

SOT

61ST ANNUAL MEETING
& TOXEXPO • SAN DIEGO, CA
MARCH 27-31, 2022

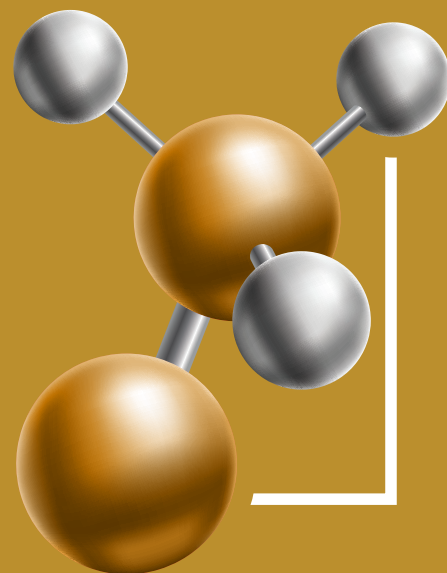
SOT AWARDS 2022 AWARDS CEREMONY

Sunday, March 27, 2022

5:15 PM to 6:30 PM

Music Starting at 4:45 PM

CC Ballroom 6A



Dear Colleagues,

Despite the myriad challenges that recent years have presented both professionally and personally, the toxicology community has continued to make outstanding contributions that propel the field forward and deserve recognition. For more than 50 years, the SOT Awards Program has celebrated the achievements of budding and seasoned toxicologists, and the Society is proud to announce the recipients of the 2022 SOT Awards and honors.

This year's awardees operate at the leading edge of toxicology, and their research has contributed to academia, government, and industry in areas such as new approach methodologies, cannabinoids, and the microbiome. In 2022, we recognize bright, early career researchers at the undergraduate, graduate, and postdoctoral levels whose work is already influencing the future of toxicology, as well as career toxicologists who paved the way.

This outstanding group of researchers will be recognized in person during the SOT 61st Annual Meeting and ToxExpo in San Diego, California. We invite those of you who are attending the meeting on-site to join us for the 2022 SOT Awards Ceremony on Sunday, March 27, from 5:15 pm to 6:30 pm. You also are invited to continue to learn about these awardees' leading research during the 2022 Award Lectures, which will be presented in San Diego during the meeting:

- **Linda Birnbaum—Merit Award**, Monday, March 28, 12:30 PM to 1:30 PM
- **Prakash Nagarkatti—Distinguished Toxicology Scholar Award**, Tuesday, March 29, 11:00 AM to 12:00 Noon
- **Urmila Kodavanti—Leading Edge in Basic Science Award**, Tuesday, March 29, 12:30 PM to 1:30 PM
- **Tomás Guilarte—Translational Impact Award**, Tuesday, March 29, 3:00 PM to 4:00 PM

In addition, the SOT Component Groups will honor scientists in specialty areas with awards during events and receptions taking place throughout the SOT Annual Meeting.

Finally, we'd like to extend our utmost gratitude to the 2021–2022 SOT Awards Committee members and the Component Group leadership, who have diligently reviewed this year's nominations and applications and have carefully selected our outstanding slate of awardees. Thank you for your efforts.

We look forward to the opportunity to congratulate our 2022 SOT Award recipients in person in San Diego in March and hope you will join us in these celebratory activities.

Sincerely,



Myrtle Davis, DVM, PhD, ATS
2021–2022 SOT President



Ilona Jaspers, PhD
2021–2022 SOT Awards Committee Chair

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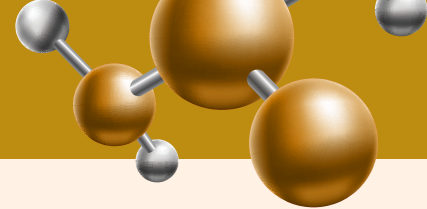
SOT AWARDS

Each year, the SOT Awards program honors and supports the accomplishments of distinguished toxicologists across career stages, as well as the merits of students representing various academic levels. The Society bestows more than 20 awards that recognize achievement and advance toxicological research. In addition, the SOT Endowment Fund, Regional Chapters, Special Interest Groups, and Specialty Sections, as well as various Committees, present hundreds of awards each year to honor outstanding research and to support attendance at the SOT Annual Meeting and ToxExpo.

The recipients of the 2022 SOT Awards have demonstrated excellence in toxicology, and the Society is pleased to honor them for their contributions to the field.

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Awards Ceremony and Music

Sunday, March 27, 4:45 PM to 6:30 PM
San Diego Convention Center, Ballroom 6A

Join SOT in honoring this year's SOT Award recipients. Beginning at 4:45 pm, Miren Edelstein, a classically trained violinist with 25 years of experience, will perform as the Awards Ceremony attendees gather for the event. Ms. Edelstein has an extensive background performing as a soloist and as a member of orchestras, chamber music groups, musical theatre productions, operas, and bands. At 5:15 pm, the ceremony will formally begin, and dozens of individuals will be recognized. Throughout the week, more individuals will be honored with awards bestowed by the SOT Committees and Component Groups.

SOT Honors and Awards



Honorary Membership

Lynn R. Goldman, MD

George Washington University Milken Institute School of Public Health,
Washington, DC

SOT recognizes nonmembers who embody outstanding and sustained achievements in the field of toxicology and/or allied disciplines with Honorary membership.

Lynn R. Goldman, MD, a pediatrician and an epidemiologist, is the Michael and Lori Milken Dean and Professor of environmental and occupational health at the Milken Institute School of Public Health at the George Washington University. She is a renowned expert in pediatric environmental health and chemicals policy. She has contributed academic scholarship that has helped shape this field of study. She also has engaged in translating research to policy through writing policy analyses and via Congressional testimony in service of successful efforts by Congress to achieve passage of reforms to both federal pesticide law (the 1996 Food Quality Protection Act) and federal chemicals law (the 2016 Lautenberg Chemical Safety for the 21st Century Act) as well as legislation to establish California's Childhood Lead Poisoning Prevention Program.

Dr. Goldman was previously Professor of environmental health sciences at the Johns Hopkins University Bloomberg School of Public Health (1999–2010); Assistant Administrator for Toxic Substances at the US Environmental Protection Agency, where she directed the Office of Chemical Safety and Prevention (1993–1998); and Chief of the Division of Environmental and Occupational Disease Control (as well as other positions) at the California Department of Public Health.

She completed a BS and an MS from the University of California Berkeley (UC Berkeley), an MD from the University of California San Francisco (UCSF); an MPH from Johns Hopkins University; and pediatric residency training at the UCSF Benioff Children's Hospital in Oakland.

Dr. Goldman is a member of the National Academy of Medicine (NAM) and received the NAM Walsh McDermott Award for service to the academy. She was a recipient of the Heinz Award for Global Environmental Change and the American Public Health Association Environment Section's Homer M. Calver Award. Currently, she is a Trustee of the Environmental Defense Fund; Chair of the board for the Association of Schools and Programs of Public Health; a member of the National Institutes of Health (NIH) National Advisory Environmental Health Sciences Council; and Chair of the NIH Advisory Committee for the ECHO Study. In addition to these roles, Dr. Goldman serves on the National Academy of Sciences, Engineering, and Medicine Environmental Health Matters Initiative. She has received alumna awards from Johns Hopkins (Woodrow Wilson Award for Excellence in Government and membership in the Johns Hopkins University Society of Scholars); UCSF (150th Anniversary Alumni Excellence Award); and the UC Berkeley School of Public Health (Alumna of the Year and Influential Alumni Award).



Achievement Award

Julia Yue Cui, PhD, DABT

University of Washington, Seattle, WA

This award recognizes an SOT member who has made significant contributions to toxicology within 15 years of obtaining their highest earned degree.

Julia Yue Cui, PhD, DABT, has received the 2022 SOT Achievement Award to recognize her early and sustained research in the areas of nuclear receptors, epigenetics, and the microbiome.

