Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supplementary Information

Gap-enhanced Resonance Raman Tags for Live-Cell Imaging

Yuqing Gu,[†,‡] Xinyuan Bi,[‡] and Jian Ye[,†,‡,#]*

[†]Department of Nuclear Medicine, Ruijin Hospital, School of Medicine, Shanghai Jiao Tong University, Shanghai 200025, P.R. China

[‡]State Key Laboratory of Oncogenes and Related Genes, School of Biomedical Engineering, Shanghai Jiao Tong University, Shanghai, P. R. China

[#]Shanghai Key Laboratory of Gynecologic Oncology, Ren Ji Hospital, School of Medicine, Shanghai Jiao Tong University, Shanghai, P. R. China

[*]To whom correspondence should be addressed. E-mail: yejian78@sjtu.edu.cn

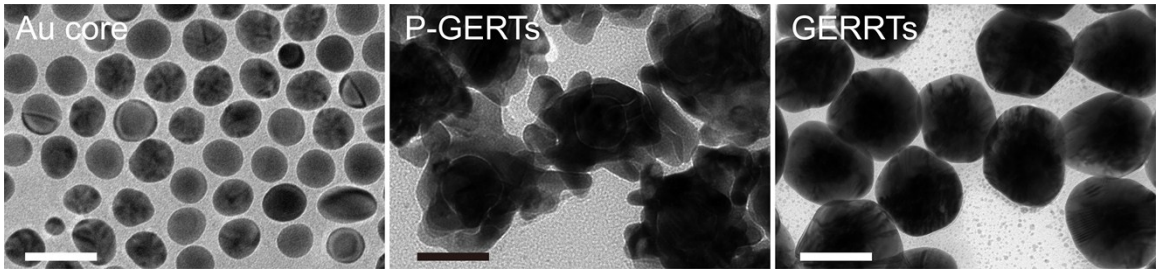

Figure S1. TEM images of Au cores, P-GERTs and GERRTs. Scale bars are 50 nm for Au cores and P-GERTs, and 100 nm for GERRTs.

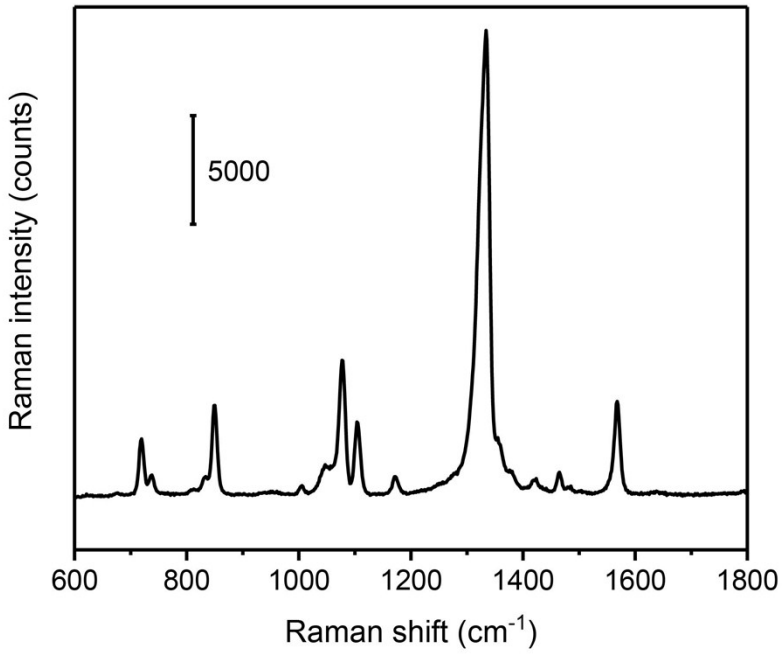

Figure S2. SERS spectrum of P-GERTs excited with 785 nm laser, 22 mW power, 2 s acquisition time and 10× objective lens.

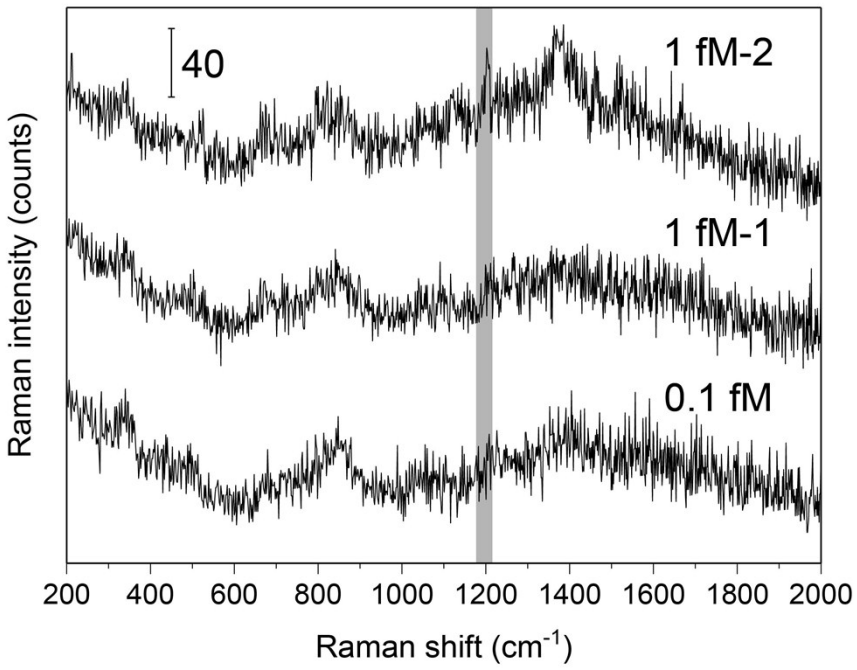

Figure S3. Representative SERS spectra of GERRTs at the concentrations of 1 fM and 0.1 fM.

