Dear WIT Members,

It is hard to believe that two years have gone by since the last time we were able to gather in person for the Annual SOT Meeting. I, for one, am very excited to leave the virtual world and see colleagues and friends again. However, I cannot forget that we have collectively experienced and may still be experiencing a myriad of challenges from losing loved ones to the growing awareness of the mental health crisis that is impacting our children and students. Additionally, within this newsletter, Dr. Brita Kilburg Basnyat’s article on the “Great Resignation” highlights that many women in STEM feel their career was negatively impacted by COVID. I believe this underscores the importance of women’s organizations like WIT. We continue to need a supportive platform to engage with each other and work through common challenges that we may be experiencing.

WIT was originally founded in 1998 in recognition of the need for mentoring and career support for women toxicologists as well as a need to increase the visibility and leadership roles for women within SOT. WIT’s activities have and continue to center around addressing these needs, but we also work towards enhancing situational awareness of issues relevant to women in the larger scientific community. These efforts depend on the active participation of our members such as those who contributed to this newsletter and to the various committees that help implement our ongoing activities to promote and recognize women within SOT and to develop and support relevant SOT sessions and webinars. We aim to be responsive to our members’ needs and have initiated a yearly survey to poll our members for their volunteer and leadership interests as well as ideas for future WIT activities. If there is something you would like WIT to facilitate or initiate, please include it in the survey and consider taking on an active role to help implement it. Look for the survey in your email inbox shortly after the SOT meeting.

Although lingering uncertainties may prevent some of our members from attending the SOT Meeting, our experience with COVID has taught us to adapt and become more comfortable with incorporating virtual tools. In line with this and SOT’s efforts to offer a remote component for the meeting, we are working towards offering the opportunity for those who cannot be with us to virtually join the WIT reception (Wednesday, March 30th from 4:45-7:00 pm) – stay tuned for more information regarding this as well as a highlight of the WIT-sponsored or endorsed programing at the SOT Annual Meeting.

Looking forward to seeing you all soon!

Courtney

Courtney EW Sulentic, PhD
President, Women in Toxicology
The 61st SOT Annual Meeting and ToxExpo is just around the corner!

The meeting will be held in a hybrid in-person and virtual format in 2022. Check out the meeting website to:

- view the program
- register
- peruse ToxExpo Exhibits
- information about the meeting experience both in-person and remotely
- download the mobile app
- use the Online Planner

Mark your calendars! Join us for the WIT Annual Awards Ceremony, Business Meeting, and Reception

Wednesday, March 30th

4:45-7pm PT, Grand Ballroom 8

We will return to an in-person format for our meeting and reception in San Diego. Come and socialize and celebrate your fellow WIT members! We are working on a live virtual component of the reception for those who will not be attending the SOT meeting in-person. Keep your eyes out for details prior to the meeting.

We look forward to celebrating with you in San Diego on Wednesday, March 30th!
Thank You Committee Volunteers!!

WIT volunteer committees have been working hard on several activities ahead of the SOT Annual Meeting, and their efforts are very much appreciated!

Thank you all for your help!

WIT Awards Committee

Judy Zelikoff (co-chair)
Carmen Rubio (co-chair)
Janine Cubello
Jodi Flaws
Kari Gaither
Melissa Heintz
Marquea King
Jennifer Larson-Casey

WIT Program Committee

Brittany Baisch (co-chair)
Annie Jarabek (co-chair)
Aleksandra Buha Dordevic
Brita Kilburg-Basnyat
Emanuela Corsini
Juliet Kelechi Igbo
Kate Annuanziato
Kim Zaccaria
Laura Patrone
Laurie Svoboda
Logeswari Ponnusamy
Samantha Goodman
Susan Emeigh Hart
Toufan Parman

WIT SOT Awards Nomination Committee

Brittany Baisch (co-chair)
Annie Jarabek (co-chair)
Sarah Belperain
Catheryne Chiang
Janine Cubello
Katie Duke
Marion Ehrich
Jodi Flaws
Lindsay Frankart
Allison Franzen
Natalie Grassman
Kati Hill
Marquea King
Lauren Lewis
Alexandria Lau
Sharon Meyer
Kimberly White

WIT Newsletter Committee 2021-2022

Grace Chappell (chair)
Sarah Campion
Kati Hill
A.J. Cuevas
Brita Kilburg-Basnyat
Allison Franzen
Wendy Tisdale-Haines

Volunteers for these committees for the 2022/2023 cycle will be recruited via an electronic survey following the annual meeting – stay tuned and consider getting involved!
WIT-Website Glow-up Sneak Preview...

