

Supplementary information

1. The Raman spectrum of ethanol measured by self-constructed Raman spectrometer and commercial Raman spectrometer.

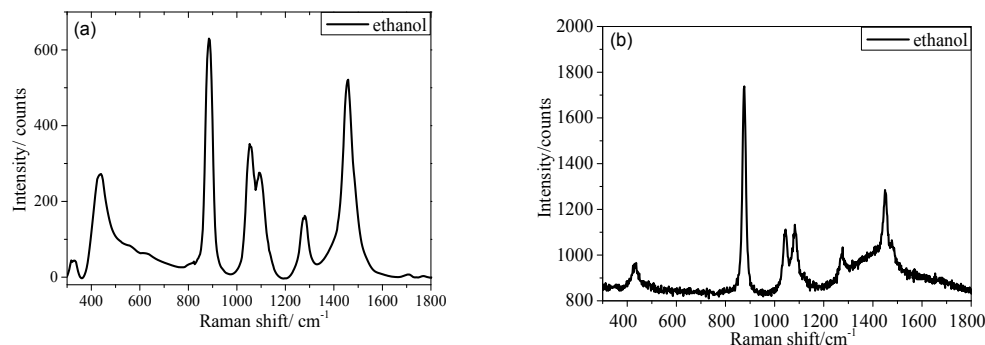


Fig.S1 The Raman spectrum of ethanol measured by self-constructed Raman spectrometer (a); the Raman spectrum of ethanol measured by commercial Raman spectrometer (b).

2. The Raman spectrum of sodium citrate as the reducing agent.

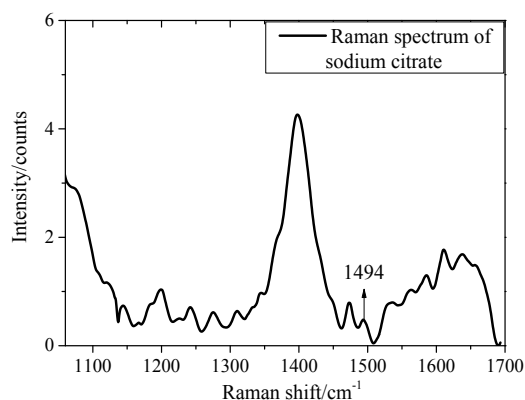
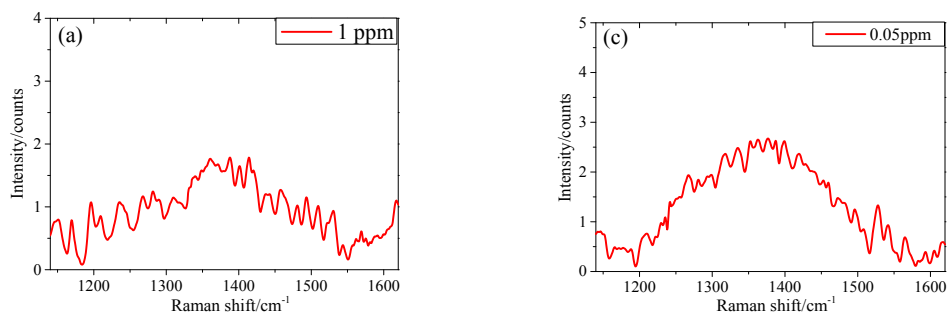


Fig. S2 The Raman spectrum of sodium citrate

3. SERS spectra of PDGF-BB aqueous solution with other low concentrations (1 / 0.5 / 0.05 / 0.01 ppm)



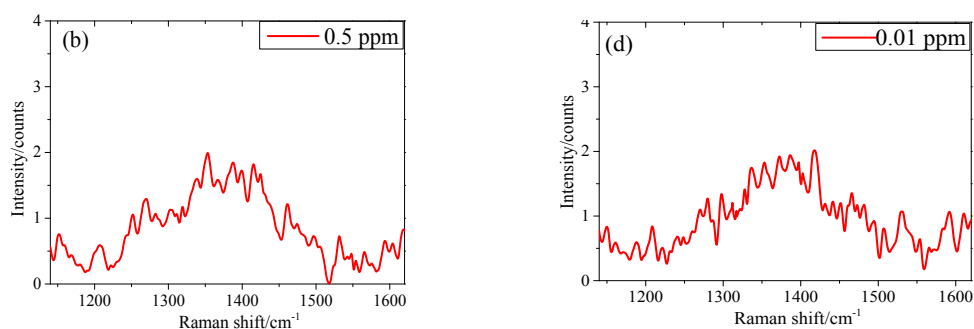


Fig.S3 The SERS spectra of PDGF-BB aqueous solution with other low concentrations with the whole spectra range (a) 1ppm; (b) 0.5ppm; (c) 0.05 ppm; (d) 0.01 ppm.

