



Women in Toxicology

SPECIAL INTEREST GROUP

Mentoring • Visibility • Leadership • Education

President's Message

Dear WIT Members,

As spring approaches, I am pleased to share our Spring Newsletter, which includes valuable information related to the upcoming SOT Annual Meeting. I hope you find it informative and useful.

It has been a privilege to be the WIT President for the 2025–2026 cycle. I have been blessed with a fabulous and hard working executive committee (EC) team who has been working nonstop and around the clock to make sure that 10 proposal sessions have been reviewed, endorsed and selected (led by Jamie DeWitt), 5 SOT award nomination applications have been vetted, and critically reviewed (led by Jamie DeWitt and Mindy Reynolds), 45 WIT award applications have been reviewed and winners selected (led by Liz Vancza and Lauren Walker), 2 newsletters have been drafted (Led by Andrea Kim and Chenghui Jiang), new EC members have been nominated and elected (Led by Toufan Parman). Our Postdoctoral Rep, Madalina Ursu, has made sure that our WIT Website and WIT LinkedIn are up to date with all of our exciting WIT activities. We could not have done any of these WIT activities without the support of our wonderful new and returning member volunteers. Please accept our heartfelt gratitude for your contributions and leadership.



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President's Message, cont.

I look forward to celebrating our community at the **WIT Reception on Wednesday March 25 from 4:30 PM–6:30 PM PST in the Marriott Grand Ballroom 8 at the Marriott Marquis San Diego Marina**. At the reception, we will be celebrating our WIT Award winners, our WIT members who have been elected to SOT council, and our incoming and outgoing WIT EC. I hope you will join us in honoring these individuals.

We will also recognize our generous sponsors, whose support is essential to sustaining WIT programs and events. Our annual expenses are approximately \$30,000, with the reception accounting for the majority of these costs. Membership dues alone do not fully cover these expenses. This year, our fundraising goals are to raise \$25,000 for WIT operations and to secure \$10,000 toward establishing a LEAP Award endowment. I encourage you to consider donating, particularly if your employer offers donation matching.

This year, in lieu of our traditional Career Panel, we are partnering with CAMAN Networking Event, officially titled **NetworX Night on Monday March 23 from 7:30–9:00 PM PST at the Marriott Grand Ballroom 4 at the Marriott Marquis Marina**. This is the perfect place to expand your professional network and CAMAN has partnered with 30+ component groups, including WIT, to host a joint networking event early in the meeting. This speed-networking opportunity is for trainees to meet diverse professionals in toxicology, increase networks, and explore career paths and career-change options. Table hosts nominated by component groups will represent different career sectors (e.g., academic, industry, government, consulting). Registration is limited and available on a first-come, first-served basis, so sign up early!

Over the past year, WIT sponsored four outstanding webinars in collaboration with several specialty sections:

WIT – Carcinogenesis Specialty Section: Rethinking Chemical Carcinogenicity Assessment in the Context of **NAMs:** Current Frameworks, State of the Science, and New Horizons

WIT – Out Toxicologists and Allies: Dissecting Sex and Gender in Toxicology

WIT – Association of Scientists of Indian Origin; *In Vitro* and Alternative Methods Specialty Section: NAMs in Toxicology: Current Insights and Future Horizons

WIT – Drug Discovery Toxicology Specialty Section: Protein Degraders (Parts 1 and 2)

These webinars as well as many of our past webinars are recorded and available on [our webpage](#).

WIT's success depends on the continued engagement of our volunteers. Please consider completing the [volunteer survey](#) to indicate your interest in supporting WIT activities and committees for the 2026–2027 year. Before closing, I want to express our support for colleagues in government and academia who are facing significant challenges due to budget constraints. The WIT Executive Committee remains committed to supporting our community during these difficult times, particularly in areas of education and diversity, equality, inclusion, and accessibility.

Thank you again for the opportunity to serve as your President. I look forward to seeing many of you in San Diego and wish you safe travels

With best regards,

Doris Zane, PhD, DABT

2025–2026 WIT President



2026–2027 Executive Committee and Election Results



Dr. Jennifer Rayner
VP-Elect

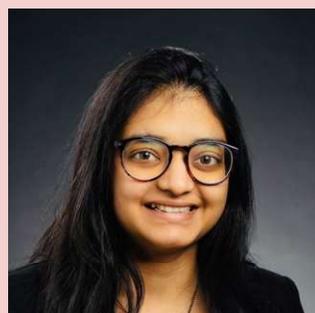
We are excited to announce the newly elected Women In Toxicology (WIT) Executive Committee members for the 2026–2027 term. Please join us in congratulating the following individuals as they step into their new roles in support of our WIT community.

Dr. Jennifer L. Rayner is a Principal Toxicologist at SRC Inc., leading cross-disciplinary teams to develop hazard and risk assessments when little or no experimental toxicology data are available. She earned her PhD in Environmental Sciences and Engineering from the University of North Carolina at Chapel Hill and is DABT certified. A long-time Society of Toxicology volunteer, she is passionate about mentoring and giving back through service.



Dr. Andrea Rodrigues
Secretary / Treasurer

Dr. Andrea Rodrigues is a seasoned toxicologist (PhD, DABT) with more than 17 years of active involvement in the Society of Toxicology. She is a Senior Principal Research Scientist in Preclinical Safety at AbbVie, serving as a toxicology program lead for drug development teams specializing in ophthalmology and local drug delivery. Within SOT, she has held multiple leadership roles (including Past President and Councilor for the Ocular Toxicology Specialty Section) and is dedicated to mentorship and member engagement.



Dr. Mili Bhakta-Yadav
Junior Councilor

Dr. Mili Bhakta-Yadav is a Study Director II in Toxicology at Labcorp, overseeing nonclinical studies that inform the safety of pharmaceuticals and environmental compounds. She earned a PhD in Biomedical Sciences from Wright State University, where she studied how environmental contaminants affect immune and reproductive health. She is an engaged SOT and WIT volunteer and aims to expand mentorship and professional growth opportunities for early career scientists.



Dr. Rebecca Willson
Postdoc Representative

Dr. Rebecca J. Willson is a postdoctoral researcher at the University of California, Davis, studying how developmental exposure to environmental toxins (including PCBs) can disrupt neurodevelopment using behavioral, cellular, and molecular approaches. She completed her PhD in Neuroscience at UC Davis and has held multiple representative and leadership roles supporting mentorship, DEI efforts, and professional development. She is excited to serve as WIT's postdoctoral representative to foster mentorship, collaboration, and visibility across career stages.



