Supplementary information

Highly Sensitive and Selective SERS Substrates with 3D Hot Spot Buildings for Rapid Mercury Ions Detection

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Supplementary Figures:

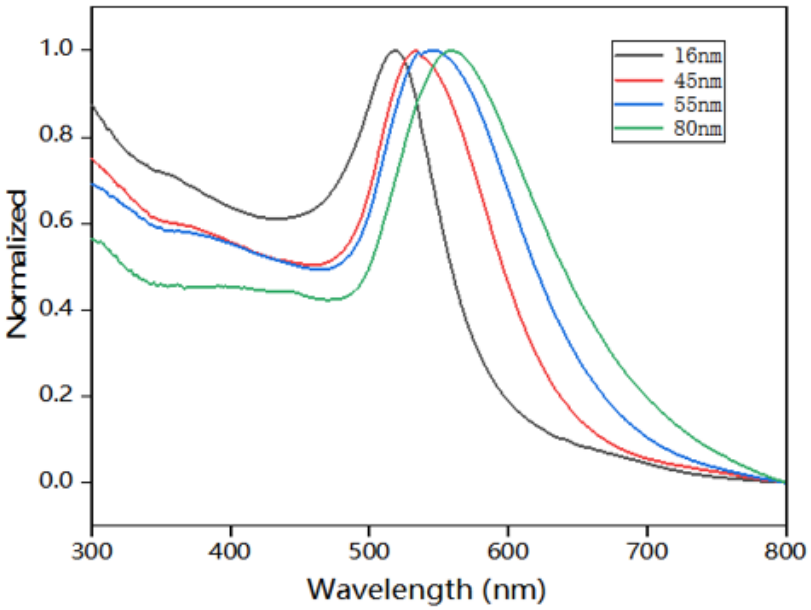

Fig. S1 The extinction spectra of Au NPs solution with different sizes (16 nm; 45 nm; 55 nm and 80 nm), the resonance spectrum peak gradually redshifts as nanoparticle size increases, which agrees with the Mie theory.

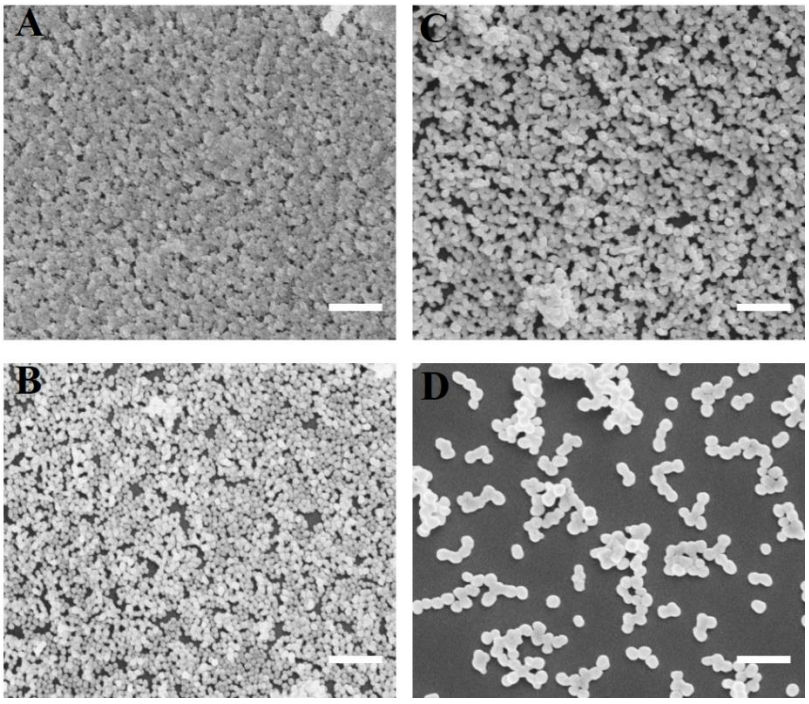

Fig. S2 The morphologies of 3D hot spot buildings in the capillaries; (A) 16 nm Au NPs, (B) 45 nm Au NPs, (C) 55 nm Au NPs and (D) 80 nm Au NPs.

