



# TOXTALK®

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## PRESIDENT'S MESSAGE

*Submitted by Peter Stout, Ph.D., F-ABFT*

Here is my last official message opportunity for the SOFT membership as President. Better make the most of it!

First, thank you.

Everyone in this capacity says it and I fear that the sentiment gets lost in the effort to express the gratitude, but it is a very real sense of gratitude for the opportunity to serve this community.

There are an astonishing number of people who need to be recognized and thanked for their efforts with SOFT. There are all the people who make the meetings happen year after year. There are also new people who make each year's meeting a reality. Both are very important and significant contributions.

As with past years, this year the combination of meeting veterans and local crew produced a meeting we were all proud of; a solidly run, locally-flavored meeting that was productive for everyone. Realize though that the meeting is not only the undertaking of the dozens of people who plan and execute, but it is the efforts of the over 900 people who give the meeting life by participating as exhibitors, attendees and presenters. Thank you for an excellent meeting.

There are those who must be thanked for making SOFT run day after day. This includes the very visible people like Bonnie Fulmer and the

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## PRESIDENT'S MESSAGE (CONTINUED)

Board, but there are many others who quietly do the work of committees and scientific discussions day after day.

Thank you to everyone who helps breathe life into this society.

Each year the Society has changes both subtle and obvious. I think this year may have been more on the subtle end. The Board made many changes to firm up business practices of the Society and try to prepare us for further growth and what that will mean for the infrastructure of SOFT and serving its members. I am confident that our incoming Board and officers will meet the challenge of continuing those efforts and continue to help SOFT grow and thrive.

I would ask of members (easy to do on the way out the door) to be

ready to productively engage in discussions about what "growth" means to SOFT. Without growth, organizations fail. But managing growth and understanding what growth is can be more complex than simply more units. What this growth means for SOFT is unclear and is a work in progress. Is it time to consider an Executive Director or other structural change? When might be the scale that is appropriate? What can SOFT do to offer value to the membership? How do we manage revenues and expectations of revenues?

The science we all treasure is an essential component of the Society. How we choose to best enable that requires significant thought and action about the business of SOFT. While "business" may be an uncomfortable thing to think of for some, I encourage everyone to be willing to engage in the conversa-

tion, because the science doesn't happen without the business.

I depart the office of President pleased with what we have accomplished, wishing we could have accomplished more and confident that the new officers are well positioned to continue the progress. We are in good hands.

Thank you again for this opportunity to serve and have a unique influence. Please stay involved and stay active.



## CALL FOR ABSTRACTS, MODERATORS AND REVIEWERS FOR THE SOFT 2015 ANNUAL MEETING IN ATLANTA, GA - OCTOBER 18 -23<sup>th</sup>

### **ABSTRACT SUBMISSION DEADLINE IS MAY 4, 2015**

The SOFT 2015 Scientific Program Committee is requesting abstracts on all topics related to forensic toxicology. The Committee will select appropriate abstracts to be presented as either a 15 minute platform presentation or poster presentation. Refer to the SOFT website for additional information on abstract requirements and submission.

In addition, the Leo Dal Cortivo Memorial Fund is allowing the Young Forensic Toxicologists Committee to present two awards to young forensic toxicologists at the SOFT 2015 Annual Meeting. The best platform presentation and the best poster presentation will be chosen from among the eligible entries, and the presenting author will be awarded a cash stipend of \$1000 in addition to a free registration for a future SOFT meeting. For eligibility requirements and instructions on how to apply, go to the Young Forensic Toxicologists tab on the SOFT website.

If you would like to serve as an abstract reviewer or moderate a session at the meeting, please contact the Scientific Program Committee Chairs at [SOFT2015Scientific@gmail.com](mailto:SOFT2015Scientific@gmail.com).

The SOFT 2015 Scientific Program Committee Chairs are:  
Diane Boland  
Madeline Montgomery

## SOFT Annual Meeting October 18th-23rd, 2015

### Hyatt Regency Atlanta

*Committee Co-Chairs: Robert Sears and Lisa Holt*

#### Scientific Program Chairs

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#### Fun Run

Brittany Gresham

Planning is currently underway for SOFT 2015 to be held in Atlanta, GA. Both Lisa and I are committed to providing a fun and educational experience as we offer up some good old fashioned southern charm.

Atlanta provides a wonderful backdrop for our next meeting. During free time, plan to visit one or more of the following attractions: the World of Coca-Cola, Centennial Olympic Park, Fernbank Museum of Natural History, High Museum of Art, Turner Field (home to the Atlanta Braves), CNN studio, Zoo Atlanta, College Football Hall of Fame, the Fox Theater, Stone Mountain Park, the Martin Luther King Jr. National Historic Site, Historic Oakland Cemetery, the Atlanta Botanical Gardens or the Jimmy Carter Presidential Library and Museum. Atlanta has many attractions to offer in close proximity to the host hotel.

Located on Peachtree Street in downtown, the Hyatt Atlanta has been selected as our meeting hotel. The Hyatt offers world class amenities with 1260 guestrooms, two restaurants, two lounges, Perks (offering 24 hour coffee and snack service), spacious ballrooms, ample meeting space and exhibitor space located in the Grand Hall just an elevator ride away.

Transportation from the airport is very convenient with a MARTA train station only a block (short walk) from the Hyatt. For \$3.50 fare use the "Red Line" to/from the Atlanta Airport. The train runs every 15 minutes. The MARTA is clean, safe, fast and

inexpensive. All trains departing the airport will stop at the "Peachtree Center Station" so utilize the first train that becomes available. There are only 8 stops between the airport and the Peachtree Station.

The Peachtree Center Mall is just across the street from the Hyatt, with 30 restaurant choices and 30 retailers, including a 24 hr CVS. There are also many other shopping and dining options nearby up and down the connecting streets. Downtown Atlanta is a vibrant, beautiful venue for SOFT 2015. We are so proud to showcase Atlanta and the plentiful fascinating attractions.

As many of you understand, there is still much work to be done. If you have suggestions for a better meeting, please contact one of our committee members. We look forward to seeing you in Atlanta!

Robert and Lisa



**JAT SOFT Special Issue Editor for 2015: Sumandeep Rana, Ph.D.**  
**[srana@redwoodtoxicology.com](mailto:srana@redwoodtoxicology.com)**

***To me there has been never been a higher source of earthly honor or distinction than that connected with advances in science - Issac Newton***

The *Journal of Analytical Toxicology (JAT)* is one of the most prestigious toxicology publications and it has been instrumental in the advancement of toxicology since 1977. Each year, *JAT* invites the Society of Forensic Toxicologists (SOFT) to edit a special issue of the journal to coincide with SOFT's annual meeting.

It is my honor to serve as the Guest Editor of the October 2015 annual SOFT Special Issue of *JAT*. I thank the incoming President Dr. Ruth Winecker for entrusting me with this challenging endeavor.

The success of the 2015 Special Issue of *JAT* depends on your contributions in the form of quality manuscripts and thoughtful, highly competent reviews. I encourage you all to submit your manuscripts for consideration. I also invite you to assist with the peer-review process by volunteering to perform a comprehensive and timely review of these manuscripts. Together, I hope to make the 2015 SOFT Special Issue another invaluable contribution to the field of forensic toxicology.

In order to maintain the scientific and technical veracity, the manuscripts will be reviewed in terms of originality, value to the field, technical content, and clarity. All accepted manuscripts, in which the lead author is a SOFT member, will be eligible for consideration for the 2015 Experimental Design and Impact on Toxicology (EDIT) Award. This prestigious award will recognize the lead author of the paper shown to have excellent scientific experimental design and a wide impact on the forensic toxicology field.

Please submit your manuscript at <http://jat.oxfordjournals.org/> and designate the manuscript for the SOFT special issue.

**DEADLINES:**

February 28, 2015: Title and abstract submissions due  
March 14, 2015: Completed manuscripts due  
Oct. 18-23, 2015: SOFT Annual Meeting and Distribution of Special Issue to Attendees

Thank you in advance for your contributions towards a successful issue.

