

Supplementary information

A SERS nano-tag-based fiber-optic strategy for *in situ* immunoassay in unprocessed whole blood

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Contents:

- 1. Experimental Section**
- 2. Supporting Figures**

1. Experimental Section

1.1. Preparation of Ag NPs.

The preparation of Ag NPs followed our before article.³⁵ Simply, in aqueous solution, the AgNO₃ was firstly mixed with sodium citrated, then, NaBH₄ was rapidly added into the above solution. the concentrations of three reagents were 1×10^{-3} M, 7×10^{-3} M and 2×10^{-7} M, respectively. At last, the above solution was boiled for one hour, and the temperature was down naturally to room temperature

1.2. Preparation of SERS reporters-functionalized Ag NPs.

4-MBA-functionalized Ag NPs were obtained according to the following procedure. 20 μ L of 0.1 mM 4-MBA ethanol solution was added into the Ag NPs and stirred at 30 °C for 12 h. At last, the above solution centrifugated at 8500 rpm for 15 min to get rid of the excess 4-MBA molecules and the remnant was redispersed in 2 mL of de-ionized water.

2. Supporting Figures

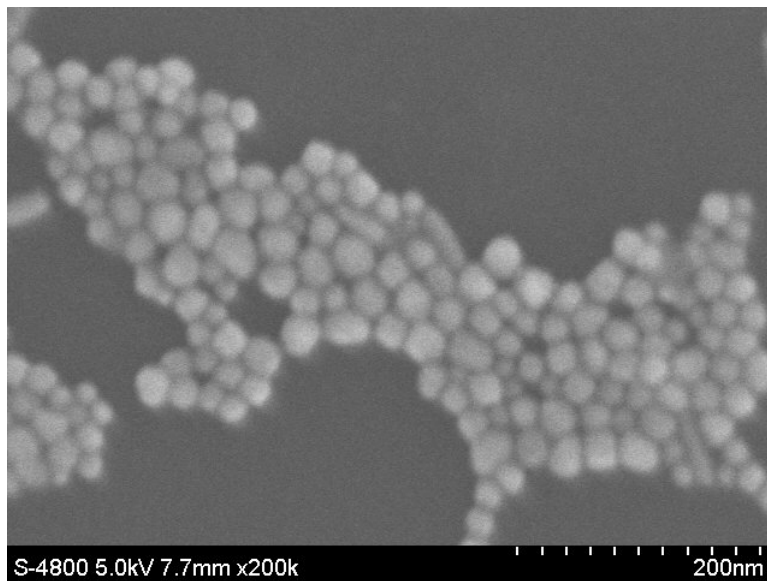


Figure S1. FE-SEM image of citrate-stabilized Ag NPs.

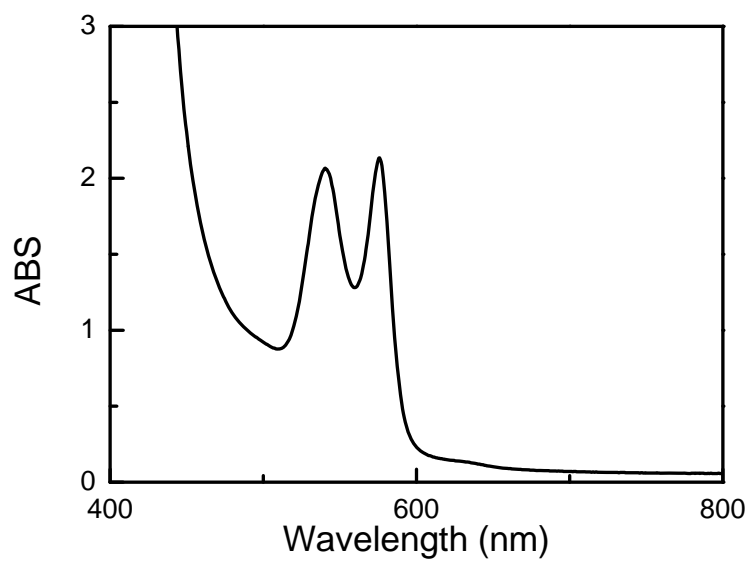


Figure S2. The absorptive spectrum of the whole blood samples with 40 folds dilution.