Dr. Cui received her PhD in toxicology in 2010 from the University of Kansas Medical Center, where she also conducted her postdoctoral fellowship in toxicology and therapeutics. She then joined the University of Kansas Medical Center as a Research Assistant Professor until 2014, when she accepted a tenure-track faculty position as the inaugural recipient of the Sheldon D. Murphy Endowed Chair in Toxicology and Environmental Health at the University of Washington.

Dr. Cui studies the interaction of environmental chemical exposures, genetic risk factors, diet, and socioeconomic status in pediatric diseases. Her approach combines nuclear receptors, epigenetics, and the gut microbiome to study the liver ontogeny and early-life environmental chemical exposure-induced adverse health effects using animal models, *in vitro* cell culture, and a multi-'omics approach. By studying the interactions among environmental chemicals, the gut microbiome, and host epigenetics during the pathogenesis of pediatric diseases, Dr. Cui's work contributes to a better understanding of the mechanism of toxicity and the development of new therapeutic modalities for disease prevention and management.

Dr. Cui's success as a productive toxicology researcher is evinced by her sustained record of publishing high-impact papers; since 2014, Dr. Cui's laboratory has published 77 peer-reviewed papers in top-tier journals, and Dr. Cui has co-authored four book chapters. Also since joining the University of Washington, Dr. Cui has been awarded five National Institutes of Health (NIH) R01 grants as the contact PI or multiple PI in the area of nuclear receptors, epigenetics, and the microbiome as applied to toxicology. In addition, Dr. Cui has been invited to speak at conferences and symposia more than 30 times.

In addition to Dr. Cui's remarkable accomplishments in the research arena, she is an active contributor to activities of the Department of Environmental and Occupational Health Sciences at the University of Washington and at the national level. She serves on numerous departmental committees and as a primary mentor to six doctoral students, four masters students, three postdoctoral scholars, and numerous undergraduate students. Dr. Cui's students have received many research awards from the University of Washington, including the Castner Award, the UW Magnuson Scholars Award, and the Distinguished Teaching Award, as well as receiving SOT Pacific Northwest Regional Chapter Best Platform/Poster Presentation Awards and the American Association for the Study of Liver Diseases Presential Poster Award of Distinction. Dr. Cui also excels in the classroom, teaching the first quarter of the department's three-quarter series in general toxicology. Her graduate-level course Fundamentals of Toxicology has been consistently rated as among the top 10% of all courses taught at University of Washington.

Dr. Cui holds numerous professional memberships, including in the American Association for the Advancement of Science, the American Society for Pharmacology and Experimental Therapeutics, the Society for Industrial Microbiology and Biotechnology, and the American Association for the Study of Liver Diseases. She also serves as a standing member of the NIH Systemic Injury by Environmental Exposure Study Section.

Dr. Cui has been an SOT member since 2006 and is a past recipient of the Mechanisms Specialty Section Carl C. Smith Award (1st place) in 2008 and Gabriel L. Plaa Education Award in 2011. She serves as the 2021–2022 President of the SOT Pacific Northwest Regional Chapter. In addition to these accolades within SOT, Dr. Cui also received the Novartis Graduate Student Fellowship in 2009 and the American Society for Pharmacology and Experimental Therapeutics Division for Toxicology Early Career Award in 2021.



Arnold J. Lehman Award

Jeffrey W. Fisher, PhD
ScitoVation, Durham, NC

This award recognizes an SOT member who has made a major contribution to risk assessment and/or the regulation of chemical agents, including pharmaceuticals. The contribution may have resulted from the application of sound scientific principles to regulation and/or from research activities that have significantly influenced the regulatory process.

Jeffrey W. Fisher, PhD, has been awarded the 2022 SOT Arnold J. Lehman Award for his exceptional, consistent, career-long body of work on physiologically based pharmacokinetic (PBPK) and biologically based dose response (BBDR) modeling tools to improve risk assessment.

Dr. Fisher's work has influenced many high-visibility risk-based regulatory decisions by both the US Environmental Protection Agency (US EPA) and the US Food and Drug Administration (US FDA), and he has provided training—by coursework, mentoring, and publications—on good practices for the use of PBPK and BBDR models in contemporary risk assessments.

Dr. Fisher received his PhD in zoology/toxicology from Miami University of Ohio in 1987, during which time he also served as a Principal Investigator in the Toxic Hazards Division of Armstrong Aerospace Medical Research Laboratory on Wright-Patterson Air Force Base. Dr. Fisher then continued his work with the Air Force as a Senior Scientist and later a Technical Advisor for the Operational Toxicology Branch, pioneering the use of PBPK modeling to examine chemical distribution during pregnancy and lactation. Dr. Fisher's publications on the pharmacokinetics of trichloroethylene (TCE) in rats during gestation and lactation had a pivotal impact on the acceptance of PBPK modeling in studies of early life and served as the impetus for the subsequent widespread application of PBPK modeling of developmental pharmacokinetics. This resulted in improved risk assessments for many chemicals. During this time, Dr. Fisher also led the research that provided the key experimental data and PBPK modeling approaches that were used in the US EPA evaluation of the potential early-life toxicity of perchlorate.

After joining the University of Georgia in 2000, Dr. Fisher continued his research on perchlorate, which led to the development of the pharmacodynamic model of thyroid function in adult and lactating rats. Dr. Fisher also developed the first PBPK models for pyrethroids and demonstrated the ability of the models to explain and predict differences in the toxicity of pyrethroids during early life compared with adulthood.

During his subsequent tenure as a Research Toxicologist with the US FDA National Center for Toxicological Research (NCTR), Dr. Fisher continued his work modeling the effects of perchlorate on the thyroid of a pregnant woman, which became the basis for the US EPA BBDR model of perchlorate in their recent assessment of safe drinking water concentrations of the chemical. He also conducted key pharmacokinetic modeling studies to better characterize the potential risk of bisphenol A in infants in a highly politicized environment and provided a needed, scientifically sound basis for the US FDA evaluation of this chemical. Most recently, Dr. Fisher assisted US FDA regulatory scientists in the pharmacokinetic analyses of a per- and polyfluoroalkyl substance (PFAS), 6:2 FTOH, in animals and humans. This evaluation elucidated the biopersistence of a metabolite, resulting in voluntary actions by industry. Dr. Fisher recently retired from US FDA/NCTR after more than a decade, and in January 2021, he joined ScitoVation as a Senior Research Fellow.

Dr. Fisher has been an SOT member since 1990 and served twice as President of the Biological Modeling Specialty Section.

Best Postdoctoral Publication Awards

Presented by the Postdoctoral Assembly, these awards recognize outstanding work accomplished during formal mentored postdoctoral traineeships by recognizing exceptional recently published papers in the field of toxicology.



Marissa B. Kosnik, PhD, Danmarks Tekniske Universitet, Lyngby, Denmark

Kosnik, Marissa B., Stefan Enroth, and Oskar Karlsson. 2021. **“Distinct Genetic Regions Are Associated with Differential Population Susceptibility to Chemical Exposures.”**

Environment International 152 (March): 106488. [View abstract.](#)

Qian Lin, PhD, University of Louisville, Louisville, KY

Lin, Qian, Zhifeng Huang, Genxiang Cai, Xia Fan, Xiaoqing Yan, Zhengshuai Liu, Zehua Zhao, Jingya Li, Jia Li, Hongxue Shi, Maiying Kong, Ming-Hua Zheng, Daniel J. Conklin, Paul N. Epstein, Kupper A. Wintergerst, Moosa Mohammadi, Lu Cai, Xiaokun Li, Yu Li, and Yi Tan. 2021. **“Activating Adenosine Monophosphate–Activated Protein Kinase Mediates Fibroblast Growth Factor 1 Protection from Nonalcoholic Fatty Liver Disease in Mice.”**

Hepatology 73, no. 6 (June): 2206–22. [View abstract.](#)



Eiki Kimura, PhD, University of Cincinnati, Cincinnati, OH

Kimura Eiki, Masanobu Kohda, Fumihiko Maekawa, Yoshiaki Fujii-Kuriyama, and Chiharu Tohyama. 2021.

“Neurons Expressing the Aryl Hydrocarbon Receptor in the Locus Coeruleus and Island of Calleja Major Are Novel Targets of Dioxin in the Mouse Brain.”

