Newsletter: 2022

Drug Discovery Toxicology Specialty Section (DDTSS)

INSIDE THIS ISSUE:

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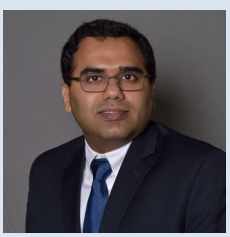

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See you in Nashville 2023!

See you in Nashville 2023!

President's Message

DDTSS President Brandon Jeffy

Welcome to the Fall 2022 Drug Discovery Toxicology Specialty Section newsletter!

Dear DDTSS Members,

Wow…hard to believe it is already Fall – seems like we just were at SOT in San Diego! The dream of having an in-person SOT conference after the initial phase of the COVID-19 pandemic came to fruition this past March, and although it was a smaller conference than in previous years, it was so great to see actual (not virtual) people, posters, and scientific sessions again (especially at the DDTSS reception).

Although COVID-19 is not completely gone, thanks to the rapid pace of development of highly effective and safe vaccines and a better understanding of the natural history of this disease, we have now adjusted to the 'new normal' of learning to live with COVID as an endemic, but manageable pathogen. That being said, there are still many significant new challenges facing the field of drug discovery toxicology, including adjusting to new hybrid/remote working models, shortages of animals available for research (especially nonhuman primates), increased cost of research and development, overbooked contract research labs, and immense competition for toxicologists in the 'war for talent'.

Even with today's challenges, this is a very exciting time in drug discovery toxicology as well. We are in the midst of an explosion of new therapeutic modalities, many with uncharted exploratory and regulatory safety paths…and this provides us with the opportunity to shape the currently ongoing paradigm shift in pharmaceutical industry - away from the old model of small molecules comprising the majority of a company's portfolio and well-trodden regulatory paths with clear precedent and guidelines. I see this as an amazing opportunity for all of us to help determine future of drug discovery by driving the transformation of pharma industry.

It has been a privilege to work with all the DDTSS officers and to meet so many great students, postdocs, and career toxicologists. If you would like to join the Drug Discovery Toxicology Specialty Section leadership team I would really encourage you to submit your application for an open officer position in the upcoming elections. Please find open positions on page 9 – or reach out to any of the current officers for additional information!

I wish you all a safe, happy, and healthy end of 2022 and am really excited to see you at our DDTSS reception and other events at SOT 2023 in Nashville next March!

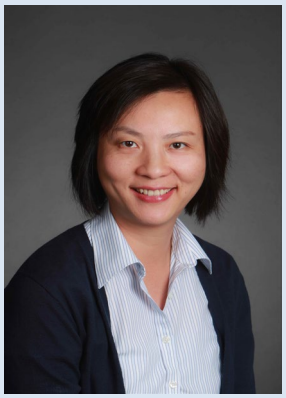
DDTSS SOT Activities and Competitions (2022)

Our congratulations!!

Previous DDTSS Officers: Thank you for your service!