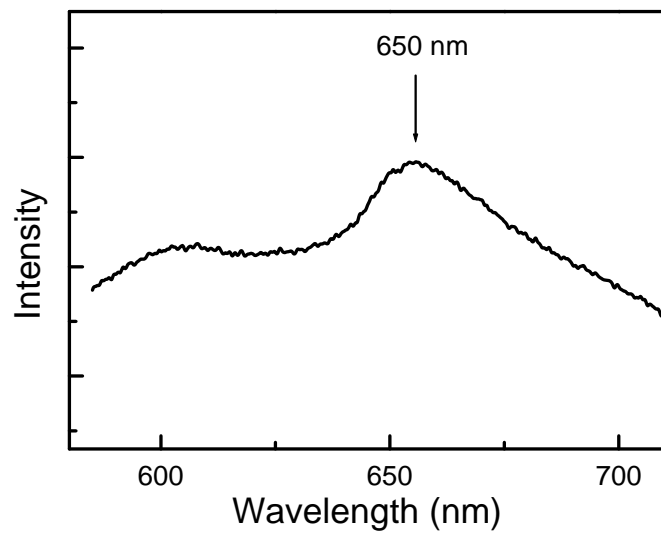


Figure S3. The evanescent wave-based FOB using the QDs as labels measured the spectrum in the whole blood sample with the excitation wavelength of 488 nm.

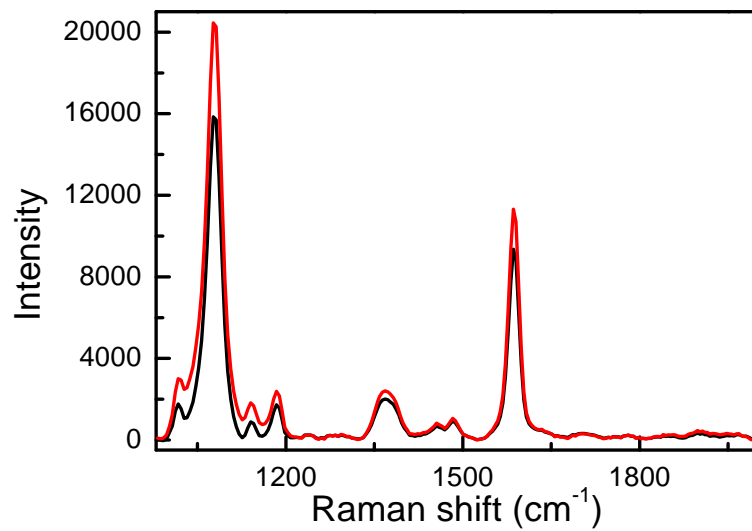


Figure S4. SERS spectra of Ag@4-MBA@SiO₂ bound on the surface of fiber in PBS (black line) or whole blood (red line). Both spectra were obtained with 785 nm laser excitation.

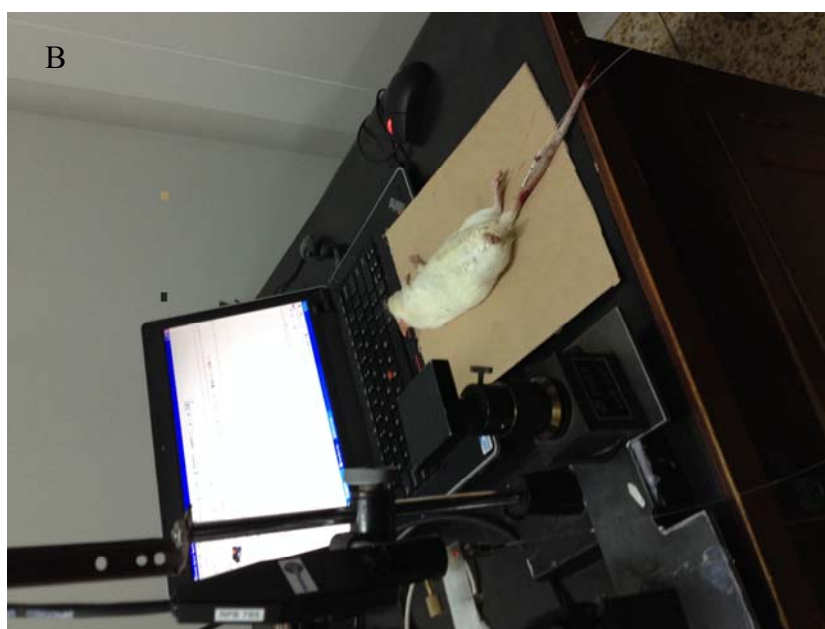
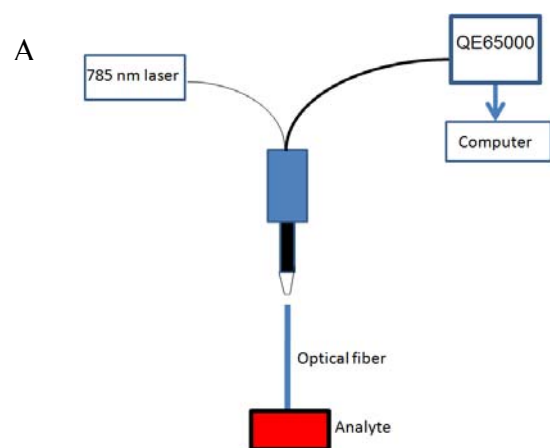


Figure S5. (A) Instrumental setup of the fiber-optic biosensor. (B) The detection image of FOBS in the whole blood of wistar rat.