**Sumandeep Rana, Ph.D.**  
**[srana@redwoodtoxicology.com](mailto:srana@redwoodtoxicology.com)**



## Workshop Proposals

Proposals for the 2015 Atlanta meeting are **due no later than March 13, 2015**. The submission form is located on the SOFT website under the "Annual Meetings" tab and is also included in this issue starting on page 17. Completed forms should be emailed to the 2015 Workshop Co-Chairs. Please notify Demi or Debby in advance if you plan to submit a proposal. They will be happy to answer any questions regarding workshops or the submission process.

2015 Workshop Co-Chairs

Demi Garvin  
[dgarvin@rcsd.net](mailto:dgarvin@rcsd.net)

Debby Denson  
[ddenson1@nc.rr.com](mailto:ddenson1@nc.rr.com)





## DRUGS IN THE NEWS

Send interesting *"Drugs In The News"* articles  
to Section Editor

Lauren Marinetti, Ph.D., F-ABFT,  
Lmarinetti@redwoodtoxicology.com

## The American Academy of Neurology's New Position Statement Regarding Opiate Use in the Treatment of Chronic Non Cancer Pain

*Submitted By Lauren Marinetti – Section Editor*

There is a new opioid formulation being released. The U.S. Food and Drug Administration (FDA) approved Hysingla™ ER (hydrocodone bitartrate) extended-release tablets CII, a once-daily, single-entity medication formulated using a proprietary extended-release solid oral platform, RESISTEC™. Hysingla ER is indicated for the management of pain severe enough to require daily, around-the-clock, long-term opioid treatment and for which alternative treatment options are inadequate. RESISTEC™ is Purdue Pharma's proprietary extended-release solid oral dosage formulation platform. RESISTEC™ uses a unique combination of polymer and processing that confers tablet hardness and imparts viscosity when dissolved in aqueous solutions. It is the first and only hydrocodone product to be recognized by the FDA as having abuse-deterrent properties that are expected to deter misuse and abuse via chewing, snorting and injection. However, abuse of Hysingla™ ER by the intravenous, intranasal, and oral routes is still possible. Hysingla™ ER is difficult to crush, break or dissolve and has FDA-approved labeling that describes the product's abuse-deterrent properties; these are consistent with FDA [2013 draft guidance for the industry](#). Additionally, it forms a thick gel, making it difficult to be prepared for



injection. The newly approved opioid is a strong painkiller and is therefore not for "as-needed" pain relief.

According to the Centers for Disease Control and Prevention (CDC), every day in the US, 114 people die from a drug overdose. Meanwhile, another 6,748 are treated in emergency rooms for the abuse or misuse of drugs. For this reason, FDA deemed it important to protect the public from this growing threat. "While the science of abuse deterrence is still evolving, the development of opioids that are harder to abuse is helpful in addressing the public health crisis of prescription abuse in the US," says the director of the FDA's Center for Drug Evaluation and Research, adding: "preventing prescription opioid abuse is a top public health priority for the FDA, and encourag-

ing the development of opioids with abuse-deterrent properties is just one component of a broader approach to reducing abuse and misuse, and will better enable the agency to balance addressing this problem with ensuring that patients have access to appropriate treatments for pain." Though the FDA says the drug's physical and chemical properties make abuse more difficult, they cannot totally prevent abuse of the drug. If an individual takes too much Hysingla™ ER - intentionally or accidentally - it could result in an overdose or even death.

Hysingla™ ER does not carry the liver toxicity risks associated with hydrocodone combination drugs that contain acetaminophen. Still, the FDA urges caution to health care professionals when prescribing any opioid painkillers. In a clinical trial involving 905 people with chronic low back pain, researchers assessed the safety and effectiveness of the newly approved drug. The FDA says they are requiring post-marketing studies of the drug to demonstrate the effects that the abuse-deterrent

## The American Academy of Neurology's New Position Statement Regarding Opiate Use in the Treatment of Chronic Non Cancer Pain (*Continued*)

features have on the risk for abuse, as well as the consequences of any abuse in the wider community.

Purdue conducted laboratory manipulation and extraction studies, and clinical abuse potential studies with Hysingla™ ER, in accordance with the FDA's 2013 Draft Guidance on Abuse-Deterrent Opioids: Evaluation and Labeling. Based on the results of these studies, Hysingla™ ER is recognized by the FDA as having abuse-deterrent properties that are expected to deter misuse and abuse via chewing, snorting and injection, resulting in Tier 1 and 3 abuse-deterrence labeling. The methodology and results of these studies are summarized in section 9.2 of the product's label. Additional data, including epidemiological data, when available, may provide further information on the impact of Hysingla™ ER on the abuse liability of the drug. Accordingly, section 9.2 may be updated in the future as appropriate.

Tier 1 labeling means that a product is formulated with physicochemical barriers to abuse. To gain Tier 1 labeling, data from laboratory manipulation and extraction studies that assess how the abuse-deterrent properties of a formulation can be defeated or compromised are provided to the FDA. Tier 3 labeling means that the product is expected to result in a meaningful reduction in abuse. To gain Tier 3 labeling, data from clinical abuse potential studies are provided that assess the impact of a formulation's abuse-deterrent properties on measures that predict how probable it is that the formulation will be attractive to, or

"liked" by, abusers. For Tier 4 labeling, the product must demonstrate reduced abuse in the community. Purdue will conduct post-marketing surveillance studies to assess this impact of the drug on reducing abuse and diversion in a real-world setting.

The most common treatment-emergent adverse reactions (greater than or equal to 5%) reported by patients treated with Hysingla™ ER in the clinical trials were constipation, nausea, vomiting, fatigue, upper respiratory tract infection, dizziness, headache, and somnolence. Purdue expects to launch Hysingla™ ER in the United States in early 2015 in dosage strengths of 20 mg, 30 mg, 40 mg, 60 mg, 80 mg, 100 mg and 120 mg to be taken once every 24 hours. However, doses 80 mg and higher should not be prescribed to individuals who have not previously taken an opioid medication. The Full Prescribing Information for Hysingla™ ER, including the Boxed Warning and Medication Guide is available at [www.purduepharma.com/hysinglaerpi](http://www.purduepharma.com/hysinglaerpi).

Now consider that just prior to the approval of Hysingla™ ER, the American Academy of Neurology (AAN) published a new position statement in their journal, *Neurology*, asserting that the adverse effects of opioid painkillers outweigh the benefits to patients with chronic, non-cancer conditions such as headache, fibromyalgia and *low back pain* (Hysingla™ ER was evaluated in 905 patients with *low back pain*). The AAN suggest that the modified regulations may have been too permissive, citing as an example a ruling that "No disciplinary action will be taken against a practitioner based solely on the

quantity and/or frequency of opioids prescribed." The position paper makes the case that the lobbying campaigns occurred in the absence of any clear evidence from clinical trials that opioids are a safe or effective treatment for patients with chronic non-cancer pain (CNCP). Pent-up demand for more effective treatment of chronic pain drove the lobbying, which placed particular emphasis on a perceived under treatment of chronic pain. Pain specialists pushing for more permissive use had reasonable experience with use of opioids for cancer pain and thought their patients with chronic pain could also safely receive opioids. All of that opinion was based on no quality evidence. More than 100,000 people have died from using prescription opioid painkillers since the late 1990s when liberalization occurred. The death rate associated with prescription opioids is an epidemic, with more deaths in the age group of 35 to 54 years from opioids than from firearms and car accidents. While there is evidence for significant short-term pain relief with opiate use, there is no substantial evidence for maintenance of pain relief or improved function over long periods of time without incurring serious risk of overdose, dependence, or addiction. Despite no substantial evidence that opioids maintain pain relief over long periods of time, studies show that more than 50% of patients taking opioids for at least 3 months are still taking these drugs more than 5 years later.