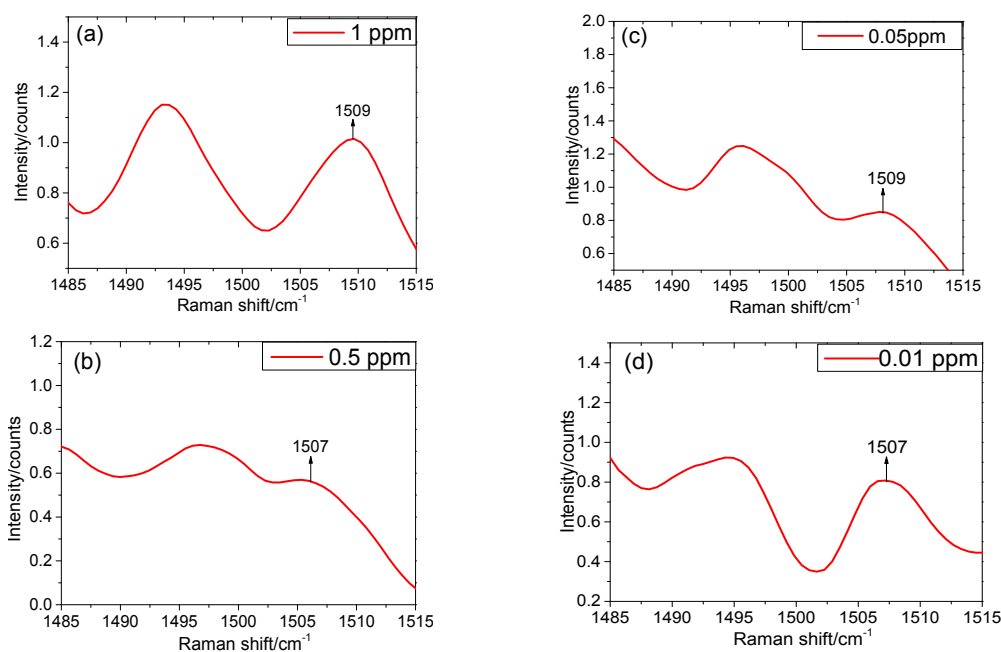


Fig. S4 The SERS spectra of PDGF-BB aqueous solution with other low concentrations with the range from 1485-1515cm⁻¹. (a) 1ppm; (b) 0.5ppm; (c) 0.05 ppm; (d) 0.01 ppm.

4. The measured range from 1140 to 1620 cm⁻¹ for Figure 7

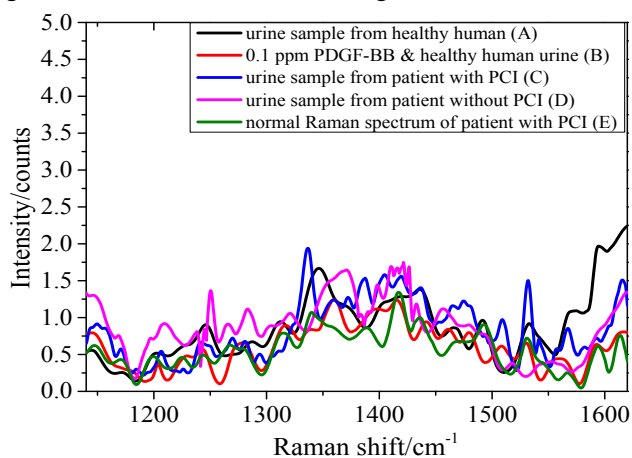


Fig. S5 The whole measured from 1140to 1620 cm⁻¹ for Figure 7