



# ToxTalk

The official publication of the SOCIETY OF FORENSIC TOXICOLOGISTS, INC.

Volume 29 No. 3

3<sup>RD</sup> QUARTER 2005

## ToxTalk:

SOFTToxTalk@aol.com  
5304 Widener Strip  
Midland, TX 79707

## ToxTalk Editor

Joseph R. Monforte, Ph.D., DABFT  
Ameritox Laboratories  
9930 W. Highway 80  
Midland, TX 79706

## Editorial Staff

Daniel Anderson, M.S.  
Matthew Barnhill, Ph.D., DABFT  
Donald Kippenberger, Ph.D.  
Andrew Mason, Ph.D., DABFT

## Publisher

Patricia Mohn-Monforte

## SOFT Board of Directors

### President:

Graham Jones, Ph.D., DABFT

### Vice President:

Timothy Rohrig, Ph.D., DABFT

### Secretary:

Diana Wilkins, Ph.D.

### Treasurer:

Christine Moore, Ph.D., DABCC

### Other Directors:

Bradford Hepler, Ph.D., DABFT

Ruth Winecker, Ph.D., DABFT

Barry Logan, Ph.D., DABFT

Philip Kemp, Ph.D., DABFT

Ashraf Mozayani, Ph.D., PharmD, DABFT

### ex officio:

#### ToxTalk Editor:

Joseph R. Monforte, Ph.D., DABFT

#### Webmaster:

Bruce Goldberger, Ph.D., DABFT

#### Immediate Past President:

Daniel Isenschmid, Ph.D., DABFT

## S.O.F.T. Administrative Office

P.O. Box 5543

Mesa, AZ 85211-5543

Phone/fax: 480-839-9106

Email: info@soft-tox.org

Website: www.soft-tox.org

## IN THIS ISSUE . . .

### ✂ CASE NOTES:- *Inhalants Part 2* - Barnhill

*A Case of driving under the influence of 1,1-difluoroethane* (Flammia et al)  
*An Unusual Case of Driving under the Influence of Carburetor Cleaner*  
(Pearson and Steiner)

*A Case of Drug-facilitated Sexual Assault Leading to Death by Chloroform Poisoning* (Gaillard et al)

*A DUI Case Involving Multiple Volatiles* (Musselman et al)

*The Effect of the Duration of Exposure on the Distribution of 1,1-difluoroethane*  
(Avella and Lehrer)

### ✂ President's Message ✂ Drugs in the News: Mason

✂ Extrapolations: Kippenberger ✂ 2006 Nominating Committee Slate

✂ Elmer Gordon Open Forum ✂ Professional Calendar

✂ SOFT-TIAFT 2004 Proceedings Information

✂ 2005 Meeting Information: Update - Preliminary Program - Vendors -  
Workshops -Registration Worksheet -SO-SOFT Information

## SOFT Continuing Education Committee presents **FORENSIC TOXICOLOGY REVIEW**

September 13-14, 2005

New York State Police Academy, Albany, NY

see page 9

### ✂ INSERTS: 2005 SOFT Meeting Fun Run registration form



## SOFT 2005 Annual Meeting NASHVILLE, TENNESSEE (MUSIC CITY, USA)

October 17-21, 2005

Host: Louis Kuykendall

SITE: Renaissance Nashville Hotel

ToxTalk is mailed quarterly (bulk mail) to members of the Society of Forensic Toxicologists, Inc. It is each member's responsibility to report changes of address to the SOFT mailing address (Mesa, AZ - above). Non-members may now receive ToxTalk for \$15 per calendar year. Make your check payable to SOFT and mail to 5304 Widener Strip, Midland, TX 79707. Subscriptions expire each January.

DEADLINES: Feb. 1, May 1, Aug. 1, and Nov. 1

**NEXT DEADLINE: before NOVEMBER 1<sup>ST</sup>, 2005**



# PRESIDENT'S MESSAGE

Graham Jones, Ph.D., DABFT

If you haven't registered for this Nashville SOFT meeting, it is not too late to do so. Even if you miss the Sept. 2<sup>nd</sup> pre-registration deadline, the meeting is still an excellent value. Once again, we have outstanding vendor support (thank you, Lisa!). This means that meeting host Louis Kuykendall and his team have been able to include many "extras" as part of the registration cost, including several breakfasts, lunches and evening receptions. As always, there are two full days of workshops (ten in total), followed by more than two days of platform presentations and posters.

On-line registration is now available. For those of you who unsuccessfully tried to register on-line earlier in the summer, please accept our apologies. SOFT had been trying to make major changes to our Web database and programming that would enhance the registration and electronic abstract submission process. Unfortunately, as with many software-related projects, the solution took longer than anticipated. In fact, the electronic submission and review of abstracts was not available in time for this meeting and will have to be completed for next year. Webmaster Bruce Goldberger has devoted a tremendous amount of time dealing with the software developers (not to mention coping with hurricanes and moving into a new house!

I also need to remind you of two items of business to be voted on during the SOFT business meeting in Nashville. First, the Board has proposed that SOFT issue a position statement expressing concerns about the use of pharmacokinetic formulas to calculate a drug dose in postmortem cases. In short, application of these calculations can frequently lead to overestimation of the drug dosage in a person's body for several reasons, including uncertainty regarding the blood concentration of a drug at the time of death. I will not go into further details here, but you can review my comments in the previous issue of **ToxTalk** and in the member area of the SOFT web site. Secondly, proposed changes to the Forensic Toxicology Laboratory Guidelines need to be voted on. The members of both SOFT and the AAFS Toxicology Section must vote to adopt the changes for them to be formally incorporated into the current "*Guidelines*". A copy of the new draft *Guidelines* with the changes highlighted is also posted in the member area of our web site.

I hope you had an enjoyable summer, despite the extreme heat across much of the U.S. and eastern Canada. I was in Kansas for three days in July and have some appreciation of what 102°F feels like, let alone 110+! There are some advantages to living in Alberta...

See you in Nashville! ☺

## **ToxTalk dedicated e-mail address: SOFTToxTalk@aol.com**

Specific items should be sent to the appropriate **ToxTalk** staffer as noted below.

**EDITOR** – Dr. Joseph R. Monforte at SOFTToxTalk@aol.com

**"New Drugs"** – Daniel Anderson at Danderson@lacoroner.org

**"Case Reports"** – Dr. Matthew Barnhill at mbarnhilljr@worldnet.att.net

**"Drugs in the News"** – Dr. Andrew Mason at forn6tox@aol.com

**"Extrapolations"** – Dr. Donald Kippenberger at donald.kippenberger@us.army.mil

**PUBLISHER** – Patricia Mohn-Monforte at SOFTToxTalk@aol.com

All other items should be sent to **SOFTToxTalk@aol.com**

**Editor's note:** *Thanks to everyone who contributed to this issue of ToxTalk. I particularly wish to thank and acknowledge the efforts of the staff editors – without their diligence ToxTalk could not maintain the quality and quantity of information it now offers.*

**Please send items for the next issue of ToxTalk before November 1, 2005**



**SOFT 2005 Annual Meeting**  
**NASHVILLE, TENNESSEE – MUSIC CITY, USA**  
**October 17-21, 2005**



**HOST: Louis Kuykendall    SITE: Renaissance Nashville Hotel**

The SOFT 2005 Planning Committee is proud to extend a gracious, southern-style invitation to Nashville for the 35<sup>th</sup> Annual Meeting of the Society of Forensic Toxicologists. The conference will be held in the Renaissance Nashville Hotel, which is situated downtown in the very center of Nashville's dual-personalities: The Athens of the South and Music City, USA. Museums, art galleries, and cosmopolitan lure abound within a two-block stroll to the left of the Renaissance Hotel; while clubs, tourist attractions, and a wide variety of music (country, blues, jazz, etc.) are within a two block sashay to the right. The committee has worked diligently to strike a balance between an all-inclusive meeting and allowing our attendees time to enjoy this great town. Attendees and their accompanying persons (including SO-SOFT, "Significant Others"-SOFT) will find Tennessee's weather in October to be mild, typically dry, with the first hints of colorful fall foliage and average temperatures in the high 60s to low 70s.

The meeting will consist of workshops on Monday and Tuesday, with general sessions and posters Wednesday through Friday. We have a total of 110 contributed papers (57 posters, 51 oral presentations and 2 ERA presentations) on a wide spectrum of toxicological topics. It looks like it will be an exciting meeting.

A registration worksheet is included in this issue of *ToxTalk* to assist with your online registration for the meeting. If you absolutely, positively, no-matter-what cannot register on-line, please contact Vickie Watts at [toxilady@aol.com](mailto:toxilady@aol.com) for assistance.

The Nashville Renaissance can be accessed through the SOFT website or Renaissance Hotel registration site. The conference rate is \$149.00 single/double. In either case, you will need to use our group code: **SFTSFTA**. Please make your hotel reservation early – the hotel expects to be completely booked since the Titans are playing that weekend. Don't delay.

The Preliminary Program lists the week's events, including workshops, committee meetings, and plenary sessions, as well as the social agenda.

**Deadlines:** If you have already registered, THANK YOU! You may or may not receive this issue of *ToxTalk* before the September 2<sup>nd</sup> early registration deadline. Sorry, but this will not be an acceptable excuse – the deadlines have been well published. Pre-registration will still be accepted until October 7<sup>th</sup>: the late fee (\$100) will apply, and you'll miss out on the souvenir t-shirt early registration bonus. After October 7<sup>th</sup>, only on-site registrations will be accepted and availability of materials on-site cannot be guaranteed, although every effort will be made to accommodate late registrants. All refund requests must be made by September 3<sup>rd</sup>.

**FUN RUN:** The route winds through downtown Nashville, across the scenic Cumberland River on a pedestrian bridge, and around the Tennessee Titans Coliseum. See the enclosed flyer. Walkers are welcome! Don't wait until the last minute if you're looking forward to another fun-run t-shirt.

**SOCIAL EVENTS:** Incredible! Along with the usual Welcome Reception, Exhibitor Happy Hour, and President's Reception, we have a few surprises in store – especially a 3-hour dinner/show cruise on the famous showboat, *The General Jackson*. We will dine on world class cuisine and enjoy the Broadway style theatre show "**SING**."

**PRE- AND POST-MEETING EVENTS:** Nashville offers many interesting and diverse attractions. On Saturday the Titans will play against the Bengals. The Nashville Renaissance Hotel will extend the meeting rates through October 25<sup>th</sup> for anyone wishing to have a little more time in the Music City.

**CALL FOR VOLUNTEERS:** Share the work and the fun - become a meeting volunteer. Please contact John Harrison (Labor Force Chair) at 615-744-4466 or [John.Harrison@state.tn.us](mailto:John.Harrison@state.tn.us)

**AIRPORT TRANSPORTATION:** GreyLine Airport Shuttle Service. \$12.00 one way/ \$18.00 round trip (\$15.00 round trip for groups of 4 or more). Shuttle schedule: from the airport – 6:00am-11:00pm every 15 min. / from the hotel - 4:00am – 7:00pm on the hour & half-hour. Taxi is a \$20 flat rate. ☹

COPY THIS AND TAKE IT HOME! -----COPY THIS AND TAKE IT HOME!

### ATTENTION: SO-SOFT

"SO-SOFT" = persons who accompany their Significant Others to SOFT meetings and for whom this is solely a social event

Bringing a significant other or guest? A bulletin board will be provided for SO-SOFTS. We will meet at 9 a.m. each morning by the designated bulletin board, unless otherwise noted on the board.