Histochemistry and Cell Biology 156 (August): 147–63. [View abstract.](#)



Distinguished Toxicology Scholar Award

Prakash Nagarkatti, PhD

University of South Carolina, Columbia, SC

Distinguished Toxicology Scholar Award Lecture

Tuesday, March 29, 11:00 AM–12:00 Noon

This award recognizes an SOT member who has made substantial and seminal scientific contributions to the understanding of the science of toxicology and is actively involved in toxicological research.

Prakash Nagarkatti, PhD, has received the 2022 SOT Distinguished Toxicology Scholar Award for his role in advancing the field of immunotoxicology and his outstanding efforts in mentoring early career researchers.

Dr. Nagarkatti received his PhD in immunology in 1980 from Jiwaji University in India and conducted his postdoctoral fellowship at McMaster University in Canada.

Dr. Nagarkatti has taught at the University of South Carolina for more than 15 years. From 2011 to 2021, he served as the Vice President for Research, reporting to the university President and managing a \$280 million/year research enterprise. He currently serves as a Carolina Distinguished Professor and Senior Research Advisor to the President. In this capacity, he serves as a PI on a collaborative project with Battelle on a \$3.8 billion contract, which he helped secure, from the Department of Energy to operate the Savannah River National Laboratory.

Despite his extensive senior-level administrative responsibilities, Dr. Nagarkatti has sustained highly impactful research and has taught for over 35 years. He has published more than 325 peer-reviewed papers with over 17,000 citations, making major contributions to advancements in the field of immunotoxicology. Dr. Nagarkatti has been continuously funded by grants from the National Institutes of Health (NIH) and other federal agencies for the past 35 years and has generated over \$100 million in grants as a PI at the University of South Carolina since joining the university in 2005. He currently directs two NIH-funded Centers and one National Science Foundation-funded Center, along with numerous NIH R01 grants.

Dr. Nagarkatti's contributions to toxicology have been transformative in both basic and translational research. He is considered a world leader in cannabinoid research and has made numerous groundbreaking, published, and highly cited discoveries on how cannabinoids attenuate inflammation and kill certain types of cancers. Dr. Nagarkatti also has worked extensively on cannabidiol (CBD) to treat inflammatory diseases. His work on use of CBD to treat autoimmune hepatitis received a patent that has been licensed to a pharmaceutical company and, importantly, was approved by the US Food and Drug Administration as an orphan drug to treat autoimmune hepatitis.

Dr. Nagarkatti's lab also is engaged in research involving new drug discovery from botanicals, studying the effect of botanicals on autoimmune diseases and cancer. These studies have led to pioneering findings on how dietary compounds can modulate changes in the epigenome and microbiome, thereby inducing an anti-inflammatory phenotype.

In addition to making exceptional research contributions to advance toxicology, Dr. Nagarkatti also is an outstanding academic leader. During his teaching career, he has mentored 44 graduate students, 29 postdoctoral scholars, and 35 junior faculty as well as 36 international scholars from more than 15 countries. His trainees have been successful in attracting NIH R01 Supplements and independent grants.

Beyond his academic duties, Dr. Nagarkatti actively participates in societal responsibilities as a scientist. He is engaged in educating the public about the risks and benefits of cannabinoids and the role of endocannabinoids in the regulation of health and disease. He has provided expert opinion through a variety of news outlets—including BBC News, a PBS documentary, and *The Conversation*—and has served on the USA TODAY COVID Vaccine Panel. On numerous occasions, he has provided testimony on cannabinoids to the South Carolina Senate.

Dr. Nagarkatti is a Fellow of the American Association for the Advancement of Science, the Academy of Toxicological Sciences, and the National Academy of Inventors. In addition to these fellowships, he has been an active SOT member since 1987, during which time he was instrumental in establishing the Association of Scientists of Indian Origin Special Interest Group. Publications from his lab have been recognized with the best paper award from numerous SOT Specialty Sections, and he was the recipient of the 2016 Vos Lifetime Career Achievement Award of the Immunotoxicology Specialty Section. He is the 2021–2022 Chair of the Endowment Fund Board.



Education Award

Silvia Berlanga de Moraes Barros, PharmD, PhD

University of São Paulo School of Pharmaceutical Sciences, São Paulo, Brazil

This award recognizes an individual who is distinguished by the teaching and training of toxicologists and who has made significant contributions to education in the broad field of toxicology.

Silvia Berlanga de Moraes Barros, PharmD, PhD, has received the 2022 SOT Education Award for her influence on toxicology education in Brazil, Latin America, and worldwide.

Dr. Barros began her academic career as an Assistant Professor of toxicology in the University of São Paulo School of Pharmaceutical Sciences in Brazil in 1974 and received her MSc in analytical toxicology in 1976 and her PhD in toxicology in 1980, both from the University of São Paulo. She then continued her appointment with the university as an Associate Professor and concurrently conducted her postdoctoral work at the University of Siena in Italy, which she completed in 1990. In 1993, she was appointed by the University of São Paulo Department of Clinical and Toxicological Analysis to a Full Professor position.

Dr. Barros currently holds dual roles, as a Senior Professor in the Department of Clinical and Toxicological Analysis at the University of São Paulo and an international regulatory consultant with Spherix Consulting Group in Maryland. Her research explores the interaction between radiation and pesticide skin exposure in the development of cutaneous melanoma; photoprotective action of phenolic compounds in skin cells culture exposed to UVA and UVB radiation; air pollution/solar radiation exposure and atopic dermatitis; and Risk 21 and re-evaluation of pesticides in Brazil. Although Dr. Barros formally retired in 2003, she has continued her professorship with the University of São Paulo and visits her office and laboratory regularly.

During her career, Dr. Barros served as the advisor for 28 undergraduate students and supervisor to 10 masters students, 19 doctoral students, and five postdoctoral fellows. She was integral in redesigning the undergraduate curriculum at the University of São Paulo, proposing innovative course structure and integrating physiopathology, medical chemistry, pharmacology, and toxicology into undergraduate coursework.

In addition to her work within her university community, Dr. Barros also made major contributions to the development of the toxicology profession in Brazil and Latin America. Dr. Barros co-organized, and for six years taught at, the Latin America Risk Assessment Workshop, a chemical risk assessment workshop for governmental, industrial, and academic scientists in Latin America. She also organized many national and international toxicology meetings in Brazil, including the 9th Congress of Toxicology in Developing Countries, sponsored by International Union of Toxicology (IUTOX) and the Brazilian Society of Toxicology. In 2021, Dr. Barros organized and taught the Risk Assessment for Environmental Health Hazards Continuing Education Virtual Course, sponsored by the Federal University of Paraná and the Brazilian Society of Toxicology.

Dr. Barros is an active professional; she is a Past President of the Brazilian Society of Toxicology and served as the IUTOX Director from 2004 to 2011. She currently serves as a Director of the IUTOX Executive Committee and as a member of the IUTOX Education Committee, and she sits on the Board of Trustees of the Toxicology Education Foundation. She also is a member of the World Health Organization Advisory Panel on Food Safety. She has published more than 100 peer-reviewed manuscripts.

Dr. Barros joined SOT in 2001 and has been an active participant within the Society. In addition to her service on the SOT Membership Committee, Dr. Barros is a Past President of the Hispanic Organization of Toxicologists Special Interest Group (HOT). Her leadership was instrumental in developing and improving HOT mentoring activities and the HOT Updates in Toxicology webinar series. Dr. Barros was the 2021 recipient of the HOT Distinguished Toxicologist Award to recognize, among other accomplishments, her work to significantly increase the outreach of the group.



Enhancement of Animal Welfare Award

Amy J. Clippinger, PhD

PETA Science Consortium International e.V., Norfolk, VA

This award recognizes an SOT member for contributions made to the advancement of toxicological science through the development and application of methods that replace, refine, or reduce the need for experimental animals. This award recognizes outstanding/significant contributions made by SOT members to the scientifically sound and responsible use of animals in research. This award also serves to recognize member contributions to the public awareness of the importance of animals in toxicology research. The achievement recognized may be either a seminal piece of work or a long-term contribution to toxicological science and animal welfare.

