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Phase I and phase II metabolism of synthetic cannabinoids, the Ghent strategy.

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Abstract

Around 2008, synthetic cannabinoids were found to be present in and responsible for the psychoactive effects of herbal mixtures with names like 'Spice' or 'K2'. From that moment on, the list of these compounds detected continued to grow. It started with JWH-018 and CP 47,497, but up until now more variants are found almost every month.

In response to the rising trend in the use of these products, several (inter)national organizations started banning these products. Indeed, in 2010 also the World Anti-Doping Agency (WADA) prohibited synthetic cannabinoids in-competition.

However, due to the lack of data on the metabolism of this growing group of compounds, detection in urine remains a difficult task. Since administration to humans is ethically questionable, 2 complementary methods were developed in our lab. The consecutive use of both *in vitro* and *in vivo* models allow for the elucidation of both the phase I and phase II metabolism of synthetic cannabinoids.

This lecture presents this strategy - leading to routine screening for this compounds - for two new naphthoylindoles. The presented data are based upon two research papers [1,2].

[1] De Brabanter N, Esposito S, Geldof L, Lootens L, Meuleman P, Leroux-Roels G, Deventer K, Van Eenoo P. (2013) In vitro and in vivo metabolisms of 1-pentyl-3-(4-methyl-1-naphthoyl)indole (JWH-122). *Forensic Toxicology* **31**, 212-222.

[2] De Brabanter N, Esposito S, Tudela E, Lootens L, Meuleman P, Leroux-Roels G, Deventer K, Van Eenoo P. (2013) In vivo and in vitro metabolism of the synthetic cannabinoid JWH-200. *Rapid Commun Mass Spectrom*, **27**: 2115-2126