2026–2027 Executive Committee and Election Results



Megan Hager
Graduate Student Representative

Megan Hager is a Toxicology PhD student in the laboratory of Dr. Ronald Tjalkens at Colorado State University, investigating glial-mediated inflammation and innate immune modulation following diverse environmental toxicant exposures in the context of age-related neurodegeneration. Her work leverages automated robotic staining, high-content fluorescence microscopy, and deep learning-based image analysis. She has been active within SOT and WIT (including the WIT newsletter committee) and looks forward to contributing further as the graduate student representative.

Thank you to everyone who participated in the election process and for your continued engagement with WIT.

Toufan Parman
WIT Past President
Chair, Election Committee

In the Know

Details for SOT 2026

SOT 2026 will be held in coastal **San Diego, California!** Get ready for four days filled with engaging scientific talks, posters, and exhibits covering numerous interests in the field. Be sure to plan time to catch up with old colleagues and forge new connections. The entire WIT EC can't wait to see you there! Check out our helpful guide of WIT endorsed activities on the following pages!

When: Sunday, March 22, 2026, to Wednesday, March 25, 2026

Where: San Diego Convention Center, 111 W. Harbor Drive, San Diego, CA 92101

Click [here](#) to register online.

Click [here](#) to download the full program.

See the following pages for highlighted WIT sponsored Continuing Education Courses, Symposia, Workshops, Informational Sessions, and Engagement Sessions during SOT 2026!





In the Know

Details for SOT 2026

INFORMATIONAL SESSIONS

WIT ENDORSED & SPONSORED

Understanding the GRAS Loophole: History, Science, and Legal Challenges

Date	Time	Room	Primary Sponsor	Secondary Sponsor(s)
Tuesday, March 24	1:00 PM–2:30 PM	8	Food Safety Specialty Section	Regulatory and Safety Evaluation Specialty Section; WIT

WORKSHOP SESSIONS

WIT ENDORSED & SPONSORED

Cancer Risk from Womb to Progeny Generations: Windows of Susceptibility and the Multigenerational Legacy of Environmental Exposures

Date	Time	Room	Primary Sponsor	Secondary Sponsor(s)
Monday, March 23	9:15 AM–12:00 PM	7B	Reproductive and Developmental Toxicology Specialty Section	Carcinogenesis Specialty Section; WIT



In the Know

Details for SOT 2026

Continuing Education Courses

WIT ENDORSED & SPONSORED

Biotherapeutics Impurities: Current Practices in Risk Assessment and Analytical Evaluation

Date	Time	Room	Primary Sponsor	Secondary Sponsor(s)
Sunday, March 22	8:15 AM–12:00 PM	Ballroom 6D	Biotechnology Specialty Section	Association of Scientists of Indian Origin Special Interest Group; WIT

Rethinking Carcinogenicity Assays in the 21st Century: Testing a Functionality Framework

Date	Time	Room	Primary Sponsor	Secondary Sponsor(s)
Sunday, March 22	1:15 PM–5:00 PM	Ballroom 6E	Carcinogenesis Specialty Section	Regulatory and Safety Evaluation Specialty Section; WIT

Evolution of OECD GL 497; Integration of NAMs for Skin Sensitisation Hazard and Point of Departure for Application in Risk Assessment

Date	Time	Room	Primary Sponsor	Secondary Sponsor(s)
Sunday, March 22	1:15 PM–5:00 PM	Ballroom 6C	In Vitro and Alternative Methods Specialty Section	Risk Assessment Specialty Section; WIT



In the Know

Details for SOT 2026

SYMPOSIUM SESSIONS

WIT IS THE PRIMARY SPONSOR OF THE FOLLOWING EVENTS. PLEASE JOIN US!

Milk Matters: Assessing Breast Milk Through an Environmental Health Perspective

Date	Time	Room	Primary Sponsor	Secondary Sponsor(s)
Tuesday, March 24	8:00 AM–9:30 AM	Ballroom 6E	WIT	Clinical and Translational Toxicology Specialty Section; Exposure Specialty Section

Toward Sex-Differences Research in Toxicology: New Approach Methodologies for Assessing Sex as a Biological Variable

Date	Time	Room	Primary Sponsor	Secondary Sponsor(s)
Wednesday, March 25	1:30 PM–4:15 PM	1B	WIT	In Vitro and Alternative Methods Specialty Section; Molecular and Systems Biology Specialty Section



In the Know

Details for SOT 2026

Symposium sessions

WIT ENDORSED & SPONSORED

Current Nonclinical Approaches in Characterizing Local Tolerability with Long-Acting Injectable Therapies

Date	Time	Room	Primary Sponsor	Secondary Sponsor(s)
Tuesday, March 24	1:00 PM–2:30 PM	Ballroom 6F	Comparative Toxicology, Pathology, and Veterinary Specialty Section	WIT

Human Health Risk Assessments of Biopesticides: Evaluating Safety for Agricultural Use

Date	Time	Room	Primary Sponsor	Secondary Sponsor(s)
Wednesday, March 25	1:30 PM–4:15 PM	Ballroom 6F	Risk Assessment Specialty Section	Regulatory and Safety Evaluation Specialty Section; WIT

New Frontiers in Reproductive Toxicology: Emerging Contaminants and Novel Mechanisms of Toxicity

Date	Time	Room	Primary Sponsor	Secondary Sponsor(s)
Wednesday, March 25	8:00 AM–10:45 AM	1B	Reproductive and Developmental Toxicology Specialty Section	Exposure Specialty Section; WIT



WIT Sponsorship

Thank you for your continued support and commitment to the growth and success of WIT. For questions, please contact the SOT at SOTHQ@toxicology.org

SOT Women in Toxicology (WIT) has become a vibrant community, actively engaging members through a variety of enriching activities and events. One of the highlights has been the recognition of our members' professional accomplishments through various awards that inspire and motivate our community. However, the success of these initiatives relies heavily on the generous support of our members. To continue fostering excellence and providing valuable opportunities, WIT needs funding. We are reaching out for your generous donation to help sustain and expand our programs. **Donate here!**

WIT Mission	WIT Mission-Related Activity	Amount to Raise
Leadership	Annual Reception (Food, Drinks, A/V and Tech Support), Webinars, award plaques, printing	Up to \$25,000
Mentoring	WIT mentoring activity and award: Career Panel at Annual Meeting, Mentoring Webinars, Mentoring Award	Up to \$8,000
Visibility	WIT Awards: Postdoctoral Fellow Achievement Award, Outstanding Young Investigator Award, Smith and Hook Achievement Award, Best Manuscript Award	Up to \$4,000
Education	WIT Training Award: Leap Award, Educational Webinars	Up to \$6,000



We have outlined various sponsorship levels and the corresponding acknowledgments in the table below. Any level of support will make a significant impact and is greatly appreciated.

