Electronic Supplementary Material (ESI) for Analyst.

Supporting Information

Table S1 Recovery experiments of Ag^+ in diluted lake water

Spiked (nM)	Detected (nM)[a]	Recovery (%)	Detected (nM)[b]
0	5.8±1.2		<9.26
20	30.1±2.8	121.5	14.81
50	61.5±5.5	111.4	43.15
80	79.4±4.2	92.0	75.83

[a] Detected by colorimetric method proposed in this study;

[b] Detected by ICPMS.

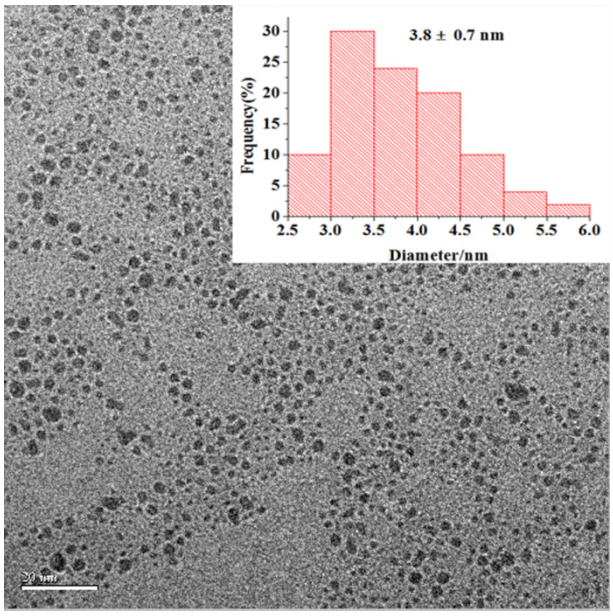

Fig. S1 TEM image of GSH-Pd reduced by $NaBH_4$ ($[Na_2PdCl_4]/[GSH]=6$, $[NaBH_4]/[Na_2PdCl_4]=2$).

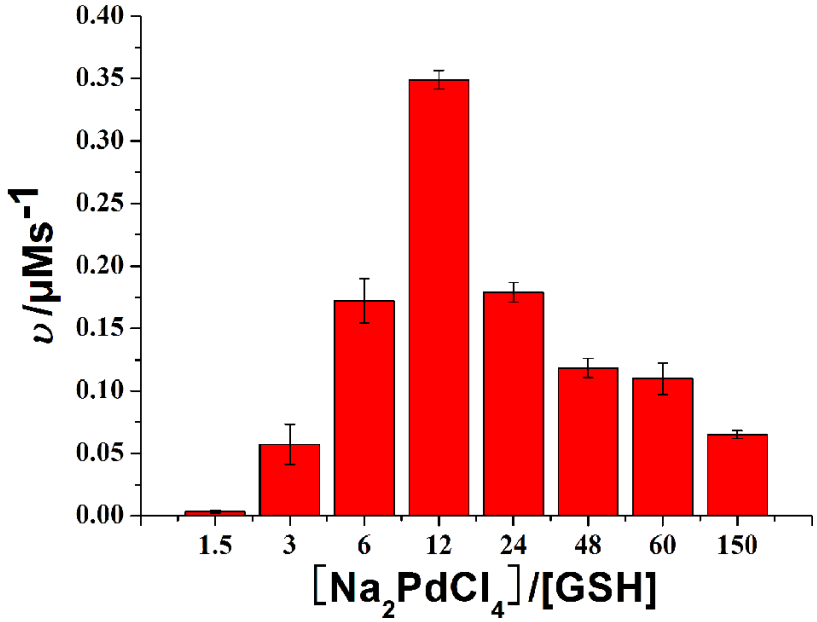

Fig. S2 The initial rate (v) of TMB-H_2O_2 reaction system catalyzed by GSH-Pd prepared at different molar ratio of $[Na_2PdCl_4]/[GSH]$.

