire membership. However, as scientists, we tend to be reluctant and somewhat ineffective at conveying the relevance and significance of our research to the general society. Moreover, effective communication can be hindered by the fact that the diversity of opinions is often directly proportional to the perceived significance of a scientific issue. How then can we establish SOT and the science of toxicology as a credible, valuable resource to effectively engage in scientific communication? During this review, we will be working to: (1) prioritize the external audiences that we need to reach; (2) better understand what information these target audiences want or need to learn about; and (3) define whether and how we can deliver such information. If successful in our efforts, we will have a strategically focused plan to enable proactive, consistent, and sustained communication activities that effectively promote the recognition of toxicology. I hope to share progress with you on this important endeavor in future messages.

In closing, I am looking forward to a busy but exciting and productive term as SOT President. I plan to share progress on the many important activities of SOT over the next year, and I am happy to discuss issues and concerns at any time.

1. Leshner, A. I. Capably communicating science. 2012. *Science* 337: 777.

Lois D. Lehman-McKeeman, PhD, ATS

2013–2014 SOT President

2014 SOT Awards and Fellowships Site Opens To Accept Applications and Nominations on July 1

Plan now to apply for or to nominate a deserving colleague for one of the many prestigious SOT or Sponsored Awards.

The SOT Awards Committee encourages you to nominate a deserving colleague for a [2014 SOT Award](#). And now is the time to begin planning to do so as the SOT Awards and Fellowships module officially opens on July 1 to begin accepting applications and nominations for the 2014 SOT and Sponsored Awards.

No doubt
you
know
someone
who is
worthy
of
special



SOT 2012–2013 President William Slikker, Jr. welcomes Annual Meeting attendees to the Awards Ceremony

recognition for his or her work and you can play an important role in assuring the acknowledgement of these accomplishments. This summer, plan on nominating a colleague or colleagues for one or more of the SOT Awards. It may be someone you work closely with—or admire from afar...a deserving member, leader or past leader of your Regional Chapter, Special Interest Group, or Regional Chapter...a postdoctoral researcher or graduate student...an Associate, Full, Retired, or Emeritus member. SOT presents many prestigious awards to both members and nonmembers alike—from the Achievement and Merit Awards to the Translational Impact and Leading Edge in Basic Science Awards. Criteria for individual awards, including nomination and application details, are available on the [Awards and Fellowships](#) section of the SOT website. Why not take the time now to review the award criteria to determine just who you will nominate for the 2014 SOT Awards—or which award you may apply for directly?

Don't wait to nominate, plan on doing so now.

Many of the prestigious SOT Awards require nominations by two Full members of the Society (a primary and secondary nominator). Both letters of nomination should provide documentation and descriptions of career highlights for the nominee and his or her significant contributions to toxicology. The nominee's curriculum vitae (CV) also should be included. Both letters of nomination and the nominee's CV may be uploaded via the SOT Awards and Fellowships online nomination and application system. Simply go to [Awards and Fellowships](#) and select the appropriate award from the complete award listing.

Nominations for the 2014 SOT Awards are open through October 9, 2013. But why wait to nominate? The online nomination system opens on July 1 so you can begin the process today to be sure your nomination(s) are completed by the deadline. And yes, it takes time and planning to complete an award-winning application or nomination. So now is the time to plan on doing so.

There also are many Regional Chapter, Special Interest Group, Specialty Section, and sponsored awards offered, some that are underwritten by the SOT Endowment Fund, which are listed on the Awards and Fellowships site. Many of these awards are meant specifically for graduate students to travel to the Annual Meeting—such as the SOT Graduate Student Travel Support Awards—as well as to further postdoctoral research, such as the Colgate-Palmolive Postdoctoral Fellowship Award in *In Vitro* Toxicology. Please see the complete list of Sponsored Awards and encourage students, postdocs, or colleagues to apply.

You may also want to review the [Historical Listing of SOT Award Recipients](#) for previous winners of both SOT and sponsored awards. Who isn't on list who should be?

Featured SOT Award recipients will be recognized at the special Awards Ceremony at the 2014 SOT Annual Meeting in Phoenix, Arizona, and many awards provide plaques and stipends. Additional publicity is provided on the SOT website and in the Annual Meeting *Program* and the annual *SOT Membership Directory*.

Please note: Several awards, including the SOT Graduate Student Travel Support Awards, require that the applicant submit an abstract for the meeting. All abstracts for the 2014 SOT Annual Meeting are to be submitted online by 11:59 pm EDT on October 7, 2013.

Most SOT student awards require that the award applicant is a student member or has completed an [application for membership](#), so research mentors should encourage students to submit a membership application prior to applying for any award requiring either membership or pending membership in the Society. The next deadline to submit applications for membership is September 1, 2013. Applications completed and received by that date will be reviewed by the Membership Committee in the fall; accepted members will be notified prior to January 1, 2014.

SOT Welcomes 672 New Members this Year Through June 2013

The Society of Toxicology congratulates our members who have upgraded their membership level and welcomes 672 new members this year, including 250 Full members, 87 Associate members, 130 Postdoctoral members, and 205 Graduate Student members. New members are part of the worldwide SOT network of more than 7,700 members from 60 countries. Members from academic institutions, industry, government, and other scientific organizations are committed to SOT's vision of "creating a safer and healthier world by advancing the science of toxicology." You can view the full listing of new members through June 2013* on the [SOT website](#).

A special thank you to all the Full members who sponsored new Full and Associate members as well as to the research advisors and mentors who sponsored new Graduate Student and Postdoctoral members this year. Your sponsorship of these new members continues to build and sustain a strong and vibrant society. Thank you!

**New members through June 2013 reflect those that were approved for membership as a result of applications completed and submitted by January 1 and May 1 of this year.*

Endowment Fund Contributions Help Build for the Future of Toxicology

The SOT Endowment Fund has a mission of assisting in advancing the science of toxicology by providing financial support for the Society's programs. The vision for this Fund is to establish and increase in net worth a set of Endowment Funds that will provide significant, stable, long-term financial support that complements the Society's revenue from dues and other sources, to aid in achieving the Society's strategic objectives.

Contributors to the SOT Endowment Fund are instrumental in building for the future of toxicology by providing financial support to enable the Society to fulfill its mission, now and in the years to come. In the SOT 2012–2013 fiscal year, the [Education](#), [Global Activities](#), and [SOT Strategic Priorities](#) Funds, as well as the [Harry W. Hays](#) Memorial Fund, financially contributed to SOT initiatives that address one or more of the [Society's Strategic Priorities](#). Below are major Endowment-related activities that occurred this year.

Undergraduate Educator Award

During the SOT 2013 Annual Meeting, the third Undergraduate Educator Award was presented to Sidhartha D. Ray. In his 28 years of academic experience in pharmacy teaching and research, he has trained numerous undergraduate and graduate students in toxicology. He is both a dedicated teacher and a formidable scientist who passionately teaches his students to be "lifelong learners."



SOT Councilor Lorrene A. Buckley Presents Award to Sidhartha D. Ray

Dr. Ray contributed greatly to our knowledge on the apoptosis in the toxicity of acetaminophen as well as a stunning variety of drugs and chemicals. This award was established to recognize the efforts to increase the pipeline of future toxicologists and is funded via the [Endowment Education Fund](#).

He currently teaches several undergraduate core courses in biomedical sciences, toxicology, and integrated pharmacotherapeutics. Over the last decade,

Minority and Undergraduate Student Travel to SOT Annual Meeting

Hundreds of students, many of them now leaders in SOT, attended their first SOT Annual Meeting by winning a student travel award funded by the Society. From the early days of SOT to the present, it has been recognized that such participation is essential to “building for the future of toxicology.” There is no substitute for the excitement of being among the first to hear presentations of cutting-edge science delivered to a gathering of the best in the field. Likewise, the importance of engaging in face-to-face discussions with experts and peers in one’s area of interest cannot be underestimated.

The [Strategic Priorities Fund](#) provided travel support for additional undergraduate students to participate in the Annual Meeting and the Undergraduate Program, which is hosted by the Committee on Diversity Initiatives (CDI). Focus on undergraduate participation in the SOT 53rd Annual Meeting to be held March 23–27, 2014 in Phoenix, Arizona will continue.

Perry J. Gehring Diversity Student Travel Award



Award Recipient Alexandra Colon-Rodriguez and CDI 2012–2013 President Erin P. Hines

(Native American, or Pacific Islander), who is presenting a paper at the upcoming SOT Annual Meeting.

The award recipient is selected by the CDI. This Endowment Fund award recognizes Dr. Gehring who served as SOT President in 1980-1981 and made important scientific contributions, especially in biological modeling and evidence-based assessment. Moreover, he had a strong interest in encouraging individuals from ethnic groups underrepresented in

The 2013 recipient of the Perry J. Gehring Diversity Student Travel Award is Alexandra Colón-Rodriguez, Michigan State University, East Lansing, Michigan. This award recognizes a student, previously selected to participate in the SOT Undergraduate Program from an ethnic group underrepresented in toxicology (African American, Hispanic,

the sciences to enter biomedical sciences and toxicology.

SOT/AstraZeneca/IUTOX Travel Fellowships

SOT/AstraZeneca/IUTOX Travel Fellowships are conferred to either junior or senior scientists from a country where toxicology is underrepresented and who have an active research program or are currently in the practice of toxicology to attend the SOT Annual Meeting. In 2013, these fellowship awards, administered by IUTOX, provided support for 10 awardees, two of whom were supported by the Endowment Fund. A list of the 2013 recipients is available on the [SOT website](#).

SOT Founders Award



SOT 2013–2014 Vice President Norb Kaminski and Award Recipient William Suk

member of the Society of Toxicology who has demonstrated outstanding leadership in fostering the role of toxicological sciences in safety decision-making through the development and/or application of state-of-the-art approaches that elucidate, with a high degree of confidence, the distinctions for humans between safe and unsafe levels of exposures to chemical and physical agents.

William Alfred Suk received the 2013 SOT Founders Award. He has served as director of the Superfund Hazardous Substances Basic Research and Training Program (Superfund Research Program) since its inception. He also is director of the Center for Risk & Integrated Sciences (CRIS) at the National Institute of Environmental Health Sciences (NIEHS). The SOT Founders Award is presented to a Full, Emeritus, or Retired Full

Significant attributes of the Endowment Funds include the following:

- One hundred percent of each contribution goes toward supporting endowment activities. All of the Endowment administrative costs are defrayed by the SOT operating budget.
- Donations to each named fund are accounted separately.
- The goal of the Endowment is to support long-range activities, many of which are in perpetuity.
- Typically SOT operating funds are used to support activities for the entire membership; whereas, the Endowment Funds often are targeted toward specific subgroups within SOT.

To become an Endowment Fund contributor and enjoy the fulfillment of knowing that you are helping to build for the future of toxicology, please visit the [Endowment Fund Section](#) of the SOT website. You can make a difference in the lives of toxicologists by your generous support. Add your name to the [Honor Roll of Contributors](#).

Robust Response to Poster and Annual Meeting Format Surveys!

Several surveys were distributed in advance of the San Antonio Annual Meeting to collect input from SOT's membership to support future planning and continuous improvement of the Annual Meeting. The first survey was

designed to collect feedback from SOT's membership on ways to increase access and engagement in the science presented during the poster sessions. The second survey explored potential alternative formats for the Annual Meeting such as shifting the meeting to weekdays vs over the weekend, extending the last day from half to full day, and alternative programming options for the last day.

We appreciate your time to take the surveys—the response was very robust—nearly 1,100 responses to the poster format survey and over 900 responses to the meeting format survey! The surveys closed in early April and the data recently have been compiled. While SOT Council is still reviewing the results, we wanted to share a few of the findings.

The poster session survey was taken in response to past member feedback seeking greater access to SOT poster content, reflecting the importance of the posters and recognizing the many competing demands on time and schedules. While the majority of respondents did not favor a move to display posters for a full day, approximately 70% supported extending poster viewing time by 30 minutes in the morning and afternoon. In addition, there was consensus (~75%) regarding the suggestion to provide the opportunity for posters to be made available on the SOT Meeting website for a period of time before and after the Annual Meeting. (Another enhancement to increase access to Annual Meeting content and extend the overall value and impact of the meeting already has been implemented—an Annual Meeting Presentation library has been created and is accessible to members on the [SOT website](#).)

One clear message from the meeting format survey was the desire to have a less scheduled lunch hour that would enhance networking time and overall enjoyment of the meeting. There also was significant support for moving to a full 4th day for the meeting; however, the logistics surrounding this type of a change preclude implementation prior to 2015. Our thanks to the many of you (nearly 400!) who provided many creative suggestions on how to use that 4th day with distinct programming formats and exciting topics.

Stay tuned as SOT Council continues to evaluate the survey data and considers potential actions and options to continue to enhance the SOT Annual Meeting.

SOT 2013 *Communiqué* Newsletter Blog Readership Survey—Please Respond

Submitted by Judith T. Zelikoff, SOT Editor, Communiqué Newsletter Blog

In 2011, the Society of Toxicology conducted an SOT Member *Communiqué* Newsletter Readership Survey that advised of the need to present member communications in a number of ways appropriate to the diverse membership of the Society. Following the survey, the SOT *Communiqué* Newsletter Blog was implemented. We are now seeking your response as to your level of satisfaction with these changes and recommendations for next steps.

The SOT *Communiqué* Newsletter is now prepared and disseminated in several formats. One of these “formats” is the *Communiqué* Newsletter Blog that delivers news topics in the most timely fashion. The Blog includes from three to seven articles disseminated weekly via the SOT ToXchange platform with an email announcement to *Communiqué* Blog subscribers. These articles also are available on the SOT website, the SOT Facebook page, and via the *Toxicological Sciences* journal website. Blogs are the primary building blocks of the quarterly *Communiqué* that is disseminated via an SOT Broadcast email message, and is posted on the SOT website. Many of the articles in the quarterly newsletter also are released as weekly Blogs, but not all.

The articles in the quarterly SOT Newsletter can be accessed through a complete Table of Contents or by downloading a pdf version of the *Communiqué* Newsletter Blog. All articles are readily searchable either through the ToXchange platform or via the SOT website. While we know from our previous surveys and statistical reports that the membership is reading the Blog articles, there is still a need to raise awareness about these communications tools. Central to this process is receiving your input regarding your level of satisfaction with the *Communiqué* Newsletter Blog and any recommendations you may have for modifications. Each year, the Special Issue of the *Communiqué* Newsletter Blog also is printed and mailed to SOT members, which will continue.

The [2013 SOT Readership Survey](#) is now open and will close on Monday, July 1. We will compile and analyze your responses and report the findings by Monday, August 5. Thank you in advance for providing us with your assessment and recommendations.

SOT Is On Facebook—You Should “Like” It

SOT is on [Facebook](#) and the page is updated frequently with *Communiqué* Newsletter/Blog articles, SOT Annual Meeting information, and more. To become a member of the Society’s community of “Friends,” simply login to your Facebook account and search for SOT. Once you click “Like,” the information flow will begin as is the case with your other Facebook “Friends.”

You are encouraged to share information of interest with your “Friends” about the SOT 2014 Annual Meeting in Phoenix, Arizona, March 23–27, 2014, Regional Chapter Annual Meetings, and Contemporary Concepts in Toxicology conferences, such as “FutureTox II: Pathways to Prediction,” to be held January 16–17, 2014, in Chapel Hill, North Carolina, as well as initiatives underway in the diverse Society Committees and Task Forces.

You can be an active participant in helping others learn about SOT’s programs and activities aligned with the Society’s mission of “creating a safer and healthier world by advancing the science of Toxicology.” SOT is striving to provide timely and relevant information to you via your preferred communications channels.

SOT Continues Going Green: Request Printed 2013–2014 Membership Directory By July 3

The Society of Toxicology is committed to “greening” the services provided to members while being respectful of preferences for accessing information. In December, members were asked to indicate their interest in receiving a printed copy of the 2013–2014 SOT *Membership Directory*. If you paid your dues and would like to make a change to request receipt of a printed *Membership Directory*, please update the [renewal form](#) indicating if you want to “opt in” to receive the printed *Membership Directory*.

As SOT members continue to move from a reliance on paper, innovations such as the Annual Meeting Mobile App increasingly are preferred. In a similar manner, SOT Members are demonstrating their use of the ToXchange platform to [access SOT member information](#), and we hope you will turn to ToXchange as a useful resource for contacting and interacting with SOT members.

Please request a printed copy of the 2013–2014 *Membership Directory* by Wednesday, July 3. For additional information/assistance, please contact [SOT Headquarters](#).

New Endowment Fund Announced: The Environmental Carcinogenesis Research Fellowship



The Carcinogenesis Specialty Section is sponsoring a new Endowment fund, [The Environmental Carcinogenesis Research Fellowship Fund](#), created by a group of SOT members who have actively conducted research in environmental

carcinogenesis for many years. Among these individuals are current, past, and future Presidents of the Carcinogenesis Specialty Section, who have actively conducted research on environmental carcinogenesis for many decades. The donors are interested in fostering the continued advancement of carcinogenesis research by promoting research that integrates emerging science (e.g., genomics, epigenetics, metabolomics, microbiomics, and exposomics) into studies that help define mechanisms of, susceptibility to, and prevention of carcinogenesis.

[The Environmental Carcinogenesis Research Fellowship Fund](#) will be used to encourage students and postdoctoral fellows within the first three years of training to conduct research in this area. Specifically, the proceeds from this fund will be used to provide stipends (e.g., for research, travel to scientific meetings, and attending special training courses) to student and postdoctoral fellows who are recipients of awards given for excellence in carcinogenesis research.

[The Environmental Carcinogenesis Research Fellowship Fund](#) will be aligned with the Carcinogenesis Specialty Section, which will have the responsibility for identifying the number of awards to be given each year, the detailed criteria for selection of the award recipients, the selection of recipients, and the bestowing of the awards at an event held in conjunction with the SOT Annual Meeting.

The SOT Endowment Fund is in reality a home for multiple Endowment Funds established for different purposes and with contributions from multiple sources. The Fund has an overarching “mission of assisting in advancing the science of toxicology by providing financial support for the Society’s programs.”

For additional information and to [donate](#), please visit the [SOT website](#) and contact SOT Deputy Director [Clarissa Russell Wilson](#).

