

TOXTALK



PRESIDENT'S MESSAGE

Dear SOFT Colleagues and Friends,

I hope and you and your families are well and healthy and adjusting to the new normal as the world tries to recover from the COVID-19 pandemic. A lot has changed since I wrote my last message in the March issue of ToxTalk. Making the decision to cancel the most anticipated SOFT meeting, **the 50th anniversary meeting**, was one of the most difficult decisions I've had to make and I am grateful for all the help and support received from the Board, Executive Director Beth Olson, MRC Chair Marc LeBeau and the 2020 meeting hosts Dani Mata and Denice Teem. While safety of the attendees was the primary factor behind this decision, I want the membership to be informed of the various other considerations leading to this decision. **Understanding of the past is important for shaping the future.** Options explored were:

A. Keep the meeting as scheduled:

- It was highly unlikely that California would enter Stage 4 of re-opening and allow mass gatherings of hundreds of people by the September time frame.
- The survey conducted to obtain feedback indicated that we would not have the planned number of attendees due to factors including

travel restrictions, health concerns, and potential funding restrictions due to the impact on the economy.

- Our hotel contract required a certain number of room reservations and a minimum spend on food and beverage. In the event of not meeting these commitments, the hotel could impose heavy penalties.
- The budget impact was assessed for a meeting scenario of 50% attendance which showed a loss more than \$125,000 to SOFT in addition to any hotel penalties.

B. Reschedule the meeting to a future date:

- Due to the uncertainty surrounding the pandemic, an appropriate future date for holding the meeting could not be predicted. The financial implications of not meeting the hotel contractual commitments due to the situational uncertainty remained.
- We have signed contracts for future meetings to be held in 2021-2024, so replacing one of these future meetings with the San Diego meeting without significant financial penalties to SOFT (more than \$100,000) would not be

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PRESIDENT'S MESSAGE CONTINUED

possible.

C. Cancel the meeting

- The annual meeting profits support SOFT operational costs. The San Diego meeting was budgeted to generate about \$50,000 in revenue. Cancellation would result in a loss of the projected revenue.
- Cancellation would create a big gap in continuing education and networking opportunities this year for our members.
- We could negotiate a future meeting at the San Diego hotel to mitigate any penalties from the 2020 meeting contract cancellation.

D. Create virtual learning opportunities

- Participants could earn CE and network with their peers.
- Exhibitors/Sponsors could interact with people in the field.
- This could serve as an opportunity to earn back some of the revenue that would be lost by not holding the annual in-person meeting.

Shaping the Future

One of the focus areas for SOFT this year, as noted in my earlier message, is to provide members with online or virtual opportunities for continuing education. Cancellation of the 2020 meeting pushed us out of our comfort zones and injected the urgency to move forward this initiative. Every dark cloud has a silver lining! The Board has tasked Executive Director, Beth Olson to lead the SOFTember initiative, a virtual learning program delivered throughout the month of September in lieu of the annual meeting to support the CE needs of our members. A working task group has been formed under her leadership and with several of the 2020 meeting planning committee members serving. Please see her message on page 3 for further information about the group's activities. Although the virtual content cannot be a replacement for the social bonds and connections we make during the in-person interactions, the spontaneous scientific discussions over coffee or dinner, and the condensed and focused learning away from our daily distractions, it will pave the way for providing future

learning opportunities in-between the annual meetings and for those who are unable to attend.

In the coming days we will review the activities planned by the History Committee for the 50th anniversary meeting including the new SOFT awards that were to be instituted this year and make key decisions regarding appropriate timings and venue for those celebrations.

In my previous message I also talked about our responsibility to maintain a culture of inclusion, values and professional conduct that is respectful to all. The recent unrest in our nation, following several disturbing events, serves as a stark reminder of that responsibility for creating and maintaining a culture of mutual respect, inclusion, and equitable treatment in our personal and professional environments. In 2018, SOFT established the Culture, Values and Diversity Committee (CVD) to work collaboratively on issues related to equality, diversity, and inclusion. Earlier this year the committee was tasked with creating a SOFT Code of Conduct policy with the goal of setting clear expectations of conduct from attendees of all SOFT sanctioned events. The Code, listed below on page 23, was voted and unanimously approved by the board during the June 17th BOD meeting.

The MRC committee finished writing the first comprehensive Meeting Planning Guide that documents the meeting planning process and activities. This will serve as an excellent tool for all future meeting hosts. The Policies and Procedures (P&P) committee completed a major revision of the P&P document to include all recently formed committees and processes adopted within the last few years. The Board reviewed and voted on the final draft of the P&P manual and approved by a unanimous vote during the June 17th meeting.

While we are all experiencing the most unprecedented times in recent history, the SOFT Board continues to diligently navigate through the unknown and stays committed to serving our members and strengthening the organization by adopting new policies/processes and improving the existing ones.

I am looking forward to seeing you all virtually during **SOFTember** and hope you stay healthy and find creative ways to have some fun this summer!



Sumandeep Rana, Ph.D.
SOFT President

Sumandeep Rana

FROM THE EXECUTIVE DIRECTOR'S DESK

Submitted by: Beth Olson, SOFT Executive Director
beth@soft-tox.org

The decision to cancel the SOFT 2020 Annual Meeting was a difficult one. Over the course of weeks, the office, the Meeting Resource Committee, and the Board of Directors researched, planned for many scenarios, negotiated, discussed, and debated our way to a unanimous decision. Please thank these volunteers who had the courage to make a decision that no one wanted to make.

While all of us, especially those of us who were involved in the planning of this meeting for the past several years, are obviously disappointed, change can also offer the opportunity for growth. Change isn't easy and can be uncomfortable for many. As we all know, it can be much easier to stay the course than to veer in an uncharted direction. Whether we crave or despise change (or anywhere in between!), we are faced with a time in which there is no other option, when the opportunity for getting together face-to-face is an impossibility for the time being. Since change is being forced upon us, how do we leverage this opportunity to strengthen SOFT?

We need to meet our members where they are. Since we're spread all across the country (and the world!) this will mean expanding the virtual programming that we're able to offer to provide the opportunity to connect with each other.

We're excited to announce SOFTember, a month-long opportunity to earn continuing education credits through workshops and topical scientific presentations. We'll also be adding some new programs, such as facilitated discussion groups on various current topics in forensic toxicology, and open committee meetings to increase the engagement of our members. In addition, the Young Forensic Toxicologists Committee and the Professional Mentoring Program Committee will both be creating virtual content. And for the first time,

SOFT's Annual Business Meeting will be held online allowing many more people to participate than at our in-person meeting. Our Working Group, made up of 20 SOFT members who you will hear much more about in the next few months, is busy brainstorming, planning, and working on a robust program. Please keep an eye on your email and the SOFT website for much more information over the next month.

We'll also be offering **our first webinar on Oral Fluid on July 22 (Register and view information [HERE](#))**. While we'd been planning this webinar for several months, it feels like the perfect time to be launching SOFT's first virtual opportunity.

We need to focus on issues surrounding equity, diversity, and inclusion. The formation of our Culture, Values and Diversity Committee is just a first step.

The committee created a Code of Conduct policy for SOFT's meetings and events that can be found on page 23 of this issue. In addition, the committee is in the initial stages of exploring grant opportunities that will fund initiatives to explore ways in which SOFT can better address these issues. We want to hear your thoughts, ideas, and concerns. Please feel free to share with myself, or Culture, Values and Diversity Committee Chairs Samantha Tolliver and Gail Cooper.

We are a community. Each one of us is a member of so many different communities – neighborhoods, families, workplaces, friends, school. We must adapt this SOFT community to simultaneously ensure that we're building on the long-standing strength of this organization while also improving our methods and practices to stay in sync with the needs of our members today.

While we plan to provide opportunities for our SOFT community to

engage online, I also would like to encourage all of you to reach out to others in your SOFT community to check-in and see how others are faring both personally and professionally. It certainly brightens my day when I receive a check in from someone else, so I am committing to at least one check in per week with a different person throughout the summer. I would love to see others in our community commit to doing the same!

Please take care of yourselves through these difficult times. I look forward to seeing you all virtually in the coming months, and I'm counting the days until I see you all in Nashville next year!



Beth Olson, MBA
SOFT Executive Director

A handwritten signature of Beth Olson in black ink on a light blue background.

CANCELLED SOFT 2020 MEETING UPDATE

Dear SOFT family and friends,

By now, we assume that the news has reached everyone that SOFT 2020 San Diego has been cancelled due to the worldwide COVID-19 pandemic. This is definitely not the ToxTalk message we, as your hosts, were hoping to deliver just four months before our meeting. It goes without saying; we are completely devastated that we will not be able to host you this year. Please know that the decision to cancel was heavily scrutinized by the Board of Directors, and it was without a doubt the correct decision given the information we have at present. Unfortunately, a gathering of our size is not considered safe right now. And let's be honest...could we really all gather in San Diego and promise to keep 6 feet apart from each other? The SOFT family is a such close-knit group of people that it would be far too difficult for us to abstain from giving each other hugs! And have you seen how packed the dance floor gets at the President's Banquet?

The 2020 meeting was going to be a special 50th anniversary celebration of the first gathering of what we now know as SOFT. Our program was planning to recognize and remember the roots of the organization, along with the past SOFT leadership that brought us to where we are today. A 50th anniversary is often called "golden" to signify the rare occasion of a half-century of commitment, strength and growth. What started as a few toxicologists gathered in a hotel room to troubleshoot head-space gas chromatography has grown into an organization of approximately 1,500 toxicologists worldwide. The research and services provided by members of this organization are vital to public health, traffic safety and providing answers to families and loved ones. It has been truly inspiring to reflect on how SOFT has grown in size and become recognized as leaders in the field of forensic toxicology.