With a high risk of overdose, dependence or addiction associated with long-term opioid use, these statistics represent a serious problem. Doctors are largely naive to

## The American Academy of Neurology's New Position Statement Regarding Opiate Use in the Treatment of Chronic Non Cancer Pain (*Continued*)

the evidence available for opioid painkillers and the risk of addiction associated with them. The position paper sets out a series of recommendations for doctors to prescribe opioids more safely. In particular, the AAN suggest that doctors should consult with a pain management specialist if dosage exceeds a morphine-equivalent dose of 80-120 mg per day. The paper also suggests: the creation of an opioid treatment agreement, screening for current or past drug abuse, screening for depression, using random urine drug screens, that medications such as sedative-hypnotics or benzodiazepines with opioids should not be prescribed, assessing pain and function for tolerance and effectiveness, tracking daily morphine equivalent dose using an online dosing calculator, seeking help if the morphine-equivalent dose reaches 80-120 mg and pain and function have not substantially improved and using the state Prescription Drug Monitoring Program to monitor all prescription drugs the patient may be

taking. Although these types of recommendations have been part of most published guidelines doctors aren't doing sufficient screening using brief, publicly available and/or inadequate screening tools. More research is needed regarding the effectiveness of opioids, in addition to changes in state and federal laws to ensure patient safety when prescribing these drugs.

I agree with the AAN, what do you think?

### References:

1. Full Prescribing Information for Hysingla™ ER (hydrocodone bitartrate) Extended-Release Tablets CII.
2. Franklin, G.M., Opioids for chronic non cancer pain: a position paper of the American Academy of Neurology, *Neurology*, 2014 Sep 30;83(14):1277-84.
3. Michna, E., Duh, M.S., Korves, C., Dahl, J.L., Removal of opioid/acetaminophen combination prescription pain medications: assessing the evidence for hepatotoxicity and consequences of removal of these medications. *Pain Medicine*. 2010; 11: 369-378.
4. IMS Health NPA, based on TRX, August 2014. Accessed Oct. 20, 2014.
5. [2013 National Survey on Drug Use and Health, Table 1.89A. Substance Abuse and Mental Health Services Administration](#). Accessed Oct. 20 2014.
6. [Guidance for Industry: Abuse-Deterrent Opioids- Evaluation and Labeling: Draft Guidance](#). US Food & Drug Administration. Accessed Oct. 20, 2014.
7. Data on File, Purdue Pharma L.P.
8. [Acetaminophen Prescription Combination Drug Products with more than 325 mg: FDA Statement - Recommendation to Discontinue Prescribing and Dispensing](#). U.S. Food & Drug Administration. Accessed Oct.





## TECHNICAL ARTICLES

## Enhancing the Specificity of Color Tests

*Submitted by Theodore J. Siek, Ph. D., F-ABFT and Raymond C. Kelly, Ph.D., F-ABFT*

Color tests and visible spectrophotometry have fallen out of popularity in many laboratories as toxicologists look to more recently developed approaches for qualitative and quantitative testing for drugs and toxins. However, color tests have a long history of use and are still employed, especially when the approach is so convenient, and when a mass spectrometric technique has not been developed and validated. The specificity of color tests can be enhanced by adding a few simple steps to a procedure, and quantitative results can easily be obtained from the visible absorption spectrum of a particular chromophore. Some examples of specificity enhancement are presented here.

### Highly Conjugated Molecules Produce a Unique Visible Wavelength-Absorbance Spectrum

Nearly all forensic and medical toxicology laboratories are called upon to provide carboxyhemoglobin determinations which is often accomplished by scanning visible spectrophotometry. Some instruments do wavelength readings automatically and calculate percent carboxyhemoglobin (HbCO). Not obtaining and examining the visible scan with only a few point readings is risky for postmortem blood, as much can happen to change the overall absorption spectrum in bloods that are not recently drawn from a living person. Reduced hemoglobin (Hb), oxyhemoglobin (HbO<sub>2</sub>), carboxy-

hemoglobin (HbCO), methemoglobin (metHb), sulfmethemoglobin (metHbS), alkaline hematin and acid hematin all have unique visible spectra [1]. This is the case even as the globin part of the Hb complex remains identical in all cases. Thus the visible color spectrum is highly specific for the type of ligand on the central heme iron (Fe<sup>+2/+3</sup>) of hemoglobin. This Fe<sup>+2/+3</sup> ion is centered in a porphyrin ring and the mere substitution of one of six ligands creates a unique visible spectrum from 700 to 400 nm for the various hemoglobins.

### Specificity of Cyanide Color Tests by Esoteric Reagents

Cyanide ion is an acute toxin encountered in some fire deaths and in homicidal, suicidal, and accidental poisonings. Older color tests were based on complexing cyanide (CN<sup>-</sup>) with ferric-ferro ions to form ferric ferrocyanide, Fe<sub>4</sub>[Fe(CN)<sub>6</sub>]<sub>3</sub>, called Prussian blue. More specific tests have been developed [2], where cyanide, separated from the sample by microdiffusion, is centered in a highly conjugated ring system which produces the color. The rate of color formation should be noted; does the test sample develop color at about the same rate as the controls and standards? Hydrogen cyanide (HCN, bp 26°C) has a relatively fast diffusion rate even at room temperature. Another characteristic of cyanide poisoning is that most of the cyanide is found in the red cells, rather than the plasma and serum. Plasma and serum will have only about 1/50 the

CN<sup>-</sup> concentration as whole blood. Thus testing serum or plasma as well as blood when testing for CN<sup>-</sup> will add further specificity. Finally, note the stability of the color over time, as colors will sometimes fade within hours.

It stands to reason that substances which can readily form HCN by degradation will produce a positive test, albeit over a longer period of time. Examples include amygdalin, laetrile, and cyanocobalamin (vitamin B<sub>12</sub>). The bonded cyano group (-CN) in these natural substances is such a small fraction of the total molecule, and considering the rate of HCN production one can usually rule out acute cyanide poisoning from these natural products. Testing for the metabolite of cyanide, thiocyanate (SCN<sup>-</sup>), is another confirmatory test [3] which documents exposure to cyanide.

The determination of other toxic ions and drugs by colorimetric methods has been reviewed by this very publication. One report concerned sodium azide or hydrazoic acid [4]. This particular ion would be difficult to pass through a GC column or even an LC column, but a micro-diffusion followed by a color reaction which involves ferric chloride can be adapted. The visible absorption maximum is 470 nm and cyanide and salicylate do not interfere.

Another use of a color test is to rule out drugs and toxins by an exclusion color test done in a few



## Enhancing the Specificity of Color Tests (*Continued*)

seconds in a test tube. Tests for salicylate and acetaminophen on urine and blood are examples of this [5]. These tests take only seconds to set up and carry out. If no color develops, one can be 100% sure of the absence of salicylates (salicylic acid, salicyamide, phenylsalicylate, and diflunisal). Trinder's test can be done on whole blood (centrifuge after adding reagent). Acetylsalicylate (aspirin) reacts slowly since it must first hydrolyze to salicylic acid. By adding NaOH first, then Trinder's after several minutes, aspirin in stomach contents can be confirmed.

### Summary on Color Test Specificity

Color tests should not be dismissed as being non-specific. The specificity of color reactions de-

pend on how the test is done. An evaluation of the colored reaction product as to probable specificity, a complete spectrophotometric scan though the visible range, the rate of the color formation compared to controls, the stability of the reaction product, and consideration of possible interferences all can contribute to making a color test highly specific. The possibility of diffusion such as in a Conway cell and the rate of diffusion are factors bearing on test specificity. Using color tests for exclusionary purposes is time-saving. Immunoassay tests also have cross-reactivity and thus can be non-specific. Yet nearly all toxicology laboratories now depend on this kind of testing.

### References

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3. T. J. Siek, Screening for Inorganic Anions of Toxicological Interest, *ToxTalk*, 35(2), p. 21-22, 2011.
4. T. J. Siek, G. Behonick, Quantitative and Semi-Quantitative Analysis of Sodium Azide in a Suicide, *ToxTalk*, 33(2), p. 5, 2009.
5. T. J. Siek, Classical Color Tests for Today's Toxicology Lab, *ToxTalk*, 34(1), p. 22, 2010.

