

Figure S1. TEM image of pAuNCs.

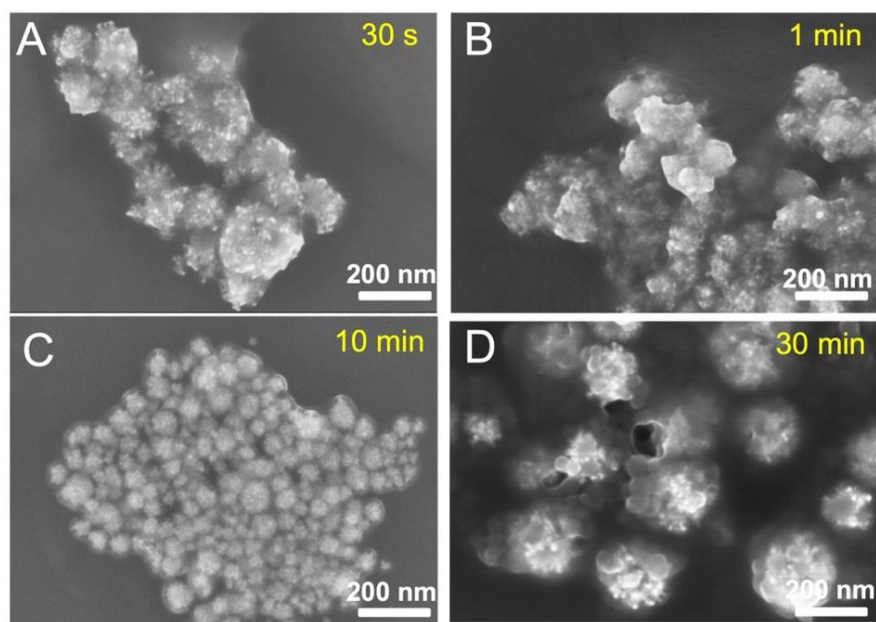


Figure S2. SEM images of pAuNCs with different reaction times (A) 30 s, (B) 1 min, (C) 10 min, and (D) 30 min.

