Electronic Supplementary Information

SERS-based lateral flow assay for quantitative detection of C-reactive protein as an early bio-indicator of radiation-induced inflammatory response in nonhuman primates

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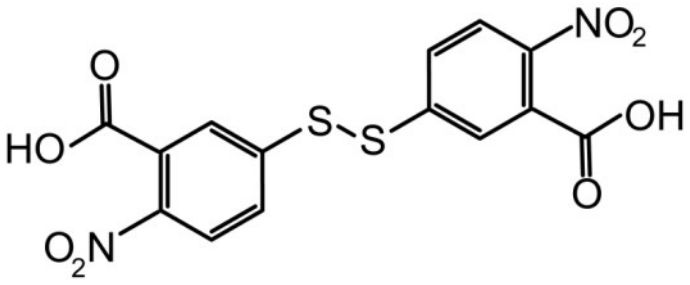

Fig. S1. Molecular structure of Raman reporter DTNB.

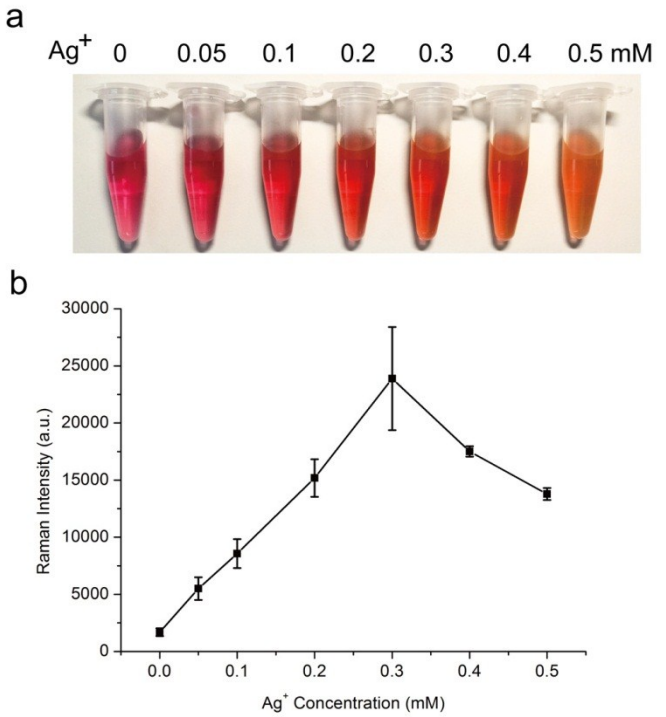

Fig. S2. Effect of the concentration of Ag precursor on the SERS intensity. (a-b) The photographs and SERS intensities of Au@DTNB@Ag NPs synthesized with different concentrations of Ag precursor.

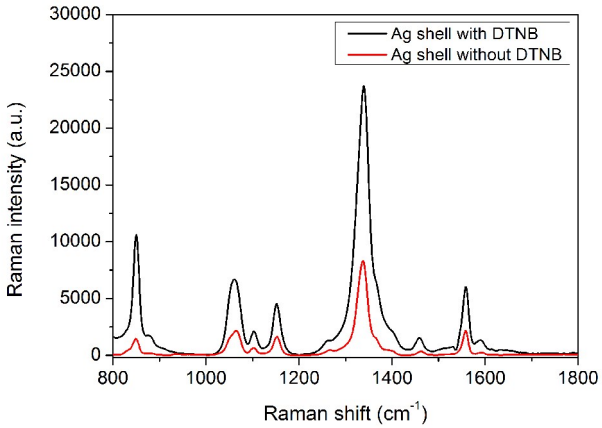

Fig. S3. Effect of embedding DTNB inside silver shell. Excess DTNB was removed before the deposition of silver shell and the Raman intensities of the prepared nanoparticles with (black line) or without (red line) DTNB in silver shell were compared.