As an alternative to the 2020 meeting in San Diego, SOFT leadership is looking into providing online opportunities for Continuing Education credit. Please look for information on that in the future coming from the SOFT Office. It will be a challenge for Beth and CC to pivot from in-person meeting mode to creating an entirely new way for us to give our presentations, but we have no doubts they will deliver. In just a few short years, they have been put to the test numerous times and every meeting has been extremely successful. Thank you both for all you have done and continue to do for the organization. SOFT is lucky to have found you!

To all the people who submitted abstracts for posters and platform presentations, we appreciate you taking the time to prepare those. More information on the path forward will be coming soon. Another special thank you goes out to our volunteers, exhibitors, and sponsors. Whether you were signing up for the first time or are part of a regular crew who comes back year after year, your contributions are essential for making the meeting happen. We know you would have been there for us, and we appreciate it!

Most importantly, we would like to recognize our planning committee. This group of people has been working hard behind the scenes for well over a year now, even up until the very last day before we had to make this difficult decision to cancel. Bill Johnson, Lauren Marinetti, Sue Pearing, Jen Limoges, Liz Kiely, Ann-Marie Gordon, Alanna de Korompay, Javier Velasco, Frank Wallace, Andre Sukta, Chris Vance, Jay Vargas, Bruce Goldberger, Delisa Downey, Vanessa Meneses, Carl Wolf, Eucen Fu, Phyllis Mallet, Kevin Shanks, Sunday Saenz, Luke Rodda, Roxane Ritter and Rusty Lewis. Please give these folks a round of applause for the countless

2020 Meeting Hosts



Denice Teem



Dani Mata

Scientific Program Chairs

Bill Johnson
Lauren Marinetti

Workshop Chairs

Jennifer Limoges
Sue Pearing

Exhibitor Liaison

Liz Kiely

Food and Beverage

Ann Marie Gordon
Denice Teem
Delisa Downey
Carl Wolf

YFT Chair

Kevin Shanks

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Mobile Application

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Roxane Ritter
Sunday Saenz

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Frank Wallace
Chris Vance

Fun Run Coordinators

Eucen Fu
Phyllis Mallet

Social Event Coordinators

Alanna de Korompay
Jay Vargas
Javier Velasco

Opening Ceremony Coordinators

Delisa Downey
Bruce Goldberger

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CANCELLED SOFT 2020 MEETING UPDATE

2020 PLANNING COMMITTEE MEMBERS

2020 Meeting Hosts



Denice Teem



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hours they have given, on top of their professional and personal obligations, to serve SOFT on our committee. We thank you and wish we could have you stand and be recognized as we would have at the banquet.

Last but not least, we would like to thank SOFT leadership for entrusting us as your hosts for what was going to be an extremely important milestone in the history of the SOFT annual meetings. It was an honor to serve the organization in this capacity.

It still doesn't seem real that we will not be meeting after all we had planned for this historic year. It will be the first time since its inception that SOFT will not meet in person. In 2001, the meeting still happened despite the 9/11 terrorist attacks a few weeks earlier. In 2017, Hurricane Irma bearing down on Florida forced us to reschedule at the 11th hour. Sadly, there are many contributing factors which make a reschedule or postponement of San Diego impossible. Things may look different the next time we meet in person, but it is important to our organization and our field that we continue to do so. The professional and personal

relationships that blossom from getting to meet the author of that paper you read, or someone who has a knack for troubleshooting a method you are working on cannot be replicated with virtual learning. We can all agree that this year has had more than its share of ups and downs, so let's hope the year 2020 ends on a high note and that we can all meet safely in Nashville in 2021.

Best wishes to all as we navigate through this extremely challenging time.

Sincerely,

Denice Teem & Dani Mata

SOFT 2020 (Almost) Meeting Hosts



2021 SLATE OF OFFICERS & DIRECOTRS

The Nominating Committee's task is to provide a slate of Officers and Directors to the full membership of SOFT at least 30 days prior to the annual Business Meeting. The President and President Elect each serve a one-year term, while the Secretary serves a two-year term which expires on alternate years with the Treasurer. Directors are elected for a three-year term.

The 2020 SOFT Nominating Committee (Dwain Fuller, Chair, Sarah Kerrigan and Laura Liddicoat) respectfully submit the following slate of nominations for consideration by the SOFT membership:



Robert Sears, M.S., F-ABFT
South Carolina Law Enforcement Division



Tate Yeatman, M.S., F-ABFT
Palm Beach Co. Sheriff's Office



Madeleine Gates, Ph.D.
Sam Houston State University

Robert M. Sears is currently the manager of the Forensic Technology Department for the South Carolina Law Enforcement Division (SLED) where he oversees the development and continued operation of the Forensic LIMS system and associated software modules. Prior to accepting his current assignment, Robert spent 28 years as a Forensic Toxicologist responsible for the analysis of samples submitted in death investigation, assault, and driving under the influence cases for alcohol, drugs, and other poisons and interpretation of associated findings. In his current position, Robert continues to support the Forensic Toxicology Department at SLED by providing new employee training, assistance with method development and validation, and instrument maintenance and troubleshooting.

Early in his career, Robert was involved in the development and support of SLED's first LIMS system and associated reporting packages. Throughout his career, Robert has been involved in the programming, implementation and support of various laboratory automation systems including Zymark/Caliper, Bio Integrated Solutions, Gilson and ITSP robotics systems used for automated extractions of drugs and poisons from biological samples.

Robert is a Fellow of the American Board of Forensic Toxicology (F-ABFT) and has been board certified since 1995. Robert currently serves as Secretary of the ABFT. Robert is a Fellow of the AAFS, and full member of SOFT, TIAFT, SAFS, IACT and the ACS. Robert currently serves as a member of the AAFS Standards Board (ASB) Toxicology Consensus Body and an affiliate member of the National Institute of Standards and

Technology - Organization of Scientific Action Committees Toxicology subcommittee.

Robert has previously presented at local, regional and national professional meetings and training sessions on topics related to solid phase extraction method development and troubleshooting, automated extractions, and other specific topics related to Forensic Toxicology.

Tate Yeatman is the Crime Laboratory Director for the Palm Beach County Sheriff's Office (PBSO) Crime Laboratory. Prior to promotion to Laboratory Director, Mr. Yeatman managed the Chemistry and Toxicology Units of the PBSO laboratory for 13 years. He was previously employed by the Florida Department of Law Enforcement Crime Laboratory as a Forensic Toxicologist for over 8 years. He has over 20 years of experience in forensic toxicology and has testified as an expert in Forensic Toxicology and Forensic Drug Chemistry in over 200 DUI trials throughout Florida. He also works as a teaching assistant and instructor for the University of Florida's Forensic Science Online Program offering Master's degrees in Forensic Science, Forensic DNA & Serology, Forensic Toxicology, and Forensic Drug Chemistry.

Mr. Yeatman earned a Bachelor of Science degree in Chemistry from the University of Central Florida and a Master of Science degree in Veterinary Medical Sciences with a concentration in Forensic Toxicology from the University of Florida. He is a Fellow of the American Board of Forensic Toxicologists and a Diplomate of the American Board of Criminalistics in the discipline of drug chemistry. Mr. Yeatman is also a certified technical assessor for the

2021 SLATE OF OFFICERS & DIRECOTRS

ANSI-ASQ National Accreditation Board (ANAB) in the disciplines of toxicology and controlled substances.

Mr. Yeatman has co-authored numerous peer-reviewed papers in scientific journals and his work has been presented at national meetings including the American Academy of Forensic Scientists (AAFS) and the Society of Forensic Toxicologists. In addition to SOFT, he is a member of The International Association of Forensic Toxicologists, the American Society of Crime Laboratory Directors, and a member of the Toxicology Section of AAFS. Mr. Yeatman serves on the SOFT Board of Directors and has been appointed to numerous State and National Forensic Science committees including appointments to the Organization of Standard Area Committees (OSAC) Toxicology Subcommittee, the National Commission on Forensic Science (NCFS) Human Factors Subcommittee, and the AAFS Academy Standards Board Toxicology Consen-

sus Body.

Dr. Madeleine Gates (Swortwood) is an Assistant Professor and Director of Graduate Programs for the Department of Forensic Science at Sam Houston State University. She received a Bachelor's degree in Biochemistry from Duquesne University and a Ph.D. in Chemistry from Florida International University. She began her career in forensic toxicology as a toxicologist at the Miami-Dade Medical Examiner Toxicology Laboratory. Later, she completed a postdoctoral fellowship with the National Institute on Drug Abuse (NIDA) under the mentorship of Dr. Marilyn Huestis. During her time at NIDA, she investigated drug metabolism, in utero drug exposure, and oral fluid cannabis testing while serving as a co-investigator in a controlled cannabis administration study.

In 2016, Dr. Gates took a tenure-track faculty position at Sam Houston State University. Over

the past few years, she has taught graduate level courses in Forensic Toxicology and Instrumental Analysis. She has mentored 8 Masters and 1 PhD student and continues to mentor 3 doctoral and 2 Masters research students. Her research interests include novel psychoactive substances, alternative matrices, in utero drug exposure, and oral fluid drug testing. To date, she has authored or co-authored thirty publications and 1 upcoming book chapter.

Dr. Gates is actively involved in SOFT and the forensic toxicology community. She is a member of the SOFT/AAFS Drugs & Driving and Oral Fluid Committees as well as the SOFT Publications Committee. She was recently appointed to the OSAC Toxicology Subcommittee and is the AAFS Toxicology Section Program Chair for 2020-2021. She was the recipient of the SOFT ERA in 2016. She chaired a SOFT Regional Workshop and a SOFT conference Workshop in 2019.