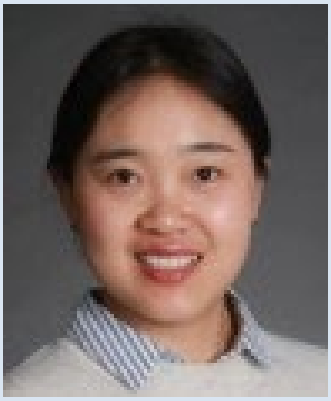
Past President

Zoe Zhong



Councilor

Connie Wu

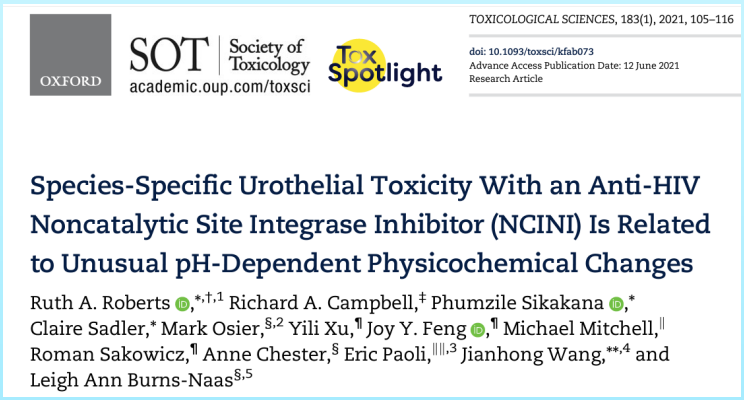


2022 Drug Discovery Toxicology Paper of the Year Award

Species-Specific Urothelial Toxicity With an Anti-HIV Noncatalytic Site Integrase Inhibitor (NCINI) Is Related to Unusual pH-Dependent Physicochemical Changes

Ruth A Roberts, Richard A Campbell, Phumzile Sikakana, Claire Sadler, Mark Osier, Yili Xu, Joy Y Feng, Michael Mitchell, Roman Sakowicz, Anne Chester, Eric Paoli, Jianhong Wang, Leigh Ann Burns-Naas

TOXICOLOGICAL SCIENCES, 183(1), 2021, 105-116


OXFORD SOT Society of Toxicology academic.oup.com/toxsci Tox Spotlight

TOXICOLOGICAL SCIENCES, 183(1), 2021, 105–116

doi: 10.1093/toxsci/kfab073
Advance Access Publication Date: 12 June 2021
Research Article

Species-Specific Urothelial Toxicity With an Anti-HIV Noncatalytic Site Integrase Inhibitor (NCINI) Is Related to Unusual pH-Dependent Physicochemical Changes

Ruth A. Roberts,*,†,1 Richard A. Campbell,‡ Phumzile Sikakana,* Claire Sadler,* Mark Osier,§,2 Yili Xu,¶ Joy Y. Feng,¶ Michael Mitchell,‖ Roman Sakowicz,¶ Anne Chester,§ Eric Paoli,‖,3 Jianhong Wang,**,4 and Leigh Ann Burns-Naas§,5

Drs. Ruth Roberts and Leigh Ann Burns-Naas presented this work in our DDTSS-sponsored webinar. She accepted this award at the 2022 DDTSS reception at the SOT Annual Meeting in San Diego. See pages 5 and 6 for some great photos of our reception!

DDTSS SOT Annual Meeting Poster Awards (2022)

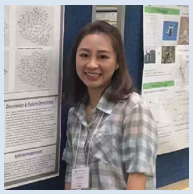
Graduate student Winners

1st Place: Ray Hau, Department of Pharmacology & Toxicology, University of Arizona, Tucson, AZ, USA

Poster title "Characterization of the Transporter-Mediated Uptake of the Experimental Male Contraceptive H2-Gamendazole"

2nd Place: Rulaiha Taylor, Department of Pharmacology & Toxicology, Rutgers University, New Brunswick, NJ, USA

Poster title *"Characterization of Deoxycholic Acid Bile Acid Signaling in Novel Low Bile Acid Mouse Model"*



***3rd* Place: Lydia Zhang (Tie), Department of Toxicology, Texas A&M University, College Station, TX, USA**

Poster title *"Resveratrol is a Nuclear Receptor 4A1 (NR4A1) Ligand that Antagonizes NR4A1-Regulated Pro-Oncogenic Pathways in Lung Cancer"*

***3rd* Place (Tie): Shreyas Gaikwad, Department of Pharmaceutical Sciences, Texas Tech University, Lubbock, TX, USA**

Poster title *"A Novel Anti-Parasitic Drug Suppresses Pancreatic Cancer by Modulating the Immune Microenvironment"*

Postdoctoral Winners

1st Place: Souvarish Sarkar, Department of Pathology, Harvard Medical School, Boston, MA, USA

Poster title "A Multiplex Model in a Drosophila Identifies Novel Gene-Environment Interactions: A Step Towards Personalized Medicine"

2nd Place: Dinesh Babu, Department of Pharmacy & Pharmaceutical Sciences, University of Alberta, Edmonton, AB, Canada.

