



Communiqué

Spring/Summer Issue 2015

SOT News

President's Message



*President
Peter L. Goering*

On April 30, I received an “e-baton” from Society of Toxicology (SOT) 2014–2015 President Norb Kaminski, who was getting ready to step into his new role as SOT 2015–2016 Past President. The sharing of this image from the outgoing president to the incoming president has been a tradition for the past few years. The symbolism of passing of the baton is entirely appropriate. It represents a time of transition, to give responsibility for something important to another person. I prefer to see the “passing of the baton” as a ritual that highlights the cooperation, teamwork, and healthy debate among colleagues that is needed to be successful.

The setting was idyllic—mild breezes coming off the bay, the setting sun, temperature a comfortable 70 degrees (F)—for the outdoor Welcome Reception that opened the 54th Annual Meeting of the SOT in San Diego. What a wonderful opportunity to greet old friends and meet new ones. Back indoors for the rest of the week (unless you were taking advantage of the beautiful weather), attendees were feted to a strong scientific program from start to finish. The Annual Meeting featured several pre-eminent lecturers with appreciative audiences, 2,840

abstracts accepted with 2,438 posters presented, and attendance reaching 6,875, the third highest for any SOT Annual Meeting.

A major accomplishment for SOT this past year was the review and development of the SOT Strategic Plan. I'd like to thank the Council for their efforts as well as the key toxicology thought leaders and many SOT members who provided feedback that resulted in a clear and viable roadmap that will guide the Society for the next four years in key areas. The primary focus of the new Strategic Plan is the Central Challenge—“Shape the future of toxicology in a changing scientific landscape.”

The plan has three Strategic Priorities: (A) Strengthen the impact and relevance of toxicology, (B) Develop and support toxicologists to enable them to capitalize on future opportunities, and (C) Expand the outreach and impact of toxicology globally, including communicating the impact and relevance of toxicology to key audiences. I encourage you to review the [Strategic Profile](#), a brief summary of the new [Strategic Plan](#). The Council identified several key Strategic Objectives within the three Strategic Priorities that will guide discussions as we consider new initiatives during this next year. I plan to provide updates to the membership as we move towards implementation of these activities.

A major focus for SOT Council this year will be to take stock of the Society's programs and activities in career advancement, recruitment, and education. This undertaking directly responds to one of the Strategic Objectives under Priority B to “promote the recruitment, education, and development of a diverse and creative community of toxicologists.” SOT can rightfully boast of its successful legacy of serving our members with many outstanding programs and resources in education, undergraduate engagement, and career resources and development. Successes and growth in these programs has been fueled by the committed and passionate members who serve each year on a half-dozen committees to the benefit of many.

Because of the importance of these programs to the future of toxicology, Council will undertake a year-long deliberative process to discern the impact of these various programs. I appointed five Council members to the Career Advancement, Recruitment, and Education (CARE) Subcommittee who will help guide this process. Some of the key questions that Council will use to focus this process are as follows:

- How can SOT best promote the career advancement, recruitment, and education of a diverse and creative community of toxicologists?
- What are the SOT's long-range goals and aspirations in these areas that will enable toxicologists to meet 21st Century challenges in public and environmental health?
- How do the programs and activities we now have achieve these goals?
- Can SOT better integrate and coordinate these programs and activities and new activities to provide greater impact and value to our members and future members?

During this year-long deliberative process, the CARE Subcommittee will engage SOT members and committees as well as outside organizations to gather key information and data to help produce the best outcomes.

I look forward to this next year serving you as SOT President. I anticipate a productive year that will continue to advance the guiding values, goals, and aspirations of our Society. Our successes will result from “passing the baton”—the cooperation and teamwork between colleagues who serve on Council, on the many committees and component group executive boards, and on our management staff. I hope to engage with many of you this next year as we work together to advance this enterprise.

Peter L. Goering

SOT 2015–2016 President

Beyond the Glass Ceiling: Unconscious Bias within the SOT?

Written by Tao Wang, Ofelia Olivero, Linda Birnbaum, Leigh Ann Burns Naas, Myrtle Davis, Brenda Faiola, Marie Fortin, Laurie Haws, Courtney Horvath, Jessica Sapiro, Sharmilee Sawant, and Cheryl Walker

Unconscious bias is the tendency of individuals to categorize others on the basis of obvious traits, such as age, gender, and race (1). The human mind performs a large number of cognitive functions that allow us to perform complex tasks such as walking or riding a bicycle without conscious thought. In this context, unconscious bias is a normal part of how humans make decisions (2). Similar unconscious cognitions also occur in social interactions.

While some of these preconceptions are learned from our personal experiences, many are acquired indirectly from stories, books, movies, media, religion, and culture. Once formulated, they guide our responses, our first impressions and assumptions about the behaviors, capabilities, and potential of others. While not all forms of unconscious bias are harmful, some, such as gender bias, have the potential to influence fairness and equality of opportunity in the workplace, affect hiring decisions, performance evaluations, and promotions.

Professionals with higher levels of education often assume that they are immune to unconscious gender profiling and stereotyping. While it might be expected that great strides in the elimination of gender bias have been made by educated professionals, a recent study published in the *Proceedings of the National Academy of Sciences* (3) paints another picture.

A group of 127 professors was asked to evaluate the resume of a fictitious candidate for a laboratory manager position. Half of the evaluators received the resume where the applicant was named John, while the other half received the same resume except the name of the applicant was changed to Jennifer. The professors invariably rated John as significantly more competent and hireable than Jennifer (identical resume), and proposed a higher starting salary for John. Critically, this was true regardless of the professors' gender, such that female and male faculties were equally likely to exhibit bias against the female candidate.

Recently, the Society of Toxicology (SOT) Women in Toxicology Special Interest Group (WIT SIG) looked into unconscious bias within the Society. The impetus for this self-evaluation was to explore the possibility that the large number of male recipients of major awards, compared with female recipients, was an indication of unconscious gender bias by members, men and women alike, of the SOT. The data were surprising and sobering. The historical disparity among recipients of major SOT awards between 1961 and 2015 was significant, and the fraction of women receiving these awards was noticeably small (Table 1). While the percentage of our female members in the SOT has been increasing steadily from 24% in the year 2000 to nearly 40% in 2015, the number of female awardees per year has generally remained constant (Table 2).

Although we have not analyzed the data based on the female membership over the 55 years of SOT history (adjusting for differences in the number of women in the Society for a given year for example), there appears to be convincing evidence in many other fields that the scientific efforts and achievements of women do not receive the same recognition as those of their male peers. In the paper entitled “The Matilda Effect in Science: Awards and Prizes in the US, 1990s and 2000s,” the data obtained from 13 discipline societies (Science, Technology, Engineering, and Medical) indicated that “While women’s receipt of professional awards and prizes has increased in the past two decades, men continue to win a higher proportion of awards for scholarly research than expected based on their representation in the nomination pool” (4).

If unconscious biases are pervasive and insidious as many reports indicate, is there unconscious bias within the SOT by both its male and female members? Such studies, at the very least, remind us that all SOT members should be “conscious” of “unconscious gender bias” during their decision-making processes, such as reviewing award applications, inviting speakers, electing leaders, etc. Recognizing unconscious preconceptions can ensure that we all advocate for and nominate our most outstanding colleagues, independent of gender or any other factor not based on merit. Please do nominate your outstanding female and male colleagues for the various [SOT Awards](#). This article is not meant to be a full critique and examination of the SOT awards. It is for igniting the conversation and recognizing that SOT should be aware of the issue that anyone can potentially fall into.

Still think that this does not apply to you? Take the [test of unconscious bias](#) developed by researchers at Harvard University. You may be surprised what you learn about yourself!

Table 1. Major SOT Awards (from inception through 2015): Male and Female Awardees

	Male	Female
Achievement	39	8
Arnold J. Lehman	33	4
Distinguished Tox Scholar	16	0
Education	42	2
Merit	49	3

Table 2. Number of Total Awardees and Female Awardees by Year*

Year	Total awardees	Female awardees
2000	7	1
2001	7	1
2002	6	1
2003	8	2
2004	6	0
2005	6	0
2006	6	1
2007	7	1

2008	6	1
2009	11	3
2010	12	1
2011	11	4
2012	10	2
2013	11	2
2014	11	0
2015	9	1

* Awards accounted for: *Achievement, Lehman, Distinguished Tox Scholar, Education, Founders, Leading Edge in Basic Science, Merit, Public Communications, Translational Impact, Undergraduate Educator, Congressional Science Leadership, Enhancement of Animal Welfare*

References

1. Vedantam, S. *The Hidden Brain: How Our Unconscious Minds Elect Presidents, Control Markets, Wage Wars, and Save Our Lives*, New York: Random House Inc.
2. LeDoux, J. *The Emotional Brain: The Mysterious Underpinnings of Emotional Life*, New York: Simon and Schuster
3. Moss-Racusin, C.A., et al. Science faculty's subtle gender biases favor male students. PNAS 109 (41): 16474–16479, 2012
4. Lincoln, A.E., Pincus, S., and Leboy, P.S. *The Matilda Effect in Science: Awards and Prizes in the US, 1990s and 2000s*. Social Studies of Science 42 (2): 307-320, 2012.