Contribution Level	Amount	Acknowledgment
Supporter	< \$500	WIT Website and LinkedIn
Bronze	\$500 - \$999	Same as Supporter + WIT Poster and Reception Slides
Silver	\$1,000 - \$2,999	Same as Bronze + announcement at the Reception
Gold	\$3,000 - \$5,000	Same as Silver + Photo op at the Reception
Platinum	> \$5,000	Same as Gold + Newsletter Spotlight and/or Interview, you or your company's name as Sponsor of one of WIT's activity of your choice

Thank you to our generous recent sponsors this year!



Mary Kay, Inc.



Leigh Ann Burns Naas
PhD, DABT, ATS, ERT



Mary Ellen Cosenza
PhD, DABT, RAC, ATS Affiliation



Celebrate our Community at the WIT Reception!

Time: Wednesday, March 25, 2026 from 4:30 PM to 6:30 PM

Location: Marriott Grand Ballroom 8 at the Marriott Marquis San Diego Marina

We'll also be covering important business for 2026–2027, wishing our 2025–2026 EC well, and welcoming in the newly elected members of the 2026–2027 EC!

2026 WIT Award Winners

Best Manuscript Award



Colette Miller, PhD
U.S. EPA

Outstanding Young Investigator Award



Meghan Rebuli, PhD, ATSF
UNC at Chapel Hill

WIT Mentoring Award



Lauren Aleksunes, PhD
Rutgers University

Smith and Hook Distinguished Service Award



Annie Jarabek, PhD
U.S. EPA

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



1st Place
Katie Clark
Vanderbilt University



2nd Place
Nashae Prout
University of Rochester



Celebrating Women in Toxicology Awards

Postdoctoral Award



1st Place
Zakiyah Henry, PhD
NIEHS



2nd Place
Idoia Meaza-Isusi, PhD
University of Louisville



3rd Place
Brittany Rickard, PhD
North Carolina State University

Graduate Student Award



1st Place
Sara Elmahrouk
University of Alberta



2nd Place
Winny Soerianto
UNC at Chapel Hill



3rd Place
Rahanna Khan
New York University



3rd Place
Charlotte McVeigh
Univ. of New Mexico

Undergraduate Student Award



1st Place
Allison Harbolic
NJ Institute of Technology



2nd Place
Andrea Arroya
University of Louisville



3rd Place
Carolyn Dobkins
Colorado State University

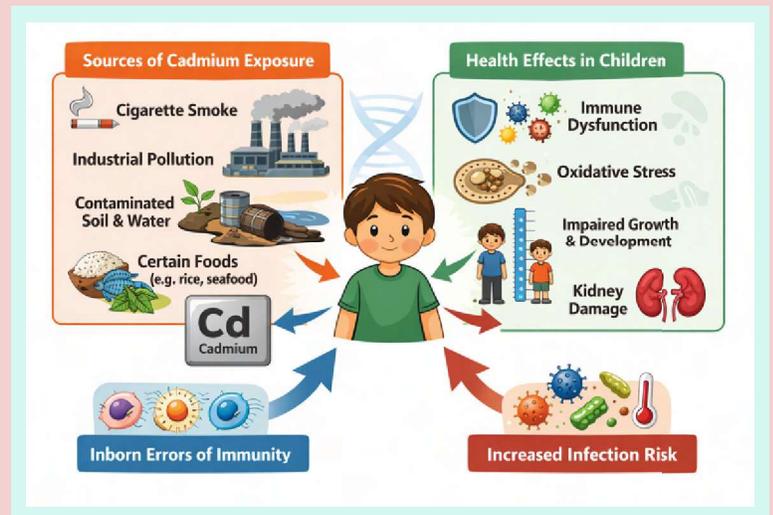


Perspectives of Cadmium exposure in Pediatric Inborn Errors of Immunity

Giorgiana-Madalina Ursu, PhD

Why environmental cadmium matters in pediatric immunology?

Cadmium (Cd) is a toxic and persistent environmental heavy metal found in cigarette smoke, industrial emissions, contaminated soil, and certain foods (Genchi et al., 2021). Among other toxic metals, Cd is especially concerning due to its poor excretion and long biological half-life (10–30+ years), leading to significant tissue accumulation, including immune cells. While its nephrotoxicity and carcinogenicity are well established, particularly at low-dose and chronic exposure, its role as an immunomodulatory and immunotoxic agent is becoming more widely recognized (Qu & Zheng, 2024; Wang Z et al., 2021). For children with Inborn Errors of Immunity (IEI) – a heterogeneous group of >450 genetic conditions that impair immune defense (Poli et al., 2025) – environmental exposures like Cd may represent underexplored modifiers of disease severity, infection burden, and immune dysregulation (Feiler et al., 2024).



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Cadmium & immune system: what we know

Alterations of the immune response following *in vivo* Cd administration was first reported in mid-1980s (Malavé & de Ruffino, 1984). Mounting experimental and translational studies demonstrate evidence of Cd immunotoxicity, although with controversial inconsistencies (Descotes, 1992; Wang M et al., 2021; Mirkov et al., 2021). Cd accumulates in both innate and adaptive immune cells, and can alter macrophage and dendritic cell function, disrupt T-cell proliferation and cytokine secretion (e.g., IL-6, TNF- α , IFN- γ), modulate NF- κ B and MAPKs inflammatory pathways, disrupt calcium signaling, promote oxidative stress and apoptosis, and impair B-cell antibody production (Knoell et al., 2021; Popov Aleksandrov et al., 2021; McCall et al., 2022; Kumari et al., 2025). Cd exposure effects are dose-dependent and often biphasic with low-dose exposure associated to immune activation and high-dose linked to suppression, adding complexity to clinical interpretation. While the exact immune-toxic mechanisms of this metal are still poorly understood, it is well-recognized that Cd can compete with zinc for molecule-binding sites (Johns et al. 2023), interfering not only with protein SH-groups homeostasis (Ursu et al. 2025) but also altering the levels of an essential micronutrient critical for thymic development, T-cell maturation, and antibody responses. This interaction could potentially account for the vulnerability and disease severity manifestation of pediatric populations.

Where Inborn Errors of Immunity intersect environmental exposure.

