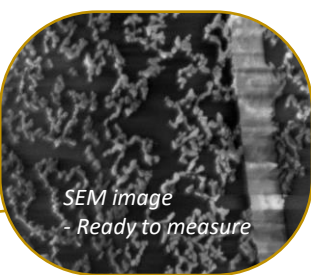
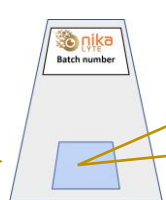
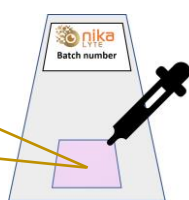
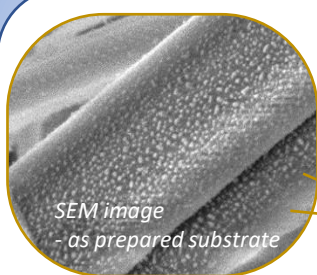


Introduction and aims

Aim: Develop easy to use Surface Enhanced Raman Sensor (SERS) which is suitable for lab and field use

- Requirements**
- Easy to use – *no complex chemical handling*
 - High Sensitivity - *detect trace analytes (ppm/ppb)*
 - High Reliability - *low substrate to substrate Raman signal variability*
 - High Specificity – *distinguish similar molecules*

Approach: Avoid issues with poor reliability, chemical handling and background noise associated with chemical SERS by utilizing ligand free *naked gold nanoparticles synthesised in vacuum*



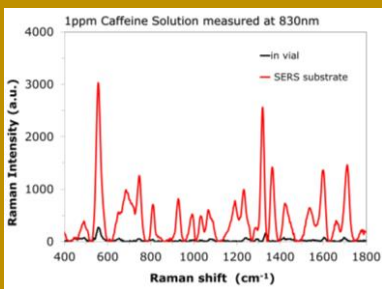
Easy to Use ✓

- Dissolve analyte in DI water
- Ready to measure in a few minutes

On application of analyte nanoparticles move on surface to form long chain agglomerates, indicated by colour change. Raman enhancement measured for analytes including **caffeine, fentanyl, MDMA, amphetamine, ibuprofen, melamine**

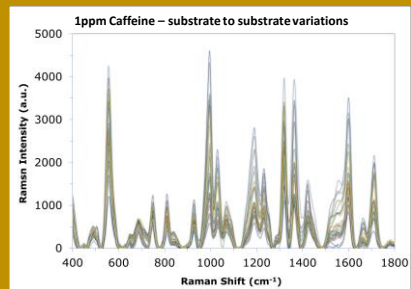
High Sensitivity ✓

- Measure ppm/ppb levels of analyte
- 1000x Raman signal enhancement



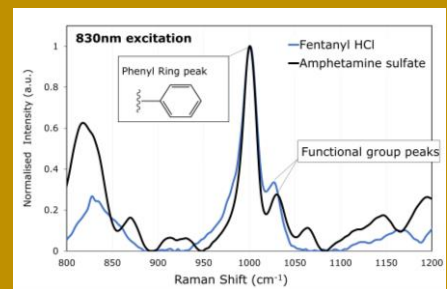
High Reliability ✓

- Low Raman signal variability from substrate to substrate



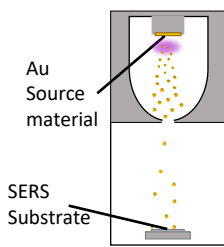
High Specificity ✓

- Low background noise enables discrimination of similar molecules



Methods

Substrate prepared by *inert gas condensation* under vacuum in Nikalyte's **NL50 benchtop nanoparticle deposition system**



Contact Details

Email: vicky.broadley@nikalyte.com

Nikalyte Ltd.
77 Heyford Park
Heyford Park Innovation Centre
Upper Heyford, Bicester, OX25 5HD

website: www.nikalyte.com

on Twitter [@NikaLyte_nano](https://twitter.com/NikaLyte_nano)

