

TOXICOLOGY

Wednesday

Poster Session

7:30 PM – 9:00 PM	L1	WITHDRAWN
7:30 PM – 9:00 PM	L2	The Quantitation of Five Benzodiazepines and Zolpidem in Whole Blood Using Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) <i>Ivana Antunovic, MSc*; Sandra Mudrić, MSc; Tomislav Houra, MSc; Elizabeta Stojaković, MSc; Maja Jelena Čop, PhD</i>
7:30 PM – 9:00 PM	L3	The Quantitation of Fentanyl, P-Fluorofentanyl, and Xylazine in Postmortem Blood by Using Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) <i>Michael Truver, PhD*; Sara Brogan, BS; Amy Kinsey, MS; Jennifer Hoyer, MS; Chris Chronister, PhD; Bruce Goldberger, PhD</i>
7:30 PM – 9:00 PM	L4	A New Approach for Identifying the Postmortem Formation of Ethanol: The Development and Validation of a Salt-Assisted Headspace/Gas Chromatograph/Flame Ionization Detector (HS/GC/FID) Method for the Determination of Ethanol in Vitreous Humor <i>Giacomo Musile, PhD*; Nicola Pigaiani, MD; Emma Pasetto, BSc; Marco Ballotari, MSc; Federica Bortolotti, PhD; Franco Tagliaro, MD</i>
7:30 PM – 9:00 PM	L5	The Differentiation of Structurally Similar Fentanyl Analogs With Theoretical and Experimental Analysis by Surface-Enhanced Raman Spectroscopy (SERS) <i>Sevde Dogruer Erkok, PhDc*; Emily Hernandez, BS*; Bruce McCord, PhD</i>
7:30 PM – 9:00 PM	L6	The Simultaneous Determination of 24 Designer Benzodiazepines in Hair Using Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) <i>Jongsook Rhee, PhD*; Byungsook Cho, MS; Hyewon Baik, MS; Yujin Park, PhD; Ilchung Shin, PhD; Jihyun Kim, PhD; Sanggil Choe, PhD; Suncheun Kim, PhD; Eunmi Kim, PhD</i>
7:30 PM – 9:00 PM	L7	Evaluating Cannabinoid Stability in Different Conditions and Validating THC-O and THC-P for Oral Fluid Analysis <i>Cody Passeur, MSFS*; Curt Harper, PhD; Elizabeth Gardner, BS, PhD</i>
7:30 PM – 9:00 PM	L8	Substance-Related Pediatric Deaths Examined at the West Tennessee Regional Forensic Center: An Analysis of the Past 16 Years <i>Ibrahim Ortanca, MD*; Danielle Harrell, DO</i>
7:30 PM – 9:00 PM	L9	Is a Subdural a Time Capsule? <i>Brianna Smyth, BS*; Dina Swanson, MS; Julia Pearson, PhD</i>
7:30 PM – 9:00 PM	L10	The Detection of Ethanol Consumption Markers and Drugs in Urine Samples From Inmates of Two German Prisons <i>Vanessa Thoma, MD*; Anette Franz, MD; Laura Huppertz, BS; Volker Auwärter, MD; Annette Thierauf-Emberger, MD</i>
7:30 PM – 9:00 PM	L11	Quantitative and Qualitative Analysis of Fentanyl and Its Analogs in Urine Using Disposable Pipette Extraction <i>Dominic Minasi-Tapia, MS*; Ihouma Igwilo, MBBS, MSFS; G. Brent Dawson, PhD; Tara Arends, MS; Michael Baldwin, BA</i>

