

Selected research topics in Biomedical Engineering: Novel Phenotyping and Diagnostic Tools

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Activity-based sensing of new psychoactive substances

Find out why "Looks don't matter, it's what you do that counts"

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Abstract

Novel Psychoactive Substances (NPS) pose a real challenge for the forensic and clinical lab. Although the last years the rate at which new substances enter the drug scene has decreased, the issue of potentially having to detect many hundreds of substances remains, as substances that were formerly used may re-enter the market at any time. Moreover, another challenge is the fact that the newest compounds (particularly synthetic opioids, cannabinoids and hallucinogens) are increasingly potent. This is not only accompanied by an increased risk of intoxication, but also by an increased challenge to detect these compounds, which may be active at sub-ng/ml concentrations. In this presentation, an overview will be provided of the distinct technologies (analytical and other) that have been used for the detection of NPS in biofluids. Special attention will be paid to a new strategy that was recently developed in our own lab, allowing universal, activity-based screening of biofluids for the presence of synthetic cannabinoids and synthetic opioids (but not of designer hallucinogens). The advantages and drawbacks of the different technologies will be discussed, using as a basis own published work.

Curriculum:

Christophe Stove is Associate Professor at the Department of Bioanalysis at Ghent University (Belgium). After obtaining his PharmD in 1999 at the Faculty of Pharmaceutical Sciences at Ghent University, he pursued a cell and molecular biology-oriented PhD and postdoc, in the field of fundamental cancer research, at the Faculty of Medicine and Health Sciences and the Faculty of Sciences, both at Ghent University. In 2007, he returned to the Faculty of Pharmaceutical Sciences, doing another postdoc, embarking upon bioanalysis. In 2014 he became head of the Laboratory of Toxicology. Besides teaching several courses, he directs the Lab's service activities (forensic toxicology and reference lab activities ([Ref4U](#))) and steers the research. The latter covers applied cell biology, as well as bioanalysis, with topics linked to the development of bio-assays as an alternative drug screening approach in forensic toxicology, to vitamer analysis, or to microsampling applications and associated challenges. He has over 120 publications, many of which in leading journals, has an h-index of 27 and his group's work received several awards. He is active as a Board/Council Member of several national and international organizations (including TIAFT and IATDMCT).