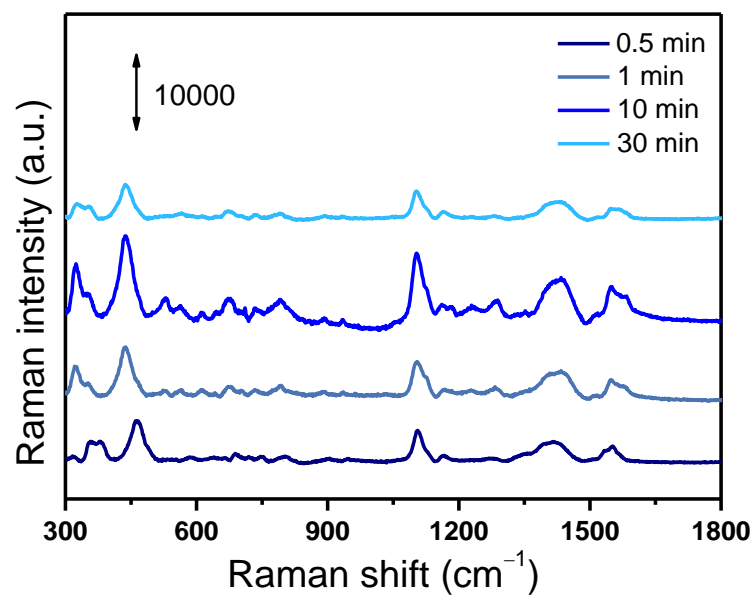


Figure S3. SERS spectra of pAuNCs with different reaction times

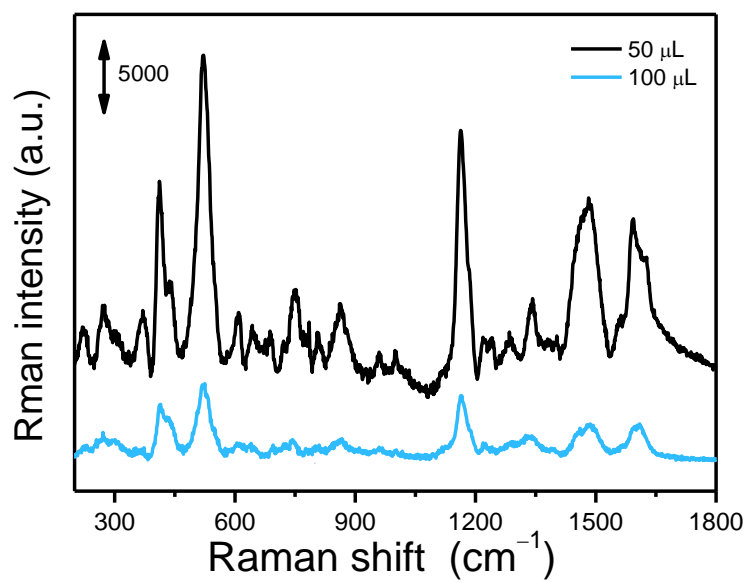


Figure S4. SERS spectra of pAuNCs with different aniline concentrations.

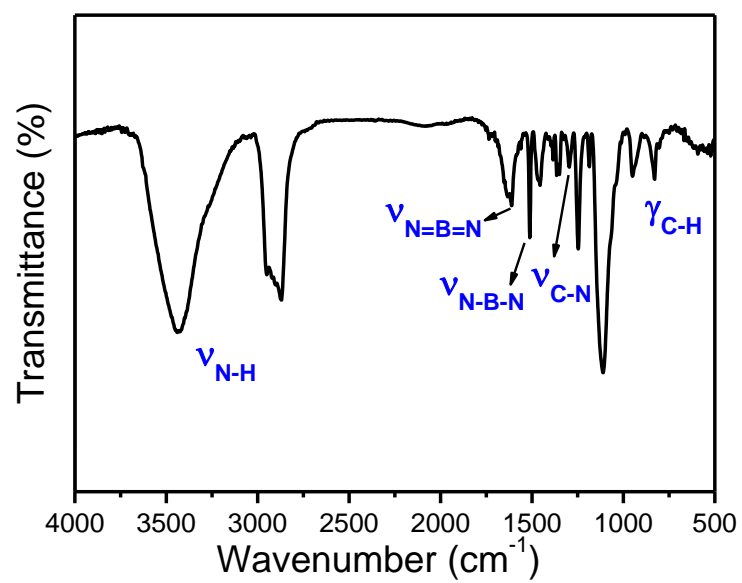


Figure S5. FT-IR spectrum of pAuNCs.

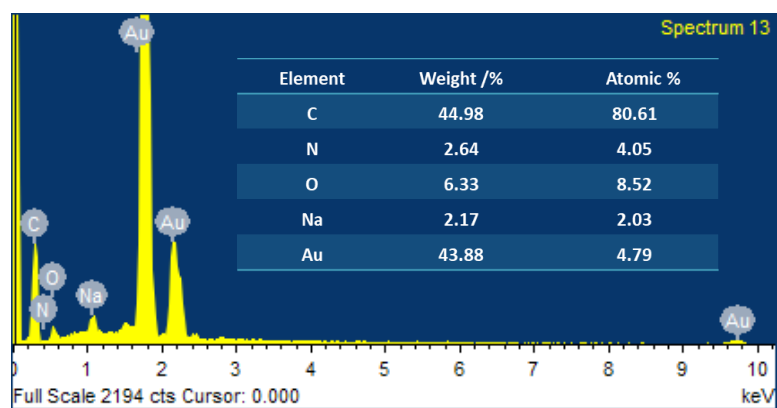


Figure S6. The EDS analysis of pAuNCs.