TOXICOLOGY

7:30 PM – 9:00 PM	L12	Machine Learning Approaches to Make Data Driven Decisions in Forensic Science Application by Using Fourier Transform Infrared (FTIR) Spectroscopy <i>Bilkis Mitu, PhD*</i> ; <i>Lenka Halamkova, PhD</i>
7:30 PM – 9:00 PM	L13	The Analysis of Depressants and Psychedelic Drugs From Vitreous Humor Using Liquid-Liquid Extraction (LLE) and High-Performance Thin-Layer Chromatography (HTPLC) Plates <i>Neha Afaria, PhD*</i> ; <i>Ashok Kumar Jaiswal, PhD</i>
7:30 PM – 9:00 PM	L14	Comparing the Performance of Liquid Chromatography/Triple Quadrupole/Mass Spectrometry (LC/QqQ/MS) vs. Liquid Chromatography/Quadrupole Time-Of-Flight/Mass Spectrometry (LC/QTOF/MS) for Targeted Analysis of NPS With a Test Mixture of 40 New Psychoactive <i>Rebecca Smith, MS*</i> ; <i>Anthony DeCaprio, PhD</i> ; <i>Anamary Tarifa, PhD</i>
7:30 PM – 9:00 PM	L15	Evaluating Cannabidiol (CBD) for Potential Interference in Six Commercial Homogeneous Cannabinoid Urine Screening Kits <i>Ashley Pokhai, BA*</i> ; <i>Justin Poklis, BS</i> ; <i>Grace Williams, PhD</i> ; <i>Carl Wolf, PhD, MS</i>
7:30 PM – 9:00 PM	L16	The Revival of Opioids Among Young People: An Overview on Toxicological, Epidemiological, and Social Aspects <i>Simona Nicoli, MD</i> ; <i>Cristina Caterino, MD</i> ; <i>Marcello Benevento, MD</i> ; <i>Giampiero Bottari, MD</i> ; <i>Francesco Clemente, MD</i> ; <i>Francesco Carravetta, MD</i> ; <i>Biagio Solarino, PhD*</i>
7:30 PM – 9:00 PM	L17	A Combined Death by Food Aspiration and Acute Citalopram Intoxication <i>Pietro Zuccarello, PhD*</i> ; <i>Giulia Carnazza, Msc</i> ; <i>Francesco Sessa, MS, PhD</i> ; <i>Monica Salerno, MD, PhD</i> ; <i>Cristoforo Pomara, MD</i> ; <i>Nunziata Barbera, MD</i>
7:30 PM – 9:00 PM	L18	Donepezil Concentrations in Postmortem Toxicology <i>Jolene Bierly, MSFS*</i>
7:30 PM – 9:00 PM	L19	The Development of an Extraction Method for the Analysis of Synthetic Opioids in Bone Samples Using the Bead Ruptor <i>Kala Babb, BS*</i> ; <i>David Cohen, MD</i> ; <i>Justin Poklis, BS</i> ; <i>Emanuele Alves, PhD</i>
7:30 PM – 9:00 PM	L20	The Chemical Characterization of Cannabidiol-Based Products Using Attenuated Total Reflectance/Fourier Transform Infrared (ATR/FTIR), Gas Chromatography/Mass Spectrometry (GC/MS) and Gas Chromatography/Tandem Mass Spectrometry (GC/MS/MS) <i>Eduardo De Campos, PhD</i> ; <i>Dehlia Lang*</i>
7:30 PM – 9:00 PM	L21	WITHDRAWN
7:30 PM – 9:00 PM	L22	Color Me Stable: Choosing an Adequate Blood Collection Tube for Venous Blood Toxicological Analyses <i>Gabrielle Daigneault</i> ; <i>Anabelle Carbonneau, BSc</i> ; <i>Elizabeth Charron, BSc</i> ; <i>Genevieve Dube, BSc</i> ; <i>Stephanie Savard</i> ; <i>Brigitte Desharnais, PhD</i> ; <i>Edith Viel, BSc</i> ; <i>Alexandra Doyon, MSc*</i> ; <i>Souryvanh Nirasay, PhD</i> ; <i>Pascal Mireault, MSc</i>
7:30 PM – 9:00 PM	L23	Solid Phase Extraction of Novel Synthetic 2-Benzylbenzimidazole Opioid Compounds: "Nitazenes" <i>Emily Eng, MSFS*</i> ; <i>Stephanie Reichardt, MSFS*</i>