Amy Clippinger, PhD, has received the 2022 SOT Enhancement of Animal Welfare Award to honor her extensive efforts to develop and integrate predictive methods that advance toxicology while reducing and replacing animal use.

Dr. Clippinger received her PhD in molecular and cellular biology and genetics from Drexel University College of Medicine in 2009 and subsequently conducted her postdoctoral research at the University of Pennsylvania, where she focused on molecular biology and virology research.

In her current role as President of PETA Science Consortium International e.V., Dr. Clippinger directs efforts to promote human-relevant alternatives to the use of animals in toxicology research and testing through scientific scholarship and outreach to companies, federal agencies, legislators, and universities. In this capacity, Dr. Clippinger has successfully developed collaborations among a wide range of public and private stakeholders at both the national and the international level. For the past nine years, she has established numerous collaborations with stakeholders in government, industry, and nongovernment organizations (NGOs) within and outside the US to fund validation studies, organize workshops, coordinate seminar series, and publish and present scientific analyses on predictive toxicology.

Dr. Clippinger has been and continues to be integrally involved in efforts to develop, evaluate, and implement new approach methodologies (NAMs) that do not use animals. To this end, she recently worked to advance the use of NAMs for specific use cases for inhalation toxicity of relevance to the US Environmental Protection Agency, helping to address one of the most common uses of animals for assessing risks of chemicals. Dr. Clippinger also routinely engages with US federal scientists and invited experts in efforts to advance NAMs through interactions with the Interagency Coordinating Committee on the Validation of Alternative Methods, the National Toxicology Program Interagency Center for the Evaluation of Alternative Toxicological Methods, and the Scientific Advisory Committee on Alternative Toxicological Methods (SACATM).

Dr. Clippinger is an active scientist, and her nearly 40 publications reflect her wide expertise in toxicology, which includes ocular and inhalation toxicology. She serves as an Associate Editor for *Frontiers in In Vitro Toxicology* and on the Editorial Board of *Applied In Vitro Toxicology*. She also is a member of SACATM, advising on the development, validation, scientific review, regulatory acceptance, implementation, and national and international harmonization of toxicological test methods. Dr. Clippinger has been an SOT member since 2013 and is a Past President of the *In Vitro* and Alternative Methods Specialty Section.



Founders Award (for Outstanding Leadership in Toxicology)

Leigh Ann Burns Naas, PhD, DABT, ATS, ERT
Magnolia Toxicology Consulting LLC, Traverse City, MI



This award, sponsored by the SOT Endowment Fund, recognizes a Full, Emeritus, or Retired Full member 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.

Leigh Ann Burns Naas, PhD, DABT, ATS, ERT, has been awarded the 2022 SOT Founders Award (for Outstanding Leadership in Toxicology) in recognition of her substantial, seminal, and multifaceted contributions to the science of toxicology and especially in fostering data-based decision-making in drug safety.

Dr. Burns Naas received her PhD in pharmacology and toxicology from the Medical College of Virginia/Virginia Commonwealth University in 1992, after which she enhanced her study of the immune system by training at the Mayo Clinic in T cell signal transduction. She went on to apply her knowledge of toxicology and the immune system in the chemical and pharmaceutical industry, where her work has focused on the strategic aspects and the design of safety programs to support chemical product development and registration, as well as the clinical development and licensure for small molecules and biotherapeutics, including vaccines.

Over the course of her career, Dr. Burns Naas has worked to bring regulators and industry together to start a dialogue on the state-of-the-science and best practices to help develop a testing framework for developmental immunotoxicology and conduct risk assessments for pharmaceuticals. The impact she has made in moving this area forward cannot be overstated. Over the past two decades, Dr. Burns Naas has contributed to numerous drug registrations, either serving as the project toxicologist and lead regulatory submission author or providing strategic oversight for the development of the drugs and mentoring project toxicologists. In addition to these roles, she has contributed as a reviewer and editor of various regulatory dossiers, from initial first-in-human trials to registration and query responses. The list of drugs and potential new drugs to which she has contributed in one or more of these capacities is extensive.

Beyond her proprietary work in the chemical and pharmaceutical industry, Dr. Burns Naas has made significant contributions to the scientific literature and discourse through 50-plus publications, 23 book chapters, and many abstracts. She also serves as a member of the Editorial Boards of the *International Journal of Toxicology* and *Journal of Immunotoxicology* and was the Editor of two volumes (the immune system and the hematopoietic system) of *Comprehensive Toxicology, 3rd Edition* and of *Encyclopedic Reference of Immunotoxicology, 2nd Edition*. These accomplishments highlight her passion for ensuring that scientific insights of high quality are shared with the scientific community to help advance the field of toxicology. Her efforts in safety testing to support pharmaceutical development also have included active engagement in endeavors to promote the reduction, refinement, and replacement of animals in research.

In 2019, Dr. Burns Naas retired from the pharmaceutical industry and started her own consulting company, Magnolia Toxicology Consulting LLC, where she continues to contribute to the field. As an independent consultant, Dr. Burns Naas provides advice in the areas of nonclinical safety and strategic planning for drug development as well as technical due diligence for in-licensing business development opportunities.

Dr. Burns Naas has contributed her expertise to many scientific societies, including through service on the Boards of Directors of the American Board of Toxicology, the Academy of Toxicological Sciences, and the International Consortium for Innovation and Quality in Pharmaceutical Drug Development. She has been an SOT member since 1995 and has served on the Scientific Program Committee, Continuing Education Committee, and Endowment Fund Board. She also served as Secretary of the Society and President of the Immunotoxicology Specialty Section and is a Charter member of the Biotechnology Specialty Section. Dr. Burns Naas is the only individual ever to have served as President of both SOT and the American College of Toxicology.

Global Senior Scholar Exchange Program

The Global Senior Scholar Exchange Program (GSSEP) aims to increase the global impact of toxicology on human health and safety by working to strengthen toxicology programs and capacity at universities throughout the world. The SOT Global Senior Scholar Exchange Program provides funding support for senior-level scientists from countries recognized as part of the SOT Global Economy Support Programs to visit senior-level scientists with an established toxicology program to gain insight into toxicology research programs. The host senior scientist returns the visit to offer further advice and guidance to the supported toxicology program.



Scholar: **Chiagoziem Anariochi Otuechere, PhD**
Redeemer's University, Ede, Nigeria

Host: **Lili Tang, PhD**
University of Georgia, Athens, GA



Scholar: **Nisha A R, PhD**
College of Veterinary and Animal Sciences, Kerala, India

Hosts: **Bernard Gadagbui, PhD, DABT, ERT**
Michael Dourson, PhD, DABT, FATS, FSRA
Toxicology Excellence for Risk Assessment, Cincinnati, OH





Leading Edge in Basic Science Award

Urmila Kodavanti, PhD, DABT

US EPA/CPHEA, Research Triangle Park, NC

Leading Edge in Basic Science Award Lecture

Tuesday, March 29, 12:30 PM–1:30 PM

This award recognizes a scientist who, based on research, has made a recent (within the last five 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.

Urmila Kodavanti, PhD, DABT, has received the 2022 SOT Leading Edge in Basic Science Award for her novel, rigorous, and impactful research on the scientific understanding of how irritant air pollutants adversely affect human health.

Dr. Kodavanti received her PhD in pesticide toxicology from Maharaja Sayajirao University in India in 1983. She then conducted postdoctoral training at Michigan State University, the University of Mississippi Medical Center, and the US Environmental Protection Agency (US EPA), focusing in this final position on phosgene, ozone, and particulate matter toxicity in animal models. Dr. Kodavanti is currently a Senior Research Biologist in the US EPA Center for Public Health and Environmental Assessment. She also is a Faculty Affiliate at the University of North Carolina at Chapel Hill.

