Society of Forensic Toxicologists, Inc.

TOXTALK®

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PRESIDENT'S MESSAGE

Submitted by **Jennifer Limoges, M.S., DABC**

I am so thrilled to announce that SOFT has officially hired Beth Olson as our Executive Director. Beth is currently the Executive Director of Temple Emanuel of Tempe, and was the Director of Education Programs at Childsplay prior to that. She has a Bachelor of Arts degree in Secondary Education and a Master of Business Administration, with an emphasis in Leadership. She has extensive knowledge and experience managing budgets, organizational communications, and volunteers. Beth will officially start work on September 20th at the SOFT Office. She will be at the Annual Meeting in Dallas, so please introduce yourself and help her get to know SOFT.

SOFT's support of Continuing Education has never been stronger. The annual meeting is of course our main event. In addition to that, we have increased the regional workshops being offered throughout the country. And now you can earn CE credits through JAT! So no matter your budget, job, or schedule, SOFT offers you a way to make sure you stay current in the field.

The standards development process within Toxicology is also continuing to move ahead quickly. I currently serve on the AAFS Standards Board (ASB) and we have been very busy. The members of the Toxicology Consensus Body (CB) have been appointed, and many of them are members of SOFT. The OSAC Toxicology Subcommittee has already submitted several documents to the ASB Toxicology CB for consideration. SOFT will keep you posted when documents are out for public comment.

Be sure to check the website for frequent updates as we get closer to the annual meeting. I look forward to seeing many of you in Dallas!

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SOFT 2016 Annual Meeting Update

October 16-21, 2016 in Dallas, TX

Committee Co-Chairs: **Erin Spargo** and **Chris Heartsill**

It's hard to believe, but SOFT 2016 is just around the corner! The meeting committee is hard at work putting the finishing touches on what is going to be a fantastic meeting. Lots of great scientific content, over one hundred different vendors, and numerous fun evening events await you!

We are pleased to announce that our plenary speaker will be Mr. Ben Cort. Ben is the director of professional relations at CeDAR, the Center for Dependency, Addiction and Rehabilitation in Aurora, Colorado. He has spoken about the marijuana industry in platforms all over the country, including in front of the United Nations. He has published multiple articles and position papers, has been appointed to the Board of Directors of Project SAM (Smart Approaches to Marijuana), is a Jr. Fellow at the University of Florida's Drug Policy Institute, and is on the Board of Directors for NALGAP (The Association of Lesbian, Gay, Bisexual, Transgender Addiction Professionals and Their Allies). He is a dynamic and energetic speaker with a perspective on the marijuana industry not typically experienced by toxicologists. We hope you will join us for his presentation on Wednesday morning.

As you make your travel plans, we want to provide some helpful information. If you are flying into Dallas, you will be arriving at either DFW or Love Field (DAL) airport. You can find information about the cost of shuttle and taxi services at http://ww.sheratondallashotel.com/hotel-highlights. We also recommend that you consider using the light rail system (DART). DART is accessible at either airport and will take you directly to the Sheraton for a fraction of the cost of a cab or Uber, albeit with a slightly longer travel time (~1 hour from DFW; ~20 min from DAL). The current one way DART ticket price is $2.50.

From DFW: The DART Rail Station is located at Terminal A, Lower Level Curb, Entry A-10. If you arrive at a different terminal you can connect to Terminal A via Terminal Link bus shuttles. You will take the Orange Line directly to the Pearl St/Arts District Station.

From DAL: Follow the signs to the Lower Level for Ground Transportation. Board a Love Link 524 shuttle bus which will take you to the nearby Inwood/Love Field DART station (~ 8 minutes). Take the Orange Line towards LBJ/Central (NOT towards DFW Airport). Exit at the Pearl St/Arts District Station.

If you are driving and would like more information on directions and parking costs, visit:

www.sheratondallashotel.com/dallas-transportation.

As for the weather, daytime highs in October are historically in the 70's and evening lows are in the 50's. Last year, however, it was in the 90's right before SOFT, so we'd advise you to check out the weather forecast as you prepare to pack. And remember, as you get your bag ready for SOFT, make sure to leave some room for our awesome giveaways and throw in those cowboy boots and hats if you've got 'em. Texans love their western wear!

See y'all soon!

Erin and Chris

Thank You 2016 Meeting Exhibitors and Sponsors!

Note the long list of 72 companies included as SOFT 2016 Exhibitors at the Annual Meeting in October. They will be prepared to share the latest innovations and product advancements in laboratory instrumentation. Most of these exhibitors have partnered with SOFT for many consecutive years. The financial commitment from our exhibitors is essential in keeping meeting registration fees low for attendees.

Please acknowledge their collective generous contributions and extend your appreciation and business toward these indispensable associates. Those companies who have committed additional financial funding are showing in **BOLDED** print. Sponsorships provide for the social receptions, breakfasts, lunches, refreshments, and special events. THANK YOU ALL!

Absolute Standards, Inc.
Aegis Sciences Corp.
Agilent Technologies
Alternative Biomedical Solutions
American Screening, LLC
American Association for Laboratory (A2LA) Accreditation
American Solutions for Business
ANAB / ANSI-ASQ National Accreditation Board
ApolloLIMS
ARK Diagnostics, Inc.
Artel
Axiom Diagnostics
Biochemical Diagnostics, Inc.
Biotage
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Campbell Science
Cayman Chemical Company
Cerilliant
ChemSci Technologies, Inc.
ChemWare, LLC
DANI Instruments
Data Unlimited
DPX Labs
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Golden West Diagnostics, LLC
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SPEware Corp.
Steel Fusion Clinical Toxicology Laboratory, LLC
Tecan
Therapak
ThermoFisher Scientific
UCT
UTAK Laboratories, Inc.
Waters Corp.
Wiley
X-Link Bioscience, Inc.

Nominating Committee Offers 2017 Slate of Officers

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, to be held October 20, 2016 in Dallas, TX.

The President and Vice President each serve one year terms, while the Treasurer serves a two year term which expires on alternate years with the Secretary. Directors are elected for a three year term.

The 2016 SOFT Nominating Committee comprised of Marilyn Huestis, Ann Marie Gordon and Chair, Ruth Winecker respectfully submit the following slate of Nominations for consideration by the membership:

President
Bruce Goldberger, Ph.D., F-ABFT

Vice President
Michelle Peace, Ph.D.

Treasurer (2 years)
Sumandeep Rana, Ph.D.

Director (3 years)
Denice Teem, B.S.

Director (3 years)
Erin Spargo, Ph.D., F-ABFT

Bruce Goldberger Ph.D., F-ABFT President (one year term)

Dr. Bruce Goldberger is a Professor and the Chief of the Division of Forensic Medicine in the Department of Pathology, Immunology and Laboratory Medicine in the College of Medicine at the University of Florida in Gainesville, Florida. Dr. Goldberger holds a joint Professor position in the Department of Psychiatry Division of Addiction Medicine. Dr. Goldberger is the Medical Director of UF Health Pathology Laboratories Clinical Toxicology Laboratory, the Director of the William R. Maples Center for Forensic Medicine, and the Program Director of the Florida Emergency Mortuary Operations Response System.