Council of Scientific Society Presidents Request Feedback on Ethics Issues

[The Council of Scientific Society Presidents \(CSSP\)](#) is an organization representing the expansive fields of science and engineering through its member societies and federations (Society of Toxicology included) that together count more than a million members around the world. Recently, two matters have been brought to the attention of the CSSP Ethics Committee who wish to determine if these incidents are isolated in nature or are matters of broader concern.

Issue #1: Have you encountered an example of the repression of a federal scientist's research by his/her agency because the topic of the research was deemed a "sensitive issue?"

Issue#2: Have you encountered any examples of bias in accepting scientific results based on the source of funding of the research?

Members with any examples of these two concerns are encouraged to write to secretary@sciencepresidents.org. It is requested that all examples not include any identifying information in the submission, which is due by Friday, June 26. With the received responses, this committee will determine if a CSSP Policy Statement on either issue is warranted. You may view the request by the CSSP Ethics Committee in its [entirety online](#).

Education Outreach: Changing the World through STEM

The Girl Scouts of Eastern Massachusetts held their third Science Technology Engineering and Math (STEM) career expo "Changing the World through STEM" in Framingham, Massachusetts, in March 2015. The goal of the expo is to encourage girls from 6th–

12th grade to pursue careers in science and technology.

For the second year, the Society of Toxicology (SOT) was well represented at this event with the presentation of two workshops and a demo table. Pictured at the right are 6th–8th graders with volunteers Supriya Kulkarni and Courtney Horvarth (right and far right).



The first STEM workshop was attended by 14 girls in grades 9–12 and the second workshop by 25 girls in grades 6–8. Over 100 scouts and their families visited the table. The Northeast Chapter of SOT (NESOT) kindly provided the funds to support the activities and giveaways. This STEM career event was led by Courtney Horvath (Novartis) with the help of NESOT volunteers, including Larry Thomas (Celldex), Allen Pierce (Alkermes), Supriya Kulkarni (Yale), Toni Williamson (Amgen), and Sule Karaman.



The workshops consisted of an interactive introduction to toxicology. The students then participated in a concentration demo, “Shark Blood.” Pictured at the left are 9th–12th graders working on “Shark Blood” dilution curves. The majority of the workshop time focused on a dose response activity, “Who Killed Yanni the Yeast.” The students used yeast as a model system to solve a CSI-like mystery.

Yeast was added to test tubes with varying concentrations of “mystery chemicals.” Small balloons were attached to the test tubes and the girls measured the circumference of inflated balloons to generate dose response curves. Pictured at the right is volunteer Larry Thomas leading the yeast exercise with grades 9–12 girls.



During the afternoon, Drs. Kulkarni and Karaman led activities at the SOT table that featured a salt water dose response curve (also used at last year’s event). Various handouts and giveaways also were distributed. Overall, it was a resounding success!

I would be happy to share the slide decks, handouts, and protocols with anyone who is interested in running a similar event in your community. These materials also will be available in the SOT K-12 Resource Collection that will be accessible soon. Contact Courtney Horvath via [ToXchange](#) for more information.

SOT Welcomes 476 New and Upgraded Members in 2015

Between January and April 2015, 136 Full, 48 Associate, 108 Postdoctoral, and 184 Graduate Student member applications were approved by the Society of Toxicology (SOT) Membership Committee. The Society congratulates our members who have upgraded their membership level and warmly welcomes our new members. The worldwide SOT network currently consists of more than 7,800 members from 60 different countries. Members from academic institutions, industry, government, and other scientific organizations are committed to SOT's mission of "creating a safer and healthier world by advancing the science and impact of toxicology."

A special thank you to all the Full members who sponsored Full and Associate membership applications, as well as to the research advisors and mentors who sponsored new Graduate Student and Postdoctoral applications. Your contributions are essential to building and sustaining a strong and vibrant society.

Is It Time to Upgrade Your SOT Membership?

By becoming a member of the Society of Toxicology (SOT), you have demonstrated your commitment to creating a safer and healthier world by advancing the science and increasing the impact of toxicology. We are proud to partner with you on this mission.

Membership in the Society is offered on several tiers so that we may best include and serve toxicologists from varying backgrounds and levels of experience. We encourage you to upgrade your membership as you progress through your career in toxicology, when you have reached a milestone such as completing a doctoral degree program, or when you have achieved a number of years or publications in the field to qualify for Full membership.

- **Postdoctoral Members** hold a PhD or equivalent doctorate (e.g., MD, DVM), have an interest in toxicology, and are under the direction of a research mentor.
- **Associate Members** are qualified individuals who are engaged in professional activities in toxicology.
- **Full Members** have a continuing professional interest in toxicology, have conducted and published original research, and/or are generally recognized as an expert in some aspect of toxicology. Associate Membership is not a prerequisite for Full Membership.

SOT membership at any level provides distinction and recognition among your peers, as well as members-only access to the SOT website and ToXchange, the SOT Job Bank, Mentor Match, and important communications about your society and discipline. As a member, you receive discounted registration for the SOT Annual Meeting and reduced rate access to *Toxicological Sciences*, the official journal of SOT. You also are eligible for many prestigious awards, grants, and fellowships offered by SOT and its Endowment Fund, Regional Chapters, Special Interest Groups, and Specialty Sections.

As a **Postdoctoral Member**, you are included in the Postdoctoral Assembly, which is a great resource for scientific growth, networking, and career advancement. You are eligible to serve as a representative for a Regional Chapter, Specialty Section, Special Interest Group, or SOT Committee, and you receive membership in one Specialty Section and one Special Interest Group at no cost.

As an **Associate Member**, you are eligible for leadership opportunities on many of SOT's appointed committees that foster the development of the strategic initiatives of the Society. You are also eligible to serve in leadership positions for a Regional Chapter, Special Interest Group, or Specialty Section, and you may chair sessions at the SOT Annual Meeting.

As a **Full Member**, you have all the membership benefits of an Associate Member plus increased opportunity to help shape the future and direction of the Society. You are eligible to hold leadership positions including elected membership on the SOT Council. You also receive voting privileges and the ability to sponsor applicants for SOT membership.

We value all of our members and encourage active participation in the Society. The process to upgrade your membership is quick and easy using the [online membership application](#). Additional information is available on the [SOT website](#).

Applications are reviewed in January, May, and September.

For more information, please contact SOT Membership Services at [SOT Headquarters](#) or 703.438.3115 x1607.

Affiliates Demonstrate Their Support of SOT's Mission and Priorities



Because the Society of Toxicology (SOT) is an individual membership society, an [SOT Affiliate](#) category was established for private, public, and not-for-profit organizations that wish to contribute to the Society's success toward "creating a safer and healthier world by advancing the science and increasing the impact of toxicology."

Your generous donation of \$2,500 will help enable SOT to reach its goals by:

- Supporting the premier toxicology society in increasing the scientific impact of and advocating for the value of toxicology.
- Contributing to the success of the largest scientific meeting in toxicology and attracting scientists at all stages of their careers from around the globe (SOT 55th Annual Meeting, March 13–17, 2016, Ernest N. Morial Convention Center, New Orleans, Louisiana);
- Promoting the importance of education to building for the future of toxicology and;
- Encouraging activities aligned with the prediction and prevention of toxicity and disease.

In appreciation of this commitment, SOT Affiliates receive the following:

- Access to member-restricted information on the SOT website;
- Reduced rate for SOT Job Bank services;
- Complimentary registration for the Annual Meeting for one attendee;
- Prominent listing on the SOT website, in the *SOT Membership Directory*, and Annual Meeting signage and materials, including the *Preliminary Program* and final *Program*;
- SOT Member Publications, including Annual Meeting information and the blog/newsletter, *Communiqué*;
- Complimentary room rental for one meeting at the SOT Annual Meeting; and
- Electronic and print subscriptions to the SOT official journal, *Toxicological Sciences*.