At the leading edge of the toxicology field, Dr. Kodavanti's research has provided not only a plausible new paradigm for multi-organ effects due to air pollutant exposure, but also a likely linkage of the effects among these organ systems. Dr. Kodavanti has delivered convincing, scientifically based evidence that this linkage involves metabolic and immune/inflammatory deregulation caused by pollutant-induced neuroendocrine stress. Chronic stress is well known to contribute to a variety of health conditions, including cardiovascular, diabetes, and aging. Dr. Kodavanti has now documented that short-term exposure to a prototypical pollutant, ozone, uses a similar stress response pathway involving the sympathetic adrenal medullary and hypothalamus-pituitary-adrenal axis, and the release of stress hormones that initiate or modulate pulmonary and systemic inflammation as well as metabolic homeostatic changes in rodents and humans.

In addition to this work, Dr. Kodavanti is leading cutting-edge research efforts to elucidate how adrenergic and glucocorticoid receptors are involved in homeostatic regulation of metabolic and immune processes, and how their dysregulation with air pollutant exposure might explain disease susceptibility. Her research also has provided new avenues to explore the cellular and molecular mechanisms responsible for systemic and organ-specific toxicology of ozone, particulate matter, and other criteria air pollutants. This will lead to more effective intervention strategies on a public and personal level to mitigate or prevent the devastating human health effects of increasing ambient air pollution generated by fossil fuel combustion, wildland fires, and climate change.

In addition to her research, Dr. Kodavanti is highly active in several editorial activities. She is a longtime Associate Editor for both *Inhalation Toxicology* and the *Journal of Toxicology and Environmental Health, Part B*, as well as serving on the Editorial Boards of four additional journals, among them *Toxicological Sciences*.

Dr. Kodavanti is a highly awarded scientist. In addition to six US EPA Scientific and Technological Achievement Awards for her publications since 2016, she has received several awards for best paper from SOT Specialty Sections, including the 2021 Molecular and Systems Biology Specialty Section Paper of the Year Award and the 2020 Inhalation and Respiratory Specialty Section Paper of the Year Award. Dr. Kodavanti has been an SOT member since 2002 and is a Past President of the Inhalation and Respiratory Specialty Section, which recognized her with the Inhalation and Respiratory Specialty Section Career Achievement Award in 2020.



Merit Award

Linda S. Birnbaum, PhD, DABT, ATS
NIEHS/NTP, Research Triangle Park, NC

Merit Award Lecture

Monday, March 28, 12:30 PM–1:30 PM

This award recognizes an SOT member who has made distinguished contributions to toxicology throughout an entire career in areas such as research, teaching, regulatory activities, consulting, and service to the Society.

Linda S. Birnbaum, PhD, DABT, ATS, has been awarded the 2022 SOT Merit Award in recognition of her distinguished career as a federal scientist and her outstanding contributions to the fields of toxicology and risk assessment for more than four decades.

Dr. Birnbaum received her PhD in microbiology from the University of Illinois in 1972, after which she did a Damon Runyon Cancer Foundation Postdoctoral Fellowship, taught at a small college, and did a National Institutes of Health National Research Service Award postdoctoral fellowship at the Masonic Medical Research Laboratory in Utica, New York. She began her 40-year federal career as a Senior Staff Fellow at the National Institute for Environmental Health Sciences (NIEHS), received tenure, and directed the Chemical Disposition Group. After 10 years at NIEHS and the National Toxicology Program (NTP), she moved to the US Environmental Protection Agency (US EPA) National Health and Environmental Effects Research Laboratory, where she directed the largest division focusing on environmental health research.

In 2009, Dr. Birnbaum began over a decade of service as the NIEHS Director, where she continued an active research program on the toxicokinetics and mode of action of legacy and emerging environmental toxicants and guided the institute and the NTP in the testing, research, and assessment of a variety of environmental chemicals. Dr. Birnbaum was the first woman, and the first toxicologist, to direct the NIEHS and the NTP. During her tenure as Director, Dr. Birnbaum oversaw a budget of approximately \$840 million dollars, began many innovative research and educational development programs aimed at promoting environmental and public health, and actively pursued her professional activities in advancing the toxicological sciences.

After retiring from her directorship in 2019, Dr. Birnbaum was granted Scientist Emeritus status and maintains a laboratory. She also is an Adjunct Professor in the Gillings School of Global Public Health, the Curriculum in Toxicology, and the Department of Environmental Sciences and Engineering at the University of North Carolina at Chapel Hill, as well as in the Integrated Toxicology and Environmental Health Program at Duke University, where she also is a Scholar in Residence. In addition to these roles, Dr. Birnbaum is an Adjunct Professor at Yale University and at the University of Queensland in Australia.

Dr. Birnbaum has a strong reputation, both nationally and internationally, as an advocate for advances in toxicology and risk assessment. An expert on persistent organic pollutants such as dioxins and PCBs, Dr. Birnbaum recognized the importance of addressing mixed exposures to congeners of these compounds. In a risk assessment community that had largely focused on individual chemicals, Dr. Birnbaum developed her research program around understanding the comparative toxicokinetics of these persistent compounds to understand the effects of an overall body burden. She used these data to better characterize doses in experimental systems compared with ubiquitous body burdens in humans. This work, coupled with an evolving appreciation of the molecular modes of action of these toxicants, has had a profound effect on how risk is perceived for these broad classes of compounds.

In addition to this work, Dr. Birnbaum was among the first to recognize an emerging environmental problem that represented a new class of potential endocrine disruptors, the brominated flame retardants (BFRs). Her research into the toxicokinetics and mechanisms of action of both historical and emerging BFRs continues to impact the understanding of this problem, and her work on windows of developmental sensitivity to these and other potential endocrine disruptors has changed the way risks are assessed for these chemicals and will undoubtedly lead to safer alternatives for these important commercial chemicals.

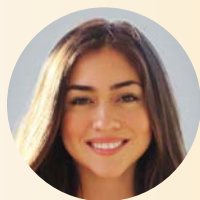
In addition to her professional roles, Dr. Birnbaum has made countless notable contributions to the scientific community at large. She has served as Vice President of the International Union of Toxicology, and her extraordinary publication record includes more than 1,000 peer-reviewed publications, book chapters, and reports. Dr. Birnbaum joined SOT in 1982 and helped establish several SOT Special Interest Groups, including Women in Toxicology, the Hispanic Organization of Toxicologists, Toxicologists of

African Origin, the Association of Scientists of Indian Origin, and the American Association of Chinese in Toxicology. She was the 2004–2005 SOT President, is a Past President of the North Carolina Regional Chapter, and is a Regional Chapter Honorary Lifetime member. She currently serves on the Endowment Fund Board.

Dr. Birnbaum has been honored with nearly 70 diverse awards, including the 2014 Surgeon General’s Medallion, the 2014 National Institutes of Health Director’s Award, and the 2016 North Carolina Award in Science. SOT awarded her the Distinguished Toxicology Scholar Award in 2017. She also has received Honorary doctorates from the University of Rochester, the University of Rhode Island, Ben-Gurion University in Israel, and Amity University in India, as well as an Alumni Achievement Award from the University of Illinois. In 2010, Dr. Birnbaum was elected to the Institute of Medicine of the National Academies and to the Collegium Ramazzini, an independent, international academy composed of renowned experts in the fields of occupational and environmental health.

Perry J. Gehring Diversity Student Travel Award Fund

Selected by the Committee on Diversity Initiatives and named after an SOT Past President, this award recognizes an undergraduate or graduate student who was previously selected to participate in the SOT Undergraduate Diversity Program, who is from a racial/ethnic group underrepresented in toxicology (for example, African American, Hispanic, Native American, or Pacific Islander), and who is presenting a poster at the SOT Annual Meeting and ToxExpo.



Midori R. Flores

St. Mary’s University, San Antonio, TX

ABSTRACT TITLE: Space Toxicology: An Emerging Environmental Health Field

SOT/SOT Endowment Fund/IUTOX Travel Awards

These travel fellowships, administered by IUTOX and sponsored by SOT and the SOT Endowment Fund, are awarded to junior and senior scientists from countries where toxicology is underrepresented to assist with travel to attend the SOT Annual Meeting and ToxExpo.