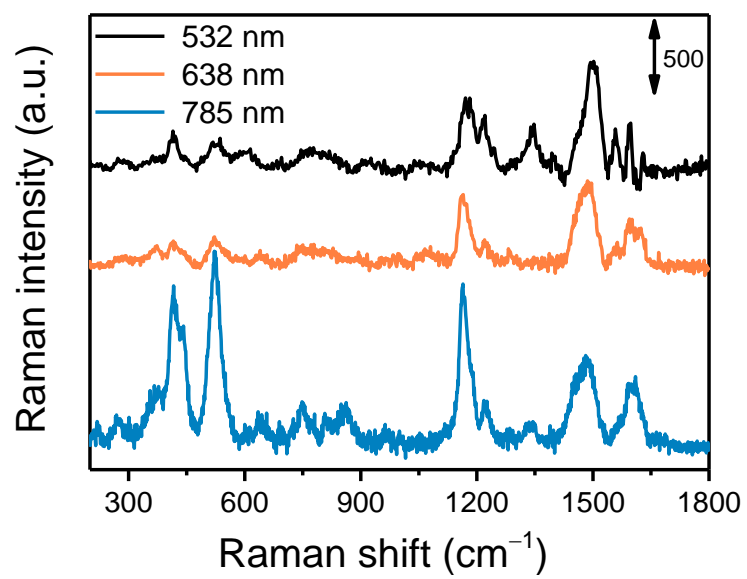


Figure S7. SERS spectra of pAuNCs under different laser excitation wavelength.

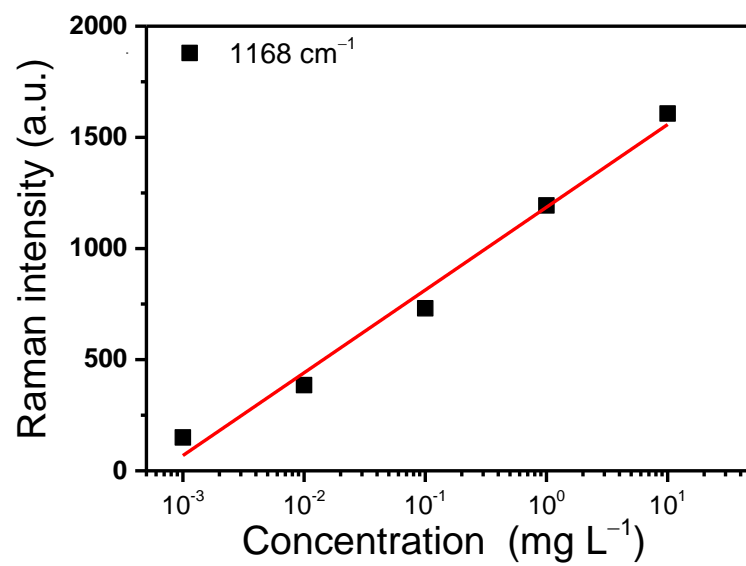


Figure S8. The calibration curve of the intensity of SERS signals at 1168 cm⁻¹ versus the concentration of pAuNCs.

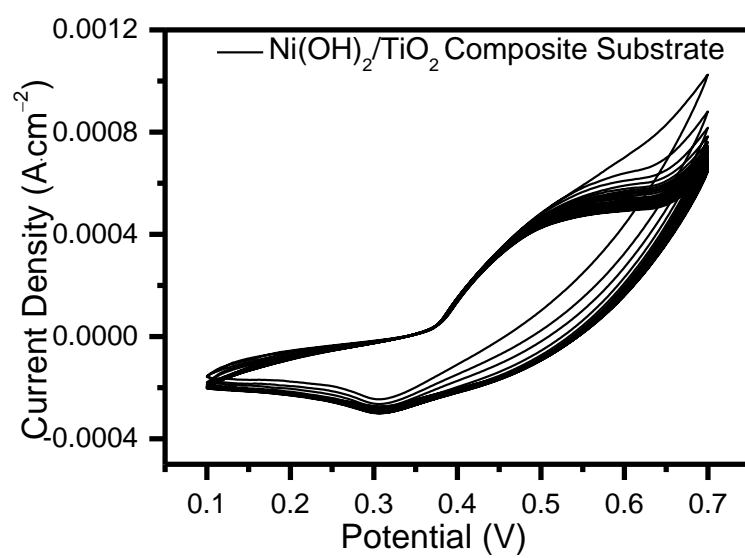


Figure S9. CV curves of $\text{Ni(OH)}_2/\text{TiO}_2$ film in 0.1 M NaOH between 0.1 and 0.7 V at a scan rate of 50 mV s^{-1} for 25 cycles.