TOXICOLOGY

- 7:30 PM – 9:00 PM **L24** **The Quantitative Analysis of Cadmium in Blood Using Flame Atomic Absorption Spectrometry (FAAS)**
*Jatin Kumar Drall**; Ashok Kumar Jaiswal, PhD; Ajay Kumar Kataria, MTech
- 7:30 PM – 9:00 PM **L25** **The Evaluation of Spontaneous Overtime Methaemoglobin Production in Postmortem Blood Samples From Real Cases in Critical Storage Conditions for an Application in Cases of Suspected Nitrate Poisoning**
*Sara Gariglio, BS**; Maria Chiara David, PhD; Alessandro Mattia, MS; Matteo Scopetti, MD; Alessandro Santurro, MD, PhD; Stefano D'Errico, MD, PhD
- 7:30 PM – 9:00 PM **L26** **A New Assay for Phosphatidylethanol (PEth) in Blood Via Gas Chromatography/Electron Impact/Mass Spectrometry (GC/EI/MS)**
*James DeFrancesco, PhD**
- 7:30 PM – 9:00 PM **L27** **Death Following the Accidental Ingestion of E-liquid**
*Mihaela Georgieva, MD**; Martin Angelov, MD; Kamen Peev, MD; Iliana Brainova, MD, PhD; Verzhiniya Stefanova, MD; Alexandar Alexandrov, MD, PhD; Metodi Goshev, MD, PhD; Biliana Mileva, MD; Lorenzo Gitto, MD; Vesela Ivanova, MD, PhD; Tihomir Dikov, MD; Vasil Atanasov, MD, PhD
- 7:30 PM – 9:00 PM **L28** **The Evaluation of the Cross-Reactivity of Cannabidiol (CBD), Delta-Tetrahydrocannabinols (Delta-THCs), Olivetol, and Metabolites in Whole Blood Using a THC Enzyme-Linked Immuno-Sorbent Assay (ELISA) Kit**
*Carl E. Wolf, PhD**; Jade Smith, BS; Grace Williams, PhD; Emanuele Alves, PhD; Justin Poklis, BS
- 7:30 PM – 9:00 PM **L29** **A Review of Illicit Substances Detected in Homicidal Deaths in Memphis, Tennessee, Over a Three-Year Period**
*Latifah Ahmad, BS**; Danielle Harrell, DO
- 7:30 PM – 9:00 PM **L30** **WITHDRAWN**
- 7:30 PM – 9:00 PM **L31** **The Development of New Solvent Systems for the Analysis of Clonazepam in Blood Using High-Performance Thin-Layer Chromatography (HPTLC) Plates**
*Naagar Sunil, MD**; Rohit Kanojia, PhDc
- 7:30 PM – 9:00 PM **L32** **WITHDRAWN**
- 7:30 PM – 9:00 PM **L33** **The Generation of Methamphetamine From Amphetamine by N-Methyltransferase in Human Cytosol: Implications for Therapeutic Amphetamine Patients**
*Abby Veesper, MSFS**; Robert Powers, PhD
- 7:30 PM – 9:00 PM **L34** **Molecular Dynamics Simulations of Novel Synthetic Opiates Binding to the Opioid Receptors (ORs)**
*Uzoma Okafor, PhD**
- 7:30 PM – 9:00 PM **L35** **The Detection of Δ^9 -Tetrahydrocannabinol (THC) in Oral Fluid Using the Fast Blue BB (FBBB) Test**
*Roberta Gorziza, PhD**; Nicole Valdes, MS; Marilyn Tinoco, MS; Jose Almirall, PhD

TOXICOLOGY

- 7:30 PM – 9:00 PM **L36** **The Elution and Recovery of Cannabinoids From an Impaction Filter Device**
*Jennifer Berry, PhD**; *Kavita Jeerage, PhD*; *Mary Gregg, PhD*; *Cheryle Beuning, PhD*
- 7:30 PM – 9:00 PM **L37** **The Characterization of Spice Products: Barely Legal, Voodoo Child, Brainstorm and Their Effects on Human A549 Lung Cells**
*Oluseyi Vanderpuye, PhD**; *Miron Gilbert, PhD*
- 7:30 PM – 9:00 PM **L38** **A Sip of Blue Wine: Fatal Intoxication by Dimethoate**
*Andrea Costantino, MD**; *Giacomo Visi, MD*; *Julia Lazzari, MD*; *Fabio Stefanelli, PhD*;
Silvio Chericoni, PhD; *Marco Di Paolo, MD*