Rozaini Abdullah, PhD
Universiti Putra Malaysia, Serdang, Malaysia



Rungnapa Boonpawa, PhD
Kasetsart University, Muang District, Thailand



Sapana Kushwaha, PhD
Babasaheb Bhimrao Ambedkar University, Lucknow, India



Janet Olugbodi, PhD
Bingham University, Karu, Nigeria

SOT Undergraduate Research Awards

These awards recognize outstanding undergraduates who have not yet received their bachelor's degrees and are presenting research at the SOT Annual Meeting and ToxExpo. The goal of these awards is to foster interest in graduate studies in the field of toxicology.



Elizabeth Ampolini, North Carolina State University, Raleigh, NC

INSTITUTION WHERE RESEARCH WAS CONDUCTED:

Medical University of South Carolina, Charleston, SC

ABSTRACT TITLE: Polyploidy Confers Protection from Chemotherapy Drug Toxicity in *Caenorhabditis elegans*

Helena C. Eby, Bloomsburg University of Pennsylvania, Bloomsburg, PA

ABSTRACT TITLE: Evaluating the Anti-Proliferative Effects of a PPAR β/δ Ligand Isosteric Selenium Replacement in a Human Melanoma Cell Line



Eileen L. Huang, Case Western Reserve University, Cleveland, OH

INSTITUTION WHERE RESEARCH WAS CONDUCTED:

University of Kansas Medical Center, Kansas City, KS

ABSTRACT TITLE: The Mechanism of Immune Cell Clearance during the Resolution Phase of Acetaminophen-Induced Liver Injury in Mice



Paul J. Kamitsuka, Oberlin College, Oberlin, OH

ABSTRACT TITLE: Huntingtin and Vanadium Cooperatively Induce Mitochondrial Dysfunction and Inhibit Compensatory Neuroprotective Mechanisms in a Striatal Cell Model



Kaiden M. Lee, College of Idaho, Caldwell, ID

ABSTRACT TITLE: JUUL E-liquids' Impact on Human Osteoblast-Like Cells: Unmineralized and Mineralized Bone Markers



Aakriti Mathur, Johns Hopkins University, Baltimore, MD

INSTITUTION WHERE RESEARCH WAS CONDUCTED:

US FDA/NCTR, Jefferson, AK

ABSTRACT TITLE: Effects of Arsenic Exposure on Host Susceptibility to Bacterial Infection





Jadesola I. Oladosu, North Carolina Central University, Durham, NC

INSTITUTION WHERE RESEARCH WAS CONDUCTED:
NIEHS, Research Triangle Park, NC

ABSTRACT TITLE: Characterizing Environmental Mixtures and Their
Contribution to Breast Cancer Risk: State of the Evidence

Kevin Ozkuyumcu, Rutgers, The State University of New Jersey,
Piscataway, NJ

ABSTRACT TITLE: Sulfur Mustard Vapor Alters Epidermal Growth and
Differentiation in Göttingen Minipig Skin



Zayna Qaissi, University of Louisville, Louisville, KY

ABSTRACT TITLE: Evaluation of Sex-Dependent Effects Caused by
Polychlorinated Biphenyl Exposures on Cancer Endpoints Using
an 'Omics Approach

Jarett Reyes, Rutgers, The State University of New Jersey, Piscataway, NJ

ABSTRACT TITLE: Ti Deposition in Fetal Tissue Evaluated against Uterine
Position and Fetal Sex after Maternal Inhalation of Nano-TiO₂
during Pregnancy



Francesca Rossi, Oregon State University, Corvallis, OR

ABSTRACT TITLE: Association of Ergot Alkaloid Profiles with Insect
Tolerance in Grass Cultivars

Anna Clare Sparling, Duke University, Durham, NC

ABSTRACT TITLE: Sex Differences in Mitochondrial Function and
Susceptibility to Mitochondrial Toxicants in *C. elegans*





Tingying Xie, Rutgers, The State University of New Jersey, Piscataway, NJ

ABSTRACT TITLE: Novel Keap1-Nrf2 Direct Inhibitors Reduce Estrogen-Induced Effects in Estrogen Receptor-Positive Breast Cancer

Yifan Yu, Washington University in St. Louis, St. Louis, MO

INSTITUTION WHERE RESEARCH WAS CONDUCTED:
University of Kansas Medical Center, Kansas City, KS

ABSTRACT TITLE: RNA-Binding Protein HuR Protects Mice against Western Diet-Induced Hepatic Steatosis, Inflammation, and Fibrosis



Toxicological Sciences Paper of the Year Award

Selected by the SOT Board of Publications, this award recognizes the author(s) of a paper published in the official SOT journal, Toxicological Sciences, during the 12-month period terminating with the June issue of the calendar year preceding the Annual Meeting at which the award is presented.



Andrea Rowan-Carroll, Anthony Reardon, Karen Leingartner, Remi Gagné, Andrew Williams, Matthew J. Meier, Byron Kuo, Julie Bourdon-Lacombe, Ivy Moffat, Richard Carrier, Andy Nong, Luigi Lorusso, Stephen S. Ferguson, Ella Atlas, and Carole Yauk. High-Throughput Transcriptomic Analysis of Human Primary Hepatocyte Spheroids Exposed to Per- and Polyfluoroalkyl Substances as a Platform for Relative Potency Characterization. 2021. *Toxicological Sciences* 181, no. 2 (June): 199–214. [View abstract.](#)

Per- and poly-fluoroalkyl substances (PFAS) are industrial pollutants ubiquitously distributed that persist in the environment. Their persistence has engendered the term “forever chemicals.” PFAS exposure has been linked to a variety of adverse health effects. In particular, steatosis results in mice exposed to various PFAS. However, little is known about the toxicities of many members of this large class of chemicals. Rowan-Carroll and colleagues used high-throughput transcriptomics in a primary human liver spheroid model exposed to four proto-typic PFAS in dose- and time-response experiments to establish a streamlined system to establish baseline transcriptomic profiles and an analytical pipeline for screening data-poor PFAS. The transcriptomic analyses were able to identify both similarities and dissimilarities in responses to the four PFAS, allowing for comparisons of toxicity and potency. A common feature in functional analyses of the differentially expressed genes was that PPARα was predicted to be “activated” upstream across all the PFAS and time points. These data serve as a foundational dataset for comparison of additional data-poor PFAS and for developing approaches in this human liver cell model in future studies. This well-written manuscript has made a significant positive impact to the field of toxicology. The Board of Publications proudly confers the Paper of the Year Award to Dr. Rowan-Carroll and the entire research team.



Toxicologist Mentoring Award

John P. Wise Sr., PhD

University of Louisville School of Medicine, Louisville, KY

This award recognizes an SOT member who has displayed a commitment to mentoring and whose advice and counsel have substantially enhanced the career development of toxicologists.

John P. Wise Sr., PhD, has been awarded the 2022 SOT Toxicologist Mentoring Award for his exemplary mentorship of the next generation of toxicologists at the undergraduate, graduate, and postdoctoral level.

Dr. Wise received his PhD in pharmacology from George Washington University, after which he conducted his postdoctoral training in molecular epidemiology at the National Cancer Institute. He then joined Jonathan Borak & Company Inc. as a Senior Toxicologist in occupational health and risk assessment.

Dr. Wise has taught classes for 24 years, most recently serving as Professor of pharmacology and toxicology at the University of Louisville School of Medicine. A Distinguished University Scholar, Dr. Wise also is the Director of the Center for Environmental and Occupational Health; Deputy Director of the Center for Integrated Environmental Health Sciences; and multi-PI of the Environmental Health Sciences Training Program.

As head of the Wise Laboratory of Environmental and Genetic Toxicology, Dr. Wise leads a team of faculty, staff, and students who conduct state-of-the-art research aimed at understanding how environmental toxicants affect health and cause cancer. He directs a strong toxicology research program focused on cellular and molecular mechanisms in cancer biology that includes human and wildlife studies.