The Society has experienced dramatic growth in recent years and currently there are more than 7,800 members from among the broad spectrum of sciences that toxicology encompasses. We would be proud to count you among our SOT Affiliates. If you have any questions or would like clarification of the many benefits SOT Affiliates receive, please contact [Marcia Lawson](#), SOT Manager, phone at 703.438.3115, ext. 1446.

ToxScholar Visit to NCCU: An Opportunity 10 Years in the Making

On March 28, I had the wonderful opportunity to visit my undergraduate alma mater, North Carolina Central University (NCCU) in Durham, North Carolina, during their 2nd Annual STEM Professional Development Network Conference. Ten years after graduating from this institution, the Society of Toxicology (SOT) has granted me the opportunity to visit and teach undergraduate students from groups under-represented in science about toxicology through the [Domestic ToxScholar Program](#). In the photo on the right, I am in the center and joined by Aloza Pamplin, Michael Anhorn, Jarrett Weathership, Amanda Ghimire, Corey White, Adeyemo Adetogun, and Dolly Rakiro.



It was a full day of events and students were excited to learn skills and tips to start their careers or further their education by attending graduate or professional school. There were approximately 105 students and 10–15 faculty members in attendance with bright smiles. I was given the tasks of presenting tips on “How to Give an Effective Research Presentation” and served on a panel for “STEM-21 Century Careers.” The first talk drew approximately ten students and one faculty member. The students were excited to learn how to present a PowerPoint presentation and a poster; none of them had presented a poster. So, they learned a few tricks to help them prepare for a couple of upcoming conferences in the fall.

Throughout the day, I was introduced to several students and mistaken for an undergraduate student many times, but I think it made a huge difference to see and chat with a young toxicologist. During the last afternoon session, the panel discussion began and it was well attended by 32 undergraduate students and 5 faculty members. I served on the panel with two other panelists, including fellow NCCU alum and SOT member, Willie McKinney.

I told them about my career path and how I stumbled into toxicological research. They learned the definition of toxicology, the importance of toxicology, and the potential opportunities for a career in toxicology. Many of the students were not familiar with the discipline. The students were able to gain two perspectives from: 1) a young toxicologist just starting her career, and 2) an established toxicologist from Dr. McKinney. After the session, several students asked questions about the opportunities and what they can do to become toxicologists.

I exchanged information with a few students to provide guidance and hope they will take on a different and exciting career path, toxicology. It was an exciting day and I cannot wait to go back to NCCU and chat with more undergraduate students. Overall, it was a wonderful opportunity to give back to the university that contributed to the toxicologist I am today, represent SOT, and inspire a new generation of rising stars.

Nepalese Tribhuvan University Welcomes SOT International ToxScholar

In October of 2014, I applied for the [Society of Toxicology \(SOT\) International ToxScholar Outreach Grant](#), and despite the very short notice was approved to promote the discipline of toxicology on a trip to Nepal. Specifically, the grant was used toward two presentations at the National Symposium on Toxicology in Nepal, organized by the Department of Chemistry at Tribhuvan University and the National Society of Toxicology, Nepal (Nastox Nepal). Tribhuvan University is the central university in Nepal and has 148,141 students enrolled in its 60 constituent campuses across the country. My host in the Department of Chemistry was Professor Deepak Dhakal, who was selected as the [SOT Global Senior Scholar](#) this year. Pictured at the left are the faculty and organizers at the National Symposium of Toxicology and Dr. Dhakal is the first individual on the left.



During the Nastox Symposium, which was held on November 2, 2014, I presented on two topics. The first was a general description of the science of toxicology, including information related to graduate study and careers in the United States. The second presentation related to the evaluation of asbestos toxicity, including the various fiber characteristics that can impact potency and toxicity. Other presenters from the university faculty, government, and nongovernmental organizations (NGOs) also provided their perspectives on current issues

related to regulatory toxicology and environmental health in Nepal.

My first contact with my host and the symposium organizers was at a welcome breakfast session, and after the symposium participants attended a dinner at a nearby café. In a very gracious gesture, the organizers presented me with traditional Nepalese gifts, including ceremonial scarves (khata). I am pictured at the right wearing a khata. Subsequent to the symposium I had further discussions

with participants regarding potential collaboration with an NGO (Center for Public Health and Environment Development, CEPHED) in the country with interests in mercury and lead toxicity issues.



The visit underlined several issues related to science instruction in Nepal, particularly as to facilities and educational access for Nepalese students. This is not surprising as Nepal is considered to be one of the poorest countries in Asia. For example, course instruction is generally in English, as there are no university-level science books written in Nepalese. While many Nepalese people speak English, the lack of Nepalese language science texts is a barrier to learning for the general population. In addition, laboratory facilities often suffer from lack of funding. Advanced instruments are few and far between. Even with this relative lack of resources, I found the people of Nepal to be extremely welcoming and generous hosts. The organizers, faculty, and students at the Nastox Symposium also were very excited by the topic of toxicology and interested in applying the science to the environmental and public health issues facing their country.



I am deeply appreciative to both SOT and my employer, Gradient, for their support of this opportunity. For those who might be considering applying for a ToxScholar grant next year, I cannot overstate what a wonderful experience this was. In addition to the benefits of promoting the science of toxicology in underserved areas of the world, the interaction with scientists who are outside our general circles is an experience I will not soon forget. Pictured at the left, the speakers at the symposium are being introduced and Dr. Dhakal is pictured at the far left and I am seated next to him.

I would encourage those who are interested in the program to contact the SOT Staff Liaison [Betty Eidemiller](#) as early as possible with any questions so that their proposal has the best chance of succeeding.

Given the recent catastrophic earthquake in Nepal, please consider giving to one of the relief organizations currently working in the country. [InterAction](#) provides more information. Professor Dhakal has been in touch with me and other SOT contacts, and although he and his family are safe, he has stated the relief efforts are having significant difficulties.

Eye on CDI: Shaneka Lawson

Undergraduate Education Program Honoree: 2001

Current Position: US Department of Agriculture Research Plant Physiologist & Adjunct Assistant Professor at Purdue University

Education:

2005: BS Biology, Morgan State University

2006: MS Biotechnology with a concentration in Biodefense, the Johns Hopkins University

2011: PhD Molecular Tree Physiology-Genetics, Purdue University

This blog features one of the scientists who participated in the SOT Undergraduate Education Program.



Those who knew Shaneka Lawson at Morgan State University had no doubt that she would achieve a successful career in science. She excelled in every course and showed genuine interest in the many different aspects of the field. Shaneka worked to learn molecular biology methods and techniques working with *Caenorhabditis elegans* (*C. elegans*) in the laboratory of **Casonya Johnson** (former MSU professor, now at Georgia State University) as an undergraduate student and gained a strong foundation of skills required to solve experimental problems.

In 2001, Shaneka received an undergraduate travel award to attend the Society of Toxicology Annual Meeting with **Dwayne Hill**, a professor at MSU and an SOT member. There were numerous interesting presentations but Shaneka was most fascinated with the way chemicals and toxins worked within the body and the fact that many could be extracted from plants. After

graduating with highest honors from MSU with a BS in Biology and minors in Chemistry, English, and Spanish, Shaneka obtained laboratory manager positions at Johns Hopkins University in human genetics and neuroscience to gain both a larger skillset and experience with additional model systems.

Her work in human genetics on osteogenesis imperfecta (Brittle-bone disease) and Bardet-Biedl syndrome used *Danio rerio* (zebrafish) and *Mus musculus* (mouse) models in the laboratories of **Shannon Fisher** (now at University of Pennsylvania) and **Nicholas Katsanis** (now at Duke University) to study and chemically induce genetic abnormalities. Her work in neuroscience in the laboratory of **Shanthini Sockanathan** on the central nervous system used mouse and *Gallus gallus* (chick) models.

Inspired by the effects of chemicals and mutagens on those model systems, Shaneka pursued and received a Master's in Biotechnology with a concentration in Biodefense from Johns Hopkins University. The coursework required for the degree emphasized the various weaponized chemicals, microorganisms, and toxins faced by soldiers in war, victims of terrorist attacks, and encountered in nature. This new information strengthened her understanding of the response of the human body and nervous system as well as those of a variety of model animal systems to chemicals and mutagens.

