October 2020

Northern California

President's Message

Dear NorCal SOT Regional Chapter Members,

Greetings, and best wishes that each of you and your loved ones are safe and well!

A warm welcome to new members and thanks to all of our continued members of the NorCal SOT Regional Chapter. I am very honored to serve as the President of the second largest SOT regional chapter with over 500 members, while working with very talented and dedicated board members.

2020-2021 has been an unprecedented year with opportunities. While we were not able to hold the Spring Symposium in 2020, our Vice President Christopher Frantz and Vice President-Elect Mingyi Trimble have been looking for ways to offer continuity in our scientific programs. Chris enabled two webinars while bringing the members together with emerging and diverse topics in toxicology. He has scheduled two more webinars for the remainder of 2020. Furthermore, we thank you in advance for sharing ideas as to how make the programs in 2021 more interactive, engaging, and dynamic as the board members continue to discuss options for bringing members together and staying connected during this pandemic.

Our Postdoctoral Representative Alexandra Colón Rodriguez and Student Representative Bianca Yaghoobi did a fantastic job kicking off a virtual networking and mentoring program. With the recent announcement of 2021 SOT Annual Meeting to be held as a virtual event, our Councilors Donna Lee and Vanessa Clark are looking for options to support students and postdocs to participate in the 2021 annual meeting. Led by our Past Presidents, Dinah Misner, Doris Zane, and Toufan Parman, we are also looking into continuing K-12 Education Outreach Events as schools may be back in session.

The NorCal SOT Board is grateful for the support from our sponsors. Their support helps with our outreach and scientific programs. We appreciate new sponsors, and please contact our Treasurer Ray Zhang if you are interested in becoming one.

2020-2021 will be another exciting year for the NorCal SOT Regional Chapter, and we trust once again your continued support and participation!

Best Regards,

Andrea S. Kim, PhD, MBA, DABT
President, Northern California SOT Regional Chapter

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NorCal SOT 2020 Webinar Series

Upcoming Webinars

October 15, 2020, 12:00 Noon–1:30 PM (PT)

Utility of digital pathology and image analysis in non-clinical drug development and an introduction into machine learning

Famke Aeffner DVM PhD DACVP
Principal Pathologist; Amgen Inc, Amgen Research, Translational Safety and Bioanalytical Sciences, South San Francisco, CA, USA

Vanessa Schumacher DVM MS DABT DACVP
Head of Digital Pathology and Tissue Technologies; Pharma Research and Early Development, Roche Innovation Center Basel, Basel, Switzerland

Digital pathology and image analysis have not only impacted diagnostic pathology and academic research but are also commonly utilized in drug development research. This encompasses aspects such as target expression analysis via immunohistochemistry in human and animal tissues, analysis of early efficacy and toxicology studies, and digital pathology in the peer review process. Most recent advances in this field have been driven by the application of machine learning and deep learning. These fields within artificial intelligence (AI) have been demonstrated as powerful tools when it comes to histopathology. We will give an overview of cases where AI-powered tools can be useful in driving timely decision making by generating robust and reproducible data and improving workflow efficiency. Using these examples, we will outline important points to consider regarding implementation of digital pathology, including aspects of collaboration, slide evaluation, image analysis, and AI. The presentation will be divided in two parts. Part I will focus on introduction of the topic, basic concepts and the current state of digital peer review. Part II will focus on examples of machine learning tools and their use cases in pathology.

Registration link >>

November 12, 2020, 12:00 Noon–1:30 PM (PT)

QSAR Approaches in Toxicology for PMIs
Alejandra Trejo-Martin, BSc, MBA, Gilead

Application of (quantitative) structure-activity relationship (QSAR) models in the assessment of potential mutagenic impurities, including case studies illustrating the use of expert reviews to determine an outcome for conflicting or inconclusive predictions

Overview of acute toxicity, its use in Classification and Labelling (C&L), the 3Rs and the objective of project
Jean Lord, PhD, Ultragenyx

Determining whether (Q)SAR models are fit-for-purpose for classification and labelling
Glenn Myatt, PhD, Leadscope

Alternatives to acute oral *in vivo* studies, such as an *in silico* model, would support the replacement, reduction or refinement of the use of animals in toxicology studies. The results from these studies are used to set GHS categories used for the classification and labelling of chemicals. To assess whether *in silico* models can be used for this purpose, a cross-industry consortium was established to test the performance of the models based on proprietary chemicals. The known experimental values were compared to the predictions generated by the models. This presentation will demonstrate that greater than 95% of chemicals (from a blind study of over 2,000 chemicals) were either correctly predicted or were predicted with a more conservative category with the majority of these predictions being in the correct category or one category more conservative.