Dr. Goldberger is the Technical and Administrative Director of the Forensic Toxicology Laboratory at the University of Florida which provides toxicological services to Medical Examiner Offices and State and local law enforcement agencies throughout the State of Florida. Dr. Goldberger has been qualified as an expert witness more than 300 times in forensic toxicology in Federal, State, Military and Canadian courts of law.

Dr. Goldberger received a Bachelor of Arts Degree in Zoology from Drew University in Madison, New Jersey and Master of Science and Doctor of Philosophy Degrees in Forensic Toxicology from the University of Maryland School of Medicine in Baltimore, Maryland. Dr. Goldberger is a Fellow of the American Board of Forensic Toxicology and the National Academy of Clinical Biochemistry.

Dr. Goldberger is the editor-in-chief of the Journal of Analytical Toxicology. Dr. Goldberger is a past-President of the American Academy of Forensic Sciences, the President of the American Board of Forensic Toxicology, the Vice President of the Society of Forensic Toxicologists, and the Treasurer of the Forensic Specialties Accreditation Board.

Dr. Goldberger has published numerous articles, reviews and chapters related to forensic toxicology and is co-editor of the Handbook of Workplace Drug Testing, 1st and 2nd editions, On-Site Drug Testing and Garriott's Medicolegal Aspects of Alcohol, 6th Edition. Dr. Goldberger's studies in forensic toxicology have included the analysis of alcohol in blood and breath and the measurement of therapeutic, abused and emerging drugs in biological fluids.

In recognition of his research achievements in forensic toxicology, Dr. Goldberger was presented with the first annual Sunshine Award from the Toxicology Section of the American Academy of Forensic Sciences in 1988. In addition, he was the 1994 recipient of the American Association for Clinical Chemistry's Outstanding Scientific Achievements by a Young Investigator Award. In 2004, Dr. Goldberger was the recipient of The International Associ-

Nominating Committee Offers 2017 Slate of Officers *(CONTINUED)*

ation of Forensic Toxicologists' mid-career achievement award for excellence in forensic toxicology. Dr. Goldberger also received the Alexander O. Gettler Award in recognition of his outstanding contributions to the field and profession of forensic toxicology from the Toxicology Section of the American Academy of Forensic Sciences in 2006, the Outstanding Achievement Award from the Florida Association of Medical Examiners in 2008, and the Achievement in the Sciences Award from Drew University in 2012.

Michelle Peace
Ph.D.
Vice President
(one year term)

Dr. Peace received her B.A. in Chemistry from Wittenberg University, a Master of Forensic Science from George Washington University, and her Ph.D. from the Medical College of Virginia at Virginia Commonwealth University (VCU). The focus of her doctoral work was to study entomological evidence as an alternative matrix for toxicological analyses.

Dr. Peace currently serves as the Associate Chair for the Department of Forensic Science at VCU (FEPAC-accredited). She is one of the founding faculty for the Department, and has served as Associate Chair for more than 4 years. She also served as the Interim Chair for 4 years, expanding the faculty, physical space, and research initiatives in the Department. Dr. Peace has served as a manager in a private SAMHSA-accredited forensic urine drug testing laboratory and has worked as a scientist for Procter & Gamble, where she holds 3 patents.

Dr. Peace served on the Scientific Working Group for Forensic Toxicology (SWGTOX) for 4 years, is a member of the Society of Forensic Toxicologists (SOFT) and is its current Treasurer, and is a member of the Toxicology Section of the American Academy of Forensic Sciences. She has conducted continuing education workshops for professionals internationally and is a faculty member for Virginia's Forensic Science Academy which is a codified program to train law enforcement regarding the identification, collection, and preservation of evidence from a crime scene. She has also developed workshops for primary and secondary education and a community engagement enterprise to address STEM education in middle schools.

Dr. Peace is currently the PI for an NIJ grant studying the efficacy of electronic cigarettes, particularly as they pertain to illicit substance use, and has served as the PI for a subgrant from NIJ's Forensic Technology Center of Excellence at RTI, in which she managed a complex evaluation of crime scene scanners, collaborating with 4 law enforcement agencies.

Sumandeep Rana
Ph.D., MBA
Treasurer
(two year term)

Sumandeep Rana is the Director of Laboratory Operations and Technology at Redwood Toxicology Laboratory, an Alere Company located in Santa Rosa, California. She also serves as the HHS Responsible Person for the Redwood Toxicology SAMHSA Laboratory and oversees the Redwood Toxicology Forensic Division operations.

With over 16 years of experience in the analytical toxicology field, Dr. Rana has worked extensively as a researcher, chemist, scientific and technical director. Her area of expertise includes analytical toxicology and emerging designer drugs. She currently serves on the Board of Directors of the Society of Forensic Toxicology (SOFT) and chairs the Designer Drugs Committee of SOFT. Dr. Rana also serves on the Toxicology Subcommittee of the Chemistry/Instrumentation Scientific Area Committee (SAC) under the Organization of Scientific Area Committees (OSAC). Last year, she served as the Guest Editor for the SOFT 2015 Special Issue of the Journal of Analytical Toxicology.

Dr. Rana earned her Ph.D. degree in Forensic Science from Bundelkhand University in India and an Executive Master's degree in Business Administration from Sonoma State University, CA. Dr. Rana is a contributing author in more than forty scientific papers/abstracts and has presented numerous times at national and international toxicology conferences. She is a member of various scientific organizations including The International Association of Forensic Toxicologists, the Society of Forensic Toxicologists, American Academy of Forensic Sciences and the California Association of Toxicologists.

Nominating Committee Offers 2017 Slate of Officers *(CONTINUED)*

Denice Teem
B.S.
Director
(three year term)

Denice Teem is a Certifying Scientist at NMS Labs in Willow Grove, Pennsylvania USA. Ms. Teem received a Bachelor of Science degree in Chemistry from Oakland University in Rochester, MI in 1994. In 1995, Ms. Teem was an Analyst at Parke-Davis Pharmaceutical/Division of Warner -Lambert. In 1996, Ms. Teem took a position as a Forensic Chemist at the Wayne County Medical Examiner's Office Toxicology Laboratory in Detroit, MI where she spent the next 15 years. In 2012, Ms. Teem joined NMS Labs, where her casework focuses on post mortem and human performance toxicology as well as providing court testimony.

