

Supporting Information

For

Nanozyme mediated dual-immunoassay integrated with smartphone for use in simultaneous detection of pathogens

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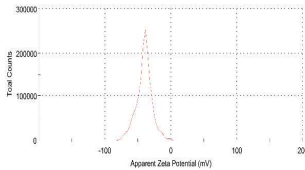
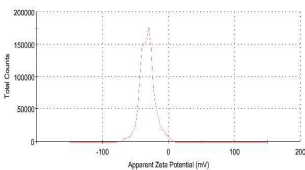
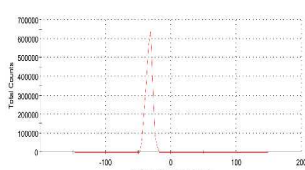
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Supplementary tables

Table S1 Characterization of Pt-Pd nanoparticle, *Salmonella* Enteritidis antibody modified Pt-Pd nanoparticle conjugations and *E. coli* O157:H7 antibody modified Pt-Pd nanoparticle conjugations by means of zeta potential

Sample*	Typical Image	Zeta potential
Pt-Pd nanoparticle		-40.6 ± 1.7 mV
<i>Salmonella</i> Enteritidis antibody modified Pt-Pd nanoparticle conjugations		-32.5 ± 2.9 mV
<i>E. coli</i> O157:H7 antibody modified Pt-Pd nanoparticle conjugations		-33.5 ± 2.4 mV

* The samples were suspended in DI water at very low concentrations and the pH was kept constant at 8.2.

