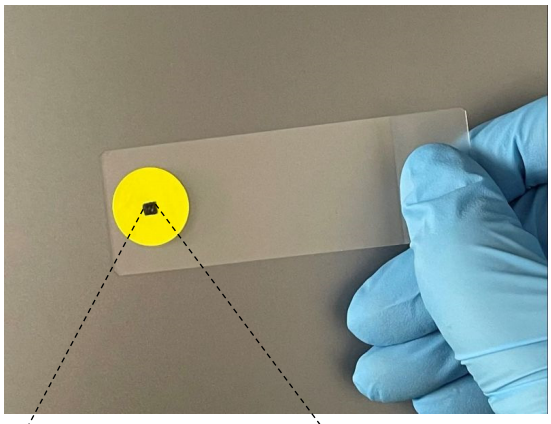
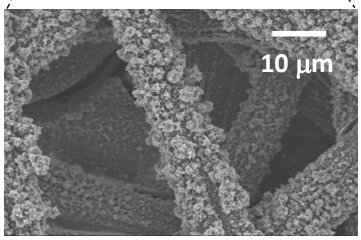
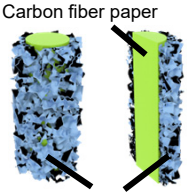
# Conducting Polymer SERS Substrate

Item Number: LL-CP-01

The conducting polymer SERS substrate not only delivers substantial signal amplification through its strong broadband charge-transfer resonance for enhanced chemical sensitivity (unlike the electromagnetic enhancement seen in traditional metal-based SERS) but also offers exceptional reproducibility across different substrates, spots, samples, and time periods. This level of consistency in the SERS spectrum is unachievable with traditional metal-based substrates due to the elimination of "electromagnetic hot spots," effectively rendering the substrate's entire surface "chemically hot." Additionally, it boasts remarkable durability owing to its resistance to oxidation and superior compatibility with biomolecules, attributed to its fluorescence quenching capabilities.






## Features

- ✓ World's first commercial non-metal SERS substrate
- ✓ Highly reproducible through broadband charge-transfer resonance
- ✓ Surface uniformity for Raman signal enhancement
- ✓ Highly compatible with biological molecules
- ✓ Fluorescence quenching
- ✓ Hydrophobic

## Applications

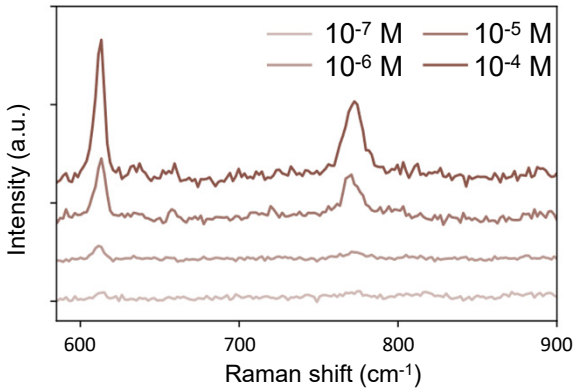
- ✓ Bioanalytical chemistry
- ✓ Forensics
- ✓ Lipid biopsy
- ✓ Drug testing
- ✓ Toxic material detection
- ✓ Infectious disease sensing
- ✓ Glucose sensing

## Description

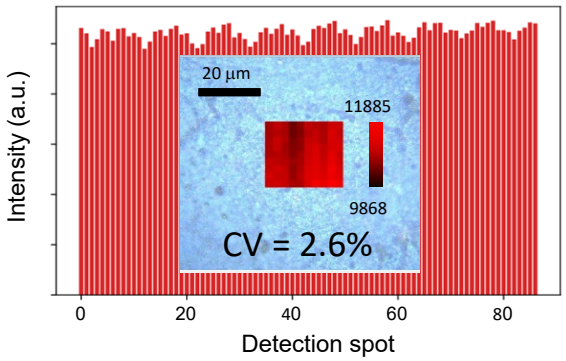
Surface-enhanced Raman spectroscopy (SERS) is a non-destructive analytical method which provides rich information about the chemical composition and structure of a sample by measuring scattered light from the sample with frequency shifts caused by molecular vibrations in the sample. It provides several orders of magnitude higher sensitivity than Raman spectroscopy by strong broadband charge-transfer resonance (unlike the electromagnetic enhancement seen in traditional metal-based SERS substrates). Compared to conventional SERS substrates, LucasLand's conducting polymer SERS substrate (LL-CP-01) provides previously unattainable capabilities: high reproducibility, high surface uniformity for Raman signal enhancement, high compatibility with biological molecules, and hydrophobicity.

| Parameter | Specification |
|---|---|
| Material | Conducting polymer |
| Size | 2 mm x 2 mm |
| Thickness | Less than 500 nm |
| Excitation Wavelength | 532 nm |
| Excitation Power | Up to 20 mW |

Rhodamine 6G on conducting polymer SERS substrate




SERS intensities at various spots on the substrate




Various dye molecules on conducting polymer SERS substrate