

Time	Topic	Speaker
930	Welcome	
945	Codeine Syrup Abuse – Something Old, Something New	Yi Ju Yao
1015	New Trends of Drug Diversions in the Western Region of Algeria and the abuse potential of pregabalin and tramadol	Dr Atika Bendjamaa
1045	Break	
1055	Designer benzodiazepines: Analytical challenges and approaches for legal control	Volker Auwärter
1125	Beyond Ketamine: Investigating the Pharmacology and Toxicology of its Derivatives	Amine Larabi
1155	Kratom/mitragynine: Old Drug, New Science	Marilyn Huestis
1225`	Conclusion	

945am:

**Title: Codeine Syrup Abuse- Something Old, Something New** (expand link)

Codeine is an opioid medication that is commonly used to relieve mild to moderate pain and suppress coughs. However, codeine abuse has become a significant problem in many parts of the world. Codeine's ability to stimulate dopamine release and produce feelings of euphoria and relaxation is the primary mechanism by which it produces the desired psychoactive effects that are sought by codeine abusers.

In the past 2 years, our laboratory observed an increased number of patients presented at the emergency departments with symptoms such as altered mental status, drowsiness, unconscious, and Type 2 respiratory failure. Toxicology findings in these cases detected codeine and other therapeutic drugs that are not registered in Singapore (e.g. carisoprodol, modafinil, dihydrocodeine, nitrazepam), suggesting possible abuse. Similar combination of drugs was also detected in a number of drug-related deaths. Analysis of suspected 'cough syrup' found near the deceased showed unusual variations of codeine mixture containing 5 to 10 different active pharmaceutical ingredients. This presentation shares the interesting combination of the 'codeine mixture' and their drug-drug interactions.

**Speaker: Dr Yi Ju Yao** (expand link)

Yi Ju Yao obtained her Ph.D. in analytical chemistry from the National University of Singapore. She is the division director at the Analytical Toxicology Division in Health Sciences Authority since 2012, overseeing the Drugs Abuse Testing unit and the Clinical & Forensic Toxicology unit. Her research interest is mainly on analytical toxicology techniques applied to drug analysis in antemortem and postmortem cases, using various LC-MSs and HRMS.

She is a member of the TIAFT Ethics Committee and Continuing Education Committee, the treasurer of the Toxicology Society of Singapore, past TIAFT regional representative of Singapore (2011-2020) and past chairperson of the Toxicology Workgroup of the Asian Forensic Science Network (AFSN, 2014 – 2019). She is also a member of SOFT and FACTA, and a certified Fellow of the American Board of Forensic Toxicology (ABFT).



1015am:

**Title: New Trends of Drug Diversions in the Western Region of Algeria and the abuse potential of pregabalin and tramadol** (expand link)

Drug diversion is a medical and legal concept involving the transfer of any legally prescribed controlled drugs from a licit to an illicit use. This includes transferring drugs to people they were not prescribed for. Over the years, misuse and diversion of prescribed psychoactive drugs has been a concern in Algeria, and given the dynamic nature of this phenomenon, a continuous assessment is required.

The aim of the presentation is to highlight the data generated from surveys and studies carried out by the Department of Pharmacology and Toxicology. The studies were designed for the determination of the new trends of drug use and drug diversion in the Western Region of Algeria. The findings of the descriptive analysis showed that along with great access to drugs commonly prescribed, inevitably comes diversion outside a medical use. Over the years, the phenomenon is increasing and the change of the trends of drug use and drug diversion is noticeable. Currently, pregabalin and tramadol are the most diverted from their medical use.

**Speaker: Dr Atika BENDJAMAA**

Atika Bendjamaa is a pharmacist toxicologist, a hospital practitioner and a university lecturer. She received her Pharm.D. and her degree of specialization as toxicologist from University Oran1 (Algeria). Since 2015, she has been at the head of Drug Testing and Forensic Toxicology Unit of the Department of Pharmacology and Toxicology – University Hospital of Oran (Algeria) and she has joined the Health and Environmental Research Laboratory (LRSE) of the University Oran1 where she holds a position as assistant professor of toxicology.

Her main research interests are related to the assessment of the trends of drug diversion and the hazard of the addictive behaviors linked with psychoactive substances and the interest of drug analysis in several purposes (acute poisoning, overdose, sudden death, defenestration, drug-impaired driving,...).

She is a member of the scientific committee of Pharmacy Department of Faculty of Medicine- University Oran1 and a member of the Regional Pedagogical Committee of Toxicology (CPRS). She is also member of SATOX (Algerian Society of Toxicology), TIAFT (The International Association of Forensic Toxicologists) and IACFT (International Alliance of Clinical and Forensic Toxicologists).



1055am:

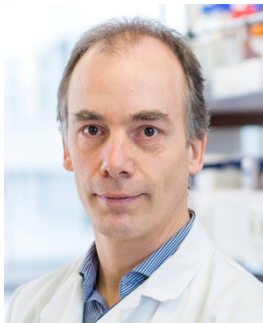
**Title: Designer benzodiazepines: Analytical challenges and approaches for legal control** ([expand link](#))

Designer benzodiazepines – often referred to as ‘new benzodiazepines’ – started to emerge as NPS around 2007. Since then, more than thirty compounds appeared on the market with a peak of newly introduced substances between 2014 and 2017. Immunochemical screening seems to be a suitable approach for the detection of most designer benzodiazepines in biological samples. However, methods relying on mass spectrometry need to be updated regularly to include newly emerged compounds and their metabolites. Interpretation of analytical findings can be challenging sometimes due to designer benzodiazepines being metabolized to licensed benzodiazepines or the introduction of metabolites of licensed benzodiazepines as designer benzodiazepines. In addition, some benzodiazepines are active in very low doses, requiring the application of highly sensitive analytical methods.