## Fun in Grand Rapids!

The 18th annual "Fun Run" event held in Grand Rapids (along the river bank course) was another sell out. Fun Run Chairs, Vince & Rachel Papa with assistance from Fred House prepared some awesome participant shirts and gloves that made this event even more popular than usual!

First Place Men's Runner:

**Peter Stout** at 19:40:01

First Place Women's Runner:

**Theresa Hippolyte** at 19:40:73

First Place Walker:

**Karen Hayes** at 31:50:00

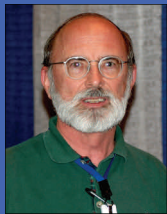
Prizes and Participation Gifts were hosted by many of our exhibitors:

Agilent Technologies  
 Axiom Diagnostics  
 Campbell Science  
 Cerilliant  
 ChemSci Technologies  
 Forensic Advantage Systems  
 iChrom Solutions  
 ITSP Solutions  
 JEOL USA  
 Neogen Corporation  
 Randox Toxicology  
 Sciteck Diagnostics  
 Shamrock Glass Company  
 Tecan  
 UTAK Laboratories  
 X-Link Bioscience

The first "Tox n Purge" 5k Fun Run was organized by Karla Moore at the Salt Lake City Annual Meeting in 1997. Since Dr. Moore's passing in 2008, this event took on her name and is now known as the "Karla Moore Memorial Tox n Purge Fun Run".

All of the participation fees collected from 120 sign-ups prompted \$1220 to be contributed to the American Cancer Society (post meeting) in Dr. Moore's name.





## CASE NOTES

Send interesting "Case Notes" to Section Editor

**Matthew Barnhill, Ph.D., F-ABFT**

**mbarhilljr@worldnet.att.net**

### A Case of Methylone Use and Analysis

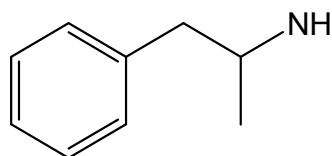
Submitted by **Eric T. Shimomura, Ph.D.**, **Taj D. King, Ph.D.**, and **Thomas Z. Bosy, Ph.D.**

Division of Forensic Toxicology, Armed Forces Medical Examiner System  
Dover AFB, DE

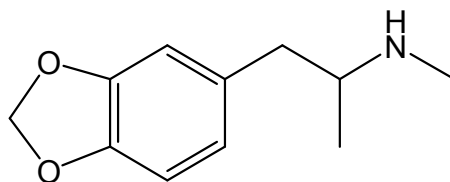
#### Introduction

It has long been known that one of the primary active components of the khat plant is cathinone, a beta-keto analog of amphetamine, which exhibits similar stimulant properties. Although not as potent as amphetamine, cathinone was placed on the controlled substances list in the early 1990's as a Schedule I drug. Similar to what has occurred with compounds in other drug classes (synthetic cannabinoids, amphetamines, opiates), chemists have altered the basic structure of cathinone to alter its pharmacology and in many cases to bypass legal restrictions. This has resulted in a number of modified cathinones, sometimes referred to as designer cathinones and frequently as 'bath salts.' Modifications to chemical structures are often sequential and commonly build on modifications that have altered the behavioral properties in the past. An example of this is the modification of amphetamine to methamphetamine and further to the beta-keto analog 3,4-methylenedioxymethamphetamine (MDMA) and finally to methylone (Figure 1).

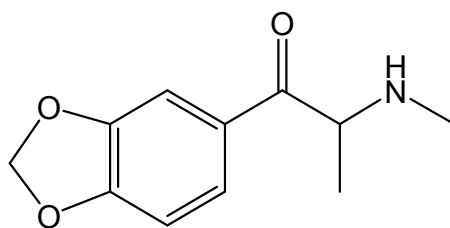
While there are pharmacological consequences apparent after these modifications, there are toxicological



Amphetamine  
 $C_9H_{13}N$  135.21 g/mol



MDMA  
 $C_{11}H_{15}NO_2$  193.24 g/mol



Methylone  
 $C_{11}H_{13}NO_3$  207.23 g/mol

**Figure 1.** Structures of Amphetamine, MDMA, and Methylone

and detection implications as well. Depending on the modification made, these influences can be significant. Toxicologically, compounds can go from relatively safe to imminently dangerous. From a detection standpoint, modifications can alter a

molecule's mass, chemistry and the detection effectiveness of immunoassays. Until recently, there were no commercially available immunoassays specific for designer cathinones. However, given the structural similarity to others sympathomimetic amines, amphetamine immunoassays have varying degrees of recognition potential. Analyte detection is commonly dependent on the concentration of the compound of interest as well as its level of assay cross reactivity. As a result, it is common that forensic laboratories will detect structurally related compounds in the course of forensic analysis.

#### Case History

Our laboratory received blood and urine specimens collected from an individual who was suspected of being under the influence of drugs. Per our laboratory procedures, the urine was screened for drugs of abuse and the blood and urine were tested for ethanol. Ethanol was detected in the blood at a level of 120 mg/dL and in the urine at a level of 150 mg/dL (Agilent 6890 GC/ Tekmar 7000 Headspace Analyzer). The urine drug screen was performed using a Hitachi Cobas C311 analyzer for amphetamine, barbiturates, ben-

## A Case of Methylone Use and Analysis (*Continued*)

zodiazepines, cocaine (benzoylecgonine), opiates, THC, PCP, 6-AM, oxycodone, and MDMA. The urine screened positive for amphetamine and MDMA at a 500 ng/mL cutoff. The immunoassay response for the sample in question was well above the 625 ng/mL positive control for both amphetamine and MDMA, suggesting presence of one or both of these compounds. Confirmation analysis was performed on urine and blood aliquots using mixed mode solid phase extraction, chlorodifluoroacetic anhydride derivatization, followed by gas chromatography/mass spectrometry (Agilent 6890 GC/5975 Mass Selective Detector) (GC/MS) analysis using selected ion monitoring (SIM).

The procedure was optimized for amphetamine, methamphetamine, phenylpropanolamine, pseudoephedrine, ephedrine, 3,4-methylenedioxyamphetamine (MDA) and 3,4-methylenedioxymethamphetamine (MDMA). The GC/MS results were negative for all targeted amines though in the urine a large peak was observed in the Total Ion Chromatogram (TIC) at a retention time beyond the compounds of interest, to include the deuterated internal standards. Additionally, there were peaks observable in the MDMA SIM widows (mass ions 162, 170, and 305) though not at the expected retention time for MDMA, the laboratory suspected methylone based on historic data. A full scan GC/MS analysis was performed on the extract with special interest given to the "unknown" yielding mass ions at 149, 170, and 319. After

review of the GC/MS result, another aliquot of the urine was extracted using mixed mode solid phase extraction and analyzed undervivatized by GC/MS in full scan mode. A large peak was again observed. This peak was subsequently identified as methylone based on retention time and a full scan library match. A final analysis was performed for specific identification and quantitation, where methylone was detected in the blood at a concentration of 1.01 mg/L and in the urine at a concentration of 0.20 mg/L, with a limit of quantitation of 0.05 mg/L. The urine concentration exceeded the method's 2 mg/L upper limit of quantitation despite sample dilution. Laboratory policy allows acceptance of this result and no further testing was performed.

### Discussion

Designer cathinones have been reported in the literature to elicit responses when using immunoassays not specifically designed for cathinones (H. Torrance, et. al. 2010). We have observed other instances in our laboratory where a designer cathinone in the urine has triggered a positive response when using our amphetamine and/or MDMA immunoassay (unpublished data). Interestingly, given methylone's structural similarity to MDMA, one would expect a more robust response from the MDMA immunoassay relative to the amphetamine assay, which was not observed in this case.