Ms. Teem has been a member of the Society of Forensic Toxicologists (SOFT) since 1999 where she is currently a member of the Continuing Education Committee (CEC), member of the Meeting Resource Committee, and a volunteer for the annual meeting. In 2014, she served as co-coordinator for the workshops at the annual meeting in Grand Rapids. Ms. Teem is currently a member of the Toxicology Section of the American Academy of Forensic Sciences (AAFS) joining in 1999, and has also held membership in the Midwest Association of Toxicology and Therapeutic Drug Monitoring (MATT).

Ms. Teem has provided presentations at both SOFT and AAFS, and has also been a peer reviewer for the SOFT/JAT special issue.

Erin Spargo
Ph.D., F-ABFT
Director
(three year term)

Dr. Erin Spargo is the Deputy Chief of Forensic Chemistry at the Southwestern Institute of Forensic Sciences in Dallas, TX. In this position, she is involved in management of the Toxicology (postmortem, DWI/DUID, and DFSA), Breath Alcohol, and Controlled Substances sections of the Institute. She completed her undergraduate studies in forensic chemistry at Ohio University, where she graduated magna cum laude. She earned her doctoral degree in toxicology from the University of Maryland at Baltimore. Erin performed her graduate research at the National Institute of Drug Abuse where she was the lead associate investigator on a controlled MDMA administration study. Her research at NIDA has resulted in more than 15 publications.

While in graduate school, Erin worked as an assistant toxicologist at the Office of the Chief Medical Examiner in Baltimore. Upon graduation she moved to Seattle and spent a year working as a forensic scientist at the Washington State Toxicology Laboratory. Since 2008, she has been employed as the Deputy Chief in Dallas and has held an appointed instructor position with the University of Texas Southwestern Medical School.

In addition to SOFT, Dr. Spargo is a member of the American Academy of Forensic Sciences (AAFS), The International Association of Forensic Toxicologists, the Southwestern Association of Toxicologists, and the Texas Association of Crime Laboratory Directors. She was a recipient of the Educational Research Award from SOFT and the June K. Jones and Irving Sunshine Awards from AAFS. She is the current SOFT Awards Chair, serves on the Continuing Education - Workshops Committee, and is a co-host of the 2016 annual meeting in Dallas. She is a Fellow of the American Board of Forensic Toxicology and is a certified technical assessor for the ASCLD/LAB -*International* program in the disciplines of toxicology and controlled substances.

AAFS Annual Meeting News
February 13-18, 2017
Submitted by **Fiona Couper**

The time is now for you to be making plans to join us in New Orleans as we both celebrate the past and look forward to the years ahead. The Section Co-chairs **Nikolas Lemos** (Nikolas.Lemos@ucsf.edu) and **William (Bill) Johnson** (william.johnson@slh.wisc.edu) continue to work behind the scenes to bring the Toxicology Section an outstanding program. Our traditional special sessions will once again be offered, including the joint session of Toxicology and Pathology/Biology, Postmortem Pediatrics, Drugs & Driving, and NPS/Designer drugs. The Annual Toxicology Lectureship is being planned along with the 5th Annual Toxicology Luncheon and its festivities. Dan Anderson and I would like to acknowledge and thank the enormous efforts of Nikolas and Bill thus far – they both deserve extra credit for securing section financial sponsorship and keeping within the tight AAFS deadlines.

Thanks to everyone who submitted abstracts for oral or poster presentations, or workshop proposals. Your contributions are what make our program stronger every year. Thank you also to our volunteer abstract reviewers for whom we cannot do without. Official acceptance letters for abstracts from AAFS will be mailed by mid-November and the preliminary program will be published in November as well.

The AAFS Toxicology Section membership continues to grow in numbers; however, there is always room for improvement. Please encourage your non-member colleagues to apply; the career benefits of membership outweigh the small initial cost. The application process is completely online (https://webdata.aafs.org/application/apply/start.aspx) and details are located on the AAFS website. Applications for membership need to be submitted by **October 1** in order to be considered for 2017.

Additionally, our section members of any status (Trainee or Student Affiliates, Associate Members, Members, etc.) need to determine if they are eligible for promotion, and if so, complete the application process. Some section activities (e.g., section officer or committee chair) require full Member or Fellow status in order to participate. If you discover that you are not yet eligible for promotion, you can fulfill some of the promotion requirements by participating in meetings as an attendee, presenter, moderator, or volunteer. Please contact Nikolas or Bill for volunteer opportunities such as moderating a session. The deadline for receipt of all application materials is **October 1**.

See you all in New Orleans!

The Houston Forensic Science Center is proud to host and invites you to the

38th Annual Southwestern Association of Forensic Scientists Conference

at the historic Tremont House Hotel in Galveston, TX

Please join us from Sept. 25 to Sept. 29, 2016

For a conference that will offer a combination of 19th century charm, a Roaring 20s Casino Banquet, a variety of social events, the sea and sand and last but not least a robust technical workshops for a variety of forensic disciplines (see below)!

The Galveston SWAFS conference will offer something for everyone. After the workshops, join groups for planned activities, roam around the Historic district and pier or just chill at the beach/pool...

Please make your room reservation before Sept. 2, 2016 to enjoy the $99/night government rate.

For more information go to:
www.SWAFS2016.org

Southwestern Association of Forensic Scientist

Paper & Poster Presentations

Papers and Posters will be presented on

Tuesday, September 27th, 2016

Abstracts
Please attach an abstract describing your presentation. This abstract will be published in the meeting program and the SWAFS journal. Presentations will not be accepted without an abstract. Approval of each abstract will be completed by the Program Committee. The deadline for submissions is September 2, 2016.

Presentation Type	❑ Technical Paper	❑ Poster
Title		
Presenting Author(s)		
Contributing Author(s)		

Agency					
Address					
City		**State**		**Zip**	
Phone		**Fax**			
Email					

Time Needed for Oral Presentation	
Audio/Visual Requirements	❑ Projector ❑ Flip Chart/Board ❑ Overhead ❑ TV/DVD Player ❑ Other _____

Please send this form to:

Jackeline Moral
jmoral@houstonforensicscience.org

or

Callan Hundl
chundl@houstonforensicscience.org

ANNOUNCEMENT: Arvind Chaturvedi Colloquium On Postmortem Forensic Toxicology In Aviation

April 4-6, 2017

Federal Aviation Administration, Mike Monroney Aeronautical Center Civil Aerospace Medical Institute, Oklahoma City, Oklahoma, USA

The Federal Aviation Administration's (FAA's) Civil Aerospace Medical Institute (CAMI) is organizing the **Arvind Chaturvedi Colloquium on Postmortem Aviation Toxicology**. The symposium will be held **April 4–6, 2017** at the FAA's Mike Monroney Aeronautical Center in Oklahoma City. This three-day colloquium, named in honor of long-time research toxicologist at CAMI, Dr. Arvind Chaturvedi, will include presentations focusing on recent advances in the field of postmortem aviation toxicology including current research interests at CAMI. Topics will include postmortem sample processing, importance of chain of custody of samples, analyses of samples for combustion gases/ethanol/drugs, interpretation of results, significance of quality control/quality assurance, prevalence of drugs in pilot fatalities, postmortem drug distribution, and litigation/expert testimony issues.