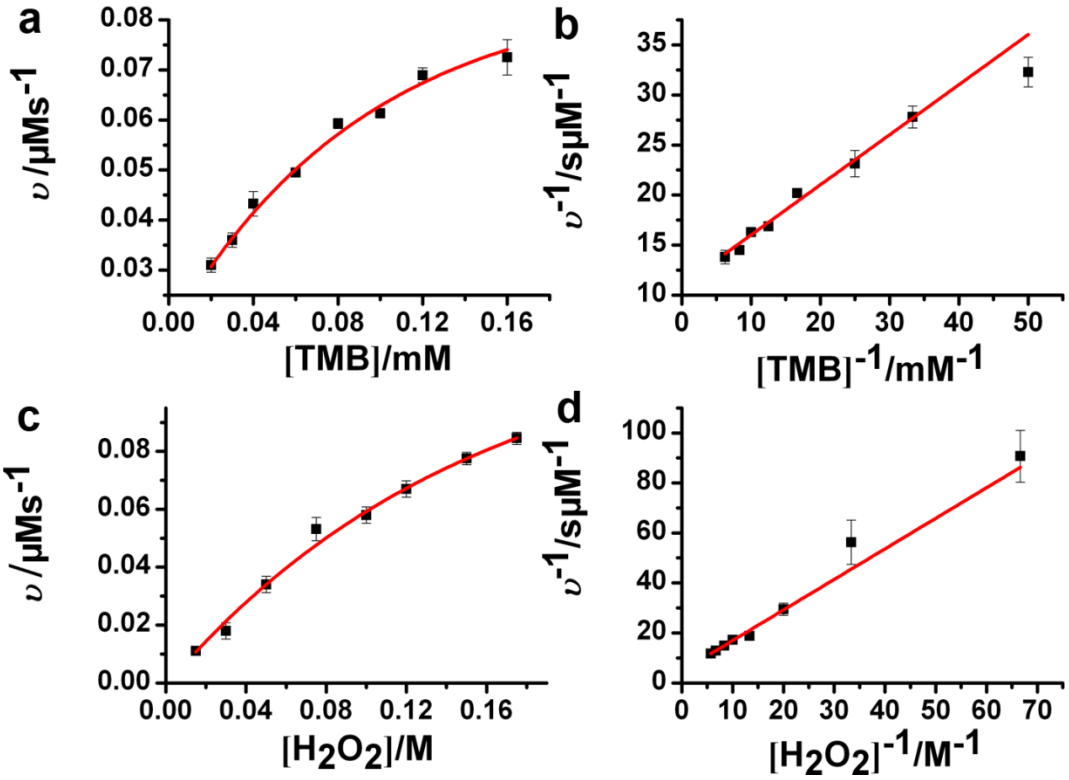

Fig. S3 Steady-state kinetics of GSH-Pd1.4 were measured through the oxidization of TMB by H_2O_2 at 20 °C using 900 nM Pd (calculated from precursor): (a) The concentration of H_2O_2 was fixed at 125 mM and the TMB concentration was varied, (c) The concentration of TMB was fixed at 0.125 mM and the H_2O_2 concentration was varied. (b) and (d) are double-reciprocal plots of (a) and (c), respectively.