Poster title "Edaravone (Radicava) as an Antioxidant Adjuvant to Attenuate Clozapine (Clorazil) Toxicity *In Vivo*"

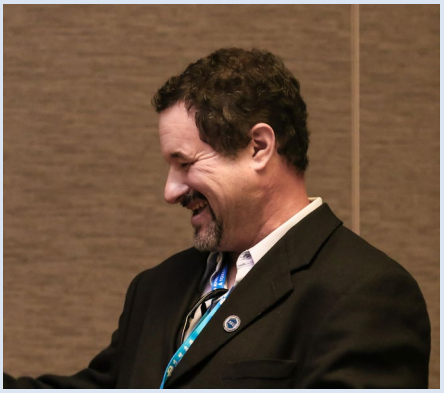
3rd Place (Tie): Kumaravel Mohankumar, Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX, USA

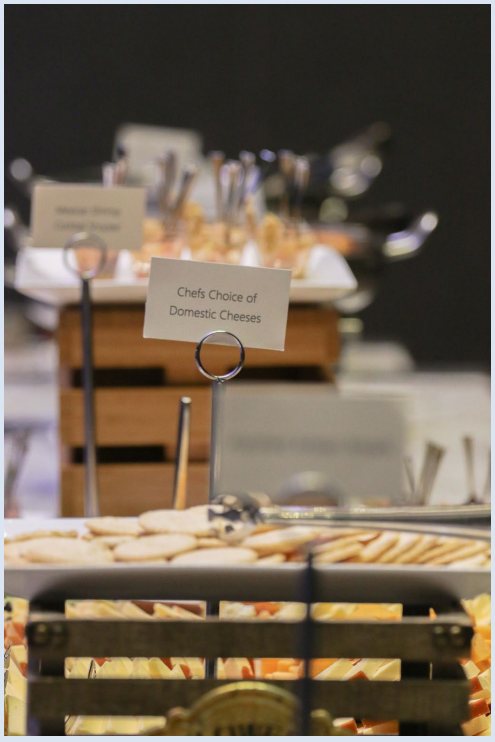
Poster title "Bis-Indole Derived NR4A1 Antagonists Inhibit Colon Tumor Growth and T-cell Exhaustion"

3rd Place (Tie): Muthanna Sultan, Department of Pathology, Microbiology and Immunology, University of South Carolina, Columbia, SC, USA

Poster title "The Protection Mediated by Endocannabinoid Anandamide Against Staphylococcus Enterotoxin B-Induced Acute Respiratory Distress Syndrome is Regulated Through MicroRNA that Trigger Pro-apoptotic Genes in Immune Cells"

Photos from DDTSS SOT Annual Meeting Reception (2022)





Photos from DDTSS SOT Annual Meeting Reception (2022)

Award Winners in Attendance:

Ruth Roberts & Leigh Ann Burns-Naas

Souvarish Sarkar

Lydia Zhang

Ray Hau

Kumaravel Mohankumar

Rulaiha Taylor

…..to submit your ground-breaking drug discovery toxicology publications for…

Our Annual Science Competition! – Drug Discovery Toxicology Paper of the Year Award!

We are pleased to announce that for the sixth year running we will be awarding a prize for the drug discovery toxicology 'Paper of the Year'. The winner will receive a plaque of recognition and a financial award at the 2023 SOT Drug Discovery reception. There will also be an opportunity for this work to presented at the reception. Application is open to all DDTSS members. You must be senior or first author and the paper must have been accepted or published in 2022. Papers for consideration can be submitted at any time before the **15th December 2022 deadline** to Lauren Lewis (lauren.lewis@bms.com). Please feel free to encourage students and/or postdocs and to reach out to colleagues to make them aware of this new and exciting opportunity to share their work.