Additional Funds Available for International ToxScholar Grants: Apply by May 31, 2013

The SOT Education Committee has decided to hold an additional 2012-2013 award period for the International ToxScholar Outreach Grant due to availability of funding. This popular grant supports the Society’s objective to build for the future of toxicology by strengthening global participation and outreach. The International ToxScholar Outreach Grant provides funds to awardees to sponsor their travel to institutions in underserved nations and educate students about the profession of toxicology. This opportunity is open to all SOT members, including all levels of career toxicologists as well as postdoctoral trainees and graduate students. Applications for the International ToxScholar Outreach Grant for the Spring Award period are due by **5:00 pm EDT Friday, May 31, 2013**. Additional information, the application form, and a summary of other campus visits can be found on [ToxScholar website](#).

Apply Now and Spread Awareness of Toxicology Around the World!

Annual Meeting Roving Reporters Delivered Articles of Note: Interested in Volunteering for 2014?

A pilot program was initiated for the SOT 52nd Annual Meeting in San Antonio, Texas, when a number of members from diverse sectors agreed to serve as the first SOT Annual Meeting Roving Reporters. Mary Beth Genter, John Benitez, Kristy Kutanzi, Betina J. Lew, Nigel J. Walker, Tao Wang, and Xi Yang, prepared *Communiqué* Blog articles on aspects of the Annual Meeting of particular interest to them. Some of these blogs were disseminated during the SOT Annual Meeting and others immediately after—all are accessible from the list below.

By all reports, these volunteers enjoyed this experience and the response received from readers has been enthusiastic. For the 2014 SOT Annual Meeting, you are encouraged to consider volunteering to serve as a Roving Reporter. These blog articles are typically 300–500 words in length and are submitted as Word documents to be posted to the blog by SOT staff. To facilitate your participation, please go to the [Volunteer](#) section of the SOT website and indicate your

willingness to take part in this activity.

Articles Prepared by the 2013 Annual Meeting Roving Reporters:

Mary Beth Genter

[Your Margarita—Salt or No Salt??](#)

[Ozone and High Fructose Diets Don't Mix](#)

Betina J. Lew

[A Continuing Education Course Worth Attending: Global Regulatory and Safety Requirements](#)

Nigel J. Walker

[Great Debate Scores a Big One](#)

Tao Wang and John Benitez

[SOT Presented An Excellent CE Course on Neuropathy](#)

Tao Wang, Kristy Kutanzi, and Xi Yang

[Another Successful Year at the Mentoring Breakfasts from Special Interest Groups](#)

Xi Yang

[Highlights of AACT Annual Business Meeting and Career Development Workshop](#)

SOT Members Provide Expertise to Many Governmental Panels: 14 Appointed to New US EPA Committee

The US Environmental Protection Agency (US EPA) has formally announced the appointment of 25 scientists to the newly formed US EPA Science Advisory Board Chemical Assessment Advisory Committee and many are SOT members, including the Chair, Martin A. Philbert, of the University of Michigan and past Council member. Other SOT members selected to the Advisory Committee include the following:

Daniel Acosta Jr., <i>University of Cincinnati</i>	Abby A. Li, <i>Exponent Inc.</i>
James V. Bruckner, <i>University of Georgia</i>	Kenneth S. Ramos, <i>University of Louisville</i>
Deborah A. Cory-Slechta, <i>University of Rochester</i>	Lorenz R. Rhomberg, <i>Gradient, Inc.</i>
Helen M. Goeden, <i>Minnesota Department of Health</i>	Stephen M. Roberts, <i>University of Florida</i>
Sean M. Hayes, <i>Summit Toxicology</i>	Robert Skoglund, <i>3M Company</i>
James E. Klaunig, <i>Indiana University</i>	Katherine S. Squibb, <i>University of Maryland</i>
Lawrence Harold Lash, <i>Wayne State University</i>	Rochelle W. Tyl, <i>RTI International</i>

The Committee has been appointed for a three-year term and will be responsible for providing advice to the US EPA on

a variety of issues including how the US EPA will implement recommendations from the National Academy of Sciences on the development of the Integrated Risk Information System (IRIS). Nominees for the Chemical Assessment Advisory Committee were selected by the US EPA on the basis of their knowledge of human health risk assessment and expertise in public health, epidemiology, toxicology, modeling, biostatistics, and risk assessment.

For the past several years, SOT Council has been encouraging SOT members to submit their names for these advisory panels. Being selected and serving on the various panels is an important way to promote the science of toxicology and to increase the scientific impact of the science. The appointment of scientists to peer review panels and scientific advisory boards is done by an SOT Council Subcommittee using a formal and carefully crafted process that was devised in April 2003. The SOT nominees are selected principally on the basis of their scientific credentials, demonstrated accomplishments, and professional credibility. Conflicts of interest will be determined by the agency advisory panels and all appointments are made irrespective of affiliation. Once the SOT Council Subcommittee completes its review and selection, nominee names are forwarded to the agency for the final selection process. For a complete listing of SOT members who are currently serving on these government panels, please visit the [SOT website](#).

Engaging Future Scientists through Early Education Outreach

As a way to help build for the future of toxicology, I have been fortunate to have opportunities to invest some of my time supporting strong STEM (science, technology, engineering, and math) education for young students. The goal of STEM education is the development of competency and application of knowledge versus acquisition of knowledge, and it strives to provide a sense of relevance. Therefore, early focus on career connections is important to give students an internalized sense of purpose for exploration and discovery in science and math, because it raises awareness of what future jobs entail. These interactions with scientists early in education can have long-lasting impacts on a student's education trajectory.

I work with kindergarten to 3rd grade students on a variety of disciplines, but primarily math and science, and have had the joy of observing the impact on their education. They have been exposed to physiology and anatomy with chicken wing dissections, to the environmental sciences by focusing on vermicomposting, to mathematical predictions with the Vitruvian man, and to the general scientific process and experimental recordkeeping. I've received emails and texts from parents letting me know how excited their kids have been from the activities. The experiments always generate discussion from the students about jobs they may want to do someday and about what I do in my job (particularly how I learned to dissect a chicken wing). The students are thinking even in kindergarten about how what they learn in school affects what they will do one day as an adult.

The more I work with elementary students, the more it is clear that it is the foundation on which the rest of the student's education, academic success, and future depends. It is interesting the emphasis the scientific community places on early life stage chemical exposure and response through children's health initiatives, but we often do not place the same level of importance on beneficial activities during those early stages of education. Students do not drop out of education in high school; they drop out of education in elementary school and wait until they are in high school to leave the system. The Society of Toxicology has numerous opportunities and resources for our membership to interact with their surrounding communities and impact the education and future of K-12 students. The rewards from the interactions may be immeasurable, but we are equipping the students, as well as their parents, with knowledge about their environment and their health regardless of their future career aspirations.

Your Colleagues are Looking for You: Post Your Picture to ToXchange and Be Recognized

Just four weeks ago the SOT met in San Antonio for the 52nd Annual Meeting of the Society. If you were fortunate to attend, you were sure to have seen and met colleagues old and new. Many members reported using ToXchange to look up fellow members' MyPages to view their photos prior to meetings or even afterwards so that they could "put a face

with a name.” Now that the 52nd Annual Meeting is over, it is still a perfect time to post your profile picture on your MyPage so that your colleagues can confidently continue the conversation and collaborations initiated during the Annual Meeting—or even begin new ones!

In addition to your profile picture being viewable on your MyPage, every time you log in to ToXchange, your photo will then show on the bottom of the ToXchange landing page. Plus—every time you post a discussion or reply on a Community page, your photo will appear beside your comment.

Go ahead, get recognized! Post your profile picture and put your face with your name so others can too!

Here’s how:

Go to your My Page:

1) From the My Options drop-down in the upper right corner, select My Page.

OR

2) From your profile page, click on the “My Page” button at the top of the “About this User” box on the right.

Update your picture!

First, be sure to know where your picture file is located so that you may easily browse and select it to upload.

1. On your MyPage, click the “Actions” button and select “Update Picture.”
2. Click the “Update File” button and browse for the picture file on your computer. You may upload a file as large as 2MB only (most photos are between 1.0–1.5 MB).
3. Click the OK button to upload your selected picture.

*It’s as easy as 1-2-3! If you need help, just click on “**Help**” in the top right of your ToXchange page. OR, just write in your question below and we’ll write a response to help you out.*

ToXchange—It’s Your Network!

Regional Chapters, Special Interest Groups, and Specialty Sections:

CE Committee Approves New Speaker Bureau Members from 2013 Annual Meeting

The SOT Continuing Education (CE) Committee is pleased to announce the newest appointments to the SOT Speaker Bureau who were highly rated for their respective CE presentations at the 2013 Annual Meeting in San Antonio.

- Joseph Arezzo
- Michael Leach
- Jeffrey Lewis
- Hans Raabe
- Theodora Salcedo

These speakers join these past CE speakers who are currently serving on the Speaker Bureau:

- John DeSesso
- Thomas Hartung
- John C. Lipscomb
- David McGuinn

- Cynthia Ryan
- Stephen Safe
 - John Warner

What is the Speaker Bureau?

It is a program that provides excellent lectures and speakers to Regional Chapters, traditionally for chapter Annual Meetings. SOT and the CE Committee encourage all Regional Chapters to take advantage of the Speaker Bureau. Any Regional Chapter may request a presenter for their chapter meeting (visit the SOT website for the [Speaker Bureau list](#), including information on their affiliations, their CE presentation titles, and their scientific areas of interest). As these funds are limited, requests for funding are reviewed on a quarterly basis as requests are received, it is important to submit your proposals in a timely manner to [David Rossé](#) at SOT Headquarters.

The CE Committee highly encourages Regional Chapters to take advantage of this valuable, and underutilized, program!

North Carolina RC Meeting Addresses “Exposure: A Forgotten Part of Toxicology?”



From left to right: Phillip Wages, Micheal Hughes (President, NCSOT), Jessica Sorrentino, Suvarthi Das, and Rebecca Bauer

The 2013 Spring Meeting of the North Carolina Regional Chapter of the Society of Toxicology was held on February 21, 2013, at the US Environmental Protection Agency’s (US EPA) research campus in Research Triangle Park, North Carolina. The theme of the meeting was “Exposure: A Forgotten Part of Toxicology?” Approximately 150 local professionals and students attended this meeting.

Speakers at the meeting included Timothy Buckley (“Exposure Science in the 21st Century: Report by the National Research Council”) and Joachim Pleil (“Exploring the Human Exposome: Linking *In Vivo* Human Studies to *In Vitro* Toxicity Testing”) of the US EPA Environmental Protection Agency; David Balshaw (“The Exposome as a Bridge to Discovery at the Interface of Exposure and Response”) of the National Institutes of Environmental Health Sciences; and Harvey Clewell (“Linking Health Effects to Exposures using PBPK Modeling for Reverse Dosimetry”) of the Hamner Institutes for Health Sciences.

Competitions were held for both student platform and poster presentations. For the platform presentation competition, four students were selected to present their research based on submitted abstracts. The winner of this competition was Rebecca Bauer of the University of North Carolina at Chapel Hill. Participants included Jessica Sorrentino, Suvarthi Das, and Phillip Wages. There were 30 posters presented at the meeting and 17 of these were entered into the student poster competition. Nour Abdo of the University of North Carolina at Chapel Hill placed first, Julia Rager placed second, and Jessica Wignall and Samira Brooks tied for third place in this competition.

Overall the meeting was successful by promoting presentation skills for graduate students and because of the high quality presentations that focused on the importance of exposure science in toxicology.

Specialty Sections Announce Achievement Award Recipients

The Society of Toxicology has established 27 Specialty Sections that may propose sessions for the Annual Meeting, exchange information via newsletters, present awards, and participate in other scientific activities. A number of the Specialty Sections confer achievement awards and these groups and awardees are listed below.

Biotechnology: Career Achievement in Biotechnology Award, Martin (Dave) Green, US Food and Drug Administration, Office of Medical Products and Tobacco

Biotechnology: Outstanding Young Investigator Award, Nicola J. Stagg, Agensys, an Affiliate of Astellas Pharma

Clinical and Translational Toxicology: Career Achievement Award, Marcello Lotti, Universita di Padova

Clinical and Translational Toxicology: Excellence in Leadership Award, Michael Ottlinger, US Environmental Protection Agency

Immunotoxicology: Outstanding Young Immunotoxicologist Award, Jamie Dewitt, East Carolina University

Immunotoxicology: Vos Award-Career Achievement in Immunotoxicology, Kimber White Jr., Virginia Commonwealth University

Inhalation and Respiratory: Career Achievement Award, Vincent Castranova, CDC-NIOSH

Inhalation and Respiratory: Young Investigator Award, Matthew Campen, University of New Mexico

Metals: Career Achievement Award, Jay Gandolfi, University of Arizona

Ocular Toxicology: Career Achievement Award, James V. Jester, University of California, Irvine

Reproductive and Developmental Toxicology: Scientific Achievement Award, Patricia B. Hoyer, University of Arizona

To learn more about these Specialty Sections, please visit the [SOT website](#).

Special Interest Groups Honor Membership Achievements

The SOT Special Interest Groups (SIGs) have as a key objective the recognition of the accomplishments of their members by the conferring of a number of competitive and prestigious awards. Many of these awards are supported by the [SOT Endowment Fund](#). The Special Interest Groups of the Society were established to promote the recruitment of toxicologists who share a common interest in toxicological research germane to their community. The overarching goals of these groups are to develop, propose, and conduct programs and educational activities that promote career development opportunities for toxicologists; acting as a resource to SOT in the area of toxicology as it relates to the specific interest of each group; and to promote and recognize the accomplishments of toxicologists from within each group. The SIG organizations and awardees are provided below. In 2013, no award was presented by the Toxicologists of African Origin SIG.

American Association of Chinese in Toxicology

AACT and Charles River Best Abstract Award

First Prize: Xiao Pan, Michigan State University

Second Prize: Fei Zhao, University of Arizona

Third Prize: Zhoumeng Lin, University of Georgia

Distinguished Chinese Toxicologist Lectureship Award

Jia-Sheng Wang, University of Georgia

Jean Lu Student Scholarship Endowment Award

Weimin Chen, Michigan State University

Association of Scientists of Indian Origin

Dharm Singh Postdoctoral Fellow Best Abstract Endowment Award

Amrendra Ajay, Harvard Medical School

Aditya Hoshi, University of Texas

Harihara Mehendale Graduate Student Best Abstract Endowment Award

Mansi Krishan, University of Cincinnati

Tejas Lahoti, Penn State University

Laxman Desai Graduate Student Best Abstract Endowment Award

Hemantkumar Chavan, University of Kansas Medical Center

Amy Sharma, University of Toronto

International Travel Award

Aditi Verma, Indian Institute of Science

Senior Toxicologist Award

Basu D. Banerjee, University of Delhi

Hispanic Organization of Toxicologists

Hispanic Travel Award

Pergentino Balbuena, The Hamner Institutes for Health Sciences

Hector Rosas Hernandez, Universidad Autonoma de San Luis Potosi

Zelieaan Rivera Craig, University of Illinois

Federico Sinche, Oregon State University

Brandon Gaytan, University of California, Berkeley

Korean Toxicologists Association in America

Best Presentation by Graduate Student Award

Seong-Ho Hong, Seoul National University

Best Presentation by Postdoctoral Trainee Award

Kyuri Kim, SRI International

Young Soo Choi Student Scholarship Award

Narae Lee, Tulane University

Women in Toxicology

Graduate Student Achievement Award

Jaime E. Mirowsky, New York University School of Medicine

Ashley Brinkman, University of Wisconsin, Madison

Mentoring Award

Louis D. Trombetta, St. John's University

Patricia B. Hoyer, University of Arizona

Postdoctoral Fellow Achievement Award

Phoebe A. Stapleton, West Virginia University

Vera W. Hudson and Elizabeth K. Weisburger Scholarship Endowment Fund Student Award

Weimin Chen, Michigan State University

Great Debate Scores a Big One

Nigel Walker served as a roving reporter at the SOT 2013 Annual Meeting and submitted the article below.

The punches were flying at SOT.

Well, the verbal punches were really flying at SOT last night as the Risk Assessment Specialty Section joined with the Regulatory and Safety Evaluation Specialty Section to have a "Great Debate" on the topic of that "Non Monotonic Dose Responses Should not be Used in Risk Assessments."

There was a very large crowd gathered to see Jim Lamb and Paul Foster verbally spar on the motion and they were not disappointed. While not exactly the "thriller from Manila," these scientific heavyweights gave the crowd a highly entertaining and insightful battle. While non monotonic dose responses are clearly observed, the fighters deftly made their cases on the interpretation and context of the science while debating the motion. And judging by the number of questions from the audience, this issue is clearly one of great interest among the membership and one unlikely to be resolved easily anytime soon, as it was pointed out by both speakers that the prevalence of NMDRs are often seen in *in vitro* and hence with efforts such as Tox21 this issue will need to be tackled more and more in the future.

There were no knockout punches, it went down to points and indeed the crowd was quite divided on the winner.

But ultimately it doesn't matter who won or lost, as having such lively debates is a great way to truly get at the heart of some issues and air some of the extremes of opinions that are thrown about. A sucker punch in the eye of scientific conflict!

National Capital Regional Chapter Holds Another Successful Girl Scout Science Day



Since 2007, the Girl Scouts Council Nation's Capital Chapter has organized a Girl Scout Science Day to give local Girl Scouts an opportunity to learn more about science in a fun and friendly environment. The goal from day one has been to introduce scientific terms and concepts, but in a way that demonstrates the role of science in day-to-day life. All participating Girl Scouts also earn a badge in a scientific topic related to the experiments they perform.

Girl Scouts experience the wonder of science

performed by a group of 10–12 girls in 30 minutes. From the beginning, experiments have been led by Cadette or Senior Girl Scouts with the assistance of volunteers, including troop “moms” and “dads” and area scientists.

All participating Girl Scouts rotate through four to five experiments depending on their age group and the theme their troop has selected. Experiments are designed to be age-appropriate for Girl Scouts in Grades 2–3 and 4–6. In 2009, an additional session was added to allow the Teen Girl Scouts to learn some more complex science issues and to meet some area scientists to discuss careers in science.

What started as two sessions on a Saturday in early January has now become six sessions over two weekends in November, due in large part to the efforts of the Girl Scout leader in charge and the support of the National Capital Area Chapter of the Society of Toxicology. The event has gone from reaching out to ~200 Girl Scouts a year to over 400. Through the years, we have partnered with local businesses (MDBio, ToxServices) and academic institutions (Towson University). We have hands-on experiments that address concepts of chemistry, microbiology, genetics, and toxicology. We have had discussions related to what goes into your personal hygiene products, why DNA is unique to each of us, and how forensic science can help to solve a crime.