The intended audience for this scientific platform includes medical examiners, pathologists, coroners, forensic toxicologists, academics, and students, aerospace medicine scientists/specialists, regional flight surgeons, National Transportation Safety Board personnel and other accident investigation authorities, including employees of the FAA's Flight Standards District Offices and Office of Accident Investigation and Prevention.

There is no registration fee for attending this colloquium. However, attendees are responsible for all other expenses associated with the colloquium. Individuals interested in attending may contact Kristi Craft by **December 16, 2016** to receive additional information (include your name, official title, organization, postal and e-mail addresses, and telephone and fax numbers). Ms. Craft may be contacted via e-mail at kristi.craft@faa.gov or via mail at Bioaeronautical Sciences Research Laboratory (AAM-610), FAA Civil Aerospace Medical Institute, P. O. Box 25082, Oklahoma City, Oklahoma 73125, USA. Physical address of the laboratory is Bioaeronautical Sciences Research Laboratory (AAM-610), FAA Civil Aerospace Medical Institute, 6500 South MacArthur Boulevard, Oklahoma City, Oklahoma 73169, USA (*Telephone*: 405-954-2302; *Fax*: 405-954-3705).

The web-link for the colloquium is http://www.faa.gov/go/toxmeeting.

Federal Aviation Administration

NSC Drug Testing Guidelines Survey Results

The National Safety Council, through NHTSA, is supporting an update to the recommendations for toxicology testing in impaired driving and motor vehicle fatality investigations, last published in 2013 (Logan et al. Recommendations for toxicological investigation of drug-impaired driving and motor vehicle fatalities. J Anal Toxicol. 2013 Oct;37(8):552-8). The purpose of this update is to provide toxicology laboratories with a list of commonly encountered analytes and appropriate screening and confirmation thresholds in DUID cases and motor vehicle fatalities, as well as improve standardization.

Toxicology laboratories performing testing in these types of cases were surveyed about their drug testing practices, specifically with respect to the matrices tested, scope of testing, cutoff concentrations for screening and confirmation, and whether they are in compliance with the 2013 guidelines and recommendations. Changes in drug trends and improvement in testing technologies and capabilities of forensic toxicology laboratories were also addressed. Survey results and additional information about this project can be found on the Center for Forensic Science Research & Education's website:

https://www.forensicscienceeducation.org/forensic-research/toxicology/duid/duid-survey/

Why do we need an SDO if we have OSAC?

Submitted by **Brad Wing**
Secretariat, Academy Standards Board

SDO is a term meaning *Standards Developing Organization.* OSAC stands for the Organization of Scientific Area Committees. The AAFS has established an SDO (called the AAFS Standards Board, abbreviated ASB) that works closely with OSAC to develop voluntary consensus standards, technical reports and best practice recommendations.

OSAC is administered by the National Institute of Standards and Technology (NIST). OSAC publishes the *Registry of Approved Standards* and the *Registry of Approved Guidelines* for the forensics community. Each document listed in the registries is required to be based upon sound scientific principles and to have been developed in a *consensus-based* process. OSAC has 23 subcommittees, each focused upon a specific area of forensics. These subcommittees are responsible for determining which documents to submit to the Registries, but also to identify gaps and needs in standards and related documents. Another function of the subcommittees is to identify research needs and publicize these needs to Federal agencies.

The term *voluntary consensus standards* is the key as to why the ASB was created, and why OSAC needs the cooperation and participation of the ASB and other SDOs. In 1995, Congress passed a law called the National Technology Transfer and Advancement Act (NTTAA). This law states "All federal agencies must use voluntary consensus standards in lieu of government-unique standards in their procurement and regulatory activities, except where inconsistent with law or otherwise impractical." This also has a trickle-down effect, since Federal grants involving standards are also subject to NTTAA. The important point for this discussion is that OSAC was not created to generate voluntary consensus standards. The NTTAA and the policy document explaining it (*available at http://www.nist.gov/standardsgov/omba119.cfm#3*) define the processes required to develop a voluntary consensus standard:

i. *Openness*
ii. *Balance of interest*
iii. *Due process*
iv. *An appeals process*
v. *Consensus, which is defined as general agreement, but not necessarily unanimity and includes a process for attempting to resolve objections by interested parties…"*

The AAFS Academy Standards Board (ASB) meets these criteria. In fact, it has been accredited by the American National Standards Institute (ANSI), which requires adherence to the principles defined above. OSAC is not an SDO and will not become an SDO. While an OSAC subcommittee may identify a gap in existing standards for a field, and even develop a draft document for submittal to an SDO, it is the role of the SDO to ensure that the procedures are properly followed so that the requirements of the NTTAA for *voluntary consensus standards* are met.

The ASB accomplishes this by forming consensus bodies (CBs). Currently there are 13 such CBs (Anthropology, Bloodstain Pattern Analysis, Disaster Victim Identification, DNA, Dogs and Sensors, Firearms and Toolmarks, Footwear and Tiretracks, Forensic Document Examination, Friction Ridge, Medicolegal Death Investigation, Patterned Injury, Toxicology, and Wildlife Forensics). With the exception of Patterned Injury, these exactly correspond to OSAC subcommittees. The CBs are made up of individuals from different backgrounds, which are characterized by 'interest categories,' of which we have eight: academia, consumer groups, general interest (typically lawyers and judges), laboratories and testing facilities, producers, subject matter experts, user/government and user/industry. This helps to ensure balance of interest – one of the key requirements for an SDO.

Consensus bodies (which develop the standards) hold meetings open to all interested parties and are comprised of experts from the eight interest categories listed above. There is a defined process to develop the documents – ensuring due process, including an appeals procedure. Each document is put out for public review, so that any interested party—even if they do not participate on the consensus body—may comment on the document. The consensus body is responsible for adjudicating any issues that may arise during the review. Consensus must be reached among the members of the consensus body for a document to be adopted. In addition, the Board of the ASB must approve the document prior to submission to ANSI (which allows a standard to become an American National Standard).

Why do we need an SDO if we have OSAC? (*CONTINUED*)

This is all well and good, but it still doesn't answer the question of why the AAFS now has an SDO.

When OSAC was established, it became apparent that some fields in forensic science had existing relationships with SDOs – such as in fire science and gunshot residue. Others may have had professional organizations (such as the American Board of Forensic Odontology) which had issued guidance documents. In some fields there were Scientific Working Groups (SWG), such as in DNA. However, the standards and best practice guidelines produced by professional organizations and SWGs do not meet the requirements of the NTTAA for being voluntary consensus standards. OSAC approached several professional groups, including AAFS to see if any were interested and capable of establishing an SDO to generate voluntary consensus standards.