…and to submit your outstanding research for…

The 2023 DDTSS Student and Postdoctoral Fellow Poster Competition and Emil A. Pfitzer Travel Award!

Abstracts should describe original research with high relevance for the field of drug discovery and investigative toxicology. All abstracts will be evaluated for scientific merit and relevance and a selected set of student and postdoc finalists will be invited to present their posters for judging at the SOT meeting in Nashville. First, second and third place winners will be announced at the DDTSS reception and cash prizes will be awarded from the Emil A. Pfitzer Endowment fund for winning entries. Abstracts should be submitted to Saurabh Vispute (saurabh.vispute@pfizer.com) no later than **29th December 2022**.

SOT
62nd Annual Meeting
& ToxExpo • Nashville, TN
March 19–23, 2023

CE Course

DDTSS will host CE at 2023 SOT annual meeting!

Advanced Discovery Toxicology: Integrating Toxicology with Other Functions on the Team

(Sunday, March 19th)

- Overview of cross-functional aspects of toxicologist in drug development (Dinah Misner, Aligos Therapeutics)
- Making sense of the bonds between Chemistry and Toxicology (Graham Smith, AstraZeneca)
- Toxicity prediction from a DMPK aspect in drug discovery (Tomoya Yukawa, Takeda)
- A pragmatic approach in utilizing in vitro metabolite identification for species selection (Jonathan Maher, Pliant Therapeutics)
- Formulation fundamentals: From theory to practice (Vijay Sethuraman, Genentech)
- Machine learning to enable off-target hypotheses generation (Yuan Wang, UCB)
- Interactive Session: How to efficiently anchor "non-toxicology" discussions to toxicology (Marie Lemper, UCB and Satoko Kiyota, Genentech)

Mentoring Luncheon

We will be holding mentoring luncheon for students and postdocs at the 2023 SOT meeting in Nashville. Members of the DDTSS leadership committee will be available to discuss careers in pharmaceutical drug discovery toxicology and to answer any questions. More info to come. Anyone wishing to attend can already contact Satoko Kiyota (kiyota.satoko@gene.com). Date/time and location will be updated prior to the meeting.

DDTSS Reception

Tuesday, March 21st:

Please join us for our DDTSS reception. This year our reception will focus on CONNECTIONS. Stay tuned for a time and location! We hope to see you there!

Upcoming DDTSS sponsored webinar

"ADME in Liver Disease: Increased Risk of Drug-Induced Toxicity"

Organized by Dr. Brandon Jeffy, Takeda, Dr. Lauren Lewis, Bristol Myers Squibb, and Raymond Hau, The University of Arizona

Speaker: **Dr. Nathan Cherrington, The University of Arizona**

November 11, 2022
Time: 12 pm EST

Registration link to be sent by email in near future!

Past DDTSS sponsored webinar

"Nonclinical Safety Assessment of AMG 553, an Investigational Chimeric Antigen Receptor T-Cell Therapy for the Treatment of Acute Myeloid Leukemia"

Organized by Dr. Kai Connie Wu, Genentech and Dr. Brandon Jeffy, Takeda

Speaker: **Dr. Christine Karbowski, Amgen**

Wednesday, October 27

10 - 11 am PT / 12 - 1 pm CT / 1 - 2 pm ET

Stay Tuned — More to Come!!!

Engage Undergraduates in the Pursuit of Toxicology Career!