Shaneka applied to Purdue University to work on her PhD in Molecular Tree Physiology and Genetics as it was now of great importance to learn how plants were able to create and produce chemicals and how they could be genetically modified. Shaneka designed her research project to genetically engineer several plant species to use less water, tolerate greater amounts of salt, and to overproduce wax by overexpressing a single gene for each result. She worked with *Arabidopsis thaliana* (*Arabidopsis*), *Poplar spp.* (poplar), and *Fraxinus pennsylvanica* (green ash) and was able to manipulate each species to gain a visual confirmation of her research question to earn her PhD in 2011.

Shaneka then accepted a position with the US Department of Agriculture Forest Service to work on *Acacia koa* (koa) in Hawaii. Koa is a tree species endemic to all the islands within the Hawaiian archipelago whose numbers are severely declining because of disease, invasive pests, and climate change. Shaneka's research uses NextGeneration technologies to uncover genes and proteins involved in climate, pest, and altitude adaptation.

Shaneka works diligently with diversity groups on the Purdue University campus such as the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS), Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS), and the Louis Stokes Alliance for Minority Participation (LSAMP) to help promote increased diversity in sciences as well. Similarly, Shaneka works with the American Society for Plant Biology Minority Affairs Committee (ASPB MAC) to support and encourage other minorities working in plant biology. In addition, she is an adjunct faculty member in the Department of Forestry and Natural Resources at Purdue University and the Special Emphasis Program Manager for African-American programs at the USDA-FS Northern Research Station.

Shaneka has not forgotten her experiences at MSU and has returned several times to speak with Minority Biomedical Research Support — Research Initiative for Scientific Enhancement (MBRS-RISE) students about career options and the value of attending conferences as encouraged by her mentor **Christine Hohmann** (a professor at MSU and MBRS-RISE Program Director). She continues to support the efforts of young minority scientists in a variety of fields with which she is experienced and often serves as a science fair and research competition judge on the local and national scale.

ToxScholar Program in India

The Society of Toxicology (SOT) encourages members to visit undergraduate campuses to promote careers in toxicology through the Domestic and International [ToxScholar Outreach Grants](#). Applications can be made to support travel to undergraduate institutions in the United States through the Domestic ToxScholar Grants or scientists can apply for funding for trips to other places in the world to make educational toxicology presentations using an International ToxScholar grant. The following is a description of how SOT member Pradeep B. Deshmukh was influenced by the SOT Domestic ToxScholar program to conduct a similar program in India.

I was inspired to run a program based on the SOT ToxScholar initiative in India, especially in my region, Maharashtra. The first of its kind was conducted on February 26, 2015, at the Sinhgad Institute of Pharmacy in Narhe, Pune-411041, Maharashtra State, India. The meeting was targeted to students at the local universities who are considering future careers in science. There were 60 students from local colleges and universities and eight faculty members. The Indian Pharmacological Society sponsored the event and the theme was from Bench to Bedside. Advertising was done primarily through email and on-line contacts at the various Pharmacology Colleges as well as local universities (Poona College of Pharmacy & B. J. Medical College, Bharati Vidyapeeth, Pune).

For the panel of speakers, we had in attendance four members who included: Dr. Dinesh Kumar from the Indian Institute of Nutrition, Hyderabad, who is also the President of the Indian Pharmacological Society, and Dr. Ankur Dnyanmote, from University of California, San Diego, who gave a talk, On the Road to Discovery. I gave the Special Invited Lecture on Advances in Preclinical Safety and Efficacy Evaluation of Pharmaceuticals. More emphasis was given to animal science and careers in toxicology. Questions and comments focused on not only describing toxicology's role in drug discovery but also on the importance of animal science including environmental enrichment. Also, the best way to find a toxicology program was discussed. Given the variety of people at the meeting representing toxicology, we were able to give a very broad view of how people get involved in toxicology at all stages of their career. We have already received positive feedback from the students in attendance.

I would like to give special thanks to Dr. Urmila Aswar, Assistant Professor, and Dr. K. G. Bothara, Principal of Sinhgad Institute of Pharmacy, who allowed me to model the US ToxScholar Program. In addition, I want to mention my sincere gratitude to SOT for encouraging me to run this program in India.

SOT encourages all members to participate in [ToxScholar Outreach Grants](#). Applications are accepted on a continuing basis for the Domestic ToxScholar, with the Committee on Diversity Initiatives reviewing proposals for visits to schools with a high proportion of students from groups under-represented in the sciences, and the Education Committee reviewing other proposals. The Education Committee sets specific deadlines for the International ToxScholar applications.

In Memoriam

In Memoriam

[George S. Bailey](#)

[Petra Begemann](#)

[Charlesworth Dickerson](#)

[James L. Shupe](#)

[Herbert Eli Spiegel](#)

George S. Bailey

The Society of Toxicology has learned of the passing of George S. Bailey on October 20, 2014. Dr. Bailey joined SOT in 1989 and also was a member of the Carcinogenesis and Comparative and Veterinary Specialty Sections. For additional information about Dr. Bailey, please visit the [Corvallis Gazette Times website](#).

Petra Begemann

The Society of Toxicology has learned of the passing of Petra Begemann on March 26, 2015. Dr. Begemann joined SOT in 2003 and was a member of the National Capital Regional Chapter, Mixtures and Nanotoxicology Specialty Sections, and the Women in Toxicology Special Interest Group.

Charlesworth Dickerson

The Society of Toxicology recently learned of the passing of Charlesworth Dickerson several years ago. Dr. Dickerson joined the Society in 1985 and was a Retired Full Member.

James L. Shupe

The Society of Toxicology has learned that James L. Shupe, DVM, ATS, passed away in October 2014. Dr. Shupe was an Emeritus Member of SOT and Fellow, Academy of Toxicological Sciences. For additional information about his distinguished career, please visit [The Herald Journal website](#).

Herbert Eli Spiegel

The Society of Toxicology has learned of the recent passing of Herbert Eli Spiegel. Dr. Spiegel, who joined SOT in 1980, was a Full Member of the Society and a member of the Comparative and Veterinary Specialty Section.

Annual Meeting & ToxExpo

SOT Announces the 2016 Annual Meeting Scientific Themes



The Scientific Program Committee (SPC) is in the process of developing a slate of timely and highly informative Symposium Sessions, Workshop Sessions, Roundtable Sessions, and other special sessions that span the spectrum of topics of interest to our diverse membership. The session titles will be announced in the coming weeks.

Based on the proposals received for the 2016 Annual Meeting, the SPC developed six scientific themes. The 2016 scientific themes listed below illustrate the core contributions toxicology makes to these areas. We encourage you to keep these themes in mind as you prepare your poster abstracts for the meeting in New Orleans, Louisiana, March 13–17, 2016 (the SOT Abstract Submission site opens on August 15, 2015).

- **Advances in Neurotoxicology**
- **Developmental Toxicity: Mechanisms and Evaluation**
- **Health and Environmental Impacts of Manmade and Naturally Released Toxicants**

- **Molecular Toxicology: Mechanistic Insights and Hazard Assessment**
- **Recent Advances in Safety Assessment**
- **Toxicity of Metals**

Special Thanks to the Volunteers of the Undergraduate Education Program

This year marked the 26th Annual Undergraduate Education Program at the Society of Toxicology (SOT) Annual Meeting, which in 2015 was held in San Diego, California.

SOT 2014–2015 President Norbert E. Kaminski was pleased to welcome participants to this three-day program created for undergraduates to increase awareness of toxicology as a science and as a career, encourage the pursuit of advanced degrees in biomedical sciences, and improve knowledge of basic principles and concepts in toxicology.

Thirty-three outstanding undergraduates and five advisors were selected to attend this program. Additionally, the Sunday activities were open to any undergraduate student who registered for the Annual Meeting, including the 2015 Pfizer SOT Undergraduate Travel Award Recipients.

The success of this program is due in large part to the many dynamic volunteers who so generously give their time to teach and inspire the next generation of young scientists. Pictured above Icebreaker Winners celebrate by tossing their ToxSquad bowler hats; Icebreaker Leader Adrian Nanez is pictured at far left. The Committee on Diversity Initiatives (CDI) would like to recognize and give special thanks to these wonderful program volunteers.



Speakers **Alice Villalobos, Marquee King, Joshua Gray, Jared Brown, Teresa Dodd-Butera**, and **SOT 2008–2009 President Kenneth S. Ramos** provided special toxicology lectures, interactive sessions, and inspirational career talks. Pictured at the left is Joshua Gray presenting an Introduction to Toxicology lecture during the program opening session.

Program volunteers **William D. Atchison, Kim Daniel, Tenley French**, and **Adrian Nanez** provided vital program assistance in various areas, including facilitating breakout sessions, leading the opening program icebreaker, and helping with logistical details.

