

Colorimetric immunosensor by aggregation of photo-chemically functionalized gold nanoparticles

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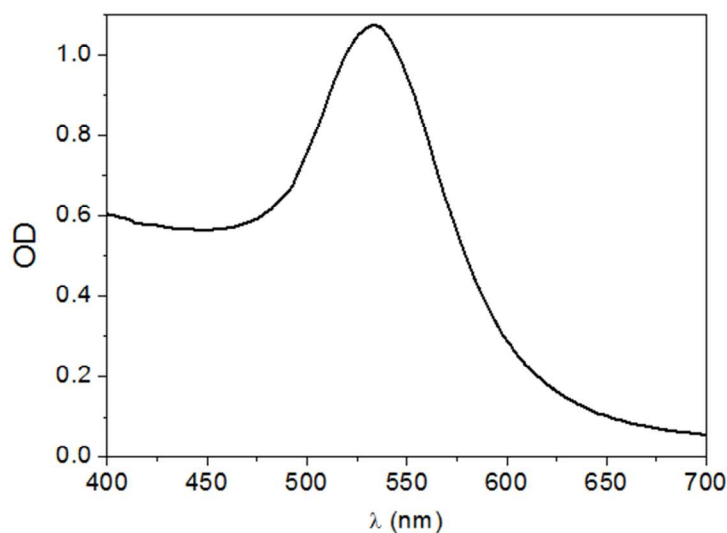


Figure S1. Absorption spectrum of synthesized AuNPs. The absorbance at 450 nm is approximately 0.6 and considering the molar extinction coefficient of $5 \times 10^9 \text{ Mol}^{-1} \cdot \text{cm}^{-1}$ for 40 nm AuNPs,¹ we obtain a nanoparticle concentration of 6×10^{10} particles/mL.

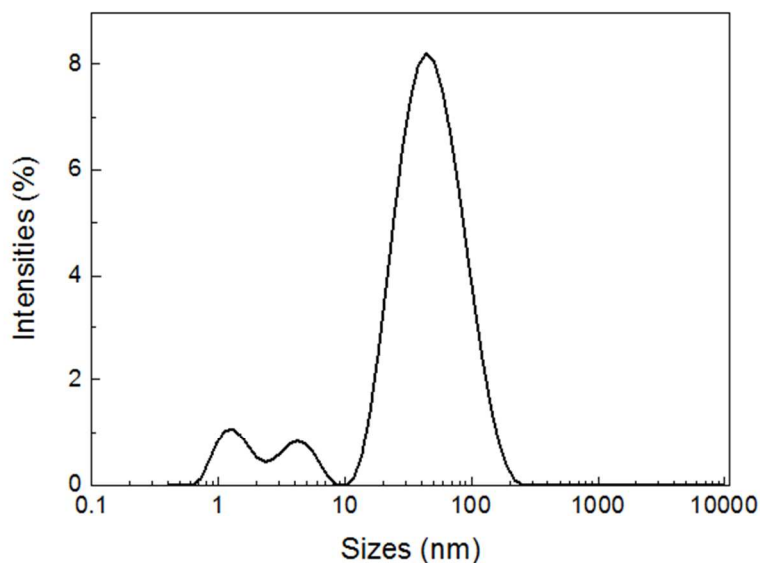


Figure S2. Intensity-size distribution of the synthesized AuNPs obtained from DLS measurements.

- (1) Haiss, W.; Thanh, N. T. K.; Aveyard, J.; Fernig, D. G. Determination of Size and Concentration of Gold Nanoparticles from UV-Vis Spectra. *Anal. Chem.* **2007**, *79*, 4215–4221.

