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EDITORIAL

Forensic and toxicological analysis

Jean-Luc Veuthey

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The 47th Annual Meeting of the International Association of Forensic Toxicologists (TIAFT) was held in Geneva from 23 to 27 August 2009 at the International Conference Center of Geneva located near the UNO building and Lake Geneva. It was the third TIAFT meeting organized in Switzerland and this year it was co-organized by the Centre de Compétence en Chimie et Toxicologie Analytique (CCCTA). The co-chairmen Marc Augsburger and Christian Staub from the University Center of Legal Medicine of Geneva and Lausanne and their organizing committee prepared a very exciting scientific and social program under the supervision of the TIAFT president, Olaf H. Drummer. The meeting was a great success because almost 500 registered participants from 60 countries and 24 exhibitors came to Geneva.

Before the conference, on Sunday afternoon, three workshops on topics related to forensic analysis were given by well-known scientists. The subjects covered were: LC–MS, illicit drug profiling, and drugs and driving. The final scientific program comprised 90 oral presentations, over 150 poster presentations, and 13 invited lectures. It is noteworthy that the number of young scientists increased dramatically because 80 scientists were present at the Young Scientist meeting on Sunday morning, which was the first TIAFT event of the annual congress. Furthermore, 39 submissions were received from young scientists for the best oral presentations, best poster, and best published paper awards. The program offered a pleasant platform for all workers in toxicology. Therefore, we gained information covering new developments in doping analysis, drugs of abuse testing, analysis of metabolites and natural products, therapeutic drug monitoring, alternative matrices, cannabis metabolism, post-mortem toxicology, clinical toxicology, chemometry and data treatment, and alcohol and drugs and driving. For analysis, the different strategies developed the last ten years to increase performance in terms of rapidity and resolution, for example use of monoliths and ultra-high-pressure liquid chromatography (UHPLC), are well accepted by this community. Furthermore, in all topics covered, mass spectrometry is regarded today as the detector of choice. In LC–MS, a particular attention has been paid to the control of matrix effects, especially for the quantitation of drugs present in biological matrices with ESI as the ionization source. Finally, validation is also a very important task and there was much discussion of rules about the number of points necessary to confirm the presence of a substance. For this purpose, mass analyzers with high resolution (i.e. TOF and FTMS) attracted much interest.

In the analytical process, besides separation and the detection, sample preparation and data treatment are very important. For biological matrices, generic SPE procedures with hydrophobic or mixed-mode sorbents are of high interest, and for particular applications, 96-well plates are often used. Data treatment and the importance of appropriate analytical method validation for quantitative purposes were discussed in a last dynamic session. Interesting sophisticated bioinformatics tools were presented in the context of data pre-processing and handling in the forensic sciences. Recent statistical and experimental approaches

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based on accuracy profile and total error were presented in different types of application.

Different awards were given during the meeting. Vina Spiehler (USA) received the Alan Curry Award for her contributions to the field of toxicology and to the TIAFT organisation. The TIAFT Achievement Award went to Robert Kronstrand (Sweden) for his outstanding achievements in forensic toxicology. Young scientists were not forgotten with four awards. The Best Published Paper Young Scientist Award went to Sophie Turfus (UK), Yuko Iwata (Japan) was distinguished with the Best Oral Presentation Young Scientist Award, and Aline Staub (Switzerland) received the Best Poster Presentation Young Scientist Award. This year, Springer kindly contributed a Springer Poster Award to a young scientist for an excellent poster presentation of innovative research. The winner was Jennifer Pascali (Italy) for the poster entitled: Rapid determination of lithium in serum by capillary electrophoresis (see article included in this special issue).

This special issue of *Analytical and Bioanalytical Chemistry* includes a collection of papers focusing on forensic analysis presented at the 2009 TIAFT meeting.

Jean-Luc Veuthey is a professor at the School of Pharmaceutical Sciences, University of Geneva. He is also acting as Vice Dean of the Faculty of Sciences of the University of Geneva, Switzerland. His research domains is: development of separation techniques in pharmaceutical sciences, and, more precisely, study of the effect of sample-preparation procedures on the analytical process; fundamental studies in liquid chromatography and capillary electrophoresis; separation techniques coupled with mass spectrometry; analysis of drugs and drugs of abuse in different matrices; and analytical tools for the determination of ADME data