The AAFS accepted the challenge and created the ASB. The ASB CBs have close relationships with their corresponding OSAC subcommittees but the CBs may also generate documents on their own. Some documents may be proposed directly by professional organizations, or even by individuals not associated with OSAC.

The CBs need assistance in determining the scientific underpinnings that must be included in ASB standards and best practice recommendations. CBs will typically reach out to OSAC subcommittees to provide the necessary scientific and operational foundation for the requirements in a standard or best practice recommendation.

Once a standard or best practice recommendation is finalized by the ASB, the corresponding OSAC subcommittee may refer it for inclusion in the appropriate Registry – thus completing the loop of interrelationship of OSAC subcommittees and ASB CBs.

The ASB Consensus Bodies are open to anyone with an interest in forensic science. Updates as well as applications for a Consensus Body membership can be found at http://asb.aafs.org/

FROM THE TOXICOLOGY LITERATURE

Submitted by **Kevin G. Shanks, M.S., D-ABFT-FT**
kshanks@aitlabs.com
AIT Laboratories, Indianapolis, IN

Forensic Toxicology
July 2016
In Vitro and In Vivo Human Metabolism of a New Synthetic Cannabinoid NM-2201 (CBL-2201)

Diao *et al*. reported the *in vitro* and *in vivo* human metabolism of the synthetic cannabinoid NM-2201, also known as CBL-2201. NM-2201is naphthalene-1-yl-1(5-fluoropentyl)-1H-indole-3-carboxylate. NM-2201 is structurally similar to another synthetic cannabinoid 5F-PB-22. It was determined that NM-2201 was extensively metabolized in humans and parent drug was not detected in urine specimens. The primary metabolites detected in urine were M11 (5F-PI-COOH) and M13 (5F-PI-COOH-glucuronide). The authors noted that 5F-PI-COOH is also a major metabolite of 5F-PB-22 and therefore definitive identification of NM-2201 requires blood toxicological analysis of the parent compound.

Clinical Toxicology
July 2016
Two Cases of Intoxication with New Synthetic Opioid, U-47700

Domanski *et al.* reported the case of a 24 year old woman and a 26 year old man who were celebrating their first apartment. They had consumed ethanol and alprazolam and then snorted U-47700 powder, which they had obtained via the Internet. Both individuals then fell asleep. Approximately 3 hours after use, the woman woke up and found the man face down on the lawn with agonal breathing and cyanosis. Emergency personnel were called and he was intubated and transported to the hospital. Serum ethanol at the hospital was 55 mg/dL. Routine urine drug screen was negative. Creatinine was 1.5 mg/dL and lactate was 4.4 mmol/L. He was admitted to the ICU and sedated with propofol. He was discharged 3 days after admission with a normal exam. The

FROM THE TOXICOLOGY LITERATURE *(CONTINUED)*

woman was admitted to the hospital for observation. Upon arrival she had reported feeling drowsy, but had no other ill effects. Her serum ethanol was 11 mg/dL. Urine drug screen was positive only for cannabinoids. Upon further more specific testing, U-47700 was detected in both of the individual's urine specimens.

Forensic Toxicology July 2016 Blood Concentrations of α-pyrrolidinovalerophenone (α-PVP) Determined in 66 Forensic Samples

Adamowicz *et al*. reported a series of sixty-six (66) cases involving alpha-PVP. These cases ran the gamut of casework - driving under the influence of drugs (DUID), traffic accidents, acts of violence, intoxications, and deaths – and were accumulated over a one and one-half year period (1/2014-7/2015). In 42 of 66 cases, other drugs were detected (in addition to alpha-PVP). Overall, alpha PVP blood concentrations ranged from <1 ng/mL-6,200 ng/mL (mean, 140 ng/mL; median, 27 ng/mL). In DUID cases, alpha-PVP concentrations were 6.4-99 ng/mL. In traffic accidents, alpha-PVP concentrations were 10.2-30 ng/mL. In nonfatal intoxications, alpha-PVP concentrations were 1.2-56 ng/mL. In deaths (n=12), alpha-PVP concentrations were 1.1-6,200 ng/mL. The authors proposed using a 40 ng/mL blood concentration for predicting significant influence of alpha-PVP on psychomotor performance.

Clinical Toxicology July 2016 Near Death from a Novel Synthetic Opioid Labeled U-47700: Emergence of a New Opioid Class

Schneir *et al.* report the case of a 22 year old male who was found unconscious and apneic by a family member. The male had a history of heroin use. Emergency personnel were called and resuscitation was attempted. The male was found to be cyanotic and had agonal respiration with a room air pulse oximetry reading of 60%. Two milligrams of Narcan was administered intravenously. Coma and bradypnea were reversed and the male was transported to the hospital. Upon interview, the male stated he had applied a U-47700 powder/water mixture to his nostrils. He had purchased the powder via the Internet. He was observed in the hospital for 5 hours and discharged. LC/ToF analysis of the hospital urine specimen found only U-47700.

Forensic Science International August 2016 A Tapentadol Related Fatality: Case Report with Postmortem Concentrations

Cantrell *et al*. reported the case of a 41 year old female who was found slumped over a sink while at home following a wellness check by law enforcement. She was pronounced dead at the hospital after resuscitative attempts. Pathological findings at autopsy included pulmonary edema. Toxicological analysis of the peripheral blood specimen revealed oxycodone (0.58 mg/L) and tapentadol (1.1 mg/L). Tapentadol was also quantified in various matrices including central blood (1.3 mg/L), liver (9.9 mg/kg), vitreous humor (0.94 mg/L), urine (88 mg/L), and gastric contents (0.58 mg/L). It was determined that the individual intentionally ingested large dosages of both oxycodone and tapentadol. Cause and manner of death was certified as mixed drug intoxication and suicide.

Forensic Science International August 2016 Seven Fatalities Associated with Ethylphenidate

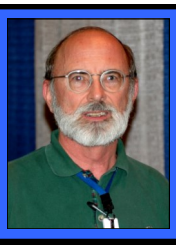
Maskell *et al*. reported the emergence of a new psychoactive substance ethylphenidate. Ethylphenidate is a derivative of methylphenidate, which is best known as Ritalin and is used in the treatment of attention deficit hyperactivity disorder (ADHD). A series of seven (7) cases were reported over the time range 2/2013-1/2015. All affected individuals were male and the age range was 23-49 years (median, 25). Postmortem femoral blood concentrations ranged 0.026-2.18 mg/L. One of the cases was a single drug intoxication with ethylphenidate while the remaining six cases had at least two other drug classes present. Causes of death were ethylphenidate toxicity (n=1), hanging (n=2), and mixed drug toxicity (n=4). The authors note that much like methylphenidate, ethylphenidate is also excreted in the urine as ritalinic acid.