Results, the importance of expert review, how to perform an expert review
Catrin Hasselgren, PhD, Genentech

How to incorporate in silico assessments into the C&L workflow and concluding remarks
Melissa Masuda-Herrera, BS, MS, Gilead

Registration link >>

Past Webinars

September 10, 2020, 12:00 Noon–1:30 PM (PT)

Using Publicly Available Resources for Identifying and Characterizing Chemicals of Potential Toxicity Concern: Proof-of-Concept with Chemicals That Affect Cancer Pathways

Speaker: Shoba S. Iyer, PhD, Office of Environmental Health Hazard Assessment, Safer Alternatives Assessment and Biomonitoring Section

Biology Dictates Model Validity: A Case Study with Sulfuryl Fluoride

Speaker: Daisy Dong, PhD, California Environmental Protection Agency, Department of Pesticide Regulation, Risk Assessment Section

July 30, 2020, 12:00 Noon–1:30 PM (PT)

Computational Toxicology methods for Prediction of Preclinical Safety Endpoints
Speaker: Lennart T. Anger, PhD, ERT, Genentech

Small Molecule Lead Optimization to Increase Selectivity and Minimize Off-Target Effects
Speaker: Yu (Zoe) Zhong, PhD, DABT, Genentech

If you have ideas or suggestions for future NorCal SOT webinars we would like to hear from you. Please contact Chris Frantz (cfrantz@seagen.com) or Mingyi Trimble (Mingyi.Trimble@wuxiapptec.com)

We would like to recognize and thank our Sponsors for this webinar series:

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New NorCal SOT Members as of October 2020

Greetings,

On behalf of the members of the Northern California Regional Chapter, it is our pleasure to welcome the new members of the Society of Toxicology and the Northern California Regional Chapter. As a Regional Chapter member, you will discover many opportunities for communicating, collaborating, and connecting with your fellow members at the regional and national level. You can find more information on the Northern California SOT website including information on meetings, newsletters, awards, governance, educational outreach, and more. We welcome you again to the Society of Toxicology and invite you to become an active participant in the Northern California Regional Chapter.

Sincerely,
Your Northern California SOT Executive Committee

First Name	Last Name	Affiliation
Ann	Verwiel	ToxStrategies, Inc.
Abhishek	Venkatratnam	-

NorCal Undergraduate and Graduate Student and Postdoctoral Awards

Attention All NorCal Undergraduate and Graduate Student and Postdoctoral Members

The NorCal SOT regional chapter provides Undergraduate, Graduate Student and Postdoctoral Awards for the Society of Toxicology Annual Meeting. We encourage all eligible student and postdoctoral members to apply.

- Undergraduate Student Research Award for SOT Annual Meeting – One cash award up to a maximum of $500 will be used to reimburse original receipts to include all or partial costs of meeting and/or continuing education registration for the SOT Annual Meeting.

- Graduate Student Achievement Award – Cash award(s) on the basis of merit, including the quality, impact and novelty of the science

- Postdoctoral Achievement Award – Cash award(s) on the basis of merit, including the quality, impact and novelty of the science.

Application deadline: Jan 18, 2021 for all Awards.

Winners will be notified by February 17th, 2021.

Contact: Donna Lee (lee.donnaw@gene.com) and Vanessa Clark (clark.vanessa@gene.com)

More information on our Website:

https://www.toxicology.org/groups/rc/NorCal/awards.asp

Regional Chapter Collaboration and Communication Committee (RC4) Merit Award

RC4 has revised the award formerly known as the RC4 Undergraduate Travel Award to a merit-based award. This new merit-based award will be presented to three to four recipients in the amount of $500 each.