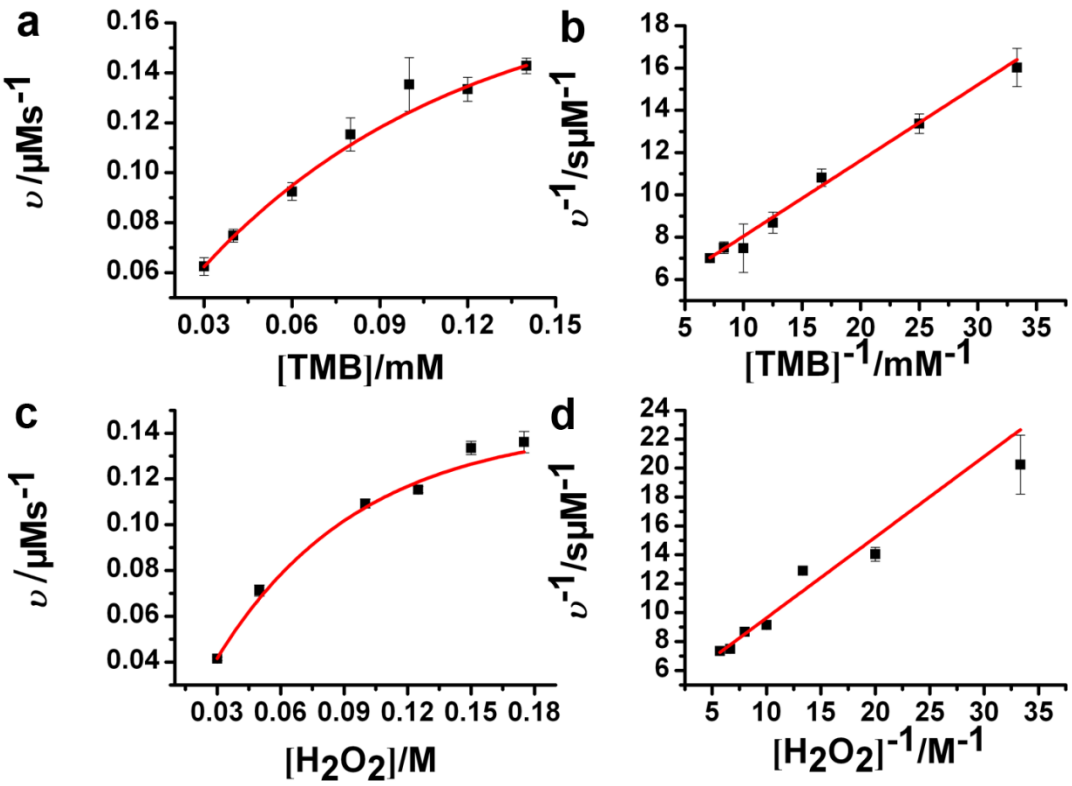

Fig. S4 Steady-state kinetics of GSH-Pd3.5 were measured through the oxidization of TMB by H_2O_2 at 20 °C using 900 nM Pd (calculated from precursor): (a) The concentration of H_2O_2 was fixed at 125 mM and the TMB concentration was varied, (c) The concentration of TMB was fixed at 0.125 mM and the H_2O_2 concentration was varied. (b) and (d) are double-reciprocal plots of (a) and (c), respectively.

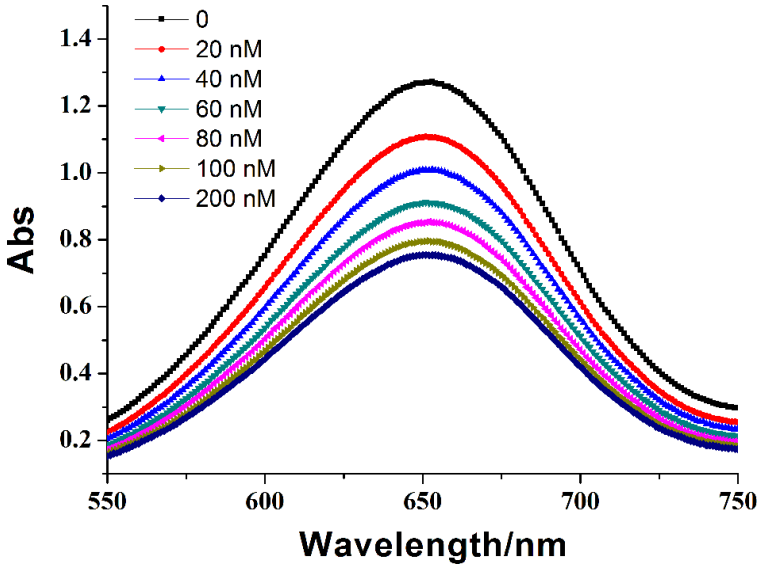

Fig. S5 UV absorption spectra of H_2O_2-mediated oxidation of TMB catalyzed GSH-Pd2.6 in the presence of different concentration of Ag^+. Each spectrum was collected at 10 min after initiation.

