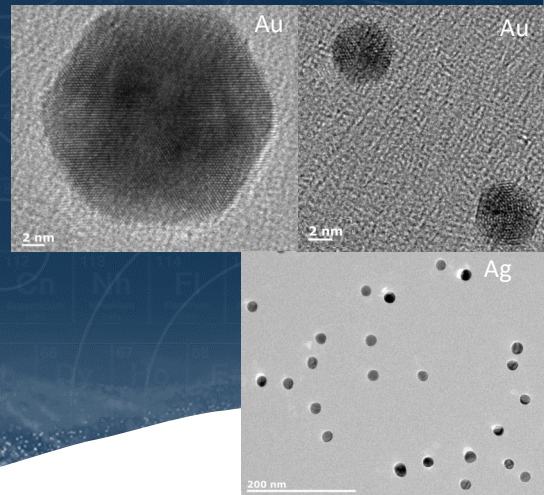




Applications of the **NL50** in Life Sciences



The NL50 is an easy to use touch-screen system which generates ultra-pure nanoparticles in vacuum. The nanoparticles are deposited straight onto your substrate as needed. Vacuum phase nanoparticles are hydrocarbon free and overcome many of the challenges of powder or solution based nanoparticles.

KEY CHARACTERISTICS ARE:

- * ***Deposit straight onto your substrate***

consistent results on planar or textured substrates without clumping

- * ***Ultra pure and hydrocarbon free nanoparticles***

- * ***Repeatable control over surface coverage***

Repeatable results from monodisperse to high porosity

- * ***Control nanoparticle size 2-20nm***

Control over nanoparticle size using deposition conditions

- * ***Prepare as needed***

never throw away out of date nanoparticles again

- * ***Switch easily between materials***

Deposit a wide range of materials, including Ag, Au, & Cu using one tool



APPLICATIONS INCLUDE..

Bio Sensors

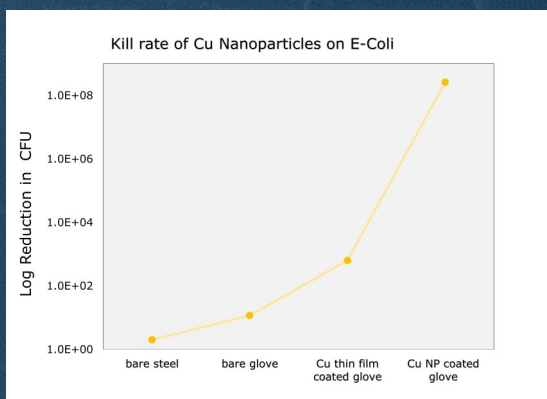
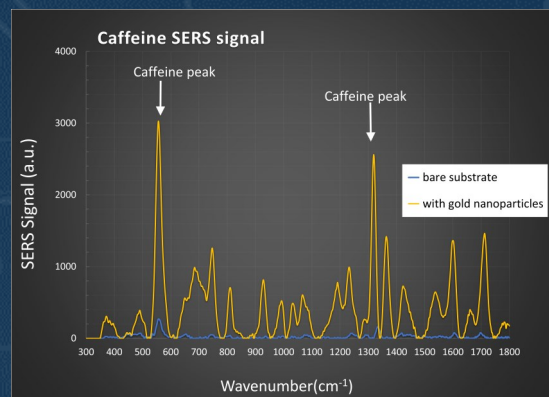
Nano-porous gold electrodes act as conducting binding sites for large molecules in electrochemical bio-sensors. Current projects involve DNA/RNA sequencing and Glucose sensors

Lateral flow Assays

Au nanoparticles can be functionalized with proteins, peptides or antibodies to gain specificity to molecules or cells both in vivo and invitro.

SERS - Chemical or biological sensors

Optical properties of Au and Ag nanoparticles are used to enhance Raman spectroscopy signal for gas, chemical and molecular sensors. Our gold nanoparticle demonstrated high sensitivity for ppb levels of caffeine.



Antimicrobial surfaces

Both Silver and copper NPs demonstrate antimicrobial properties on surface and when embedded in surgical instruments such as breathing tubes.

Copper nanoparticles demonstrated a Log-8 kill rate for e-coli when deposited on a wound dressing.

Drug delivery - Capped gold nanoparticles deliver site specific cancer treatment at lower dosage for the patient than conventional treatments.

Bio Imaging - Gold nanoparticles and magnetic nanoparticles are used as markers for diagnostics, photoacoustic treatment and for cancer imaging.

Photothermal therapy - Targeted treatment is achieved using direct excitation of nanoparticles positioned within the body

Environmental science - Study of toxicity of nanoparticles to environment and marine life