Girl Scout Science Day attracts more participants each year

but do so while teaching or setting up for the next group of girls. This event also led to my volunteer work in education outreach, including outreach activities modeled after the Girl Scout Science Day, such as those associated with the Society of Toxicology Annual Meeting and as part of the USA Science & Engineering Festival.

At this point the Cadette and Senior Girl Scouts running the experiments are the same 4th graders that were having them explained to them 5 years ago. Looking back through the years, it has been a pleasure to see these girls not only learn the scientific concepts well enough to teach them to the new Brownie and Junior Girl Scouts, but to watch them take on more and more responsibility for the event itself. The Cadettes assist in the set-up and breakdown of the experiments, and are responsible for cleaning up the local church where the event is held, free of charge. Through my involvement in this event, I have been privileged to watch those young giggly 10-year-old girls turn into responsible young ladies that still giggle,

In 2006, doing education outreach was not something I even thought about. But after participating in the Girl Scout Science Day for the past five years, I enjoy every opportunity I have to encourage kids to have fun with science, to ask questions about how things work, and to work together to solve scientific problems. The Society of Toxicology Education Committee has ways to help support these types of opportunities, and for K–12 in particular we are putting together a website of ideas, experiments, and how-to's to get you started in the new year. Please don't hesitate to contact the [Education Subcommittee: K–12](#) with any questions or advice. The impact these events have on the kids involved is worth the effort.

Experimental protocols available upon request.

Another Successful Year at the Mentoring Breakfasts from Special Interest Groups

Tao Wang, Kristy Kutanzi, and Xi Yang served as roving reporters at the SOT 2013 Annual Meeting and submitted the article below.

The 2nd Annual SOT Mentoring Breakfast was held this year in San Antonio on Monday, March 11, 2013. In an effort to make the Mentoring Breakfast part of a larger SOT mentoring initiative, the Career Resource and Development (CRAD) Committee, WIT, Postdoctoral Assembly (PDA) and Special Interest Group Collaboration Group (SIGCG) were brought together by this common mission. SOT Councilor Donald A. Fox highlighted the two key strategic priorities of SOT that can be accomplished through this mentoring breakfast: “*Build for the Future of Toxicology*” and “*Enhance Member Engagement.*” This year 50 mentees registered for the breakfast event, and these mentees met with trained facilitators to communicate their needs for a mentor. After the 52nd Annual SOT Meeting, the facilitators will use the information collected at the breakfast to match the mentees with mentors using the CRAD-maintained Mentor Match database. The Mentoring Breakfast also served as an opportunity for the mentees to learn about the SOT Mentoring Program for all career levels, gain insights into the development of a successful mentoring relationship with testimonials from last year's mentee Xi Yang and mentor Pedro del Valle, in addition to networking with colleagues. All registrants received a book entitled, *The Mentee's Guide: Making Mentoring Work for You* by Lois J. Zachary and Lory A. Fischler as an additional resource for mentoring.

Following a very successful inaugural Career Development Workshop last year in San Francisco, the American Association of Chinese in Toxicology (AACT) and the Korean Toxicologist Association in America (KTAA) jointly offered the 2nd annual Career Development Workshop on Tuesday morning, March 12. Approximately 40 students, postdoctoral scholars, and early career scientists attended the event with more than 10 seasoned toxicologists from government and industry. Last year, the mentoring theme focused on working as industrial toxicologists. Tao Wang from Novartis (AACT) and Christopher J. Choi from Colgate-Palmolive Company (KTAA) talked about how to prepare for a successful career as an industrial toxicologist. This year the theme of the Career Development Workshop focused on working overseas as a toxicologist. Four panelists: Charles Wang (GlaxoSmithKline China), Yi Yang (Sanofi China), Sang-Joon Lee (Korea Institute of Toxicology), and James Yan (Covance China) provided their individual perspectives about the job market in the Contract Research Organization (CRO), pharmaceutical, and government sectors in China and Korea. During the panel discussion session, comparisons between working in the United States and overseas, networking, and leadership development were discussed.

Both the Mentoring Breakfast and the Career Development Workshop by AACT/KTAA were well received with enthusiasm by the mentees. These events provided guidance and knowledge to help the young members of SOT transition to a new career with ease. By building bridges to connect diverse member groups, and providing continuous mentoring throughout, the participants will retain a competitive edge as the culture and practice of toxicology evolves, and ultimately builds for the future of toxicology, which is a key objective of the SOT. The Mentoring Breakfast Planning Committees from these Special Interest Groups look forward to hosting another successful breakfast in Phoenix, Arizona, next year!

Highlights of AACT Annual Business Meeting and Career Development Workshop

Xi Yang served as a roving reporter at the SOT 2013 Annual Meeting and submitted the article below.

On March 11, 2013, more than 200 Chinese toxicologists from the United States and China attended the annual American Association of Chinese in Toxicology (AACT) reception held in conjunction with the 52nd SOT Annual Meeting. AACT President Diana Auyeung-Kim presented the current status of AACT and the AACT Board's appreciation of all the member participation in the various committees to make the AACT activities at the SOT Annual Meeting successful. Jia-Sheng Wang, Professor and Head of the Department of Environmental Health Sciences, University of Georgia, received the Distinguished Chinese Toxicologist Award in recognition of his outstanding achievements as a researcher, mentor, and leader in toxicology. In addition, Dr. Wang presented a lecture on how to identify biomarkers to prevent human disease and encouraged everyone to use toxicological research to protect public health. Weimin Chen, Michigan State University, was presented with the Jean Lu Student Scholarship Endowment Fund Award in recognition of outstanding academic achievement in the field of toxicology and leadership and service. The AACT-Charles River Best Abstract Awards were presented to Zhoumeng Lin, University of Georgia, 3rd Place, Fei Zhao, University of Arizona, 2nd Place, and Xiao Pan, Michigan State University, 1st Place. Incoming AACT President Edward Chow closed the meeting with his vision for AACT to enhance further interaction and collaboration with Chinese toxicologists outside the US, increase AACT membership outside of the US, and send a travel delegation to the Chinese SOT meeting to be held in November 2013 in China.

In Memoriam

In Memoriam

Gabrielle Margaret Hawksworth

Toshio Narahashi

Elmer J. Rauckman

Wolfgang K. Schnitzlein

Joan B. Tarloff

Gabrielle Margaret Hawksworth

The Society of Toxicology has learned that Gabrielle Margaret Hawksworth, PhD, passed away in 2012. She was a Professor of Molecular Toxicology at the University of Aberdeen, Scotland, where she specialized in Clinical Pharmacology and Therapeutics. She joined SOT in 2011 and was a member of the Mechanisms Specialty Section.

Toshio Narahashi

Toshio Narahashi, DVM, PhD was the John Evans Professor of Pharmacology, Department of Molecular Pharmacology and Biological Chemistry, Northwestern University Feinberg School of Medicine, Chicago, Illinois. Dr. Narahashi, widely considered one of the founding fathers of neurotoxicology, passed away at his Chicago home on April 21, 2013, of complications associated with colon cancer. He was 86.

Over a career spanning more than 50 years, Dr. Narahashi was one of the most highly decorated members of the SOT. He was the first to be awarded the Distinguished Investigator Lifetime Achievement Award in Neurotoxicology in 2001 from the Neurotoxicology Specialty Section; he received the Distinguished Toxicology Scholar Award from the SOT in 2008, and the prestigious Merit Award in 1991. Dr. Narahashi's scientific influence was felt far beyond the SOT, as he received the Otto Kraymer Award from the American Society of Pharmacology and Experimental Therapeutics and the K.C. Cole Award from the Biophysical Society. He received a Jacob Javits Award from the National Institute of

Neurological Disorders and Stroke (NINDS), among others.

Dr. Narahashi graduated from the University of Tokyo Faculty of Agriculture with the DVM equivalent in 1948. His scientific career began with studies on the mechanisms of action of insecticides in the Laboratory of Applied Entomology. Already well ahead of his times, Dr. Narahashi used electrical recordings of neuronal and muscle activity to delineate the mechanisms by which chemicals produced their insecticidal action. His findings led to such pivotal observations as the negative temperature-dependence of DDT for its insecticidal action, and the development of knockdown resistance to insecticides (“KDR”). He attained international prominence in 1964 when as a visiting researcher at Duke, he made the pivotal discovery that tetrodotoxin, the pufferfish toxin, acted specifically on voltage-gated sodium channels to block nerve conduction. Always maintaining a great sense of humor and perspective, he introduced into his description of the mechanism of action of TTX the famous fight between Agent 007—James Bond and a Russian agent who poisoned him with TTX from a knife blade in her boot (Ian Fleming, *From Russia with Love*). He also described in detail ion channel modulation by other toxins including batrachotoxin, grayanotoxin, and sea anemone toxins, popularizing their use as high specific chemical tools to study ion channel function. In defining the highly selective mechanism of action of TTX, he elevated the study of toxins and the associated science of toxinology from one of mere biological curiosity to one of such prominence, that biological toxins are now mainstays of experimental studies of excitable cells and signaling process, and have even become accepted therapeutic agents for treatment of intractable neuropathic pain (omega conotoxin GVIA- Ziconide®) or muscle spasticity (Botulinum toxin A,).

Dr. Narahashi was awarded a PhD in Neurotoxicology in 1960 from the University of Tokyo in the old European model of degree conferral based on his 26 full-length publications.

After coming to the US, Dr. Narahashi held faculty positions at Duke, rising to Vice Chairman of the Department of Physiology and Pharmacology before moving to Northwestern University Medical School as Chair of Pharmacology in 1977. Desiccated, preserved puffer fish decorated his office at Northwestern University’s Feinberg School of Medicine. He remained at Northwestern until his death and held the John Evans Professorship in Pharmacology, the highest award at the institution. Not content to rest on his many scientific laurels, Dr. Narahashi forged a juggernaut of a department of Pharmacology at Northwestern, attracting the best, and brightest from around the world. In his last four years as Chair, Northwestern University Pharmacology Department was ranked #1 in the US out of 100 federally-funded departments for citations/publication, a true statement of his impact as an administrator.

While his work with biological toxins earned him world renown, his research with insecticide neurotoxicity has had an equal or greater societal impact. Dr. Narahashi’s work with insecticides was pivotal to identifying the ion channel basis of insecticidal action of DDT, pyrethroids, dieldren, and others making him a world leader of insecticide toxicology.

During his scientific career, Dr. Narahashi trained an estimated 140 graduate students and other professionals. These individuals went on to prestigious jobs in academia as well as in the chemical industry at DuPont and BASF. He published 324 papers and 148 chapters and reviews, and edited 11 books. Dr. Narahashi maintained an active teaching profile during his time as department chair, and continued even after the onset of his cancer. In winter 2012 he presented the course Molecular Basis of Drug Action: A Treatise on Excitable Cell Physiology, Biophysics, and Pharmacology.

He is survived by his wife of 58 years Kyoko, a son, Taro; a daughter Keiko; two grandchildren; five brothers and one sister.

Elmer J. Rauckman

Elmer J. Rauckman passed away on April 9, 2013, in East St. Louis, Illinois. He was a professor at Duke University in Durham, North Carolina from 1978–1983. Dr. Rauckman worked with the National Toxicology Program from 1983–1988, with Hoechst Celanese Toxicology from 1988–1998, and was a private consultant in toxicology from 1998–2012. He received his BS in Chemistry from the University of Illinois, Champaign, Illinois, and his PhD in Chemistry from Duke. He joined the Society of Toxicology in 1982 and was a member of the Mid-Atlantic and Midwest Regional Chapters and the Comparative and Veterinary Specialty Section.

Wolfgang K. Schnitzlein

Wolfgang K. Schnitzlein, DVM, of Heidelberg, Germany, passed away on April 21, 2013. Dr. Schnitzlein was a member of the Society of Toxicology for more than 37 years, having joined in 1976. He also was a member of the Comparative and Veterinary Specialty Section.

Joan B. Tarloff

On May 3, 2013, Joan B. Tarloff passed away. She was a Professor in the Department of Pharmaceutical Sciences, Philadelphia College of Pharmacy, University of the Sciences in Philadelphia, Pennsylvania. Dr. Tarloff was the first recipient of the SOT Endowment Fund Undergraduate Educator Award, which was presented to her at the 2011 SOT Annual Meeting (50th Anniversary Celebration). SOT conferred this award on her because “she exemplified the philosophy that in order to build for the future of toxicology, one must first excite the students at the undergraduate level. As one of the few programs offering a BS level program in toxicology, the University of the Sciences in Philadelphia has provided many opportunities for Dr. Tarloff to influence undergraduates.” Dr. Tarloff also had an active research program and received grant support from the National Institutes of Health. She joined SOT in 1990 and was a member of the Mechanisms Specialty Section as well as serving on the Animals in Research and Communications Committees.

Annual Meeting & ToxExpo

SOT 2014 Annual Meeting Supporter Opportunities Are Available

The SOT Annual Meeting is the largest scientific meeting of toxicologists in the world and the 53rd Annual Meeting is sure to draw thousands of attendees. Becoming a supporter of this important event demonstrates your organization’s commitment to SOT’s mission of “creating a safer and healthier world by advancing the science of toxicology.” The Society appreciates the generous contributions of the [SOT 2013 Annual Meeting Sponsors](#).

There are many opportunities to [become a supporter](#) for the 53rd SOT Annual Meeting to be held March 23–27, 2014, in Phoenix, Arizona, at the Phoenix Convention Center.

Being a supporter provides an opportunity for better name recognition of your organization among SOT members and the Annual Meeting attendees and helps keep registration fees low, enabling the Society to attract nearly 7,000 scientists from academia, industry, and government—at all stages of their careers—and from around the globe. Many of these attendees are directly involved in the application of toxicology and related sciences to human health and disease prevention. Five levels of supporters are offered, with the higher levels providing greater visibility for your organization. The categories are indicated below as follows:

- Diamond (\$10,000 and more)
- Platinum (\$5,000–\$9,999)
- Gold (\$2,500–\$4,999)
- Silver (\$2,000–\$2,499)
- Contributor (\$1,000–\$1,999)

Acknowledgement signs, on which supporters are grouped by the level of support (for those at Silver Level and above), will be displayed prominently on-site. In addition, supporters will be recognized in the *Preliminary Program*, *Program*, the pre- and post-meeting newsletters, *ToxExpo Directory*, on the [SOT 2014 Annual Meeting website](#), and in the PowerPoint presentation shown in each session room. In appreciation for this contribution, Annual Meeting Supporters at the Silver Level and above are invited to attend the SOT President’s Reception.

Your support also will help offset the cost of functions such as the Undergraduate Education, Program, K–12, and other Public Outreach activities, Student/Postdoctoral Scholar Events, Continuing Education Program, refreshments, and the

Welcoming Reception. If you are interested in becoming an SOT Supporter, contact [Laura Helm](#) at 703.435.3115 ext.1403.

Announcing Five New Online CE Courses from the 2013 Annual Meeting

The SOT Continuing Education Committee is pleased to announce the release of five online courses, presented on March 10, 2013, at the SOT Annual Meeting in San Antonio, Texas.

This release brings the number of CE courses offered online as part of the SOT CEed-Tox program to 32.

We invite you to visit the [SOT website](#) for full information on these new courses, as well as the courses from the 2009 through 2012 Annual Meetings.

The refined search engine allows you to search for courses by year, title, topic, and speaker.

Five courses from the 2013 Annual Meeting are now available:

- *Basic Principles of Human Risk Assessment (Basic)*
- *The Practice and Implementation of Neural Stem Cell-Based Approaches to Neurotoxicology (Basic; CME)*
- *The What, When, and How of Nonclinical Support for an IND Submission (Basic)*
- *Toxic Effects of Metals (Basic)*
- *Weighing in on Nutrition—Essential Concepts for Toxicologists (Basic)*

CEd-Tox offers a great, low-cost way to expand your professional development, or stay current in the field of toxicology, all year long.

Written transcriptions are available with registration to select CEd-Tox courses.

Graduate Student and Postdoctoral SOT Members, as well as scientists based in developing countries, receive complimentary access to all courses.

2014 Annual Meeting Proposal Submission: April 30, 2013 Deadline

Greetings Colleagues!

This is a reminder that the deadline to submit a proposal for consideration for the scientific program at the 53rd Society of Toxicology Annual Meeting in Phoenix, Arizona, is April 30, 2013, 11:59 pm EDT. Please visit the [SOT website](#) to review the relevant information on the submission process including a step-by-step submission guide.

Before you formally submit a proposal, please be sure that you have received support from the intended Sponsor(s). You must have one Sponsor but may have up to three Sponsors for a proposal. This is an important step that will allow these review groups the opportunity to score and rank the submissions before they are forwarded to the Scientific Program Committee for review.

We are looking forward to reviewing the proposals developed for consideration for the 2014 Annual Meeting. If you have any questions regarding the submission process, please contact the SOT office at 703.438.3115 or [April Brewer](#) via email.

Sincerely,

Norbert E. Kaminski
2014 SOT Scientific Program Committee Chair

Invitation to Submit—2014 SOT Annual Meeting Proposals—Deadline April 30, 2013

Greetings Colleagues!

We are excited to invite you to develop sessions for consideration for the 2014 SOT Annual Meeting that will take place March 23–27, 2014, in Phoenix, Arizona, and this message is to remind you that the deadline to submit a proposal is April 30, 2013, 11:59 pm EDT. Please visit the [SOT website](#) to review the relevant information on the submission process including a step-by-step submission guide and the recording of the Scientific Program Committee's recent webinar on [Best Practices for Proposal Submission](#).

If you wish to submit a proposal for consideration, please begin working with your Specialty Section, Special Interest Group, or the appropriate SOT Committee or Task Force. Be advised that all intended proposal Sponsors should be contacted in advance of your submission and provided with a copy of the submission. Remember that for 2014, in place of endorsers, you may have up to three Sponsors for your proposal. This is an important step that will allow these review groups the opportunity to score and rank the submissions before they are forwarded to the Scientific Program Committee for review.

We are looking forward to reviewing the proposals developed for consideration for the 2014 SOT Annual Meeting. If you have any questions regarding the submission process, please contact the SOT Office at 703.438.3115.

Sincerely,

Norbert E. Kaminski
2014 SOT Scientific Program Committee Chair

SOT Translational/Bridging Award Recipient Provides His Perspective on 52nd Annual Meeting

Submitted by M. Shane Hutson, PhD, SOT 2013 Translational/Bridging Travel Award Recipient



SOT Treasurer-Elect Denise Robinson Gravatt Presents Award to M. Shane Hutson

Let me start by saying that I am honored to have received a Translational/Bridging Travel Award and it was a real pleasure to attend the Society of Toxicology Annual Meeting. This truly is a bridging “award”—by training, I am a biological physicist—so I only hope that I can make substantial future contributions in a new field. At this point, you might be wondering, “What on earth is a physicist doing at the Annual Meeting of the Society of Toxicology?” I’ll try to explain,

try to give you some insight into what I learned from this meeting, and try to encourage other physical scientists that there are research questions in toxicology that could spur their interest and use their expertise.