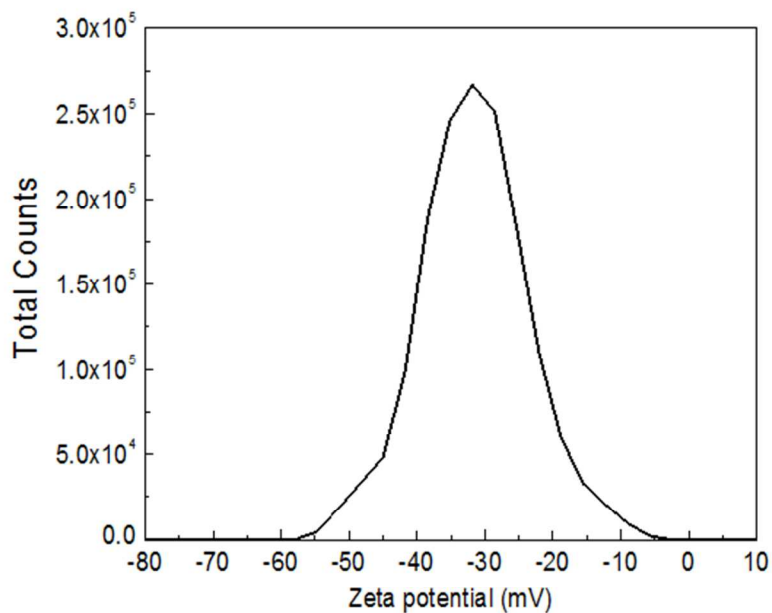


Figure S3. Zeta potential distribution of the synthesized AuNPs.

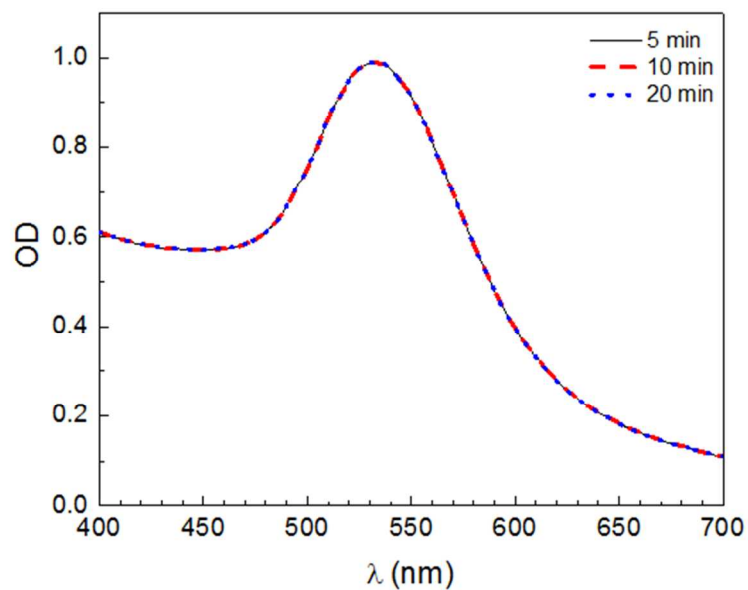


Figure S4. UV-Vis absorption spectra of the functionalized AuNPs collected after various incubation times, which show that less than five minutes are required to reach the equilibrium.

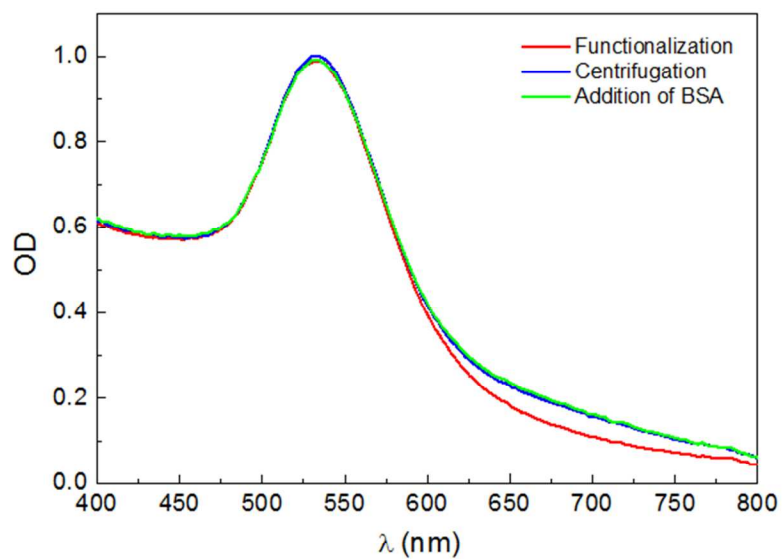


Figure S5. UV-Vis absorption spectra of the functionalized AuNPs before and after the purification treatment and the addition of BSA.