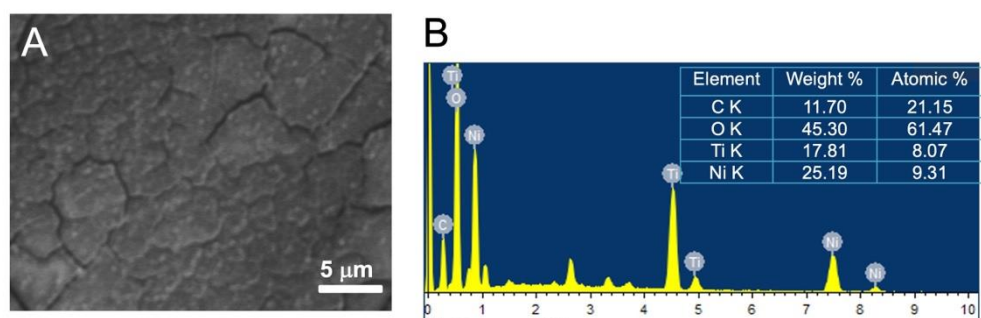


Figure S10. (A) SEM image and (B) EDS spectra of $\text{Ni(OH)}_2/\text{TiO}_2$ film.

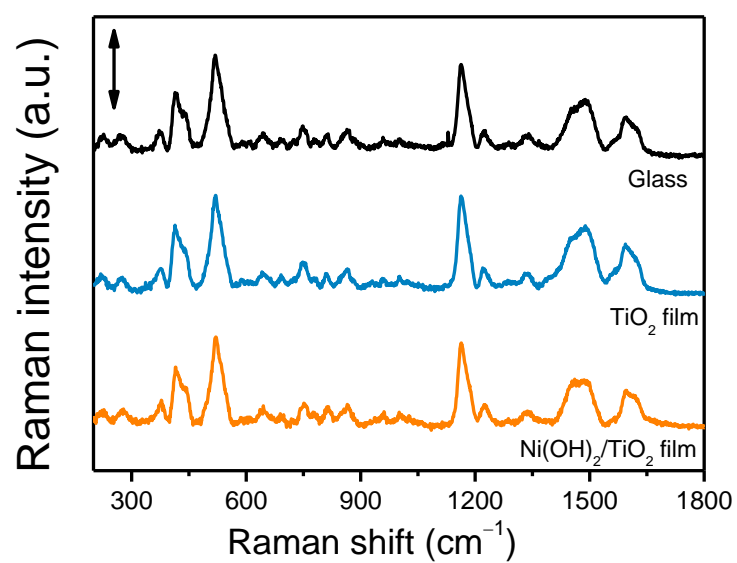


Figure S11. SERS spectra of pAuNCs on different glass, TiO₂ film, and Ni(OH)₂/TiO₂ film as substrate.

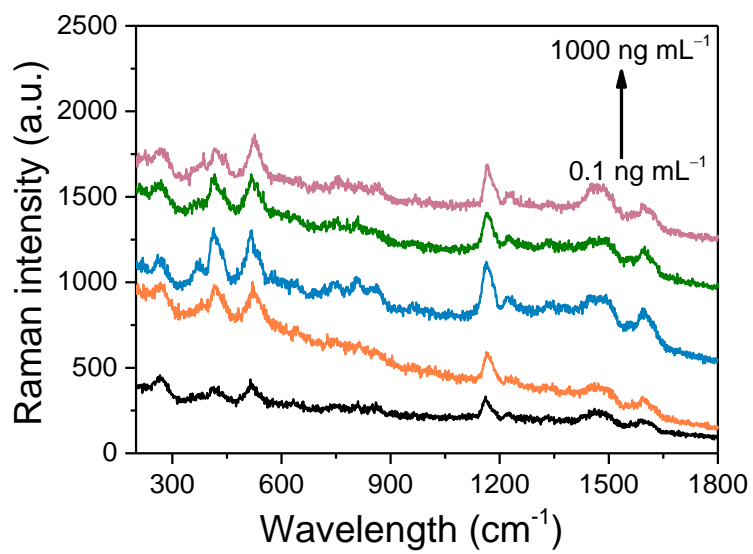


Figure S12. SERS spectra of pAuNCs incubated with different concentrations of his-tagged antigen on TiO₂ films.