Full registrants bringing a "SO-SOFT" may choose to only purchase additional reception tickets but must register by October 7<sup>th</sup>. Accompanying persons who desire access to the scientific sessions and all the perks and benefits of a full meeting registration, except the abstract book, are offered a reduced registration fee. ☹



**SOFT 2005 Annual Meeting  
NASHVILLE, TENNESSEE –  
MUSIC CITY, USA  
October 17 – 21, 2005**



HOST: Louis Kuykendall SITE: Renaissance Nashville Hotel

**PRELIMINARY PROGRAM**

Pre – Conference Tours available  
NSC Alcohol & Other Drugs (noon – 8:00pm)

Registration (noon – 7:00pm)  
National Safety Council Executive Board (10am – 2pm)  
NLCP Inspectors Directors Workshop (2 – 6pm)

Registration (7:00am – 4:00pm)  
Cont. Breakfast (7:00am – 8:30am)  
ABFT Exam (8am – 12pm)  
ABFT EXAM COMM. (8am – 12pm)  
ABFT Accreditation Committee (10am – 12pm)  
ABFT Board Meeting (12pm – 6pm)  
Workshop # 10a (8am – 5pm) Case Studies in DUID: Numbers,  
Signs, Symptoms and Beyond  
Workshop # 8 (8am – 5pm) The Postmortem “Blood Drug Screen”:  
Analytical and Managerial Approaches  
Workshop #2 (8am – 12pm) Interpretive Pharmacogenomics and  
Proteomics for Forensic Toxicology  
Workshop #4 (1:30pm – 5pm) Receptor Site Theory and  
Drug Interactions  
Workshop #3 (8am – 12pm) Blood Alcohol Concentration  
Extrapolation Workshop  
Workshop #6 (1:30pm – 5pm) From “Sample to Signal; Practical  
LC/MS<sup>nm</sup>  
SOFT/AAFS Drugs and Driving Committee (5:00pm – 6:00pm)

Registration (7:00am – 7:00pm)  
Cont. Breakfast (7:00am – 8:30am)  
SOFT Board Meeting (8:00am – 1:00pm)  
Workshop # 10b (8:00am – 5:00pm) Case Studies in DUID: Numbers,  
Signs, Symptoms and Beyond  
Workshop #9 (8:00am – 12:00pm) Post Mortem Interpretation  
Workshop #7 (8:00am – 5:00pm) Forensic Toxicology Update  
Workshop # 1 (8:00am – 12:00pm) Forensic Toxicology of  
Pesticides  
Workshop #5 (1:30pm – 5:00pm) Oral Fluids – Research and  
Application  
Exhibitor set up (12:00pm – 5:00pm)  
Exhibitor Workshops (5:00pm – 6:30pm)  
Drugs & Driving Committee (5:00pm – 6:30pm)  
FTCB Board Meeting (5:00pm – 6:30pm)  
Exhibits open (6:30pm – 8:00pm)  
Exhibitor's Welcome Reception (6:30pm – 8:00pm)  
Elmer Gordon Forum (9:00pm – 11:00pm)

SOFT FUN RUN (6:30am – 8:00am)  
Registration (7:00am – 6:00pm)  
Cont. Breakfast (7:00am – 8:30am)  
Exhibits open (9:30am – 4:00pm)  
Bob Bost Consultant's Breakfast (7am)  
Plenary/Scientific Session #1 & #2 (8:30am – 12:00pm)  
Poster Session #1 (10:00am – 1:00pm)  
Lunch with Exhibitors and Posters (12:00pm – 1:30pm)  
Scientific Session #3 (1:30pm – 3:00pm)  
Poster Session #2 (1:30pm – 3:00pm)  
Soft Business Meeting (3:30pm – 5:30pm)  
Happy Hour with Exhibitors (5:30pm – 6:30pm)  
General Jackson River Boat & Dinner Theater (7pm – 10pm)  
Night Owl Reception (10:30pm – Midnight)

Registration (7:00am – 7:00pm)  
Cont. Breakfast (7:00am – 8:30am)  
Exhibitor Feedback Meeting (8:00am – 9:30)  
Scientific Session #4 & #5 (8:30am – 12:00pm)  
Poster Session #3 (10:00am – 1:00pm)  
Lunch with Exhibitors and Posters (12:00pm – 1:30pm)  
Exhibits open (9:30am – 1:30pm)  
Exhibitor breakdown (1:30pm – 3:30pm)  
Scientific Session #6 (1:30pm – 3:00pm)  
Poster Session #4 (3:30pm – 5:00pm)  
ABFT Certificate Ceremony (5:00pm – 6:00pm)  
AAFS Steering Committee (5:00pm – 6:30)  
DFSA Committee (5:00pm – 6:30pm)  
President's Reception (7:00pm – 10:00pm)

Registration (7:00am – 10:00am)  
Cont. Breakfast (7:00am – 8:30am)  
Closing Scientific Session #7 & #8 (8:30am – 12:00pm)  
Closing Poster Session #5 (10:00am – 12:00pm)  
Post Conference Tours available

**This information subject to change**

Please check the SOFT Web-site

**www.soft-tox.org**

regularly for updated information



# SOFT 2005 Annual Meeting

NASHVILLE, TENNESSEE  
Renaissance Nashville Hotel

Use this worksheet to complete your  
ONLINE - ONTIME registration at the  
SOFT WEBSITE - [www.soft-tox.org](http://www.soft-tox.org)



On-site registration only after October 7<sup>th</sup>

Name (last) \_\_\_\_\_ (first) \_\_\_\_\_ Degree \_\_\_\_\_  
 Name to appear on badge \_\_\_\_\_  
 Title \_\_\_\_\_ Agency \_\_\_\_\_  
 Address \_\_\_\_\_  
 Telephone \_\_\_\_\_ Fax \_\_\_\_\_ E-mail \_\_\_\_\_  
 Accompanying Person(s) \_\_\_\_\_

### MEETING REGISTRATION:

	Member	Non-Member	Qty.	TOTAL
<b>FULL MEETING REGISTRATION (Late Fee Applies after 9/02/05)</b> Includes: Admission to scientific sessions, Abstract Book, SOFT Pack, shirt, Coffee Breaks, Continental Breakfasts, Welcoming Reception, Luncheons, Tuesday Happy Hour, Elmer Gordon Forum, and President's Reception *Enter shirt size online	\$195	\$295	___	\$ _____
<b>LATE REGISTRATION 9/03/05 TO 10/07/05 (on-site registration only after 10/07)</b>	\$295	\$395	___	\$ _____
<b>ON-SITE REGISTRATION (only option after 10/07)</b>	\$295	\$395	___	\$ _____
<b>FULL-TIME STUDENT (Proof of full-time status required) Admission to scientific sessions- NO abstract book, SOFT pack, Welcoming Reception or President's Reception</b>	\$95	\$95	___	\$ _____
<b>ACCOMPANYING PERSON (ea.) with full meeting registrant only before 9/02</b>	\$175	\$275	___	\$ _____
Includes all the above except Abstract Book *Enter shirt size online 9/03 - 10/07	\$275	\$375	___	\$ _____

### ADDITIONAL TICKETS: **not available after Oct. 7, 2005**

President's Reception (Thurs)	\$70	\$90	___	\$ _____
Welcome Reception - General Jackson Dinner Showboat (Wed)	\$95	\$115	___	\$ _____

### OPTIONAL WORKSHOPS:

Workshop #1: Forensic Toxicology of Pesticides. ( 1/2 day) - <b>Tues a.m.</b>	\$60	\$75	___	\$ _____
Workshop #2: Interpretive Pharmacogenomics and Proteomics for Forensic Toxicology. (1/2 Day) - <b>Mon a.m.</b>	\$60	\$75	___	\$ _____
Workshop #3: Blood Alcohol Concentration Extrapolation. (1/2 day) - <b>Mon a.m.</b>	\$60	\$75	___	\$ _____
Workshop #4: Receptor Site Theory & Drug Interactions. (1/2 day) - <b>Mon p.m.</b>	\$60	\$75	___	\$ _____
Workshop #5: Oral Fluids - Research and Application. (1/2 day) - <b>Tues p.m.</b>	\$60	\$75	___	\$ _____
Workshop #6: From "Sample to Signal; Practical LC/MS": An introduction to fundamental LC/MS/MS technologies and practical practices in forensic Toxicology. (1/2 day) - <b>Mon p.m.</b>	\$60	\$75	___	\$ _____
Workshop #7: FTICB- forensic Toxicology Update. (Full day) - <b>Tues</b>	\$120	\$150	___	\$ _____
Workshop # 8: The Postmortem "Blood Drug Screen": Analytical and Managerial Approaches. (Full day) - <b>Mon</b>	\$120	\$150	___	\$ _____
Workshop # 9: Post Mortem Interpretation. (1/2 Day) - <b>Tues a.m.</b>	\$60	\$75	___	\$ _____
Workshop # 10a: Cases Studies in DUID: Numbers, Signs, Symptoms, and Beyond. (1 <sup>st</sup> Full day) - <b>Mon</b>	\$120	\$150	___	\$ _____
Workshop #10b: Case Studies in DUID - Continued. (2 <sup>nd</sup> Full day) - <b>Tues</b>	\$120	\$150	___	\$ _____

**ID BADGE WILL BE REQUIRED FOR ALL FUNCTIONS.**

**TICKET REQUIRED FOR PRESIDENT'S RECEPTION.**

**TOTAL** \$ \_\_\_\_\_

**+LATE FEE** applies for all registrations received after **Friday, September 2, 2005.**

**Deadline for registration online** at <http://www.soft-tox.org> is **Friday, October 7, 2005.** **Payment via the SOFT Registration website,** a secure site, which accepts most major credit cards or payment through routing of checks drawn on a US bank or International Bank.

**IMPORTANT - Refund policy:** Refunds will be honored upon written request prior to 09/03/05 minus a \$100 fee. **NO refunds after 09/03/05.**

The Group Code for the Renaissance Nashville Hotel is: **SFTSFTA**

MONDAY – OCTOBER 17<sup>th</sup>

**W10:** 8 a.m. – 5:00 p.m. (day #1 of 2 full days)

**Case Studies in DUID: Numbers, Signs, Symptoms and Beyond** Michelle Spirk & Sarah Kerrigan, Ph.D., Chair

Driving under the influence of drugs (DUID) is of growing concern among the scientific, legal, law enforcement and public health communities. Although statutory schemes vary from state to state, toxicologists are often called upon to provide interpretive testimony in DUID cases. Pharmacology and behavioral toxicology studies provide the foundation for this, and these areas have been the focus of many earlier workshops and seminars on DUID.

The purpose of this workshop is to highlight common interpretive issues using actual case studies. The presenters will apply their knowledge of drug pharmacology and behavioral toxicology in a case-oriented fashion. Driving behavior, observed effects and toxicology results will be presented for commonly encountered drugs including cannabinoids, methamphetamine, cocaine, opioids and central nervous system depressants. The workshop is intended to bridge the gap between the scientific literature and actual DUID casework. Toxicologists must be able to apply the scientific knowledge that exists to uncontrolled and non-scientific surroundings encountered in casework (urban and rural roadways) where environmental factors, injuries, drug combinations and other challenges are commonplace. Presenters will outline how to implement best practices and discuss interpretive limitations relating to matrix, delay in specimen collection, qualitative versus quantitative data as well as field observations and evaluations. Interpretative strategies and approaches will be discussed in addition to laboratory policies and guidelines that facilitate scientific testimony in a fair, objective and scientifically justified manner.