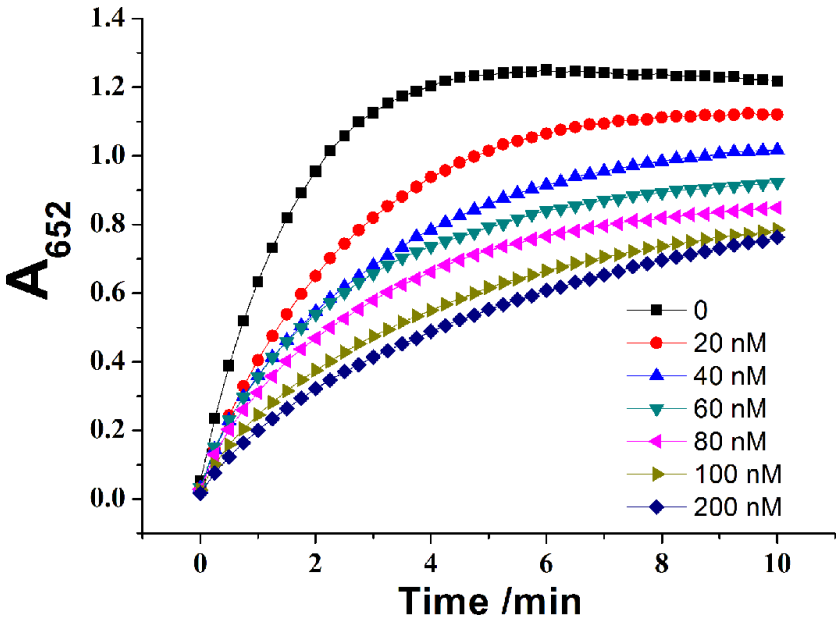

Fig. S6 UV-vis kinetics of H_2O_2-mediated oxidation of TMB catalyzed GSH-Pd2.6 in the presence of different concentration of Ag^+.

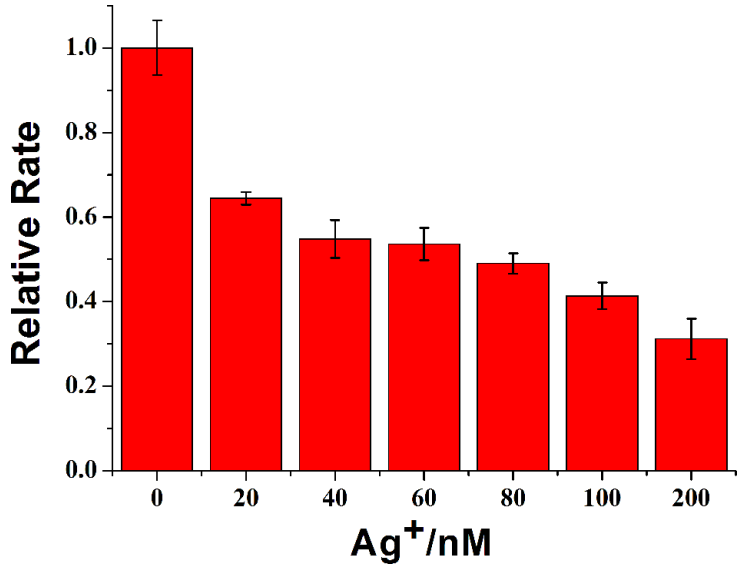

Fig. S7 Relative rate of TMB-H_2O_2 reaction system catalyzed by GSH-Pd2.6 in the presence of different concentration of Ag^+.