Thursday

Annual Lectureship in Toxicology

8:15 AM – 8:30 AM **Welcome and Introductions**

8:30 AM – 9:30 AM **Annual Lectureship in Toxicology**
Karen McDonald, MS
Lead for Toronto's Drug Checking Service
Centre on Drug Policy and Evaluation

Moderator: Diane Boland

Co-Moderator: Dayong Lee

9:30 AM – 10:00 AM **L39** **Standards Development Activities in Forensic Toxicology**
*Marc LeBeau, PhD**

10:00 AM – 10:15 AM **L40** **2021 National Forensic Laboratory Information System (NFLIS) Toxicology Laboratory Survey Findings**
*DeMia Pressley, MS**; *BeLinda Weimer, MS*; *David Heller, BS*; *Jeffrey Ancheta, BS*;
Neelima Kunta, BS; *Kelly Keyes, BS*; *Megan Grabenauer, PhD*; *Katherine Bollinger, MS*;
Hope Smiley-McDonald, PhD; *Jeri Roper-Miller, PhD*

10:15 AM – 10:30 AM **BREAK**

Novel Psychoactive Substances

Moderator: Alex Krotulski

Co-Moderator: Donna Papsun

10:30 AM – 10:45 AM **L41** **The Continually Expanding World of Designer Benzodiazepines**
*Donna Papsun, MS**; *Alex Krotulski, PhD*; *Barry Logan, PhD*

10:45 AM – 11:00 AM **L42** **Mixed Intoxications Involving the Novel Synthetic Opioids Methoxyacetylfentanyl and U-47700: A Study of Three Cases**
*Arianna Giorgetti, MD**; *Giorgia Franchetti, MD*; *Rebecca Pircher-Berchtold, MD*;
Markus Große Perdekamp, MD; *Stefan Pollak, MD*; *Susi Pelotti, MD*; *Volker Auwärter, MD*

11:00 AM – 11:15 AM **L43** **Phase I Metabolism of New Psychoactive Substances Via Alternative In Vitro Methods**
*Leonardo Maya, MS**; *Anthony DeCaprio, PhD*

TOXICOLOGY

- 11:15 AM – 11:30 AM **L44** **N-Pyrrolidino Etonitazene: A Newly Emerging Nitazene Compound in the Synthetic Opioid Landscape**
*Amanda Hersh, MD**; *Meredith Frank, MD*; *James Caruso, MD*; *Ian Puffenberger, MD*;
Sterling McLaren, MD; *Daniel Anderson, MS*
- 11:30 AM – 11:45 AM **L45** **Temperature and pH-Dependent Stability: Identifying Fentanyl Degradation Pathways**
*Madison Schackmuth, BS**; *Sarah Kerrigan, PhD*
- 11:45 AM – 1:00 PM **BREAK**