Severe combined immunodeficiency, Common variable immunodeficiency, and Chronic granulomatous disease are examples of IEIs. Infection risk, immune dysregulation, and often lifelong clinical management vary widely among patients, even when similar genetic variants are shared (Cifaldi et al., 2022; Chiriaco et al., 2016; Poli et al., 2025). Researchers increasingly recognize that non-genetic



modifiers—such as infection profiling, microbiome composition, nutrition, and toxic exposures—may explain their clinical heterogeneity. From a toxicological standpoint, Cd exposure may act as a gene-environment amplifier and intersect with IEI pathophysiology through: (I) exacerbation of redox imbalance, particularly relevant in disorders with impaired oxidative burst like CGD; (II) cytokine dysregulation, which could enhance immune dysregulation phenotypes such as autoimmunity and hyperinflammation (Popov Aleksandrov et al., 2021); (III) impaired mucosal barrier immunity, potentially increasing susceptibility to respiratory or gastrointestinal infections; or (IV) epigenetic modulation, a growing area of interest in immune development and immune memory programming. However, it is critical to emphasize that direct epidemiologic or biomonitoring studies in pediatric IEI cohorts are currently unavailable.

Why children may be more vulnerable?

Children differ from adults in several keyways. For instance, they exhibit increased gastrointestinal absorption of metals given their immature detoxification systems and ongoing developing immune architecture, along with their longer lifetime exposure horizon. For pediatric IEI patients — whose immunity is already compromised — cumulative toxicant burden may represent a compounding biological stressor (Feiler et al, 2024). Yet, direct clinical studies examining Cd levels in children with IEI are currently lacking. Precision risk modification may be incorporated into these patients' clinical management by including environmental exposure history at diagnosis, blood or urine Cd levels in severe or atypical cases, and documenting maternal exposure history to assess prenatal risk (Zeng et al., 2020; Wang M et al., 2021; McCall et al, 2022). This highlights the importance of integrating environmental Cd exposure assessment into broader precision medicine frameworks under a critical multidisciplinary collaboration of clinical immunologists, exposure scientists, and molecular toxicologists.

Overall, while Cd is not etiologic of inborn errors of immunity, its established immunotoxic properties (Kumari et al. 2025) raise important questions regarding its role as a phenotypic modifier of disease severity and variability in genetically susceptible pediatric populations. Advancing this field will depend on mechanistic rigor, improved exposure characterization, and carefully designed translational studies. As environmental health continues to intersect with precision medicine, understanding toxicant-host interactions in rare immune disorders (e.g., IEI) may provide broader insights into susceptibility, resilience, and immune system plasticity.

The Volatile History of Solvent Use

Briana De Miranda, PhD

Halogenated solvents are a widely distributed class of industrial chemicals, with use in nearly every aspect of modern life, from vapor degreasing to craft glue for hobbyists, to rocket engine cleaning for the NASA space shuttle program. There are roughly 50 manmade halogenated solvents, comprised mostly of fluorinated and chlorinated hydrocarbons, and nearly all of them are implicated as environmental contaminants as well as toxic risk factors in human disease.

Among these, the chlorinated solvent trichloroethylene (TCE) represents one of the most widely useful and highly ubiquitous industrial byproducts with risk for human exposure, due in part to its historical



significance. TCE was first synthesized in 1864 (the height of the American Civil War) by the German chemist Emil Fischer, though its widespread use was not fully implemented until the 1920s, where it became the preferred dry-cleaning solvent and later a vapor degreaser. Once thought of as a near wonder-chemical, TCE became the answer to many modern innovations – cheap to make, widely available, and highly potent at dissolving organic molecules. These properties expanded its use further into aspects of consumption, including the coffee decaffeination process, as a grain fumigant for livestock feed, and finally, as a highly efficient inhaled anesthetic.

Rising to favor over the more toxic chloroform and flammable ether, TCE, or Trilene as it was marketed for anesthesia, quickly became praised as an ideal anesthetic for use in obstetrics from the 1940s-1980s. Its convenience and lack of flammability or acute toxicity made it specifically helpful for self-administration during childbirth, used by women during contractions with a hand-held inhaler, and easy to titrate as women could stop when they felt “light-headed”. By the end of this 40-year period, concerns over toxicity to the fetus as well as the potential link between TCE and cancer eliminated its use in the US (1977) and UK (late 1980s). However, TCE continued to be used as an obstetric anesthetic in Africa until the 2000s, with unclear data suggesting it may still be used in some areas on a limited basis.

Following closely behind TCE in its variety of uses, tetrachloroethylene (or perchloroethylene, PCE) became the de facto standard of dry-cleaning liquids, used from the 1940s until today, with recent innovations focused on improving safety of PCE use such as closed loop machines and reclamation of the solvent. Despite these advances, risks of PCE exposure, and environmental contamination surrounding dry cleaning sites, the US EPA regulated a phase-out beginning in 2024, with all PCE dry cleaning machines to be eliminated by 2034.

As noted, the long history of chlorinated solvent use resulted in significant concerns for human health, focused primarily on cancer, developmental toxicity, and neurologic disease. In parallel, the widespread contamination and decades of solvent use in numerous applications creates difficulty in assessing risk. Much of the collected data for disease risk from solvents originates from cohorts of occupational exposures such as factory workers or occupational surveys in large population studies focused on a specific health outcome (e.g., kidney cancer or cognitive impairment). Many of these studies stratify by sex, but information demonstrating risk for disease that stems specifically from solvent exposure in women and exposures that affect predominantly women represents very little of the aggregate data. This could be a significant issue, as women have different metabolic responses to solvents (Ernstgård L et al., 2003), and are often exposed to unique combinations of solvents based on documented historical gender roles in occupation. For example, women make up the majority of the workforce in the US dry-cleaning industry (61% female, 39% male) and represent 83% of global domestic cleaners. Women may also be more likely to have underreported solvent exposures; use of solvents in certain cleaning products, craft glue, and other household products results in high relative indoor VOC concentrations, including halogenated solvents with noted health risks (US EPA 1985; Heely-Hill et al., 2021).

While regulatory action to limit exposure reflects a collective agreement that our long history of use does not justify unlimited continued use, halogenated solvents remain a prevalent environmental risk. In particular, the historical and continued use of the compounds has specific, often overlooked impacts on women, affecting their choices for safe pain relief during childbirth, and access to safe workplaces and leisure activities.



Microplastics and Nanoplastics: Featuring Women Researchers

Alexandra Strohm, PhD

What are Microplastics and Nanoplastics?

The term “microplastics” was coined by Richard Thompson et al. over 20 years ago (Thompson et al., 2004). While definitions of microplastics vary, microplastics are generally recognized as plastic particles ranging from 1 nanometer to 5 millimeters. Plastics can break down into nanoplastics, which are a subset of plastic particles smaller than 1 micrometer (USEPA, 2025; ITRC, 2023).