**W8:** 8:00 a.m. – 5:00 p.m.

**The Postmortem Blood Drug Screen: Analytical and Managerial Approaches** Alphonse Poklis, Ph.D., Chair

In the modern postmortem toxicology laboratory, the Blood Drug Screen is the most important analytical scheme to identify drugs that may be the cause of death or significantly influence the circumstances surrounding a death. This workshop will present in detail the analytical approaches in seven major postmortem toxicology laboratories. Formal lectures will address specific immunoassay tests and chromatographic methods including sample preparation, chromatographic conditions, calibrations and quality control procedures. At the completion of these presentations a round-table discussion will address the managerial rationale of how each laboratory applies its particular analytical scheme in meeting the service objective of the laboratory. The round-table discussion will focus on management issues, such as result reporting criteria, personnel and laboratory resources, turn-around time and other issues.

**W2:** 8:00 a.m. – noon

**Interpretive Pharmacogenomics and Proteomics for Forensic Toxicology** Steve Wong, Ph.D., Chair

The workshop is an update of a previous workshop. In addition to a brief introduction to molecular biology, the workshop will include basic principles of pharmacogenomics and the emerging proteomics. Then, a survey of various methodologies will be included. The pharmacogenomics of drug metabolizing enzyme genes will be reviewed, with particular reference to those related to drugs often identified in death certification. The session might include pre-collection of attendees' whole blood with informed consent, followed by genotyping. The de-identified results will be included in the presentation in order to demonstrate mutation prevalence in a selected population of the attendees. The workshop will conclude with selected case reviews using pharmacogenomics.

**W3:** 8:00 a.m. to noon

**Blood Alcohol Concentration Extrapolation Workshop** Jennifer F. Limoges, M.S., Chair

This half-day workshop will cover all aspects of BAC extrapolation. The pharmacokinetics of ethanol will be reviewed in depth, including calculations for estimating  $E_{max}$  under a variety of circumstances. Factors that may effect BAC estimations will be covered, along with an update of the legal issues surrounding this type of testimony. The workshop will conclude with an open discussion on some challenging case scenarios. Extensive reference materials will be provided.

**W4:** 1:30 p.m. – 5:00 p.m.

**Receptor Site Theory and Drug Interactions** Robert Sears, M.S., Chair

The SOFT Continuing Education Committee presents a Workshop on Receptor Site Theory and Drug Interactions. This workshop is designed for the toxicologist working in a post-mortem or human performance setting. The participant will have a better understanding of various receptor sites in the body, physiological effects mediated by these receptors, and which drugs act as agonist or antagonist at these sites. As a result the toxicologist will better be able to assist coroners, medical examiners, and prosecutors with interpretation of the toxicology results especially as these results relate to multiple drug interactions and prediction of adverse side effects. The workshop will include a review of information related to the characterization of select receptor sites, specific information as to the location of and the physiological effects mediated by the receptor, information on specific drugs or poisons known to act at the receptor, and resultant physiological changes due to drug-receptor interactions.

(continued on next page....)

**W6:** 1:30 to 5:00 p.m.

**From Sample to Signal: Practical LC/MSn - An Introduction to Fundamental LC/MS/MS Technologies and Practical Practices in Forensic Toxicology** H. Chip Walls, B.S., Chair

This workshop provides an understanding of the key components of LC/MSn instrumentation, operation, advantageous features, and the information derived from analysis. The conversion of LC/UV methods to LC/MSn will be covered. Performance characteristics of mass analyzers and LC/MSn interfaces are described. Forensic applications of LC/MSn will be highlighted.

**TUESDAY – October 18<sup>th</sup>**

**W10:** 8 a.m. – 5:00 p.m. (day #2 of 2 full days)

**Case Studies in DUID: Numbers, Signs, Symptoms and Beyond** *continued*

**W7:** 8:00 a.m. to 5:00 p.m.

**Forensic Toxicology Update** John Cody, Ph.D., Chair

This workshop will describe the analysis of drugs and alcohol from the perspective of post-mortem, DUID and workplace drug testing. The format will include a quick review followed by pertinent updates describing new information and techniques in the area. Topics covered will include each of the major drug classes and ethanol.

Presentations will include a brief review of the pharmacology of the drug (class) followed by a description of the analysis of samples and interpretation of results. Specific examples of particular interest to the forensic toxicology community will be presented by experienced practitioners with the ability to provide some insights borne of years of experience in the field. In addition, discussion of emerging procedures and technologies will provide a glimpse at the future of forensic toxicology.

**W9:** 8 a.m. to noon

**Post Mortem Interpretation** Ann Marie Gordon, M.S. & Rebecca Jufer, Chair

The SOFT Continuing Education Committee presents a Workshop on Post Mortem Toxicology Interpretation. The workshop is designed for the toxicologist working in a post-mortem setting and the participant will better be able to assist coroners and medical examiners with interpretation of the toxicology results. The workshop will include a review of pharmacokinetics, post-mortem redistribution and other post-mortem changes. There will be a discussion of both the usefulness and the limitations of drug concentrations in peripheral & central blood as well as other tissues and how to relate the numbers generated in your laboratory with those published in the literature. The workshop will specifically address newer antidepressants and opioids. A review of drug-drug interactions will emphasize these phenomena in drug combination deaths. A discussion of alternative tissues, which tissues are likely to yield the best information for different kinds of investigations and how to interpret the data obtained from these tissues.

**W1:** 8:00 to noon

**Forensic Toxicology of Pesticides** Maria Martinez, Ph.D., Chair

This workshop will be a discussion of pesticides in forensic toxicology. This includes a general overview of pesticides, analytical methods, and interpretation of analytical toxicology findings. Pesticides are used extensively in agriculture, commercial and industrial applications, and some of them are resistant to degradation, as a consequence they are ubiquitous in our environment. Incidence of poisoning with these chemicals will be also considered. A series of clinical and forensic cases involving pesticide poisoning will be presented. Finally, diagnosis and treatment of pesticide poisonings will be discussed.

**W5:** 1:30 p.m. to 5:00 p.m.

**Oral Fluids Research and Application** Michael Wagner, Ph.D., Chair

The focus of this workshop will cover such topics as basic physiology, drug transport mechanisms, time course profiles, interpretation issues (pharmacodynamic and behavioral observations), matrix correlations (oral fluid, blood, urine, and site contamination), analytical issues (stability, sample preparation, and instrumental analysis), and field evaluation studies. ☺

**NOTE: THIS INFORMATION WAS UPDATED 8/09/05 and is subject to change.**

**Check the SOFT website [www.soft-tox.org](http://www.soft-tox.org)**

**Early Registration: September 2<sup>nd</sup> (souvenir t-shirt!)**

**Online Registration:  
September 3<sup>rd</sup> to October 7<sup>th</sup> (no t-shirt, extra \$100!)**

**Must register ON SITE after October 7<sup>th</sup>**

**Refund Request: September 3<sup>rd</sup>, 2005**

**DON'T FORGET: REGISTRATION ON THE SOFT WEB SITE [www.soft-tox.org](http://www.soft-tox.org)**

# OUTSTANDING VENDOR COMMITMENTS TO 35<sup>TH</sup> SOFT MEETING

Submitted by Lisa O'Dell, SOFT Exhibit Coordinator

This impressive alphabetical list acknowledges companies which have committed to supporting SOFT at this year's 35<sup>th</sup> anniversary meeting. As you know, their financial assistance is extremely crucial to the unparalleled success of our annual meetings. Please take a moment to note which, as well as how many, companies support our organization through their enduring commitment year after year. Truly, it is an extraordinary list.

Alternative Biomedical Services	Common Cents Systems	Lynn Peavey Company	Shamrock Glass Company, Inc.
Agilent Technologies	Cozart Bioscience, Inc.	Microgenics Corporation	Shimadzu Scientific Instruments, Inc.
American Solutions for Business	Dade Behring, Inc.	MicroLiter Analytical Supplies, Inc.	SPEware Corporation
Andwin Scientific	Data Unlimited International, Inc.	National Medical Services	Teledyne Tekmar
Applied Biosystems	domnick hunter, inc.	Neogen Corporation	Thermo Electron
Axiom Diagnostics	Excalibur Lab Specialists, Inc. / DCI	OraSure Technologies, Inc.	United Chemical Technologies, Inc.
Beckman Coulter	Express Diagnostics	Parker Hannifin	UTAK Labs, Inc.
Biochemical Diagnostics, Inc.	Gerstel, Inc.	PerkinElmer Life and Analytical Sciences	Varian, Inc.
Bio-Rad Laboratories	Hamilton Company	Pharmaceutical Press	Venture Labs, Inc.
Branan Medical Corporation	Humana Press, Inc.	Porter Lee Corporation	VertiQ Software, LLC
Campbell Science Corporation	Immunalysis Corporation	Regis Technologies	Wampole Laboratories, LLC
Capitol Vial, Inc.	International Diagnostic Systems Corporation	Restek Corporation	Waters Corporation
Cerilliant Corporation	JEOL USA, Inc.	Roche Diagnostics Corporation	
ChemWare, Inc.	Lin-Zhi International, Inc.	Rudolph Research Analytical	
Clinical Controls International	Lipomed, Inc.	Sciteck, Inc.	
CMI, Inc.			

**VENDORS AND ACCOMPANYING PERSON POLICY:** Vendors, as well as accompanying persons who desire access to the scientific sessions and all the perks and benefits offered with a full meeting registration except the abstract book, are offered a reduced registration fee. ☞

**ATTENTION POTENTIAL SOFT VENDORS:** If your name is not listed above but you wish to take advantage of an opportunity to present your products and/or services to hundreds of forensic toxicology professionals representing laboratories from all over the world, contact SOFT Exhibit Coordinator Lisa O'Dell at NomadLee9@aol.com for details. ☞

## 2005 ERA RECIPIENTS ANNOUNCED

The Awards Committee, consisting of Drs. Philip Kemp (chair), Vina Spiehler, and Thomas Kupiec, announces two recipients of the prestigious SOFT Educational Research Award:

**Jessica Jennings**, Forensic Science Program, Michigan State University, Mentor: Rebecca Jufer, Ph.D., *Distribution of Methadone and EDDP in 100 Postmortem Cases.*

**Romina Kaushik**, Dept. of Chemistry, University of Maryland, Baltimore, Mentor: Barry Levine, Ph.D., *An Improved Method to Determine Ethyl Glucuronide in Urine Using Reversed-Phase HPLC and Pulsed Electrochemical Detection.*

The awardees receive funding (basic registration and \$1,000) to attend and present their papers at the SOFT meeting. While in Nashville, please take a moment to offer your congratulations to these deserving students.

The Young Scientist Meeting Award (YSMA) will not be presented this year. ☞



# SOFT CONTINUING EDUCATION COMMITTEE

Ann Marie Gordon (chair), Robert Sears, Vince Papa, Chris Chronister, Rebecca Jufer, Kabrene Goeringer, and Bill Johnson

The Continuing Education Committee (CEM) is committed to offering regional, low-cost/high quality seminars to toxicologists, particularly those who cannot attend national meetings. This productive committee has sponsored two special seminars this year, "Stimulants" (Orlando, FL, in April) and "Forensic Toxicology Review" (Spokane, WA in May) and is preparing another, as noted below. Workshops were previously presented in Research Triangle Park and San Antonio. Additionally, the CEM presents workshops at the SOFT annual meeting. SOFT members generously share their time and expertise and serve as faculty for these workshops.