SOT and the WIT Executive Committee have been working hard to update the WIT SIG website. The updates will be live soon at https://www.toxicology.org/groups/sig/wit/index.asp!
To say that things are different now than they were prior to the COVID-19 pandemic would be an understatement. However, the pandemic has not impacted all people working in STEM occupations equally and the long-term implications of those effects are still uncertain. What we do know, is that the pandemic has affected the productivity and well-being of women in STEM and has emphasized the unequal nature of caregiving responsibilities which still places a greater burden on women than men. Myers et al. 2020, found that female scientists reported a 5% decline in research time. For women scientists with at least one child five years old or younger, the decline in research time was even larger (17%) compared to men. Initial analyses have also indicated that women’s publishing rates have fallen relative to men’s amid the pandemic with fewer pre-prints and fewer research projects initiated than their male peers (Viglione, 2020). These among other variables have long-term implications that could potentially impact merit raises, promotions, funding opportunities and more for years to come.

Given the challenges for women over this period of time, it's perhaps not surprising that nearly half (48%) of women surveyed by MetLife indicated that the pandemic had negatively impacted their career. Furthermore, burnout has also been a challenge which has disproportionately affected women of color. Research has shown that people who are confronted regularly with microaggressions in the workplace are twice as likely to experience burnout than those who don’t. They are more than two times as likely to associate negative feelings with their job and three times as likely to have difficulty concentrating due to stress. African-American women are almost four times as likely, and Hispanic and Asian women are two to three times as likely, as caucasian women to hear people express surprise at their language skills or other abilities. Similar statistics also exist for other types of similar microaggressions.

Combined, many of these factors facing women during the COVID-19 pandemic have led to what has been termed the “Great Resignation” with an employer’s market quickly shifting to an employees’ market. Furthermore, almost 2 in 3 (63%) women who left the workforce during this period are ready to return with 8 or 10 of those considering a career in STEM. Many are turning to online STEM courses and certifications to gain extra experience. The same survey, performed by MetLife, identified six factors that these women interested in STEM identified as important considerations for feeling supported in pursuing a career in STEM. These factors included more diversity, equity, and inclusion in the leadership pipeline (38%), benefits that better fit their needs (33%), more flexibility in work arrangements (31%), dedicated trainings that help their career progression (30%), paid internships or apprenticeships (29%), and employee resource groups (28%).
These factors shouldn’t be a surprise given that women in STEM already face distinct barriers from succeeding in the field including a lack of mentorship, role models and training. 18% of STEM workers say a lack of diversity at their company made them consider or make a career change, but 33% say more diversity, equity, and inclusion in the leadership pipeline would lead them to continue working in STEM or pursue a career change into the field. The share of people who would be encouraged to stay in STEM with greater leadership diversity rises to 53% for African American women. Companies can modify their policies to recruit, mentor, retain and promote top talent while addressing burnout and supporting women who are still feeling the effects of the pandemic.

This is a unique time for institutions to find ways to support women by reducing service and administrative burdens, providing networking opportunities and mentoring, and re-thinking the criteria that are used for promotion. It also provides another opportunity for women in STEM to push employers to increase their flexibility in the workplace and diversity in order for everyone to have an equitable workplace experience.

A perspective on “survivorship bias” in science

Krisa M. Camargo Ph.D, US Army Public Health Center (APHC)