Over the last three years the laboratory has detected methylone in 12 urine specimens, and urine is by far the most common matrix sub-

mitted to our laboratory for investigative purposes. The range of methylone concentrations in these urine specimens ranged from 0.15 to 15.57 mg/L for non-fatal investigative cases and over 39 mg/L in a post mortem case. In these 12 cases, there were only two specimens where methylone was the sole drug detected. Regarding these two cases, the first case methylone quantitated at a concentration greater than 13 mg/L, this specimen producing a positive screen result employing our amphetamine immunoassay but a negative screen result when using our MDMA immunoassay (there was a noticeable response). The second case indicated methylone at 0.16 mg/L with neither the amphetamine nor the MDMA immunoassay producing a response above the negative control. There were four cases in which MDMA and MDA were detected and in two of those an additional designer cathinone, 4-methylethcathinone, was also identified. As might be expected, both the amphetamine and MDMA immunoassays were positive for these cases.

Concerning blood specimens, two were submitted within the last year, one for a non-fatal investigation, the other in support of a post mortem case. The methylone concentration in the blood of the non-fatal specimen was 0.49 mg/L; the concentration in the fatal blood specimen was 0.50 mg/L (urine concentration in this specimen was above 39 mg/L). Interestingly, in the non-fatal case where only blood was available, methylone did not cross-react with the amphetamine or methamphetamine



## A Case of Methylone Use and Analysis (*Continued*)

EIA immunoassay our laboratory uses for screening blood. These observations suggest that the blood immunoassay used in our laboratory may be more specific or less sensitive than the immunoassay used for urine. While we continue to monitor immunoassay screening results for potential cross reactivity to drugs such as designer cathinones, our laboratory now screens for designer cathinones with a base extraction coupled to full scan GC/MS.

Given limited analytical results and inadequate narratives concerning the potential for methylone in post mortem specimens, blood methylone concentrations are difficult to interpret. Methylone levels in a limited number of fatalities where methylone toxicity was ruled the cause of death have been reported with a wide range of blood concentrations, 0.56 mg/L to 3.3 mg/L (J.M. Pearson, et.al. 2012). In other fatalities with suspected methylone toxicity, methylone levels in the blood were quantified at 0.74 mg/L for central blood and

0.67 mg/L (B. M. Cawrse, et. al. 2012) and 0.7 mg/L for peripheral blood (P.N. Carbone, et. al. 2013). Moreover, in a recent post mortem case in our laboratory, methylone was detected in the blood at a level of 0.50 mg/L, although oxycodone at a level of 0.10 mg/L was also detected. Interestingly, in the non-fatal case discussed in this case note, methylone was detected in the blood at a concentration of 1.01 mg/L. While this concentration appears to be within levels associated with fatal outcomes, this individual did not succumb. While we are unaware of any study postulating tolerance to methylone, this case provides speculative evidence that it may occur.

The opinions or assertions presented herein are the private views of the authors and should not be construed as official or as reflecting the views of the Department of Defense, its branches, the U.S. Army Medical Research and Materiel Command or the Armed Forces Medical Examiner System.

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## Thank You Dr. Goldberger!

During the SOFT 2014 (Grand Rapids) meeting, Bruce Goldberger was recognized for his dedication and efforts to manage the SOFT Website for the past 20 years! Dr. Goldberger established the original website in 1994, and has continually directed the many improvements over the years for the growing membership.

Bruce has selflessly spent countless hours monitoring thousands of incoming messages and vigilantly protecting SOFT interests through the website.

The SOFT website has become the central hub for communications and information, not only from the membership, but from the public as well.



## American Academy of Forensic Sciences Meeting – February 16-20, 2014, Orlando, Florida

*Submitted by Dwain Fuller, AAFS Toxicology Section Chair*

The SOFT meeting in Grand Rapids was a wonderful success. Many thanks to everyone who made it possible. Now the AAFS meeting is right around the corner. I want to thank everyone who submitted abstracts and workshop proposals. Our program co-chairs, Rebecca Phipps and Dan Anderson did a fantastic job in putting together our program submission. This year's competition for workshop space was particularly rigorous therefore some wonderful proposals were ultimately not accepted by the Academy. However, a great workshop entitled "Clinical Toxicology of the Poisoned Patient" was accepted and will be chaired by Robert Middleberg and Barry Logan.

We are looking forward to an exciting and very full slate of presentations during our scientific sessions. This year we have 46 platform presentations and 49 posters, not including the annual Pediatric Toxicology Special Session. This could not be accomplished without a team of people willing to review these abstracts on a short time frame. Our heartfelt thanks are extended to all of the reviewers that made this slate possible. We also want to extend our sincere appreciation to our loyal sponsors for their generous financial assistance this year. I will be thanking all of you individually in **Academy News**.

On Wednesday, we will once again be having a Toxicology Section

Luncheon. This will immediately precede the section business meeting. If you wish to attend, **please remember to register for the luncheon during pre-registration, as on-site registration will not be possible.**

Please attend the section business meeting where along with conducting section business, we will once again be honoring our colleagues who are receiving our section awards.

I look forward to seeing you all in sunny Orlando!

## SOFT/AAFS Drugs and Driving Scientific Session

### SOFT 2014, ToxTalk Summaries

*Submitted by Ashraf Mozayani*

#### **Trends in Driving Under the Influence of Drugs in the Commonwealth of Virginia Second Sample Drug Testing program, 1990-2013.**

Carrol R. Nanco<sup>\*1</sup>, Carl E. Wolf<sup>1,2</sup> and Alphonse Poklis<sup>1,2</sup>; <sup>1</sup>Forensic Toxicology Laboratory, Medical College of Virginia Hospitals and Physicians of Virginia Commonwealth University Health Systems, <sup>2</sup>Department of Pathology, Virginia Commonwealth University, Richmond, VA, USA

Virginia has statutes specifically addressing independent testing of

blood collected for DUID. The program consists of two vials of blood collected from the suspect charged with DUID. One is sent to Virginia DFS and the second is sent to the SSIT laboratory chosen by the defendant. Results from 3,291 specimens submitted from 1990-2013 were evaluated. No appreciable changes in traditional drug use in drivers were observed, i.e. marijuana, cocaine and PCP. Increased incidences were observed in prescription drug use - oxycodone, alprazolam (reflects increased use in pain management) and the sleep-aid, zolpidem.

#### **The Changing Landscape of Marijuana Legislation and DUID Testing in Colorado**

Sarah Urfer\*; ChemaTox Laboratory, Inc., Boulder, CO, USA

The state of Colorado is currently under scrutiny due to the progressive marijuana policy. Use of medical marijuana (MMJ) has been legal in the state of Colorado since 2000. Between 2009 and 2010, the number of MMJ applicants in the state of Colorado went from 10,000 to over 100,000. Combined data from ChemaTox Laboratory and the Colorado De-

## SOFT/AAFS Drugs and Driving Scientific Session

### SOFT 2014, ToxTalk Summaries (*Continued*)

partment of Health and Environment Toxicology Laboratory were used to assess total cases screened for cannabinoids, the number and percentage of those cases that screened positive, and the number and percentage of the positive screens that confirmed positive for THC at or above 2 ng/mL. Total cases per year screened for THC increased between 2009 and 2012 by 2.8 fold, then leveled off. The same percentage of cases screen positive each year (~57%), however when confirmation testing is performed the percentage of cases positive for THC increased steadily from 28% in 2009 to 68% for the data collected thus far in 2014.

#### **Evaluation of 2-(4-iodo-2,5-dimethoxyphenyl)-N-[(2-methoxyphenyl)methyl]ethanamine (25I-NBOMe) in the Mouse Using a Battery of Behavioral Paradigms**

Justin L. Poklis<sup>1</sup>, Brittany L. Mason<sup>1</sup>, Alphonse Poklis<sup>1,2,3</sup> and Laura E. Wise<sup>1</sup>; Departments of <sup>1</sup>Pharmacology & Toxicology, <sup>2</sup>Pathology, and <sup>3</sup>Forensic Science, Virginia Commonwealth University, Richmond, VA, USA

The new class of designer hallucinogenic drugs, dimethoxyphenyl-N-[(2-methoxyphenyl)methyl]ethanamine (NBOMe) derivatives have become a concern to public health and safety. The most popular, 2-(4-iodo-2,5-dimethoxyphenyl)-N-[(2-methoxyphenyl)methyl]ethanamine (25I-NBOMe) was evaluated at a 2 mg/kg dose in

mice using a battery of behavioral tests. The behaviors assessed included body temperature, head-twitch response (HTR), number of rears, number of seizures, hyperreflexia, time freezing and distance traveled. Significant effects of 25I-NBOMe included slight rise in temperature, an increase in HTR (indicating hallucinogenic effects), increase in rearing, and induction of seizures. These tests can be used to evaluate potency, efficacy, abuse potential and the dangers of other NBOMe derivatives.