Dr. Wise has mentored more than 250 individuals in biomedical and environmental health research at various levels, including faculty; postdoctoral fellows; and graduate, undergraduate, and high school students. His mentees represent a spectrum of backgrounds, and individuals from over 30 different countries have trained with him. With these students, Dr. Wise has published 140 peer-reviewed manuscripts and over 500 abstracts at national and international scientific meetings, with another 200 abstracts at the university's student research days.

Outside the lab, Dr. Wise conducts outreach in K–12 schools and lifelong learning programs attended by retirees. He also serves as an active mentor for the National Institutes of Health–funded Toxicology Mentoring and Skills Development Training Program, designed to build a pathway for undergraduates from underrepresented populations to enter graduate school and the toxicology workforce.

Dr. Wise's mentees have enjoyed exceptional personal and professional success while working with him, receiving many local, national, and international awards and grants. They have advanced to successful careers in academia, government, industry, and nongovernmental organizations, reflecting Dr. Wise's skill in mentoring across fields. In 2021, the student body of the University of Louisville selected Dr. Wise as a Student Champion to recognize his mentoring excellence and the School of Medicine honored him with its Career Achievement in Education award.

Dr. Wise's commitment to mentorship and leadership extends also to his service to SOT, of which he has been a member since 1995. For many years, Dr. Wise served on the SOT K–12 Subcommittee, helping to run the *Paracelsus* program that brought K–12 teachers to the SOT Annual Meeting to introduce them to toxicology. He also is a Past President of the Northeast Regional Chapter and the Metals Specialty Section, which awarded him its Career Achievement Award. Reflecting his commitment to effective communication, Dr. Wise was among the first recipients of the SOT Science Communication Training Award. Dr. Wise's trainees are well represented during the SOT Annual Meeting, where he also regularly chairs Scientific Sessions.



Translational Impact Award

Tomás R. Guilarte, PhD

Florida International University
Robert Stempel College of Public Health & Social Work, Miami, FL

Translational Impact Award Lecture

Tuesday, March 29, 3:00 PM–4:00 PM

This award recognizes a scientist whose recent (within the last 10 years) outstanding clinical, environmental health, or translational research has improved human and/or public health in an area of toxicological concern.

Tomás R. Guilarte, PhD, has received the 2022 SOT Translational Impact Award in recognition of his translational work involving the role of the translocator protein 18 kDa (TSPO) as a biomarker of neuroinflammation and brain injury caused by neurotoxicants and for his study of neurodegenerative disorders.

Dr. Guilarte received his PhD in environmental health sciences from the Johns Hopkins University Bloomberg School of Public Health in 1980, after which he began a career in academia as a Professor at Johns Hopkins University and Columbia University. At Columbia University, he was the inaugural Leon Hess Endowed Chair and Professor in the Department of Environmental Health Sciences at the Mailman School of Public Health. He currently serves as Dean of the Robert Stempel College of Public Health & Social Work at Florida International University, where he also is a Professor and Director of the Brain, Behavior, and the Environment Emerging Preeminent Program.

Dr. Guilarte's research explores the impact of environmental pollutants on neurodevelopmental disorders and neurodegenerative diseases. His work uses behavioral, cellular, and molecular approaches ranging from studies using primary culture of brain cells to the application of brain imaging technologies. He has made seminal discoveries in the molecular and cellular mechanism(s) of heavy metal-induced neurological dysfunction, focusing primarily on lead and manganese. His laboratory has made groundbreaking findings on the molecular and cellular mechanisms of lead intoxication on the developing brain mediated via inhibition of the NMDA receptor, an excitatory amino acid receptor subtype. This led to a new understanding of how childhood lead exposure impairs synaptic plasticity in the form of long-term potentiation and cognitive function.

In addition, Dr. Guilarte's laboratory pioneered the validation and application of a biomarker of brain injury and neuroinflammation called TSPO. Using many animal models of neurological disease, Dr. Guilarte showed that TSPO was an early biomarker of neuroinflammation and neurodegeneration that was upregulated well before any manifestation of behavioral dysfunction. His work has demonstrated the utility of TSPO as an imaging biomarker of neurotoxicity in the brain, including through studies with exposures to trimethyltin, domoic acid, MPTP, and others.

After conducting studies in nonhuman primates that showed that TSPO was elevated in the frontal cortex gray and white matter of macaques infected with HIV encephalitis, Dr. Guilarte, with colleagues at the Johns Hopkins Medical Institutions, began research with TSPO as a biomarker of neuroinflammation in National Football League players using Positron Emission Tomography. This work showed an early and lasting elevation in neuroinflammation as measured by TSPO. In terms of mechanism(s) research on the use of TSPO, his research showed that TSPO may be linked to neuroinflammation through an association with NADPH oxidase in microglia.

Dr. Guilarte is a highly decorated scientist. He was inducted into the prestigious Johns Hopkins University Society of Scholars in 2018 and into the Academy of Science, Engineering, and Medicine of Florida in 2020. He also was selected by NBC News as a Top 20 Latino Making a Difference in the United States in 2019 and was honored by Congresswoman Debbie Mucarsell-Powell of Florida's 26th district as a Hispanic leading educator making a difference. In addition, Dr. Guilarte received the 2018 SOT Hispanic Organization of Toxicologists Distinguished Toxicologist Award and the 2020 SOT Metals Specialty Section Career Achievement Award, as well as a 2020 Florida International University Top Scholar Award.

Dr. Guilarte is extremely active in the larger scientific community. He joined SOT in 1995 and is a Past President of the SOT Neurotoxicology Specialty Section. He also is a longtime member of the American Association for the Advancement of Science, the Society for Neuroscience, and the International Neurotoxicology Association. He has served as a peer reviewer for more than 70 scientific journals and has published more than 50 peer-reviewed articles in the last 10 years alone, and his work has received nearly 13,000 citations.



Undergraduate Educator Award

Kristine Willett, PhD

University of Mississippi, University, MS



This award, sponsored by the SOT Endowment, recognizes an SOT member who is distinguished by outstanding contributions to the teaching of undergraduate students in toxicology and toxicology-related areas and whose efforts support the Society's strategic efforts to "build for the future of toxicology."

Kristine Willett, PhD, has been awarded the 2022 SOT Undergraduate Educator Award in recognition of her exemplary undergraduate teaching contributions and her support of undergraduate educators—both in her classroom and in the greater scientific community.

Dr. Willett received her PhD in toxicology in 1997 and conducted postdoctoral fellowships at Indiana University and Duke University. She then joined the University of Mississippi School of Pharmacy, where she now serves as Chair of the Department of Biomolecular Sciences and as a Professor of pharmacology and environmental toxicology.

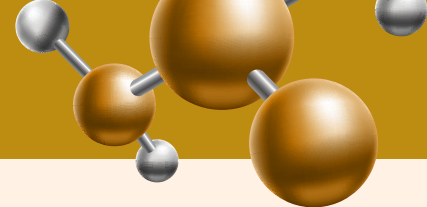
Since joining the University of Mississippi in 2000, Dr. Willett has been the instructor of record for all undergraduate toxicology courses, developing and subsequently updating the undergraduate Introduction to Toxicology and Introduction to Environmental Toxicology curricula. In the past five years alone, Dr. Willett has taught more than 200 undergraduate students.

A tenured professor, Dr. Willett also has taught for many years in the Sally McDonnell Barksdale Honors College, including presenting a conversations class in environmental health and a new experiential learning course on drinking water access and safety. Highly regarded among her colleagues, Dr. Willett has been recognized in the University of Mississippi School of Pharmacy with the Instructional Innovation Award and was a Distinguished Teaching Scholar. The university also recognized her with the Faculty Achievement Award.

Dr. Willett's mentorship of the diverse undergraduates who have worked in her laboratory is equally impactful to her classroom activities. She has hosted research experiences for 65 high school and undergraduate students, exposing them to her federally funded research, and has mentored 56 undergraduate students. Undergraduates are part of all Dr. Willett's research projects with specific funding for undergraduate research from multiple mechanisms, and she has received two National Institutes of Health supplements—totaling more than \$97,000—for summer research experiences for undergraduate students.