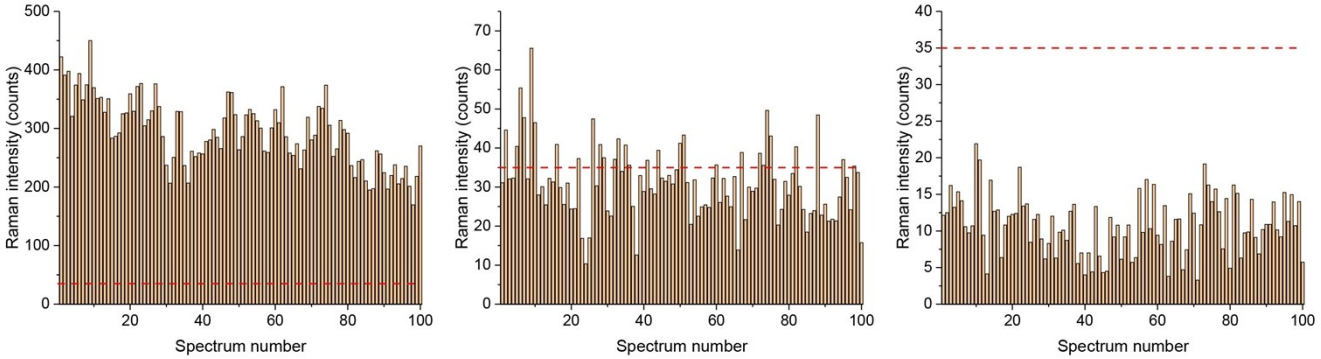

Figure S4. The intensity of Raman band at 1206 cm^{-1} of 100 measurements from 10 fM (left), 1 fM (middle), and 0.1 fM (right) GERRTs solution. Red dotted lines represent the background Raman signal (1206 cm^{-1}) without GERRTs.

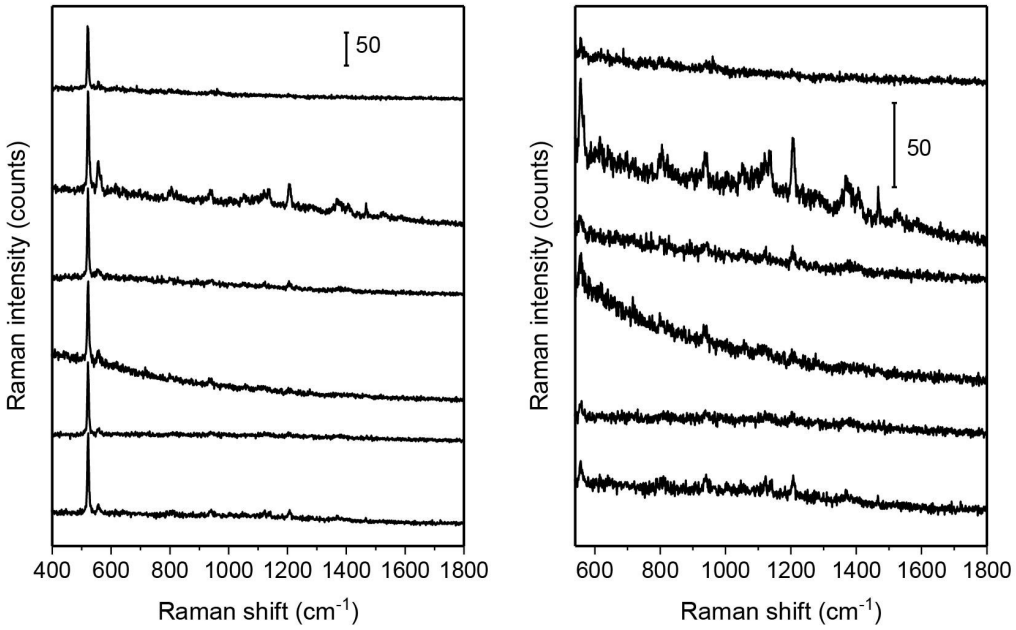

Figure S5. SERS spectra of the other six single GERRTs measured using the RISE system. The right is the same with the left except the exclusion of the Raman band at 523 cm^{-1} to zoom in on other bands.

Table S1 | Zeta potentials of GERRTs before and after surface functionalization.

Raman tag	Zeta potential (mV)	Average (mV)
GERRTs	60.2	59.0 ± 2.5
	60.8	
	55.9	
GERRTs@PDA	54.3	50.8 ± 2.5
	49.3	
	48.7	
GERRTs@PDA@PEG	7.9	10.1 ± 1.7
	10.3	
	12.1	