

Supplemental Material

Comparison of 4-Mercaptobenzoic Acid SERS Based Methods for pH Determination In Cells

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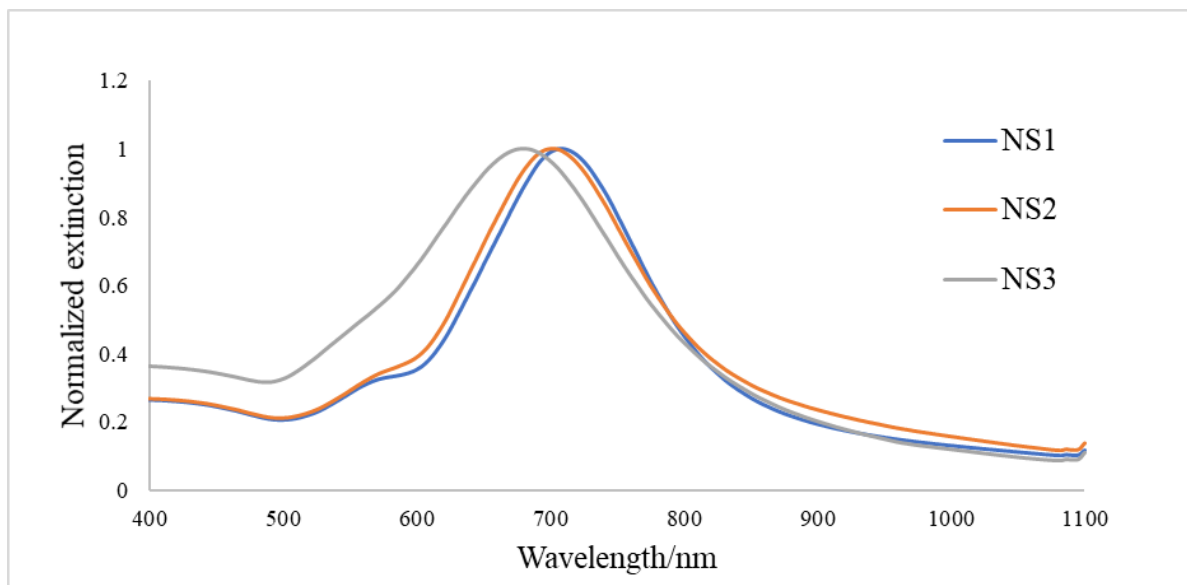


Figure S1: Extinction spectra of NS used before respective functionalization. Differences are representative of batch-to-batch variation in NS synthesis. NS1 and NS2 were functionalized with MBA for calibration experiments, NS3 was functionalized with a cell penetrating peptide (CPP12-Cys) and MBA for experiments in cells.

Table SI: Extinction maxima, particle concentration, and size for the NS as synthesized

	NS1	NS2	NS3
Extinction maximum	709 nm	702 nm	680 nm
NTA particle concentration (particles per mL) +/- standard error of the mean	$3.56(\pm 0.080) \times 10^{10}$	$2.97(\pm 0.096) \times 10^{10}$	$2.54(\pm 0.066) \times 10^9$
NTA size (nm) +/- standard deviation	111(\pm 26)	113(\pm 24)	117(\pm 19)