Why Study Microplastics and Nanoplastics?

Microplastics are ubiquitous in the environment and there is growing concern regarding their potential impacts on human health (World Health Organization, 2019, 2022; Vethaak and Legler, 2021). They are highly diverse, existing in a wide range of shapes, sizes, colors, and compositions that can influence their biological activity and potential toxicity. Human exposure to microplastics may occur through multiple pathways, including ingestion and inhalation. Dermal exposure, particularly to nanoplastics, represents an additional route of potential concern, especially for populations with compromised skin barriers (Martin et al., 2024). In addition, microplastics can act as vectors for other harmful substances and possibly for bacterial pathogens (World Health Organization, 2019, 2022). Microplastics have been detected in numerous organ systems, including the cardiovascular, digestive, endocrine, lymphatic, respiratory, reproductive, and urinary systems (Roslan et al., 2024). However, notable knowledge gaps exist regarding the impacts of microplastics on human health. Risk assessment remains challenging, in part due to the heterogeneity of microplastics, the limited standardized methods available to measure particles less than 10 micrometers across different samples, and the potential for background contamination during sample collection and analysis.

Women in Microplastics and Nanoplastics Research

Alma Avilla Oropeza began her research on microplastics in graduate school, working with the Lake Ontario Microplastics Center (LOMP), a joint center between the University of Rochester and the Rochester Institute of Technology. In her first year, she was immediately “hooked” on microplastics research, excited by the opportunity to investigate how particles might interact with metals and other environmental pollutants. Now, she works in the laboratory of Dr. Lisa DeLouise, where she characterizes the microplastics present in water samples collected from Lake Ontario. She compares the size, composition, and shape of microplastics found in these environmental samples to laboratory-generated microplastics, with the goal of bridging the gap between real-world environmental exposures and laboratory models.

Dr. Imari Walker-Franklin also developed an interest in microplastics early in her career. In her undergraduate studies, she learned that plastic pollution was becoming a major threat to marine environments. Later in her graduate work, she explored the role of microplastics in chemical transport and release of polymer associated chemicals. Specifically, she examined how environmental conditions, such as UV exposure, pH, and temperature, can influence the release of endocrine disrupting compounds from polymeric nanomaterials (Walker et al., 2021). Now, she works as a natural research scientist at RTI International, where she spearheads several microplastics projects, including characterizing microplastics in complex environmental and biological samples. Recently, she’s been investigating how tire-derived



microplastic particles and their associated leachates impact respiratory health. She collaborates with toxicologists to examine dose-dependent changes in proliferation, metabolism, and cytokine production using multiple in vitro lung cell models. Her team found that filtered and unfiltered samples produced similar responses, indicating these cellular functions were mostly impacted by the chemical leachates rather than the particles themselves. They also observed increased cellular uptake of metals and organics additives, including 6PPD and 6PPD-quinone. 6PPD is an antioxidant stabilizing additive used in tires to prevent rubber degradation. 6PPD reacts with ozone and is transformed into 6PPD-quinone, which is then released into the environment via tire particles. Environmental release of 6PPD-quinone became a high-profile concern when it was linked to toxicity and mortality of coho salmon in the Pacific Northwest (Tian et al., 2021). Dr. Walker-Franklin and her team identified elevated levels of specific proteins involved in pathways previously implicated in 6PPD-quinone exposure, indicating these may be potential biomarkers of exposure.

What is the future of Microplastics and Nanoplastics in Toxicology?

Clear knowledge gaps exist in our understanding of the effects of microplastics and nanoplastics on human health. First, characterizing the exposure component remains a high priority for the future. “We still lack robust data on the concentrations, particle types, and physical-chemical characteristics that humans and ecosystems actually encounter,” says Dr. Walker-Franklin. The lack of this information makes it difficult to perform laboratory studies that adequately reflect real-world exposure scenarios, and in turn to link these exposures to human health effects. Dr. Franklin-Walker emphasizes that “without that exposure foundation, toxicology studies continue to rely on overly simplified materials—most commonly pristine polystyrene beads at concentrations that don’t reflect environmental reality. To move the field forward, we need to start testing particles that truly resemble what’s in the environment.” However, to accurately characterize and model environmental exposures, methods must be available that capture the diverse range of micro- and nanoplastic size, shape, chemical additives, and polymer compositions. The World Health Organization highlighted the limited amount of environmental exposure and toxicity data available, particularly on plastics less than 10 micrometers, and emphasized the need for standardized methods to characterize exposure and assess toxicity (2019; 2022). Protocols must also be in place to reduce background contamination that can occur during sample collection, preparation, and analysis. “Without consistent methods and reliable detection limits, it becomes difficult to compare studies or build a clear picture of exposure across environments. We need stronger standardization and quality-assurance practices to ensure we aren’t introducing false positives or artifacts into our studies. There’s still a long road ahead but closing these gaps is critical if we want to accurately evaluate risk and make informed decisions about human and environmental health,” says Dr. Walker-Franklin.

While ingestion and inhalation are well-established exposure routes, there is ongoing debate on how relevant the dermal exposure pathway may be. “There are still many unknowns around dermal exposure and how these particles behave and change in the environment over time,” says Alma Avilla Oropeza. The outer layer of the epidermis, the stratum corneum, serves as a barrier limiting dermal exposure to particles greater than 1 micrometer. It’s possible particles may bypass this barrier in areas where the skin is compromised, through sweat glands, or through hair follicles, where they tend to accumulate (DeLouise 2012; Martin et al., 2024; World Health Organization, 2022). While their penetration has been primarily studied in the context of drug delivery, nanoparticles have been shown to persist in the hair follicle for up to 10 days (Laderman et al., 2007). Particle permeation is dependent on physical-chemical properties, such as size, shape, and surface charge (DeLouise 2012; World Health Organization, 2022). Considerably less is known about micro- and nanoplastic permeation in the context of environmental exposures. However, a recent review of forty-six human and



animal *ex vivo*, *in vivo*, and *in vitro* studies found limited evidence of micro- and nanoplastic penetration into deeper skin layers (McLean et al., 2025). Notably, McLean et al. identified a lack of standardized test methods and major knowledge gaps regarding long-term exposure, vulnerable populations, and exposure to environmentally weathered particles (2025). Whether nanoplastics may act as vectors for chemical transport through hair follicle accumulation remains to be determined. This may be particularly pertinent in cases where continued use of personal care products containing micro- or nanoplastics may wear down the skin barrier.