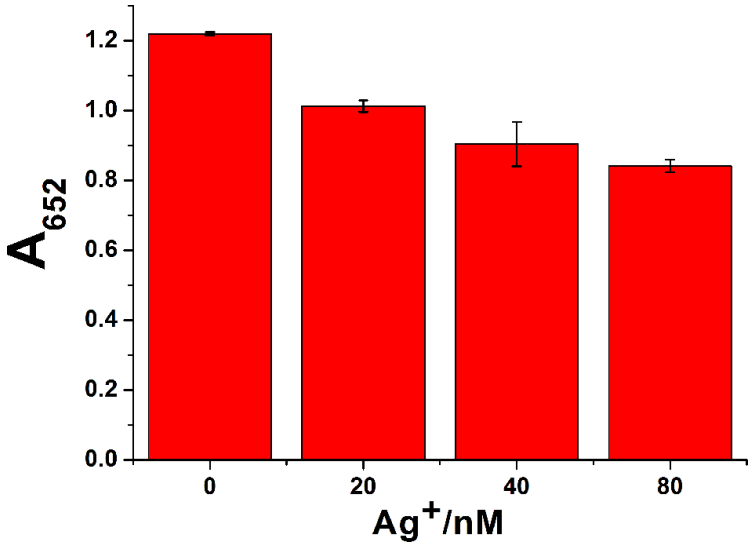

Fig. S8 The A_{652} in the TMB-H_2O_2 reaction catalyzed by GSH-Pd2.6 in the presence of Ag^+ with 5 μM NaCl added.

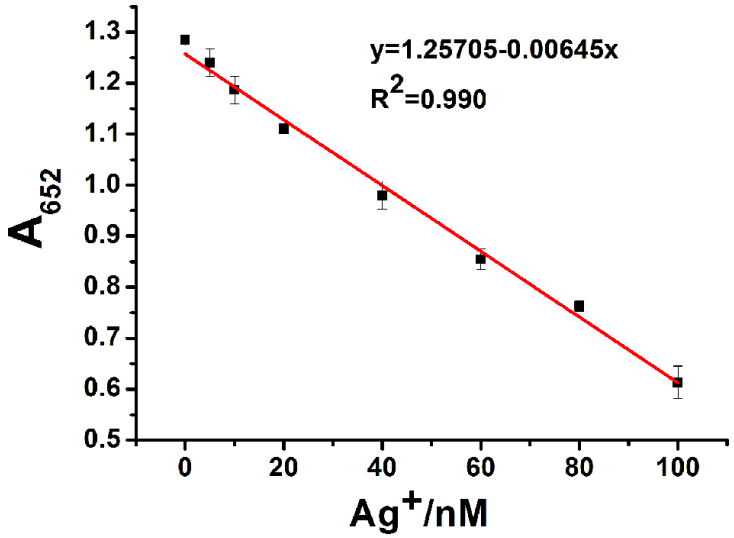

Fig. S9 The calibration curve for Ag^{+} in the presence of 1 μM EDTA.

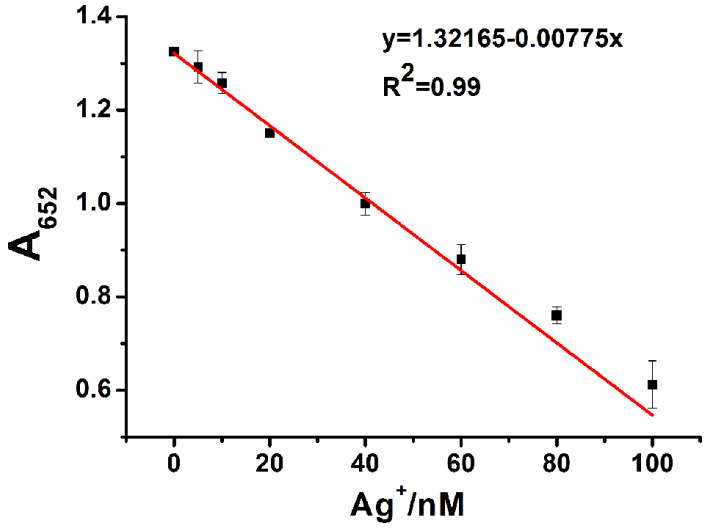

Fig. S10 The calibration curve for Ag^{+} in the presence of 500 nM Hg^{2+} and 1 μM EDTA.

