Electronic Supporting Information (ESI)

Platinum nanoparticles inhibit antioxidant effects of vitamin C via ascorbate oxidase-mimetic activity

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Experimental

Cellular uptake Assay

To determine the cellular uptake of Pt NPs, Hs27 cells were plated on a 6-well plate and cultured for 24 h. Next, Pt NPs (50 μg mL^{-1}) were added into each well for 2 h. After then, the cells were washed three times with PBS. The cells were collected to measure the cellular uptake of Pt NPs by an inductively coupled plasma mass-spectrometry instrument (Element-2, Thermo, USA). Divided by the number of cells, the data of Pt contents per 10^4 cells were calculated.

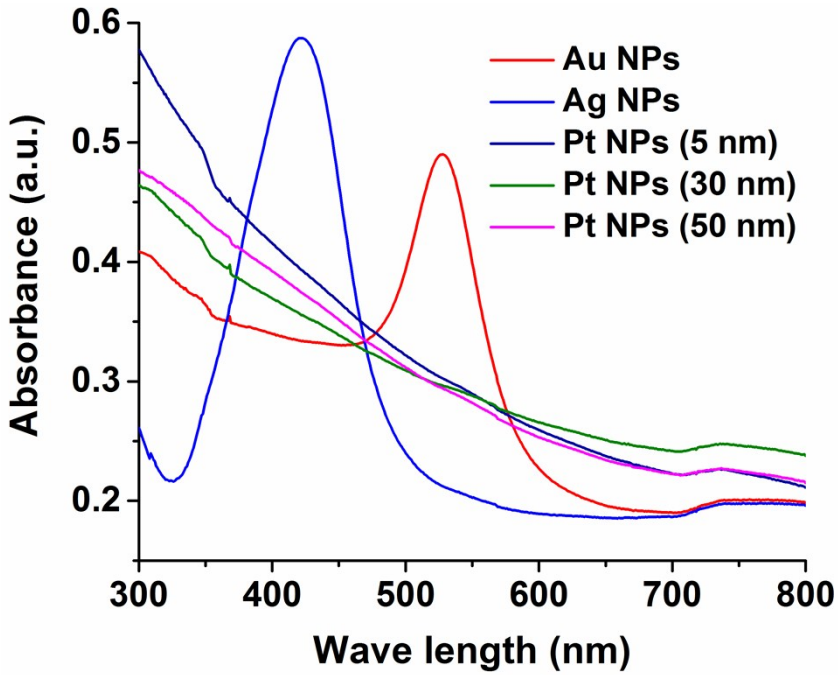

Fig. S1 UV–vis absorption spectra of Au, Ag, and Pt NPs.

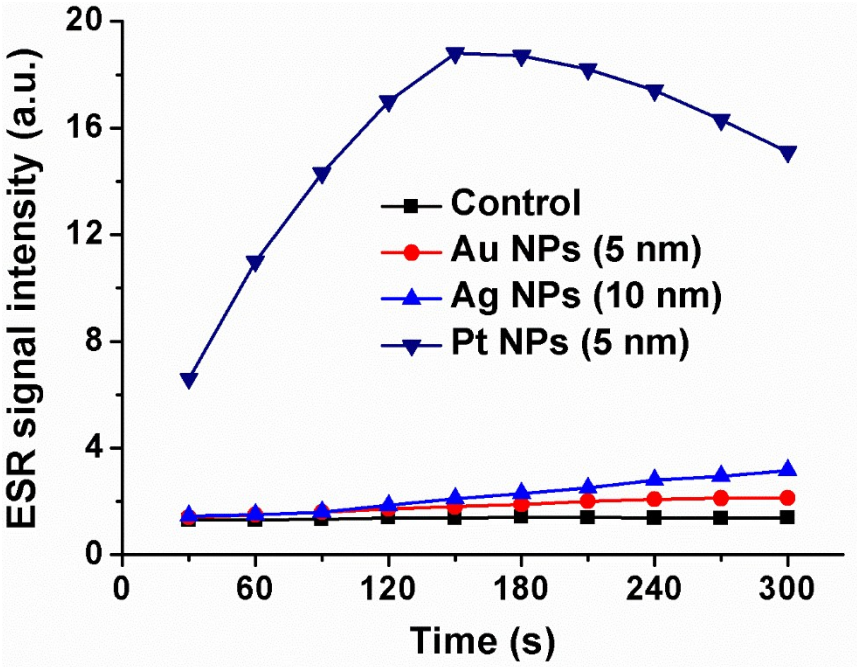

Fig. S2 ESR signal intensity of ascorbyl radical in the absence (Control) and presence of NPs.