#### **Evaluation of the Effectiveness of a Wash Procedure for the Removal of Methadone Spiked Drug-Free Hair Samples**

Chrystalla Kyriakou and Gail Cooper\*; Forensic Medicine and Science, University of Glasgow, Glasgow, Scotland, UK

The Society of Hair Testing (SoHT) recommends laboratories should investigate to what extent their wash procedure removes surface contamination, however no recognized protocol exists on how to achieve this. The objective of this study is to evaluate the effectiveness of the in-house wash procedure to remove methadone spiked drug-free hair samples. The researchers concluded that variations in hair porosity and hair treatments are the most likely explanation for the difference in the amount of drug contaminating the hair samples. The variation in recoveries indicates the likelihood of methadone being actively incorporated into the hair rather than simply contaminating the surface of the hair.

#### **Psychomotor Effects in Occasional and Frequent Smokers Following Controlled Smoked Cannabis**

Nathalie A. Desrosiers<sup>1</sup>, Johannes G. Ramaekers<sup>2</sup>, David A. Gorelick<sup>1,3</sup> and Marilyn A. Huestis<sup>1</sup>;

<sup>1</sup>Chemistry and Drug Metabolism, NIDA IRP, Baltimore, MD, USA; <sup>2</sup>Department of Neuropsychology and Psychopharmacology, Maastricht University, Maastricht, The Netherlands;

<sup>3</sup>Maryland Psychiatric Research Center, University of Maryland School of Medicine, Baltimore, MD, USA

Δ9-Tetrahydrocannabinol (THC), the main psychoactive ingredient in cannabis, was the most prevalent illicit drug detected in injured drivers in Victoria, Australia (9.8%), and cannabinoids were found in 8.6% of nighttime drivers' blood and/or oral fluid in the 2007 US Roadside Survey. Cannabis impairs psychomotor performance, cognition, and driving ability in driving simulators and on-the-road driving tests, and is thus a concern for public safety. The objective of this study was to evaluate smoked cannabis' neuromotor effects in occasional and frequent smokers. The results indicate occasional smokers had significantly more difficulty compensating for CTT tracking error compared to frequent smokers 1.5 h after smoking. The DAT revealed that, compared to baseline, hits were significantly decreased (fewer "2" detections) and RT was significantly increased at 3.5h, independent of



## SOFT/AAFS Drugs and Driving Scientific Session

### SOFT 2014, ToxTalk Summaries (*Continued*)

group; there was a trend towards increased RT at 1.5 and 5.5h. Time×group effects (indicating group differences) were present on DAT for tracking error at 1.5h (with frequent smokers having less and occasional smokers having more errors than their baselines), hits at 3.5h (with occasional smokers having fewer hits than frequent smokers), FA at 1.5h (with occasional smokers having more and frequent smokers having less than their baselines), and increased RT (with occasional smokers having delayed RT at 1.5 and 3.5h). Trends ( $p < 0.01$ ) were noted for decreased DAT hits in occasional smokers at 1.5 and 5.5h. No residual impairment was noted after 22.5h, as FA significantly decreased and control losses tended to be lower in occasional smokers at this time. They concluded that cannabis impairs psychomotor function following controlled cannabis smoking, especially in occasional smokers, suggesting some tolerance to psychomotor impairment in frequent users. These data have implications for DUID cases, as drivers' ability to appropriately control a car can be impaired following cannabis smoking for up to 3.5h, as demonstrated in these psychomotor tasks.

#### **Stability of Free and Glucuronidated Cannabinoids in Blood and Plasma Collected in Plastic Gray-Top Sodium Fluoride Tubes and Stored in Polypropylene Tubes Following Controlled Smoked Cannabis**

Karl B. Scheidweiler\*, Sarah K. Himes, Nathalie A. Desrosiers and Marilyn A. Huestis; Chemistry and Drug Metabolism Section, Intramural Research Program of the National Institute on Drug Abuse, National Institutes of Health, Baltimore, MD, USA

Blood and plasma cannabinoids stability is important for test interpretation, and is best studied in authentic rather than fortified samples. No stability studies with authentic specimens after controlled cannabis smoking exist for gray-top sodium fluoride tubes, commonly employed in forensic drug testing. The researchers' objective was to assess cannabinoids stability in authentic blood and plasma specimens collected on ice in polyethylene gray-top sodium fluoride tubes, centrifuged (plasma) and stored in polypropylene tubes after controlled smoked cannabis. They created low and high blood and plasma pools for each of three participants after smoking a cannabis cigarette

within 2 h of collection and stored in polypropylene cryotubes. The stabilities of  $\Delta^9$ -Tetrahydrocannabinol (THC), 11-hydroxy-THC (11-OH-THC), 11-nor-9-carboxy-THC (THCCOOH), cannabidiol (CBD), cannabinol (CBN), THC-glucuronide, and THCCOOH-glucuronide were determined after 1 week at room temperature (RT), 1, 4, 12 and 26±2 weeks at 4° C and 1, 4, 12, 26±2 and 52±4 weeks at -20°C. Concentration changes > ±20% were considered unstable. After testing with LC-MS-MS they concluded blood and plasma specimens should be stored at -20°C for no more than 12 weeks to assure accurate THC, 11-OH-THC, THCCOOH and THCCOOH-glucuronide quantitative results. THCCOOH-glucuronide hydrolysis can confound analysis of unconjugated THCCOOH in blood and plasma if specimens are stored at 4 or -20°C for more than 4 or 52 weeks, respectively. Laboratories quantifying THC in blood specimens should store specimens at -20°C and analyze within 26 weeks; refrigerated storage requires analysis within 12 weeks for assuring accurate THC blood concentrations.

### Seeking a Quarterly Contributor for "From the Toxicology Literature"

As was previously announced, Barry Levine, due to other responsibilities, has relinquished his role as the quarterly contributor of the "From the Toxicology Literature" section of ToxTalk®. We are seeking someone to fill that role. The "From the Toxicology Literature" section helps busy toxicologists keep in touch with some of the most intriguing literature from each quarter. This contributor would be responsible for reviewing many of the most popular forensic toxicology related journals and providing the ToxTalk® readership with a synopsis of each selected article. Please take a look at the ToxTalk® archive for examples of previous contributions. If you are interested, please contact Dwain Fuller at [Dwain.Fuller@va.gov](mailto:Dwain.Fuller@va.gov).

## ERA/YSMA News

We had another great group of awardee presentations this year at the annual SOFT meeting in Grand Rapids. We'd like to once again congratulate our YSMA winner, Fenyun Liu, and our four ERA winners: Marisol Castaneto, Sara Dempsey, Kayla Ellefsen, and Eva Reichardt.

Awardees are shown receiving their plaques from President Peter Stout at the business meeting held in Grand Rapids:



Fenyun Liu



Marisol Castaneto



Sara Dempsey



Kayla Ellefsen



Eva Reichardt

With the 2014 meeting wrapped up, it's time to look forward to submitting applications for the meeting in Atlanta next year. These competitive awards are an excellent way for students and bench level scientists to be able to attend the annual meeting where they can share their research and network with others in the field. I encourage you to look around your organization for candidates and to urge those that are eligible to apply.

As a reminder, the 2015 due date for applications is Friday April 3<sup>rd</sup>. Applications and instructions for the ERA and YSMA can be found in the Features/Awards portion of the SOFT website. Please note that if the applicant is not a SOFT member, the mentor/supervisor must be a full or charter member. Please contact the Awards Chair, Erin Spargo, at [erin.spargo@dallascounty.org](mailto:erin.spargo@dallascounty.org) or 214-920-5973 with any questions about the application process.