Chair Ann Marie Gordon is open to suggestions and encourages SOFT members to consider hosting a CEM regional workshop in their area. The committee would consider participating in tangent with a regional meeting to give toxicologists access to the CEM workshops. Interested persons should contact Ms. Gordon at [ann.gordon@wsp.wa.gov](mailto:ann.gordon@wsp.wa.gov) 📧

## CONTINUING EDUCATION COMMITTEE ANNOUNCES ANOTHER SEMINAR!

### "FORENSIC TOXICOLOGY REVIEW"

September 13 – 14, 2005  
New York State Police Academy, Albany, NY

*Cosponsored by the New York State Police*

#### Workshop Topics

- |                                       |                             |                            |
|---------------------------------------|-----------------------------|----------------------------|
| 📧 Forensic Drug Testing Overview      | 📧 Carbon Monoxide & Cyanide | 📧 Antidepressants          |
| 📧 Pharmacology Overview               | 📧 Marijuana                 | 📧 Antipsychotics           |
| 📧 Principles of Drug-Drug Interaction | 📧 Narcotic Analgesics       | 📧 Antihistamines & NSAIDs  |
| 📧 Specimen Preparation                | 📧 Stimulants                | 📧 Drugs & Driving Overview |
| 📧 Instrumental Analysis               | 📧 Depressants               |                            |
| 📧 Alcohol & Volatiles                 | 📧 Hallucinogens             |                            |

#### Workshop Faculty

**Jeanne Beno, PhD**  
Monroe County Medical Examiner's Lab

**Michael Rieders, PhD**  
National Medical Services, Inc

**Robert DeLuca, MS**  
Westchester County Forensic Toxicology Lab

**Thomas Rosano, PhD, DABFT, DABCC**  
Albany Medical Center Forensic Toxicology Lab

**Jennifer Limoges, MS, DABC**  
NYSP Forensic Investigation Center/Toxicology

**Elizabeth Spratt, MS, DABFT**  
Westchester County Forensic Toxicology Lab

**Michael McGee, BS, DABFT**  
Forensic Toxicology Lab, OCME, City of New York

**Marina Stajic, PhD, DABFT**  
Forensic Toxicology Lab, OCME, City of New York

**Robert Osiewicz, PhD, DABFT**  
Erie County Medical Examiner's Lab

Best Western Sovereign Hotel, 1228 Western Avenue, Albany, NY 518-489-2981  
\$89.00/night Group name: *Forensic Tox* (room block expires 8/29/05)

**Registration Fee:** SOFT Members \$60.00 Non-SOFT Members \$75.00

# NOMINATING COMMITTEE OFFERS 2006 SLATE

The 2005 SOFT Nominating Committee, consisting of Daniel Isenschmid (chair), Barry Levine and Robert Zettl, respectfully submit the following slate for consideration by the membership for 2006.

**PRESIDENT: TIMOTHY ROHRIG, Ph.D., DABFT**

**VICE PRESIDENT: DIANA WILKINS, Ph.D.**

**SECRETARY: ANTHONY COSTANTINO, Ph.D., DABFT**

**DIRECTOR: ASHRAF MOZAYANI, Ph.D., PharmD, DABFT**

The President and Vice President serve 1-year terms while the Treasurer and Secretary serve 2-year terms, which expire in alternate years. The five additional Directors are elected for 3-year terms, with no more than 2 elected each year. If a director cannot serve his/her entire term, an interim director shall be named by the Board to serve the remaining term. All officers are also directors.

**PRESIDENT: (1 year)**

**TIMOTHY ROHRIG, Ph.D., DABFT**

Timothy Rohrig is currently Director, Forensic Science Laboratories, and Chief Toxicologist at the Regional Forensic Science Center, Sedgwick County, Kansas. He also holds the academic position of Clinical Assistant Professor of Pathology at the University of Kansas School of Medicine-Wichita and Adjunct Professor of Criminal Justice and Forensic Science at Wichita State University.

Prior to joining the Center, Dr. Rohrig's experience includes Director of Laboratories at the Center for Forensic Sciences, Onondaga County, NY; Vice President - Director of Toxicology of Osborn Laboratories; Chief Toxicologist - Laboratory Director for the Office of the Chief Medical Examiner, State of Oklahoma; consultant to the Oklahoma State Bureau of Investigation Crime Laboratory; Toxicologist for the Office of the Chief Medical Examiner, State of West Virginia; and Chief Toxicologist for the Kansas Bureau of Investigation's Forensic Science Laboratory and academic appointments as Clinical Assistant Professor of Pathology at SUNY Health Science Center at Syracuse, NY and Adjunct Assistant Professor of Pharmacology and Toxicology at the University of Oklahoma, Health Sciences Center-College of Pharmacy.

Dr. Rohrig holds a B.S. in Chemistry, a Ph.D. with an emphasis in Pharmacology/Toxicology, ABFT certification as a Diplomate, and a NY State Laboratory Director license. He is an inspector for the NLCP and CAP forensic urine drug testing programs. Dr. Rohrig has authored over twenty peer-reviewed articles and given numerous scientific oral presentations in the field of toxicology. Dr. Rohrig's current research interests include postmortem distribution of drugs, interpretive postmortem toxicology and the effects of drugs on human performance.

Dr. Rohrig currently serves SOFT as Vice President and was Treasurer and Director. He also is a member of SOFT's Drug Facilitated Sexual Assault Committee. Additional professional memberships include Fellow of the AAFS (currently the Toxicology Section Chairman and past Secretary) and TIAFT. Dr. Rohrig currently serves on the Wichita Area SANE/SART Steering Committee and Sedgwick County Methamphetamine Lab Kids Initiative Task Force. He was previously a member and Vice Chair of the New York Crime Laboratory Advisory Committee.

**VICE PRESIDENT: (1 year)**

**DIANA WILKINS, Ph.D.**

Diana G. Wilkins is currently the Co-Director of the Center for Human Toxicology at the University of Utah Health Sciences Center and a Research Associate Professor in the Department of Pharmacology and Toxicology, College of Pharmacy at the University of Utah. Previously, Dr. Wilkins served as Assistant Director, Quality Control /Quality Assurance Manager and Senior Toxicologist at the Center for Human Toxicology. She received a B.S. (1985), M.S. (1988) and Ph.D. (1991) from the University of Utah. Her post-doctoral education included training in toxicology and pharmacology, with particular emphasis on drugs of abuse. She has been an NLCP inspector and a laboratory assessor for the Standards Council of Canada. Dr. Wilkins was a member of the Drug Testing Advisory Board (DTAB) of the HHS Division of Workplace Performance 1994-1997. She has also served as an Ad Hoc member of several NIH/NIDA study sections and is currently a member of the FDA's Clinical Chemistry and Clinical Toxicology Devices Panel of the Medical Devices Advisory Committee.

Dr. Wilkins has been an active member of SOFT since 1994, has co-authored 21 abstracts presented at the SOFT Annual Meetings (1995-2002), and served as faculty for three SOFT-sponsored meeting workshops (1996, 1998, 2000), as well as a SOFT Educational Workshop on "Derivatization" conducted at a regional toxicology meeting. As a member of the Center for Human Toxicology, she co-hosted the 1997 SOFT Annual Meeting (Utah) and served as a co-Editor of the 2000 SOFT/JAT Special Issue. Dr. Wilkins has served as a member of the SOFT Board (2000-2002), SOFT Executive Board (2002-present), and SOFT Membership Committee (2002-present). She is currently completing a term as SOFT Secretary.

Dr. Wilkins participates in teaching undergraduate and graduate courses in clinical and analytical toxicology, pharmacology and statistics for pharmacologic research at the University of Utah. Her research interests include investigation of the disposition of drugs of abuse in biological matrices, as well as applications of mass spectrometry in biomedical research. Dr. Wilkins has published over 100 scientific articles in the areas of analytical toxicology and pharmacology.

**SECRETARY:** (2 years)

**ANTHONY COSTANTINO, Ph.D., DABFT**

Anthony G. Costantino, Ph.D., is Vice President of Laboratory Operations at National Medical Services in Willow Grove, PA. NMS is a large esoteric testing laboratory whose primary focus is analytical toxicology for therapeutic drug monitoring and the detection of illicit drugs. This laboratory services clinical reference laboratories, medical examiners, coroners, police departments and pharmaceutical companies. He is currently also an inspector for the NLCP and the CAP Forensic Urine Drug Testing Programs.

Prior to coming to NMS in 2002, Dr. Costantino was the Sr. Vice President of Toxicology at American Medical Laboratories, Inc., Chantilly, VA, where he was responsible for the SAMHSA laboratory as well as the Clinical Toxicology and Industrial Hygiene Laboratories.

Dr. Costantino received his Ph.D. in Forensic Toxicology from the University of Maryland in Baltimore and an MS in Pharmacology and Toxicology as well as a BS in Pharmacy from Duquesne University, Pittsburgh, PA. His research interests have included postmortem redistribution of drugs and their metabolites and, more recently, he has been involved with the study of the ethanol metabolite, ethylglucuronide.

He has been active in SOFT since 1985 and has served on the Board of Directors from 2002-2004. He has been a member of the AACC and the TDM/Tox Division since 1984 and is currently the editor of the division newsletter "Therapeutics and Toxins News". Dr. Costantino is also a Fellow of AAFC and is certified as an ABFT Diplomate.

**RECTOR:** (3 years)

**ASHRAF MOZAYANI, Ph.D., PharmD, DABFT**

Ashraf Mozayani has been the Laboratory Director and the Chief Toxicologist for the Harris County Medical Examiner's Office (HCME) in Houston, Texas since July 1996. Under her direction the HCME Crime Laboratory has

achieved ASCLD-LAB and ABFT accreditation.

Prior to this position, Dr. Mozayani was the Chief Toxicologist for the District of Columbia at the Office of the Chief Medical Examiner, Toxicologist at the Virginia Division of Forensic Science, and Laboratory Scientist in the Alberta Medical Examiner Office. She has received a Doctorate of Pharmacy degree from University of Tehran in Iran and a Ph.D. in Pharmaceutical Sciences/ Toxicology from the University of Alberta in Edmonton, Alberta, Canada. She is also board certified as an ABFT Diplomate. Dr. Mozayani is Assistant Clinical Professor in the Department of Medicine at the University of Texas, an Adjunct Assistant Professor in the Department of Pharmacy at Texas Southern University, a Clinical Assistant Professor in the Department of Pathology at Baylor College of Medicine (Houston) and an Adjunct Assistant Professor in the Department of Pathology at University of Texas Medical Branch (Galveston).

Dr. Mozayani has published and presented numerous articles related to forensic toxicology (cocaine, marijuana, amphetamines, drug testing in hair, inhalants, opiates, GHB, alcohol, and several prescription drugs). She is co-editor of "Drug-Facilitated Sexual Assault, A Forensic Handbook", "Handbook of Drug Interaction-A Clinical and Forensic Guide," and "The Real Crime Laboratory" and the US Editor of the new international "Journal of Forensic Science, Medicine and Pathology".

Dr. Mozayani is an Inspector for NLCP, the American Crime Laboratory Directors/Laboratory Accreditation Program, ABFT, CAP, and the National Forensic Science Technology Center. She also serves as a consultant in toxicology to government and private industry and has been qualified as an expert witness in forensic toxicology and pharmacology in the states of Texas, Virginia, Maryland, Oklahoma, Florida, Kansas, California, Idaho, the Federal Court in Massachusetts and the numerous Military Courts of the United States.