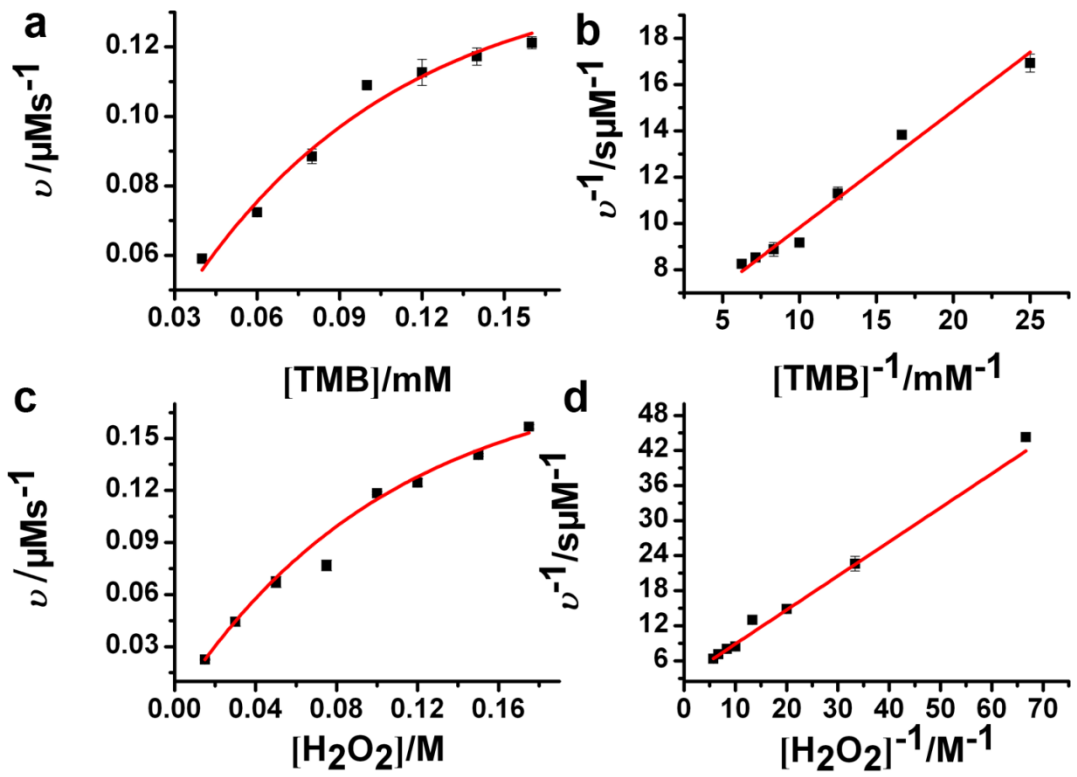

Fig. S11 Steady-state kinetics of GSH-Pd2.6 were measured using 900 nM Pd in the presence of 100 nM Ag^{+}: (a) The concentration of H_2O_2 was fixed at 125 mM and the TMB concentration was varied, (c) The concentration of TMB was fixed at 0.125 mM and the H_2O_2 concentration was varied. (b) and (d) are double-reciprocal plots of (a) and (c), respectively.