As for why I joined in with a merry band of toxicologists in San Antonio, it's a fairly short story. I am an Associate Professor of Physics and Biological Sciences at Vanderbilt University with a long-time interest in the interplay of mechanical and biochemical cues during embryonic development. I am currently on an ORISE-sponsored research leave for the 2012–2013 academic year and working with Thomas B. Knudsen and his vEmbryo team in the US Environmental Protection Agency's (EPA) National Center for Computational Toxicology (NCCT). This is a collaboration in which I am trying to combine my experience in systems-level modeling—particularly the role of cell- and tissue-level mechanics—with NCCT's expertise in predictive toxicology and high-throughput screening. Our initial work in this area is the development of cell-level models of secondary palate fusion and its disruption by chemical exposure. This model is a prototype for a variety of human disease conditions involving the dysregulation of epithelial-mesenchymal behavior at discrete tissue interfaces. I was very pleased to present my work on this model in one of this year's platform sessions.

That's why I came to the meeting in San Antonio, so what did I learn from the experience? First of all, the highlights. Monday was chock full of good science and debate. It started with Bruce A. Beutler's Plenary Opening Lecture on "Genetic Analysis of Innate Immune Sensing." He provided an amazing history lesson on the study of infectious disease leading to the identification and study of bacterial endotoxins. The program on Monday ended with what I found to be a very intriguing SOT/EUROTOX debate on the premise: "In the Near Foreseeable Future, Much of Toxicity Testing Can be Replaced by Computational Approaches." Given my own interest in computational toxicology, I am almost certainly biased, but I felt the debate went to the affirmative—defended ably by Rory B. Conolly, and ably opposed by George Loizou—with the critically important caveat of what "near foreseeable future" meant. If we are talking only five years from now, then the challenge is daunting, but in 10-20 years or longer, perhaps computational approaches really can significantly reduce our dependence on animal testing. Tuesday's science was just as good, starting on a related theme with Don Ingber's impressive Leading Edge in Basic Science Award Lecture on "Human Organs on Chips as Replacements for Animal Testing" and including the Frontiers for Toxicology Symposium Session on "Systems and Computational Biology as Foundations for Toxicology Research." In light of all the great talks I saw that day, I wonder if modifying the SOT/EUROTOX debate premise to: "In the near foreseeable future, much of toxicity testing on animals can be replaced by computational approaches and advanced *in vitro* assays" might shorten the timeline for "near foreseeable future."

On the other end of the lab-to-clinic spectrum, I also found opportunities at this meeting to think about how computational toxicology could find its way into clinical practice. My thoughts on this subject were stimulated by a talk given by Marcello Lotti on "Translational Toxicology and its Many Facets" at the Clinical and Translational Toxicology Specialty Section Reception. He made the very salient point that "translational toxicology" means different things to different people. I take this as a positive; there are lots of different ways in which foundational research in toxicology can be used (*i.e.*, translated) to improve patient care. This is an aspect of my own research to which I will certainly pay more attention in the future.

Even though I mention the above as highlights, the most important interactions for me took place in the poster sessions. These direct interactions helped me see first-hand how toxicologists think about scientific problems. One of my primary goals during this meeting was participating in such interdisciplinary discussions. I was not disappointed. There was plenty of exciting work being done under a wide range of topics that fit into computational toxicology, from approaches that model chemical structure, those that estimate chemical exposures, to those that model chemical perturbation of normal biology.

This wide range of topics and the fact that SOT would even ask whether computational approaches might replace toxicity testing brings me to my final point—there is a place and a need for physical scientists in toxicology research. As with any aspect of biology, responses to potential toxicants are highly variable and complicated. This complexity frankly scares away a lot of physical scientists, but it shouldn't. The questions toxicology poses are important, they require modeling probabilistic nonlinear systems, and the answers can be relevant even when limited to orders of magnitude. Who better to take on such problems than physicists and mathematicians? I found the SOT Annual Meeting to be a welcoming place for this sort of approach and plan to return in the future. I hope SOT continues to value the interdisciplinary nature of toxicology and seeks to attract students from a wide range of STEM backgrounds—biology, chemistry, physics, and mathematics—and I hope to see you all at the next meeting!

SOT 52nd Annual Meeting Photo Gallery Is Now Available

The SOT 52nd Annual Meeting in San Antonio, Texas, March 10-14, 2013, attracted more than 6,300 scientists from around the globe. A day-by-day Photo Gallery of this meeting is now posted on the SOT website. You can access these photos to recapture the experience of attending the largest toxicology meeting in the world. We hope you enjoy viewing these meeting highlights as you plan for the 2014 SOT Annual Meeting in Phoenix, Arizona, March 23-27. The Society has made these photos available for you to download. You could create a personalized photo gallery of your own! Enjoy your visits to the [SOT 52nd Annual Meeting Photo Gallery](#).

Thanks to Attendees and Exhibitors for Making This Year a Success

2013 SOT Annual Meeting Draws Thousands of Toxicologists from More Than Fifty Countries to San Antonio

- Participants from as far away as New Zealand attended the Society of Toxicology's 52nd Annual Meeting and ToxExpo. International attendees accounted for 20% of the attendance at this five-day meeting, which continues to be the largest gathering of toxicologists anywhere in the world.
- The scientific program featured five scientific themes including Application of Systems Biology to Toxicology; Biomarkers for Exposure Assessment, Safety Evaluation, and Translational Medicine; Effects of Nanomaterials on Biological Systems; Molecular Basis for Genetic Variability and Susceptibility to Toxicants; and Regulatory Science: Advancing New Approaches for Hazard Identification and Risk Assessment. Thematic sessions continued to enhance the scientific program, allowing toxicologists to gain a depth of analysis that is difficult to find anywhere else.
- More than 70 scientists were involved in the organization and presentation of 13 Continuing Education (CE) courses that drew over 1,990 attendees. CE course topics ranged from risk assessment and nutrition, to nanotoxicology and neurotoxicology. Several of the courses will be available in an online format through the SOT CE_d-Tox program.
- CE_d-Tox: The SOT Online Continuing Education Program:
27 online courses are currently available, with five more online courses (recorded at the 2013 SOT Annual Meeting) coming soon:
 - Basic Principles of Human Risk Assessment
 - The What, When, and How of Nonclinical Support for an IND Submission
 - The Practice and Implementation of Neural Stem Cell-Based Approaches to Neurotoxicology
 - Toxic Effects of Metals
 - Weighing in on Nutrition—Essential Concepts for Toxicologists

Transcriptions available for select online courses. For more information, please visit the [SOT website](#).

- The first course approved for Continuing Medical Education, *The Practice and Implementation of Neural Stem Cell-Based Approaches to Neurotoxicology*, drew numerous medical doctors, health professionals, and researchers with an interest in stem cell research and neural stem cell-based approaches to neurotoxicology, neurology, and regenerative medicine.
 - With significant input from the SOT Specialty Sections, Special Interest Groups, and Committees, the program was structured into more than 170 sessions that included both featured and special lectures that accounted for 2,700 presentations during the Annual Meeting.
 - SOT's ToxExpo, which is the largest exhibition of its kind, included more than 348 exhibiting companies. The ToxExpo featured 54 Exhibitor/Sponsor-Hosted Sessions over the three-day show period. The exhibition included 47 first time exhibitors, 72 international companies from 19 countries: Brazil, Canada, China, Denmark, France, Germany, Hungary, India, Ireland, Italy, Japan, Mauritius, The Netherlands, Republic of Korea, Singapore, Sweden, Switzerland, United Kingdom, and the United States. A total of 277 US companies exhibited from 37 states.
-

SOT Appreciates the Generous Contributions of the 2013 Annual Meeting Sponsors

The Society of Toxicology appreciates the generous contributions of the 52nd Annual Meeting Sponsors that are listed below.

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See you in Phoenix, Arizona—March 23–27, 2014

2013 SOT Annual Meeting Session: Biomarkers of Disease and Toxicity: Exploiting the Interconnections

Importance of Toxicology to Disease Prevention

SOT 2013 Annual Meeting Session Focused on “Biomarkers of Disease and Toxicity: Exploiting the Interconnections”

The SOT Disease Prevention Task Force sponsored and supported the videotaping of the 2013 SOT Annual Meeting session, “[Biomarkers of Disease and Toxicity: Exploiting the Interconnections](#),” which illustrates the important role of toxicology in disease prevention. SOT is committed to communicating the contributions of toxicology in disease prevention to policy makers, politicians, and the general public. There is no quick fix to this issue, however, a greater emphasis in highlighting the importance of prevention in the science of toxicology, and the presentation of this science to other stakeholders, will better position SOT and toxicology in general as a central component of discussions establishing societal priorities for safety and preservation of health.

An abstract summary of this session and the presentations are below:

Symposium Abstract

With the recent focus on (a) cellular pathways involved in toxicity sequelae and (b) translational biomarkers that may link animal and *in vitro* model observations with clinical reality, there is a need to broaden the understanding of how experimental models may replicate human toxicity and disease processes. Multicellular organisms may have large numbers of genes and proteins, but a relatively limited repertoire in terms of pathophysiology in response to disease or toxicant exposure. This fact allows research to improve and protect human health to be founded on the use of model systems that allow for tractable experimentation. Animal models and, more recently, *in vitro* systems have served as a means of both exploring mechanisms and identifying hazards in terms of disease and adverse events. However, the interconnections between disease and toxicity are rarely explored leaving the information *in silos*. This symposium examines organ-based toxicity and disease processes and compares lessons learned in biomarker identification and use across toxicity, disease, and species.

Presentations

Select the presentation title to view the recorded presentations below.

[Introduction](#)

Presenter: Donna L. Mendrick

The usefulness of biomarkers that translate between *in vitro/in vivo* environments, across species, and are shared by disease and toxicity is introduced, with N-acetyltransferase 2 as an example.

[Use of Biomarkers in Hepatology, Liver Disease, and Liver Toxicity](#)

Presenter: Arie Regev

Biomarkers are often used in clinical hepatology to detect the presence of a liver disease, distinguish among different types of liver disorders, assess the extent and severity of liver damage, and follow response to treatment. This presentation discusses these biomarkers and their inability to distinguish drug-induced liver injury (DILI) from other causes of hepatic damage and disease.

[Fibrinogen: A New Kid on the Block of Translational Biomarkers for Kidney Damage](#)

Presenter: Vishal S. Vaidya

Acute kidney injury (AKI) is a serious public health concern, especially due to the lack of early biomarkers of injury. We provide evidence that fibrinogen may function as a key molecular link between tubulo-vascular damage and regeneration in the kidney and provides new opportunities for its use in the diagnosis and prevention of kidney disease.

[Cardiac Disease, Cardiotoxicity, and Translational Biomarkers](#)

Presenter: James R. Turk

Heart disease is the leading cause of death in the United States, and myocardial damage from ischemia or cardiotoxic drugs may be followed with biomarkers such as the troponins, natriuretic peptides, and their combination in panels with multiple evolving biomarkers. These tools facilitate an understanding of the parallels between toxicity and background disease in animal models and human heart disease.

[Links Between Neurological Disease and Toxicity](#)

Presenter: David Gerhold

Neurological damage may be caused by environmental agents; MPTP serves as an example, where it, as a contaminant in drugs, let users to develop Parkinson-like symptoms. Indeed nervous system toxicities and disease share common modes and pathways, and the combined use of models of neurological damage caused by drugs, toxicants, and disease may move the field forward faster in the identification and use of translational biomarkers.

A new feature has been added to the SOT website, a [Presentation Portal](#), so you can access information that ranges from SOT Annual Meeting scientific sessions to K–12 workshops and Continuing Education courses. Through the *Communiqué* blog we will keep you updated on this growing archive of information.

CDI Hosts Another Successful Undergraduate Education Program for Minority Students

The Committee for Diversity Initiatives (CDI) would like to thank everyone who participated in the 2013 Undergraduate Education Program (UEP) for Minority Students, Saturday–Monday, March 9–11, 2013, at the Society of Toxicology Annual Meeting in San Antonio, Texas. Forty-two students and six undergraduate faculty advisors representing schools throughout the United States were welcomed by CDI Chair Erin Hines of the US Environmental Protection Agency (US EPA). Participants began their investigation into the study of toxicology with a presentation by Antonio Baines, a 1993 program alumnus, Professor at North Carolina Central University.

The
Annual
CDI
Reunion



Undergraduate Program Icebreaker celebrates this 2013 Tox Squad to honor US FDA pioneers in toxicology

followed with a welcoming speech by SOT 2008–2009 President Kenneth S. Ramos, Professor of Biochemistry and Molecular Biology at the University of Louisville School of Medicine, and one of the UEP Program’s early leaders. The festivities continued as Dr. Hines presented the Perry J. Gehring Diversity Student Travel Award to Alexandra Colón-Rodríguez, a 2009 UEP program participant and graduate student at Michigan State University, East Lansing, Michigan. She was recognized for her research: “Low Dose Postnatal MeHg Exposure Alters mRNA Levels of Rat Brainstem Glutamate Receptors and Voltage gated Calcium Channels.” Another 2009 UEP alumnae, Carmen M. Ortiz-Sanchez from the Ponce School of Medicine and Health Sciences, Ponce, Puerto Rico, received an Honorable Mention for her abstract entitled “Induction of Late Apoptosis on Chinese Hamster Ovary Cells by Sandalwood (*Santalum Albium*) Essential Oils.” This Gehring Award recognizes an outstanding program alumnus who is presenting a poster within three years of participation in the undergraduate program.

The reunion continued as UEP alumni, current students, and CDI friends had a chance to connect over dessert, tea, and coffee. The CDI will continue the reunion tradition next year in Phoenix celebrating the 25th Anniversary of the Undergraduate Education Program at the 2014 CDI Reunion the evening of March 22, 2014. The CDI leadership sincerely hopes that all former volunteers, students, and friends of the program will mark their calendars and join us for that special occasion.

The pool of applicants for the 2013 UEP boasted some of the brightest students from across the country; almost a dozen of whom had research abstracts accepted for the 2013 SOT Annual Meeting. Students funded through the formal program were joined on Sunday, March 10 by other undergraduates who signed up for the open Sunday session as a part of their Annual Meeting registration.



At the 2013 Program Directors Session, students learn about grad school options from nearly 40 represented programs

SOT 2012–2013 President William Slikker, Jr. delivered a kick-off address. The program included Judith T. Zelikoff, SOT 2012–2014 Secretary, Professor at New York University School of Medicine, who provided an eye-opening look into the effects of maternal tobacco use (smoked and nonsmoked) on fetal development. Alice Villalobos of Texas A&M University followed with a talk on the blood-cerebrospinal fluid barrier, and Martin A. Philbert, Dean and Professor of Toxicology at The University of Michigan School of Public Health, presented a glimpse into the potential of nanoparticles for neurologic cancer therapies. Dr. Hines concluded the morning session with an interactive case study in toxicology.

The afternoon began with small group presentations designed to give students an insider's perspective on graduate school by academic advisors Lauren M. Aleksunes, Rutgers University; James P. Luyendyk, the University of Kansas Medical Center; and Richard Nass, Indiana University School of Medicine. They were paired with Graduate Student facilitators Brittany Baisch, University of Rochester; Jonathan Coulter, Johns Hopkins School of Public Health; and Kathryn Page, University of California at Berkeley.

SOT 2004–2005 President Linda S. Birnbaum, Director of the National Institutes of Environmental Health Sciences (NIEHS), led off the Career Session speaking on “My Career: A Winding Road.” A career panel discussion followed moderated by Robert Casillas, a CDI Committee member from MRIGlobal. The panelists represented a number of career paths, including Darryl B. Hood, Meharry Medical College, from academia; Pedro L. Del Valle, US Food and Drug Administration, government; Mari S. Stavanja, Celanese Corporation, from industry, and Claire Redman Crouch, Midwest Research Institute, non-profit organizations.

Students met with representatives from almost 40 academic toxicology and internships programs from around the country. It was a highly energized event as students connected with program leaders offering scholarships and positions that



Host Mentors like Adrian Nunez shared their perspective with students about careers in toxicology

could launch them

on careers in toxicology. About 15 student program participants displayed their research posters during this time.

Monday morning, program participants attended the Plenary Lecture delivered by Nobel Laureate Bruce Beutler, followed by a special poster session in ToxExpo showcasing the various important areas of toxicology. The concluding program allowed students a chance to gain recognition for their accomplishments over the past several days and say “Good-bye” before heading to the *In Vitro* Luncheon, which included an interesting overview of the potential for *in vitro* technologies given by Hisham Hamadeh of Amgen and discussion of challenging related questions at each table.

In addition to the speakers and presenters, the CDI Committee owes a debt of gratitude to the many Host and Peer Mentors who stayed with the students throughout the sessions, personalized the vast amount of information, and helped make it meaningful to the students. They also want to thank volunteers Kimberly Daniels of Texas A&M University and Joanne Mauro from the University of Georgia who assisted with registration and saw that processes ran smoothly throughout.

Next year in Phoenix the Undergraduate Program will introduce a slightly expanded format. Details will be coming soon!

Many Opportunities for Postdocs at SOT Annual Meeting

Postdocs found their Annual Meeting schedules packed full as they took in all the 2013 gathering offered to all SOT scientists, in addition to sponsoring or hosting eight events targeting the interests of SOT postdocs and students. The scientific session, sponsored jointly by the Postdoctoral Assembly (PDA) and Graduate Student Leadership Committee (GSLC) on the “Role of Systems Biology in Characterizing Risk of Developmental Origins of Disease,” was chaired by 2012–2013 PDA Vice Chair David Szabo and was well attended and well received.



PDA Mentoring Session (left to right) Ofelia Olivero, Brittany Hannas, and Kelly Chandler

There were two PDA-Sponsored Education and Career Development Sessions. “The Symbiosis of Mentoring: Getting the Most out of the Mentor-Mentee Relationship,” was chaired by PDA 2012–2013 Councilor Bethany Hannas and Treasurer Kelly Chandler. This session enhanced the theme of other Annual Meeting events on mentoring and was highly ranked by all attendees. The second Education and Career Development Session was chaired by Betina Lew, 2009–2010 PDA Chair. This career exploration session was focused on “Regulatory Science and Risk Assessment: Lessons for Early-Career Scientists on What to Expect and How to Pursue This Career Path.” Insights were shared by scientists from a variety of backgrounds in the field.