**Society of Forensic Toxicologists, Inc.**  
**WORKSHOP PROPOSAL**  
 2015 SOFT Annual Meeting  
 Atlanta, Georgia  
**Proposals are due March 13, 2015**



**INSTRUCTIONS:**

- Complete the workshop proposal form in its entirety.
- Submit the workshop proposal form electronically to the Workshop Coordinators ([dgarvin@rcsd.net](mailto:dgarvin@rcsd.net) and [ddenson1@nc.rr.com](mailto:ddenson1@nc.rr.com)) no later than **March 13, 2015**.
- The deadline for submission of workshop materials (i.e. agenda, ppt pages, faculty biographies, cover pages, disclosure forms, speaker notes, etc.) is **July 31, 2015**.
- All speakers must provide speaker notes.
- Workshop Chairs are responsible for reviewing and properly formatting all materials prior to the final submission deadline.
- Workshop Chairs are expected to arrive at least 30 minutes prior to the start of the workshop.

**WORKSHOP TITLE:**

(Note - Workshop title must accurately reflect workshop content and learning objectives.)

**Workshop Chair Name** (middle initial and degree required):

Title & Affiliation (required):

Address:

Phone:

Fax:

E-mail address:

**Workshop Co-Chair Name** (middle initial and degree required):

Title & Affiliation (required):

Address:

Phone:

Fax:

E-mail address:

**Abstract:** (Provide a brief summary of workshop content.)

**Learning Objectives:** (Provide at least three.)

- 1.
- 2.
- 3.



**Instructors: (Note-Each speaker is required to fill out a separate disclosure form.)**

Speaker Name:

Title &amp; Affiliation (required):

Speaker Name:

Title &amp; Affiliation (required):

Speaker Name:

Title &amp; Affiliation (required):

**Audience knowledge level** (required):     Basic     Intermediate     Advanced**Has this workshop been presented at SOFT or any other meeting before?**     Yes     No

If "Yes," indicate where/when:

**Scheduling:**Preferred Workshop Length:     ½ day     Full dayPreferred Workshop Day:     Monday     Tuesday     no preferenceFor ½ day workshop – preferred time slot:     morning     afternoon     no preference

Please indicate any specific scheduling conflicts for chairs and/or speakers (i.e., board meeting)

**WORKSHOP SCHEDULE**

Provide a schedule for each workshop topic. Include topic, instructor, and beginning and ending time for each. Remember to include the 30 minute break-to begin 2 hours after the workshop's start time. For ½ day workshops, use the morning times for your proposed schedule (even if you requested an afternoon session). For full day workshops, plan for a lunch break from 12:00 pm - 1:30 pm. If alternate times are requested, please provide a justification.

**“Workshop Title (Capitalized)”**

Society of Forensic Toxicologists Annual Meeting  
 Monday, October 19th, 2015, 8:00 am – 12:00 pm or 1:30 am – 5:30 pm  
 Atlanta, GA

Workshop Chairs: Chair and Co-Chair Names

Agenda:		
8:00 am - 8:45 am		Session Title (Capitalized) <i>Speaker Name (ex. Ms. Jane Doe, Dr. Bob Smith, etc.)</i>
8:45 am - 10:00 am		Session Title <i>Speaker Name</i>
10:00 am - 10:30 am		Session Title <i>Speaker Name</i>
10:30 am - 11:00 am		Morning Break
11:00 am - 11:30 am		Session Title <i>Speaker Name</i>
11:30 am - 12:00 pm		Session Title <i>Speaker Name</i>
12:00 pm - 1:30 pm		Lunch Break
1:30 pm - 2:00 pm		Session Title <i>Speaker Name</i>
2:00 pm - 3:00 pm		Session Title <i>Speaker Name</i>
3:00 pm - 3:30 pm		Afternoon Break
3:30 pm - 4:30 pm		Session Title <i>Speaker Name</i>
4:30 pm - 5:30 pm		Session Title <i>Speaker Name</i>

**KEY TERMS:**

Provide three key terms for use in the *Proceedings* key word index (workshop reference).

- 1.
- 2.
- 3.

**WORKSHOP LOGISTICS:****Preferred audience size:**

**Does the number in attendance need to be restricted?**  Yes  No

If Yes, indicate maximum number of attendees:

**Format:**  Lecture  Demonstration  Hands-On  Roundtable Discussion  Other

If Other, please describe:

**Preferred room set-up:**  Classroom  Theater  Roundtable  Other

If Other, please describe:

**NOTE: If other than a standard set-up, attach a diagram.**

**Is a head table required?**  Yes  No If Yes, for how many people?

**Is a lectern required?**  Yes  No If Yes, how many are needed?

**Audio-visual/Other Special Requirements:** (Presentations will be *preloaded* on computers.)

Laptops, LCD projectors, screens, laser pointers, and microphones will be available.

Please indicate any other special requirements:

- 35mm projector(s) > Number:
- VCR/TV Monitor
- Other-Describe\*:

\*Flip charts, chalk board, tables for demonstrations, etc.

**Is faculty travel for Non-SOFT members requested? (Note: Funding is limited and requires justification.)**  Yes  No If Yes, provide detail (e.g. number of people, travel information).

**HANDOUTS:**

**Handouts will be printed with 2 slides/page, front and back , versus 3 slides/page with writing lines on the right.**

**Provide an estimated number of original handout pages: \_\_\_\_\_**

Handouts are required for all workshops and presenters. Include anticipated additional speaker materials in the estimate (i.e. supporting articles).

Materials must be submitted electronically and in advance to the meeting Workshop Chairs to facilitate processing, copying, and shipping. The deadline for receipt of final materials is **July 31, 2015**. It is the responsibility of each workshop chair to review and properly format all materials prior to the final submission deadline.

As Workshop Chair and Co-Chair, we acknowledge that it is ultimately our responsibility to meet all deadlines associated with this workshop. Failure to submit all materials by the stated deadlines may result in workshop cancellation or ineligibility to chair a future SOFT workshop. We also acknowledge that honoraria are not provided to SOFT members.

Chair Signature and Date: \_\_\_\_\_

Co-Chair Signature and Date: \_\_\_\_\_

(If electronic signatures are not available, indicate your acknowledgement of this responsibility in the submission e-mail.)



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**Executive Assistant: Bonnie Fulmer**

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**Committee**

**Committee Chair**

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Membership.....	Bruce Goldberger, Ph.D., F-ABFT
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Vendor Liaison.....	Jarrad Wagner, Ph.D.

**WEBMASTER**

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**TOXTALK® Deadlines for Contributions:**

**February 1** for March Issue

**May 1** for June Issue

**August 1** for September Issue

**November 1** for December Issue

**Future SOFT Meeting Destinations:**

**2015:** Atlanta, GA.....Oct. 17-25th, 2015.....Robert Sears

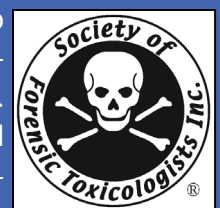
**2016:** Dallas, TX.....Oct. 15-23rd, 2016.....Chris Heartsill/Erin Spargo