Shengjie Xu
Postdoctoral Scientist | Investigative Toxicology
Bristol Myers Squibb

If you're passionate about working in the industry or still debating between industry and academia, an industrial postdoc might be an excellent choice for you as a fresh PhD! Compared to postdocs in academia, industrial postdocs usually work on program-oriented research projects based on the internal needs. At Bristol Myers Squibb, my project focuses on model development to support nonclinical safety programs in drug development. It has been a fruitful journey to learn about cutting-edge techniques, the drug discovery process, and different facets of the pharmaceutical industry from elite scientists in the field. Although most industrial postdoc positions are temporary employees, it definitely helps lay the foundation of your career by building personal and professional networks in big pharma. Overall, I'd recommend it as the first step after graduate school!

Benoit Cox
Senior Scientist | ADME
UCB

A postdoc in industry: What is it? Is it worth it?
Benoit Cox did an industrial postdoc at UCB in Belgium. He describes it as a hybrid position at the intersect between industry and academia, where you can experience the best of both and make an informed decision what environment you prefer.

When looking for a new job after I finished my PhD at university, I had one rule: I won't do a postdoc. Sure, I enjoyed the basic and innovative science during my PhD. However, I wasn't happy about my work-life balance, disappointed about how everyone seemed on its own 'project island' with limited connections to others, and afraid of several uncertainties associated with academia (publish or perish, the endless pursuit of new funds to continue the research). Most of all, I wanted to have a job where I didn't feel stuck on one career track.

Although I didn't have any experience in industry, I was attracted to continue my scientist career in a drug discovery and development setting. I imagined the industry to be a place where your research has a more tangible impact and where projects rely on close interactions between different functions. Sadly, my applications for R&D scientist positions were unsuccessful, with two recurrent themes: 1) no previous experience in industry and 2) insufficient relevant background for the role. A little later a new application came online: a postdoc position at the company UCB, and a perfect match for my skill set. Although I started this story with the rule 'I won't do a postdoc', I saw this position as an alternative pathway to gain a foothold into a company and build experience in an R&D setting. I applied and got the position. Still, before starting, I was wondering how different the company would be from an academic setting. Would it still feel like doing science?

After a few days into the industry, I was reassured that I made the right choice. As a postdoc, you're not immediately involved in drug portfolio projects, instead you apply your academic curiosity to drive the implementation of innovative assays that add value to the company. As an industry postdoc, I sat at the intersect between academia and industry, at the frontier between promising new developments in academia and their readiness to use within a drug discovery setting. The science is less fundamental and more applied compared to academia, but I still enjoyed solving scientific challenges, reading and publishing papers. Although I was the only one in charge on my 'project island', I had supervision from several managers, moreover the collaborative environment allowed me to form many bridges within the company and with other companies and universities. I had the opportunity to present my work to a wider audience both internally or at conferences, and I learned how to discuss projects not only from a scientific, but also a strategic viewpoint.

After 2 years of industry postdoc, I decided to continue as a scientist in the industry, where I now perform portfolio project-related work while keeping an eye on new developments within my area of expertise. Nevertheless, the industry postdoc could equally have been a stepping stone towards an academic career. To summarize, a postdoc in industry is a hybrid role which allows you to see both the academic and company worlds in action and to make an informed decision which environment you like best.

Leah Norona
Scientist | Safety Assessment
Genentech

The Industry Postdoc, an Alternative Career Opportunity

If you are considering a career in industry, an industry postdoc might be a great way to get your foot in the door and experience first-hand what it's like to work at a company. These types of programs are becoming more common as companies like Genentech, Pfizer, AstraZeneca, Novartis, Amgen and others have realized the benefit of recruiting early career research scientists to bring fresh new perspectives and talent to help solve some of world's most challenging problems.

Like most folks who have just completed (or are about to complete) their doctoral training, I was excited to embark on the next phase of my career. I was almost certain I did not want to stay in academia. But at the same time, I didn't know much about industry aside from professors who, throughout my academic career, harped on the perception that a career in industry is "turning to the dark side." Turns out, this isn't the case and you really have to connect with folks in industry to learn more about these opportunities. There are plenty of ways to make a significant impact but also have the intellectual freedom to contribute to basic science.