Career Roundtable discussants **Neera Tewari-Singh, Mary Martin Gant, Sharon Holt Daily, Amelia Romoser, Pedro L. Del Valle, Jennifer L. Rayner, Annelise Nguyen, Minerva Mercado Feliciano**, and **Veron Browne** informed the students about career opportunities in toxicology and the differences in employment in industry, academia, or government settings.

Graduate Program Breakout Group facilitators **José E. Manautou, Jessica M. Sapiro, Sakina Eltom, Vanessa De La Rosa, James P. Luyendyk**, and **Megan Culbreth** provided tips about applying to and being successful in graduate school from graduate student and academic advisor perspectives.

Host Mentors **Noe Galvan, Mario Green, Kimberly Hodge-Bell, Marquee King, Adrian Nanez, Jennifer Rayner, Elena Hernandez Ramon, Minerva Mercado Feliciano, and Wilson Rumbelha**, and Peer Mentors **Alexandra Colón-Rodríguez, Madiha Khalid, Kpobari Nkpaa, Vivek Lawana, Latisha Pryor, Trey Saddler, Jessica Sapiro, Vanessa De La Rosa, Kiran Dhakal, Amelia Romoser, and Pamella Tijerina** led and inspired the students throughout the entire three-day program.



These dedicated mentors will continue to keep in contact with their mentor group students throughout their undergraduate studies and be a resource to them as they consider career paths and advanced degrees. Pictured above is Jennifer Rayner (at right) interacting with the undergraduates.

CDI and these students were very fortunate to have leading toxicologists take this extensive amount of time to share their knowledge and professional development experiences with them. Many of this year's participants have reported back on what a wonderful and affirming experience they had during the Undergraduate Program, and how valuable the experience will be as they look ahead to plan career paths and consider pursuing advanced degrees.

With gratitude,

Kristini Miles
2014-2015 Chair, Committee on Diversity Initiatives

2015 Outstanding Graduate Student Leadership Committee Award Recipients

Congratulations Are in Order!

The Society of Toxicology (SOT) Graduate Student Leadership Committee (GSLC) Executive Board is pleased to announce the winners of the 2015 [Outstanding GSLC Awards](#): Jessica Sapiro and Sanket Gadhia.



Award Recipient Jessica Sapiro and 2014–2015 GSLC Chair Alessandro Venosa

Ms. Sapiro is a fifth-year graduate student in the Pharmacology and Toxicology doctoral program at the University of Arizona. She is investigating the molecular mechanisms involved in mediating all-trans-retinoic acid cytoprotection against renal toxicity. As a professional development component while obtaining her graduate degree, she served as the student representative for the Women in Toxicology (WIT) Special Interest Group (SIG) for the past year. She has actively participated in WIT leadership meetings and served on multiple committees including proposal review and the new WIT SOT Award Nomination Committee.

This new committee was formed in WIT to foster the goal of increasing WIT member visibility in SOT by assisting in national award nominations. The WIT SOT Awards Nomination Committee was initiated in response to the outcome of a WIT student representative's task of tracking the statistics of women's involvement in SOT in leadership positions. As a member of this committee, Ms. Sapiro led the compilation of the application package for the WIT-endorsed nominee for the SOT Education Award.

This entailed working collaboratively with this committee on the generation of ideas to determine candidates and then reaching out to the identified individuals to obtain information and letters of support for the applicant.

Collectively, the WIT Executive Committee has worked to increase member participation at all levels in the SIG and, as

a result, three student members volunteered to serve on this new WIT SOT Award Nomination Committee. Ms. Sapiro also authored several articles for the biannual WIT newsletter that have included suggestions on student involvement in WIT and listings of SOT Annual Meeting events of interest to students. She has been engaged in Annual Meeting planning by developing an ice breaker for the WIT reception to encourage networking and mentoring between Full/Associate and Students/Postdocs SOT members.

Sanket Gadhia served on the Continuing Education Committee (CEC) as the graduate student representative from 2013–2015. In addition to the basic duties of the student representative, he has efficiently managed the CE kiosks and volunteers (30–40 in number) during SOT Annual Meetings (2014, 2015). He also participated actively in the committee meetings with valuable suggestions.

Moreover, he has competently consolidated the lists of volunteers and helped the SOT staff liaison with volunteer assignments and explaining on-site duties before and during the Annual Meeting. Furthermore, he has been instrumental in promoting the CE courses among SOT members, especially graduate student members.

Mr. Gadhia has been involved with GSLC and its subcommittees since 2013. Recently, he served as a panelist for the GSLC sponsored webinar on “Applying for SOT Awards, Funding, and Fellowships.” In addition, he also serves as the student representative for the Stem Cell Specialty Section. Since 2012, he has created awareness about the Society among his peers at St. John's University, Forest Hills, New York, which has increased the overall graduate student participation from this institute.



Award Recipient Sanket Gadhia and 2014–2015 GSLC Chair Alessandro Venosa

K–12 Students Flock to ToxTown in San Diego

Just prior to the start of the 2015 Society of Toxicology Annual Meeting in San Diego, several dozen SOT members enjoyed a warm sunny day assisting in the ToxTown booth at the annual San Diego Festival of Science and Engineering grand finale event, EXPO Day, at Petco Park stadium, on Saturday, March 21, 2015. The ToxTown booth featured an assembly line of activities.

The goal of the festival is to raise awareness of the importance of STEM (Science, Technology, Engineering, and Math) education and to encourage San Diego's K-12 students to pursue education and careers in these exciting fields.



Over 20,000 attendees participated in EXPO Day's 130 booths and SOT was well-represented in ToxTown. The Southern California Regional Chapter of SOT (SCCSOT) led by ToxTown “mayor” Virunya Bhat, hosted this event. Funding for this project was provided through an SOT Regional Chapter Strategic Funding grant and corporate K–12 sponsor funds, with support of the SOT K–12 Education Subcommittee, which is chaired by Angela Slitt and co-chaired by Dr. Bhat. The photo on the left is of SOT K–12 Subcommittee member Marie Bourgeois and Dr. Bhat holding figures of Einstein.



The students toured ToxTown by first watching a [Risk Bites](#) episode on YouTube produced by 2015 SOT Communications Award recipient Andrew

Maynard, who was on hand in the flesh! Students then progressed to a caffeine module learning about dose-response and that caffeine is not always bad for you (see photo on right). At [Folding Handangos](#), participants learned about proper hand washing and the "animated" germs captivated the younger crowd.



By far, the favorite activity was Tic-Tac-Tox, in which students spun the cubes to answer toxicology true or false questions, hoping to get three-in-a-row to win an SOT-captioned Einstein (see photo on left). Many students approached the booth having never heard of risk or toxicology, but left quite intrigued.

The last stop on the tour was a participant survey, which will provide the SOT Education Committee with valuable metrics. Many thanks to SCCSOT and our global slate of SOT member and Annual Meeting attendee volunteers who ensured the event was a tremendous success as evidenced by the non-stop traffic all day and the multiple social media tweets and

“likes”!

Relive the 2015 SOT Annual Meeting Thanks to Our Wonderful Blogs



Are you missing San Diego and the interesting, dynamic science presented during the SOT 54th Annual Meeting and ToxExpo?

Thanks to dedicated meeting attendees who volunteered to serve as SOT Reporters throughout the week, you can virtually revisit San Diego, as there are dozens of *Communique* © blog posts recapping some of this year's scientific sessions. You can read all of the blog articles now by searching for the [2015 SOT Scientific Sessions](#) tag.

A big thank you to our SOT Reporters who took time during the meeting to write these wonderful pieces for the SOT community. Your time and effort is greatly appreciated!

No Slow Down For Tox ShowDown



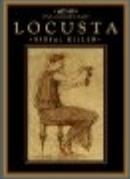
The fourth (2015) installment of the ever befuddling *Tox ShowDown* proceeded at its usual breakneck speed to the delight of an attentive audience of 100, most of whom were belly laughing uncontrollably. For those few of you still not in the know, *Tox ShowDown* is an *It's Academic Style* quiz game that pits teams of toxicologists against each other to answer questions of toxicological fact and fancy.

Kudos to the contestants who went out on a limb at the risk of irrevocably tarnishing their professional reputations. Congratulations to the *Endocrine Disruptors* (Brian Day, Susan Emeigh Hart, Paul Zigas) who narrowly beat out the competition, the *Toxic Metabolites* (Jacques Descotes, Stacey Harper, John Lipscomb), and the *Free*

Radicals (Shama Bhatia, Bill Brock, Julie Goodman).