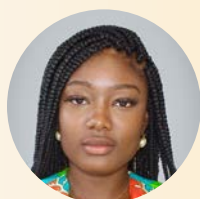
Dr. Willett's excellence as an undergraduate educator also is exemplified through the caliber of her students, who have received both scientific meeting travel awards and presentation awards and are co-authors of several of Dr. Willett's publications. Many of Dr. Willett's students have gone on to medical and pharmacy schools, and others are continuing their careers in toxicology and forensic toxicology.

An SOT member since 2001, Dr. Willett has been a champion for undergraduate educators within the Society, including through her service as a member of both the Undergraduate Education Resources Task Force and the Faculty United for Toxicology Undergraduate Recruitment and Education (FUTURE) Committee. In addition to these appointments, Dr. Willett served as Co-Chair of the Undergraduate Education Subcommittee. In her roles within SOT, Dr. Willett contributed to publicly available education resources, including a series of Undergraduate Educator Network webinars and the Eminent Toxicologist Lecture Series, strengthening the Society's impact in undergraduate education. In addition to this service, Dr. Willett is a Past President of the South Central Regional Chapter and Molecular and Systems Biology Specialty Section, is a member of the SOT Membership Committee, and is an inaugural Deputy Editor of *Toxicological Sciences*.



Bristol Myers Squibb Graduate Student Research Training Award to Promote Diversity in Toxicology

This fellowship supplements the resources available to academic laboratories hosting and supporting Black/African American, Hispanic/Latino, and Indigenous American graduate students to conduct their research and training.



Aggie Williams, BA, University of Louisville, Louisville, KY

PROJECT TITLE: Particulate Hexavalent Chromium Exposure Suppresses BCDX2 Complex Response in Human Lung Cells

Colgate-Palmolive Grants for Alternative Research

This grant identifies and supports efforts that promote, develop, refine, or validate scientifically acceptable animal alternative methods to facilitate the safety assessment of new chemicals and formulations.



Anna Maria Cariboni, PhD, Università degli Studi di Milano Statale, Milan, Italy

PROJECT TITLE: Exploring the Impact of Nanoplastics on Sexual Reproduction by Applying Tailored *In Vitro* Models of Developing and Maturing GnRH Neurons

Almudena Veiga-Lopez, DMV, PhD, University of Illinois at Chicago, Chicago, IL

PROJECT TITLE: Novel 3-Dimensional Hepatic-Placental Tandem Organ-on-a-Chip: A Platform to Study Drug Effects during Gestational Hypoxia



Colgate-Palmolive Postdoctoral Fellowship Award in *In Vitro* Toxicology

This award supports research to advance the development of alternatives to animal testing in toxicological research.



Itzy Morales Pantoja, PhD, Johns Hopkins University Center
for Alternatives to Animal Testing (CAAT), Baltimore, MD

PROJECT TITLE: *In Vitro* Microfluidic-3D MEA System to Enable
Higher Biocomplexity of Human Brain Organoid Model for the Study
of Neurodegeneration

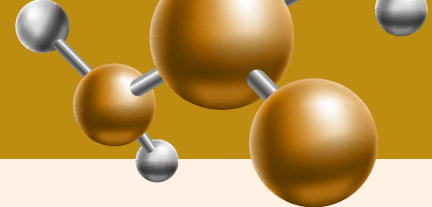
Syngenta Fellowship Award in Human Health Applications of New Technologies

This award, presented to either a third-year (or later) graduate student or a postdoctoral trainee, supports mode-of-action research aimed at characterizing dose-dependent effects of xenobiotics on mammalian systems in such a way that the causal sequence of key events underlying toxicity is elucidated.



Elena Kozlova, AS, BS, University of California Riverside, Riverside, CA

PROJECT TITLE: Maternal Transfer of Oxytocin and Thyroid-Disrupting Indoor
Flame Retardants Affecting Offspring Social Brain



Yves Alarie Scholarship Fund



Shagun Krishna, PhD
NIEHS/NTP

Mary Amdur Student Award Fund



Eva Vitucci, BS
University of North Carolina
at Chapel Hill

Andersen/Clewell Trainee Award Fund



Md Mahbubul Huq Riad, PhD
Kansas State University

Celebrating Women in Toxicology Award Fund



Tanvi Banota, BA
Rutgers, The State University
of New Jersey



Rebekah Petroff, PhD
University of Michigan

Danielle Kozlosky, BS
Rutgers, The State University
of New Jersey



Lauren Walker, PhD
Rutgers, The State University
of New Jersey



Young Soo Choi Student Scholarship Award Fund



Rebecca Kim, BS
New York University

Laxman S. Desai Association of Scientists of Indian Origin Student Award Fund



Itishree Kaushik, MS
Texas Tech University Health
Sciences Center



Ashwini Sri Hari, MEng
University of California San Diego
Skaggs School of Pharmacy and
Pharmaceutical Sciences

Isha Mhatre, MS
Florida International University



John Doull Student Award Fund



Long Yuan, PhD
University of Florida

Environmental Carcinogenesis Research Fellowship Fund



Idoia Meaza, MS
University of Louisville

Founders Award (for Outstanding Leadership in Toxicology)



Michael Gallo, PhD, ATS, DABT
Rutgers Robert Wood Johnson
Medical School

Bruce A. Fowler Metals Endowment Fund



Matthew Gribble, PhD, DABT
Emory University

Donald E. Gardner Inhalation Toxicology Education Award Fund



Keith Rogers, BS
University of North Carolina

Perry J. Gehring Biological Modeling Student Award Fund



David Filipovic, MSc
Michigan State University

Perry J. Gehring Diversity Student Travel Award Fund



Alexandra Svetlik, BS
King University

Perry J. Gehring Risk Assessment Student Award Fund



Katie O'Shaughnessy, PhD
US EPA



Brianna Rivera, BS
Oregon State University

Health and Environmental Science Institute Immunotoxicology Young Investigator Student Award Fund



Carmen Lau, DVM
Texas A&M University

The Legacy Travel Award



Kiesha Wilson, PhD
University of South Carolina
School of Medicine

Frank C. Lu Food Safety Student Award Fund



**Lichchavi
Rajasinghe, PhD**
Michigan State University



Chittaranjan Sahu, MS
National Institute of
Pharmaceutical Education and
Research (NIPER) S.A.S. Nagar

Jean Lu Student Scholarship Award Fund



Shengjie Xu, BS
Rutgers, The State University
of New Jersey

Roger O. McClellan Student Award Fund



**Andressa Varella
Gonsioroski, DMV**
University of Illinois
at Urbana-Champaign

Harihara Mehendale Association of Scientists of Indian Origin Student Award Fund



Tarana Arman, MS
Washington State University



Shivani Singla, PhD
National Institute of
Pharmaceutical Education and
Research (NIPER) S.A.S. Nagar

Rizwana Begum, MS
Southern University
and A&M College



Shilpa Thota, MSc
Southern University
and A&M College



Chittaranjan Sahu, MS
National Institute of
Pharmaceutical Education and
Research (NIPER) S.A.S. Nagar

Metals Specialty Section Student Research Award Fund



Heng Bai, MPH
University of Pittsburgh



**Abhishek
Venkatratnam, PhD**
University of North Carolina

Alexander Rodichkin, BSc
Florida International University



Xian Wu, PhD
NIEHS/NTP



Jennifer Toyoda, MS
University of Louisville



Jamie Young, PhD
University of Louisville

Molecular and Systems Biology Student Award Fund



Lillie Marie Barnett, BS, BA
University of Georgia



Eva Vitucci, BS
University of North Carolina
at Chapel Hill

Madelyn Huang, PhD
NIEHS/NTP



Kathryn Wierenga, BS
Michigan State University



Tasha Thong, MS
University of Michigan

Sheldon D. Murphy Memorial Fund



Minhong Huang, MSc
Iowa State University



Lok Ming Tam, PhD
University of
California Riverside

Yining Jin, PhD
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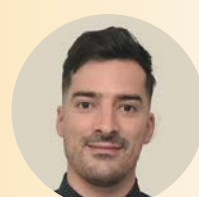


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