So why a postdoc? If you are set on transitioning to industry, why not just apply to a full-time position? You can think of a postdoc as protected phase of your career where you not only contribute original research but also further hone your skills to become a well-rounded scientist. A postdoc in industry is just that but you are immersed in a highly collaborative, fast-paced environment without the high-stakes to meet aggressive deadlines. On top of that, you have the unique opportunity to train with brilliant experts in the field (shout out to my postdoc mentors Will Proctor and Jonathan Maher!) and leverage available cutting-edge tools and resources- things you have only dreamed about in graduate school. This time can be thought of as a reciprocal trial period where you can get a feel for industry while your potential future employer gets to see if you are a good fit for the team.

The nice thing is that industry postdocs are often accelerated (~3 years) and salaries are much more competitive compared to an academic postdoc. You can typically enjoy a number of other perks and most benefits that full-time employees get. Of course, not all companies are the same. If you find that this career path is not for you, it's not the end of the world should you transition to another opportunity. Most recruiters won't hold it against you for leaving a postdoc "early" or doing multiple postdocs versus moving between various full-time positions within a short period of time. For Genentech in particular, the value and support given to contribute to the broader scientific field whether that be in the form of publishing papers in top tier journals or attending conferences still makes for an attractive postdoc- there are still opportunities and support to transition back to academia if you choose to do so.

You may be wondering how a postdoc fits in with the goals of the broader company. While postdocs do not work directly on portfolio projects, there are other opportunities to explore uncharted territory, develop novel approaches and tools that can impact programs or even become the foundation for a program in the future. For a postdoc in Safety Assessment, this involved developing new assays and strategies to mitigate safety risks based on learnings from failed molecules and it provided an opportunity to really delve into what we might be missing in our current strategy. In addition, there was a lot to learn about the drug development process (something that isn't taught in grad school). As a postdoc, it can be a bit isolating when everyone around you is working on a projects or goals that directly impact the portfolio. Depending on the size of the postdoctoral program, there is typically a vibrant community of postdocs and mentors to support you and organized events such as seminar series, lunches, an offsite, career day and networking events. There are also numerous other ways to connect with people at all levels about ongoing projects and challenges.

Now that I have transitioned to a scientist role in the company, I am utilizing all of the skills and connections I made during my postdoc to really hit the ground running in my current role. It has been a lot more exciting to see how my work and my group's efforts directly impact the development pipeline and influence portfolio decisions. If you are considering an industry postdoc, go for it! Remember, don't pass up opportunities to network. Your next connection might help you land a postdoc position in industry.

List of Past Presidents

Marie Lemper	**2021**
Zoe Zhong	**2020**
Dinah Misner	**2019**
Howard Mellor	**2018**
Peter Newham	**2017**
Ray Kemper	**2016**
Dan Kemp	**2015**
Andrew Olaharski	**2014**
Yvonne Will	**2013**
John Wisler	**2012**
Craig Thomas	**2011**
Cindy Ashfari	**2010**
John Davis	**2009**
Kyle Kolaja	**2008**
Drew Badger	**2004-2007**

DDTSS leadership positions that will be open in this coming year's election:

- Vice President-Elect (4-year commitment)
- Councilor (2-year commitment)
- Postdoctoral Representative (2-year commitment)
- Graduate Student Representative (2-year commitment)

If you're interested in becoming part of the leadership team please submit your Biosketch asap to brandon.jeffy@takeda.com. Self-nominations are welcome. Deadline to receive nominations is **November 14th, 2022.**

See you in Nashville 2023!

To do list:

1. **Don't forget your submission for the paper of the year and poster awards!**
2. **Make sure to attend:**

- **CE course:** *Advanced Discovery Toxicology: Integrating Toxicology with Other Functions on the Team* ***(Sunday, March 19th)***
- **DDTSS Reception (Tuesday, March 21st)**
- **DDTSS Mentoring luncheon:** More info to come!