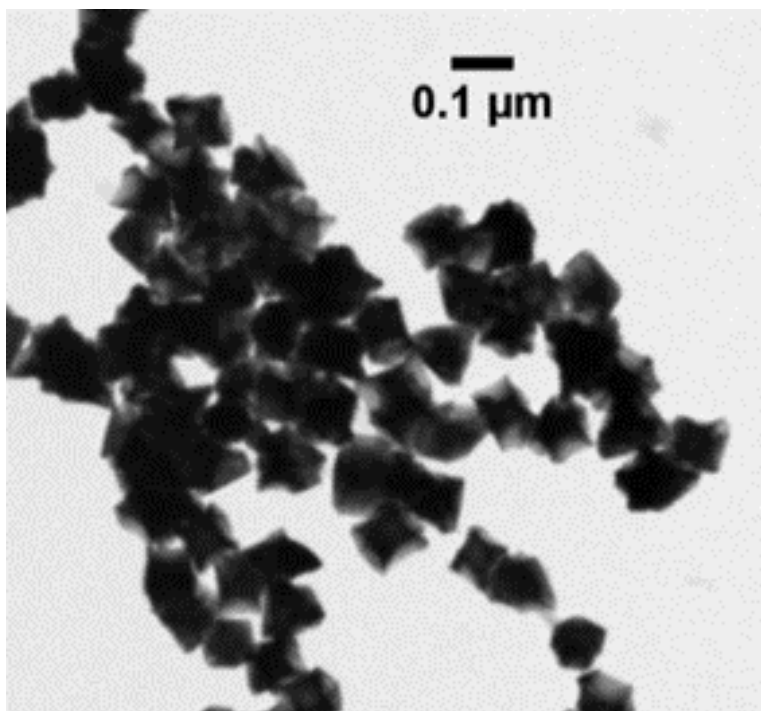


Figure S2: Transmission electron microscope image of unfunctionalized NS used in this study.

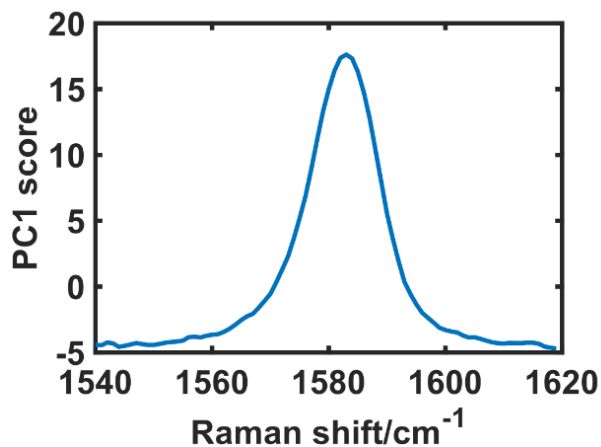


Figure S3: PC1 loading determined from the calibration data used to generate the pH models.

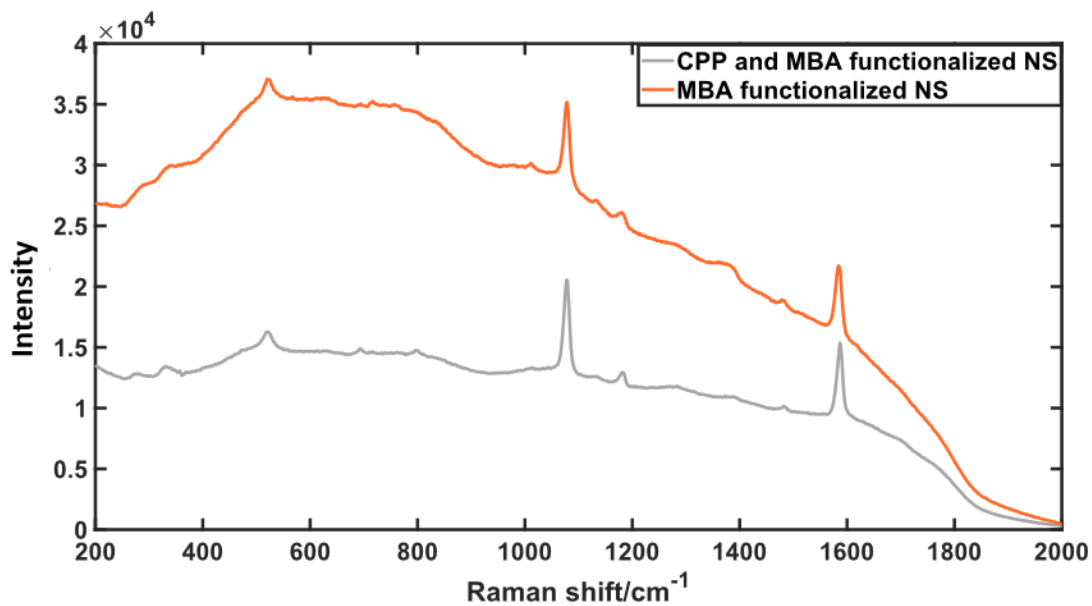


Figure S4: SERS spectra of NS after functionalization: MBA functionalized NS2 and CPP and MBA functionalized NS3. CPP is not seen to significantly influence the spectra. NS solutions are at different dilutions and pH was not controlled.