While legal control is usually restricted to scheduling new compounds one by one upon their appearance, benzodiazepines generically defined by their chemical structure were introduced in the German law on new psychoactive substances (NpSG) in 2019.

**Speaker: Prof. Dr. Volker Auwärter** ([expand link](#))

Besides reading for medical students and being an expert witness in court, Prof. Auwärter has coordinated the EU projects ‘SPICE’, ‘Spice II Plus’, and several other projects in the field of NPS research. His research generally focuses on cannabinoids, both natural and synthetic, but also covers other new drugs, alcohol consume markers, post mortem toxicology, drug metabolism and pharmacokinetic studies, and resulted in more than 190 research articles in scientific Journals with peer review. He was awarded with the TIAFT Achievement Award in 2013 and received several national awards for his contributions to Forensic Toxicology.



1125am:

**Title: Beyond Ketamine: Investigating the Pharmacology and Toxicology of its Derivatives** ([expand link](#))

Novel psychoactive substances (NPS) are a growing public health concern, with over 1000 substances detected in the drug market, including aryl-cyclohexylamines or ketamine analogues. While ketamine is primarily used for therapeutic purposes, its recreational use has led to the production of several derivatives, which belong to a diverse group of hallucinogens with stimulating and dissociative properties. However, the pharmacology and toxicology of these compounds remain poorly understood, and some have been associated with acute intoxications and fatalities.

The presentation will provide insights into the trends of ketamine derivatives use and highlight the current data about their pharmacology, metabolism, and toxicities.

**Speaker: Assoc. Prof. Amine Larabi** ([expand link](#))

Amine is an Associate Professor of Pharmacology and Toxicology at Paris-Saclay university, and a practicing toxicologist at the Department of Pharmacology and Toxicology of Raymond Poincaré Hospital, Assistance-Publique Hopitaux de Paris, in France.

He received his Pharm.D. and his degree in clinical chemistry and toxicology from the University of Medicine of Algiers (Algeria), and a Ph.D. in Pharmacology and Toxicology from the University of Medicine of Paris Saclay.

Amine's research interests over the last decade have focused on new psychoactive substances, hair testing, metabolism and data visualization.

As a member of the MOODS research team (Inserm U1018) of the Centre for Research in Epidemiology and Population Health (CESP), Amine is committed to advancing knowledge in the field of depression, suicide, and drugs.

Amine's professional contributions include serving as the president-elect of the French Society of Analytical Toxicology (SFTA), a member of the scientific committees of the National College of Pharmacology (CNPM) and the SFTA, and a member of the Continuing Education Committee of TIAFT. He is also an associate editor of the French journal of analytical toxicology ToxAc, and contributes as a lecturer for various peer-reviewed journals.

Amine is an active member of the TIAFT, SFTA, and the Society of Hair Testing (SOHT).



1155am

### **Title: Kratom/mitragynine: Old Drug, New Science (expand link)**

The kratom tree is a SE Asian tropical evergreen in the coffee family whose leaves are used as herbal medicine for hundreds of years. Kratom contains many active alkaloids, with mitragynine the primary alkaloid about 1-2% of the plant weight. Mitragynine is a low affinity, partial  $\mu$ -opioid receptor agonist that does not activate the  $\beta$ -arrestin-2 pathway implicated in adverse effects of respiratory depression and constipation, but it is not an opioid due to a complex pharmacology that includes antagonist at  $\kappa$ -opioid receptors, and agonism at  $\alpha$ -adrenergic, serotonin, D2 dopamine and  $A_{2A}$  adenosine receptors. Kratom-mitragynine science is exploding with the US National Institute on Drug Abuse supporting more than 30 million in new research, and multiple companies developing new analgesics that have lower abuse liability and respiratory depression. Data will be shared on new preclinical research and the first large scale human kratom controlled administration study.

### **Speaker: Professor Marilyn Huestis**

Professor Huestis conducted controlled drug administration studies at NIDA for 23 years. Now she is Senior Science and Policy Advisor for PinneyAssociates, Professor, Thomas Jefferson University, University of New Mexico, and Queen Mary University of London and President, Huestis & Smith Toxicology. Her research program focuses on cannabinoids, kratom, psilocybin, *in utero* drug exposure and impaired driving. She published 554 manuscripts. Professor Huestis holds degrees in

biochemistry, clinical chemistry, toxicology and a Doctor Honoris Causa from University of Helsinki. Other recent awards include the 2023 Mechoulam Award from ICRS, 2021 AACC Outstanding Lifetime Achievement Award, 2021 National Safety Council Distinguished Service to Safety Award and many others. *Clinical Chemistry* featured her as an “Inspiring Mind.” She is on WADA’s Prohibited List Committee, is past president of Society of Forensic Toxicologists, past Chair Toxicology American Academy of Forensic Sciences, and past president The International Association of Forensic Toxicologists. She is most proud of the success and accomplishments of her former doctoral students and postdoctoral fellows.