Try your hand at the questions below, if you think you're so smart.

Locusta of Gaul was a notorious serial poisoner active in ancient Rome. She was hired by Agrippina, fourth wife of the Emperor Claudius, to murder him with a plate of poisoned mushrooms so her son could take the throne. What was the name of Agrippina's son?



- a. Nero
- b. Britannicus
- c. Chris Christie
- d. Caligula

Harry Salem (right), as judge, firmly opened the show with his gavel and crab hammer, laid down the law, and didn't take no guff from nobody.



Phil Wexler (far right) noted in jest, "the emcee, actually drank only half the contents of his whiskey flask this time around and, for a change, did not have to be straightjacketed or carried off the premises."

Meghan Cromie, Alessandro Venosa, Todd Zurlinden, and David Rossé, also instrumental in organizing and conducting this wacky event, managed to keep their heads, just barely, to prevent the game from devolving into total chaos.

Toxicology texts were generously donated by Elsevier and Taylor and Francis/CRC Press as prizes for all contestants. In addition, members of the winning team received \$75 Amazon gift cards. An engraved mug and decanter (the latter saying, in Latin, *Graviora Manent. Ergo Bibamus*, i.e., *Grave Danger is Imminent. Therefore let us Drink*) were provided for the Judge by *The Blasting Company*, an engraving company run by Matt Geraci, a clinical toxicologist from Jacksonville, Florida. The members of the audience were awarded with their loyalty until the end with door prizes that included three DVD sets and a Kindle Fire, contributed by Elsevier.

The Sister Chromatid Exchange (SCE) Assay is a classic toxicology assay for:



- a. Genotoxicity
- b. Immunotoxicity
- c. Liver Damage
- d. Sibling rivalry

It's never too early to volunteer for the coming year's *ShowDown*. Show us your stuff and sign up as a contestant for SOT's New Orleans Annual Meeting in 2016 before you're locked out. Send expressions of interest to [Phil Wexler](#).

SOT TSCA Task Force Provides Overview of Impactful Accomplishments



The Society of Toxicology (SOT) Toxic Substances Control Act (TSCA) Task Force provided an overview of the need for TSCA reform and the successful progress of this group in implementing the SOT TSCA Reform Strategy during a March 25 Sunrise Session at the SOT 2015 Annual Meeting, which is summarized below. Mark Lafranconi spoke on behalf of the TSCA Task Force and provided a brief history of the need for updating this act that was signed into law in 1976. Comments provided since this briefing are posted on the SOT website in the SOT TSCA Reform Activity portion of the [Newsroom](#). On June 23, 2015, the US House of Representatives passed a TSCA reform bill (H.R. 2576) by a vote of 398–1.

The SOT TSCA Task Force identified a number of issues with the existing law as follows:

- Grandfathered 62,000 chemicals
- Limited ability to control “Imminent Hazard”
- Cumbersome process for gathering additional information
- Risk assessment and risk management are integrated into the same process
- Inventory updates are inaccurate
- Confidential information provisions are weak

Dr. Lafranconi described the history of TSCA Reform that has been ongoing for over 20 years without resolution. Now, there is great interest in revising TSCA and the time appears right for accomplishing this goal during the present Congress. The efforts of the TSCA Task Force are consistent with the Society's strategic goal of promoting the recognition of toxicology by:

- Increasing the reliance of policy, regulatory, and corporate decision makers on the science of toxicology; and
- Communicating the benefit of toxicology to external audiences.

This SOT Congressional outreach has been accomplished through the following activities:

- More than 30 Visits with Congressional Staff and Members
- Written Comments on House and Senate Reform Bills
- Congressional Briefings
- Briefings for Members and Staff
- Op Ed Publication (Roll Call)

SOT’s key messages are TSCA Legislation should ensure that:

- The revised legislation affords flexibility in selection of the best available science for generating and evaluating information used in the safety and risk assessment process.
- The protection of the authority of the US Environmental Protection Agency, working with the scientific community, is recognized to judge when and how to apply new techniques and methods.
- The terms and concepts used in the legislative language that apply to the science of toxicology are consistent, accurate, and unambiguous.

The Task Force science-based efforts are making an impact in the legislation and on increased recognition for the Society as:

- Each version is using more consistent/accurate language.
- Mandates for specific testing or approaches have largely disappeared.
- Risk-based language is used consistently with increased focus on hazard AND exposure.
- SOT is on the "call" list for staff.

This SOT Task force will continue to analyze legislation, participate in meetings with House and Senate staff,

and respond to Capitol Hill questions.

In addition to Dr. Lafranconi, 2015–2016 task force members include Chair William Farland, Susan Borghoff, Deborah Cory-Slechta, Ronald Filler, George Gray, Daland Juberg, James Lamb IV, Moiz Mumtaz, Ruthann Rudel, and Robert Skoglund as well as SOT Council Contact Leigh Ann Burns Naas.

Thanks to 2015 SOT Annual Meeting Supporters



The Society of Toxicology appreciates the generous contributions of the [SOT 2015 Annual Meeting Supporters](#). 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 and impact of toxicology." Supporter opportunities are now available soon for the SOT 2016 Annual Meeting in New Orleans, Louisiana, March 13–17, 2016. For additional information, please contact [Laura Helm](#).

2015 SOT Annual Meeting Lost and Found—Reminder and Another Item Found

For your information, we are reposting the 2015 SOT Annual Meeting Lost and Found blog below and reporting that another item has been found, which is a ladies Certina watch. If this is your watch, please contact [Mao Fang](#).

Thank you for attending the SOT 54th Annual Meeting in San Diego, California, March 22–26, 2015. At the conclusion of this meeting, several items remained unclaimed in the SOT Headquarters Office Lost and Found. These items include a black baseball cap with white stitching, three pair of women's eyeglasses (black wire-framed readers, black plastic readers, and bifocals in a large brown frame), two cloth eyeglass cases (one tropical print and one black), a small gold brooch, SD microchip, grey Targus stylus, and a key ring with three gold keys of various sizes. To retrieve an item you have lost, please contact [SOT Headquarters](#).

Science News

ToxSci July Issue Is Now OnLine: Look Inside *ToxSci* for Highlighted Articles



The July 2015, Vol. 146, No. 1 issue of *Toxicological Sciences* (*ToxSci*) is now available [online](#). To have the email Table of Contents (eTOC) delivered to you as well as Advance Access notification of the latest papers and research in *Toxicological Sciences* as soon as these articles are accepted and posted to the website, register [online](#).

Editor-in-Chief of *ToxSci* Gary W. Miller announces that "Over the past several months the Look Inside *ToxSci* summaries have been prepared by the editor. Starting with this issue the associate editors will

also be providing summaries. As the associate editors handle articles within their area of scientific expertise, this should result in more insightful commentary. This month a [Contemporary Review](#) addresses the risk assessment of generic pharmaceuticals and a [Forum article](#) continues the debate over whether chemicals that exert effects on the endocrine system should be treated differently from a toxicological perspective. Although some of the rhetoric has been tense for the latter, it is clear that both camps are aiming to minimize adverse health outcomes. The scientific divide on this issue may not be as vast as the discourse has indicated. As always, I encourage readers to look inside *ToxSci* for the best original research in the field of toxicology."

The title and authors of the four highlighted articles that may be of interest to you are provided below.

[Proteomic Analysis of Cerebellum in Common Marmoset Exposed to Methylmercury](#), Yueting Shao, Megumi Yamamoto, Daniel Figeys, Zhibin Ning, and Hing Man Chan.

[Long-term Coexposure to Hexavalent Chromium and B\[a\]P Causes Tissue-Specific Differential Biological Effects in Liver and Gastrointestinal Tract of Mice](#), Francisco Javier Sánchez-Martín, Yunxia Fan, Vinicius Carreira, Jerald L. Ovesen, Andrew Vonhandorf, Ying Xia, and Alvaro Puga.

[Genome-Wide Association Study Identifies Novel Loci Associated With Diisocyanate-Induced Occupational Asthma](#), Berran Yucesoy, Kenneth M. Kaufman, Zana L. Lummus, Matthew T. Weirauch, Ge Zhang, André Cartier, Louis-Philippe Boulet, Joaquin Sastre, Santiago Quirce, Susan M. Tarlo, Maria-Jesus Cruz, Xavier Munoz, John B. Harley, and David I. Bernstein.