Supplementary figures

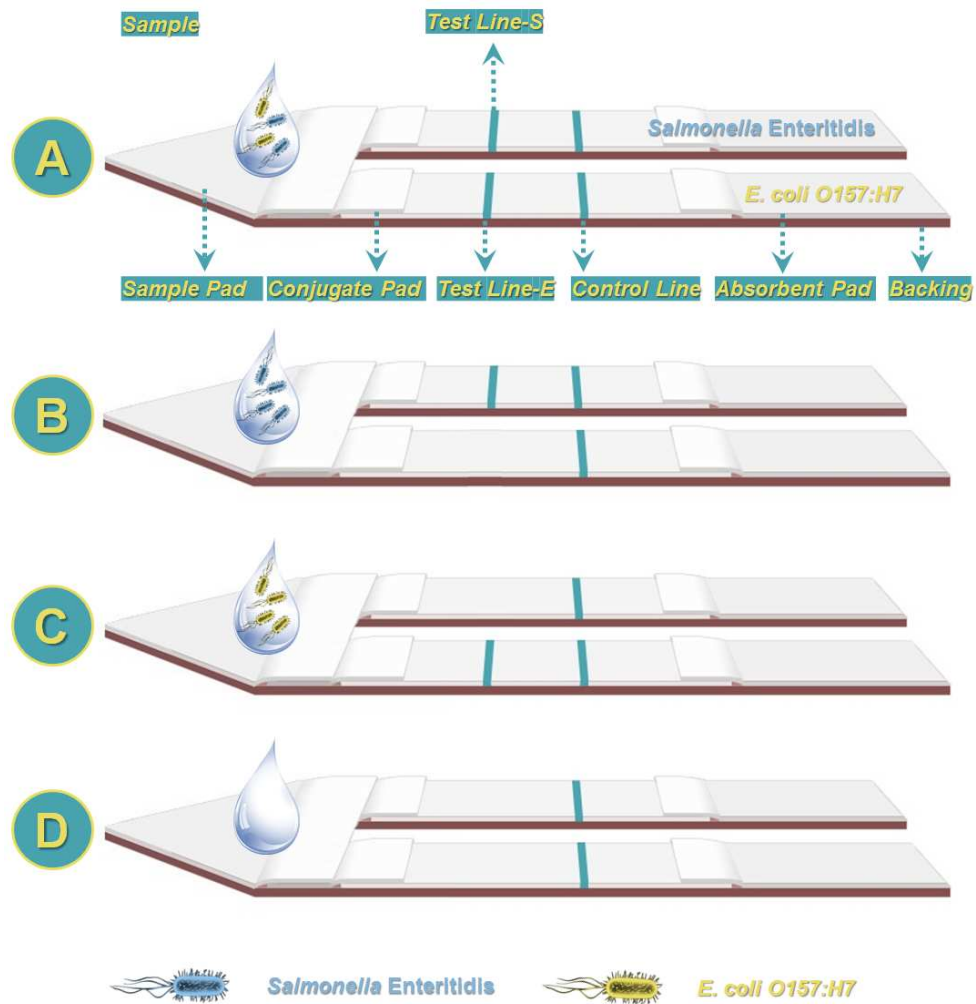


Figure S1. Blue signals on the lines. (A) Sample containing *Salmonella* Enteritidis and *E. coli* O157:H7. (B) Sample only containing *Salmonella*. (C) Sample only containing *E. coli* O157:H7. (D) Negative control.

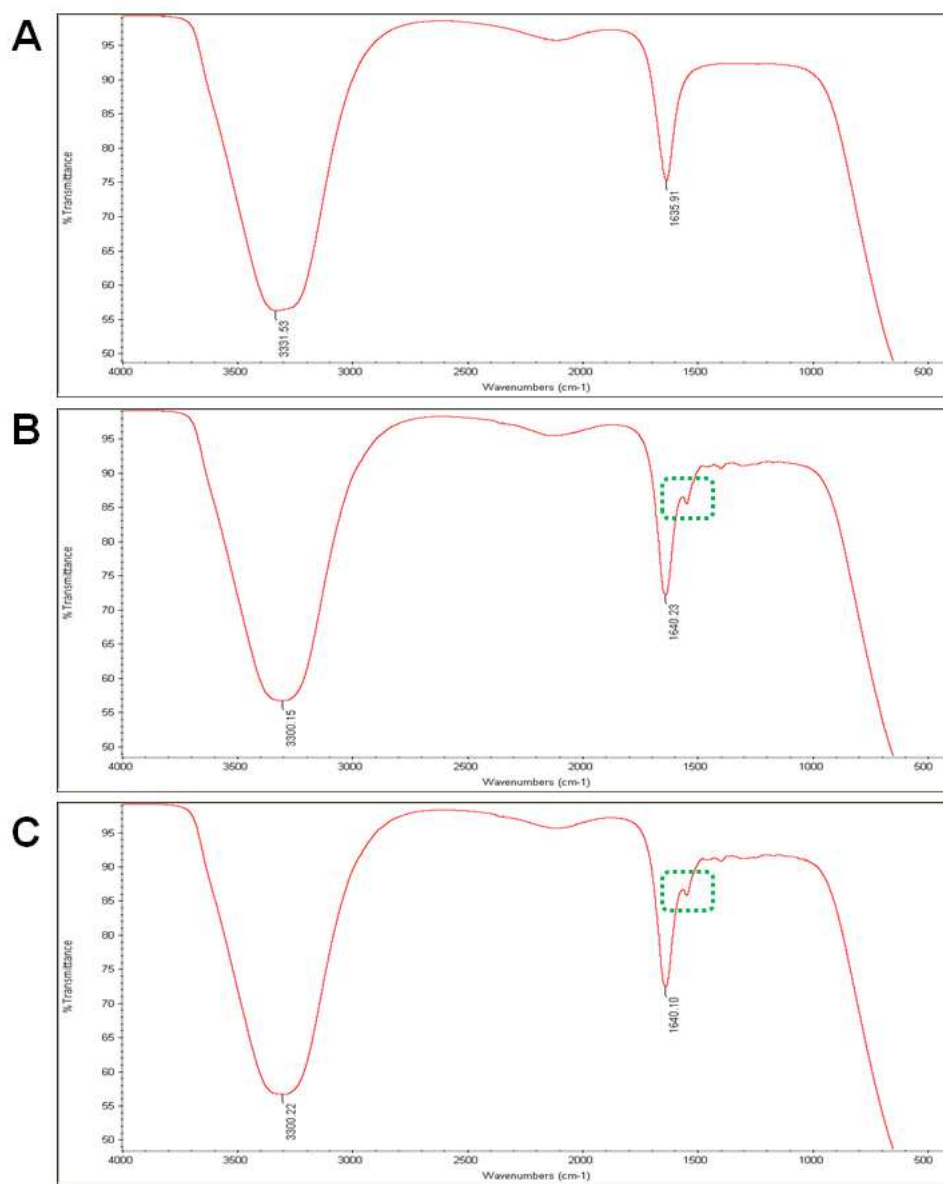


Figure S2. Characterization of nanoparticles by means of FTIR spectra. (A) Pt-Pd nanoparticle; (B) *Salmonella* Enteritidis antibody modified Pt-Pd nanoparticle conjugations; (C) *E. coli* O157:H7 antibody modified Pt-Pd nanoparticle conjugations.