THANK YOU TO THE 2020 ERA DONORS!

The SOFT Board of Directors would like to thank the following members who donated to the Educational Research Award (ERA) fund this year. Your generosity helps to continue the ERA fund that supports the futures of our young forensic toxicologists by presenting them with an opportunity to travel to the annual

meeting and present their research along with a \$2,000 stipend to be used for travel expenses.

Although our 2020 award winners will not be able to present their research at this year's annual meeting, due to the cancellation of SOFT 2020, we look forward to seeing

them present their research in the future. Congratulations to our 2020 award winners and thank you to our 2020 ERA donors!

If you would like to learn more about SOFT awards or make a donation please visit our Awards page on the SOFT website [HERE](#).

Thank you!

Thank you!

THANK YOU TO OUR MEMBERS THAT DONATED TO THE
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ALEXANDER OSCAR GETTLER, BS, MA, PHD - AN APPRECIATION

By: Professor AW Jones, BSc, PhD, DSc

Division of Drug Research, Department of Biomedical and Clinical Sciences

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During the preparation of a series of historical articles for the TIAFT bulletin entitled "*Profiles in Forensic Toxicology*," I considered writing an essay about the life and work of Dr. Alexander Oscar Gettler (1883-1968). I began this task by searching PUBMED in order to obtain a comprehensive list of Gettler's scientific publications. To my surprise, I found only six articles listed in PUBMED with Gettler's name as author or co-author (see below).

1. Gettler AO, Rhoads CP, Weiss S. A contribution to the pathology of generalized argyria with a discussion of the fate of silver in the human body. *Am J Pathol* 3;631-52, 1927.
2. Gettler AO, Freireich AW. Answers to comments by members of the Committee on tests for intoxication. *Am J Clin Pathol* 15;618-21, 1945.
3. Gettler AO, Freireich AW, Schwartz H. Comments by members of Committee on tests for intoxication of National Safety Council on Blood alcohol and intoxication: its value in borderline cases. *Am J Clin Pathol* 15;613-17, 1945.
4. Gettler AO. The toxicologist as a crime detector. *Pa Med J* 51;159-64, 1947.
5. Gettler AO, Kaye S. A simple and rapid analytical method for Hg, Bi, Sb, and As in biologic material. *J Lab Clin Med* 35;146-51, 1950.
6. Gettler AO, Bastian R. Zinc in human tissues; detection and determination by dithizone. *Am J Clin Pathol* 17;244-49, 1947.

Something was clearly wrong, because I knew for a fact that he had published many more papers, including a bunch I had in my own collection of reprints. For example, I was familiar with his work on endogenous ethanol, brain-blood distribution ratios of ethanol, the development of tolerance and the relationship between blood-alcohol concentration and intoxication, as well as investigation of poisoning deaths from drinking wood alcohol.

The skimpy number of papers listed in PUBMED prompted me to embark on a manual search of contemporary journals where analytical chemists/toxicologist might have submitted their work for publication. I eventually managed to find 73 papers with AO Gettler listed as one of the authors. Many of these publications appeared in prestigious journals, such as *Analytical Chemistry*, *JAMA*, *Journal of Biological Chemistry* and *American Journal of Clinical Pathology*. Because of space limitations in TOXTALK, Gettler's complete bibliography is not included here. However, members of SOFT who might be interested in obtaining a pdf version are welcome to e-mail me directly.

But who was Alexander Gettler? After reviewing his many contributions, as reflected in his published work, it became abundantly clear that he was without doubt the founding father of forensic toxicology in the United States. According to Wikipedia, Alexander Gettler was born in Austria, and along with his father and sister immigrated to the United States in 1881 (aged 7) arriving in the Port of New York. The Gettler family settled in the Brooklyn

area of NY, on the lower east side of Manhattan, and despite many financial hardships, a strong work ethic was developed. Like many of his contemporaries, Gettler took menial jobs to support his part-time education eventually obtaining a bachelor's degree (BS) in chemistry (1904). He then embarked on more advanced studies at Columbia University and was awarded a Master's degree in 1909 and a PhD in 1912. He subsequently worked as an assistant professor teaching chemistry to medical students and also held a part time position as a pathological chemist at the Bellevue Hospital clinical laboratories.

As things transpired, the coroner system used for the investigation of sudden, unnatural and/or suspicious deaths in New York had acquired a bad reputation with allegations of bribery and corruption. This prompted the major of NY to create the Office of Chief Medical Examiner (OCME) in 1918. As it happened, the OCME office, along with the city morgue, were located in the pathology building of Bellevue Hospital, which was on the corner of 29th Street and First Avenue. The chief pathologist, Dr. Charles Norris (1867-1935), also served as director of the chemical laboratories at Bellevue Hospital and was therefore acquainted with Dr. Gettler and the work he was doing in clinical chemistry. In 1918, Norris was appointed the first Chief Medical Examiner for the city of New York.

Dr. Norris realized the need to recruit a skilled chemist to develop ways of identifying drugs and poisons in the biological materials taken during medicolegal autopsies

ALEXANDER OSCAR GETTLER, BS, MA, PHD - AN APPRECIATION

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and offered this position to Dr. Gettler. Norris managed to persuade Gettler to quit his clinical work and join the OCME as its chief toxicologist, hence the start of a very fruitful collaboration until Norris's death in 1935.



Dr. Gettler working at the bench, without a lab coat, but with rolled-up shirt sleeves.

More information about the dynamic duo of Gettler and Norris can be gleaned from Deborah Blum's book *"The Poisoner's Handbook"* (the Penguin Press, 2010). This contains vivid descriptions of many murder cases and poisoning deaths in NYC during the first decades of the 20th century, during the jazz age and when alcohol prohibition was enforced.

The types of chemical substances encountered by Gettler and Norris represented both organic and inorganic poisons, including arsenic, alkaloids, cyanide, ether, carbon monoxide, chloroform, mercury, thallium, opium, wood alcohol etc. Another example of chemical detective work done by Dr. Gettler and his associates was the investigation of radiation poisoning deaths (see Irving Sunshine, *Am J Forensic Med Pathol* 4 (4) 307-309, 1983).

Sixty-four of the 73 papers in Get-

ttler's bibliography (88%) had his name as the sole or first author, which testifies to his major contribution to the work presented. However, besides this impressive publication track record, perhaps Dr. Gettler's most important contribution was his mentorship of the second generation of forensic toxicologists in North America. From a combination of his charisma, personality and work ethic, Dr. Gettler attracted a large number of graduate students and budding chemists to his laboratory. They honed their skills in analytical chemistry and learnt the knack of extracting and identifying toxic substances in biological specimens taken at autopsy.

The analytical methods available at the time were rather primitive and included solvent extractions with chloroform or ether (Stas-Otto method), steam distillation of the entire brain or 300-500 grams of liver tissue were common laboratory practices. Identification was done by wet-chemistry methods, utilizing color reactions, crystallization, precipitation, titration and mixed melting points. An account of the early days of forensic toxicology can be found in Irving Sunshine's book *"Was it a poisoning – forensic toxicologists searching for answers"* (AACC Press, 1998). Written in Dr. Sunshine's imitable style, he relates his experiences from working as laboratory assistant and PhD student with Gettler in the late 1940s and early 1950s.

Long before television programs on crime investigations and forensic science became popular, the news-media were keen to report what was happening at the OCME and particularly the work done in

Gettler's laboratory. One article referred to him as a *"test-tube sleuth."* Another popular magazine ran a rubric entitled *"Cause of death? – ask Gettler"* and Harper's magazine described him as *"the man who reads corpses."*

Among the second generation of US forensic toxicologists, with strong links to Dr. Gettler, and who trained in his laboratory at various periods, many as PhD students, were Abraham Stolman (1908-1992), Sidney Kaye (1912-2012), Leo Goldbaum (1913-2012), Henry Freimuth (1912-1994), Irving Sunshine (1916-2006), Frederic Rieders (1922-2005), Abraham Freireich (1906-1985), Joseph Umberger (1907-1977) and Leo Dal Cortivo (1928-2011). They became known collectively as the "Gettler boys" and many went on to enjoy distinguished careers and head their own forensic toxicology laboratories, thereby training a third generation of toxicologists, such as Charles (Nick) Hodnett, Joe Monforte, Alphonse Poklis (1945-2016) and Barry Levine, to name just a few.

At the age of 75 y, Dr. Gettler retired from the OCME (1 January 1959), but remained active as a consul-



Dr. Gettler, holding a separating funnel probably engaged in a solvent extraction.

ALEXANDER OSCAR GETTLER, BS, MA, PHD - AN APPRECIATION

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Dr. Gettler at work in his laboratory on the chemical analysis of poisons.

tant and continued to follow developments in forensic toxicology for the remainder of his life. Gettler's last publication was entitled "The historical development of forensic toxicology," and this 22 page article reviewed many of the poisoning deaths that he investigated during his long tenure at the OCME (41 y).

His last publication makes a good read and appeared in the inaugural issue of Journal of Forensic Sciences (Vol 1;3-25, 1956). A tribute to the life and work of Alexander Gettler, was written by one of his students (Henry Freimuth) and is available from the TOXTALK archives (Vol 7 (2) 1-2, 1983).

The name of Alexander Gettler is firmly anchored in the discipline of forensic toxicology thanks to the creation, in 1983, of a GETTLER AWARD by the American Academy of Forensic Sciences (AAFS). This award is conferred on those members of the toxicology section of AAFS who have made career-long contributions to analytical toxicology and method development. I am sure that Alexander Gettler would have been happy and proud to learn that the first five recipients of this

prestigious award, were de facto "Gettler Boys," namely Goldbaum, Freimuth, Kaye, Freireich and Rieders.