Journal of Analytical Toxicology September 2016 Fatal Intoxication Involving 3-MeO-PCP: A Case Report and Validated Method

Bakota *et al*. reported the case of a 29 year old male who was found

FROM THE TOXICOLOGY LITERATURE *(CONTINUED)*

unresponsive in bed with a bag of white powder labeled "fumaric acid 5 G". Fluid was leaking from the male's mouth and nose. The male had a history of illicit drug use including insufflation of "fumaric acid" and had previous hospitalizations due to use of this substance. He also had a history of suicidal ideations, attention deficit disorder, and depression. He was pronounced dead at the hospital after unsuccessful resuscitative attempts. Initial presumptive toxicological testing was positive for PCP, amphetamine, cannabinoids, and diphenhydramine. PCP was negative upon confirmatory analysis. An accurate mass signal at 274.218 m/z was detected on the confirmation analysis – which was determined to be a methoxy analog of PCP. Upon comparison with certified reference standards, the peak was determined to be 3-MeO-PCP and was confirmed and quantified by LC/MS/MS. The postmortem blood was positive for 3-MeO-PCP (139±41 µg/L) and diphenhydramine (4.1±0.7 mg/L), amphetamine (<0.10 mg/L), and THC metabolite (presumptive; not confirmed). The white powder was identified as 3-MeO-PCP. Cause of death was certified as the combined effects of 3-MeO-PCP, amphetamine, and diphenhydramine. Manner of death was accident.



CASE NOTES

Send interesting *"Case Notes"* to Section Editor

Matthew Barnhill, Ph.D., F-ABFT

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Case Study: How Important are Toxicology Results in Determining Cause of Death?

Submitted by **Lorrine D. Edwards, M.S, D-ABFT-FT**

Wisconsin State Laboratory of Hygiene (WSLH), Madison, WI

We report a case of an individual driving with a potentially toxic concentration of olanzapine (Zyprexa) combined with quetiapine (Seroquel) and ethanol. Initial cause of death was reported as exacerbation of cardiovascular disease as a result of blunt-force chest trauma caused by motor vehicle crash.

History and Autopsy

A 45-y old male subject lost control of his vehicle while attempting a left-hand turn into the parking lot of a retail store. His vehicle was struck broadside by oncoming traffic. The subject exited his vehicle under his own power and was talking with other people involved in the crash. The subject neither complained of any injuries nor appeared acutely injured. Approximately 30 minutes later he sat down on the curb and collapsed. The ambulance arrived and followed standard resuscitation protocol after finding him pulseless and not breathing. The subject did not regain consciousness and was pronounced dead at the hospital. Police on the scene collected anecdotal reports of the subject's erratic driving prior to the crash.

A full autopsy was not performed because of tissue recovery efforts. A summary of the pathology report indicated an abnormally enlarged heart (892 g), significant coronary artery and vascular disease, 70% blockage of the left anterior descending artery and severe cardiomyopathy. The human heart of an otherwise healthy individual weighs approximately 300 g[1].

Toxicology

A subclavian blood specimen was collected by the medical examiner approximately 10 hours after death and submitted to the WSLH. Standard testing including alcohol and drugs following routine protocols: GC-headspace/FID for volatiles, enzyme immunoassay and an alkaline basic screen for drug testing. Laboratory results were as follows: ethanol = 0.079 g/100 mL, olanzapine = 350 ng/mL and quetiapine = 580 ng/mL (quetiapine testing performed by an independent laboratory).

Case Study: How Important are Toxicology Results in Determining Cause of Death? (*CONTINUED*)

Table 1. Concentrations of olanzapine in 30 Wisconsin drivers arrested for allegedly operating while intoxicated from 2011 through 2014.

Concentration of Olanzapine in whole blood (ng/mL)		
Mean	Median	Range
72.3	36.7	14.3 - 523

Family Narrative

The decedent's family reported that he had a history of severe depression and disclosed that he had spoken of suicide in the past. The family was unaware of any active prescription medications and none were found in his vehicle

Discussion

Olanzapine and quetiapine are atypical antipsychotic medications used clinically to treat pyschosis[2,3]. Both may exhibit postmortem redistribution with volumes of distribution ranging from 10-20 and 8-12 L/kg for olanzapine and quetiapine, respectively[2]. The reported therapeutic range for olanzapine in plasma is 20-80 ng/mL with toxicity at 150-200 ng/mL. After adjustment for whole-blood vs. plasma portioning ratio (0.6)[2], the concentration of olanzapine in the decedent's blood exceeded both therapeutic and potentially toxic levels. However, the possibility of postmortem redistribution must be considered given the time elapse between death and specimen collection. Risk of death from olanzapine has been reported in plasma >250 ng/mL[4], although other cases of Wisconsin drivers exceeding this concentration have been observed in whole blood (Table 1).

Additionally, the concentration of quetiapine (whole blood:plasma ratio = 0.6-0.7)[2] exceeded the prescribed therapeutic range (100-500 ng/mL) in plasma[4]. The WSLH reports quetiapine as qualitative results thus the range observed in other drivers was not available.

Primary manifestations of olanzapine is sedation, an effect potentially exacerbated when combined with quetiapine and ethanol. The decedent's ability to operate a motor vehicle safely could have been compromised. Impaired judgment, coordination, reaction time and visual acuity could lead to compromised driving and possible contribution towards cause of the motor vehicle crash.

Summary

The medical examiner did not feel the ethanol concentration alone was "high enough" to be a contributing factor in the crash. Based upon the physical findings from the partial autopsy and without the full toxicology results, the Medical Examiner's office concluded that arrhythmia or other cardiac-related event caused the crash and the impact of the steering wheel contributed to the driver's collapse. The death certificate was issued prior to the completion of the final toxicology report. Laboratory follow up with the medical examiner included discussion of possibly amending the cause of death (COD) to include a finding of intoxication by ethanol and prescription medications. Although the family later confirmed a valid prescription for olanzapine, the medical examiner did not issue an amended report. The case demonstrates the importance of evaluating all available information in a death investigation and effective communication between all parties involved.