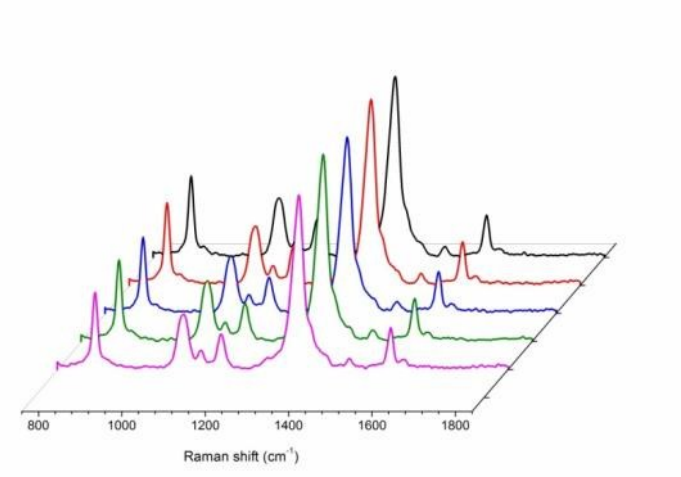

Fig. S4. SERS spectra of Au@DTNB@Ag NPs prepared in five independent batches. The spectra were collected under 785 nm excitation (25 mW, 5 s), baseline-subtracted and smoothed.

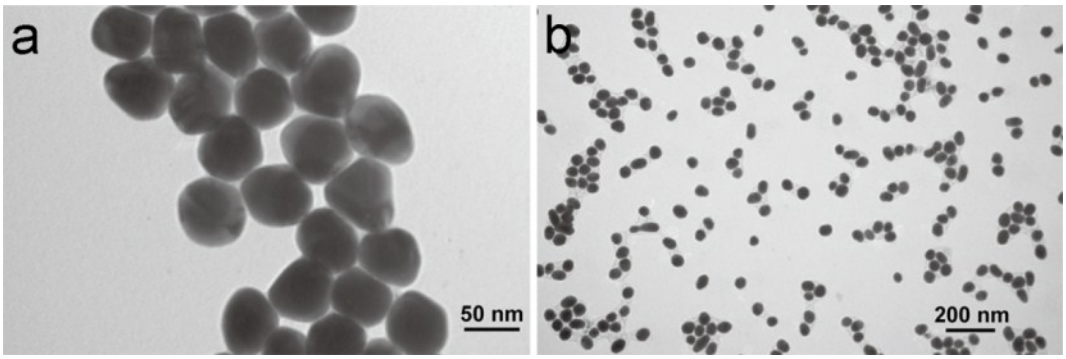

Fig. S5. (a-b) Dispersibility of SERS tags before and after antibody conjugation.

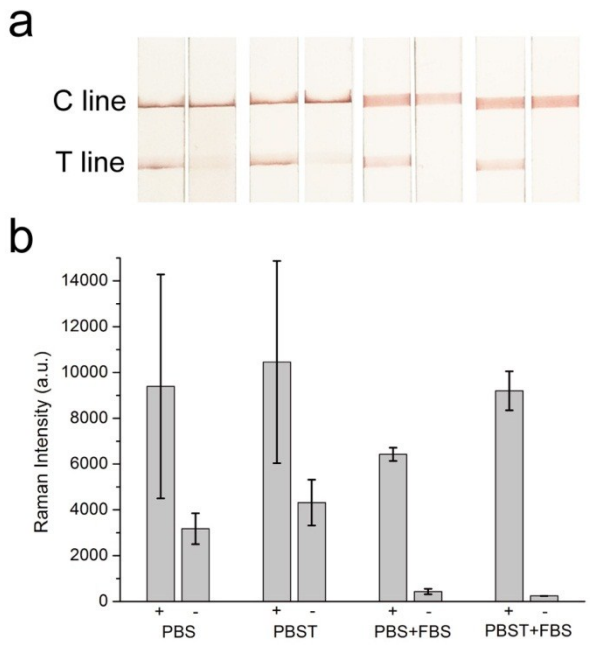

Fig. S6. Effect of running buffer on the S/N ratio. (a-b) The photographs and SERS intensities of SERS LFA strips (left: positive, right: negative) using four different running buffers: a) 10mM PBS, b) 10mM PBS, 0.05% Tween 20, c) 10mM PBS, 25% FBS, and d) 10mM PBS, 0.05% Tween 20, 25% FBS.