Dr. Charles Norris (1867-1935) the first chief medical examiner in NYC.

IN MEMORIAM - DONALD B. HOFFMAN, Ph.D., F-ABFT

Dear fellow toxicologists,

It is with great sorrow that we share this news with our community, long time retired charter member, Dr. Donald B. Hoffman has lost his battle with COVID-19 and passed away in April of this year. We are deeply saddened by the loss of Dr. Hoffman and would like to take this opportunity to highlight his contributions to our field and organization.

Dr. Hoffman joined SOFT as its 72nd member in 1973. He was appointed to the newly formed Membership Committee by the first SOFT Board of Directors and was asked to create membership classes, membership requirements and a process for notifying members of their membership approval. Along with Jesse Bidanset, Leo Dal Cortivo, and Abe Freireich, Dr. Hoffman helped form three classes of SOFT

membership, outlined the requirements for each class, and developed a process to notify approved members. While the membership classes, their requirements and approval notification have evolved over the years, SOFT still uses the framework that these four developed in 1973.

Dr. Hoffman has served as a faculty member in the Department of Sciences at John Jay College for the past 44 years. During his time with John Jay, Dr. Hoffman taught over 3,000 students and helped create the undergraduate toxicology track in Forensic Science major in 1980 with Dr. Agarwal. Their persistence and determination helped to achieve a stand-alone toxicology major at John Jay.

Due to the ongoing COVID-19 pandemic, Dr. Hoffman's funeral service is private and limited to family members

only. John Jay College will provide a memorial service once students and faculty return to campus.

John Jay College has established a Memorial Scholarship in Dr. Hoffman's honor. The scholarship will support an outstanding undergraduate student majoring in toxicology or forensic science with a concentration in Forensic Toxicology. In lieu of flowers, the family suggests memorial contributions be made to:

The Donald B. Hoffman Memorial Scholarship in Toxicology

www.jjay.cuny.edu/donate

or by calling 212-887-6185

Congratulations!

The SOFT Awards Committee is pleased to announce the **2020 winners of the Educational Research Award (ERA) and Young Scientist Meeting Award (YSMA)**. Congratulations to this year's winners! We hope you enjoy reading about the 2020 winners and their research below. Thank you to all who submitted applications to this year's committee!

Educations Research Award (ERA): Ashley Gesseck and Samuel Krug

Young Scientist Meeting Award (YSMA): Megan Farley

We would also like to thank the **2020 Awards Committee Members** for their contribution of time and energy in reviewing submissions and selecting our 2020 winners. **Thank you Erin, Dani, Jason, Mary, Bill and Lauren!**

If you would like to **learn more about SOFT awards or make a donation to the ERA fund** please click below.

CLICK HERE TO LEARN MORE ABOUT SOFT AWRDS OR TO DONATE TO THE ERA FUND

SOFT 2020 YSMA WINNER

Congratulations on winning this year's ERA/YSMA award! How did it feel when you found out that you had won? I felt like I had finally "arrived." Because I am relatively new and still learning, I had not actually considered myself a forensic scientist, but rather simply a chemist. It is not until after I found out that I had won that I began to see myself as a forensic toxicologist.

When/how did you first learn about SOFT's award program? I was encouraged to apply for it by Dr. Luke Rodda, the Chief Toxicologist of the San Francisco Office of the Chief Medical Examiner, where I work.

Can you briefly explain what your submission was about? It's about a UHPLC-MS/MS method for detecting DUID drugs and some of their metabolites in blood and urine. This method meets the recommended scope and sensitivity requirements for DUID toxicology testing put forth by NSC-ADID and anticipated by OSAC.

What did you hope to achieve when you decided to enter a submission to the awards program? Awareness that this amount of comprehensiveness in an analytical method is indeed possible with the technologies that are now available.

What does it mean to you to receive this award? It means that I have not only simply succeeded in transitioning from manual and blue-collar labor to a new life as a scientist, but that I might actually be good at this, which still surprises me. I was told in high school that I would never make it through college, so I joined the Army. The Army did educate me, but not in a truly academic field. Later, when I returned to college with the help of the VA, I majored in chemistry. Because of what I had been told in high school, I entered college not believing I would even graduate, let alone ever someday receive an award such as this.

Tell us about a teacher/mentor that had an impact on you or set you on your present career path? All of my chemistry professors at the City College of San Francisco (Dr. Ronald Drucker, Dr. Lawrence Fong, Dr. Raymond Fong, Dr. Tim Su, Dr. Mai Hurt, Dr. Brian Wong). I had started there majoring in engineering, but these

professors so greatly impressed me with their dedication to a rigorous academic curriculum that I switched my major to chemistry mostly because of them! They had somehow acquired some amazing analytical instruments that not even some four-year universities had access to, which is an amazing feat for any community college professor. This enabled them to enthusiastically transfer what was taught in lecture to application in a laboratory. I couldn't help but to drop engineering for chemistry after working with them. Subsequently, I transferred to the University of San Francisco, during which time I learned analytic chemistry from Dr. Ryan West. His classes covered a wide range of analytical instruments, and time in the lab was spent applying these skills to real-world scenarios such as quantifying how much of a substance was in a food or drink, which is not terribly different from what I do now. His teachings allowed me to enter my internship with Dr. Rodda with a foundation in both analytical chemistry and instrumentation that ensured my success. Furthermore, I was allowed to conduct multiple research projects as an undergrad under the tutelage of Dr. Giovanni Meloni, Dr. Jeff Curtis, Dr. Lawrence Margerum, and Dr. William Karney. These professors taught me how to properly conduct research and encouraged me to design new experiments when results led to more questions, skills necessary for method development. Furthermore, Dr. Janet Yang went out of her way to ensure that I was able to attend and present research at ACS conferences. This enabled me to gain insight on my projects as I learned about other research and the skills to present my own work to the public.



Megan Farley

COMMITTEE CHAIR



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Jason Hudson, Ph.D.

Mary Jones, B.S.

Bill Johnson, D-ABFT-FT

Lauren Marinetti, Ph.D.

AWARDS COMMITTEE

SOFT 2020 ERA WINNER

Congratulations on winning this year's ERA/YSMA award! How did it feel when you found out that you had won?
I was shocked when I got the e-mail and thankful the committee thought my research was important to the community. I was also ecstatic and could not wait to share the news with everyone who helped support me through the process.

When/how did you first learn about SOFT's award program? I learned about the awards program in 2013 while attending my first full SOFT Conference in Orlando. At the time, I was no longer in school but had always thought I might go back for my Ph.D. someday and appreciated that SOFT had opportunities for awards and recognition.

What does it mean to you to receive this award? Receiving this award means a lot to me because it is a great reminder that my research has a high public health impact, and that the field I have chosen to build my career in also finds the work is relevant and important.

What continuing education are you currently participating in/taking? I am currently working towards my doctoral degree in Integrative Life Sciences at Virginia Commonwealth University. Additionally, I attend webinars from a variety of sources whenever possible, as well as attending workshops and scientific sessions at five SOFT annual meetings.

Where do you hope to be in 5 years? In 5 years, I hope to be F-ABFT board certified, a lab director, continuing relevant research in the field, and inspiring others to be passionate about the work they do.

What advice would you give to future award applicants? Never stop believing in yourself or your research and always remember why you started this journey. If your research does not fit within a specific group, dig deeper to find the forensic toxicology implications of your research. Given the complexity of case work in a modern era it is not as difficult to find a relevant forensic question.

Tell us about a teacher/mentor that had an impact on you or set you on your present career path? Dr. Michelle Peace has had a huge impact on my career path and current studies. She tried to pull me in years ago, but I was not quite ready for that yet. I remember while getting my bachelor's degree she told me to not rush and not to graduate early. However, I was eager to get out of school and get into the work field. When I could not immediately find a job, I went to graduate school anyway. After working for 5 years in two different states I ended up back in Richmond and started reconnecting with Dr. Peace on a regular basis to discuss my career goals and aspirations. She was finally able to convince me to come back and get my Ph.D.

How would you use being the recipient of this award to influence others and how would it impact your career? Being the recipient of this award is truly a great honor; to be among those who have received it in the past and have gone on to be the best in the field and presidents of SOFT. I would encourage others to remember why they became interested in forensic toxicology in the first place. Remember who they are helping and the importance the job of a forensic toxicologist serves to the community. Remember not just the how in their research but also the why. Receiving this award contributes to my growth and helps advance my career by giving me the confidence to remember to speak up and let my voice (and research) be heard.



Ashley Gesseck

SOFT 2020 ERA WINNER

Congratulations on winning this year's ERA/YSMA award! How did it feel when you found out that you had won? A little bit surprised, but extremely excited! I immediately e-mailed my research committee to let them know that I was selected, and they were all ecstatic for me as well.

When/how did you first learn about SOFT's award program? I was aware of SOFT and I was looking for opportunities to present my graduate research. I felt that my work was in line with presentations typically presented at the annual conference, so I asked my research committee if they felt okay if I submitted an abstract for the award. I received positive feedback from them, which indicated to me that there was a chance to earn this award if I developed an appropriate submission portfolio.

Can you briefly explain what your submission was about? Illicit substances have been adulterated with long-acting anticoagulant rodenticides, such as brodifacoum, periodically throughout the past couple decades. For my research, I looked at validating a method for the identification of brodifacoum in whole blood, comparing my method with reported samples from other laboratories, and finally I started to look at the distribution of brodifacoum between the plasma and red blood cell layer of whole blood. Since laboratories can receive either matrix for testing, it is important to be able to compare these concentrations with previously reported literature.

What does it mean to you to receive this award? It really is a confidence boost because it shows that other people believe that I can conduct high-quality research, and I should believe that I am capable of excelling in research if I continue to be disciplined and tenacious. Looking at the list of previous award winners, I am happy to be included with a list of high caliber scientists and overall wonderful people.

