

Electronic Supplementary Material (ESI) for Nanoscale
This journal is © The Royal Society of Chemistry 2017

SUPPORTING INFORMATION

Poly-Cytosine-Mediated Nanotags for SERS Detection of Hg²⁺

Lin Qi,^{‡a} Mingshu Xiao,^{‡a} Fei Wang,^b Lihua Wang,^b Wei Ji,^a Tiantian Man,^a Ali Aldalbahi,^c M. Naziruddin Khan,^c Govindasami Periyasami,^c Mostafizur Rahaman,^c Abdulaziz Alrohaili,^c Xiangmeng Qu,^a Hao Pei,^a Cheng Wang^d and Li Li^{a*}

^a Shanghai Key Laboratory of Green Chemistry and Chemical Processes, School of Chemistry and Molecular Engineering, East China Normal University, 500 Dongchuan Road, Shanghai, 200241, P. R. China.

^b Address here. Division of Physical Biology & Bioimaging Center, Shanghai Synchrotron Radiation Facility, Shanghai Institute of Applied Physics, Chinese Academy of Sciences, Shanghai, 201800, P. R. China.

^c Chemistry Department, King Saud University, Riyadh 11451, Saudi Arabia.

^d Department of Nuclear Medicine, Renji Hospital, Shanghai Jiao Tong University School of Medicine, Shanghai 200127, P. R. China.

[‡]These authors contributed equally.

Corresponding author: *E-mail: lli@chem.ecnu.edu.cn.

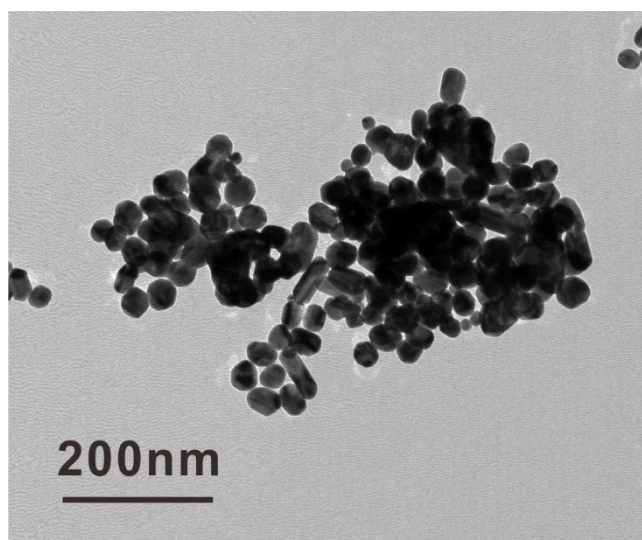


Figure S1. Representative TEM image of aggregation of SERS nanotags upon the addition $10 \mu\text{M}$ Hg^{2+} .

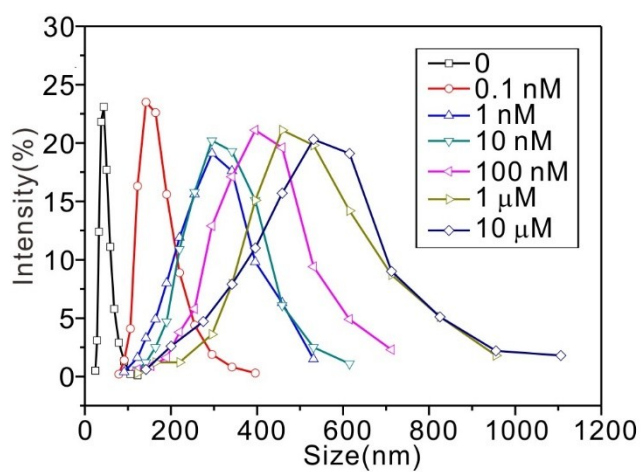


Figure S2. DLS analysis of SERS nanotags upon the addition of different concentrations of Hg^{2+} .

