

# New on-the-spot test for fast ID of dangerous street drugs

**Treating drug overdoses can be hit-or-miss, because paramedics and doctors don't always know what substance has been taken.**

Supported by a grant from the Global Connections Fund (GCF), the University of Technology Sydney's Professor Shanlin Fu is working with German company ESA-Test GmbH to develop an on-the-spot colour change test that quickly flags which drug or drugs are present.

"We want to make a single test that can save people's lives," Professor Fu said.

The technology focuses on new synthetic drugs that are manufactured in illegal laboratories and sold on the street, including the hallucinogen N-BOMe ("N-bomb"), the stimulant cathinone (sometimes called "bath salts") and the opioid fentanyl – a particular concern for overdoses in Australia.

"Our expertise at UTS is in chemical reactions, and our German colleagues are market leaders in manufacturing colour-based kits for drug testing," explained Professor Fu.

"We developed a proof-of-concept for this new approach, and now this collaboration means it's much closer to being a workable prototype."

The goal is to create a single, paper-based test that changes colour to indicate the presence of specific synthetic drugs when wet with patient saliva. Once they know what a person has taken, healthcare workers can then administer lifesaving treatment.

Professor Fu's research team has been working with ESA-Test since 2017, when a Global Connections Priming Grant supported establishment of a licensing agreement for a colour test method for detecting the cathinone drug class.

A second GCF grant in 2018 strengthened the collaboration. Current work focuses on creating prototype devices that are microfluidic (that is, based on tiny channels) and able to detect multiple drugs through highly sensitive measurement of colour change. Fu and his colleagues are also developing proof-of-concept for sampling using saliva and urine.

"The grant meant I could recruit professional scientists to assist us in moving forwards, and also that our German colleagues were able to bring a sample colour-reading device here to Australia," said Professor Fu.

Now a strong working relationship is established, Professor Fu is beginning other commercial development work with the German company, including preliminary exploration of a new, chemical test for cocaine to address the low specificity issue associated with the existing test method.



## Professor Shanlin Fu

Professor  
Centre for Forensic Science  
University of Technology, Sydney

A rapid on-the-spot colour change test to ID synthetic street drugs will save lives, thanks to research led by @shanlinfu from @UTS\_Science, in collaboration with Germany's ESA-Test GmbH.

Made possible by a grant from the @IndustryGovAu Global Connections Fund.  
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The project A portable system for detection of drugs of abuse in healthcare applications was supported by the Global Connections Grant program, part of the Global Innovation Strategy in the National Innovation and Science Agenda. This program is administered by the Australian Academy of Technology and Engineering with the support of its expert Academy Fellows network.



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