

# Newsletter: 2020

# Drug Discovery Toxicology Specialty Section (DDTSS)

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## **President's Message**

### **Welcome to the Drug Discovery Toxicology Specialty Section newsletter!**

Dear Colleagues,

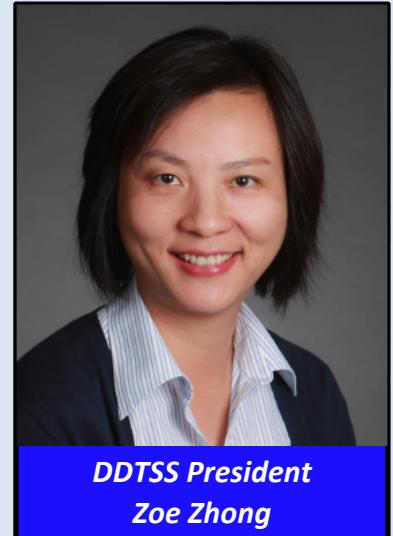
While the global coronavirus pandemic has held our attention since March, this edition of the President's Message will focus on the greater mission that brings us all together.

Originally founded in 2005, the drug discovery toxicology specialty section has been a forum for our members to discuss emerging technologies, to incorporate predictive and integrative toxicological approaches early in drug discovery and development. Early application of these approaches is the key to identifying potential liabilities and providing necessary perspective that helps reduce attrition of drug candidates at later stages of the process.

Although the 2020 SOT annual conference has to be cancelled due to COVID-19, we were able to successfully hold the competition for "Paper of the Year" awards and outstanding student/postdoc poster awards. The winner of the "Paper of the Year" award were Drs Shidal, Singh, Nagarkatti and Nagarkatti (Page 4). The winners for the outstanding student/postdoc poster awards were presented Emil Pfizer travel awards (Page 5). We are currently soliciting submissions for these competitions for this year. The winners for these competitions will be acknowledged at future SOT meeting.

As we learn to adapt to working and connecting virtually, we have placed more emphasis on webinars that highlight exciting new areas of research, and support the career development of the next generation of discovery toxicologists. We have hosted/sponsored 2 webinars so far in 2020 (Page 6), and are constantly looking for new suggestions, so please reach out with suggestions or if you wish to present! We are looking for ideas to continue outreach to our students and postdoctoral members.

Personally, I've been involved in the DDTSS leadership committee since 2018. I am truly blessed to have worked with such a group of brilliant and dedicated individuals. I have grown tremendously professionally as well as personally as a result of that. I encourage you all to continue your involvement with the section, and provide feedback on any ideas you may have or ways we can continue to grow and improve.



**DDTSS President  
Zoe Zhong**

**I wish you all a happy and safe beginning to autumn. We look forward to connecting with you at the virtual 2021 SOT annual meeting!**

## **Special Guest Contribution - Career corner**

**Sucheta Mukherjee, PhD; Scientist I, Toxicology, Aligos Therapeutics, Inc.**

The decision to devote my career to drug discovery and development was an intuitive one. I am motivated on a personal level, as I have been impacted by chronic disease through friends and family thus providing a sense of purpose to my work. At an intellectual level, I crave the rigorous and challenging nature of drug discovery that is evolving as our understanding of disease and drug design changes over time. For these reasons, I have been engaged in drug discovery since I began my research career as an undergraduate. While studying DNA damage checkpoints at Cornell University, I soon became passionate about further understanding disease mechanisms to uncover targeted therapies to treat disease while sparing adverse effects to body.

To pursue a career in drug discovery, I sought out translational research projects and funding during my academic training. This was one of the most effective approaches for me, as having insight into lab funding sources (i.e. private industry or government agencies geared toward drug discovery), professors' publications and patents, and current trainees' projects, helped me find labs with ongoing translational projects. My graduate work in pharmacology/toxicology at UC Davis involved characterization of an endonuclease involved in DNA repair that we identified as a novel anti-cancer therapeutic target. For my postdoctoral research at UCSF, I strove to go beyond the skills I gained in graduate school to gain a cancer biology and clinical perspective to drug discovery. My postdoctoral lab was highly collaborative with labs at UCSF and at other institutions, including an industry partner that licensed our lead drug candidate. We combined different scientific expertise to create an exciting preclinical targeted therapeutic pipeline. While at UC Davis and UCSF, I was fortunate to receive funding from agencies that support drug discovery (i.e. DoD and NIH), which also came with opportunities for career development, including presenting at conferences and attending networking events.

