<Electronic Supplementary Information >

An aptamer-functionalized gold nanoparticle biosensor for the detection of prion protein

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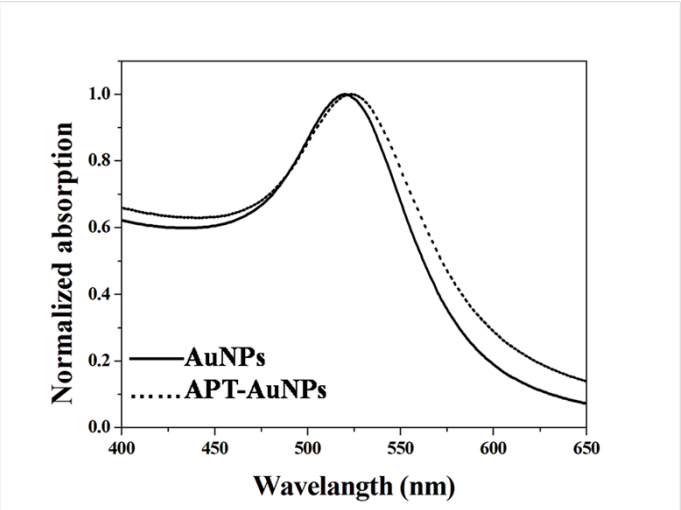

Fig. S1. Normalized UV-Vis spectra of AuNPs (Solid line) and APT-AuNPs (Dash line).

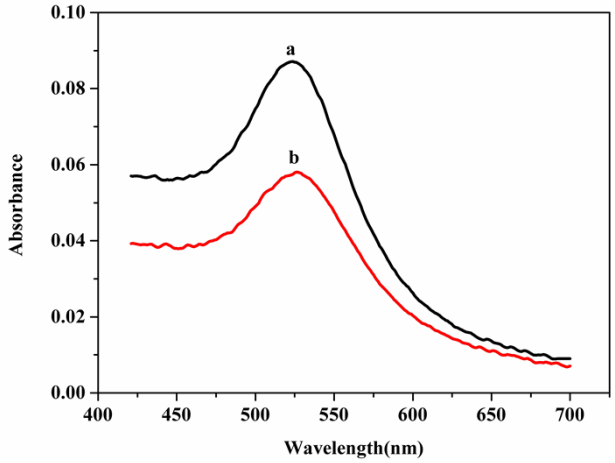

Fig. S2. UV-vis absorbance spectra of APT-AuNPs in the absence (a) and presence of 20 nmol/L rPrP (b). APT-AuNPs concentration: 1.0 nmol/L, pH 6.0 PBS, and 0.2 mol/L NaCl.

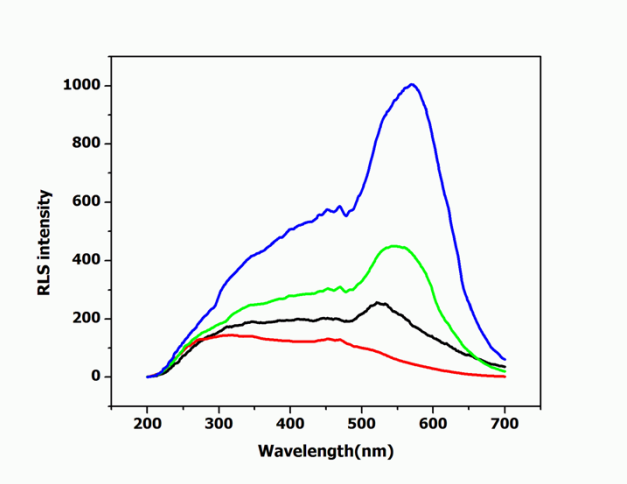

Fig. S3. RLS spectra of AuNPs (black line) and APT-AuNPs in the absence (red line) and presence of 20 nmol/L rPrP (green line) and 50 nmol/L rPrP (blue line).

The concentration of APT-AuNPs and NaCl is 1.0 nmol/L and 0.2 mol/L, respectively. The concentration of AuNPs is 1.0 nmol/L. The pH value is 6.0.

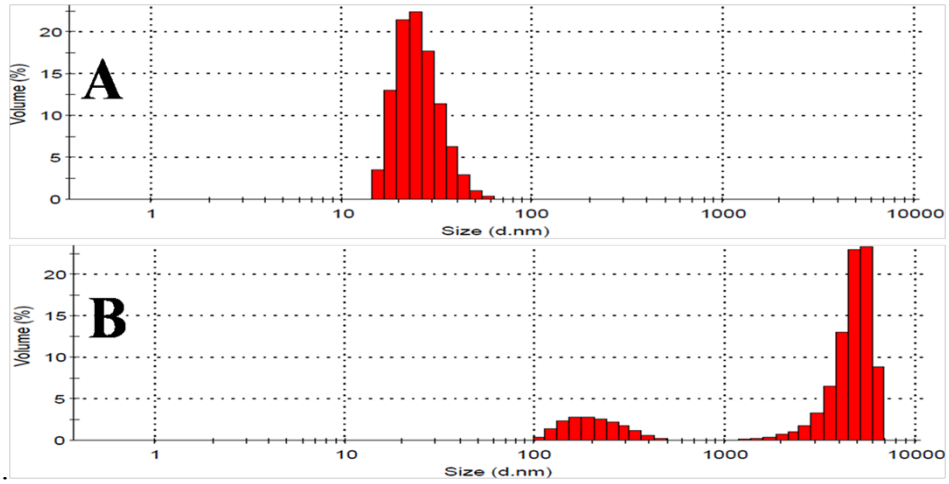

Fig. S4. Hydrodynamic diameter of APT-AuNPs in the absence (A) and presence (B) of 20 nmol/L rPrP in pH 6.0 PBS. APT-AuNPs: 1.0 nmol/L, NaCl: 0.2 mol/L.

Table S1. Effect of coexisting substances on the determination of rPrP (20 nmol/L) using the APT-AuNPs (1.0 nmol/L) system containing 0.2 mol/L NaCl.

Coexisting subtance	Concentration (μmol/L)	Relative error (%)
Cd^{2+}, Cl^{-}	10	4.0
Cu^{2+}, NO_3^{-}	10	5.3
Al^{3+}, SO_4^{2-}	10	4.8
Ni^{2+}, SO_4^{2-}	10	0.34
Hg^{2+}, Cl^{-}	4	-4.7
Pb^{2+}, NO_3^{-}	4	0.86
Fe^{2+},Cl^{-}	4	-1.6
Ag^{+}, NO_3^{-}	0.04	4.7
Zn^{2+}, SO_4^{2-}	2	-3.0
Ca^{2+}, Cl^{-}	2	4.4
Co^{2+}, NO_3^{-}	4	4.7
Mg^{2+}, SO_4^{2-}	1	-4.7
K^{+}, NO_3^{-}	0.2	0.36
Cr^{3+}, NO_3^{-}	0.2	-4.9
Met	10	4.5
Ala	10	-3.7
Arg	10	-5.5
His	10	5.1
Gly	10	3.0
Asp	10	-0.58
Ile	10	5.4

Tyr	10	4.4
Glu	10	-3.4
Val	10	-3.8
Phe	4	-0.7
Lys	8	1.8
Leu	8	3.3
BSA	1	-4.9
Pepsin	0.1	2.3
Thrombin	0.1	-0.29
HRP	0.2	2.3
Cellulase	0.02	2.5
Lysozyme	1	4.3
GOD	0.2	1.0
HSA	0.02	-2.1
Glusulase	0.02	-0.96
Chymotrypsin	0.16	-1.8