Maintaining perspective is tricky and often lost in some career advice. However, if we consider the old adage “what doesn’t kill me makes me stronger” and pair it with those who have been successful, we arrive at an interesting topic that has been circulating in recent years: survivorship bias\(^1,2,3,4,5,7\). A classic example illustrated by several of these references\(^1,2,5\) is a World War II (WWII) plane riddled with bullet holes. To solve the issue, a quick solution would be to patch the holes, but as Abraham Wald pointed out during WWII, doing so ignores the problems associated with the planes that never returned. Therefore, he suggested the question that should be asked is: what were the vulnerabilities of the planes that did not return? If we examine this question, we realize that by focusing only on the bullet holes, we’ve excluded all other aspects of the plane that are even more vulnerable. Thus, arises the term ‘survivorship bias’, where a small sample ends up being used as a norm, when in fact the small sample is only representative of a select population. Therefore, this article will briefly explore the term ‘survivorship bias’ and how to bring more awareness to the role survivorship bias can play in career advice.
As the cited articles above share in more detail, there are plenty of everyday examples (e.g. self-made billionaires, Hollywood actors who ‘made it’, only toned fitness people in a gym membership ad) that illustrate survivorship bias. However, in science, a consequence of survivorship bias is a negative influence on junior scientists continuing to pursue scientific careers. Hemprich-Bennett et al. 2021 draws attention to the negative aspects of survivorship bias in their article; however, as an aside, I interestingly found irregular coverage of the topic in peer-reviewed articles. Perhaps, these irregularities are due to limited studies utilizing the term to address study biases or there are field-specific applications of the term I am not aware of.

However, Dr. Mullainathan of the University of Chicago suggests a succinct way to view and address survivorship bias: “Think about what the process that generated the data is. What are all the other things that could have happened that might have led me to not measure it?” 4. Those “other things” Dr. Mullainatha stated are what Hemprich-Bennett et al. 2021 briefly address in their article by touching upon several inequities COVID-19 continues to highlight. Since the purpose of this article is not to address all the inequalities that can be associated with survivorship biases, I do encourage you to explore the references listed by Hemprich-Bennett et al. 2021 as well as the others available on the subject.

Of the references Hemprich-Bennett et al. 2021 cited, one stood out regarding their findings on career setbacks. The work of Wang et al. 2019, concludes career setbacks can be useful for junior scientists. In many respects I agree with this, but I also understand Hemprich-Bennett’s conclusion that these setbacks often forget additional barriers students or junior scientists may face. However, Wang et al. 2019 do acknowledge their results are only partially insightful and that there remains a need to explore, identify, and understand the role population heterogeneities plays in scientific career paths. An earlier study by Petersen et al. 2014 also highlights this need, except they developed a framework to understand how reputation factors in a career and found gaps regarding the influence of scientific norms and institutions in academic careers.

To anecdotally capture the complex issue of ‘survivorship bias’ consider Figure 1, which illustrates an iceberg split into sections where the green colored portion was chosen to represent the entire iceberg. Similar to the plane example, we see how this bias obscures several hidden sections that may be more representative. Therefore, I challenge each of us to think about those
“other things” Dr. Mullainathan calls the factors influencing survivorship bias. Another way to think about survivorship bias, is to approach it using the systematic review framework where questions such as, ‘What is your research question? What are the elements of your research question? What are your selection criteria?’ may help you and your student or peer learn a few more details about an issue they may be facing. My other piece of advice I often share is “Take my advice with a grain of salt as my experiences will not be the same as yours.” Then remember, while we all have our success and horror stories, we have to realize that incoming students and junior scientists face different challenges than we did 5+ years ago in our PhD programs.

Editor’s note: This article represents a collaborative idea and execution among WIT members; the idea and resources were provided by WIT EC Postdoctoral representative Lauren Walker, and taken on for research and authorship by Newsletter Committee volunteer Krisa Camargo.

References:

Did you know that WIT has two endowment funds that support a variety of WIT awards? These endowments and awards were inspired by the leadership and generosity of women toxicologists: Anne Wolven Garrett, Elizabeth K. Weisburger, and Vera W. Hudson.

The **Celebrating Women in Toxicology Award Fund** was established in May of 2014, sponsored by the WIT SIG. The initial seed money for this endowment was generously donated from Ms. Anne Wolven Garrett’s estate. Ms. Wolven Garrett was one of the first women active in the Society’s leadership. Beginning in the early 1970s, she served on several elected and appointed committees, as well as Historian and Vice President and President of a Regional Chapter. As noted during her memorial service in 2012, she was especially proud of her work with the Society. She was known for taking budding toxicologists under her wing and ended many conversations with “hug yourself; you are very special.” As a tribute to Ms. Wolven Garrett and all past and future female leaders of SOT, the Celebrating Women in Toxicology Award recognizes and encourages women who are in the early stages of developing their careers in the field of toxicology.