The SOFT Board appointed Dr. Mozayani as a director for 2005 to complete a term as noted in the bylaws. She has been an active SOFT member since joining in 1994 and also belongs to many other forensic science organizations. ☞

## EXTRAPOLATIONS

*Editorial Staff: Donald Kippenberger, Ph.D. (donald.kippenberger@amedd.army.mil)*

**Validated, non-destructive and environmentally friendly determination of cocaine in euro bank notes** Francesc A. Esteve-Turrillas, Sergio Armenta, Javier Moros, Salvador Garrigues, Agustín Pastor and Miguel de la Guardia, Department of Analytical Chemistry, Universitat de València, Edifici Jeroni Muñoz, 50th Dr. Moliner, 46100 Burjassot, Valencia, Spain **Journal of Chromatography** V1065 #2, 18 February 2005, Pages 321-325

**Abstract:** A non-destructive, fast and environmentally friendly procedure has been developed for cocaine determination in euro bank notes. Cocaine was extracted with 15 ml methanol by vortex agitation during 5 min. The extract was evaporated and reconstituted in 0.5 ml methanol. GC-MS-MS analysis was performed using as precursor ion  $m/z = 182.2$ , an excitation energy voltage of 1.60 eV, and the product ions  $m/z = 150.2$  and  $82.0$ . A limit of detection of 0.15 ng per note and a repeatability of 6%, established from the relative standard deviation, of a  $1 \text{ ng ml}^{-1}$  level, were achieved. Recoveries of  $101 \pm 2$  and  $98 \pm 3\%$  were obtained for samples spiked with 100 and 10  $\mu\text{g}$  respectively. Results show that all the euro bank notes measured (16 samples) were contaminated with cocaine in the range between 1.25 and 889  $\mu\text{g}$ . Two different contamination levels, high (150–889  $\mu\text{g}$ ) and low (1.25–77  $\mu\text{g}$ ), were found, which could be related to the direct or indirect contact with the drug. ☞

**Have you recently read or heard a paper that you feel would be of particular interest to SOFT members? Submit to Dr. Kippenberger at the e-address above or mail to him at 30325 Bridlegate Dr., Bulverde, TX 78163**

# NEW DRUGS

## Ropivacaine or Naropin®: Some Analytical Information

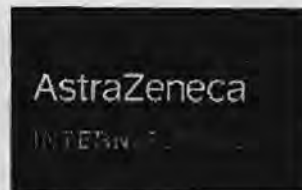


Dan Anderson & Michelle Sandberg Los Angeles County Dept. of Coroner, 1104 N. Mission Road, Los Angeles, CA 90033

Although this is not a new drug, our laboratory recently encountered a case where ropivacaine was detected in our basic drug screen. Apparently this is not prevalent in the post-mortem arena. *Naropin* (ropivacaine) is a local anesthetic that was introduced to the market in 1996 by AstraZeneca Pharmaceuticals.

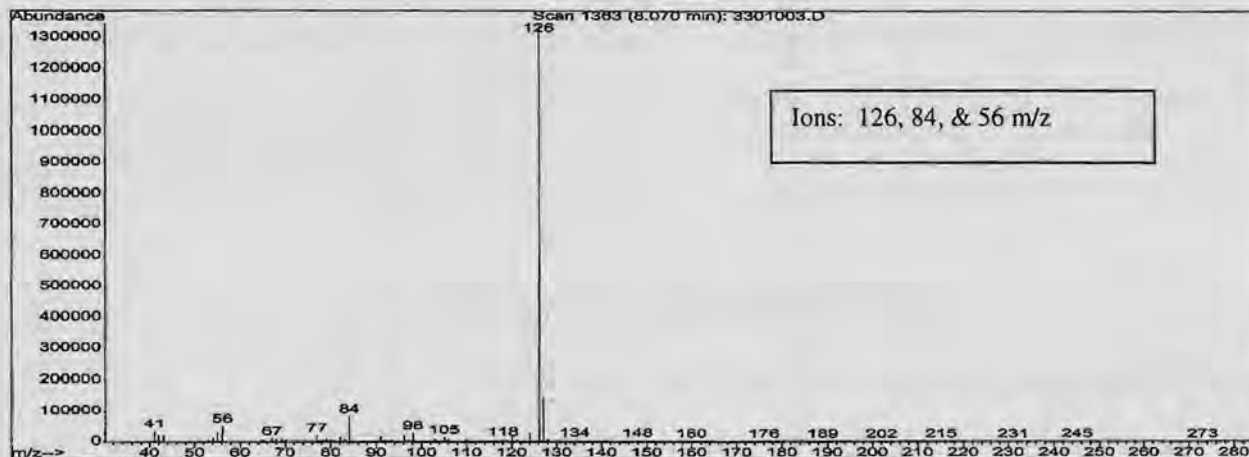
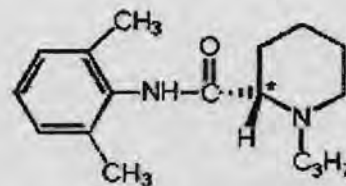
*Naropin* is an injectable drug used for various surgical procedures, labor/delivery, or as a post-surgery analgesic. Ropivacaine is the only long acting anesthetic that can be infused up to 72-hours for post-operative pain management. It is less cardiotoxic than other common anesthetics on the market, appears to have a faster return of motor functions, and the undesirable side effects are very limited. The product is available in 2, 5, 7.5 and 10mg/mL concentrations.

A stereoisomer of Mepivacaine, *Naropin* is the world's first enantiomerically pure local anesthetic (an S-form enantiomer).



### Chemical Properties

- S-(-)-1-propyl-2',6'-pipecoloxylidide hydrochloride monohydrate.
- $C_{17}H_{26}N_2O \cdot HCl \cdot H_2O$
- Molecular weight 274
- Formula weight 328
- pKa = 8.07 in 0.1 M KCl solution
- Ropivacaine HCl is a basic drug that can be extracted with an n-butylchloride liquid/liquid extraction and can be detected after an acid back extraction.
- Detection of Ropivacaine is possible on either a GC/NPD or GC/MS.



Mass Spectrum as per the American Academy of Forensic Sciences (AAFS) library

**Elution Order:** Dextromethorphan, Amitriptyline, **ROPIVACAINE**, Nortriptyline, Norchlorcyclizine

Also published in California Association of Toxicologists Proceedings

**MEETING REGISTRATIONS – ON THE WEBSITE** *No pre-registration accepted after October 7<sup>th</sup>*

**FOR MEETING REGISTRATION AND ALL OTHER MEETING INFORMATION, GO TO  
WWW.SOFT-TOX.ORG**



# CALL FOR CASE NOTES: **INHALANTS – Part 2**



Editorial Staff: Matthew Barnhill, Ph.D. [mbarnhilljr@worldnet.att.net](mailto:mbarnhilljr@worldnet.att.net)

## **A Case of driving under the influence of 1,1-difluoroethane**

*Dwight D. Flammia, Robert S. Steiner, and Julia M. Pearson, Division of Forensic Science, Richmond, VA*

A police officer responded to a school parking lot to check on the status of a male passed out in the driver's seat of a car. After being awakened by the officer, the subject indicated he was tired from traveling and had pulled over to rest. The officer suggested that the subject drive to the nearest rest stop to sleep. While following the subject to the rest stop, the officer observed the subject's vehicle pass a car on a double yellow line, drive in the middle of the road and make a u-turn. When the officer finally caught up with the subject's vehicle, it was stopped in the middle of an intersection. As the officer approached the subject for the second time, he noticed the subject's face was red, his eyes were watering and he continuously turned his head from side to side. Upon questioning, the subject then admitted to huffing a can of Endust Duster for Electronics, which was located in the front seat of the vehicle.

The driver was arrested, and a sample of his blood and the aerosol can were submitted for the analysis of volatiles. The headspace from a 2 mL aliquot of the driver's blood was compared to a sample from the aerosol can using an Agilent 6890/5973 GC/MS. One ml of headspace from both the blood and the aerosol can were injected into a 270° C split/splitless injection port operating at a 40:1 split ratio. The method utilized a 30 m x 0.25 mm x 250 µm, HP-5ms column. The GC oven temperature was ramped from 40° C to 100° C at 15° C/min, then ramped at 20° C/min to 200° C, and continued on to 270° C at 30° C/min. The MS was operated in scan mode. The compound, 1,1-difluoroethane, a constituent of Endust Duster for Electronics, was confirmed in the driver's blood and the aerosol can.

## **An Unusual Case of Driving under the Influence of Carburetor Cleaner**

*Julia M. Pearson and Robert S. Steiner, Virginia Division of Forensic Science, Richmond, VA*

A concerned citizen called police to report the unusual behavior of his neighbor who was repeatedly getting in and out of his truck and walking up and down his driveway while sniffing something out a bag. Police responded and observed the suspect sitting in his truck, which was stopped in the middle of the roadway. As the police approached the suspect, he drove away. Police pursued the vehicle as it swerved and weaved along the roadway. When the police finally got the suspect's vehicle to stop, they noticed a strong chemical smell emanating from the suspect and the vehicle. The suspect's speech was slurred and slow, and he admitted to sniffing carburetor cleaner. He performed poorly on several sobriety tests including finger dexterity and the 9-step walk and turn test.

The suspect's blood was collected in a gray top vacutainer and submitted to the laboratory five days after the incident. Fifty µL aliquots of the suspect's blood were initially analyzed for alcohol using a headspace GC/FID equipped with an Rtx BAC-2 column and a 50° C isothermal oven temperature. Two anomalous peaks were detected; one between isopropanol and acetone, and a second peak that eluted in the subsequent sample. By using standards and retention times, the first unknown peak was identified as methylene chloride. The second late eluting peak was identified as toluene with a slight modification of temperature program (oven held at 50° C for 3 minutes, then ramped 15° C/min to 200° C).

Confirmation was performed on 1 mL aliquots of suspect's blood by headspace mass spectral analysis on an Agilent 6890/5973 GC/MS. The method utilized a 30 m X 0.25 mm X 250 µm, HP-5ms column with a helium flow rate of 1.0 mL/min. The GC oven temperature was held at 40° C for two minutes then ramped at 15° C/min to 100° C, continuing on to 200° C at 20° C/min. The MS was scanned from 200 – 10 da at a rate of 3.8 scans/second with no solvent delay. Three milliliters of headspace were injected into a 270° C split/splitless injection port operating at a 40:1 split ratio. Two peaks in the blood headspace were confirmed as methylene chloride and toluene.

*(Case Notes continued next page . . . )*

**TREASURY NOTE:** The membership application fee for SOFT is now \$50. This includes membership dues for the year the application was received.

## A Case of Drug-facilitated Sexual Assault Leading to Death by Chloroform Poisoning

Yvan Gaillard, Laboratory of Analytical Toxicology, Quai Jean Jaurès, 07800 La Voulte sur Rhône, France (yvangailard@aol.com), Marie Françoise Masson-Seyer, Michel Giroud, Jean François Roussot and Jean Michel Prevosto

A 13-year-old girl was found dead in her bed at 17:00. At autopsy no signs of strangulation or suffocation, violence, including anal and vaginal (the hymen was intact), nor any visceral congestion that would have raised the suspicion of a toxic cause of death were noted. The characteristic odor of chloroform (or any other solvent) nor any corrosive effects on the tissues were noted. Blood, bile, urine and hair samples were taken to the laboratory within 24 hours and analyzed the same day. Vaginal swabs were analyzed for the presence of sperm.

At 19:45 the same evening, the corpse of a 36-year-old man who knew the victim was found. He had committed suicide after telling his brother he had "done something stupid". There was no evidence of chloroform at the scene. The man had a higher technical diploma in chemistry, specializing in toxicology. The man's body was kept in a cold room. Six days after death the man was autopsied, and samples taken to the laboratory within 24 hours and analyzed the same day. The fact that the girl had been raped was only established by the analysis of swabs and the DNA comparison between the rapist's blood and the girl's vaginal samples.