- This award enables the recipients to be recognized nationally at the Virtual SOT Annual Meeting and present a poster of a toxicology-related project. Award is contingent upon acceptance of an abstract by SOT, and award notification will follow abstract submissions.

Application deadline: October 18th, 2020

- If you are or know of an undergraduate who is doing toxicology research, please consider nominating them (or yourself) to the NorCal SOT Councilors Donna Lee (lee.donnaw@gene.com) and Vanessa Clark (clark.vanessa@gene.com)
- Notification of decision to applicant and applicant's Regional Chapter by November 21st, 2020

More information on the award guidelines and timeline can be found on the SOT website:

https://www.toxicology.org/awards/sot/awards.aspx?AwardID=273

NorCal SOT Mentoring Program (NCMP)

NorCal SOT launches their first Toxicology Mentoring Program

We are excited to announce the launch of our first toxicology mentoring program which started this Fall and will be virtual. The **NorCal SOT Mentoring Program (NCMP)** is a six-month mentoring program where we will match mentors (professionals in the field of toxicology) with scholars (undergraduate, graduate and postdocs) to develop professional relationships and promote toxicology as a potential professional career sector. Both mentors and mentees will commit to meeting for 1hr four times during the entirety of the program, but we encourage additional meetings based on need.

Our NCMP goals are:

1. To build community at NorCal SOT & connect trainees with academic, government, or industry professionals

2. Increase exposure to careers in toxicology & support students on career development journey

3. Increase diversity efforts that target underrepresented communities by providing them with professional development tools for success, while also promoting toxicology as a potential professional career sector

Details of the program

Fall program dates: September 14th to December 18th, 2020

Where: Meetings will be held virtually via Zoom or other virtual platform and will be scheduled by the mentees based on their/mentor's availability

How: If you are interested in serving as a **mentor** for this program, please complete the following form: **mentor sign up**

To register as a **mentee**, please complete this form: **mentee sign up**

Any application received after September 30th will be matched in the next cohort which will begin in January 2021.

For more information on this program, please contact the NorCal SOT Postdoc Representative Alexandra Colón-Rodríguez (acolonrodriguez@ucdavis.edu) or Graduate Student Representative Bianca Yaghoobi (byaghoobi@ucdavis.edu).

NorCal SOT would like to thank the first NCMP cohort mentors and mentees!

We would like to thank our first cohort of mentors that have volunteered their time to share their knowledge and expertise while also encouraging the next generation of toxicology professionals. ***Please see our mentors and their affiliations below.***

Shelley DeTeaux PhD, MPH
Chief, Human Health Assessment
Dept. of Pesticide Regulation
California EPA

Anna Engstrom, PhD
Scientist/Toxicologist
Genentech, Inc.

Rhiannon Hardwick PhD, DABT
Translational Safety Sciences
Theravance Biopharma

Andrea S. Kim, PhD, MBA, DABT
Senior Director, Toxicology
Global Blood Therapeutics

Alexandria G. Lau, PhD
Manager, Product Safety &
Scientific Affairs
Global Quality and Food Safety
E. & J. Gallo Winery

Pete Lohstroh PhD
Senior Toxicologist
Human Health Assessment
Toxicology & Dose Response Assessment
Dept. of Pesticide Regulation
California EPA

Sucheta Mukherjee, PhD
Scientist, Toxicologist
Aligos Therapeutics, Inc.

William Proctor, PhD, DABT
Director, Predictive Toxicology
Safety Assessment
Genentech, Inc.

Wilson Rumbeiha,
DVM, PhD, DABVT, DABT, ATS
Professor
Dept. of Molecular Biosciences
School of Veterinary Medicine
University of California, Davis

Claudio Sorrentino, PhD
Senior Toxicologist
NorCal Unit Chief
Human & Ecological Risk Office
Dept. of Toxic Substances Control
California EPA

Jeffrey Tepper PhD, DABT, DSP
Tepper Nonclinical Consulting

Kim Truong, PhD
Associate Toxicologist
California EPA

Mitra Geier, PhD
Associate Toxicologist
Department of Pesticide Regulation
California Environmental Protection Agency

Liz Tonkin, PhD
Senior Scientist
Genentech, Inc.