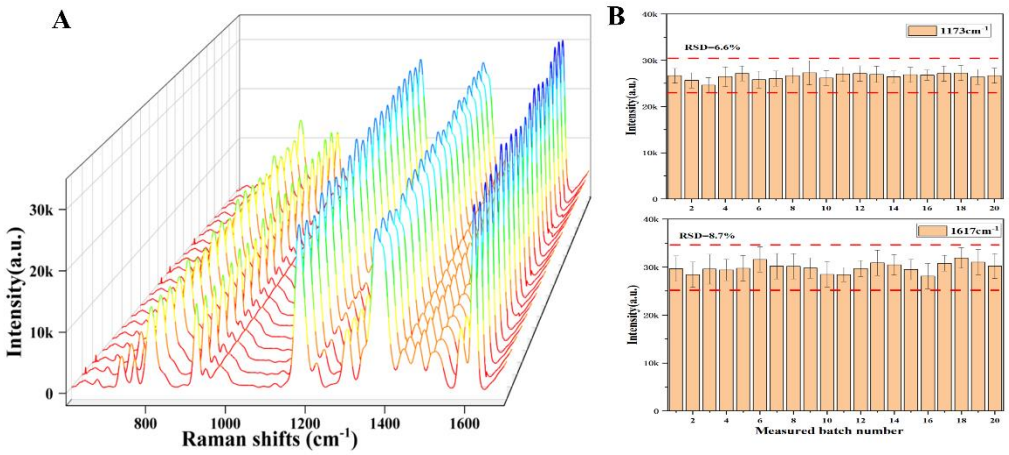

Fig. S3 (A) the SERS spectra of CV obtained from 20 sites on capillaries (B) RSD values for the peak intensity of CV at 1173cm^{-1} and 1617 cm^{-1} on capillaries.

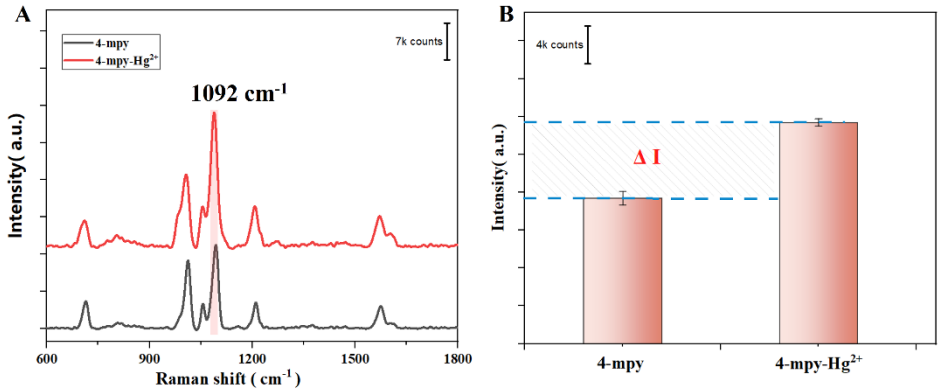

Fig. S4 The Raman spectra changes of 4-Mpy molecule before and after capturing Hg^{2+}, the peak at 1092 cm^{-1} should be assigned to pyridine breathing vibration of 4-Mpy, which would be affected significantly by 4-Mpy adsorption configuration.

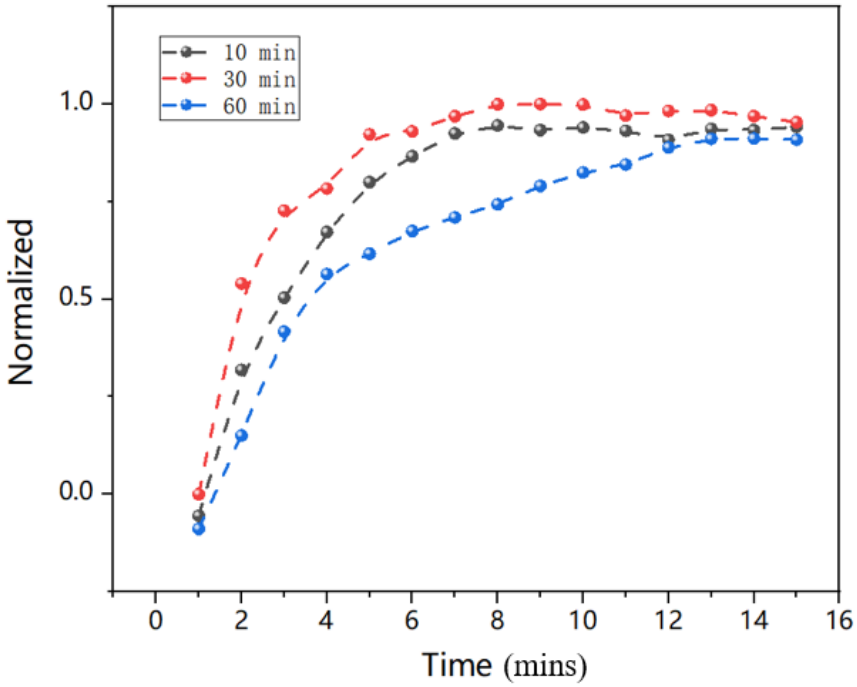

Fig. S5 Normalization rate of Hg^{2+} adsorption reaching saturation state.