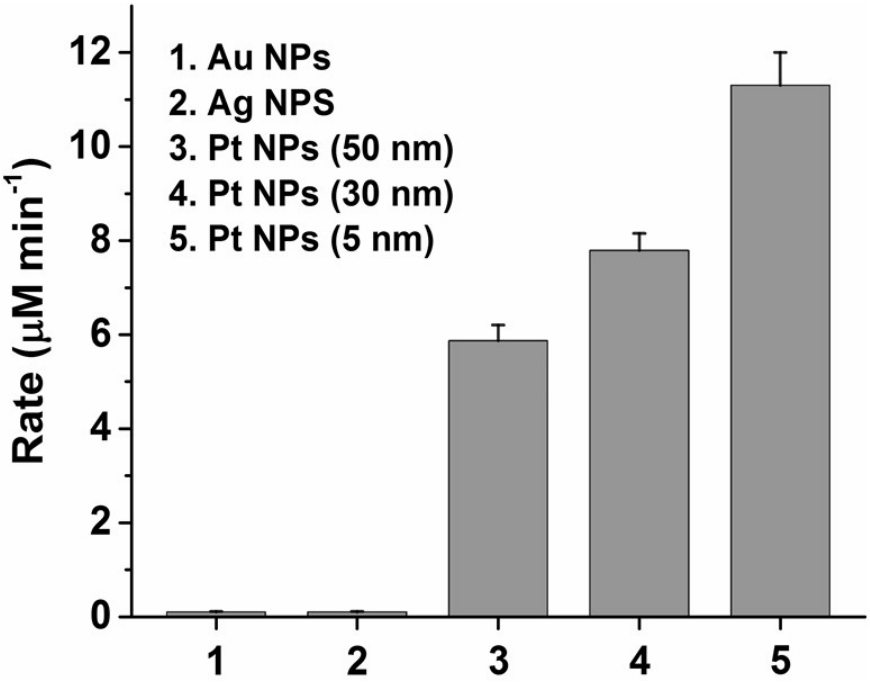

Fig. S3 Initial rates of NaA oxidation in the presence of Au, Ag, and Pt NPs. The error bars represent the standard deviation of three measurements.

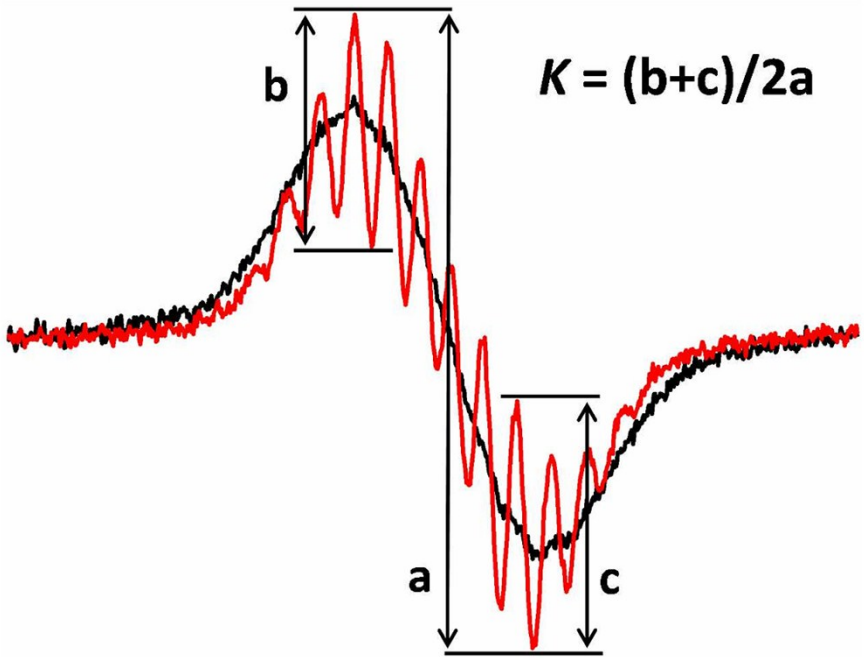

Fig. S4 Schematic illustration of the super hyperfine structure of the center field line from ESR spectra of CTPO in nitrogen-saturated (red) and air-saturated (black) aqueous solution. The *K* parameter is used to determine O_2 concentration. The formulation for *K* is shown as insert.