**Analytical Methods** Headspace analysis for volatiles was carried out using a Trace GC (Thermo Electron, Courtaboeuf, France) equipped with an HS2000 auto-injector and a DSQ MS. The analytical column was a Poraplot Q, 25 m in length, with an internal diameter of 0.25 mm (8 µm film thickness) from Chrompack (Les Ulis, France). Helium was used as carrier gas at a flow rate of 1 ml/min in constant flow mode (i.e. 135 KPa at 50°C). The temperatures were: interface 220°C and ion source 200°C. Pulsed injection with surge pressure (1 ml) was carried out at 200°C and 200 KPa for 1 min. The initial oven temperature was 50°C for 2 min and was increased to 230°C at 15°C/min and held for 6 min. The chromatographic run time was 20 min. Repetitive scans in positive mode were acquired from 29 to 300 a.m.u. at a rate of 300 a.m.u. per second from 4.5 to 20 min. Incubation for headspace injection was carried out at 90°C for 12 min while the syringe was heated to 100°C and the injection rate was 3 ml/min.

**Sample preparation** 1 ml of deionized water, 0.5 ml of 0.1% butanol in water (used as internal standard = IS) and 0.5 ml of blood or biological fluid were successively introduced into a 20 ml glass vial for HS.

For the viscera, a piece weighing approximately 1 g was introduced into the HS vial and weighed with a precision balance. After the introduction of 1 ml of deionized water and the internal standard, where the volume was adjusted according to the weight of the viscera, the tube was sealed and treated in an ultrasonic bath for 1 h. It was then placed in the autosampler and analyzed as a biological fluid sample.

### Analytical results

**The Victim:** The test for sperm in the vaginal swabs was positive. The DNA from the seminal fluid was later identified as that of the suspected rapist. A complete toxicological analysis was conducted which included immunoassay techniques, carbon monoxide and cyanide, as well as GC/MS, liquid chromatography-photodiode array detection (LC-PDA), headspace GC-MS (HS-GC-MS) and LC-MS-MS screenings. Analysis by HS-GC-MS revealed the presence of chloroform in concentrations listed in Table 1. All other tests were negative.

**The Suspected Rapist:** The same type of analysis was conducted on the various samples taken during the autopsy. Only chloroform was detected, but in much weaker concentrations than in the girl. The concentration levels according to tissue type are listed in Table 2.

### Discussion

The analytical profile for the rape victim fits the pattern for someone who died of a massive overdose of chloroform, which the coroner concluded was the direct cause of death. The concentrations measured in the girl were high compared with those in the scientific literature. It was not possible to verify the route of penetration (oral or pulmonary).

According to data in international scientific literature, a concentration level of around 0.30 mg/kg in the kidneys and lungs indicates contact with chloroform vapor a short time before death. This is consistent with the level of 0.25 mg/l measured in the blood and is compatible with the hypothesis that he inhaled a small amount of substance while overcoming his victim with chloroform. Analysis of his fatty tissue, however, showed a level of concentration 20 times higher than in other areas. This considerable difference cannot be explained simply by a single exposure 2 or 3 h before his death. In the course of the investigation, an opened 2.5 l bottle of chloroform was found at the company where the suspected rapist worked. Although the chloroform had not been used for several years, it would have been easily accessible to a man with the suspect's training and position in the company. No chloroform was found at his home.

The Centre de Pharmacovigilance (drugs monitoring center) in Lyon registered 20 cases of chemical submission in 2004. Of these 20 cases, four reported the use of ethanol alone, and two mentioned the use of a volatile substance (the present chloroform case and a robbery involving the forced inhalation of diesel oil to obtain the combination of a safe). It is important to note that these two cases were brought to the fore analytically by the same laboratory. It is thus extremely likely that cases of chemical submission using a volatile substance are underestimated in France, since few laboratories systematically use a sufficiently effective and sensitive HS-GC-MS technique.

(Tables on next page.)

## Concentrations of chloroform in mg/l

Table 1: In the Victim

Biological fluid	Peripheral blood	Bile	Urine
Concentration in mg/l	833.9	148.6	9.7

Table 2: In the Suspected Rapist

Biological tissues	Concentrations
Cardiac blood	0.25 mg/l
Urine	0.26 mg/l
Bile	0.38 mg/l
Gastric liquid	0.36 mg/l
Liver	0.06 mg/kg
Kidney	0.34 mg/kg
Lung	0.30 mg/kg
Subcutaneous fat	5.44 mg/kg
Intestinal fat	5.18 mg/kg

## A DUI Case Involving Multiple Volatiles

John Musselman, Anil Solanky, Phoenix Police Department Crime Lab, Phoenix, AZ, Terry Gallegos, Crime Lab Coordinator, Tucson Police Department Crime Lab Tucson, AZ.

An officer stopped a man after the suspect's truck hit a sign and street light in the median at about 22:02 h. The 48y/o male was unable to finish the walk and turn test, stating "I can't do it, I'm drunk," and he failed the one leg stand 3 times. Horizontal gaze nystagmus test was not performed. His admissions were to "1/2 gallon of vodka" taking Prozac and Antabuse and that he had been painting all day. The results of the scene Intoxilyzer 5000 test were 0.113AC (22:31) and 0.105AC (22:37) but there was "interferent detected, and subtracted" on the test. Blood was drawn, and the suspect was jailed.

The Tucson Police Department tested the blood for ethanol, and none was detected. The sample was forwarded to the Phoenix Police Department Crime Laboratory for testing. Blood alcohol/volatile testing was performed with a Perkin Elmer HSGC equipped with two columns, Restek BAC 1 and Restek BAC 2. Included in the mixed volatile quality control sample, which is run with every batch of blood alcohols, are the following; acetaldehyde, methanol, isopropyl alcohol, acetone, ethanol, methyl ethyl ketone, and toluene. These all have baseline resolution. The internal standard is n-propanol.

The suspect's sample when tested showed the presence of methanol, acetone, methyl ethyl ketone, toluene, and an unknown peak, which later turned out to be sec-butanol. No ethanol was detected in the sample. Since this individual was a painter, and his defense was going to be "occupational exposure", the concentrations were quantitated. Calibrators were gravimetrically prepared and serial dilutions at levels down to 10 mg/dl for alcohols, 5 mg/dl for ketones, and 1.0 mg/dl for toluene.

The following concentrations were reported:

Methanol	Acetone	sec-Butanol	Methyl Ethyl Ketone (MEK)	Toluene
22 mg/dl	7.6 mg/dl	6.6 mg/dl	16 mg/dl	2.0 mg/dl

The following drugs were also identified:

Nordiazepam	Oxazepam
170 ng/ml	11 ng/ml

Of interest are the concentrations reported by the Intoxilyzer 5000. Most likely the combination of methanol, 2-butanol, and toluene generated a result above the statutory limit. Fortunately, blood was drawn and analyzed by a more specific method (HSGC), which is rarely necessary. Most blood alcohol requests contain ethanol. Methanol and toluene have been detected in the few (3 or 4) cases of carburetor cleaner sniffers submitted within the past four years. Isopropyl alcohol cases are less than five. This is the first time sec-butanol and MEK have been encountered during the last four years. Approximately 1000 blood alcohol cases are analyzed per year in Phoenix.

The minimal lethal dose for methanol is approximately 40 mg/dl.<sup>1</sup> Environmental exposure to MEK were <1 mg/dl.<sup>1</sup> The volatile MEK metabolizes to 2-butanol.<sup>1</sup> Toluene levels in DUI range from 0.03-3.0 mg/dl.<sup>1</sup> The individual clearly had concentrations exceeding occupational exposure and was most likely drinking some type of paint thinner.

### REFERENCES:

1. R.C. Baselt, Ph.D. **Disposition of Toxic Drugs and Chemicals in Man**, Seventh Edition, 1120-1122, 689, 726. 2000.

(Case Notes continued next page . . .)

### SUBMIT A PAPER FOR THE SOFT MEETING?

Notification of Acceptance for Presentation: AUGUST 31  
Go to [www.SOFT-TOX.org](http://www.SOFT-TOX.org) for details and meeting updates

# The Effect of the Duration of Exposure on the Distribution of 1,1-difluoroethane

Joseph Avella, M.S., FTS-ABFT and Michael Lehrer, Ph.D., Department of Forensic Toxicology, Division of Medical-Legal and Forensic Investigations, Suffolk County, NY. (joseph.avella@suffolkcountyny.gov)

**Case 1:** A 20-year-old man was found dead in the basement of his home. Next to the body were one empty and one full canister of "CRC Duster" (CRC Industries, Warminster, PA), a dust remover that contains 1,1-difluoroethane (DFE). The canisters had been purchased earlier in the day. At autopsy it was found that the decedent's heart weighed 525 g with a 2.5 cm thick hypertrophic left ventricular wall. Subsequent histological findings were consistent with hypertrophic cardiomyopathy. A comprehensive toxicologic analysis revealed only the presence of DFE in the concentrations noted below.

**Case 2:** A 42-year-old man was found dead in his car in the parking lot of a grocery store. Inside the vehicle were approximately 40 canisters of "CRC Duster". The body was cool to the touch and had livor mortis appropriate for position. Four days prior to the discovery of his body, his wife had taken him to the parking lot of a home center store to pick up his car. The decedent's car was left at that location because he had been found unconscious by police who suspected that he had been "huffing". The decedent had a history of hypertension, obesity, bipolar disorder and ethanol abuse. Autopsy revealed arteriosclerotic coronary heart disease that included fibrosis and an acute infarction in the left ventricle. Toxicologic analysis detected DFE in the concentrations noted below.

## Case 1. Quantitation of 1,1-difluoroethane (1)

Tissue	Concentration
Femoral Blood*	83.5 mg/L
Pulmonary Blood*	141.1 mg/L
Aortic Blood*	122.7 mg/L
Liver	92.7 mg/kg
Kidney	24.3 mg/kg
Lung	91.1 mg/kg
Muscle	80.5 mg/kg
Adipose	29.8 mg/kg
Brain	43.8 mg/kg

## Case 2. Quantitation of 1,1-difluoroethane (2)

Tissue	Concentration
Femoral Blood	136.3 mg/L
Brain	117.5 mg/kg
Liver	87.6 mg/kg
Lung	60.3 mg/kg
Adipose	235.7 mg/kg
Vitreous*	25.1 mg/L

\*Samples not sealed in headspace vials at autopsy

Halogenated hydrocarbons such as DFE are reported to induce fatal cardiac arrhythmias due to sensitization of cardiac tissue to endogenous catecholamines (3). Based upon the post mortem examination and toxicological findings, the cause of death in both of these cases was determined to be fatal cardiac arrhythmia due to intoxication with 1,1-difluoroethane. Similarly, in each case the underlying heart disease was listed as contributory, and the manner of death was determined to be accidental. These cases allow for a comparison of the distribution of DFE after two apparently significantly different durations and amounts of exposure. The most significant difference observed is the nearly 10-fold increase in the concentration of DFE in adipose after a minimum subacute exposure versus that seen in an apparent acute intoxication. Highly volatile compounds present unique challenges with respect to collection and storage of samples (4). The analysis of DFE and similar compounds in adipose tissue may prove to be useful in situations where collection and storage of specimens were suboptimal and may help to answer questions related to the duration of exposure.