Representative Kathryn Page, 30 SOT experts and almost 100 trainees signed up for the 2013 poster tours. The groups met at the SOT Pavilion just inside ToxExpo and, in addition to visiting posters, trainees found the opportunity to network and get expert career advice with their guide and colleagues. Almost 90 percent of participants said they would recommend Poster Tours for Trainees to a colleague.

PDA offered the successful Poster Tours for Trainees for a second year. Chaired by Northern California Postdoc

The Postdoctoral Assembly Luncheon provided postdocs with an opportunity to get together in an informal atmosphere, network, and celebrate accomplishments. Petra Haberzettl, Anne Loccisano, and Yuanyuan Xu were presented with Best Postdoctoral Publication Awards and SOT Specialty Section, Regional Chapter, and Special Interest Group Postdoc Awardees were recognized. The occasion was enhanced by a great meal and a wide variety of door prizes.

Trainees also had the privilege of meeting in an intimate setting with both the Plenary Lecturer Bruce A. Beutler and the MRC Lecturer Jeremy K. Nicholson following their talks. PDA Vice Chair Dr. Szabo hosted the Trainee Session with the Plenary Lecturer on Monday and PDA Chair Enrique Fuentes Mattei hosted the Trainee Discussion with the MRC Lecturer on the Wednesday of the Annual Meeting.



Plenary Opening Lecturer Bruce A. Beutler (center) meets with group of postdocs

Perhaps the most unique Annual Meeting event offered by the PDA was the workshop they sponsored on “Tools for Bringing Creativity into Your Scientific Research.” Given by Professor Rodney Dietert, Cornell University, and Janice Dietert, Performance Plus Consulting, the workshop offer trainees creative ideas on how to overcome roadblocks in research through nonlinear approaches to problem solving. Hands-on exercises using a variety of creative outlets, including meditation and playing with Legos®, gave participants ideas for new approaches for dealing with the mental barriers encountered by researchers in their work. As a bonus, participants each left with their own bag of Legos.

SOT Annual Meetings provide a forum where toxicologists come together to share novel discoveries and achievements in research and education. At the 2013 meeting the SOT Postdoctoral Assembly contributed a variety of activities designed to enhance the Annual Meeting experience for their membership.

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Toxicology Educators Share Ideas and Resources

Think of it as the “Little Poster Session That Could!” The official count was eight posters in a sea of 2,700 presentations at the 2013 SOT Annual Meeting; however, as chair of the Education Poster session I know the enthusiasm and impact will be far greater than that small number represents.

“The poster session was well attended with foot traffic and lively conversation. There was a mix of educational issues, including K–12 projects, outreach, and teaching strategies. Authors with whom I spoke expressed interest in participation in the undergraduate education mission, including investigating issues of pedagogy and involvement of college programs in toxicology,” summarized Teresa Dodd-Butera, the poster session lead for the SOT Undergraduate Education Subcommittee and Assistant Professor at California State University, San Bernardino.

Ideally situated in the middle of ToxExpo, there was a constant stream of toxicology educators and researchers exchanging ideas on the best ways to introduce toxicology principles from kindergarten to upper division undergraduate courses.

Poster presenters came from New York to California and from the Deep South to the heart of the Midwest. Clever outreach ideas included the board game “Escape from Toxic Island” developed for the Mid-Atlantic SOT Regional Chapter and presented by Diane Hardej of St. John’s University. There was a poster on developing a risk assessment capstone project for seniors in toxicology, information on how to build a summer undergraduate research program, a great dose-response lab using *C. elegans*, and methods for introducing toxicology into an undergraduate nursing curriculum.

The best part about sharing your ideas was the feedback and new information gained from colleagues who stopped by the poster session. While presenting a poster on a new environmental toxicology course I developed at Northern Kentucky University, I learned about the US Environmental Protection Agency’s [BenMap software](#) and how it’s being used at an Ohio college to teach toxicology to undergraduates. What a great idea! Let’s hope it turns into a future poster presentation.

The SOT Education Committee wants to encourage more faculty and toxicology educators to present at the 2014

Annual Meeting. But you don't have to wait until next March. The Undergraduate Education Subcommittee welcomes [submission of teaching materials online](#). When the collection builds, you soon will be able to search the resource library.

Whether it's an interesting way to tackle a hot topic in toxicology, a new lab, or new way to engage K–12 students, education is at the center of what we do to protect public health. The more we share...the more we grow.

2013 CE Spotlight: A Course on Neural Stem Cell-Based Approaches to Neurotoxicology

Contributed by James O'Callaghan, Continuing Education Committee (2012–2013) and Timothy Shafer

A Continuing Education Course entitled “The Practice and Implementation of Neural Stem Cell-Based Approaches to Neurotoxicology” was presented at the SOT 52nd Annual Meeting on March 10, 2013.

Embryonic and inducible stem cell derived neurons from human cells are powerful tools for toxicologists and provide tissue that is otherwise unobtainable. This includes renewable sources of neural tissue from the same genetic stock that is not transformed or tumor-derived, and sources of nervous system tissue from patients with clinical disease. However, culture and differentiation of hNSC is more difficult and complex than culture of primary or transformed neural tissue.

This course brought together experts in the implementation of the techniques used for various types of neural stem cells to discuss the basic approaches to culturing different types of hNSC. Pitfalls that are both common to the different models as well as unique ones were described. The course provided an overview of state-of-the-art knowledge regarding different types of neural stem cell cultures, the techniques to successfully culture and differentiate these models, and application of these model systems to neurotoxicology.

A Successful CE Sunrise Course at the 2013 Annual Meeting

Submitted by James O'Callaghan, Continuing Education Committee, 2012–2013

A Refresher of Immunoglobulin and Fc-Receptor Biology and Advances Related to Therapeutic Antibody Development

This course, presented by Theodora Salcedo, provided a basic overview of the structure and function of antibodies and their use as therapeutics. Because immune Fc receptors serve to link humoral immune responses to cellular activities within the immune system, these receptors and their antibody binding function were the key topics presented.

Immunoglobulin Fc sequences are being tailored to trigger specific Fc receptors to improve therapeutic outcome. The introduction of amino acid mutations, glycoengineering, and other next generation formats were presented and discussed. Known species differences in immunoglobulins and Fc receptors may influence pharmacologic and toxicologic profiles of therapeutic antibodies. New technologies surrounding the development of therapeutic antibodies were presented as were the challenges of these advances to toxicologic evaluations.

A Successful CE Course on Cardiovascular Physiology-Based Toxicology

Submitted by Tao Wang, SOT Continuing Education Committee Member, along with Travis Knuckles and David McGuinn

We had another successful program of Continuing Education (CE) courses this year at the 2013 SOT Annual Meeting. I attended the AM03 course entitled “Recent Developments in Cardiovascular Physiology-Based Toxicology.” This

course sought to educate researchers about the basic physiology of the cardiovascular system as well as ways to assess toxicity beyond the regulatory standards of the hERG assay and the acute QT interval. Nowadays, we are deep into the molecular toxicology assessment, and for the course attendees, it is great to see that we are reviewing the very important physiology-based toxicology assessment. Travis Knuckles, West Virginia University (WVU), and W. David McGuinn Jr., US Food and Drug Administration, chaired this session. Dr. Knuckles opened the session with an outline of problems inherent in current cardiac toxicity testing and the learning objectives of the course. This introduction began the discussion of the importance of assessing the chronic toxicity of oncology drugs not normally thought of as cardiotoxic. Dr. McGuinn discussed mechanisms of chronic toxicity of drugs like tyrosine kinase inhibitors that are negative in the hERG assay and show no acute ECG changes, but have the potential to cause congestive heart failure after long term exposure.

Mehdi Hazari, of the US Environmental Protection Agency, continued the discussion with a whole-system based approach to measuring the toxicity of environmental chemicals or drugs via electrocardiographic telemetry. Consistent with Dr. McGuinn's talk, Dr. Hazari stressed the use of repeated radio-telemetric measurements to assess the development of chronic cardiac toxicity. Following a short coffee break, the session picked back up with an overview of the physiology of peripheral circulation control mechanisms and methodological details of microcirculatory measurements Timothy Nurkiewicz, of West Virginia University. Dr. Nurkiewicz demonstrated the usefulness of microscopy techniques for assessing *in vivo* and *in vitro* alterations in microvascular function. Following the session, there was an informed discussion about the use of the microcirculation versus the macrocirculation techniques and how these techniques determined various toxicological parameters. Molly Frame, SUNY Stony Brook, further demonstrated the biomechanical dynamics of the microcirculation by outlining solute extraction from the capillary bed, mechanisms of microvascular toxicity, and angiogenic mechanisms that contribute toxicity. The take home message was that delivery of a given amount of solute is not necessarily tied directly to overall bulk flow.

Lastly, the session was brought to a close with presentation by Vince Castranova, of the National Institute of Occupational Safety and Health, who addressed toxicity measurements in a model system of particle inhalation. Dr. Castranova's talk brought together all of the aspects of the course in a model system that displays toxicity through direct, inflammatory, and neurogenic mechanisms at cardiac, conduit vessel, and microvascular levels. The attendees commented that the physiology-based risk assessment is so very important, and it is great that the SOT CE Committee offered the course this year.

A Continuing Education Course Worth Attending: Global Regulatory and Safety Requirements

Betina J. Lew served as a roving reporter at the SOT 2013 Annual Meeting and submitted the article below.

Understanding the current global regulatory and safety requirements is an important piece of a toxicologist's responsibilities in multinational companies. The REACH (Registration, Evaluation, Authorization and Restriction of Chemical substances) is the European Union regulation on chemicals and their safe use, which came into force in 2007. One of the Continuing Education (CE) courses offered this year during the 2013 SOT Annual Meeting focused on the REACH regulation and Safety Assessment Approaches for Chemicals That Come in Contact with the Skin.

Jens Thing Mortensen, of CiToxLAB Scantox, Denmark, chaired the CE course and opened the session with a great overview of the regulations. He explained that the regulation will be enforced gradually (until 2018) and that 30,000–40,000 new and existing chemicals will need to be (re)classified and (re)registered under REACH.

The skin is an important route of exposure and target organ for those chemicals, and one of the objectives of the course was to demonstrate how skin effects such as irritation corrosion, sensitization, and dermal penetration of chemicals are currently evaluated and the requirements for compliance with REACH regulations. Laura Rossi, from the European Chemicals Agency, talked about the regulations in general. Dr. Rossi addressed registration, data sharing, evaluation, authorization, and restrictions. She presented a case study in which the risk characterization was refined by exposure assessment and dermal penetration.

Hans Raabe, from the Institute for *In Vitro* Sciences, talked about *in vitro* alternatives for irritation/corrosion methods, followed by David J. Esdaile, of CiToxLab, Hungary, who discussed read across, (Q)SAR, and *in vitro* methods to address skin sensitization. Jon Heylings, of Dermal Technology Laboratory Ltd., closed the session by giving examples of alternative methods to measure dermal penetration.

The course provided great perspective on how alternative, non-animal methods can be used for the safety evaluation of ingredients and also presented efforts ongoing to develop new methods and the validation status of alternative state-of-the-art investigational methods within dermal toxicity.

SOT Past Presidents' 5k Fun Run/Walk Support Priorities Endowment Fund

The SOT Past Presidents' 5k Fun Run/Walk was a great success again in 2013 with nearly 200 participants and many cheering spectators along the race course. This year's event was held on March 12, in Hemisfair Park, San Antonio, Texas, in conjunction with the SOT 52nd Annual Meeting. All the proceeds from the event were donated to the SOT Priorities Endowment Fund, as will be the generous contributions made by individual donors.

Pictured below are the first place male and female winner, Peter Boogard and Jaclyn Goodrich (center) with SOT Past Presidents (left to right) Jay I. Goodman, David L. Eaton, Jon C. Cook, George B. Corcoran, and Steven D. Cohen.

The overall and age group race results are found at the [2013 Past Presidents' 5K Fun Run/Walk website](#). The Society appreciates and congratulates all those who participated.

The SOT's Strategic Priorities listed below are the pillars that support the vision and mission of the Society:

- Increase Scientific Impact
- Advocate the Value of Toxicology
- Build for the Future of Toxicology
- Expand and Deepen Member Engagement
- Strengthen Organizational Effectiveness

The support of programs and activities to implement these objectives requires sufficient resources to address needs ranging from adequate research funding and fostering of the next generation to the importance of toxicological understanding to facilitate harmonization in a global marketplace. Fostering collaboration through the organization of meetings and forums, outreach to thought-leaders in the agencies and Congress, and active involvement in education and career development must be supported at levels significant to sustain SOT's leadership position.

The proceeds from this Strategic Priorities Endowment Fund are used to create a margin of excellence in advancing the priority needs and advancing the science of toxicology as identified by the SOT Council. For more information and to contribute, please visit the [SOT website](#).



2013 Past Presidents' 5k Winners and Past Presidents

MRC Lecture Explores Scalable and Translatable Strategies for Phenotyping Patients

Keynote Medical Research Council Lecturer Jeremy Nicholson, of the Imperial College London, London, talked to a crowded audience in the Grand Ballroom about how systems biology can be applied at both individual and population levels to understand integrated biochemical functions in relation to disease pathogenesis. He noted that there is now wide recognition that the extensive cross-talk and signalling between the host and the symbiotic gut microbiome links to both the response to therapy and disease risk factors. Dr. Nicholson stated that he has developed scalable and translatable strategies for phenotyping the journey that the patient takes in the hospital using top-down systems biology tools that capitalize on the use of both metabolic modelling and pharmaco-metabonomics for diagnostic and prognostic biomarker generation to aid clinical decision making at point-of-care. The diagnostics are extremely sensitive for the detection of diagnostic and prognostic biomarkers in a variety of conditions and are a powerful adjunct to conventional procedures for disease assessment that are required for future developments in precision medicine including understanding of the symbiotic influences on patient state.

2013 CE Online Courses Announced

The SOT Continuing Education Committee is pleased to announce the five CE course from the 2013 program that will be available online as part of *CEd-Tox*, SOT's online continuing education program:

Basic Principles of Human Risk Assessment (AM02)

The What, When, and How of Nonclinical Support for an IND Submission (AM05)

The Practice and Implementation of Neural Stem Cell-Based Approaches to Neurotoxicology (AM06/CME)

Toxic Effects of Metals (AM07)

Weighing in on Nutrition—Essential Concepts for Toxicologists (PM13)

These online courses will be available on the SOT website later this spring. (Slide presentations and audio only).

There is a limited supply of books for these CE courses available for sale during the Annual Meeting. Please visit the SOT Office (Room 202) if you wish to purchase a CE book for these or any other 2013 courses.

SOT Presented An Excellent CE Course on Neuropathy

Tao Wang and John Benitez served as roving reporters at the SOT 2013 Annual Meeting and submitted the article below.

On Sunday afternoon, March 10, at the SOT 52nd Annual Meeting, we attended the Continuing Education (CE) course PM12 entitled "[Understanding Toxic Neuropathy in Drug Development: Both Clinical and Nonclinical Perspectives](#)." Peripheral nervous system toxicity is a common complication of exposure to industrial chemicals and drugs such as chemotherapeutics. The CE course successfully integrated both nonclinical and clinical dialogues on peripheral neuropathies, with the goal that such integrated information will provide greater possibilities for successful drug development and improved patient outcomes. John Benitez from Vanderbilt University and Mary Jeanne Kallman from Covance Research Laboratories chaired the course.

Dr. Kallman opened the session with an overview of the course and Amy Chappell, an MD from Eli Lilly and Company, presented a lecture, a comprehensive summary, on the incidence of toxic neuropathy symptoms in clinical patients. Dr. Chappell emphasized the clinical situation and current treatment approaches. From the preclinical risk assessment perspective, Mark Cartwright, Merck, presented a systemic review of peripheral nervous system anatomy and recognition of neuropathies resulting from injury to the axon, neuron, myelin, or supportive tissues. After Dr.

Cartwright's presentation focusing on the histopathological evaluation of tissues to identify various neuropathies, Joseph Arezzo, Albert Einstein College of Medicine, demonstrated the usefulness of nerve functional testing in the assessment of neuropathy and its potential translation to the clinic. Dr. Arezzo emphasized that for electrophysiological testing high-frequency stimulation may be a promising technique; and specifically that testing for neurotoxicity should be done by looking at end fibers, and not proximal injury (e.g., femoral nerve).

Among many useful and critical aspects of the functional tests, one of the take-home messages for toxicologists in the drug development field is that in terms of preclinical general toxicology studies with standard histopathological examination, disappearance of an adverse finding in the nerve tissues under microscopic examination does not mean the nerve function is fully recovered. Finally, Dr. Benitez, who is a medical toxicologist, showed some examples of clinical neuropathies associated with oncolytic drugs. He emphasized that oncolytic drugs have various mechanisms behind neurotoxicity, and we should not lump them all together in an attempt to assess neuropathies. In particular, Dr. Benitez addressed the following: (1) Screening tools don't always catch early symptoms; (2) Diagnosis is primarily by exam and nerve conduction studies; (3) Treatment options are limited for both preventative and symptomatic aspects—more research is needed; and (4) Development of chemotherapy-induced peripheral neuropathy (CIPN) causes delays in further therapy or stopping therapy altogether— which is devastating to patients!

What was unique to this CE course is that Dr. Benitez invited a patient (Linda G. Allison, MD, MPH) to the CE. Dr. Allison is a cancer survivor with severe Chemotherapy Induced Peripheral Neuropathy. (CIPN). She was a practicing clinician who loved to fill her life with fun activities including playing piano. While she was receiving the chemotherapy, she experienced horrible CIPN including excruciating pain on her hands, teeth, and face. Dr. Allison described the pain she experiences as if every one of her fingers was being hammered every minute, and that her face and teeth felt as if they were falling off. She described how she could not eat or touch anything. Her quality of life has degraded to such low level that she stated there were times when she wished that she would not have survived treatment. Even 2 years after the initial chemotherapy, Dr. Allison still could not resume her normal life's activities, and while living in Tennessee, she still needs to wear gloves to pick up her groceries in the hot summer months.. She is still undergoing treatment, but is very picky about which drugs she will use.

In the drug development field, while we are certainly getting better and better in terms of putting much research effort on developing anti-cancer drugs that can avoid CIPN, this CE SOT course reminded everyone that saving the life of a cancer patient is indeed critical, but quality of life must be taken into account as well. Indeed the US Food and Drug Administration and the National Cancer Institute are looking at Quality of Life/adverse events in future research.

