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Vrije Universiteit Brussel

FACULTEIT GENEESKUNDE EN FARMACIE

Doctoraat Medische Wetenschappen

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UITNODIGING

Voor de openbare verdediging van het
doctoraatsproefschrift van

Marleen LALOUP

20 juni 2007

U wordt vriendelijk uitgenodigd op de openbare verdediging van het proefschrift van

Marleen LALOUP

'Bio-analysis of forensically relevant drugs in alternative matrices by liquid chromatography-tandem mass spectrometry'

Op **woensdag 20 juni 2007** om **17u00**
in auditorium **P. Brouwer** van de
Faculteit Geneeskunde & Farmacie,
Laarbeeklaan 103, 1090 Brussel

Situering van het proefschrift

Cannabis is the most frequently detected illicit drug in the Western world, e.g. in cases of driving under the influence of drugs (DUID), whereas benzodiazepines comprise the most-abused licit drugs and have been linked with drug-facilitated sexual assault cases (DFSA). In recent years, remarkable advances in sensitive analytical techniques have enabled the analysis of drugs in alternative matrices such as oral fluid and hair. These specimens allow easy, non-invasive sampling, which can be achieved under close supervision to prevent adulteration or substitution of the samples. The volume is often limited and to reach the required analytical sensitivity, liquid chromatography-tandem mass spectrometry (LC-MS-MS) methods for the detection of cannabis and benzodiazepines in oral fluid and hair were developed. After validation, these methods were applied to authentic samples to assess: (a) the validity of oral fluid to detect recent cannabis consumption, (b) the Dräger DrugTest as an on-site oral fluid test, and (c) the applicability of hair testing in forensic cases. The latter led to new insights into metabolic conversions between benzodiazepines. These insights may help avoid potentially erratic conclusions regarding DFSA. Finally, benzodiazepines are also frequently encountered in post-mortem cases. An LC-MS-MS method to detect benzodiazepines in larvae and puparia of insects reared on corpses was developed and validated. In conclusion, this research aimed at combining the usefulness of alternative matrices with the analytical power of LC-MS-MS. Final outcome is a number of sensitive and validated methods ready for use in routine analysis.

Curriculum Vitae

Marleen Laloup was born in 1978 in Vilvoorde (Belgium). She graduated as an Engineer in Cellular and Genetic Biotechnology at the Vrije Universiteit Brussel in 2001. After her master thesis on the topic of cancer immunobiology (Prof. Dr. P. De Baetselier), she started as a researcher at the Pasteur Institute (Dr. E. Jongert) working on vaccination therapy against murine toxoplasmosis. This research yielded 2 publications in international, peer-reviewed journals. In 2002, she started as a researcher at the Laboratory of Toxicology at the National Institute for Criminalistics and Criminology (NICC) in Brussels. During her PhD under the guidance of Dr. N. Samyn, Dr. V. Maes and Prof. Dr. F. Gorus, on the topic of LC-MS-MS and alternative matrices in forensic toxicology, she produced 12 publications (5 first-author, 7 co-author papers) in international peer-reviewed journals, 2 full chapters in books and a number of oral and poster presentations at international congresses. She is currently working as a scientific advisor at the Laboratory of Toxicology (NICC) dedicated to implement the designed protocols into daily forensic routine according to ISO17025 standard.