Advice for those interested in Microplastics and Nanoplastics

“One of the main pieces of advice I would give is to not give up. Microplastics and nanoplastics research is still a relatively new field, and there are many unknowns, so setbacks are common and part of the process. Be patient, stay curious, and don’t be afraid to ask questions or challenge existing assumptions. Some of the most meaningful progress comes from troubleshooting, collaboration, and being comfortable working in an evolving research space.” – **Alma Avilla Oropeza**

“I would say welcome—this field is expanding rapidly, and we truly need more researchers contributing to it. My biggest piece of advice is to build a strong interdisciplinary foundation or collaborate closely with people who bring different expertise, such as materials science, analytical chemistry, and environmental toxicology. It’s also important to stay as up to date as possible with emerging research and evolving standards, especially around new protocols, contamination control practices, and reporting requirements in publications. The field is moving quickly, and keeping pace helps ensure your work is both rigorous and relevant. Finally, always keep the bigger picture in mind. Studying micro- and nanoplastics can be challenging, but it’s incredibly rewarding to work on such a complex and globally significant contaminant class. The impact of this research reaches far beyond the lab, and that sense of purpose makes the effort worthwhile.” – **Dr. Imari Walker-Franklin**

How can you get involved?

Training and resources on micro- and nanoplastics are widely available. Some suggestions are included below:

- [Clean Up-Information Microplastics training](#)
- [ITRC Microplastics guidance](#)
- [Toxicity of Microplastics Explorer \(ToMEx\)](#)
- [Lake Ontario MicroPlastics Center](#)
- [NMP-toxicity Assessment Tool](#) (described in Goulin et al., 2022)
- [Simpore](#) – Information and products for filtration technologies
- [National Academies’ Microplastics seminar series](#)
- [ISES-ISEE Microplastics Working Group](#)
- [Plastics, Microplastics, and Human Health \(P-SNAP\)](#)

Acknowledgements

Thank you to **Alma Avilla Oropeza, MS** and **Dr. Imari Walker-Franklin** for their valuable contributions and insights into micro- and nanoplastics. Additionally, thank you to **Winny Soerianto** for facilitating the connection with Dr. Imari Walker-Franklin.

References can be found at the end of the newsletter.



Community in Grief and Grad School

Megan Hager

The Society of Toxicology annual meeting is a beautiful opportunity for students, professors, and industry professionals alike. Through workshops, symposia, and networking events, we are immersed in a community of toxicologists and given the chance to connect with the best and brightest from our specialties and beyond. The connections we make have the power to change our lives. I believe we should seize every opportunity to connect; I know firsthand that the community we build enables us to persevere through life's greatest challenges.

My dad passed away in July of 2024. I transitioned to the Toxicology PhD program at Colorado State University the next month. The emotions of the moment my brother broke the news repeated day after day, creating a heavy, inescapable reality. My first year of graduate classes were a blur of early mornings, late nights, and excel spreadsheets. Determined to maintain perfect grades and publish my first paper, it echoed July's whirlwind of activity. What the grief books did not prepare me for was what came after the flurry of action. In grief and grad school, the river keeps flowing. Sometimes we are a raging waterfall, and other times settle a glassy pond. In these still, stuck moments, when the air hangs heavy and thick, it is hard to not let yourself freeze. The cold hand of life often rests over scientific progress. The experiment I spent the first year of my PhD working on did not work out. We had to move lab spaces three times. My best friends moved away after graduation. My grandpa died a year later. But if there is anything I learned from this time, it's that we must find our people and keep moving forward.

For my own peace of mind, I busied myself with work and poetry, attempting to live a healthy life while encouraging my surviving family to do the same. Losing a parent at 22 is hard, and putting yourself out there to rebuild community is even harder. In August 2024, I attended my first poetry open mic, performing a piece I had written in the days following my father's death. I cried in front of the crowd. Afterwards, I talked to people. I learned to never pass up an opportunity to connect with like-minded people. In this time, I grew closer with my lab mates, finding circles of supportive people who wanted to help in any situation. Whether writing grants or poems, I knew I had someone to turn to.

I don't know whether my father's premature death arose from an insidious genetic component, or simply passive toxicant exposure, stress, and a love of smoked brisket. My research is particularly interested in the accumulation of cellular stress, inflammation, and dysfunction in the brain. We focus on Parkinson's Disease, a chronic, age-related neurodegenerative disorder. Parkinson's is thought to emerge from a combination of toxicant exposures, genetic risk factors, and lifestyle choices, but no one cause or mechanism has been identified. Heart attacks and Parkinson's may not seem related on the surface, but often both are influenced by an accumulation of insults. Because of this work, I am painfully aware of the factors in my life, and my brothers, that may lead us to or from my father's fate.

I keep a coin that is pressed from my dad's ashes on my dresser. A little stuffed bear holds it, a nod to one of his favorite comedians. Before 2024, I had planned to do a master's in toxicology, simply for the love of the research, then go on to medical school. The devastating loss of my father marked a major shift in my aspirations; I removed myself from the pre-medical track, and instead found comfort in deciphering the commonalities between environmental exposures and genetic predispositions. Poets who I never thought I'd meet changed me. Books I never thought I'd read transformed by perspectives. Every morning, I look at that coin and contemplate how a handful of minutes can end one life and alter the trajectory of another.



My Dad's Jeans

Megan Hager

These are my dad's jeans.
They're tough and sturdy,
And quite a bit stained.
These are working pants,
Rough around the edges,
But there for you on long days.
His jeans fit me,
In their own baggy way,
But I know this is something
I will have to grow into.
Over the years,
I'll get worn too,
My memories fading,
Just like these jeans.

I wonder, in what ways
Will I grow into my dad's genes?
Will his genetic code etch
The same wrinkles around my eyes?
Will my calloused hands split
In the winter cold,
After too many hours of labor?
Will I stay generous
And hardworking,
Always bearing suffering
With a silent smile?
Or- will his genes
Make my heart stop
At 54, too?
Or at 50,
Like his father?

But for now,
All I have are these jeans,
Hanging loosely on my hips.
Slowly, I'll add stains
And wear holes
As I make these jeans my own.
I won't know the outcome
Of those genes for another
28 or 32 years,
Or sometime sooner or later
Than that.
After all, I'm wearing
My dad's genes.

A Little Fun in the Science World: Rutgers Toxicology Craft Exchange

Written by Chenghui Jiang

Who said scientists can't craft? Since 2020, the Rutgers Association of Toxicology Students (RATS) at Rutgers University, New Brunswick, New Jersey have hosted a biannual craft exchange to showcase everyone's talents for science and fun. Over the years, a multitude of amazingly crafty folks have made artistic contributions that border on science, seasons, and stitches. Staff and students employ techniques like embroidery, quilts, cross-stitch, flower pressing, handbags, woodwork, resin, and many more. While only some pieces exemplify mastery skills, the process is what matters and, unlike in science, success rates are much higher.