## References

1. Xiong Z, Avella J, Wetli CV. Sudden death caused by 1,1, difluoroethane inhalation. *J For Sci* 2004 May; 49(3):627-629.
2. Avella, J. M.S., FTS-ABFT, Wilson, J.C, M.D., Lehrer, M. Ph.D. Fatal Cardiac Arrhythmia After Repeated Exposure to 1,1-difluoroethane (DFE). Accepted: *American Journal of Forensic Medicine & Pathology*, May 2005.
3. Shepherd RT. Mechanism of sudden death associated with volatile substance abuse. *Hum Toxicol* 1989; 8(4):287-297.
4. Avella J, Lehrer M. Fatality due to methyl acetylene-propadiene inhalation. *J Forensic Sci* 2004; 49(6):1361-1364. ☞

## Case Note Comments – Patricia Mohn-Monforte, ToxTalk Publisher

**ToxTalk's** interest in inhalants was inspired by an e-mail from the National Inhalant Prevention Coalition. The NIPC grew from a Texas program to a national non-profit corporation. Their website (www.inhalants.org) provides links to numerous sites relative to inhalant practices, data, news releases, government projects, etc., as well as their document, "Guideline for Medical Examiners, Pathologists and Coroners for Determining Inhalant Deaths."

The use of inhalants is gaining recognition as a serious health threat, particularly among teens and younger children. A recent episode of the "Today" show featured a father whose child died from "dusting" – inhaling PC cleaning aerosols. A manufactures are adding a bitter-tasting substance to aerosols, and some stores are removing them from accessible shelves.

This section concludes our series on inhalants. Thanks to those who participated. A few case notes involving other substances are "on deck" for the next issue. Please consider submitting a case note to Dr. Barnhill – it's not necessary to wait for the deadline! ☞



# SOFT-TIAFT 2004 Proceedings Available

Submitted by Vina Spiehler, Ph.D., DABFT, Proceedings Editor

CD-ROM containing the Proceedings of the 2004 SOFT-TIAFT-FBI Joint meeting in Washington DC, was mailed today to all registrants of the 2004 meeting. The SOFT-TIAFT 2004 Proceedings contains 28 papers, a Table of Contents and an author index in Acrobat pdf files. The CD-ROM is searchable by author, key word or title word. If you do not receive your copy by mail or if you did not attend the meeting in Washington, DC, and would like to purchase a copy of the CD-ROM, please contact me at spiehleraa@aol.com. I look forward to seeing you all at TIAFT in Seoul, Korea in August.

## SOFT-TIAFT 2004 Proceedings Table of Contents

STP01 Thomas Nadulski, Fritz Pragst, Andreas Michael Stadelmann, Patrik Roser, Tom Scheffer, Martin Schnelle, and Eva-Maria Fronk. *Prospective study about the effect of cannabidiol (CBD) on the pharmacokinetics of D9-tetrahydrocannabinol (THC) after oral application of 210 mg THC and 5.4 mg CBD in cannabis extract.*

STP02 A.H. Battah and K.A. Hadidi. *Stability of sulfonylureas in stored postmortem blood specimens and water standard solutions.*

STP03 Ilkka Ojanperä, Suvi Laks, Anna Pelander and Erkki Vuori. *Forensic drug analysis without primary reference standards.*

STP04 J. Beyer, A. Bierl, F.T. Peters and H. Maurer. *Simultaneous detection of opiate analgesics and diuretics in human urine using GC-MS after enzymatic cleavage of conjugates and extractive methylation.*

STP05 R. P. Proença, H. Teixeira, F. Castanheira, P. V. Monsanto, J. Pinheiro, Sónia Santos, Estela P. Marques, Duarte Nuno Vieira. *Imidacloprid forensic intoxication cases.*

STP06 V. Petrova, D. Petir and M. Balvin. *Survey of abused drugs in period 1986-2003 in West Bohemia (Middle Europe).*

STP07 Marie Staková, Petr Kurka, Igor Dvořák. *New generations of antidepressants in fatal intoxications.*

STP08 L.A. Ferrari and L. Giannuzzi. *Correlation between metabolic acidosis and clinical parameters in Diethyleneglycol (DEG) poisoning victims.*

STP09 H. Teixeira, P. Proença, A. Castanheira, M. Lopez-Rivadulla, F. Corte-Real, E. Pinho Marques, S. Nuno Viera. *Determination of  $\Delta$ -9 tetrahydrocannabinol (THC) in oral fluid using solid phase extraction and high-performance liquid chromatography and electrospray ionization mass spectrometry.*

STP10 Joe Clarke, Lolita Tsanaclis and John Wicks. *Drug detection on oral fluid: Identification of poly drug use by EIA and GC/MS.*

STP11 Nikolaos Raikos, Ifigeneia Grigoratou, Georgios Theodoridis, Heleni Tsoukali, Dimitrios Psaroulis. *Solid phase microextraction gas chromatographic analysis of organophosphorus pesticides in biological samples.*

STP12 John Wicks, John Sullivan and Lolita Tsanaclis. *Drug detection in hair: Results from a large population sample.*

STP13 Hans H. Maurer, Oliver Tenberken, Carsten Kratzsch, Armin A. Weber and Frank T. Peters. *Screening for, library-assisted identification and fully validated quantitation of twenty-two beta-blockers in blood plasma by liquid chromatography-mass spectrometry with atmospheric chemical ionization.*

STP14 Frank T. Peters, Julia Jung, Thomas Kraemer and Hans H. Maurer. *Fast, simple and validated gas chromatographic-mass spectrometric assay for quantification of drugs relevant to diagnosis of brain death in human blood plasma samples.*

STP15 Donna Honey, Curtis Caylor, Ruth Luthi, and Sarah Kerrigan. *Interpretation of postmortem alcohol concentrations: A case study report.*

STP16 Liliane Martins, Michel Yegles, Heesun Chung, Robert Wennig. *Quantification of amphetamine and methamphetamine enantiomers in hair specimens by GC-MS/NCI.*

STP17 Michael Scott-Ham and Fiona C. Burton. *Toxicological findings in cases of alleged Drug Facilitated Sexual Assault in the United Kingdom.*

STP18 K. Wiese Simonsen, N. Christiansen and I. Breum Müller. *Screening for cannabinoids, benzoyl-ecgonine and opiates in whole blood and urine using Emit II Plus Immunoassay and Konelab 30.*

STP19 A. Steentoft, K. Wiese Simonsen, D. Helt Christensen and G. Taarnberg. *Quantitative determination of diazepam and nordiazepam in whole blood by LC-MS/MS.*

STP20 Yoshio Tsujino, Yoko Hieda, Haruo Takeshita, Eishin Morita. *Rapid determination of causative agent using detached roof of bulla in chemical burns or dermal exposure.*

STP21 T. Stimpfl. *Optimizing an automated solid-phase extraction procedure for postmortem tissue samples.*

STP22 V. Vorisek, J. Cizek, V. Palicka. *The voluntary detoxification programme – A survey of the efficiency.*

STP23 Lucas W. Zarwell, M.S.; Sarah M. Colvin, M.D.; and Fiona J. Couper, Ph.D. *A combined drug intoxication involving Metaxalone (Skelaxin®).*

STP24 S. A. Akgür, P. Öztürk, R. Keskin, S. Cengiz, A. Yemiscigil. *Human performance forensic toxicology in Turkey.*

STP25 Werner Bernhard, Beat Aebi, Priska Regenscheit, Franziska Luginbühl. *Cannabis production and sales in Switzerland: Results of forensic analyses.*

STP26 Maria Kala, Piotr Adamowicz, Ewa Chudzikiewicz, Wojciech Lechowicz, Ewa Pufal, Wojciech Piekoszewski, Karol Sliwka. *Correlation of saliva and blood estazolam concentrations with balance changes in subjects after administration of the drug and/or alcohol.*

STP 27 I.J. Bosman, M. Verschraagen, K.J. Lusthof. *Postmortem cases related to cocaine in the Netherlands.*

STP28 Yoko Hieda, Yuying Xue, Koji Takayama, Junko Fujihara, Haruo Takeshita, Yoshio Tsujino. *Comparative study on toxic manifestations induced by ingestion or injection of commonly used disinfectants and surfactants. †*

**HAVE YOU RESERVED YOUR ROOM AT THE RENAISSANCE NASHVILLE HOTEL?**



# DRUGS IN THE NEWS

*ToxTalk editorial staff: Andrew P. Mason, Ph.D., DABFT, DABCC-T*

*Send your media items of interest to Dr. Mason at [forn6tox@aol.com](mailto:forn6tox@aol.com)  
or mail to Dr. Mason, Toxicologics, P.O. Box 1614, Boone, NC 28607*



**Meth War Continues.** *Submitted by Andrew P. Mason, Ph.D., Toxicologics, Ltd., Boone, NC. [forn6tox@aol.com](mailto:forn6tox@aol.com)*

Numerous articles have been published recently in the popular press that discuss the continuing severe effects that clandestine methamphetamine synthesis and use have on users and on our society at large. A survey of 500 Sheriff's Departments in 45 states revealed that meth abuse is regarded as the most important drug problem affecting local law enforcement agencies. More than half the Sheriffs interviewed stated that meth was the most serious problem facing their departments ("Sheriffs Say Meth is Top US Problem," **AOL News**, 05/05/05, (AP) Ryan Lentz). Meth use is tied to increases in robberies, burglaries, domestic violence, assaults, identity theft, environmental crimes, counterfeiting, and child abuse and neglect ("Meth's Rising US Impact," *Christian Science Monitor*, July 15, 2005). Meth abuse impacts the workplace as well. Companies are concerned about lost productivity, increased benefits costs and the threat of on-the job violence. Positive methamphetamine drug tests rose 6% in 2004 (Quest Diagnostics) based on over 6 million workplace drug tests, after increasing 44% in 2003 ("Meth Abuse At Work Continues To Grow," *AOL Business News*, 07/15/05, **USA Today**, Stephanie Armour). In a particularly disturbing article ("A Drug Scourge Creates Its Own Form of Orphan," **NY Times**, 07/11/05), large increases were reported in the numbers of abused and neglected children placed in foster care after they were removed from the custody of parents who were using or making methamphetamine. This was reported to be occurring in jurisdictions nationwide. Oklahoma reported a 16% increase in such children last year. Kentucky reported a 12% increase. Tennessee reported that 400 children were removed from homes because of methamphetamine concerns in 2003, but 700 were removed in 2004, a 75% increase. Fifty-four per cent of the counties in North Dakota reported increased numbers of child removals because of meth-related issues. Finally, US Senators Diane Feinstein (D) of California and Jim Talent (R) of Missouri have introduced legislation in the US Senate that would place federal restrictions on the sale of pseudoephedrine. Sales would be allowed only from behind pharmacy counters, and customers would be required to provide photo ID's and sign a log. Computer tracking would prevent customers from exceeding a purchasing limit of 7.5 g, about 250 30-mg tablets, in a 30-day period. The bill also provides funding to study means of treatment for meth abusers. It was passed out of the Senate Judiciary Committee on 7/28/05. A similar bill has been introduced in the US House of Representatives. Sponsors hope to get the bill passed by the full Senate in September. (Various sources).

