



German chemist Tobias Scholl works on testing for illicit drugs in the labs at UTS. Photo: Catherine McElhone

# Colour tests show promise in battle to halt pill deaths

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## In summary:

- UTS scientists are developing colour tests to provide a rapid, simple and cost-effective way to detect illicit and dangerous



drugs

- German chemist Tobias Scholl has used UTS research for detecting synthetic cathinones to manufacture the first commercially available kit
- The colour tests project is a good starting point to develop a new device for pill testing at music festivals

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### **European law enforcement agencies are using the chemistry discoveries of young Sydney researchers to try to stem the burgeoning global trade in illicit and dangerous drugs.**

Forensic chemist Dr Morgan Philp developed a [quick and simple colour test for synthetic cathinones](#) as part of her PhD research in the UTS Centre for Forensic Science, under the supervision of Professor Shanlin Fu. Frontline customs officers and police can use the test to determine if a suspicious substance requires further analysis.

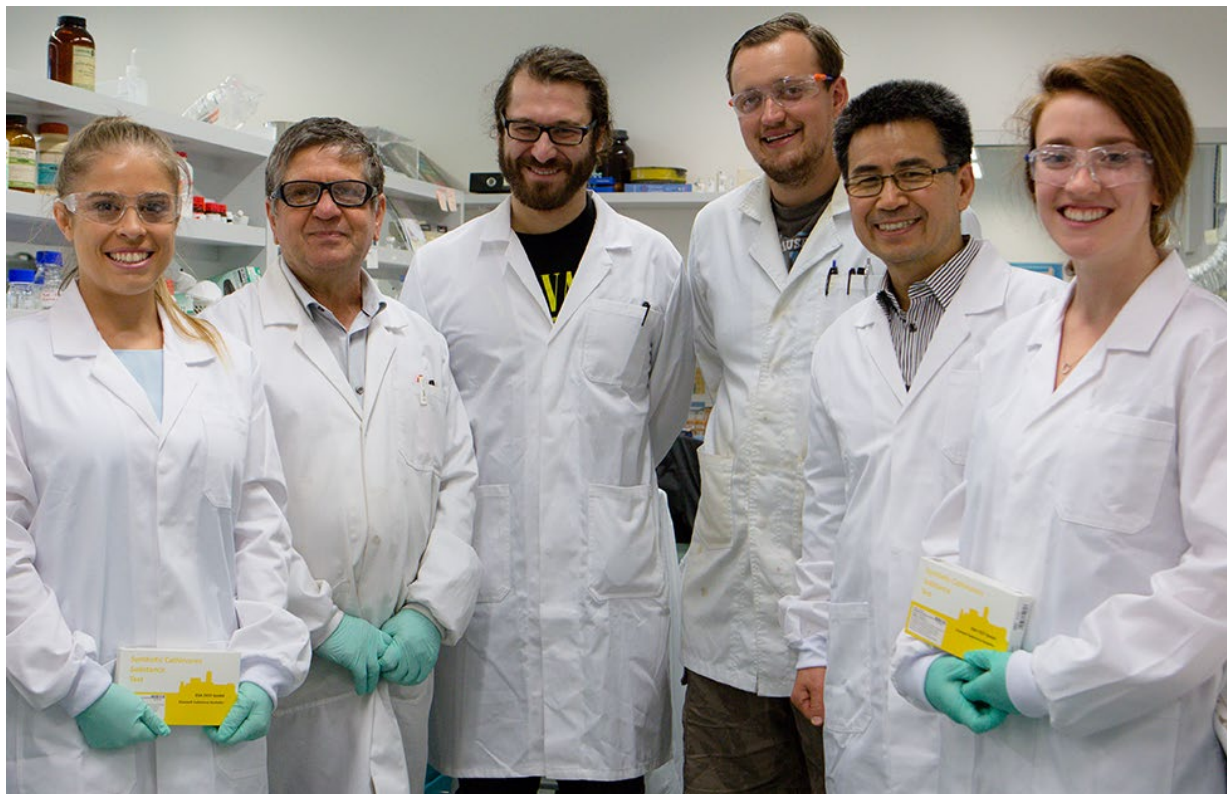
In a world first, a kit developed from her patented test went on sale in Europe late last year.

Tobias Scholl, the German chemist who manufactured the kit, recently visited Sydney to spend time in the UTS labs with Dr Philp, PhD students Laura Clancy and Joshua Klingberg, research assistant Melanie Lauria, Dr Ronald Shimmon and Professor Fu.

Clancy is developing a [colour test for detection of NBOMe compounds](#), a family of powerful hallucinogens. Klingberg and Lauria are working towards a colour test for Fentanyl analogues, a potent class of synthetic opioids causing many overdose deaths.

The colour tests all consist of adding a suspected substance to a proprietary solution and monitoring any change in the solution's colour. A colour change within five minutes indicates a positive result. The aim is to provide rapid, simple, cost-effective colour tests for illicit drugs from clandestine labs in countries such as China, Mexico and India.

The hope is that eventually there will be a multiplex test able to identify a range of substances.



German chemist Tobias Scholl, third from left, in the lab with UTS scientists. Photo: Catherine McElhone

Scholl used his time at UTS to further his investigations into whether an optical reader can be used to record colour changes. The implementation of an optical reader in colour testing not only allows for a more objective test result, but also provides for a real-time analysis that can distinguish between compounds within the same drug class.

The colour tests project is a good starting point to develop a new device for pill testing at music festivals.

One of the main debates is on the ability of current drug test methods to detect the New Psychoactive Substances (NPS), especially when they are mixed with established drugs of abuse such as MDMA, methylamphetamine, cocaine, heroin etc, and when they are at low levels.

Current testing methods require knowledge of the structures of the drugs to be tested, which is not always the case. More than 800 NPS flooded the illicit drug market in the past decade. New substances emerge at an alarming rate and their chemical structures and toxicity remain unknown to the scientific community for a significant period of time.

“The colour test methods developed at UTS focus on detecting classes of drugs rather than individual ones, which is beneficial for pill testing at music festivals. We aim to reveal if dangerous drugs such as cathinones, NBOME substances and fentanyls are present in pills even if the exact chemical entities/structures are unknown,” says Professor Fu.

Dr Morgan Philp says the physiological effects of new psychoactive substances targeted in the UTS presumptive colour test research are not widely studied, “making them especially dangerous to the user”.

**Tobias Scholl is Head of Innovation in Toxicology at German company [ESA-Test GmbH](#) (Eisenach Substance Analytics). His scientific background is in analytical toxicology and under his guidance ESA-Test is developing a portfolio of new test kits as well as the hand-held device.**

**Byline:**

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