Your Margarita—Salt or No Salt??

Mary Beth Genter served as a roving reporter at the SOT 2013 Annual Meeting and submitted the article below.

We all thought that it was pretty straightforward—too much salt is a risk factor for developing high blood pressure, right? And reducing salt intake is good for everyone, right?

Depending on who you ask, and how you ask the question, you might be surprised by the answers!

A basic problem is that we all consume too much salt. Without going into excruciating detail, guidelines for desirable levels of daily salt intake range from 1500 to 2300 mg/day. Most of us are well out of that range, averaging 3800 to nearly 5000 mg/day.

In reviewing the findings of a systematic review of the issue of sodium intake and health effects, Niels Graudal set up the question as follows: there is positive evidence for a relationship between salt and blood pressure, and also a positive relationship between high blood pressure and mortality; can we then assume that there is some link between salt intake and mortality?? In order to demonstrate that we might not get the answer that we expect, Dr. Graudal presented data showing that while beta blockers certainly do lower blood pressure, they do not, unfortunately, improve survival. In examining the effect of sodium reduction, people with normal blood pressure showed no further improvement in either systolic or diastolic blood pressure readings. However, sodium reduction did improve blood pressure in people with

high blood pressure—so does decreased sodium intake in these people also decrease mortality? Sorry—no direct evidence, he says.

In fact, data presented by Dr. Graudal showed that dramatic reduction of sodium intake can actually increase the secretion of the hormone renin, which is a major regulator of blood pressure. More renin, higher blood pressure. Very low blood levels of sodium were also associated with increased aldosterone, noradrenaline, and adrenaline—again, without going into details, these are all normal physiological responses, but not necessarily desirable at all times. A representative of the salt industry, Mr. Satin, also pointed out that there are associations between very low blood sodium levels and morbidities such as Type 1 and Type 2 diabetes, as well as loss of cognition. Data from Dr. Graudal's systematic review also showed some evidence for increased cholesterol, and stronger evidence for increase in blood triglycerides with decreased blood sodium levels.

So what are we to think?? Another investigation, provided by Dr. Paul Whelton, might help put all of this into perspective. The studies reviewed in Dr. Graudal's Cochrane review included studies of very sick individuals, and many of the studies, while well conducted and credible, had actually been designed to answer another question and were then re-analyzed to assess relationships between sodium intake/blood levels and various health outcomes. Dr. Whelton presented from the perspective of observational studies. These are cross-sectional studies specifically designed to study the relationship between sodium and blood pressure. The bottom line of his evaluation was quite black and white: first, high quality observational studies have demonstrated a strong positive relationship between sodium intake and blood pressure. Second: we ALL eat too much salt! Sodium intake is roughly broken down as follows: ~75% from processed foods, ~5% each for salt added during cooking and at the table, and 12% naturally occurring. He urged the processed food industry to continue its efforts to gradually lower the sodium content of processed foods. During the panel discussion, we learned that if salt intake is gradually reduced, individuals don't miss it, and when re-introduced to their previous level of consumption, they find that level of salt "too salty".

I'll skip the salt on my next margarita glass, please!

Ozone and High Fructose Diets Don't Mix

Mary Beth Genter served as a roving reporter at the SOT 2013 Annual Meeting and submitted the article below.

Diet as a risk factor for susceptibility factor for air pollution susceptibility...who knew?

Two studies from GLACIER (the Great Lakes Air Center for Integrated Environmental Research) presented compelling evidence in laboratory rodents for the role of high fructose-rich diets in promoting various parameters related to metabolic syndrome (a condition that can occur prior to development of type 2 diabetes) and in alterations of heart rate.

Katryn Allen, with GLACIER in conjunction with Michigan State University (MSU), demonstrated that mice fed a diet containing 60% fructose displayed symptoms of insulin resistance, but no changes in body weight or blood insulin. When mice fed the high fructose diet were exposed to ozone for less than one month, there was a marked deterioration of endpoints related to metabolic syndrome. In addition to worsening of HOMA-IR, a measure of metabolic syndrome, the co-exposed mice showed fat accumulation in the liver, and an increase in the capacity to synthesize fats, specifically triglycerides, above and beyond the increases caused by the high fructose diet itself.

In another presentation, MSU professor James Wagner showed the effects of the same model system (high fructose diet + ozone) on the cardiovascular system. Dr. Wagner's work examined such endpoints as heart rate and heart rate variability. Ozone treatment in high fructose-fed rats dramatically decreased heart rate; a puzzling finding that requires follow up is the observation that co-exposure of the modified diet rats to both ozone and fine particles had a *decrease* in heart rate variability, compared to those exposed to either air pollutant individually.

Bottom line—while there is some evidence that a diet high in fructose can contribute to endpoints related to metabolic syndrome and type 2 diabetes, the observation that air pollution can exacerbate these endpoints is novel and worthy of attention, particularly for countries dealing with severe air pollution problems and the recent introduction of a Western

diet.

Global Gallery of Toxicology Showcases our Sister Societies

Now in its third year at the SOT 52nd Annual Meeting, posters showcasing the formation, key accomplishments, strategic initiatives, and current and future activities of our sister societies were prominently displayed near the registration area and ToxExpo. SOT 2012–2014 Secretary Judith T. Zelikoff is pictured with the Irish Society of Toxicology Poster. This photo was taken by SOT member John L. O'Donoghue. The goal of SOT and of all these societies is to advance human health and disease prevention.

University of Rochester Graduate and Postdoctoral Students Winner of Tox Video Contest

During the Student/Postdoctoral Scholar Mixer on Sunday, March 10 at the 2013 SOT Annual Meeting, the Graduate Student Leadership Committee (GSLC) announced that the first place in the Tox Video Contest was awarded to the students in the Department of Environmental Medicine, University of Rochester.

The contest was launched this past fall for graduate and postdoctoral students around the country to produce a video that answered the question, “Why be a Toxicologist.” Video entries were judged on the basis of their creativity and how effectively they described what a toxicologist does. In addition, the GSLC also considered whether the video was original, convincing, memorable, and fun. The students from Rochester received a cash prize at the Student/Postdoctoral Scholar Mixer and everyone who attended enjoyed [watching the video](#).

According to Josh Allen, a participant in the filming of the video, eleven people participated including a few off screen. With the prize money the participants planned to treat themselves and their colleagues to a catered lunch.

Webinar: Best Practices for Proposal Submission and Review, Friday, March 22

The Scientific Program (SPC) Committee values the input we receive from the membership in particular the Specialty Sections, Special Interest Groups, SOT Committees and Task Forces with respect to the Annual Meeting Program. Therefore, please mark your calendar for **Friday, March 22, 2013**, to participate in a best practices Webinar from 1:00 pm to 3:00 pm EDT. The SPC has continued this event based on the success of the webinars in both 2011 and 2012.

We anticipate this webinar will continue and expand the dialogue, provide an overview of the submission, review, and decision process, and answer some of the frequently asked questions related to proposal submission. We are aware of the exciting opportunities as well as challenges for the proposal developers and would like to discuss how we can continue to improve this process and make our SOT activities even stronger.

We expect that this planned webinar will provide some insight into the SPC review process including proposal feedback, the distinction between tentative vs. final acceptance, and the sponsorship process, including changes to the review process for front-line groups (SS/SIG/Committee/Task Force) for the 2014 Annual Meeting.

We hope that you'll set aside some time to participate in this interactive session; specific webinar details including the dial-in information will be posted to ToXchange and sent to the reviewer group Presidential, or Chairperson chain. Should you have any questions, please feel free to contact SOT Headquarters at 703.438.3115.

SOT's Leading Edge in Basic Science Award Recipient Receives Prestigious Award from UK

On February 26, Donald E. Ingber, the award recipient of the 2013 SOT Leading Edge in Basic Science Award, was presented with the NC3Rs Prize from the UK's National Centre for the Replacement, Refinement and Reduction of Animals in Research for his innovative Lung-on-a-Chip research. According to NC3Rs Chief Executive Director Vicky Robinson, "This disruptive technology may be the beginning of a revolution of the systems we use to model human disease and test drugs in the future, with great potential to reduce the need for animals."

Dr. Ingber is the founding director of the Wyss Institute for Biologically Inspired Engineering, Harvard University; the Judah Folkman Professor of Vascular Biology at Harvard Medical School and Boston Children's Hospital; and Professor of Bioengineering at the Harvard School of Engineering and Applied Sciences. He is a founder of the emerging field of biologically inspired engineering, and at the Wyss Institute oversees a multifaceted effort to identify the mechanisms that living organisms use to self-assemble and to apply these design principles to develop advanced materials and devices. He also leads the Biomimetic Microsystems platform in which microfabrication techniques from the computer industry are used to build functional circuits with living cells as components. His most recent innovation is a technology for building tiny, complex, three-dimensional models of living human organs. These "organs on chips," which mimic complicated human functions, are designed to replace traditional animal-based methods for testing of drugs and toxins.

The Lung-on-a-Chip offers a new *in vitro* approach to drug screening by mimicking the complicated mechanical and biochemical behaviors of a human lung. It is a small device the size of an emory stick composed of a clear, flexible polymer that contains hollow channels fabricated using computer microchip manufacturing techniques. Dr. Ingber and his team used the lung-on-a-chip to mimic a complex human disease, pulmonary edema, identified potential new therapies to prevent this life-threatening condition, and revealed new insights about the disease that the physiological breathing motion of the lungs exacerbates drug toxicity-induced edema.

He will be honored as the 2013 SOT Leading Edge in Basic Science Award recipient at the upcoming SOT 2013 Annual Meeting and ToxExpo Award Ceremony, which will be held on Sunday, March 10 at the Henry B. Gonzalez Convention Center. This award is presented to those scientists who, based on his/her research, has made a recent (within the last 5 years), seminal scientific contribution/advance to understanding fundamental mechanisms of toxicity. The recipient should be a respected basic scientist whose research findings are likely to have a pervasive impact on the field of toxicology. Dr. Ingber will be presenting the Leading Edge in Basic Science Award Lecture on Tuesday, March 12 at 8:00 am in the Grand Ballroom C2.

A Big Thanks to Volunteers

The SOT Annual Meeting takes months to organize and thousands of scientists play a part in the development of the scientific program and exhibition. There is another group of individuals that deserves our praise and thanks, and that's the volunteers who are on hand to help make the program and exhibition run without a hitch. Thank you for all of your efforts on the Society's behalf, your added support is greatly appreciated!

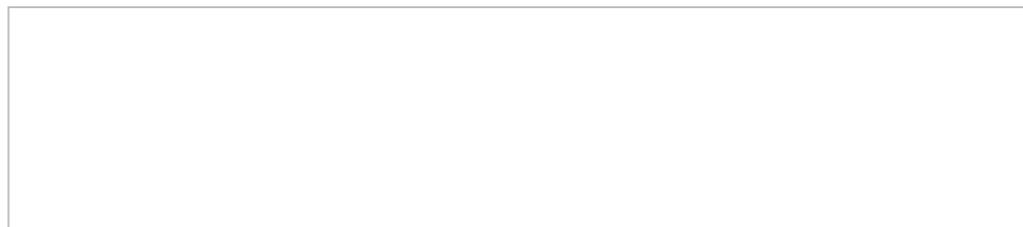
Science News

Cellular & Molecular Mechanisms of Toxicity Gordon Research Conference: August 11–16, 2013

The Cellular & Molecular Mechanisms of Toxicity Gordon Research Conference will be held August 11–16, 2013, in Andover, New Hampshire. This conference is a premier forum for showcasing the latest, most innovative advances in

mechanistic toxicological research. For the 2013 conference, the organizers have assembled a group of world-leading experts working on areas of investigation that are highly relevant to environmental, industrial, and pharmaceutical toxicology. The topics selected are varied and of great appeal to a broad audience of scientists with an interest in toxicology. Mitochondrial diseases, epigenetics, transcriptional control of drug metabolizing enzymes, carcinogenesis, stem cells in toxicological research, and novel functions of oxidative stress-related transcription factors are among the topics that will be highlighted at the conference. Applications for this meeting must be submitted by July 14, 2013. For more information, visit the [Cellular & Molecular Mechanisms of Toxicity Conference website](#).

***ToxSci* June 2013 Vol. 133, No. 2 Now Online**



The June 2013, Vol. 133, No. 2 issue of *Toxicological Sciences (ToxSci)* is now available [online](#). To have the email Table of Contents (eTOC) alerts delivered to you as well as Advance Access notification of the latest papers and research in *Toxicological Sciences* as soon as they are accepted and posted to the website, register [online](#). The paper chosen for the Editor's Highlight in this issue is [Hydroxyurea Exposure Triggers Tissue-Specific Activation of p38 Mitogen-Activated Protein Kinase Signaling and the DNA Damage Response in Organogenesis-Stage Mouse Embryos](#) by Serena Banh and Barbara F. Hales. Co-Interim Editor-in-Chief Matthew Campen notes in the Editor's Highlight that "Hydroxyurea, a commonly used antineoplastic agent, induces teratogenesis accompanied by oxidative stress in rodent models. Banh and Hales report on the early and transient activation of p38 MAPK downstream of MEK3/6 following in utero exposure of murine embryos to hydroxyurea at gestational day 9. Hydroxyurea had a primary impact on neurological structures, where nuclear translocation of phospho-p38 and formation of ??H2AX foci, accompanied by an increase in pyknotic nuclei, were observed in the malformation-sensitive caudal neuroepithelium. In contrast, the heart appeared protected despite the accumulation of ??H2AX foci, the nuclear expression of phospho-p38 MAPK and the development of pyknotic nuclei were minimal in cardiac regions, suggesting that hydroxyurea may induce tissue-specific DNA repair mechanisms, such as nucleotide excision or crosslink repair." John C. Lipscomb also is serving as the Co-Interim Editor-in-Chief of *Toxicological Sciences*. *Toxicological Sciences*, the official journal of SOT, is among the most highly cited original research journals in Toxicology with an impact factor of 4.652.

Science News Alert—Upcoming Meetings That May Be of Interest to You

Dear SOT Members,

Below are a number of SOT-sponsored meetings and events that may be of interest to you. For more information, contact the organizers directly.

Dose Response Assessment Boot Camp—May 6–10, 2013

A Dose Reponse Assessment Boot Camp will be held May 6–10, in Cincinnati, Ohio. This training opportunity is for individuals in the risk assessment or toxicology field. The course is a 5-day intensive hands-on training in hazard characterization and dose response assessment. Beginners through expert toxicological risk assessors will learn advanced methods, as well as enhance their understanding and skills in the basics. Course lectures will be supplemented with daily hands-on application exercises. Upon completion of the course, participants will be able to derive and evaluate risk values and supporting documentation for both noncancer and cancer risk assessments. Five Continuing Maintenance (CM) points will be available from the American Board of Industrial Hygienists (ABIH). For additional

information, please visit the [workshop website](#).

Moving Forward in Human Risk Assessment in the Genomics Era 2.0—May 16–17, 2013

A workshop, “Moving Forward in Human Risk Assessment in the Genomics Era 2.0,” will be held on May 16–17, 2013, at the OECD Congress Center, Paris, France. This workshop will be held with the goal to review progress in human carcinogenesis safety evaluation strategies and cancer risk assessment. Experts and opinion leaders from academia, industry, and regulatory agencies in the US, EU, and Asia, will convene to discuss the utility of exploiting genomics approaches in understanding genotoxicity findings and in chemical carcinogenicity risk assessment, as well as the informatics needs to support optimal access and use of these data. Novel assay development and promising emerging data mining and modeling approaches will be discussed with particular emphasis on identifying gaps and opportunities for their application in human cancer risk assessment. This is a follow-up to a workshop held in Venice in August 2009. For additional information, please visit the [workshop website](#).

New York Academy: Bone Marrow Niche, Stem Cells, and Leukemia: Impact of Drugs, Chemicals, and the Environment—May 29–31, 2013

The “Bone Marrow Niche, Stem Cells, and Leukemia: Impact of Drugs, Chemicals, and the Environment” conference will be held May 29–31, 2013, at the New York Academy of Sciences in New York City. To date, two separate groups have been studying bone marrow: toxicologists who examine chemically-induced marrow pathologies and hematologists/oncologists who investigate diseases of the marrow. This conference will bring together representatives from both fields around a jointly shared goal—to better understand, prevent, and treat myeloid malignancies. Conference sessions will combine basic science and toxicology research at the level of the bone marrow niche with clinical findings from healthy subjects and patients. Topics include the bone marrow niche structure and function, the maturation and differentiation of healthy and leukemogenic hematopoietic stem cells, cutting-edge models and tools for research, and the environmental, chemical, and genetic factors involved in the development of myeloid abnormalities, including myelodysplastic syndromes (MDS) and acute myeloid leukemia (AML). The meeting will feature a series of plenary lectures, panel discussions, a poster session, and short talk presentations by early career investigators. A complete agenda and registration information is available on [The New York Academy of Sciences website](#).

Environmental Mutagenesis and Genomics Society 44th Annual Meeting—Abstract Deadline June 1, 2013

The 44th Annual Meeting of the Environmental Mutagenesis and Genomics Society (EMGS), will be held September 21–25, 2013, at the Hyatt Regency Monterey, in Monterey, California. This year’s theme is “Embracing the Science of the Future through Cross-Disciplinary Research.” The meeting provides a broad scientific forum for basic and applied researchers as well as students and teachers to review the latest information linking environmental conditions to adverse health outcomes. The emphasis of the meeting is to (i) to build on our past contributions to the field of environmental and molecular mutagenesis and DNA repair and more fully understand the role of epigenetics in these basic mechanisms; (ii) to integrate applied genetic toxicology with basic research in DNA damage and repair, toxicogenomics, and epigenetics; (iii) to determine how interdisciplinary information can be best used to direct translational human epidemiological studies; (iv) to have these data serve as a foundation for human risk assessment for disease and disease prevention; and finally (v) to aid in the support of knowledge-based regulation to protect public health and the environment. The abstract deadline is June 1, 2013. For additional information, please visit the [EMGS 44th Annual Meeting website](#).

Society of Toxicologic Pathology 32nd Annual Symposium—June 16–20, 2013

The Society of Toxicologic Pathology (STP) 32nd Annual Symposium, “Toxicologic Pathology of the Digestive Tract and Pancreas,” will take place June 16–20 at the Oregon Convention Center in Portland, Oregon. The 2013 STP Scientific Symposium will cover fundamental biology and recent innovations in the toxicologic pathology of the digestive tract and pancreas. The focus of this international meeting is to correlate advances in the morphologic

evaluation and integration of findings in the digestive tract and pancreas with functional, cellular, and molecular knowledge in a series of plenary and poster sessions. The meeting will provide a venue for interactive discussion of the current state of knowledge in both conventional and specialized nonclinical safety studies of the digestive tract and pancreas. Program information is available on the [STP 32nd Annual Symposium website](#).