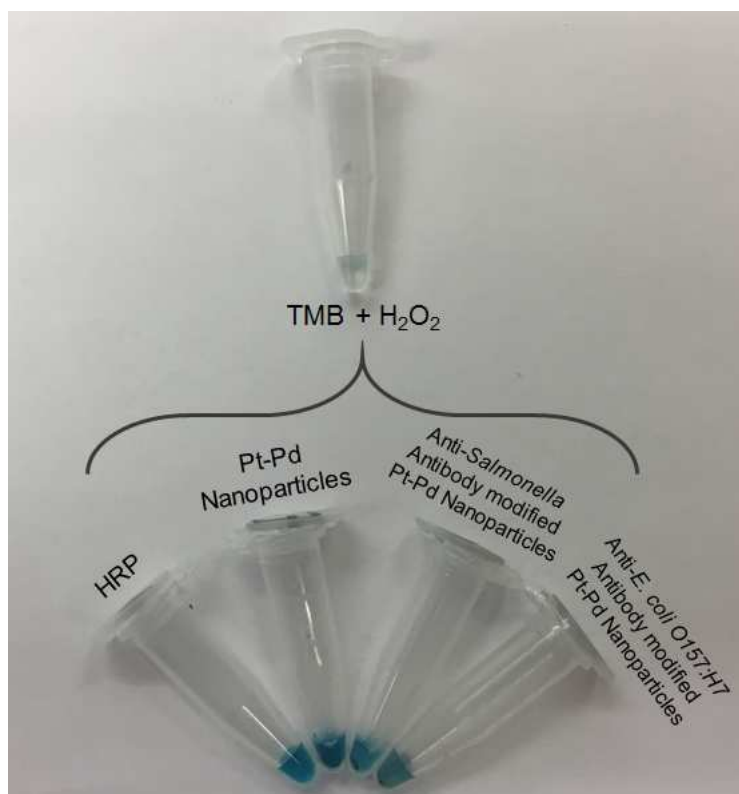


Figure S3. Catalytic function of Pt-Pd nanoparticle and antibody modified Pt-Pd nanoparticle conjugation.