While building my research expertise in my academic career, several key resources were useful to explore industry drug discovery toxicology. For example:

- Created **Individual Development Plans** with my mentors at the onset of my training, to ensure that I obtain the skills that I needed to be a successful independent researcher, and also keep an ongoing dialogue with my academic mentors about my career goals.
- Utilized the **Career Services** at my academic institutions for assistance to identify potential career paths and prepare application materials that effectively described how I could leverage my research experience to support drug discovery in an industry setting.
- Fostered **connection with biotechnology and healthcare professionals outside of my labs** to obtain their feedback on my academic progress and professional goals. It was invaluable to attended mentoring events at conferences like SOT and within DDTSS and contacted alumni of my academic institutions to set up informational interviews to learn more about drug discovery toxicology.
- **Stayed Connected!** Most importantly, staying in contact with my industry mentors occasionally helped me maintain the relationships throughout my academic career.

Now that I reflect on my time as a relatively new Toxicologist at Aligos Therapeutics, I appreciate the intricacies of drug discovery and regulatory toxicology in an industry setting. Although there are often swift project timelines, I welcome the opportunity to work in cross-functional teams and support multiple projects that span several disease indications and drug modalities. I hope this glimpse into my career trajectory and the lessons I have learned along the way are beneficial for future drug discovery toxicologists. Best of luck!

## DDTSS SOT 2020 Activities and Competitions



Our virtual acknowledgement and congratulations!!

**Thank you for your service!**

**Past President**

**Dinah Lee Misner**



**Past Councilor**

**Marianna Stamou**



### 2020 Drug Discovery Toxicology Paper of the Year Award

**MicroRNA-92 Expression in CD133+  
Melanoma Stem Cells Regulates  
Immunosuppression in the Tumor  
Microenvironment via Integrin-  
Dependent Activation of TGF $\beta$ .**

Shidal, C., Singh, N., Nagarkatti, P. and  
Nagarkatti, M.

Cancer Research 79:3622-3636, 2019



L to R: Drs. Chris Shidal, Mitzi Nagarkatti and Prakash Nagarkatti.

Cancers are triggered by multiple pathways including carcinogens. It is well established that cancer cells survive in vivo by creating immunosuppressive microenvironment. Our publication in Cancer Research, a high impact journal, demonstrated for the first that microRNA-92 (miR92) is responsible for causing immunosuppression in the microenvironment of the cancer by induction of transforming growth factor  $\beta$  (TGF $\beta$ ). These studies form the basis for developing miRNA-based therapeutics or drugs that target this pathway thereby promoting immunotherapy of cancer.

## DDTSS SOT Annual Meeting Poster Awards (2020)

### Graduate student Winners



#### 1<sup>st</sup> Place: Siennah Miller, University of Arizona, Tucson, AZ.

Siennah's winning poster was titled "Modeling Blood-Testis Barrier Characteristics with Novel CRISPR/Cas9 Functional ENT1 and ENT2 Knockout HeLa Cell Lines".



#### 2<sup>nd</sup> Place: Sharavan Ramachandran, Texas Tech University Health Sciences Center, Abilene, TX.

Sharavan's poster was titled 'Pancreatic tumor growth suppression through induction of autophagy by a novel anti-parkinson drug Pimavanserin'.



#### 3<sup>rd</sup> Place: Alkeiver Cannon, University of South Carolina School of Medicine, Columbia, SC.

Alkeiver's poster was titled 'Treatment with AhR Ligands Modulates Concanavalin-Induced T Cell-Mediated Liver Injury by miRNA Dysregulation'



#### 1<sup>st</sup> Place: Sarah Carratt, Oregon Health & Science University, Portland, OR.

Sarah's winning poster was titled "Mitigating toxicity through targeted therapy for SETBP1-mutant leukemia".