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3. Levine, Barry (Ed). 2010. Principles of Forensic Toxicology. 3rd Ed.
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NEW DRUGS AND TECHNOLOGY TIDBITS

Send interesting *"New Drugs and Technology Tidbit"* articles to

Section Editor **Sherri Kacinko, Ph.D., F-ABFT**

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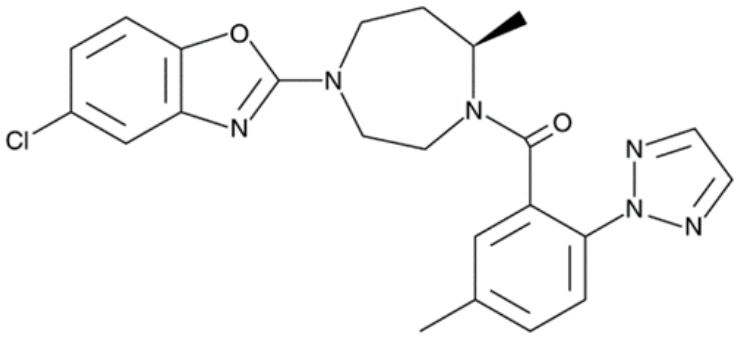
NEW DRUG: Suvorexant

Submitted by **Craig Leopold** (Craig.Leopold@NMSLABS.com)
NMS Labs, Willow Grove, PA

Suvorexant belongs to the therapeutic class of orexin receptor antagonists and is prescribed to treat insomnia characterized by difficulties in sleep onset and/or sleep maintenance. It is administered orally with a recommended dosage of 10 mg once per night, with a maximum recommended dose of 20 mg. Product labeling warns patients of potential for complex sleep behaviors such as sleep-driving and excessive next-day drowsiness resulting in impaired drivng. Suvorexant is marketed as Belsomra® by Merck and it is a DEA Schedule IV drug.[1,3,4]

General Information[1,2]

IUPAC Name:	[(7R)-(4-(5-chloro-2-benzoxazolyl) hexahydro-7-methyl-1H-1,4-diazepan-1-yl][5-methyl-2-(2H-1,2,3-triazol-2-yl)phenyl]methanone
Chemical Formula:	$C_{23}H_{23}ClN_6O_2$
Molecular Weight:	450.92 g/mol
Availability:	Cayman Chemical: Item No. 9002140
CAS Number:	1030377-33-3



Pharmacology[1,3]

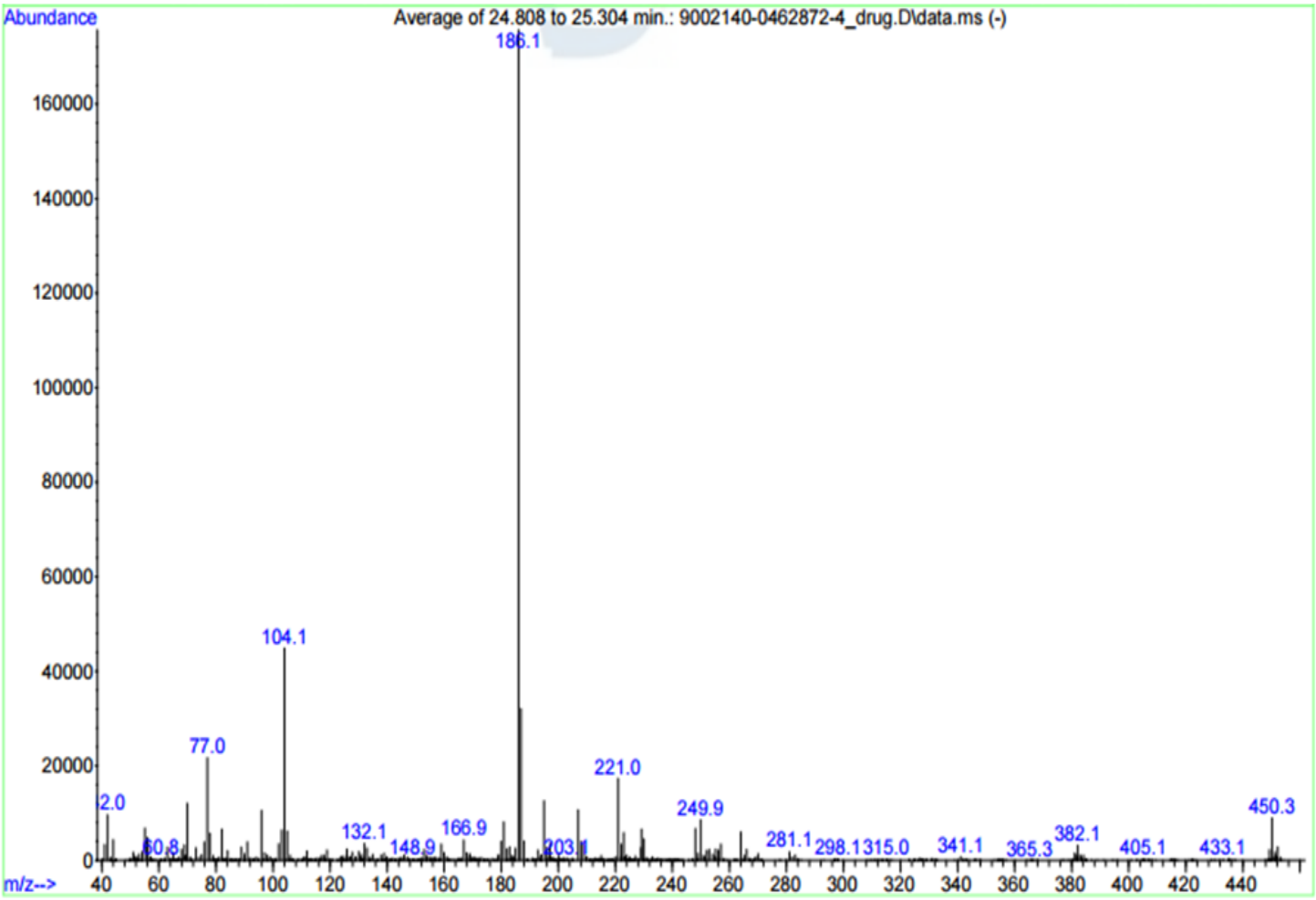
Half-life:	~12-13 hours
Cmax:	~ 423 ng/mL @ Tmax ~ 2 hours following a single 20 mg dose (90% CI: 306 – 581 ng/mL; clinical trial by Merck)
V_d:	~49 L/kg. Extensively bound (>99%) to human plasma proteins (albumin and α1-acid glycoprotein).
Metabolism:	Major metabolite is hydroxy-suvorexant (inactive). Primary metabolism by CYP3A with minor contribution from CYP2C19.
Elimination:	23% in urine; 66% in feces (primary route)
Drug Interactions:	CNS depressants (i.e. benzodiazepines, opioids, TCAs, alcohol) - can have additive effect on psychomotor skills and increase risk of CNS depression. Strong CYP3A inducers (i.e. rifampin, carbamazepine, phenytoin) - can decrease effectiveness of Suvorexant. Dose reductions may be necessary in patients also taking moderate CYP3A4 inhibitors (i.e. erythromycin, fluconazole, verapamil).

NEW DRUG: Suvorexant *(CONTINUED)*

Analytical

Extraction: Extracted using a liquid-liquid extraction with an n-butyl chloride:ethyl acetate mixture as the extraction solvent.