The **Vera W. Hudson and Elizabeth K. Weisburger Scholarship Fund** was established in October of 2007, created with a generous gift from Elizabeth K. Weisburger in memoriam of her long-time friend and professional colleague, Vera W. Hudson. Vera was a biologist and information specialist at the National Library of Medicine (NLM) for many years, she had an important role in developing the NLM Hazardous Substances Data Bank and other sources of toxicology information on chemicals. Proceeds from the Vera W. Hudson and Elizabeth K. Weisburger Fund are used to fund scholarships for individuals, with preference to women, pursuing graduate studies in Toxicology.

Find out more about the endowments on the Endowment Funds page of the WIT SIG website, and consider nominating yourself or a colleague for one of the awards supported by these endowments!
The evolution of environmental monitoring technology continues at a rapid pace. The speed and spread of such technology draws on our appetite to learn, to push scientific limits, and seek out new data — because as we know, we cannot manage what we do not measure! Dr. Jan Hulla (a former WIT president and current WIT member) and colleagues highlight this very topic in their recent publication entitled, “Exposure Science in the 21st Century: Advancing the Science and Technology of Environmental Sensors through Cooperation and Collaboration across U.S. Federal Agencies.” Hulla et al., 2020 described many revolutionary approaches to real life questions, but also emphasized that these achievements were made possible through strong collaborative efforts. One such initiative mentioned in the paper is the My Air My Health (MAMH) challenge, which was made possible by support and collaboration of three agencies: the U.S. Environmental Protection Agency, the U.S. Department of Health and Human Service, and the National Institute of Environmental Health Sciences. This endeavor allowed for simultaneous monitoring of health data (e.g., heart rate and blood oxygen levels, among others), along with data on environmental conditions (e.g., air pollution and water quality). Although it is impossible to quantify every exposure in human observational studies, we do know that the use of sensor technologies for personal exposure monitoring may get us close to a more complete quantification for a limited number of chemical stressors. The work presented in Hulla et al., 2020 addresses core issues relevant to revolutionizing environmental epidemiology and crafting more precise medicine.

Let us take note of these collaborative efforts and success stories. We can place these learnings in our toolbox of resources and drive coordinated efforts to research environmental exposures. Join me in congratulating Jan and colleagues for their stellar work and a great contribution to the exposure science body of literature. You can find the full article here: https://www.mdpi.com/2227-9040/8/3/69
Celebrating YOUR Success!

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

Please share your recent accomplishments to be highlighted in the next newsletter edition! Click [HERE](#) to fill in a short questionnaire. This link will remain active until June 1, 2022. We look forward to hearing your good news!

**Career Advancement/Transition**

**Ellen Baker, PhD**, MilliporeSigma  
Started new job in Regulatory Affairs at MilliporeSigma.

**Rhiannon Hardwick, PhD**, Bristol Myers Squibb  
Hired as Scientific Associate Director in Discovery Toxicology at Bristol Myers Squibb, supporting discovery phase programs as a project toxicologist.

**Alexandria Lau, PhD**, ToxStrategies  
Joined ToxStrategies as a Senior Scientist.

**Britt McAtee, PhD, DABT**, PPG Industries  
Promoted to the Global Manager of Toxicology at PPG Industries.

**Danielle Pizzurro, PhD, DABT**, AVROBIO  
Promoted to Senior Director, Regulatory Toxicology and Preclinical Development at AVROBIO.

**Alexandra Lobach, PhD**, Givaudan  
Promoted to Senior Product Safety & Toxicology Manager, Givaudan International SA, in October 2021.

**Smita Salian-Mehta, PhD**, Gilead Sciences  
Became Senior Project Toxicologist at Gilead Sciences in April 2021; recognized as a European Registered Toxicologist (ERT) and member of UK Registry of Toxicology (UKRT).

**Degree/Professional Certifications**

**Sarah Burnett, PhD**, Center for Toxicology and Environmental Health  
Received PhD in Interdisciplinary Toxicology from Texas A&M University.

**Natallia Kovalchuk, PhD**, LabCorp Early Development Laboratories, Inc.  
Earned DABT certification in 2021.

**Luma Melo, PhD**, University of Pittsburgh  
Received PhD in Environmental Health.

**Monika Roy, PhD**, University of Massachusetts Amherst  
Received PhD in Environmental Health Science.

**Awards (Employer)**

**Natalie Johnson, PhD, Texas A&M University**  
Texas A&M University Presidential Impact Fellow (award) and published ‘Gestational Exposure to Ultrafine Particles Reveals Sex- and Dose-Specific Changes in Offspring Birth Outcomes, Placental Morphology, and Gene Networks. Toxicol Sci, 2021.’