Tell us about a teacher/mentor that had an impact on you or set you on your present career path? After my undergraduate degree, I worked for a pharmaceutical company for a couple years. One of the Research Scientists on my team recommended that I pursue a higher degree because they felt that I was able to go beyond a bench level scientist as I had taken on additional responsibilities. That nudge helped me apply for graduate programs and I wouldn't be on this path without their guidance.

How would you use being the recipient of this award to influence others and how would it impact your career? I hope that it shows other people in the field of forensic toxicology that I am serious about pursuing this career path. I believe it shows that I am willing to work in order to achieve my goals and I hope that as I progress in my career that other individuals will want me as a member of their team.

What advice would you give to future award applicants? Just go for it! I definitely have issues with being confident about the work I have done and being too critical about my own research, which ultimately results in hesitation to submit for awards like this. This whole process is a learning opportunity and it is always great to push yourself to be a better scientist.

How do you think the SOFT Awards Program impacts students in Forensic Toxicology? I think that it makes young scientists feel like they have a voice. I wouldn't say it is about having a groundbreaking experiment but being able to develop communication skills and network with individuals in forensic toxicology. From literature, I recognize a lot of names in the field of forensic toxicology, so I think this is a great opportunity for students to meet some of the people that are already established in this field.



Samuel Krug

COMMITTEE CHAIR



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Bill Johnson, D-ABFT-FT

Lauren Marinetti, Ph.D.

YOUNG FORENSIC TOXICOLOGISTS (YFT)

Hello fellow toxicologists,

My name is Elisa Shoff and I am a Forensic Toxicologist II at the Miami-Dade Medical Examiner Department, as well as a member of the Young Forensic Toxicologists (YFT) committee, specifically serving on the awards sub-committee.

Since 2009, the SOFT YFT committee has been supporting young forensic toxicologists by providing education and networking opportunities, while also encouraging new students and professionals in the field to showcase their work at annual meetings. YFT is responsible for several events at the SOFT annual meeting, including the YFT symposium, Student Enrichment Program (SEP), Professional Development Fair, and the annual Leo Dal Cortivo Award for best poster and platform presentation by a young toxicologist.

In addition to our involvement in the annual meeting, we decided to expand our presence, and contribute to the quarterly ToxTalk publication. Our goal in ToxTalk is to emphasize the research and accomplishments of young toxicologists, as well as provide updates on various YFT events and activities, and spotlight past and present Leo Dal Cortivo award winners.

We hope you will all enjoy reading our upcoming contributions and we cannot wait to pick things back up for the 2021 annual meeting!

The committee currently has an executive board comprised of three officers, **Chair Kevin Shanks**, Senior Forensic Toxicologist at Axis Forensic Toxicology, **Vice Chair Vanessa Meneses**, Forensic Scientist III at the Orange County Crime Lab, and **Secretary Amanda Rausch**.

The remaining members of the committee are assigned to designated sub-committees.

YFT Symposium: **Amanda Rausch** – Forensic Toxicologist II at Dallas County Southwestern Institute of Forensic Science and **Whitney Brown** - Forensic Scientist II at Mesa Police Department Forensic Services

Student Enrichment Program: **Sara Dempsey** – Toxicology Technical Supervisor at Houston Forensic Science Center

Professional Development Fair: **Marissa Finkelstein** – Forensic Toxicologist I at Miami-Dade Medical Examiner Department and **David Cook** – Forensic Scientist III at Nassau County Medical Examiner

Awards: **Elisa Shoff and Erin Strickland** – Toxicologist I at Harris County Institute of Forensic Sciences

Kim Samano – Chief Toxicologist at Johnson County Medical Examiner Office currently serves as our immediate past-chair.

YFT Committee Chair
Kevin Shanks

Vice Chair
Vanessa Meneses

Secretary
Amanda Rausch

Immediate Past Chair
Kim Samano

Awards
Elisa Shoff
Erin Strickland

Professional Development Fair (PDF)
Marissa Finkelstein
David Cook

Student Enrichment Program
Sara Dempsey

ToxTalk Contributor
Elisa Shoff

YFT Symposium
Amanda Rausch
Whitney Brown



THE EMERGENCE OF EUTYLONE IN VICTIMS OF SEXUAL ASSAULT

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Introduction

Novel psychoactive substances (NPS), including amphetamine analogues and synthetic cathinones, popular in dance club and rave culture, have historically been observed to emerge as a trending factor in drug facilitated sexual assaults (DFSA) (1). 3,4-methylenedioxymethamphetamine (MDMA), commonly referred to as “Ecstasy” or “Molly”, has been among the most commonly used club drugs; however, in recent years other NPS, such as N-ethylpentylone and eutylone have been identified in samples from users of “Molly” (2,3). This is also true of some sexual assault victims who specifically mention having consumed “Molly” prior to being assaulted.

Eutylone emerged as a component of multiple drug-facilitated sexual assault cases starting in 2019. Eutylone (β -Keto-1,3-benzodioxolyl-N-ethylbutanamine), also known as bk-EBDB or N-Ethylbutylone, is a substituted phenyl- α -amino ketone, or a synthetic cathinone, first developed in the 1960s (4). It exhibits similar pharmacological effects as other synthetic cathinones like methylone and pentylone, including a sense of euphoria, stimulation, increased libido, and increased sociability (5). Eutylone is classified as a mixed reuptake inhibitor/releasing agent of serotonin, norepinephrine and dopamine.

The following are sexual assault cases in which the presence of eutylone was confirmed and, where possible, quantified in blood. All suspected DFSA cases received by the University of Miami Toxicology Laboratory are tested using a workflow specific for drug-facilitated crime (DFC) cases, which includes DFSA cases (Figure 1).

Methods

Eutylone was detected in our laboratory by liquid chromatography quadrupole time-of-flight mass spec-

trometry (LC-QTOF) and gas chromatography-mass spectrometry (GC-MS) in urine and/or blood samples. Quantitation of eutylone in blood samples is performed by liquid chromatography tandem-mass spectrometry (LC-MS-MS). This quantitative method includes 14 drugs and/or metabolites, including MDMA, N-ethylpentylone, and eutylone. All of the analytical methods used were validated at the University of Miami Toxicology Laboratory in accordance with SWGTOX validation guidelines and/or the ANSI/ASB 036 standard (6,7). All cases originated from law enforcement investigations in Miami-Dade County, Florida dating from January 2019 to March 2020.

Ethical approval: This study was approved by the institutional review board at the University of Miami for IRB: 2004039.

Case Samples

Case 1:

A female, between 20-30 years old, recalls leaving a party she was attending but has no recollection of returning to her hotel room. She stated that she may have taken a ride share back to her hotel. She remembers, that once back in her hotel room, she was vomiting and feeling that she had been assaulted. Investigating detectives found surveillance footage of the victim leaving the hotel property with an unknown male and returning approximately one hour later by a ride share, meeting her partner in the lobby.

Blood and urine samples were collected from the victim 24-48 hours after the incident. The victim disclosed that she was taking the prescription drugs topiramate and lorazepam. The following compounds were detected in the urine sample collected from the victim: acetone, cocaine and its metabolites, cocaethylene, levamisole, 11-nor-9-carboxy-THC, lorazepam, dextromethorphan, chlorpheniramine,

duloxetine, mitragynine, topiramate and eutylone. The following compounds were reported in the blood sample collected from the victim: cocaethylene (below the lower limit of quantitation (LLOQ)), cocaine metabolites, Δ 9-tetrahydrocannabinol (THC) (2 ng/mL) and its metabolites, topiramate, lorazepam (11 ng/mL), and eutylone. Blood quantitation of eutylone was performed and was reported as below the LLOQ (10 ng/mL).

Case 2:

A female, between 30-40 years old, states that she consumed an alcoholic beverage given to her by her partner. The victim stated she began to feel dizzy and subsequently fell asleep. While slipping in and out of consciousness, she describes that her partner subsequently sexually assaulted her. Following the attack, the victim reported feeling lethargic and had pain in her genitals.

Blood and urine samples were collected from the victim between 12 and 24 hours after the incident. The victim disclosed that she had a prescription for alprazolam. The following compounds were reported in the urine sample: ethyl sulfate (an ethanol metabolite), cocaine and its metabolites, alprazolam and its metabolite, and eutylone. The following compounds were reported in the blood sample: benzoylecgonine (67 ng/mL), alprazolam (48 ng/mL) and <10 ng/mL of eutylone.

Case 3:

A female, between 50-60 years old, reported that within the week prior to being sexually assaulted, she had consumed cocaine and lorazepam. She also reported taking “meth” voluntarily on the day of the incident. No other information about the incident had been made available to the laboratory at time of testing.

Blood and urine samples were collect-

THE EMERGENCE OF EUTYLONE IN VICTIMS OF SEXUAL ASSAULT

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ed from the victim within 48 hours of the incident. The following compounds were confirmed in the urine sample: cocaine and its metabolites, oxycodone, oxymorphone, fentanyl, norfentanyl, despropionyl fentanyl, lorazepam, gabapentin, citalopram, topiramate and eutylone. The following compounds were confirmed in the blood sample: fentanyl, norfentanyl, despropionyl fentanyl, citalopram, topiramate, lorazepam (14 ng/mL) and 501 ng/mL of eutylone. The victim was prescribed lorazepam, topiramate, citalopram, oxycodone, oxymorphone and gabapentin by her physicians.

Case 4:

A female between 50-60 years old had agreed to sexual intercourse but subsequently changed her mind. The victim reported having consumed 2 beers, cocaine and “molly” prior to the incident, as well as heroin within the preceding week.