[Formation, Accumulation, and Hydrolysis of Endogenous and Exogenous Formaldehyde-Induced DNA Damage](#), Rui Yu, Yongquan Lai, Hadley J. Hartwell, Benjamin C. Moeller, Melanie Doyle-Eisele, Dean Kracko, Wanda M. Bodnar, Thomas B. Starr, and James A. Swenberg

The mission of *ToxSci*, the official journal of the Society of Toxicology, is to publish the most influential research in the field of toxicology.

Science Alert—Upcoming Meetings

Science Alert

The SOT-Sponsored and SOT-Hosted Meetings described below may be of interest to you. For additional information, please contact the organizers of these meetings directly.

ACVP|ASVCP|STP Combined Annual Meeting—October 17–21, 2015

The American College of Veterinary Pathologists, American Society for Veterinary Clinical Pathology, and Society of Toxicologic Pathology invite you to attend the 2015 ACVP/ASVCP/STP Combined Annual Meeting. This meeting will be held October 17–21, 2015, at the Minneapolis Convention Center, Minneapolis, Minnesota. Take this opportunity to network, collaborate, share, and discuss common scientific interests with your colleagues from three esteemed professional organizations. The program will include a mix of joint and separate curricula, including scientific sessions, continuing education courses, symposia, workshops, career development, receptions, and other events. For additional information, please visit the [meeting website](#).

IUTOX and SBTox To Be Held in Rio Grande do Norte, Brazil— Abstract Deadline June 30, 2015

IUTOX (International Union of Toxicology) and the Brazilian Society of Toxicology (SBTox) are pleased to announce the upcoming Congress of Toxicology in Developing Countries (9th CTDC) and XIX Brazilian Congress of Toxicology (XIX CBTox) that will be held November 7–10, 2015, at the Convention Center in the city of Natal, in the state of Rio Grande do Norte, Brazil. This meeting provides a unique forum to update your knowledge of toxicological sciences in

relation to problems experienced by developing countries and to share your work with national and international toxicologists. The Congress also provides the opportunity to establish and expand networks with partners at the national and international level and to present and discuss your research results with the scientific toxicology community. For additional information, to register, and to submit an abstract, please visit the [Congress website](#). IUTOX is offering travel awards to encourage and support participation of researchers, students, and scientists from developing countries. An [application](#) and more information about these awards is provided on IUTOX website.

Cellular & Molecular Mechanisms of Toxicity GRC— Meeting Applications Due July 12, 2015

The Cellular & Molecular Mechanisms of Toxicity Gordon Research Conference— Mechanistic Toxicology: The Path Forward will be held August 9–14, 2015, at the Proctor Academy, Andover, New Hampshire. This conference is a premier forum for showcasing the latest, most innovative advances in mechanistic toxicological research. For the 2015 conference, the organizers have assembled a group of world-leading experts working in areas of investigation that are highly relevant to environmental, industrial, and pharmaceutical toxicology, with the goal of incorporating research on the mechanistic basis of disease into risk decision-making. Emerging technologies in mechanistic toxicology and computational, 3D, and *in vivo* modeling and systems biology approaches to assessing risk to human health will be highlighted as well as the microbiome, the inflammasome, epigenetics, carcinogenesis, and stem cells in toxicological research. For the second time, a Gordon Research Seminar on Cellular and Molecular Mechanisms of Toxicity will precede the conference. This provides an expanded opportunity for trainees and young scientists to be exposed to cutting-edge science and to network with their future colleagues in the field. For additional information, please visit the [conference website](#).

NABR Releases New Video on Why Animals Are Needed In Research— Watch It

The Society of Toxicology (SOT) understands the power of [collaborative impact](#) and is a member of organizations aligned with SOT's mission of "creating a safer and healthier world by advancing the science and increasing the impact of toxicology." One of these groups is the National Association for Biomedical Research (NABR). The Foundation for Biomedical Research has just released a new video that answers the question: "Why Must We Use Animals in Research." NABR announced the release of this video on June 2, 2015, that "highlights why animal research is critical for medical progress and the advancement of both human and animal health."

FutureTox III Bridges for Translation: November 19–20, 2015



FutureTox III: Bridges for Translation—Transforming 21st Century Science into Risk Assessment and Regulatory Decision-Making will be held November 19–20, 2015, at the Hilton Crystal City at Washington Reagan National Airport, Arlington, Virginia. This conference was developed by the Scientific Liaison Coalition (SLC) and associated stakeholders and follows the well-received FutureTox II Contemporary Concepts in Toxicology conference.

FutureTox III is focusing on building the high throughput risk assessment paradigm, taking the science of *in vitro* data and *in silico* models forward. Thus, the conference will explore the central question: *What progress is being made to address challenges in applying and implementing the emerging “big data” toolbox for risk assessment and regulatory decision-making?*

Automated high-throughput screening (HTS) and high-content screening (HCS) of large chemical inventories, together with newer complex culture models utilizing human cells, microtissue systems, and integrative models, are now providing vast amounts of data that can be used to inform regulatory toxicity testing. These methods, together with novel approaches to model exposure and kinetics, creates an opportunity for a paradigm shift toward diversified and high-throughput risk assessment (HTRA) approaches for regulatory decision-making. Overall, the approach results in more rapid, more relevant, and more nimble discovery-screening and prioritization efforts with less reliance on animal testing. The time is right to discuss and debate how TT21C science, approaches, and technologies will be applied in risk assessment and regulatory decision-making.

The overarching objectives of the meeting are toward:

- Advancing the cornerstones for high-throughput risk assessment through exploration and discussions with multiple stakeholders
- Taking 21st Century Science (TT21C) *in vitro* and *in silico* models forward while reducing reliance on animal testing
- Exploring progress and identifying challenges in implementing the emerging “big-data” toolbox for risk assessment and regulatory decision-making.

The conference will include plenary sessions by invited speakers, a poster session, and topical breakout groups. For more information and to register, please visit the [FutureTox III website](#).

NIH Rock Talk: Enhancing Reproducibility in NIH-Supported Research

The June 9, 2015, issue of the National Institute of Health (NIH) Rock Talk blog addresses [Enhancing Reproducibility in NIH-Supported Research through Rigor and Transparency](#) in a blog article by Principal Deputy Director of NIH Larry Tabak. Dr. Tabak includes in this article an announcement of a NIH Guide ([NOT-OD-15-103](#)) that will clarify “long-standing expectations regarding the importance of rigor in research.” In addition, he notes that in “...our [NIH] clarifications about rigor is our expectation for scientists to address sex among other biological variables, in order to improve the transparency of this fundamental aspect of science in shaping biological processes and outcomes critical to

health (see [NOT-OD-15-102](#)). To read the full article, please visit the [NIH website](#).

NIH Notice: Clarifying Publication Reporting Instructions for RPPR and Renewal Applications

The purpose of this National Institutes of Health (NIH) Notice ([NOT-OD-15-091](#)) is to clarify which publications should be included in progress reports (e.g., Research Performance Progress Reports, RPPR) and renewal applications for training, career development, and resource sharing awards.

Since 2008, compliance with the [NIH public access policy](#) has been a statutory requirement and a term and condition of all grants, cooperative agreements, and contracts. A fundamental premise of the [NIH public access policy](#) is that awardees are responsible for ensuring that papers directly resulting from their funding award are made accessible to the public on PubMed Central.

When awardees list a paper in the progress report publication list of a RPPR or a renewal application, they are claiming that the publication directly arises from that award and the awardee is responsible for the public access compliance of the listed publications. Please direct all inquires to the Office of Extramural Research by email to PublicAccess@nih.gov. For additional information, please refer to this [NIH Notice](#).

NIH: Update on Policy on Considering Sex as a Biological Variable

In the May 20, 2015, edition of the National Institutes of Health (NIH) [Rock Talk](#), a progress report is provided on the NIH plan to adopt a new policy requiring a deliberate approach to the consideration of sex as a biological variable (SABV) in clinical research. In her [article](#), Janine Austin Clayton, NIH's Associate Director for Research on Women's Health, and the Director of the NIH Office of Research on Women's Health, described the process for gaining input from the research community and the steps toward SABV policy implementation.

Dr. Clayton stated, "The NIH Office of Research on Women's Health and the NIH Office of Extramural Research have taken into account input from scientists and the public in developing SABV policy, and we understand the need for more information about studying both sexes. Above all, our goal is to fund research that takes into account essential biological variables—of which sex is a very important one. Our unwavering goal is to support the best science that underpins health advances for women and for men."