**Marquea D. King, PhD, USDA/ARS**  
United States Department of Agriculture’s 2021 Agricultural Research Service (ARS) Administrative and Program Management Award, Leadership and Management

**Sharon A. Meyer, PhD**, University of Louisiana Monroe  
Awarded University of Louisiana/Willis Knighton Endowed Professorship in Toxicology

**Laura M. Patrone, PhD, DABT**, PTC Therapeutics, Inc.  
PTC Therapeutics 2020 CEO Award “in recognition of exemplifying Ever Better and fulfilling the PTC mission of making every day count” during unprecedented times.

**Awards (Non-employer)**

**Sarah Belprerain, MS**, Teleflex  
Awarded North American Travel Grant from the American College of Toxicology (ACT) for a poster presentation at the annual ACT conference. Presented three posters at the ACT conference.

**Marion Ehrich, RPh, PhD**, Virginia Maryland College of Veterinary Medicine  
ACT 2021 Mildred Christian Women's Leadership in Toxicology Award

**Debra Laskin, PhD**, Rutgers University  
Received Rutgers Biomedical Health Sciences Chancellor Distinguished Mentor Award (2021), ASPET Division for Toxicology, Career Investigator Award (2021), and Society of Toxicology Immunotoxicology Specialty Section Paper of the Year Award (2021) for Regulation of Lung Macrophage Activation and Oxidative Stress following Ozone Exposure by Farnesoid X Receptor, Toxicological Sciences, 177: 441-453, 2020.
Celebrating YOUR Success!

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Please share your recent accomplishments to be highlighted in the next newsletter edition! Click HERE to fill in a short questionnaire. This link will remain active until june 1, 2022. We look forward to hearing your good news!

Grants/Funding
Sarah Carratt, PhD, OHSU Knight Cancer Institute
Received American Society of Hematology (ASH) Research Restart Award, and published three papers regarding leukemia research.

Janice Chambers, PhD, Mississippi State University
Appointed Principal Investigator of a new NIH Cooperative Agreement in the Countermeasures Against Chemical Threats (CounterACT) program, her fourth project with CounterACT that will allow her team to continue acetylcholinesterase reactivator research over the next five years.

Elected/Appointed Leadership
M. Elizabeth Marder, PhD, CalEPA Office of Environmental Health Hazard Assessment (OEHHA)
Appointed as an Assistant Adjunct Professor with the Department of Environmental Toxicology at the University of California, Davis, where she has been lecturing for 5 years, including as the lead instructor for one course on human health risk assessment for the past three years.

Gloria Post, PhD, NJ Dept of Environmental Protection
Appointed to the chartered (main) EPA Science Advisory Board, the EPA Science Advisory Board Chemical Assessment Advisory Committee, and the EPA Science Advisory Board PFAS Review Panel.

Other
Anne Chappelle, PhD, Anne Chappelle Consulting
Served as co-host of the SOT Podcast Adverse Reactions with David Faulkner; season 1 is available at https://www.adversereactionspodcast.com/ and Season 2 will be released in late 2021. Appeared in Wired Magazine's segment of Tech Support to address 'poison related tweets' from Twitter; the segment was released on 25 October 2021 with ~2 million views: https://youtu.be/0YLno_k3034

Dorothy Colagiovanni, PhD, Pfizer
Served as keynote speaker for the University of Colorado Anschutz Campus for the Women in Stem (WiSTEM) 5th Annual Symposium discussing "Careers and Family - How to Balance it All" 

Judith T. Zelikoff, PhD, Community Ally Award by North Brooklyn Neighbors, Brooklyn, NY, in recognition of demonstrated commitment to building lasting, valuable community-academic partnerships.

Interested in contributing to a future WIT newsletter? Contact WIT Secretary-Treasurer: gchappell@toxstrategies.com

And... WIT is launching initiatives targeting discrimination and harassment – send us an email (gchappell@toxstrategies.com) if you have an interest in helping to shape these initiatives or want to share a story, opinion, experience, or comment in a future newsletter. We want to hear from you!

~ Thanks for reading! ~