We would like to thank our mentee participants for giving us the opportunity to help them by facilitating the mentorship through our NorCal Mentoring Program. ***Please check out our first cohort of mentees below.***

Danielle Conklin
Undergraduate Student
Environmental Toxicology
University of California, Davis

Dontrel William Spencer Hairston
Graduate Student
Pharmacology & Toxicology
University of California, Davis

Chaeyoung Kim
Undergraduate Student
Environmental Toxicology
University of California, Davis

Kaisen Lin
Postdoctoral Researcher
Air Quality Research Center
University of California, Davis

Estefania Gonzalez-Navarro
Undergraduate Student
Environmental Toxicology
University of California, Davis

Ryan Hogans
Graduate Student
Molecular, Cellular and Integrative Physiology
University of California, Davis

Jennifer Laredo
Undergraduate Student
Environmental Toxicology
University of California, Davis

Nicole McNabb
Graduate Student
Pharmacology & Toxicology
University of California, Davis

Oscar Muñoz
Graduate Student
Pharmacology & Toxicology
University of California, Davis

Catherine Ngwengeh
Master's in Toxicology

Megan Ng
Undergraduate Student
Environmental Toxicology
University of California, Davis

Alicia Tavitian
Undergraduate Student
Environmental Toxicology
University of California, Davis

Krista Thongphanh
Graduate Student
Pharmacology & Toxicology
University of California, Davis

Rebecca Wilson
Graduate Student
Neuroscience
University of California, Davis

NorCal SOT Trainee Highlight!

My name is Lowei Lin and I am a PhD candidate from the program of Pharmacology and Toxicology at UC Davis. I am currently working in Dr. Robert Rice's lab in the Department of Environmental Toxicology. My project focuses on the impact of air pollution on the skin. I am fascinated by cellular pathology and disease induced by exposure to environmental chemicals. During my PhD training, I have learned to appreciate the complexity of the mechanisms by which a chemical produces its diverse biological or toxicological effects. I like to continue studying such phenomena in the future in academia or industry. I like teaching, the freedom to purse new idea and directions, and the communication with scholars and scientists at all levels.

Smoke from wildland fires and residential wood burning are major contributors to both indoor and outdoor harmful air quality [1]. In California, hot summers followed by strong and dry wind conditions has led to many seasonal wildfires in the fall. Every year, a series of forest and brush fires are recorded in California, giving rise to months of severe fire-related particulate air pollution throughout the region. Recently, an increased number of studies have indicated that prolonged or repetitive exposure to high levels of air pollutants may cause profound negative effects on the skin, including skin aging, inflammatory skin conditions (such as atopic derm atitis, eczema, psoriasis, and acne), and skin cancer [2].

Liquid smoke (LS) is generated by condensation of wood smoke from smoldering wood chips or sawdust under limited oxygen. Although the refining processes have reduced the levels of PAHs considerably, LS still contains many potentially harmful compounds that can also be found in wood smoke (e.g. aldehydes, phenols, and catechols) [3]. In addition, during biomass burning (e.g. residential wood burning, cigarette smoke, and forest fires), smoldering combustion is responsible for most of the biomass consumption [4]. As the process of biomass smoldering produces high quantities of particles and organic species, its emissions have been recommended for assessing human health exposure [5]. Therefore, as a product of wood smoldering, LS has been utilized in our lab to study the effects of wood smoke constituents on the skin barrier function.

1. Naeher, L.P., et al., *Woodsmoke health effects: a review.* Inhal Toxicol, 2007. **19**(1): p. 67-106.
2. Mancebo, S.E. and S.Q. Wang, *Recognizing the impact of ambient air pollution on skin health.* J Eur Acad Dermatol Venereol, 2015. **29**(12): p. 2326-32.
3. Simon, R., et al., *Composition and analysis of liquid smoke flavouring primary products.* J Sep Sci, 2005. **28**(9-10): p. 871-82.
4. Chan, L.K., et al., *Relationship between the molecular composition, visible light absorption, and health-related properties of smoldering woodsmoke aerosols.* Atmos. Chem. Phys., 2020. **20**(1): p. 539-559.
5. Morawska, L. and J.J. Zhang, *Combustion sources of particles. 1. Health relevance and source signatures.* Chemosphere, 2002. **49**(9): p. 1045-58.