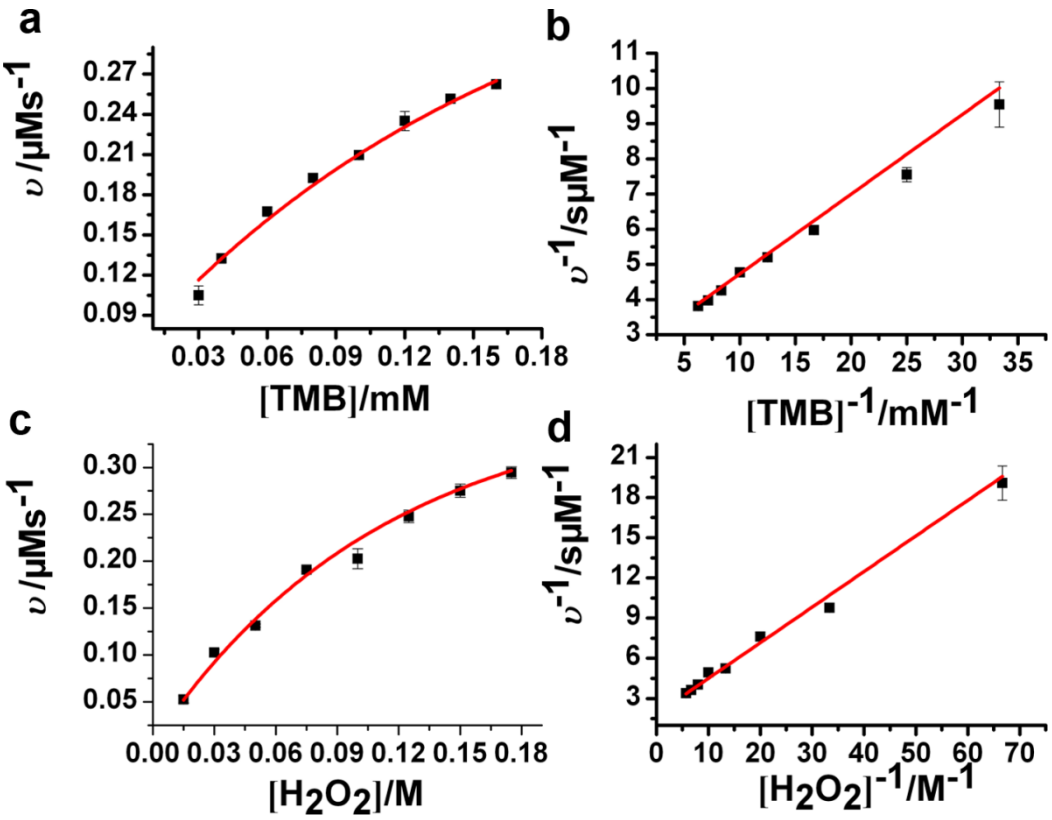

Fig. S12 Steady-state kinetics of GSH-Pd2.6 were measured using 900 nM Pd in the presence of 1 μM Hg^{2+}: (a) The concentration of H_2O_2 was fixed at 125 mM and the TMB concentration was varied, (c) The concentration of TMB was fixed at 0.125 mM and the H_2O_2 concentration was varied. (b) and (d) are double-reciprocal plots of (a) and (c), respectively.

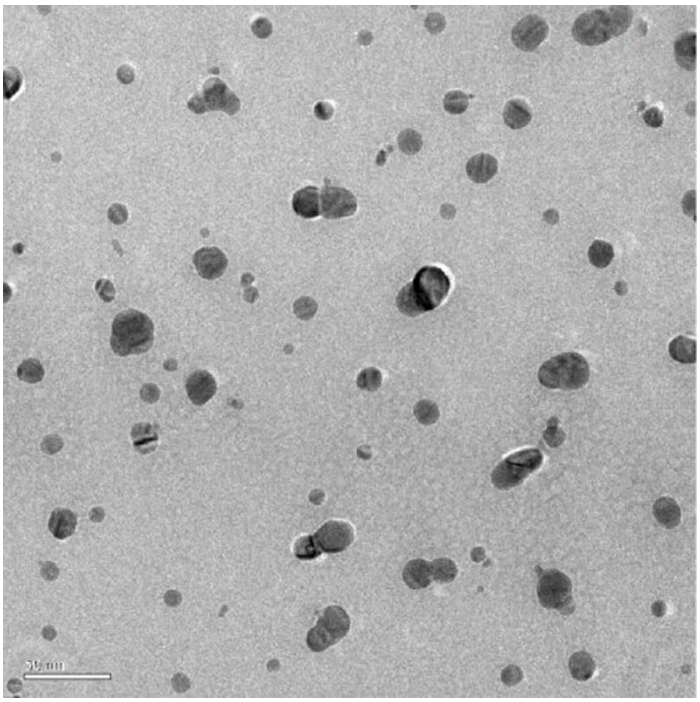

Fig. S13 TEM image of as-prepared citrate-capped Ag nanoparticles.