Blood and urine samples were collected from the victim 24-48 hours after the incident. The following compounds were confirmed in the urine sample: cocaine and its metabolites, cocaine-ethylene, levamisole, metronidazole, 11-nor-9-carboxy-THC, lorazepam, olanzapine, naproxen metabolites, ethyl glucuronide and ethyl sulfate (ethanol metabolites) and eutylone. The following compounds were reported in the blood sample: cocaine and its metabolites, lidocaine, metronidazole, olanzapine, lorazepam (<10 ng/mL) and <10 ng/mL of eutylone.

Discussion

The effects of eutylone are documented as euphoric, “loved up”, and similar to the effect of MDMA. While the detection of eutylone in drug facilitated sexual assault cases is novel, it is difficult to determine how its presence factored into each of these cases in terms of facilitation of the reported crime. Another issue with providing

interpretation is the detection of the additional psychoactive substances found in the blood samples from these victims which adds to the complexity in terms of determining the additive effects and potential toxic side effects due to poly-drug use.

To further add to the problematic nature of interpretation, the time taken for the blood samples to be collected post incident was greater than 12 hours for each case. Without additional information, including dosages and pharmacokinetic data, it is not possible, at present, to draw conclusions beyond the emerging trend of eutylone in local drug facilitated sexual assault (DFSA) cases.

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THE EMERGENCE OF EUTYLONE IN VICTIMS OF SEXUAL ASSAULT

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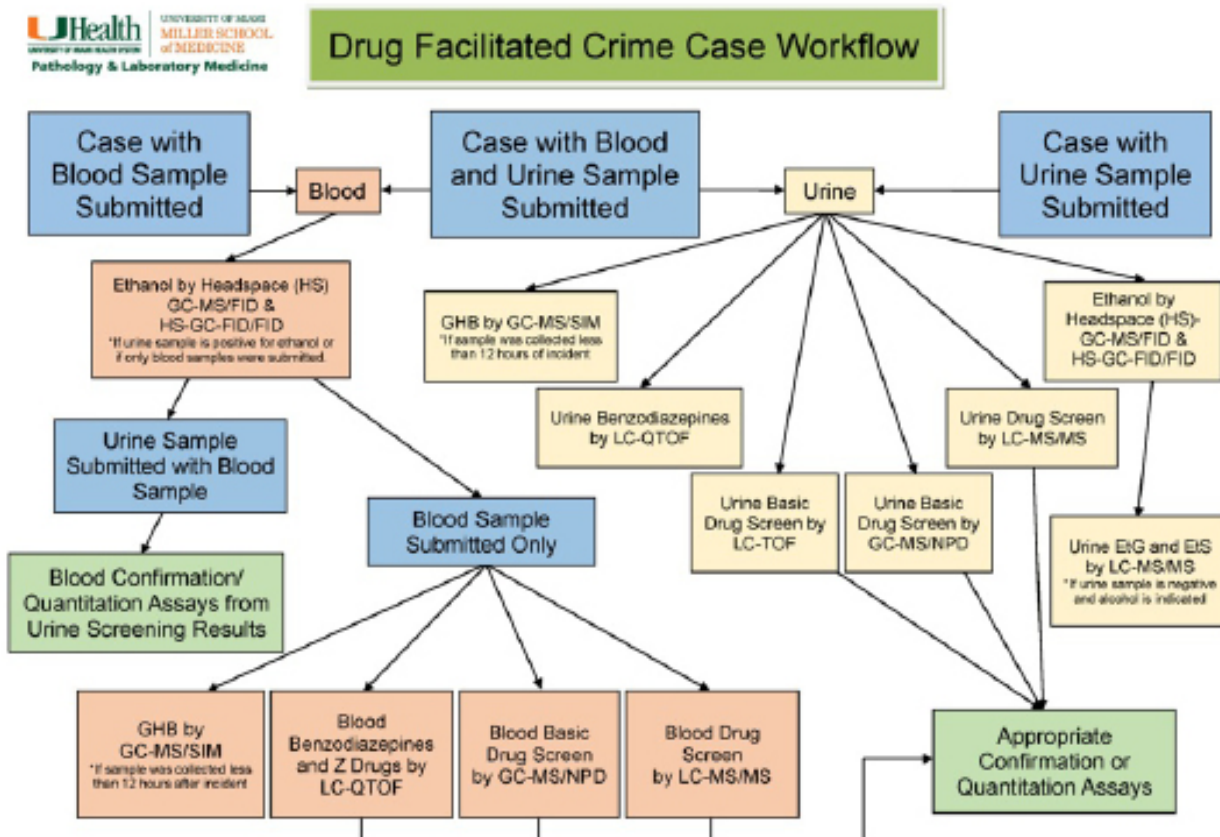
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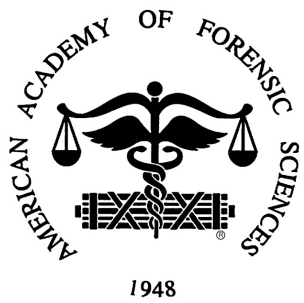
Table 1: Case demographics and toxicological findings.

Case	1	2	3	4
Gender/Age range	F/20-30	F/30-40	F/50-60	F/50-60
Time Since Incident	24-48 hours	12-24 hours	~36 hours	24-48 hours
Eutylone Blood Conc.	Below LLOQ	Below LLOQ	501 ng/mL	Below LLOQ
Other Drugs Detected in Blood	Cocaehtylene (<LLOQ), cocaine metabolites, THC (2 ng/mL), 11-hydroxy-9 THC (0.5 ng/mL), 11-nor-9-carboxy-THC (29 ng/mL), lorazepam (11 ng/mL) topiramate,	Benzoylcegonine (67 ng/mL, alprazolam (48 ng/mL)	fentanyl, norfentanyl, despropionyl fentanyl, lorazepam (14 ng/mL), topiramate, citalopram	cocaine, cocaine metabolites, lidocaine, metronidazole, lorazepam (below LLOQ), olanzapine
Other Drugs Detected in Urine	acetone, cocaine, cocaine metabolites, levamisole, 11-carboxy-THC, lorazepam, dextromethorphan, chlorpheniramine, duloxetine, mitragynine, topiramate	ethyl sulfate, cocaine, cocaethylene, cocaine metabolites, alprazolam and metabolites	cocaine, cocaine metabolites oxycodone, oxymorphone, norfentanyl, fentanyl, despropionyl fentanyl, lorazepam, gabapentin, citalopram, topiramate	cocaine, cocaethylene, cocaine metabolites lidocaine, levamisole, metronidazole, 11-carboxy-THC, lorazepam, olanzapine, naproxen metabolites, ethyl glucuronide and ethyl sulfate

Figure 1: Drug facilitated crime case workflow



AAFS MEETING UPDATE & CALL FOR VOLUNTEERS



With everything that has happened recently, it's hard to believe that many of us met just four months ago for the 72nd Annual Scientific Meeting of the American Academy of Forensic Sciences in Anaheim, California. On behalf of the AAFS Toxicology Section leadership, I thought I would share a meeting update and let you know what is in store for 2021.

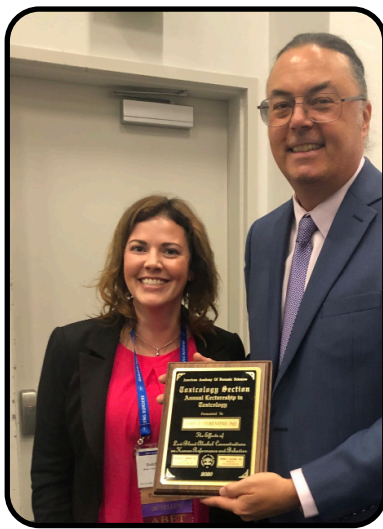
First, I want to take this opportunity to sincerely thank all of you that made this meeting such a success! The Toxicology Section officers, workshop chairs, program chairs, session moder-

ators, abstract reviewers, and countless volunteers helped put on such an excellent event and without them, none of this would have been possible. The scientific program for the Toxicology Section was outstanding because of your hard work that resulted in three excellent workshops ("Drug Delivery Homicide", "The Investigation and Analysis of Health Care Serial Killers", and "A Decade of Designer Drugs"), an Annual Lectureship courtesy of Dr. Dary Fiorentino, 45 Poster presentations, and 37 Oral presentations (including the 20th Annual Postmortem Pediatric Forensic Toxicology session).

Special recognition to the following financial supporters and their continued, generous support: Agilent Technologies, UTAK Laboratories, RTI (Best Poster Award), Lipomed, Thomson Instrument Company, Waters Corporation, SCIEX, Cayman Chemical, Shimadzu Scientific Instruments, Center for

Forensic Science Research and Education (Workshop #1) and NMS Labs (Workshop #10, Workshop #21, and Wednesday Night Owl).

Our annual Toxicology Luncheon was well attended with 70 registered attendees. We received updates from Jen Limoges on the progress of the ASB standards development and from Michelle Peace on her blossoming mentorship program. We surprised Brad Hepler as the 2020 Lifetime Achievement Honoree with tributes from Dwain Fuller, Dan Isenschmid, Bob Osiewicz, Eric Lavins, Heesun Chung and Brad's daughter, Erin Worrell. We also celebrated the following Toxicology Section awards: Christine Moore (Rolla N. Harger Award), Eric Lavins (Ray Abernethy Award), Nathalie Desrosiers (Irving Sunshine Award), and Haley Mulder (June K Jones Award). Congratulations to our honoree and awardees!