While the RATS Craft Exchange started out small, the organization grew to include not just graduate students and postdocs, but many staff members at the Environmental and Occupational Health Sciences Institute and the School of Pharmacy. The craft exchange is held in a similar style to Secret Santa, in which all individuals are placed into a virtual hat and given another individual's name. There is a list of a few questions that all members of the exchange answer, which include hobbies and favorite food/beverages. From there, the artist has free reign to design any masterpiece. On the fateful day, all members gather to gift their artwork and discuss their rationale, methods, and conclusions.

Please join us in the future at Rutgers University, if not for the science, then for the crafts!



Webinars

SOT Carcinogenesis Specialty Section and SOT WIT Special Interest Group Joint Webinar

Rethinking Chemical Carcinogenicity Assessment in the Context of NAMs: Current Frameworks, State of the Science, and New Horizons

Speakers:

Amber Goetz, PhD, Syngenta CP LLC

Carole Yauk, PhD, University of Ottawa, Canada

Annamaria Colacci, PhD, Università di Bologna, Italy



October 27, 2025

[Webinar Recording and Materials](#)

This session explored how New Approach Methodologies (NAMs) are transforming chemical carcinogenicity assessment, highlighting current frameworks, cutting-edge science, and future directions for reducing animal testing and improving risk evaluation.

SOT Out Toxicologists and Allies & Women in Toxicology Special Interest Groups Joint Webinar

Dissecting Sex and Gender in Toxicology

Speakers:

Megan Massa, PhD, Assistant Teaching Professor,
Emory University

Lisa Galea, PhD, Professor, University of Toronto and
Center for Addiction and Mental Health, Canada

Patricia Silveyra, PhD, Professor, Indiana University



December 12, 2025

[Webinar Recording and Materials](#)

This panel explored how to define, study, and communicate about sex and gender. It addressed challenges in research design, policy, and inclusivity, aiming to balance scientific rigor with social responsibility.

SOT Association of Scientists of Indian Origin and Women in Toxicology Special Interest Groups and SOT *In Vitro* and Alternative Methods Specialty Section Joint Webinar

NAMs in Toxicology: Current Insights and Future

Speaker:

Payal Rana, MS, MBA, PhD, DABT, Scientific Director, Abbvie



December 15, 2025

This webinar introduced NAMs are reshaping toxicology by improving human relevance and reducing reliance on animal studies. It has an overview of current regulatory shifts, industry applications, and real-world case studies that show how NAMs are being integrated into modern safety assessment and future global guidelines



Webinars

SOT Women in Toxicology Special Interest Group and SOT Drug Discovery Toxicology Specialty Section Joint Two-Part Webinar Series

Protein Degraders: Part 1

Speakers:

Jessica Sims, PhD, DABT, Genentech

Laurie Volak, PhD, Volak PharmaKinetic Solutions



January 29, 2026

This webinar gives an inside look at how industry teams are tackling the nonclinical safety, PK, and ADME evaluation of targeted protein degraders. Drawing on recent IQ Consortium survey results, speakers will walk through current practices, tips for choosing relevant species, and how PK/ADME workflows differ from traditional small molecules.

Protein Degraders: Part 2

Lise Loberg, PhD, Abbvie

Katie Stamp, PhD, Bristol Myers Squibb



February 3, 2026

This session explores how researchers are tackling safety questions for cereblon-engaging protein degraders and highlights emerging best-practice considerations from the IQ Consortium. It gives an insight into current industry and academic approaches to safety evaluation more broadly, including proteomics-based profiling, species selection, and case studies that show how teams are blending classic toxicology tools with new, modality-specific strategies for targeted protein degraders.

NIH Strategic Priorities Supporting Progress in Birth Defects Research, Developmental and Reproductive Toxicology, and Next Generation New Approach Methodologies (NAMs)

Nicole Churchill Kleinstreuer, PhD

NIH Deputy Director for Program Coordination, Planning, and Strategic Initiatives



May 19, 2026

1:30pm Eastern Time





Celebrating Your Success

CONGRATULATIONS! These announcements are a great way to recognize WIT members' achievements and advancements.

Career Advancement/Transition

Jessica Pellman, PhD, MBX Biosciences
Promoted to Principal Scientist, Toxicology.

Monica Langley, PhD, DABT, AIBMR Life Sciences
Started a new position as a Senior Food and Regulatory Toxicologist.

Maria Katsigeorgis, MPhil, MSc, MA, New York University / NYU Langone Health

New Career appointment as the Clinical Research Program Manager in the Department of Surgery at NYU. This position will build the department's research portfolio, foster collaborations between toxicology and exposure science, and supporting clinical and translational research in the Division of Colorectal Surgery.

Patricia M. Williams, PhD, DABT, Environmental Toxicology Experts, LLC

Commissioned to conduct an independent health assessment and medical surveillance study of residents in Grand Bois living near a non-hazardous oilfield waste site that had received benzene-contaminated waste. Preliminary findings led to additional state-funded research—approved by the LSU Medical Center IRB and supported by the Louisiana Governor and Legislature—with results archived in Louisiana state libraries.

Degree/Professional Certifications

Monica Langley, PhD, DABT, AIBMR Life Sciences
Earned Diplomate of the American Board of Toxicology (DABT) in 2025.

Alyssa Cobbs, MS, PhD, DABT, L'Oreal
Earned Diplomate of the American Board of Toxicology (DABT) in 2025.

Laura Markley PhD, DABT, FDA
Earned Diplomate of the American Board of Toxicology (DABT) in 2025.

Kristal Rychlik, PhD, University of Mary Hardin-Baylor
Certified in Public Health in December 2025. The certification is offered through the National Board of Public Health Examiners for public health professionals without any terminal degrees in public.

Awards

Melanie Wilson, BA, BS, (PhD Candidate), Louisiana State University
Awarded the Heidi Lott Memorial Scholarship Award, a distinction recognizing excellence in toxicology research and scholarly achievement within LSU's Comparative Biomedical Sciences program.

Awards, Cont'd.

Louise Winn, PhD, Queen's University
Received the 2025 Gabriel Plaa Award of Distinction from the Society of Toxicology Canada in honor of outstanding and sustained contributions to the science of toxicology.

Alison Elder, PhD, University of Rochester
Received the 2026 Translational Impact Award from the Society of Toxicology.