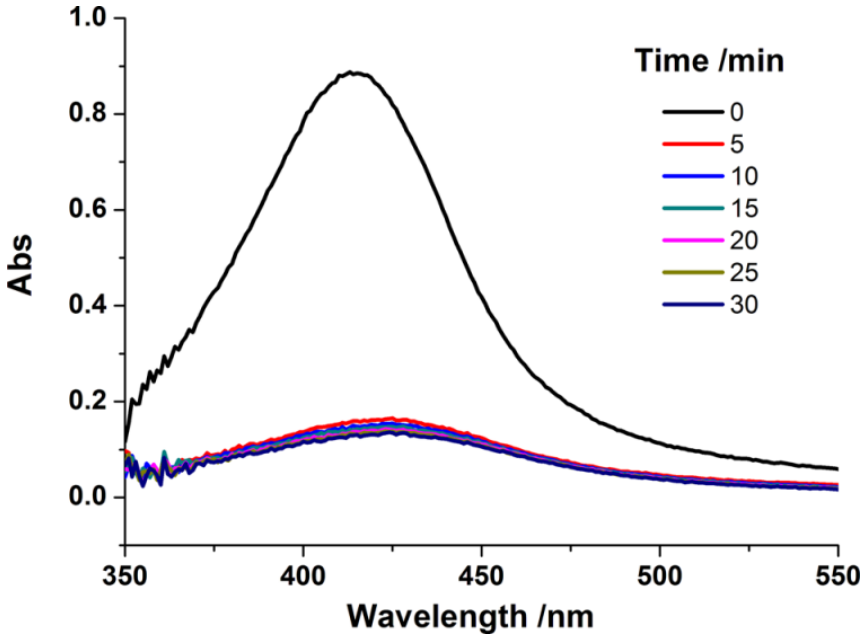

Fig. S14 Time-dependent UV-vis spectra of H_2O_2-mediated oxidation of 100 μM Ag nanoparticles (calculated from Ag^+ precursor) at 25 °C.

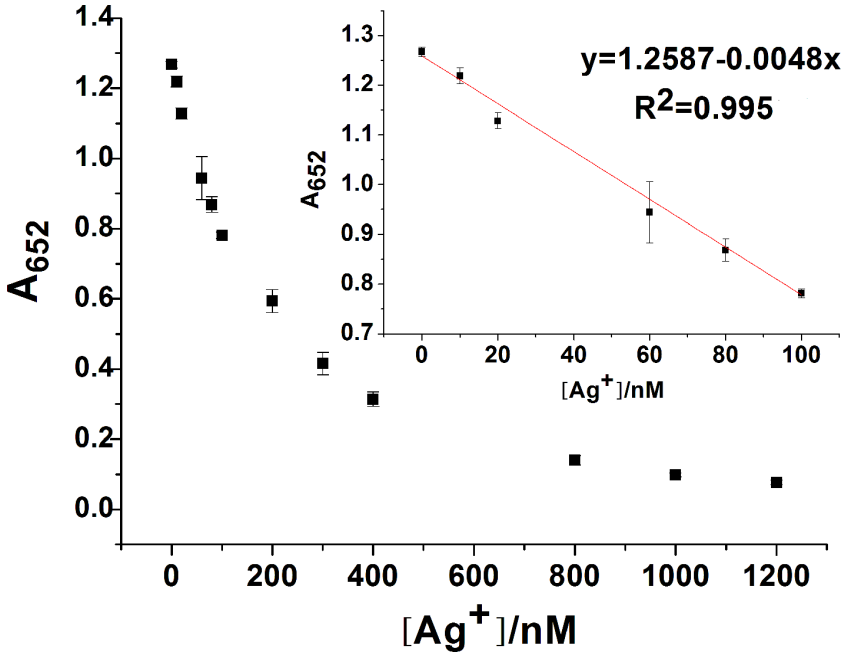

Fig. S15 Plots of the A_{652} with the concentration of Ag nanoparticles (calculated from Ag^+ precursor), and the inset is the corresponding calibration curve. The reaction system contains 0.125 mM TMB, 125 mM H_2O_2 and 900 nM GSH-Pd2.6. The A_{652} was collected at 10 min after initiation.