AAFS MEETING UPDATE & CALL FOR VOLUNTEERS



Preparations for the **73rd Annual AAFS meeting in Houston, TX, February 15-20, 2021** are taking place on schedule albeit in a virtual fashion for now. Toxicology's very-own **AAFS President Jeri Ropero-Miller has chosen the theme of "One Academy – Pursuing Justice Through Truth in Evidence"**. I'm sure that my colleagues will agree that we are looking forward to celebrating unity and justice over the coming year. We expect another exciting program with a variety of workshops, scientific sessions, breakfasts, luncheons and traditional sessions including Drugs and Driving, Postmortem Pediatric Toxicology and our joint session with the Pathology/Biology Section.

With this year's theme in mind, please start thinking about workshop proposals, abstract topics or nominations for the section awards. The **September 1, 2020 deadline for submissions is less than four months away!**

Moderators and volunteers are essential to a successful meeting; such service is especially useful for those members wishing to promote. Please fill out this survey if you are interest-

ed in becoming an abstract reviewer or moderator: [HERE](#). Should you be interested in promotion, please note **October 1, 2020 is the application deadline**. Please consult the AAFS website for general and section specific requirements.

Please mark your calendars now for another exciting meeting - **looking forward to seeing y'all in Houston!**

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NEW PSYCHOACTIVE SUBSTANCES

Submitted by: Dani Mata, SOFT Designer Drugs Committee Chair and Simon Elliot, TIAFT NPS Committee Chair

Short Communication for the Analysis of 4F-MDMB-BINACA

Date: May 2020

Synonyms: 4F-MDMB-BUTINACA

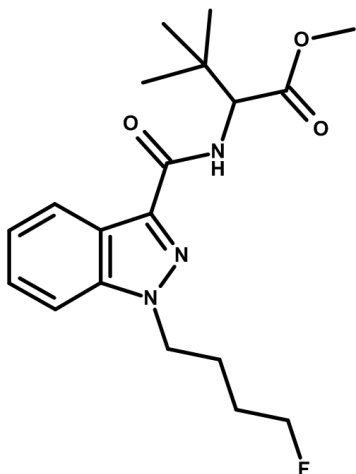
Methyl 2-[[1-(4-fluorobutyl)indazole-3-carbonyl]amino]-3,3dimethylbutanoate

Methyl (S)-2-(1-(4-fluorobutyl)-1H-indazole-3-carboxamido)-3,3dimethylbutanoate

Methyl (2S)-2-[[1-(4-fluorobutyl)-1H-indazole-3-carbonyl]amino]-3,3dimethylbutanoate

N-[[1-(4-Fluorobutyl)-1H-indazole-3-yl]carbonyl]-3-methyl-L-valine, methyl ester

Structure:



Formula: C₁₉H₂₆FN₃O₃

Molecular Weight (nominal mass): 363.43

Theoretical M+H accurate mass: 364.2031

Pharmacological Drug Class: Synthetic cannabinoid

Suggested LOD: 0.1 ng/mL

Suggested LOQ: 0.1 ng/mL

4F-MDMB-BINACA is a synthetic cannabinoid with an indazole core and fluorinated butyl chain as opposed to the fluorinated pentyl chain of 5F-MDMB-PINACA (5F-ADB). 4F-MDMB-BINACA

was first identified in seized material and biological fluid since November 2018 in Europe and the USA with increasing detections throughout 2019 and into 2020. It is encountered similar to other synthetic cannabinoids.

In 2019, the 42nd meeting of the World Health Organization Expert Committee on Drug Dependence critically reviewed 4F-MDMB-BINACA ([CLICK HERE](#)). At its meeting in March 2020, the Commission for Narcotic Drugs voted to place 4F-MDMB-BINACA under international control as a Schedule II substance in the 1971 Convention on Psychotropic Substances.

Although detected, there are no current reports of 4F-MDMB-BINACA concentrations in biological fluid. For limit of detection and quantitation purposes, published concentrations for 5F-MDMB-PINACA detection and measurement may apply. Studies have demonstrated that the primary metabolite of 4F-MDMB-BINACA is the ester hydrolysis metabolite as for other synthetic cannabinoids with -OCH₃ at the head (e.g. 5F-MDMB-PINACA). The ester metabolite of 4F-MDMB-BINACA (M+H, 350.1874) and 5F-MDMB-PINACA share common fragments and may have very similar retention times, but researchers have identified a specific 4F-MDMB-BINACA ester metabolite product ion of 290.0928 (M+H) that incorporates the fluoro-butyl chain.

References:

Haschimi B, Mogler L, Halter S, Giorgetti A, Schwarze B, Westphal F, Fischmann S, Auwärter V. Detection of the recently emerged synthetic cannabinoid 4F-MDMB-BINACA in "legal high" products and human urine specimens. *Drug Test Anal.* (2019) 11(9):1377-1386

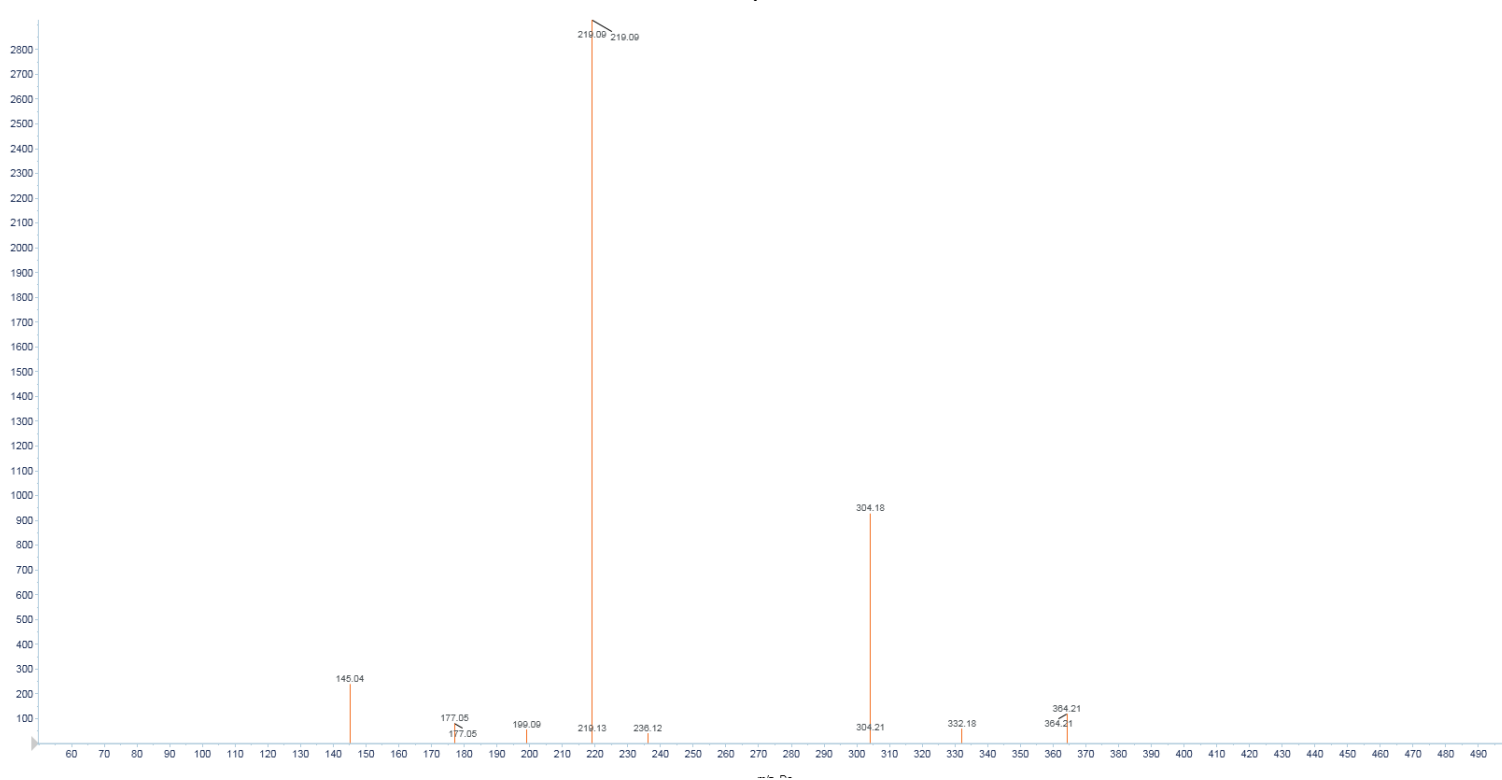
Krotulski AJ, Mohr ALA, Kacinko SL, Fogarty MF, Shuda SA, Diamond FX, Kinney WA, Menendez MJ, Logan BK. 4F-MDMB-BINACA: A New Synthetic

Cannabinoid Widely Implicated in Forensic Casework. *J Forensic Sci.* (2019) 64(5):1451-1461

NEW PSYCHOACTIVE SUBSTANCES

Submitted by: Dani Mata, SOFT Designer Drugs Committee Chair and Simon Elliot, TIAFT NPS Committee Chair

LC-MS Spectrum:



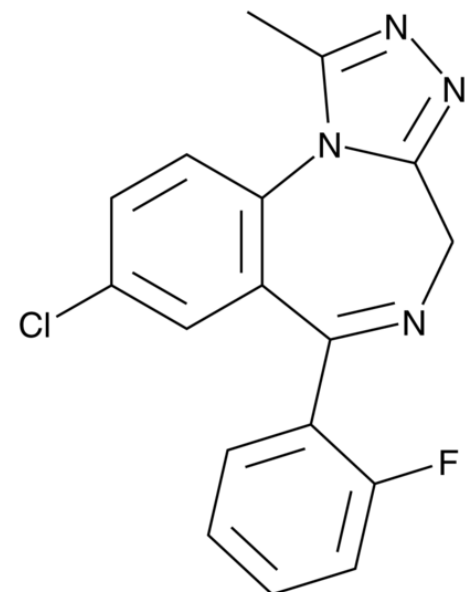
[source: Sciex X500R , Travis County Medical Examiner]

Short Communication for the Analysis of Flualprazolam

Date: May 2020

Synonyms: 8-chloro-6-(2-fluorophenyl)-1-methyl-4H-[1,2,4]triazolo[4,3-a][1,4]benzodiazepine
2'-Fluoro Alprazolam ortho-Fluoro Alprazolam

Structure:



Formula: C₁₇H₁₂ClFN₄

Molecular Weight (nominal mass):
326.75

Theoretical M+H accurate mass:
327.0807

Pharmacological Drug Class: Central Nervous System Depressant

Suggested LOD: 2 ng/mL

Suggested LOQ: 5 ng/mL

Flualprazolam is a triazolo-benzodiazepine, similar to alprazolam and triazolam, and was first patented in the 1970s. It is not currently marketed or approved for medicinal use in any country. The Drug Enforcement Administration first identified flualprazolam in 2018 ([CLICK HERE](#)). In 2019, the 42nd meeting of the World Health Organization Expert Committee on Drug Dependence critically reviewed flualprazolam ([CLICK HERE](#)). At its meeting in March 2020, the Commis-

sion for Narcotic Drugs voted to place flualprazolam under international control as a Schedule IV substance in the 1971 Convention on Psychotropic Substances.