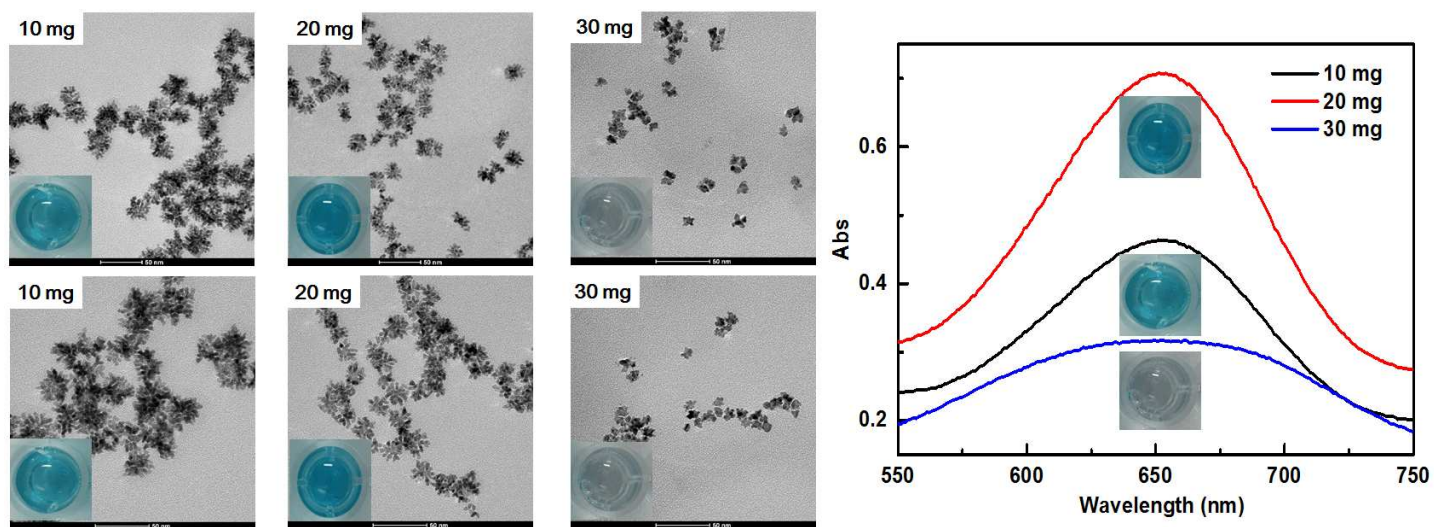


Figure S4. Particles size optimization with respect to TEM images and absorbance with TMB and H_2O_2 (50 μL).

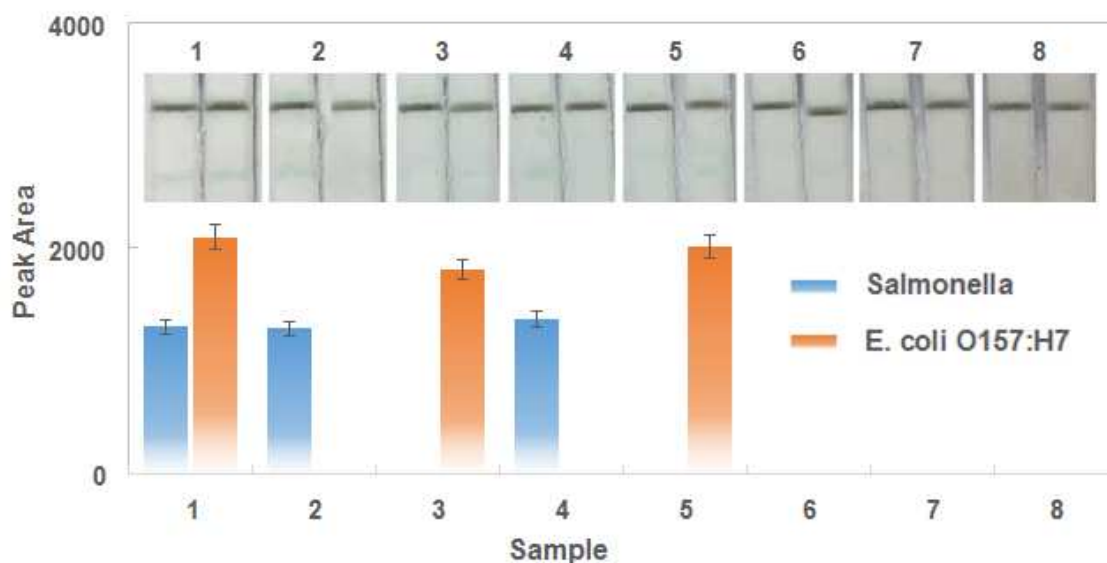


Figure S5. Specificity of dual-LFIA for detection of the corresponding sample solution. Typical images and Histogram with respect to peak area of test lines (*S* and *E*) via different samples. (1) mixture of 10^2 CFU/mL *Salmonella* and 10^2 CFU/mL *E. coli* O157:H7; (2) 10^2 CFU/mL *Salmonella*; (3) 10^2 CFU/mL *E. coli* O157:H7; (4) mixture of 10^2 CFU/mL *Salmonella* and 10^3 CFU/mL *Listeria*; (5) mixture of 10^2 CFU/mL *E. coli* O157:H7 and 10^3 CFU/mL *Staphylococcus aureus*; (6) 10^3 CFU/mL *Listeria*; (7) 10^3 CFU/mL *Staphylococcus aureus*; and (8) $1 \times$ PBS. Error bars indicate standard deviations of three measurements.