Mary Ellen Cosenza, PhD, MEC Regulatory & Toxicology Consulting, LLC
Awarded the Academy of Toxicological Sciences 2026 Mildred S. Christian Career Achievement Award. This award will be given formally at the ATS reception at SOT in March 2026.

Chris Curran, PhD, Northern Kentucky University
Awarded the 2026 Narsingh Agnish Fellowship from the Society for Birth Defects Research and Prevention (BDRP). This is presented to an individual 'who has made a major contribution to the education in the field of research on birth defects and/or disorders of reproductive or developmental origin, or a related discipline'.

Lauren Heine, PhD, University of New Mexico Health Sciences Center
Received a 2025 American Society of Hematology (ASH) Abstract Achievement Award. Each year, ASH offers this merit-based award to support select trainees with high-achieving annual meeting abstracts who are chosen to present their work at the ASH annual meeting.

Smita Salian-Mehta, PhD, Gilad
Received the IQ Distinguished Service Award 2025. This award recognizes individuals for demonstrating enduring and impactful commitment through leadership, contributions to IQ mission and consortium initiatives, and exemplary service as IQ ambassadors in pursuit of innovation and quality in pharmaceutical development.

Eliane El Hayek, MS, PhD, University of New Mexico
Received the Outstanding Early-Stage Investigator Poster for exceptional potential and emerging talent in environmental earth science at the Environmental Health Sciences Core Centers (EHSCC) annual meeting. The presented work was entitled "When innovative science intersects with the needs of public health & communities".

ICCVAM Validation Workgroup Report on Validation and Qualification of NAMs, Several WIT Members, namely, Nicole Kleinstreuer, PhD, Amber Daniel, MS, Agnes Karmaus, PhD from NICEATM plus ICCVAM co-authors.
Finalist for the Lush Prize under the Major Science Collaboration category.





Celebrating Your Success

Elected/Appointed Leadership

Monica Langley, PhD, DABT, AIBMR Life Sciences
Served on the Awards Committee for the Regulatory & Safety Evaluation Specialty Section in SOT.

Grants/Funding

Eliane El Hayek, MS, PhD, University of New Mexico
Received the 2025-2026 College of Pharmacy University of New Mexico Research Pilot Project Award. Title: Micro(nano)plastics in cerebrospinal fluid and their implications for brain waste clearance.

Melanie Wilson, BA, BS, (PhD Candidate), Louisiana State University

Received SOT's Supplemental Training for Education Program (STEP) award to attend the Marine Biological Laboratory's Zebrafish Development and Genetics course.

Gagandeep Kaur, PhD, University of Rochester

Received K99/R00 funding in 2025. Title: Characterizing determinants of cellular senescence and epigenetic dysregulation on tobacco smoke exposure in lung.

Hellen Weinschutz Mendes, PhD, Purdue University

Recently submitted a K99/R00 Pathway to Independence Award to NIH and currently waiting for review which will take place in the summer of 2026.

Publications

Rachel Renda, PhD, St. John's University

Renda R and Cerreta J. Pulmonary injury following exposure to amorphous silicon dioxide nanoparticles in Golden Syrian Hamsters. (2026) *Environmental Biology and Medicine*, 25 January 2026. <https://www.ebm-journal.org/journals/experimental-biology-and-medicine/articles/10.3389/ebm.2026.10793/full>

Melissa Badding, PhD, DABT, Biologics Consulting Group

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Monica Langley, PhD, DABT, AIBMR Life Sciences

Reina-Gonzalez P, Ay M, Langley M, Plunk E, Strazdins R, Abu-Salah A, Anchan A, Shah A, Sarkar S. Neurotoxicants driving glial aging: role of astrocytic aging in non-cell autonomous neurodegeneration. *Toxicol Sci*. 2025 Sep 1;207(1):20-28. doi: 10.1093/toxsci/kfaf088. PMID: 40680177; PMCID: PMC12448201.

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Publications, Cont'd.

Maria Katsigeorgis, MPhil, MSc, MA, New York University / NYU Langone Health

Katsigeorgis M and Gordon T. The unexpected when expecting: Cannabinoid use in pregnancy and postpartum. (2026). *Current Opinion in Toxicology*. <https://doi.org/10.1016/j.cotox.2025.100554>

Other

Melanie Wilson, BA, BS, (PhD Candidate), Louisiana State University

Winner of the Three Minute Thesis competition for Louisiana State University and at the state-wide competition with the presentation of: *Invisible Threat, Visible Impact: How Lead Disrupts the Developing Brain's Stress Response*.





Thank You, Volunteers!

Awards Committee



Elizabeth Vancza



Lauren Walker



Jennifer Rayner



Annmarie Ledebor



Raya Boyd



Katy Goyak



Erin Huber



Deniz Emul



Jenna
Larson-Casey



Jen Plahovinsak



Mariana Saboya



Shanthi Ganesan

The Women in Toxicology (WIT) Awards strive to recognize and celebrate the remarkable talent, leadership, mentorship, and service of our WIT members. This year, we were delighted to receive 45 outstanding applications, reflecting the depth and diversity of excellence within the WIT community. Congratulations to all of our 2026 recipients whose accomplishments embody the mission and spirit of WIT and who continue to inspire us all in the field of toxicology. We also extend a heartfelt thanks to our dedicated Awards Committee of volunteers, for their thoughtful reviews and hard work. As this year's awards season comes to a close, we encourage eligible students, trainees, and professionals—and those who wish to nominate their colleagues—to begin thinking about applications for next year. And for WIT members interested in giving back, we warmly invite you to become a WIT volunteer. Please consider joining a committee when you complete the upcoming WIT survey, helping us to support each other and to highlight the many exemplary contributions of our membership.



Thank You, Volunteers!

Nominating Committee



Alicia Bolt



Raya Boyd



Koren Mann



Jennifer Rayner



Mindy Reynolds



Deniz Emul



Sarah Champion

Newsletter Committee



Andrea Kim



Giorgiana-Madalina Ursu



Alexandra Strohm



Megan Hager



Winny Soerianto



Chenghui Jiang



Erin Huber



Interested in volunteering?
Fill out the [volunteer survey](#)!



Connect with WIT on
LinkedIn! [Join our group](#)



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Note: Briana De Miranda is funded by the National Institutes of Health, Congressional Directed Medical Research Program – Toxic Exposures Research Program, the Parkinson's Foundation, and the American Parkinson's disease Association. This article represents the opinions of the author and does not reflect the opinions of funding sources or governmental organizations.

Microplastics and Nanoplastics: Featuring Women Researchers

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