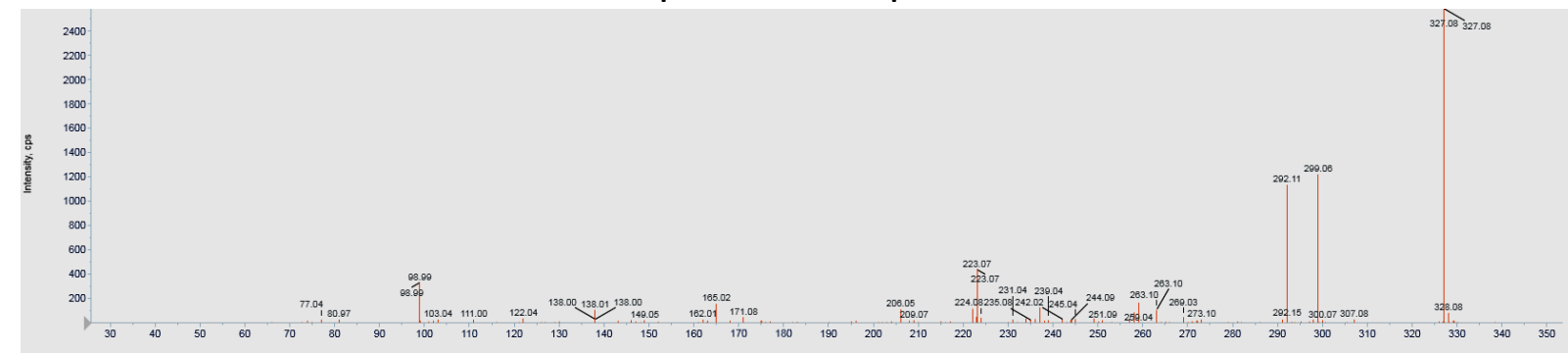
From the United Nations Office on Drugs and Crime (UNODC) ToxPortal, flualprazolam has been reported over 150 times with the vast majority of reports from North America and Europe. Where blood concentrations were available, post-mortem blood concentrations between 0.8 and 100 ng/mL and blood concentrations of between 5.5 and 57 ng/mL in drug driving, were reported.

From October 2018 until November 2019, the Toxicology Section of the Orange County Crime Lab (OCCL) in California, USA has had 130 cases of flualprazolam, with 10% from post-mortem cases, and the rest from DUI with one case from a sexual assault. Flualprazolam was detected on

NEW PSYCHOACTIVE SUBSTANCES

Submitted by: Dani Mata, SOFT Designer Drugs Committee Chair and Simon Elliot, TIAFT NPS Committee Chair

Flualprazolam LC-MS Spectrum:



[source: Sciex X500R, Orange County Crime Laboratory, California, USA]

an LC-QTOF with no quantitation.

Sacramento County District Attorney's Forensic Laboratory in California has had over 150 cases with concentrations ranging from 5 ng/mL (LOQ) to 150 ng/mL. The average concentration was 25 ng/ml with a median concentration of 18 ng/mL. Their data and data from NMS Labs can be seen in TOXTalk, (2019) Volume 43, Issue 4, along with a GCMS spectrum of flualprazolam.

For both Orange County and Sacramento, the most common co-administered drug is THC, followed by other benzodiazepines with alprazolam being the most common. The majority of cases have submission into the drug section of fake "Xanax" tablets. The Controlled Substance Section of the OCCL had 40 cases of flualprazolam

within this same time frame; 20% had another NPS benzodiazepine present.

There are no current reports of flualprazolam concentrations in hair, serum or urine. Initial studies regarding metabolism have indicated alpha-hydroxyflualprazolam, 4-hydroxyflualprazolam glucuronide, flualprazolam-glucuronide and alpha-hydroxyflualprazolam glucuronide. These metabolites were also detected in blood and urine samples from the Orange County Crime Lab.

Additional References:

Heide G, Høiseth G, Middelkoop G, Øiestad ÅML. Blood concentrations of designer benzodiazepines: Relation to impairment and findings in forensic cases. *J Anal Toxicol.* (2020) May 5:bkaa043. doi: 10.1093/jat/bkaa043. [Epub ahead of print]

Kriikku P, Rasanen I, Ojanperä I, Thelander G, Kronstrand R, Vikingsson S. Femoral blood concentrations of flualprazolam in 33 postmortem cases. *Forensic Sci Int.* (2020) Feb;307:110101. doi: 10.1016/j.forsciint.2019.110101. Epub 2019 Dec 19

Wagmann L, Manier SK, Bambauer TP, Felske C, Eckstein N, Flockerzi V, Meyer MR. Toxicokinetics and analytical toxicology of flualprazolam: metabolic fate, isozyme mapping, human plasma concentration, and main urinary excretion products. *J Anal Toxicol.* (2020) Feb 27. pii: bkaa019. doi: 10.1093/jat/bkaa019. [Epub ahead of print]

ORAL FLUID WEBINAR

Wednesday, July 22, 1:00-3:30 pm Eastern, Online via Zoom

Join us for SOFT's first webinar on Wednesday, July 22 from 1:00-3:30 pm Eastern online via Zoom!

Abstract: This 2.5-hour SOFT Continuing Education Webinar will focus on the use of oral fluid (OF) testing to support driving under the influence of drugs (DUID) investigations. Both roadside and lab based evidential testing will be discussed. The training is designed for toxicologists, law enforcement, attorneys, and other traffic safety partners to successfully investigate and prosecute DUID in their communities.

Learning Objectives: After attending this course, participants will:

1. Be knowledgeable on the current state of OF drug testing
2. Understand the difference between roadside and confirmation OF testing
3. Be aware of pilot project and testing recommendations in DUID cases
4. Be better prepared for OF case interpretation and courtroom testimony

Instructors: Dr. Curt Harper; Chief Toxicologist, Alabama Department of Forensic Sciences

Dr. Jarrad Wagner; Professor of Forensic Sciences, Oklahoma State University Center for Health Sciences

Registration Fees: \$25 for SOFT members, \$35 for non-members

REGISTER HERE

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The Society of Forensic Toxicologists (SOFT) holds professional meetings to enable its members to receive continuing education, build professional networks, and discover new products and services for professional use. To provide all attendees, including but not limited to members and their guests, speakers, exhibitors, staff and volunteers – the opportunity to benefit from the event, SOFT is committed to providing a harassment-free environment for everyone, regardless of gender, sexual orientation, gender identity, gender expression, disability, physical appearance, ethnicity, religion or other group identity.

SOFT seeks to provide an environment in which diverse participants may learn, network, and enjoy the company of colleagues in an environment of mutual respect. To maintain that environment, the following behaviors are prohibited:

- Harassment or intimidation based on race, religion, language, sex, sexual orientation, gender identity

and/or expression, disability, appearance, or other group status;

- Sexual harassment or intimidation, including unwelcome sexual attention, stalking (physical or virtual), or unsolicited physical contact; and
- Yelling at or threatening speakers (verbally or physically).

As a scientific organization we encourage respectful scientific debate.

All participants are expected to observe these rules and behaviors in all conference venues, including online venues, and conference social events. Participants asked to stop a hostile or harassing behavior are expected to comply immediately. Failure to comply may result in expulsion from the meeting and future meetings, or other sanctions. Any person who has experienced a serious verbal threat or any physical assault should contact law enforcement officials immediately.

The following are ways to report harassing behavior:

- Phone the SOFT Executive Director at 480-839-9106;
- Email the SOFT Executive Director at beth@soft-tox.org;
- During the annual conference in-person notifications can be made at the registration booth; and
- During regional workshops in-person notifications can be made to the workshop host.

SOFT prohibits retaliation against any individual who reports discrimination or harassment or participates in an investigation of such reports. Retaliation against an individual is a serious violation of this policy and, like harassment or discrimination itself, will be subject to sanctions.

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August 1 for September Issue
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2021

Gaylord Opryland, Nashville, TN
September 26–October 1, 2021
Jennifer Colby and Erin Karschner

2022

Huntington Convention Center, Cleveland, OH
October 30–November 4, 2022
Doug Rohde and Michele Merves Crosby

2023

Gaylord Rockies, Denver, CO
October 29–November 3, 2023
Dan Anderson and Jarrad Wagner

2024

Union Station, St. Louis, MO
Oct 27–Nov 2
TBD

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