Teratology Society 53rd Annual Meeting—June 22–26, 2013

The 53rd Annual Meeting of the Teratology Society will be held June 22–26, 2013, in Tucson, Arizona. The theme of the 2013 meeting is “Application of Cutting-Edge Technologies to Improve Assessment, Treatment, Prevention, and Communication regarding Birth Defects.” Sessions will highlight teratology research and issues that have global impact, with topics including advances in genomic sciences, application of imaging technologies, predictive developmental toxicology, diabetes and pregnancy, and chemotherapeutics. The interdisciplinary nature of the Society provides unique opportunities to look broadly at these complex issues. For more information, visit the [Teratology Society 53rd Annual Meeting website](#).

Society of Toxicologic Pathology Modular Education Series Inaugural Course: Neuropathology—July 21–24, 2013

The Society of Toxicologic Pathology (STP) is offering “Neuropathology,” the inaugural course in the Modular Education Series, July 21–24, 2013, at the Chauncey Conference Center in Princeton, New Jersey. The course is planned in partnership with the British Society of Toxicological Pathology and with help from the STP Special Interest Group in Neuropathology. The course will include both didactic lectures and practical data and slide review sessions. Microscopic evaluation of histologic sections will be done using whole-slide digital pathology images and practical evaluation/interpretation of toxicologic pathology data will be emphasized. The modular course series is designed primarily for novice practitioners of toxicologic pathology. However, pathology residents with an interest in this specialty or experienced pathologists who desire a refresher course are welcome. In addition, nonpathologists with an interest in the normal histology, pathology, or toxicology of the nervous system also will benefit from this module. For course details and registration, please visit the [STP website](#).

Cellular & Molecular Mechanisms of Toxicity Gordon Research Conference: August 11–16, 2013

The Cellular & Molecular Mechanisms of Toxicity Gordon Research Conference will be held August 11–16, 2013, in Andover, New Hampshire. This conference is a premier forum for showcasing the latest, most innovative advances in mechanistic toxicological research. For the 2013 conference, the organizers have assembled a group of world-leading experts working on areas of investigation that are highly relevant to environmental, industrial, and pharmaceutical toxicology. The topics selected are varied and of great appeal to a broad audience of scientists with an interest in toxicology. Mitochondrial diseases, epigenetics, transcriptional control of drug metabolizing enzymes, carcinogenesis, stem cells in toxicological research and novel functions of oxidative stress-related transcription factors are among the topics that will be highlighted at the conference. Applications for this meeting must be submitted by July 14, 2013. For more information, visit the [Cellular & Molecular Mechanisms of Toxicity Conference website](#).

Safety Pharmacology Society Annual Meeting, September 16–19, 2013

The Safety Pharmacology Society (SPS) 13th Annual Meeting will be held September 16–19, 2013, in Rotterdam, the Netherlands, and will provide a dynamic forum for sharing the latest in safety pharmacology. The scientific program offers in-depth discussion of relevant topics to keep you “in the know.” This meeting will feature a diverse range of scientific sessions organized into thematic tracks, covering issues such as, Reducing Safety Related Attrition, Expanding the Frontiers of Safety Pharmacology, Improving Support to Clinical Development, Translation of Safety Pharmacology Studies to Humans, and a Best Practices Workshop on Comparing Safety Pharmacology as “Stand Alone” to SP-Endpoint Inclusion in Toxicology. The meeting also will offer a full day of Continuing Education courses both on an introductory level as well as advanced courses for the expert. For preliminary meeting information, please visit the [SPS](#)

[13th Annual Meeting website.](#)

FutureToxII CCT: Pathways to Perdition—January 16–17, 2014

The FutureToxII: *In Vitro* Data and *In Silico* Models for Predictive Toxicology Contemporary Concepts in Toxicology (CCT) conference will be held January 16–17, 2014, at the William and Ida Friday Center for Continuing Education, University of North Carolina, Chapel Hill, North Carolina. The conference aims to address the pathway-based strategy by bringing together basic research into a CCT that integrates newer *in vitro* methodologies and computational (*in silico*) modeling approaches with advances in systems biology. An overarching goal is to clarify the usefulness and validity of new and emerging technologies and approaches, so that expectations can be managed in both the regulatory and regulated scientific communities. Some aspects of this topic were covered in the October 2012 FutureTox CCT. The FutureToxII CCT will provide a forum for a detailed, scientific discussion of how the biological pathways of interest will be elucidated, characterized, and qualified for pathway-based risk assessment. Breakout groups will address four key areas: Regulatory Toxicology, Liver Disease and Hepatotoxicity, Developmental/ Reproductive Toxicity, and Cancer. There is global interest in “Adverse Outcome Pathways” (AOPs) as a conceptual framework for mode-of-action approaches in these four areas. As such, focusing the CCT on scientific issues where new methodologies and advances can move us beyond reliance on animal models will benefit all researchers and regulators as a way of identifying key questions that need research. For additional information and to register, please visit the [FutureToxII website](#).

SOT sponsors two types of meetings outside of the SOT Annual Meeting: [Contemporary Concepts in Toxicology \(CCT\)](#) and [Non-SOT meetings](#). CCT meetings are one- to two-day focused, open registration, scientific meetings in contemporary and rapidly progressing areas of toxicological sciences. Non-SOT meetings are sponsored by other not-for-profit organizations and SOT will either endorse or provide sponsorship money to toxicology-related meetings.

NIH Announces Changes to K99/R00 Awards

The National Institutes of Health (NIH) announced recent changes to the K99/R00 awards program. Instead of requiring the eligibility period to be five years, NIH has shortened it to four years to increase the number of these awards. The goal is to achieve a 30 percent overall success rate, but that will depend on the availability of sufficient funds and enough meritorious applications. The changes will be implemented for applications that are submitted by February 12, 2014, and beyond.

According to Sally Rockey, NIH’s Deputy Director for Extramural Research, the K99/R00 program changes are designed to help more PhD graduates shift into permanent tenure-track positions more quickly. The first K99 awards were announced in fiscal year 2007.

NIH to Host Seminar on Funding and Grants Administration in Baltimore June 26–28: Reminder

The National Institutes of Health (NIH) is sponsoring a Regional Seminar on Program Funding and Grants Administration on June 26–28 in Baltimore, Maryland. NIH policy officials, grant management, and scientific program and review staff will be on hand throughout the two days and Sally Rockey, NIH Deputy Director for Extramural Research, will speak at the opening session on Thursday. This seminar will feature a range of session topics including the peer review process, grant writing, how to interact with NIH electronically, human subjects research, and advanced administrative topics.

For registration and more program information, please visit the [NIH Seminar website](#).

Scientists Using Animal Models Encouraged to Use New AVMA Guidelines

Scientists who are using animal models for medical research are urged to review the new American Veterinary Medical Association (AVMA) Guidelines for the Euthanasia of Animals. The Guidelines were published in the Federal Register and offered guidance as to how the 2013 AVMA Guidelines will be implemented. All grantees are expected to fully implement these guidelines by September 1, 2013. The National Institutes of Health (NIH) is soliciting public input about issues related to the new guidelines. Comments must be submitted to NIH by Friday, May 31, 2013. To submit comments go to the [NIH website](#).

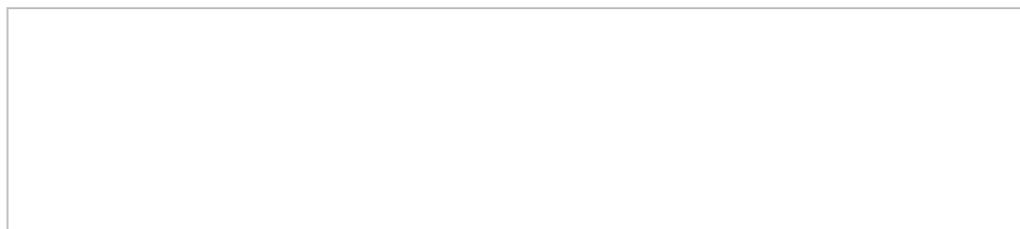
NIH to Hold One Regional Seminar in Baltimore in June

The Office of Extramural Research (OER) of the National Institutes of Health (NIH) is holding one NIH Regional Seminar on Program Funding and Grants Administration on June 26–28, 2013, in Baltimore, Maryland. The location has yet to be determined. These seminars are intended to help demystify the application and review process, clarify federal regulations and policies, and highlight current areas of special interest or concern.

The program in Baltimore will feature an optional full-day seminar on Wednesday, June 26 for those new to using [eRA Commons](#). On Thursday, Sally Rockey, Deputy Director of Extramural Research, will speak at the seminar kickoff and also lead a session called Rock Talk. Thursday and Friday offer a range of session topics, such as understanding NIH, the peer review process, grant writing, how to interact with NIH electronically, policy topics (e.g., human subjects research and advanced administrative topics) and NIH special programs (e.g., training programs, [SBIR](#), and [AREA](#) grants). Moreover, the course will provide ample opportunities for networking with presenters and attendees as well.

The seminars serve the NIH mission of providing education and training for the next generation of biomedical and behavioral scientists. NIH policy, grants management, review and program staff provide a broad array of expertise and encourage personal interaction between themselves and seminar participants. The seminars are appropriate for grants administrators, researchers new to NIH, and graduate students. For general or program related information on the NIH Regional Seminars, please email NIHRegionalSeminars@mail.nih.gov.

Search For Editor-in-Chief of *Toxicological Sciences* Underway—Review Process Begins In May



Dear Colleague,

Toxicological Sciences is the official journal of the Society of Toxicology (SOT). The SOT Council has directed the Society's Board of Publications to conduct a search for a distinguished individual to serve as the next Editor-in-Chief of *Toxicological Sciences* for a three-year, renewable term beginning by October 1, 2013. The mission of *Toxicological Sciences*, as a capstone of the Society, is to publish premier, peer-reviewed, hypothesis-driven original research articles in all areas of toxicology. The Editor-in-Chief is expected to meet this mission with the highest level of integrity, scientific judgment, and professionalism, in addition to providing enthusiastic vision for maintaining the value of the journal.

The Editor-in-Chief is expected to provide scientific editorial leadership for the Journal and serve as the primary

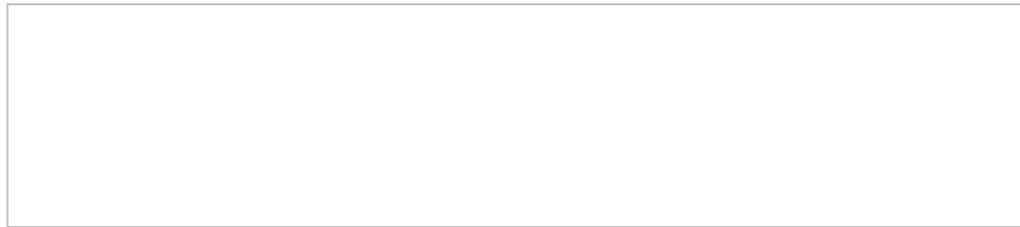
coordinator of interactions among authors of submitted manuscripts, the publisher Oxford University Press (OUP), Associate Editors, members of the Editorial Board, and other peer reviewers. The Managing Editor within the Editorial Office receives all manuscripts submitted and handles the majority of clerical and nonscientific editorial functions. The Editor-in-Chief is provided with a budget from SOT and OUP for expenses related to editorial activities. Limited financial compensation may be available for the Editor-in-Chief. The Editor-in-Chief must be a well-established toxicologist with an extensive publication record, editorial experience, and a demonstrated commitment to excellence in research and service. The applicant should be an SOT member.

Individuals interested in being considered for this important position should submit a letter stating their interest in the *Toxicological Sciences* Editor-in-Chief position, a brief statement of editorial philosophy and goals for *Toxicological Sciences*, and curriculum vitae to Dr. Janice Chambers, Board of Publications, c/o [Marcia Lawson](#). The review process will begin on May 6, 2013, and applications will be considered until a new Editor-in-Chief has been identified.

Update on the NIEHS Systemic Injury by Environmental Exposure Special Emphasis Panel

The first NIEHS Systemic Injury by Environmental Exposure (SIEE) Special Emphasis Panel (SEP) met in February of 2013. Feedback from many fronts including Program and applicants indicate a successful review. There was overall satisfaction voiced by the Applicants, Reviewers, and the NIEHS Program itself. The community response to the SEP was enthusiastic and a significant number of grants were reviewed in a variety of different areas significant to the interests of the SOT. A second review panel has been scheduled for those grants submitted for the February/March deadline and a third review Panel tentatively scheduled for October will review those grants submitted for June/July. In order to ensure viability of the SIEE and its forward momentum to a Study Section, applications in all areas of toxicology are encouraged. This is our opportunity for toxicology to be heard!

Search for Editor-in-Chief of *Toxicological Sciences* Is Underway



Dear Colleague,

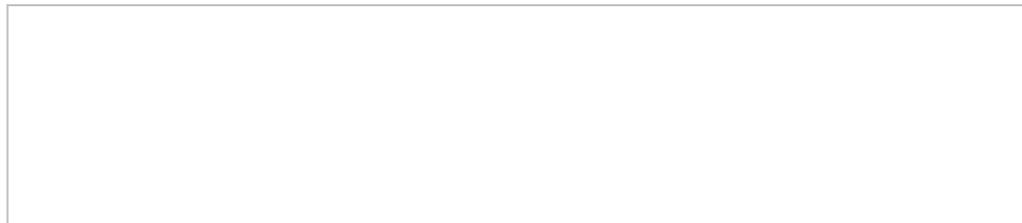
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***ToxSci* May 2013 Vol. 133, No. 1 Now Online**



The May 2013, Vol. 133, No. 1 issue of *Toxicological Sciences (ToxSci)* is now available [online](#). To have the email Table of Contents (eTOC) alerts delivered to you as well as Advance Access notification of the latest papers and research in *Toxicological Sciences* as soon as they are accepted and posted to the website, register [online](#).

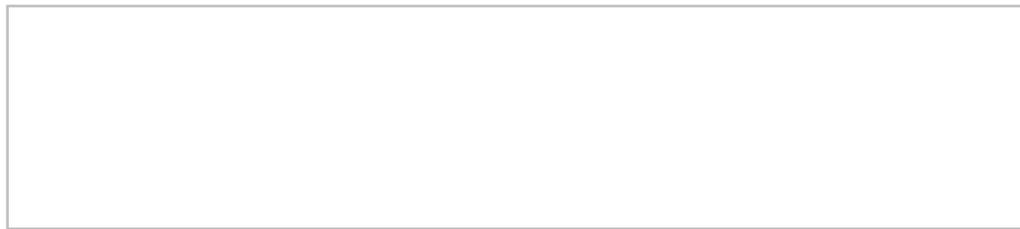
The paper chosen for the Editor's Highlight in this issue is [Biomarkers of Exposure and Effect in Human Lymphoblastoid TK6 Cells Following \[13C2\]-Acetaldehyde Exposure](#) by Benjamin C. Moeller, Leslie Recio, Amanda Green, Wei Sun, Fred A. Wright, Wanda M. Bodnar, and James A. Swenberg. *ToxSci* Associate Editor Jeffrey Fisher noted in his Editor's Highlight "Byproducts of constitutive metabolism may themselves be toxic, complicating the risk assessment of the same chemicals encountered from external sources. The application of stable labeled compounds offers insight into the source of chemicals producing biological effects and provides a basis to quantify the contribution of exogenous exposure to biological events. This report describes the concentration dependent contributions of exogenous [13C2]-acetaldehyde and endogenously produced acetaldehyde to adduct formation in human lymphoblastoid cells *in vitro*." *Toxicological Sciences*, the official journal of SOT, is among the most highly cited original research journals in Toxicology with an impact factor of 4.652.

Maximizing the Success of Your Submitted Paper: Best Practices for Authors

During the SOT 52nd Annual Meeting, Oxford University Press (OUP), the publisher of *Toxicological Sciences (ToxSci)*, held an Exhibitor-Hosted session, "Best Practices for Authors: Maximizing the Success of your Submitted Paper." The purpose of this session was to communicate to prospective authors how to choose an appropriate journal for their article, the elements of a high-quality journal submission, the essentials of the review and revisions process, and best practices for interacting with journal offices.

Various perspectives were offered by each of the speakers, including Publishing Editor: David Crotty, OUP; *ToxSci* Managing Editor: Virginia Hawkins; Author: Curtis J. Omiecinski (2012 recipient of the SOT Board of Publications Best Paper in *ToxSci*); Reviewer: Ivan Rusyn; and Interim *ToxSci* Co-Editors-in-Chief: Matthew J. Campen and John C. Lipscomb. This presentation aimed to provide a better understanding of the paper publication process. Information was provided to help better prepare manuscripts, find the most appropriate journal, and increase the likelihood of a successful submission.

This presentation, which includes a number of useful links, is now posted on the [SOT website](#).



The April 2013, Vol. 132, No. 2 issue of *Toxicological Sciences (ToxSci)* is now available [online](#). To have the email Table of Contents (eTOC) alerts delivered to you as well as Advance Access notification of the latest papers and research in *Toxicological Sciences* as soon as they are accepted and posted to the website, register [online](#). The paper chosen for the Editor's Highlight in this issue is [Emerging Mechanistic Targets in Lung Injury Induced by Combustion-Generated Particles](#) by Marc W. Fariss, M. Ian Gilmour, Christopher A. Reilly, Wolfgang Liedtke, and Andrew J. Ghio. Co-Interim Editor-in-Chief Matthew Campen notes in the Editor's Highlight that "A new initiative to better link scientific proceedings of the Society of Toxicology Annual Meeting with *Toxicological Sciences* involves the invitation of review articles from especially interesting and innovative symposia. Fariss and colleagues present an integration of new concepts from a symposium held at the 2012 Annual Meeting related to transient receptor potential (TRP) channels as sensors of xenobiotics and secondary intermediates and ultimately determinants of particulate matter toxicity. Compelling evidence sheds light on TRP channels mediating airway injury, hyperreactivity, and cardiovascular toxicity of inhaled pollutants." John C. Lipscomb also is serving as the Co-Interim Editor-in-Chief of *Toxicological Sciences*. *Toxicological Sciences*, the official journal of SOT, is among the most highly cited original research journals in Toxicology with an impact factor of 4.652.