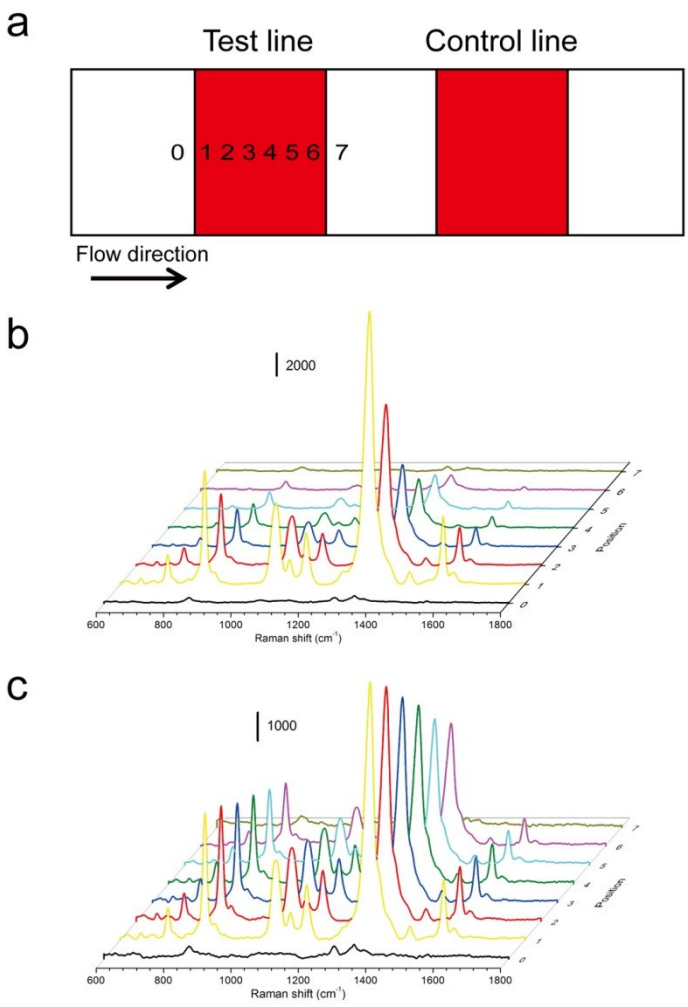

Fig. S7. Raman line profiles of the test line of SERS LFA strips. (a) Schematic illustration of a strip showing 8 different locations for Raman measurements. Raman line profiles of the 8 points on the test line of SERS LFA strips corresponding to running buffer (b) 10mM PBS, 0.05% Tween 20 and (c) 10mM PBS, 0.05% Tween 20, 25% FBS. The spectra were collected under 785 nm excitation (25 mW, 5 s), baseline-subtracted and smoothed.

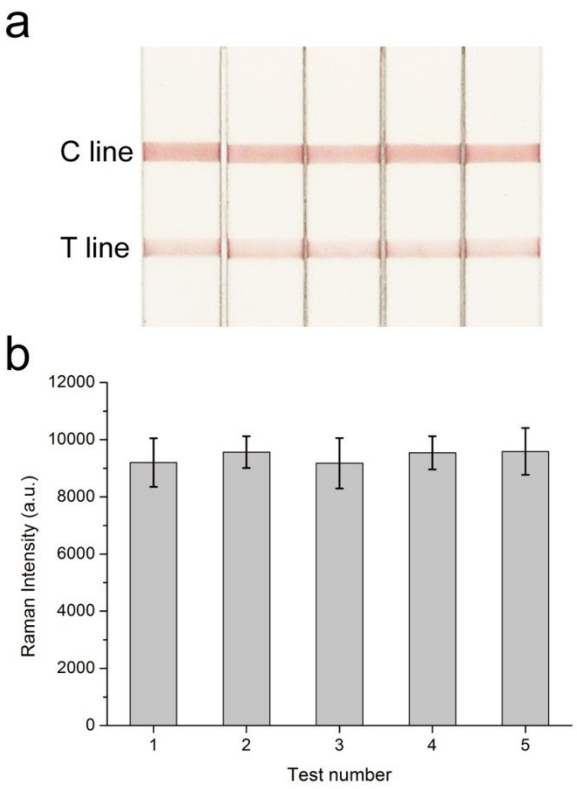

Fig. S8. The assay reproducibility of five tests of 25 ng/mL of CRP samples under optimal condition.