**New Testing Technologies Investigated.** *Submitted by Troy Merrick, Chemist, Cuyahoga County Coroner's Office, Cleveland, OH. [Uab98dc96@yahoo.com](mailto:Uab98dc96@yahoo.com)*

AAP 06/20/05. New Zealand scientists reported the application of bacterial biosensors in the detection of pesticides and inorganic poisons (cyanide, arsenic, mercury) in urine specimens. The tests were developed by Jacqui Horswell and Natalie Renshaw of the Environmental Science and Research toxicology laboratory in Porirua, NZ, in association with scientists at Aberdeen University in the UK. In this rapid and inexpensive screening test, the bacteria glow in the absence of the poison but become dimmer if the analyte is present. Biosensors are commonly employed in medicine and in soil and food quality testing, but this is apparently the first application in forensic toxicology investigations. The test apparently "won plaudits" from the US-FBI. (*Anyone have more information? AM*). Source: <http://news.ninemsn.com.au/article.aspx?id=53209>

Greensboro, NC, 06/17/05. Law enforcement personnel are evaluating a device that apparently uses a computerised examination of specimen fluorescence to identify controlled substances. The manufacturer of the device, Nartest Technologies (Morrisville, NC), alleges that "they have confirmed the instrument's reliability and (that) those results will be the subject of peer review analysis by scientists and a federal agency, which (they) declined to name." The manufacturer alleges that the instrument can identify heroin, cocaine, and marijuana, and that a test for methamphetamine is under development. The instrument's proposed use as a rapid test could be used to provide evidence for court without reliance on traditional laboratory evaluation at the State's SBI crime laboratory. Personnel from the Greensboro/High Point (NC) metro forensics team are conducting the field evaluation. Questions remain regarding the admissibility of data and results obtained by the instrument. Source: [http://www.news-record.com/news/local/gso/lab\\_061705.htm](http://www.news-record.com/news/local/gso/lab_061705.htm)

**Universal BAC Limit for DWI in the U.S.** *Submitted by Andrew P. Mason, Ph.D., Toxicologics, Ltd., Boone, NC. [forn6tox@aol.com](mailto:forn6tox@aol.com)*

On 08/01/05, Minnesota became the last state in the U.S. to lower its per se BAC limit for DWI to 0.08 %w/v. Minnesota's action now makes the 0.08 %w/v BAC limit a national standard in the U.S.

*(Drugs in the News continued ...)*

**Cannabis-Based Painkiller Now Sold in Canada.** Submitted by Douglas E. Rhode, MS, Lake Co. Crime Laboratory, Pikeville, OH. [drhode@lakecountyohio.org](mailto:drhode@lakecountyohio.org)

Toronto, Ontario, (AP), 06/21/05. Sativex® is a cannabis-based sublingual or buccal (oromucosal) spray developed for relief of chronic neuropathic pain from multiple sclerosis. It is now available by prescription in Canada. (See the prior articles on Sativex® in this column in **ToxTalk**, Vol. 28, No. 2, June, 2004, and Vol. 28, No. 3, Sept. 2004). Bayer Healthcare will market the drug in Canada for GW Pharmaceuticals (UK), the drug's manufacturer. The drug is touted as a safe and effective alternative to smoked marijuana that provides a rapid onset of analgesia with low or mild psychomimetic effects. It won't be cheap! A vial of Sativex will cost \$124.95 in Canada, enough for 51 sprays, which should be a 10-day supply for the average user. This would correspond to a \$375 monthly cost for the drug. There is a concern that this preparation will begin to appear in solid dose laboratories along the US-Canada Border. A quick "medline" search on Sativex produced a list containing a total of 5 references. None of the abstracts for these references indicate if information is available regarding what concentrations of THC, CBD, or their metabolites one should find in blood, urine, hair, oral fluid, etc., after either single or chronic use. Source: Koch W, **USA Today**, June 24, 2005, <http://aolsvc.news.com/news/article.adp?id=20050624071809990018>

**Palladone (Hydromorphone HCl Extended Release) Capsules Marketing and Sales Suspended.** Submitted by Demi Jones Garvin, Pharm D., Richland Co. Sheriff's Department, Columbia, SC. [dgarvin@rcsd.net](mailto:dgarvin@rcsd.net)

July 13, 2005. The US Food and Drug administration (FDA) has issued both a Public Health Advisory and an FDA Alert for healthcare professionals regarding a dangerous and possibly fatal interaction between Palladone and alcohol when they are consumed together. Palladone (CII) capsules contain individual controlled-release pellets containing hydromorphone HCl. Consumption of alcohol apparently alters the properties of the controlled-release mechanism, resulting in rapid release and absorption of hydromorphone, and produces dangerously elevated peak plasma concentrations of hydromorphone. This phenomenon has been referred to as "dose-dumping," the rapid release of the active ingredient from an extended release product.

Palladone (Purdue Pharma L.P.) was approved (09/24/04) and marketed (01/2005) for the "management of persistent moderate to severe pain in patients who required continuous around-the-clock analgesia with a potent opioid for an extended time period (weeks to months or longer)." It was recommended for "patients who are already receiving opiate therapy, who have demonstrated opioid tolerance, and who require a minimum total daily dose of opioid medication equivalent to 12 mg of hydromorphone" (Purdue-Pharma L.P.). It offered convenient once-daily (q 24 h) dosing at 12, 16, 24, and 32 mg strengths.

The details of the study that revealed this interaction are interesting. An open-label, four-arm, crossover design pharmacokinetic study was completed using 24 healthy subjects tested under fasted conditions and 24 healthy subjects tested under fed conditions. Subjects received 12 mg Palladone capsules with one of the following; 240 mL of 40 %v/v ethanol (*wonder what their BAC's were! AM*), 240 mL of 20 %v/v ethanol, 240 mL of 4 %v/v ethanol, or 240 mL of water. The subjects were pre-treated with naltrexone to block opiate agonist effects (*a good thing! AM*). At the highest alcohol dose, subjects (fasted) achieved average hydromorphone serum concentrations 6 times greater than with water, (range of 1 to 16 times). At 4% ethanol, peak concentrations (fasted) were up to 2-times greater than after the water control. Fasted state increases were greater than fed state increases. In the fed state, the mean peak concentration increase (40% ethanol) was 3.5 times, with a maximum of 6 times.

Based on this data, the FDA concluded that at present the overall risk versus benefit profile of Palladone is unfavourable, due to this potentially fatal interaction with alcohol. However, to date (07/13/05), the FDA is not aware of any patients who have experienced life-threatening effects from drinking alcohol while taking Palladone. Purdue Pharma L.P. agreed to the voluntary and immediate suspension of marketing and sales of Palladone and has implemented a plan to reformulate the product to reduce the probability of adverse interactions with alcohol. Sources:

FDA News, 07/13/05: <http://www.fda.gov/bbs/topics/NEWS/2005/NEW01205.html>

FDA Alert for Healthcare Professionals: <http://www.fda.gov/cder/drug/InfoSheets/HCP/hydromorphoneHCP.pdf>

FDA Public Health Advisory: <http://www.fda.gov/cder/drug/advisory/palladone.htm>

Purdue Pharma L.P. Statement: <http://www.purduepharma.com/pressroom/news/20050713-01.pdf>

**Supreme Court Rules That Federal Marijuana Laws Trump States' Laws.** Submitted by Andrew P. Mason, Ph.D., *ToxicoLogics, Ltd., Boone, NC.* [forntox@aol.com](mailto:forntox@aol.com)

Washington, DC, (AP) 06/07/05. The Supreme Court ruled that individuals who use marijuana in compliance with states' "medical marijuana" laws may still be subject to federal prosecution, as the federal laws override the laws of the 10 states (Alaska, California, Colorado, Hawaii, Maine, Montana, Nevada, Oregon, Vermont, and Washington State) where medical use is allowed. The 6-3 decision arose out of a case that began after DEA agents and Sheriff's Deputies raided a garden near Oroville, CA. The gardener, a woman with degenerative spine disease, was growing six marijuana plants for personal use. While the ruling means that federal authorities may arrest users who are ill and persons who grow marijuana for their use, little change is expected as a result of the decision. A DEA spokesperson said: "We have never targeted the sick and the dying, but rather criminals engaged in drug trafficking. Historically, federal prosecution has been directed at those who traffic in or manufacture large amounts, typically ~ 100 lb, or more. "Growers and users of large amounts or users who are particularly outspoken in their advocacy may be subject to increased scrutiny." Source: <http://aolsvc.news.com/news/article.adp?id=200507035109990008>. ☺

# ELMER GORDON OPEN FORUM

## AN OPPORTUNITY FOR INFORMAL DIALOGUE

Congratulations to **Nick Hodnett** on his recent retirement from Westchester County.

Our best wishes to **Vina Spiehler** and her husband. Ernie is coping as well as can be expected with Lou Gehrig's disease (ALS). Vina thanks everyone for their prayers and support.

The **Society of Toxicologic Pathology (STP)** invites interested SOFT members to participate in the STP Forum, a communication tool for discussion of issues in toxicology/pathology and other scientifically-related fields. You do not need to be an STP member to access, and no ads are posted. Go to [www.toxpath.org/membersonly/forum/toast.asp](http://www.toxpath.org/membersonly/forum/toast.asp) ☺

**HAVE YOU SIGNED UP FOR THE "FUN RUN" YET?**  
A REGISTRATION FORM IS INSERTED WITH THIS ISSUE OF *ToxTalk*.  
TIMELY REGISTRATION = A T-SHIRT WILL BE WAITING FOR YOU!

**CAREER OPPORTUNITIES:** Go to [www.soft-tox.org](http://www.soft-tox.org)

## PROFESSIONAL CALENDAR

### PREPARATIONS FOR FUTURE SOFT MEETINGS UNDERWAY

#### 2006:

Tuesday, October 3 through Saturday, October 7, 2006  
(Delayed one day due to Yom Kippur on Monday)  
Hilton Austin, 500 East 4th Street, Austin, TX  
512-482-8000  
Host: Rod McCutcheon, Chief Toxicologist, Bexar County  
Office of the Medical Examiner, San Antonio, TX  
210-335-4040 [rmccutcheon@co.bexar.tx.us](mailto:rmccutcheon@co.bexar.tx.us)

#### 2007:

October 14-19, 2007  
Research Triangle Park, North Carolina  
Co-hosts: Jeri Roper-Miller and  
Ruth Winecker

#### 2008:

Phoenix, AZ – Vickie Watts

#### 2009:

Oklahoma City, OK – Phil Kemp

**August 21-26:** 17<sup>th</sup> Meeting of the **INTERNATIONAL ASSOCIATION OF FORENSIC SCIENCES**, Hong Kong, China. For further inquiries, please contact Conference Secretariat by email: [info@iafs2005.com](mailto:info@iafs2005.com) or go to [www.iafs2005.com](http://www.iafs2005.com)

**August 26-27: CALIFORNIA ASSOCIATION OF TOXICOLOGISTS:** Monte Carlo Resort and Casino, Las Vegas, NV. "Alternate Matrix Testing" and other topics. <http://www.cal-tox.org>

**Nov. 3-5: SOUTHWESTERN ASSOCIATION OF TOXICOLOGISTS (SAT).** Hotel Valencia on the Riverwalk in San Antonio, TX; Spring 2006 – Houston, TX; Fall 2006 Austin, TX (with SOFT) [www.sat-tox.org](http://www.sat-tox.org)

**Oct 17-21: SOUTHWESTERN ASSOCIATION OF FORENSIC SCIENTISTS (SWAFS),** Wichita, KS. [swafs2005@swafs.us](mailto:swafs2005@swafs.us)

**Dec. 4-9: Borkenstein Course on Alcohol and Highway Safety: Testing, Research and Litigation.** Contact [dilindsay@indiana.edu](mailto:dilindsay@indiana.edu) or [www.indiana.edu/~lawactn](http://www.indiana.edu/~lawactn)

**May 21-26, 2006 Borkenstein Course on Alcohol and Highway Safety: Testing, Research and Litigation.** Contact [dilindsay@indiana.edu](mailto:dilindsay@indiana.edu) or [www.indiana.edu/~lawactn](http://www.indiana.edu/~lawactn)

**April 2006: Borkenstein Course** (see above) and **"The Effects of Drugs on Human Performance and Behavior."** Contact [dilindsay@indiana.edu](mailto:dilindsay@indiana.edu) or [www.indiana.edu/~lawactn](http://www.indiana.edu/~lawactn)

8-09-05 pat