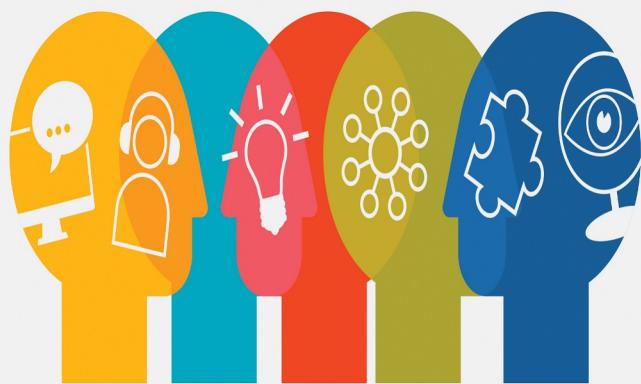
#### 2<sup>nd</sup> Place: Souvarish Sarkar, Brigham and Women's Hospital, Harvard Medical School, Boston, MA

Souvarish's poster was titled "Multiplex analysis in a *Drosophila* gene-environment model identifies interactions among LRRK2, rotenone and  $\alpha$ -synuclein".



#### 3<sup>rd</sup> place: Leah Norona, Genentech, South San Francisco, CA.

Leah's poster was titled "Assessing the Prevalence and Predictivity of FXR Antagonism in Drug-Induced Liver Injury".



# W•E•B•O•N•A•R

**DDTSS** endorsed webinar:  
**“In Vitro Microphysiological Systems: Developing Tools to Evaluate Immunotoxicity of Drug Candidates”**

Speakers: Drs. Marshall, Chou, Khademhosseini, Horland, Fitzpatrick, Bahinski

**Wednesday, May 27**  
**1-4 pm ET**

CTSS and **DDTSS** co-sponsored webinar:  
**“Artificial Intelligence in the Design of Safer Medicines – Science or Science Fiction?”**

Organized by Catrin Hasselgren, PhD, Genentech and Zoe Zhong, PhD, DABT, Genentech  
Speaker: Dr. **Nigel Green**, Director, Head of Data Science and Artificial Intelligence, Drug Safety and Metabolism at AstraZeneca

**Thursday, June 25**  
**11 am-12 pm ET**

**Upcoming DDTSS** sponsored webinar:  
**“Insightful Tips for Career Planning”**

Organized by Dr. Marie Lemper, UCB and Dr. Monica Langley, Mayo Clinic  
Speakers: Lauren Celano, Propel Careers; Dr. Lorna Ewart, Emulate Bio; and Dr. Sucheta Mukherjee, Aligos Therapeutics

**Monday, October 19**  
**11 am-12 pm ET**

**Stay Tuned—More to Come!!!**



# I WANT YOU

*.....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 **third** 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 2021 SOT Meeting. There will also be an opportunity for this work to be presented. Application is open to all DDTSS members. You must be senior or first author and the paper must be accepted or published between January 1-December 31, 2020. Papers for consideration can be submitted at any time before the **11<sup>th</sup> January 2021 deadline** to [Connie Wu \(wu.kai@gene.com\)](mailto:Connie.Wu@gene.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 2021 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 authors of the top 5 student abstracts and the top 5 postdoc abstracts will be invited to present their posters for judging at the virtual SOT meeting. First, second and third place winners will be announced and cash prizes will be awarded from the Emil A. Pfitzer Endowment fund for winning entries. Abstracts should be submitted to [Pankajini Mallick \(pmallick@neurocrine.com\)](mailto:Pankajini.Mallick@neurocrine.com) no later than **7<sup>th</sup> February 2021**.

## **SOT 2021 Workshops/Symposium sponsored by DDTSS**

- “Controlling the Message: Safely Navigating the Development of Novel Oligonucleotide Therapeutics”
- “Industrial Applications of Artificial Intelligence in Toxicology”
- “Bile Acids Profiling as Biomarkers for Hepatobiliary Toxicity and Disease”
- “Application of Computational Genomic Approaches to Address Toxicity Mechanisms and Prediction”
- “Using Human Genetics to Aid in Safety Assessment of Therapeutics”



### **List of Past Presidents**

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

**Connect with you virtually for  
2021 SOT annual meeting!**