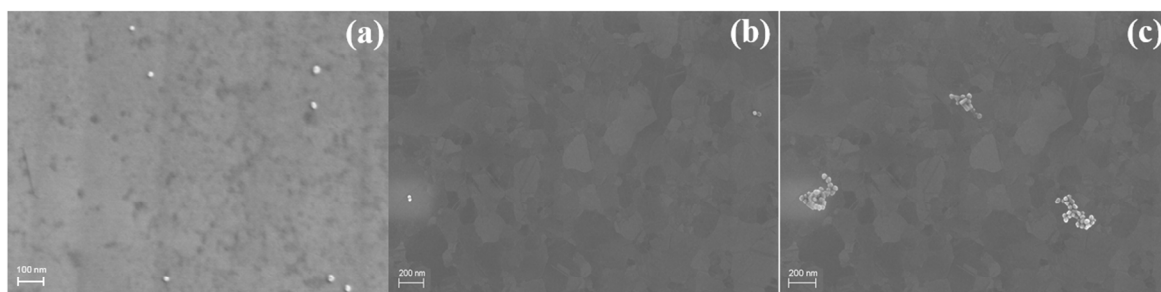


Figure S6. SEM images at lower magnification of functionalized AuNPs interacting with human-IgG at different concentrations: (a) no IgG (0 ng/mL), (b) 50 ng/mL and (c) 200 ng/mL.

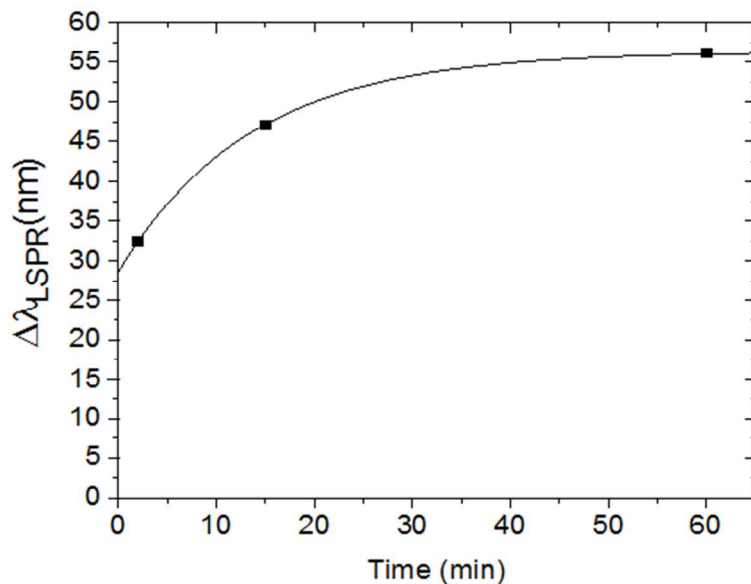


Figure S7. Change of the wavelength of the maximum absorption measured at human IgG of 200 ng/mL.

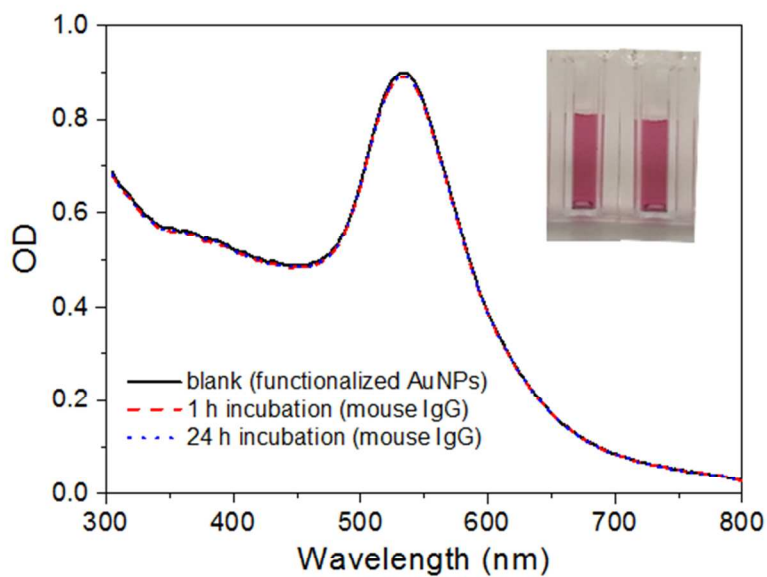


Figure S8. UV-Vis absorption spectrum of functionalized AuNPs (black solid line). The same spectrum after 1 h (red dashed line) and 24 h (blue dotted line) incubation time with 200 ng/mL mouse IgG. The inset shows the cuvette with functionalized AuNPs (left) and after the addition of 4 μL of a solution containing mouse IgG 50 $\mu\text{g/mL}$ (right).