Multidisciplinary Session: Pathology/Biology and Toxicology

Moderator: *Tracy Halvorson*

Co-Moderator: *Kristin Kahl*

- 1:00 PM – 1:15 PM **L46** **An Unusual Case of Misrepresented Cocaine Powder That Resulted in Fatal and Non-Fatal Intoxications Involving the Novel Synthetic Opioid Etodesnitazene**
*Alex Krotulski, PhD**; *Stephany Fiore, MD*; *Daniel Anderson, MS*; *Sara Walton, MS*;
Brianna Peterson, PhD; *Donna Papsun, MS*; *Joshua DeBord, PhD*; *Barry Logan, PhD*
- 1:15 PM – 1:30 PM **L47** **I Believe I Can Fly: Hallucinogenic/Psychedelic Drugs Found in Fall-From-Height Cases in Miami-Dade County, Florida**
*Marissa Finkelstein, MS**; *George Hime, MS*; *Diane Boland, PhD*
- 1:30 PM – 1:45 PM **L48** **Synthetic Cannabinoids Adulterated With Brodifacoum—Part II: The Florida Experience**
*Robert Middleberg, PhD**; *Justin Arnold, DO, MPH*; *Alexandra Funk, PharmD*
- 1:45 PM – 2:00 PM **L49** **Adverse Effects of Veterinary Pharmaceuticals as Toxic Adulterating Agents in Illicit Drug Deaths**
*Barry Logan, PhD**; *Alex Krotulski, PhD*; *Amanda Mohr, MS*; *Thom Browne, Jr., MA*
- 2:00 PM – 2:15 PM **L50** **A Compilation of Postmortem Vitreous Fluid Data for Pediatric Cases**
Breanne Vance, BA; *Kari Midthun, PhD**; *Jennifer Swatek, MS**; *Fabio Oldoni, PhD*
- 2:15 PM – 2:30 PM **L51** **Postmortem Formation of Ethanol: Is N-Propanol a Reliable Marker? A Proof-of-Concept Study Using a Real-Environment Experimental Set-Up**
*Nicola Pigaiani, MD**; *Giacomo Musile, PhD*; *Francesco Ausania, MD, PhD*; *Daniel Dye, MD*;
Gregory Davis, MD; *Franco Tagliaro, MD*; *Antonio Oliva, MD, PhD*; *Federica Bortolotti, PhD*
- 2:30 PM – 2:45 PM **L52** **A Quantitative Analysis of Fentanyl and Major Metabolites From Empty Puparia and Adult Blow Flies Via QuEChERS Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) Analysis**
*Joseph Cox, PhD**; *Katherine Davis*; *Kylea Morris, BS*; *Rachel Mohr, PhD*; *Joseph DeTondo, DO*;
Luis Arroyo, PhD
- 2:45 PM – 3:00 PM **L53** **Toxicology Laboratory Findings From the 2018 Census of Medical Examiner and Coroner Offices**
*Jeri Roper-Miller, PhD**; *Hope Smiley-McDonald, PhD*; *Katherine Bollinger, MS*
- 3:00 PM – 3:15 PM **BREAK**

TOXICOLOGY

Moderator: Marissa Finkelstein

Co-Moderator: Susan Ely

- 3:15 PM – 3:30 PM **I71** **An Alleged Patricide by Americium-241 Poisoning**
*Wendy Gunther, MD**
- 3:30 PM – 3:45 PM **I72** **Fatal Butane Acute Intoxication in Custody—Pitfalls and Recommendations: An Analysis of Six Cases**
Michela Peruch, BS; Luigi Cipolloni, MD; Stefania De Simone, MD; Maria Chiara David, PhD; Monica Concato, BS; Martina Zanon, BS; Riccardo Addobbati, BS*
- 3:45 PM – 4:00 PM **I73** **Death as a Consequence of Cardiorespiratory Arrest Caused by a Cocaine-Induced Generalized Seizure: Toxicological Data in a Case Report**
Isabella Mercurio, MD; Laura Panata, MD; Michela Ferrara, MD; Mauro Bacci, MD; Cristina Gambelunghe, MD; Massimo Lancia, MD*
- 4:00 PM – 4:15 PM **I74** **Sodium Nitrite Poisoning: A Case Series of an Emerging Suicide Mechanism**
Ethan Blocher-Smith, MS, DO; Elizabeth Douglas, MD; Joseph Prahlow, MD*
- 4:15 PM – 4:30 PM **I75** **The Use of Over-the-Counter Tests to Detect Pregnancy in Postmortem Urine and Vitreous Fluid**
Marianne Hamel, MD, PhD; Andrew Falzon, DM*