**2017:** Boca Raton, FL.....Sept. 10-15th, 2017.....Ruth Winecker/Dan Anderson

**2018:** Minneapolis, MN.....Oct. 15-12th, 2018.....Loralie Langman

**2019:** San Antonio, TX.....Oct.11-18th, 2019.....Veronica Hargrove/Brad Hall

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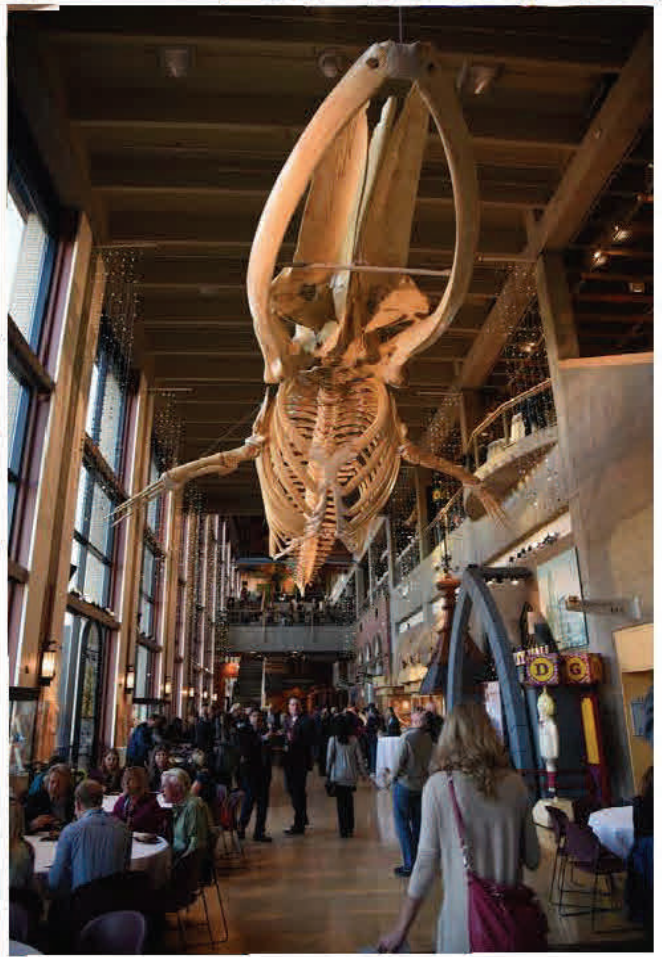
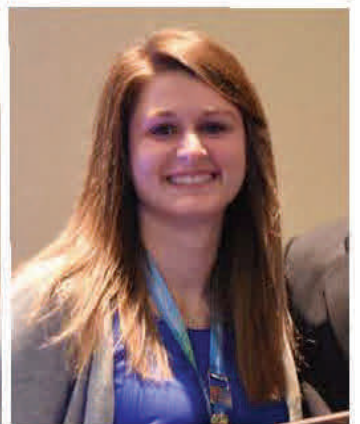
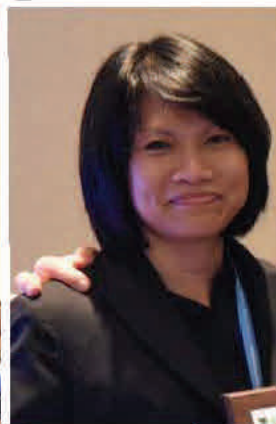
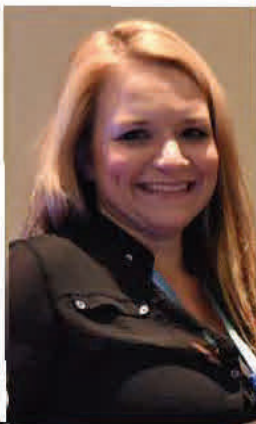
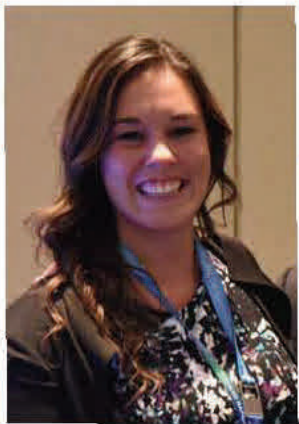




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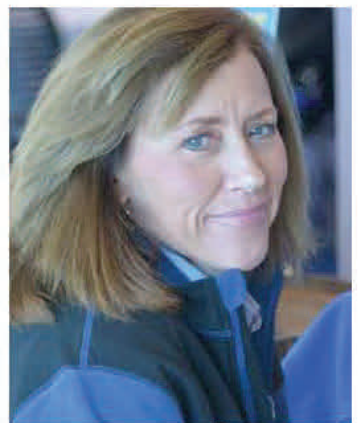
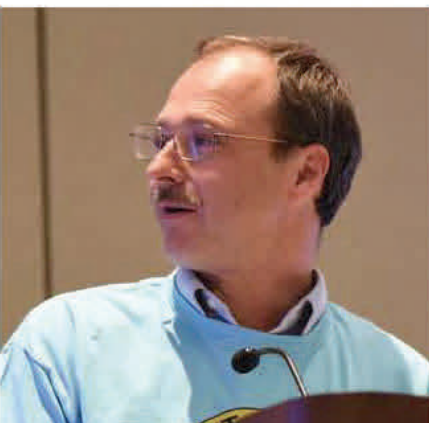
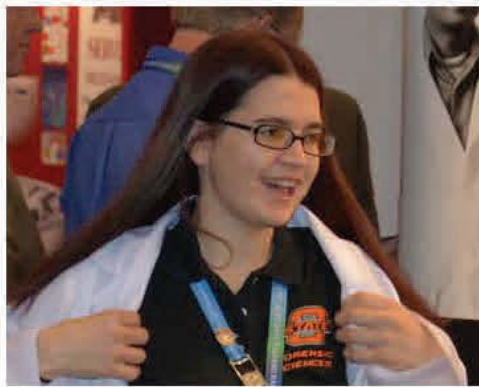
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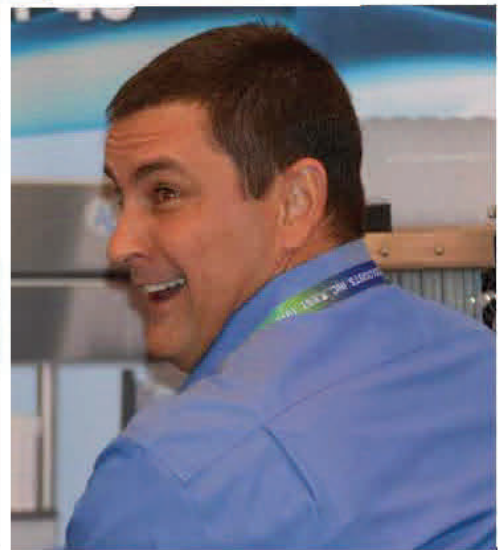
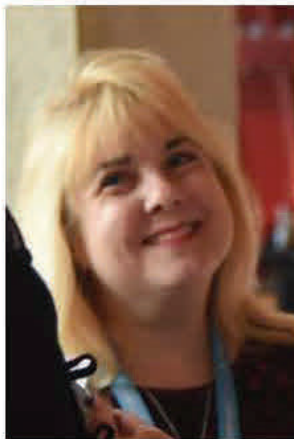
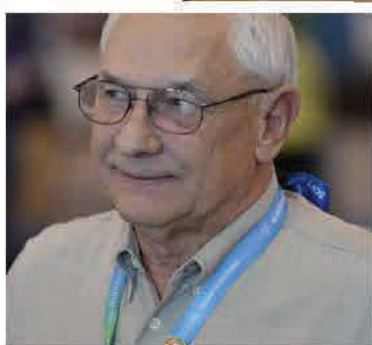


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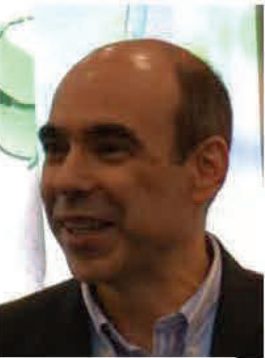
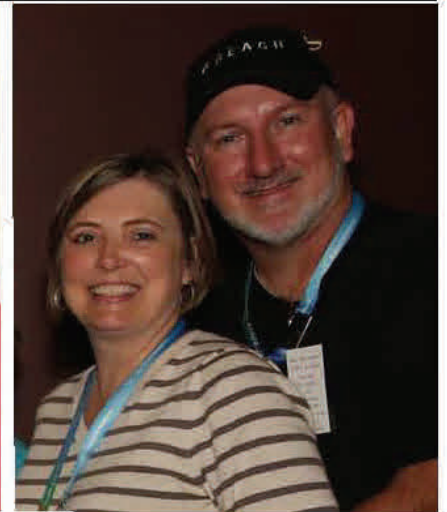


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