Detection:
- UV-Vis.: λ_{max}: 214, 254, 288 nm
- LC/MS/MS: MRM transitions: 451 > 186.4 and 451 > 104.4
- GC/MS: Ions: m/z 450, **186**, 104



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3. https://clinicaltrials.gov/ct2/show/results/NCT01043926?sect=X90156#outcome3
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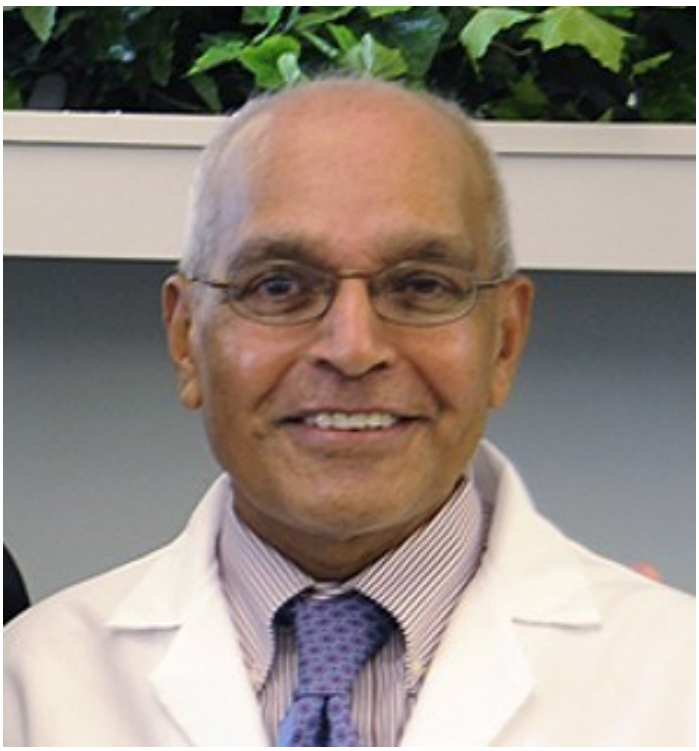
In Memoriam
Dr. Arvind Kumar Chaturvedi



Dr. Arvind Kumar Chaturvedi, 68, passed away on 23 March 2016 due to complications from cancer. He is survived by his immediate family.

Dr. Chaturvedi completed his Bachelor of Science at Gorakhpur University in 1966. He obtained his Master of Science at Banaras Hindu University in 1968 and earned his Doctor of Philosophy in Chemistry, Department of Pharmacology and Therapeutics, at King George's Medical College, Lucknow University, in 1972. He underwent post-doctoral training in Pharmacology at Vanderbilt University School of Medicine through 1977. In 1978, he accepted a toxicologist position at North Dakota State University. Since 1990, Dr. Chaturvedi had been working as an aerospace medicine scientist at the U.S. Federal Aviation Administration. He also served as adjunct professor and mentored numerous graduate and medical students at the University of Oklahoma Health Sciences Center, Oklahoma City Community College, University of Central Oklahoma, Vanderbilt University School of Medicine, and North Dakota State University.

Dr. Chaturvedi's contribution to science is represented by over 273 publications, including one book and 2 chapters in the *Encyclopedia of Forensic and Legal Medicine*. He also served as editor of three peer-reviewed journals: *Archives of Environmental Contamination and Toxicology; Aviation, Space and Environmental Medicine;* and *Current Clinical Pharmacology.*

Dr. Chaturvedi served as a member of numerous scientific organizations including the Tennessee Pharmaceutical Association, Society of Environmental Toxicology and Chemistry, Society of Neuroscience, Sigma Xi, The Scientific Research Society, Society for Experimental Biology and Medicine, Indian Pharmacological Society, Indian Academy of Neurosciences, International Society for Biochemical Pharmacology, American Society for Pharmacology and Experimental Therapeutics, Society of Toxicology, Life Sciences Biomedical Engineering Branch, International Organization for Standardization's Fire Safety Technical Committee, and the National Safety Council. He was a Fellow of the American Academy of Forensic Sciences and an Associate Fellow of the Aerospace Medical Association. His dedication to science and teaching was recognized by over 16 awards from professional communities, including the prestigious National Aviation Safety Innovation Technical Award.

Memorial donations may be made to the Leukemia & Lymphoma Society (https://www.lls.org).

In Memoriam
Dr. Alphonse Poklis

With heavy heart, we announce that Dr. Alphonse Poklis passed away September 03, 2016. Dr. Poklis was a Professor in the Department of Pathology and Affiliate Professor in the Departments of Forensic Science and Pharmacology & Toxicology at Virginia Commonwealth University and the Director of the Toxicology Laboratory in the Department of Clinical Pathology at VCU's Medical Center. His professional accomplishments were numerous. He was recognized nationally and internationally for his expertise in the field of forensic toxicology. He was a Fellow of the American Board of Forensic Toxicology, served on the Forensic Science Board for the Virginia Department of Forensic Science, and as an Appointee of the Governor of Virginia for the Scientific Advisory Board for Virginia Department of Forensic Science. Dr. Poklis received the Rolla N. Harger Award for his contributions to the field and profession of forensic toxicology and ABFT's Distinguished Service Award for promoting and exemplifying the practice of certification in forensic toxicology.

Dr. Poklis was a member of a dozen societies. Most notable was his participation and investment in the American Academy of Forensic Sciences and the Society of Forensic Toxicologists. His affiliation with SOFT began in the early days of the association. He became a Director in 1982 and served as President in 1993. He had more than 220 peer-reviewed publications, contributed to more than 25 textbooks, had more than 300 scientific presentations, and served on seven editorial boards.

Dr. Poklis served as the major advisor for 16 doctoral candidates and on the graduate committees of 37 masters and doctoral students. While Dr. Poklis's professional legacy could easily be the students he mentored – about which he was most passionate – he also testified in hundreds of cases. His research supported and advanced the tenets of forensic toxicology while his lab served thousands of people, cases, and causes. Dr. Poklis was often heard saying that service to justice was his highest calling. He was a mentor who educated and trained students in the edifice, practice, and art of toxicology and their role and responsibility to victims, families, investigators, and the courts.

Dr. Poklis was a force to be reckoned with – he asked hard questions and engaged the forensic toxicology community in challenging conversations. He would speak with authority on topics ranging from toxicology to Greek mythology, sports, fishing, and South Park, to name but a few. He spent his final days undergoing chemotherapy and radiation but continued doing the things that he loved – teaching his graduate course meeting with students, and working on manuscripts. He met with old friends and former students for breakfasts, lunches, and dinners. He gardened with his wife, Daune, and went fishing with his sons, grandchildren and fishing buddies. He met his new great-grandchild and visited family. Despite Dr. Poklis's battle with cancer, he continued to teach those around him valuable lessons about living life to the fullest.

As Dr. Poklis would say, "…and there you have it." We will miss him deeply. And, we will "Continue to march!"

Alphonse Poklis, Ph.D. –
August 24, 1945 - September 03, 2016

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2018:	Minneapolis, MN	Oct. 7-12, 2018 — Loralie Langman
2019:	San Antonio, TX	Oct.13-18, 2019 — Veronica Hargrove/Brad Hall
2020:	San Diego, CA	Sept. 20-25, 2020 — TBD

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