OSTP Sends Agencies Directives on Public Access to Federally Funded Scientific Research

In a Memorandum to all agency heads dated February 22, the Office of Science and Technology Policy (OSTP) directs them to develop a plan to support increased public access to the results of research funded by the federal government. The OSTP specifically targets federal agencies that spend more than \$100 million annually for research and development and includes any results published in peer-reviewed scholarly publications that are based on research that directly comes from federal funds. The directive stipulates that those affected must submit a draft plan to the OSTP within six months of publication of the Memorandum and must provide guidance to facilitate the development of final plans that are consistent with "the objectives of this Memorandum." The plans will be reviewed by OSTP and the White House Office of Management and Budget and the White House is not offering any additional funding for agencies to develop these plans. For more information about this new policy, see the [White House website](#).

New DoD Funding Opportunities Announced

The following funding opportunities have recently been released by the Department of Defense (DoD). Detailed descriptions of the funding opportunity, evaluation criteria, and submission requirements can be found in the Program Announcements. The Program Announcements are currently available for downloading from the [Grants.gov website](#), and also on the [Congressionally Directed Medical Research Programs \(CDMRP\) website](#) and the [CDMRP eReceipt System website](#)

Research Programs:

Autism Research Program (ARP)

- Idea Development Award

- Pilot Award

Breast Cancer Research Program (BCRP)

- Breakthrough Award
- Era of Hope Scholar Award
- Innovator Award
- Postdoctoral Fellowship Award

Ovarian Cancer Research Program (OCRP)

- Clinical Translational Leverage Award
- Resource Development Award

**Note: Also see previously released Ovarian Cancer Academy, Pilot, & Teal.*

Innovator Award funding opportunities:

Prostate Cancer Research Program (PCRP)

- Biomarker Development Award
- Idea Development Award
- Laboratory-Clinical Transition Award
- Synergistic Idea Development Award
- Transformative Impact Award

***Note: Additional PCRP Program Announcements will be released in June 2013.*

Peer Reviewed Medical Research Program (PRMRP)

- Clinical Trial Award
- Investigator-Initiated Research Award
- Technology/Therapeutic Development Award

****Note: The PRMRP Discovery Award will be released at a later date.*

Legislative and Regulatory Update

TSCA Reform: Late Sen. Lautenberg and Vitter Introduced S. 1009 Chemical Safety Improvement Act

Shortly before his death, on May 22 Senator Frank Lautenberg (D-NJ) and Senator David Vitter (R-LA) introduced S. 1009. The bill has 14 Democratic and Republican co-sponsors. In April, the late Senator and Senator Vitter had introduced S. 696, the Safe Chemicals Act, but instead of having two competing bills to contend with, it appears that S. 1009 will serve as a main vehicle for TSCA reform legislation. Under S. 1009, chemicals in the marketplace would be evaluated for safety and prioritized as “high” or “low” risk to human health and the environment. The US Environmental Protection Agency (US EPA) would do further safety evaluations for high-priority chemicals and new chemicals would have to be screened for safety before entering the market, and US EPA would have the authority to ban their use. State and local governments would have input on prioritization, safety assessment, and the safety determination process, and US EPA would be allowed to get health and safety information about chemicals from the manufacturers. The bill also provides provisions to protect trade secrets and intellectual property. This bill has been referred to the Senate Committee on Environment and Public Works, but no further action has been scheduled.

As previously noted, the SOT Toxic Substances Control Act (TSCA) Subcommittee will begin to monitor the legislation and will explore ways by which they can educate staff members and Members of Congress about the various scientific provisions of the bill. The Subcommittee will not be writing language and they will not be advocating one provision over another. The current TSCA statute is more than 30 years old.

TSCA Legislation Introduced with Bipartisan Support

Senator Frank Lautenberg (D-NJ) and Senator David Vitter (R-LA) have co-sponsored legislation along with 14 other Senators from both sides of the Senate to reform the 37-year-old Toxic Substances and Control Act (TSCA). The proposed legislation expands the current law giving greater authority to the United States Environmental Protection Agency (US EPA) to require safety testing after there is evidence that a chemical is dangerous. Other changes include the following: All chemicals currently in the marketplace would be evaluated for safety and prioritized as “high” or “low” risk to human health and the environment. US EPA would be given authority to conduct additional tests for the chemicals deemed to be “high.” This agency would have authority to take action on unsafe chemicals, including mandating labeling requirements, phasing out use, and banning chemicals. Under the provisions of the bill, the legislation offers trade secret and intellectual property protection and requires that chemical manufacturers give this agency health and safety information.

SOT’s TSCA Subcommittee will be monitoring the progress of this legislation and will take steps to work with Committee staff in both Houses to provide education and technical expertise if called upon to do so.

NIH FY 2013 Budget Cut by 5.5 Percent Over Last Year’s Budget

Final sequestration cuts put the National Institutes of Health (NIH) FY2013 budget at \$29.5 billion, which represents a cut of approximately 5.5 percent over last year’s budget. The bottom line is that the NIH budget will decrease by \$1.71 billion compared to the FY 2012 budget. As a result, the NIH anticipates funding 8,283 new and competing research grants during 2013, which represents a decrease of 703. The total number of grants will drop by 1,357 to 34,902 grants. NIH hopes to keep the average award consistent with 2012 awards and will not provide inflationary increases for future years. Grants that were cut up to 10 percent earlier this year could be partially restored, but not to the original commitment level.

NIH Continues Work on Diversity in the Biomedical Workforce Initiative

The National Institutes of Health (NIH) established an initiative called, “Increasing Diversity of the NIH-Funded Workforce.” The program is designed to stimulate cultural changes at academic institutions to better prepare the best and brightest students for entry into research careers. The NIH is implementing two important initiatives to foster innovative ways to support recruitment and training within biomedical sciences. One initiative, BUILD, will allow the development and testing of novel models for underrepresented student recruitment and training within the biomedical sciences. The present open funding opportunity lays the foundation for the BUILD initiative by providing six-month planning grants to enable underresourced institutions to form partnerships and position themselves to prepare applications for the multi-year BUILD implementation funding opportunity, which is expected to launch in 2014. The second initiative, NIH National Research Mentoring Network (NRMN), will facilitate the development of robust mentoring relationships by coordinating nationwide pairings of scientific leaders and early career scientists who may benefit from additional mentoring, including, but not limited to, individuals from underrepresented backgrounds. For more information on the BUILD initiative, please visit the [NIH website](#).

NIH Update on Plans for Better Biomedical Workforce

The National Institutes of Health (NIH) biomedical research workforce working group was established to enhance the pathways for undergraduate and postdoctoral training to provide excellent preparation for biomedical research careers in a timely fashion and ensure future United States' competitiveness and innovation in biomedical research. Plans are underway and the following activities highlight some of the work that NIH is doing with respect to this initiative:

Automated NRSA Training Tables: Instead of requiring elaborate data tables on trainees and faculty association with the training program, the working group is turning these tables into an automated, pre-populated, digital archive of information using an NIH-wide approach similar to that employed by Career Trac, which is currently used by NIH and the centers.

Fed-Wide Researcher Profile System: Five agencies including NIH and various universities are building an online curriculum vitae system called the Science Experts Network (SciENcv), which will permit researchers to use existing data sources to easily assemble and validate the information necessary to create a biosketch in the format required by federal research agencies. SciENcv is expected to reduce the burden associated with preparing applications for federal grants and also be a source of information on researchers. The system is being built by the National Library of Medicine.

SOT Member Comments on Hydraulic Fracturing Issue Statement Due May 2

We are sending this reminder to encourage SOT members to submit comments on the draft SOT Issue Statement on Hydraulic Fracturing Technology. The team who authored this balanced paper includes Bernard D. Goldstein, University of Pittsburgh; Steven D. Cohen, Massachusetts College of Pharmacy and Health Sciences; Dennis B. Devlin, ExxonMobil Corporation; Alexander E. Gates, Rutgers University; Michael E. Honeycutt, Texas Commission on Environmental Quality; John B. Morris, University of Connecticut; Trevor M. Penning, University of Pennsylvania, and Jennifer Orme Zavaleta, US Environmental Protection Agency. Please review the [SOT Statement](#) and submit any comments you have about the paper to [Martha Lindauer](#) no later than **Thursday, May 2**. As noted in the [Issue Statement Process](#), comments will be reviewed by the Working Group and incorporated into the current draft. Once this process has been completed, the paper will go to the SOT Council for final approval, after which the SOT Communications Committee will implement its dissemination strategy so that outside audiences can learn more about the science of toxicology and what our members do as scientists.

US EPA Strengthens Conflict of Interest Review Process for Scientific Review Panels

Recently, the United States Environmental Protection Agency (US EPA) announced that the agency has improved its conflict of interest review process for contractor-managed peer reviews. The US EPA has implemented an oversight process to ensure that contractors follow all existing conflicts of interest guidance and requirements. The new process applies to all future technical documents designated as Influential Scientific Information or Highly Influential Scientific Assessments where independent peer reviews will be conducted by panelists selected and managed by independent contractors. For future review panels, US EPA will publish the names, principal affiliations, and resumes of candidates being considered for the panel. After the selection of the final peer review panel is made, the contractor will consult with the US EPA to review whether the contractor followed existing conflict of interest guidance and requirements and to identify and provide input on any issues. More information about this new process is available on the [US EPA website](#).

SOT and Other Scientific Organizations Call for Increase in FY 2014

Funds for NIH

The Society of Toxicology (SOT) was one of several scientific organizations to sign on to a letter to the leadership of the House and Senate appropriations subcommittees to urge them to include at least \$32 billion for the National Institutes of Health (NIH) and at least \$1.37 billion for the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) in the FY 2014 Health and Human Services and Education appropriations bill.

SOT and the other signatories expressed concern that the failure to avert the sequester, which will cut \$1.5 billion from the NIH's FY 2013 discretionary funding, comes at a time when investment in long-term research is desperately needed. A funding level of at least \$1.37 billion will allow the NICHD to build upon successful research while prioritizing and investing in new research based on their recently released [Scientific Vision: The Next Decade](#). The organizations that signed the letter noted that more than 80 percent of the NIH annual budget is awarded to institutions and individual investigators in all 50 states, stimulating jobs and scientific innovation. The impact of this investment was affirmed most recently in a study supported by the Association of American Medical Colleges, which found federal and state-funded research conducted at the nation's medical schools and teaching hospitals in 2009 added nearly \$45 billion to the nation's economy. To view the letter in its entirety, please visit the [SOT website](#).

No action has been taken yet on the FY 2014 appropriations bills. The President recently delivered his budget to the Hill on April 10.

SOT Submits Comments to Office of Disease Prevention in Response to Request for Input

The Society has submitted a set of comments to the Office of Disease Prevention (ODP) in response to the Office's request for comments on the ODP Strategic Plan.

The mission of the ODP is to improve the public health by increasing the scope, quality, dissemination, and impact of prevention research supported by the National Institutes of Health (NIH). The ODP fulfills this mission by providing leadership for the development, coordination, and implementation of prevention research in collaboration with NIH Institutes and Centers and other partners. Goals and objectives presented in the final strategic plan will outline the priorities for the Office over the next five years and highlight the ODP's role in advancing prevention research at the NIH.

SOT expressed support for the ODP strategic plan and described in depth the commitment that the organization has to disease prevention. SOT also indicated strong support for objective 4 that calls for the development of collaborative prevention projects and the facilitation of the coordination of such projects. To read the entire set of comments, please visit the [SOT website](#).

SOT Signs Letters to OMB, Congress, and OSTP

The Society has joined several other scientific and technological societies in sending a letter to officials at the Office of Management and Budget (OMB), all members of Congress, and the Office of Science and Technology Policy (OSTP) urging them to exempt the science and technology community from Office of Management and Budget Memorandum M-12-12, which sets forth limitations on federal employee participation in conferences. In the letter, SOT and the other signatories indicate that, "As OMB Memorandum M-12-12 is currently being interpreted and implemented, it is having the unintentional consequence of restricting the open exchange of ideas among scientists, engineers, and technologists, and thereby adversely affecting important national interests by throttling back on the US innovation engine."

SOT and others request that the Administration "affirm support of these open exchanges of information and amend OMB guidance to specifically exempt federal employee travel to conferences, seminars, and meetings where attendance

promotes agency interests as well as the professional development and competency of government scientists, engineers, or other specialized experts.” The signatories also request that OMB clarify that the Memorandum’s definition of meetings “does not cover meetings involving Federal Advisory Committees, the National Academies, standards-setting bodies, industry-government workshops and conferences, or official international engagements.” In addition, SOT and the other signatories make the point that the “directives in M-12-12 stand in stark contrast with the December 17, 2010, OSTP memorandum on ‘Scientific Integrity,’ which calls for agencies “to encourage presentation of research findings at professional meetings” and “allow full participation in professional and scholarly societies, committees, task forces, and other specialized bodies of professional societies.” To access a copy of the full letter, please visit the [SOT website](#).

Members Invited to Comment on Hydraulic Fracturing Issue Statement

SOT Council invites members to review and provide comments on the draft SOT Issue Statement on Hydraulic Fracturing Technology. In the summer of 2012, Council commissioned a small working group to develop a short and balanced presentation of the science and related issues underlying the hydraulic fracturing technology. The team consisted of Bernard D. Goldstein, University of Pittsburgh; Steven D. Cohen, Massachusetts College of Pharmacy and Health Sciences; Dennis B. Devlin, ExxonMobil Corporation; Alexander E. Gates, Rutgers University; Michael E. Honeycutt, Texas Commission on Environmental Quality; John B. Morris, University of Connecticut; Trevor M. Penning, University of Pennsylvania, and Jennifer Orme Zavaleta, US Environmental Protection Agency. Please go to the [SOT website](#) and submit any comments you have about the paper to [Martha Lindauer](#) no later than Thursday, May 2. As noted in the [Issue Statement Process](#), comments will be reviewed by the Working Group and incorporated in the current draft. Once this process has been completed, the paper will go to the Council for final approval, after which the SOT Communications Committee will implement its dissemination strategy so that outside audiences can learn more about the science of toxicology and what our members do as scientists.

US EPA Establishes Hydraulic Fracturing Research Advisory Panel

The United States Environmental Protection Agency’s (US EPA) independent Science Advisory Board (SAB) announced the formation of a Hydraulic Fracturing Research Advisory Panel to review US EPA’s 2014 draft report of results for its national study on potential health and environmental impacts of hydraulic fracturing on drinking water resources. The SAB panel of 31 independent experts will provide scientific feedback on US EPA’s research in an open and transparent manner and provide peer review of the 2014 report. Also, the SAB’s panel will seek input from applied science practitioners in the field and provide scientific feedback on the US EPA’s research. Also US EPA will hold a series of public meetings with stakeholders and public webinars, technical roundtables, and technical workshops.

The SAB panel is comprised of five current employees of companies and consulting firms; two government employees; and 21 academics/university professors (including some previously employed in industry). It has at least three experts in each of the following nine areas of expertise that were sought for the panel: Petroleum/Natural Gas Engineering; Petroleum/Natural Gas Well Drilling; Hydrology/Hydrogeology; Geology /Geophysics; Groundwater Chemistry/Geochemistry; Toxicology/Biology; Statistics; Civil Engineering; and Waste Water and Drinking Water Treatment. On May 7 and 8, 2013, the SAB panel will convene a meeting to provide individual feedback from panel members regarding US EPA’s 2012 progress report on the study. The public also will have the opportunity to provide comments for the panel’s consideration.

More information on the SAB’s Hydraulic Fracturing Research Advisory panel and its activities is available on the [US EPA website](#).

A fact sheet on the SAB Hydraulic Fracturing Research Advisory Panel also is available on the [US EPA website](#).

US EPA To Conduct Risk Assessment on Flame Retardant Chemicals

The United States Environmental Protection Agency (US EPA) announced the agency will begin assessments on 23 commonly used chemicals, with a specific focus on flame retardant chemicals, in order to more fully understand any potential risks to people's health and the environment. This effort is part of the Toxic Substances Control Act (TSCA) Work Plan, which identifies commonly used chemicals for risk assessments. In conducting the risk assessments, the agency will use available information from various data sources. As US EPA develops its draft risk assessments, the agency will use information that is available through a wide range of publicly available data sources. The US EPA also encourages submission of additional relevant information on these chemicals, such as unpublished studies and information on uses and potential exposures. This information should be submitted by May 30, 2013, to ensure that it is included in the agency's review.

For more information about this review, please visit the [US EPA website](#).

April is Minority Health Month

Three years ago, the United States Food and Drug Administration (US FDA) established an office to help the agency address the needs of American who may be more vulnerable because of their race, ethnicity, or other factors. As we celebrate Minority Health Month in April, the US FDA wants consumers to go to the US FDA website to see what actions the agency is doing to achieve equality in health and health care. To learn more about these efforts, please visit the [US FDA website](#).

Amendment to Limit Federal Travel to Meetings Fails

The so-called Coburn amendment to limit government attendance at meetings was dropped from consideration before the Senate passed the continuing resolution on Wednesday, March 20, 2013. SOT will continue to monitor activity on this legislation and will advise members accordingly.

US EPA Launches TRI University Challenge to Find Innovative Uses for Toxics Release Inventory Data

The US Environmental Protection Agency (US EPA) launched on March 19, 2013, the TRI University Challenge, a new initiative designed to use academic partnerships to find innovative uses for Toxics Release Inventory (TRI) data. TRI gives all Americans access to information about toxic chemicals in the environment as a tool to better protect health and the environment.

US EPA will accept TRI University Challenge applications until May 13, 2013, for projects that will begin this fall. Two informational webinars about the challenge are planned for April. Institutions whose project proposals are selected will become TRI University Challenge partners. Partners gain practical experience collaborating with US EPA to understand and solve local environmental challenges and may receive national recognition for their efforts. While no monetary assistance is available as part of this challenge, partners will receive direct support and guidance from US EPA TRI experts.

Priority will be given to projects related to one or more of the following four topics: pollution prevention and sustainability, stakeholder engagement, technology and data mashups, and environmental education. TRI helps industry, government, non-governmental organizations, and the public make environmentally responsible decisions by providing them with information about toxic chemical releases into the air, water, and land.

For more information on the Challenge, webinars, and sample project ideas, please visit the [US EPA website](#).

Federal Court Dismisses Animal Activists Lawsuit

The Massachusetts Federal District Court recently dismissed a lawsuit filed by several animal rights activists who claimed that the Animal Enterprise Terrorism Act is unconstitutional. The Federal Court dismissed the case finding that the activists lacked standing to challenge the law, which the activists claimed has “cast a chill over the animal rights community,” leading activists to refrain from participating in protests due to fear of prosecution.