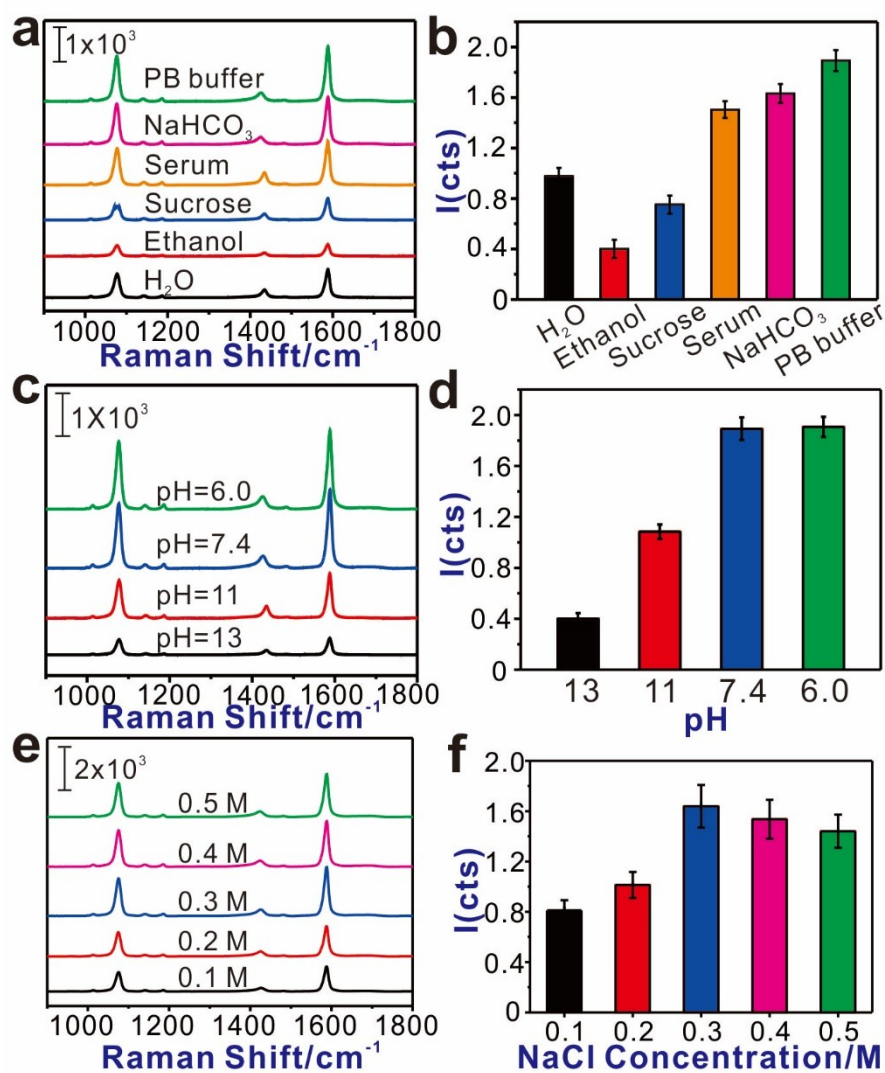


Figure S3. SERS spectra under different solvents (a), pH (c) and NaCl concentrations (e), and the intensity of peak at 1587 cm⁻¹ under different solvents (b), pH (d) and NaCl concentration (f).

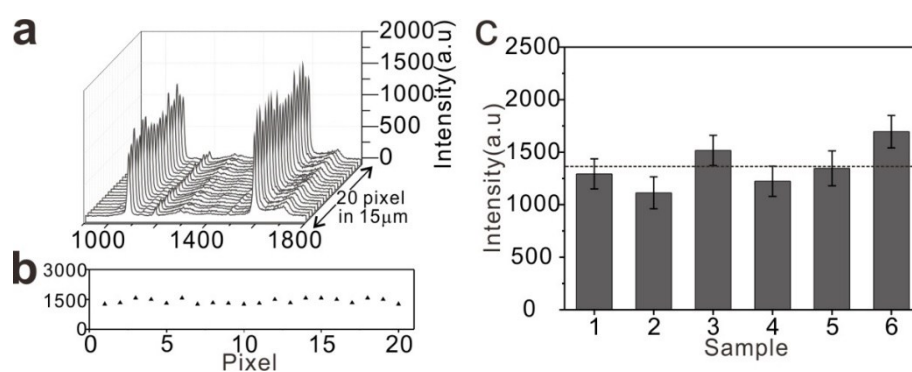


Figure S4. Reproducibility of the polyC₄₀-mediated SERS nanotags in the presence of 1 μM Hg²⁺. (a) Raman line scan in 15 μm scanning distance with a 0.75 μm step size. (b) Variation of SERS intensity at the specific Raman modes of 1587 cm^{-1} . (c) Reproducibility of six parallel batches of the polyC₄₀-mediated SERS nanotags in the presence of 1 μM Hg²⁺. The measurement was carried out on randomly selected five spots per sample; error bars showing the standard deviation are included. The transverse dotted line indicates the average SERS intensity obtained from six samples.

Table S1. Sequences of the oligonucleotides.

Names	Sequences (5'-3')
PolyC ₁₀ -P	C ₁₀ GATCACTGTCTGTTC
PolyC ₂₀ -P	C ₂₀ GATCACTGTCTGTTC
PolyC ₃₀ -P	C ₃₀ GATCACTGTCTGTTC
PolyC ₄₀ -P	C ₄₀ GATCACTGTCTGTTC
PolyC ₅₀ -P	C ₅₀ GATCACTGTCTGTTC
PolyC ₁₀ -Q	C ₁₀ CTGCAGTTCTGTCTG
PolyC ₂₀ -Q	C ₂₀ CTGCAGTTCTGTCTG
PolyC ₃₀ -Q	C ₃₀ CTGCAGTTCTGTCTG
PolyC ₄₀ -Q	C ₄₀ CTGCAGTTCTGTCTG
PolyC ₅₀ -Q	C ₅₀ CTGCAGTTCTGTCTG