In summary she notes that the NIH is "working hard to develop SABV training resources and scientific tools such as courses, workshops, and [online resources](#) to help applicants, reviewers, and NIH program staff to be prepared for the forthcoming policy. Stay tuned! "

[Rock Talk](#) is the blog of Sally Rockey who is NIH's Deputy Director for Extramural Research, serving as the principal scientific leader and advisor to the NIH Director on the NIH extramural research program.

Research Funding

NIH: Fast-Track Development of Medications to Treat Cannabis Use Disorders

Posted on May 26, 2015, the purpose of this [Funding Opportunity Announcement \(FOA\) PAR-15-267](#) is to accelerate the discovery and development of medications to treat Cannabis Use Disorders (CUDs) using the UG3/[UH3](#) mechanism. The objective is to advance medications toward the ultimate goal of obtaining US Food and Drug Administration approval. Advances in understanding the cannabinoid systems and the effects of marijuana on the brain,

coupled with the availability of both novel and marketed medications that may be efficacious to treat these disorders, offer unprecedented opportunities to develop safe and effective pharmacotherapies for CUDs.

The compounds to be evaluated can be small molecules or biologics. They can be tested in pre-clinical models and/or for the clinical manifestations of CUDs or their consequences such as withdrawal, craving, or cannabis use relapse. Applications may focus on the development of new chemical entities, new formulations of marketed medications available for other indications, or combinations of medications that hold promise for the treatment of CUDs.

For additional information, please visit the [NIH website](#).

2016 PhRMA Foundation Awards Available: Deadline September 1, 2015

The Pharmaceutical Research and Manufacturers of America (PhRMA) Foundation funds scientists at critical points in their research careers to support and reward innovation in disciplines essential to the development of safe and effective medicines. The PhRMA Foundation offers competitive pre- and postdoctoral fellowships, sabbatical fellowships, and research starter grants to advance science in Adherence Improvement, Clinical Pharmacology, Comparative Effectiveness Research, Health Outcomes, Informatics, Pharmaceutics, Pharmacology/Toxicology, and Translational Medicine and Therapeutics. All applicants must be US citizens or permanent residents. Before an individual is eligible to apply for a PhRMA Foundation award, an applicant must have a firm commitment from a university in the US. For additional information, please visit the [PhRMA website](#).

Legislative and Regulatory Update

US EPA: Chemical Safety Advisory Committee Establishment and Call for Nominations

In a June 12 [Federal Register](#) notice, the US Environmental Protection Agency announced the establishment of the Chemical Safety Advisory Committee (CSAC) as well as a request for nominations of candidates to serve on this committee. The purpose of CSAC is to provide expert scientific advice, information, and recommendations to the Office of Pollution Prevention and Toxics (OPPT), which manages programs under the Toxics Substances Control Act and Pollution Prevention Act.

The major objective of the committee is to provide advice and recommendations on the scientific basis for risk assessments, methodologies, and pollution prevention measures or approaches. The EPA has determined that this federal advisory committee is necessary and in the public interest and will assist the EPA in performing its duties. Comments on CSAC are due by July 13 and additional information in this regard is provided in this [Federal Register](#) notice.

As noted above, nominations for membership on this committee are being solicited. The notice states that the nominations should include candidates who have demonstrated high levels of competence, knowledge, and expertise in scientific/technical fields relevant to chemical risk assessment and pollution prevention. To the extent feasible, the members will include representation of the following disciplines, including, but not limited to, toxicology, pathology, environmental toxicology and chemistry, exposure assessment, and related sciences, e.g., synthetic biology, pharmacology, biotechnology, nanotechnology, biochemistry, biostatistics, pharmacologically based pharmacokinetic (PBPK) modeling, computational toxicology, epidemiology, environmental fate, and environmental engineering and sustainability. Moreover, the notice states that “EPA values and welcomes diversity and encourages nominations of women and men of all racial and ethnic groups.”

For further information, please contact Laura Bailey, Office of Science Coordination and Policy, Office of Chemical Safety and Pollution Prevention, US Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20146-0001, email: bailey.laura@epa.gov; phone number: 202.564.8450

US EPA Extends Public Comment Period on Draft EJ 2020 Action Agenda Framework to July 14, 2015

This article was received from the Toxicologists of African Origin (TAO) Special Interest Group.

As a result of robust feedback from stakeholders, the US Environmental Protection Agency (EPA) is extending the public comment period on the draft Environmental Justice (EJ) 2020 Action Agenda (EJ 2020) framework until July 14, 2015.

EPA is seeking public comment on EJ 2020, its next overarching strategic plan to advance environmental justice through EPA's programs, policies, and activities, and will support the cross-agency strategy on making a visible difference in environmentally overburdened, underserved, and economically distressed communities. Stakeholders and the general public can review the framework and submit comments, by visiting the [EPA website](#).

"EJ 2020 will build on the foundation established by EPA's Plan EJ 2014, where we were able to improve on EJ in permitting, support community-based programs, and develop science tools to access and facilitate grants," said Mustafa Santiago Ali, Senior Advisor to Administrator Gina McCarthy on Environmental Justice. "Although we've made good progress, there's still more to do. We need to strategically identify opportunities for targeted collaboration that benefit overburdened communities. Your voices, experiences, and expertise can help shape a strategy that addresses the needs of your communities." Read his [blog](#) for more about how EJ 2020 is about defining new goals for the coming years.

The goals of EJ 2020 are to:

- Deepen environmental justice practice within EPA programs to improve the health and environment of overburdened communities;
- Collaborate with partners to expand our impact within communities; and
- Demonstrate progress on outcomes that matter to communities.

Under Plan EJ 2014, EPA laid a foundation for integrating environmental justice into all its programs, including rule-writing, permitting, enforcement, science, and law. Plan EJ 2014 helped to build environmental justice into the agency's regulatory practice, revitalized environmental justice planning across the federal family, and initiated the development of a cross-cutting Environmental Justice Research Roadmap. To learn more about the accomplishments under Plan EJ 2014, please visit the [EPA website](#).

During the public comment period for EJ 2020, EPA has conducted many informational and dialogue sessions with partners and stakeholder groups. For more information about these opportunities, please visit the [EPA website](#).

Environmental justice is defined as the fair treatment and meaningful involvement of all people, regardless of race or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA's goal is to provide an environment where all people enjoy equal access to the environmental decision-making process to maintain a healthy environment in which to live, learn, and work. EPA's environmental justice work is an outgrowth of Executive Order 12898, signed by President Clinton in 1994, that requires federal agencies to address the disproportionately high and adverse human health or environmental effects of their programs on minority and low-income populations.

For more information about EPA's environmental justice work, please visit the [EPA website](#).

CDC Request for Nominations To Serve on Clinical Laboratory Improvement Advisory Committee

The Centers for Disease Control and Prevention (CDC) is soliciting nominations for membership on the Clinical Laboratory Improvement Advisory Committee (CLIAC). This committee provides scientific and technical advice and guidance to the Secretary, Department of Health and Human Services (HHS); the Assistant Secretary for Health, HHS; the Director, CDC, The Commissioner, Food and Drug Administration; and the Administrator for Medicare & Medicaid Services. The advice and guidance pertain to general issues related to improvement in clinical laboratory quality and laboratory medicine.

Nominations are being sought for individuals who have expertise and qualifications necessary to contribute to accomplishing CLIAC's objectives. Nominees will be selected by the HHS Secretary or designee from authorities knowledgeable across the fields of microbiology (including bacteriology, mycobacteriology, mycology, parasitology, and virology), immunology (including histocompatibility), chemistry, hematology, pathology (including histopathology and cytology), or genetic testing (including cytogenetics); representatives from the fields of medical technology, public health, and clinical practice; and consumer representatives. The nominations will close on September 15, 2015. For additional information, please refer to the [Federal Register Announcement](#).

NSF Seeks Recommendations for Membership on Science and Technical Federal Advisory Committees

The National Science Foundation (NSF) is requesting recommendations for membership on its scientific and technical federal advisory committees. A recent [Federal Register notice](#) includes the names of the advisory committees for which members are being sought as well as contact information for the NSF staff member of each group.

Each Directorate and Office has an external advisory committee that typically meets twice a year to review and impart advice on program management, discuss current issues, and review and provide advice on the impact of policies, programs, and activities in the disciplines and fields encompassed by the Directorate or Office.

In addition to Directorate and Office advisory committees, NSF has several committees that provide advice and recommendations on specific topics including: environmental research and education, equal opportunities in science and engineering, advanced cyberinfrastructure, international science and engineering, and business and operations.

For additional information, please refer to the [Federal Register notice](#).