Friday

Drugs and Driving Special Session

Moderator: Jennifer Limoges

Co-Moderator: Tim Rohrig

- 8:30 AM – 8:45 AM **L54** **Acute Psychotic Episodes in Impaired Driving Cases Involving Tetrahydrocannabinols ($\Delta 8$ and $\Delta 9$)**
*Nicholas Tiscione, MS**
- 8:45 AM – 9:00 AM **L55** **Drug Testing and Traffic Safety: What You Need to Know**
Amy Berning, MA, PhDc; Ryan Smith, PhD; Kathryn Wochinger; Morgan Drexler, MPH*
- 9:00 AM – 9:15 AM **L56** **1,1-Difluoroethane in Driving Under the Influence (DUI) Cases—Intoximeter® DMT Dual Sensor and Draeger Alcotest 7110 Aiding Officers in Inhalant Cases**
Jasmine Maxwell, MSFS; Greg Turner, PhD; Curt Harper, PhD*
- 9:15 AM – 9:30 AM **L57** **A Standardized Method for Analyzing Toxicology Data in Drugged Driving Research**
Ryan Smith, PhD; Mary Pat McKay, MD, MPH; Jana Price, PhD*
- 9:30 AM – 9:45 AM **L58** **Impaired Driving Drug Trends and Stop Limit Testing Evaluation**
Grace Cieri, BS; Amanda Mohr, MS; Melissa Fogarty, MSFS; Barry Logan, PhD*
- 9:45 AM – 10:00 AM **L59** **α -Pyrrolidinoisohexanophenone (α -PiHP) in Driving Under the Influence (DUI) Cases**
Kristin Kahl, MS; Lisa Reidy, PhD*
- 10:00 AM – 10:15 AM **L60** **Blood Alcohol Concentration and Road Accidents—A Significant Underestimation Due to Delay in Blood Sampling: A Four-Year Retrospective Study in Rome**
Giovanni Aulino, MD; Nadia De Giovanni, PhD; Gianluca Lentini, MD; Giuseppe Vetrugno, MD; Sabina Strano-Rossi, MD; Marcello Covino, MD; Francesca Cittadini, MD*
- 10:15 AM – 10:30 AM **BREAK**

*Presenting Author

TOXICOLOGY

General Toxicology

Moderator: *Jasmine Maxwell*

Co-Moderator: *Michael Wagner*

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| 10:30 AM – 10:45 AM | L61 | Oxycodone Pharmacokinetics in Whole Blood After a Single Dose of Immediate and Controlled Release Formulations
<i>Gerd Jakobsson, MSc*</i> ; <i>Michael Truver, PhD</i> ; <i>Maria Cherma, PhD</i> ; <i>Madeleine Swortwood, PhD</i> ; <i>Henrik Green, PhD</i> ; <i>Robert Kronstrand, PhD</i> |
| 10:45 AM – 11:00 AM | L62 | The Extraction and Quantification of Toxic Heavy Metals From Calliphoridae Larvae
<i>Daniela Bermeo Grajales*</i> ; <i>Stephanie Urias</i> ; <i>Cathleen Doherty, PhD</i> ; <i>Denise Gemmellaro, PhD*</i> |
| 11:00 AM – 11:15 AM | L63 | A Cost Benefit Analysis of High Resolution Mass Spectrometry (HRMS) -Based Drug Screening in Forensic Toxicology
<i>Jessica Ayala, PhD*</i> ; <i>Sarah Kerrigan, PhD</i> |
| 11:15 AM – 11:30 AM | L64 | Assessing Relative Levels of Ionic and Non-Ionic Binding of Drugs and Metabolites in Authentic Hair Reference Material (HRM)
<i>Brianna Spear, MS*</i> ; <i>Anthony DeCaprio, PhD</i> |
| 11:30 AM – 11:45 AM | L65 | Toxicological Surveillance of Clinical Patients Presenting to the Emergency Department After Suspected Opioid Overdoses: Geographical Trends and Impacts on Forensic Toxicology
<i>Sara Walton, MS*</i> ; <i>Alex Krotulski, PhD</i> ; <i>Alex Manini, MD, MS</i> ; <i>Lindsey Domonoski, BS</i> ; <i>Alyssa Reyes, BS</i> ; <i>Barry Logan, PhD</i> |
| 11:45 AM – 1:00 PM | | BREAK |

Special Session—Pediatric Toxicology

Moderator: *Robert Middleberg*

Co-Moderator: *Nikolas Lemos*

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| 1:00 PM – 5:00 PM | L66 | The 22nd Annual Postmortem Pediatric Forensic Toxicology Session
<i>Robbert A. Middleberg, PhD*</i> ; <i>Nikolas Lemos, PhD*</i> ; <i>Andrew Baker, MD*</i> ; <i>Christopher Milroy, MD, LLB*</i> ; <i>Brianna Peterson, PhD*</i> ; <i>Kari Midthun, PhD*</i> ; <i>Jennifer Swatek, MS*</i> |
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