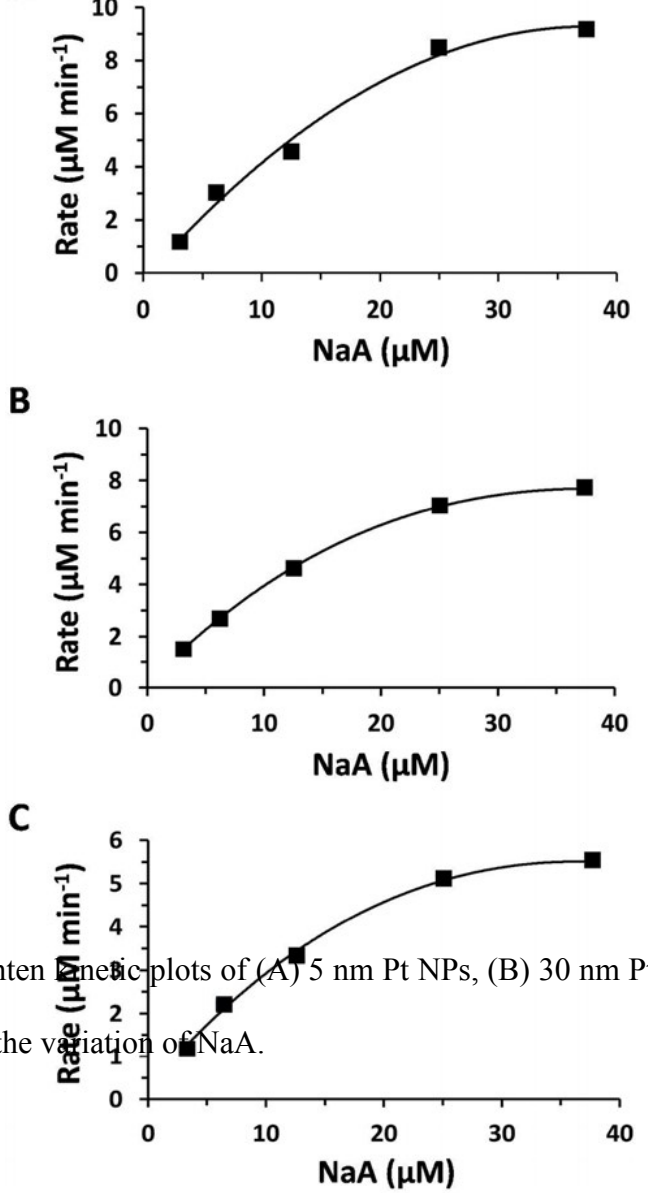

Fig. S5 Michaelis-Menten kinetic plots of (A) 5 nm Pt NPs, (B) 30 nm Pt NPs, and (C) 50 nm Pt NPs corresponding to the variation of NaA.

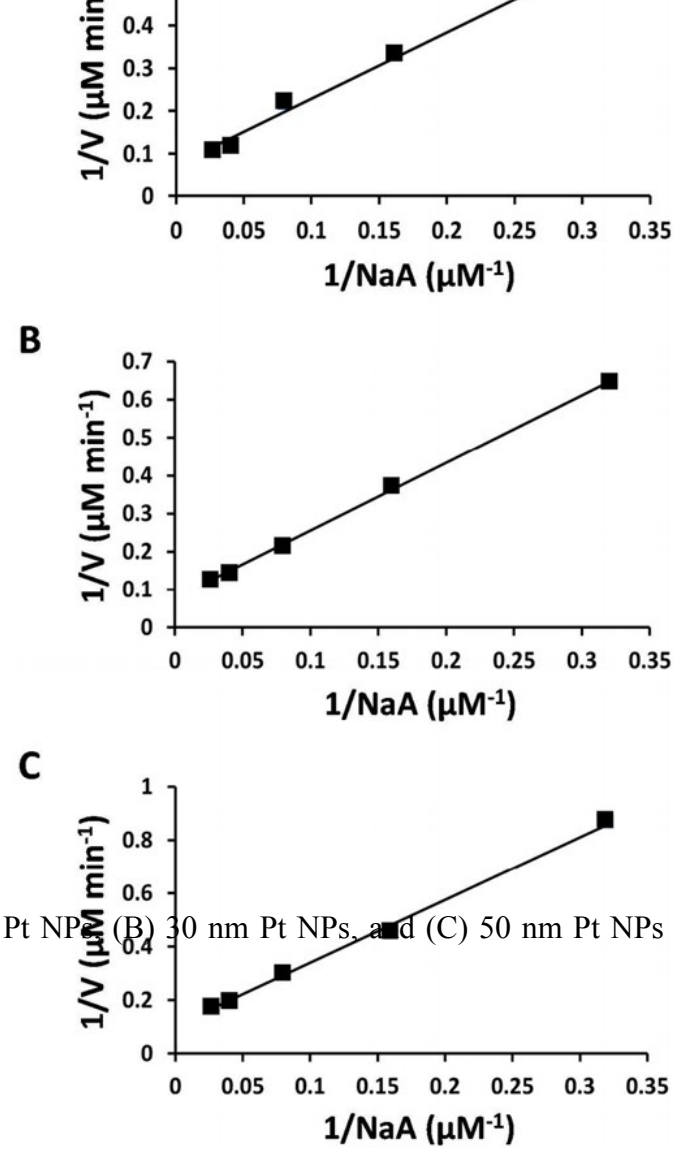

Fig. S6 Lineweaver-Burk plots of (A) 5 nm Pt NPs, (B) 30 nm Pt NPs, and (C) 50 nm Pt NPs corresponding to the variation of NaA.

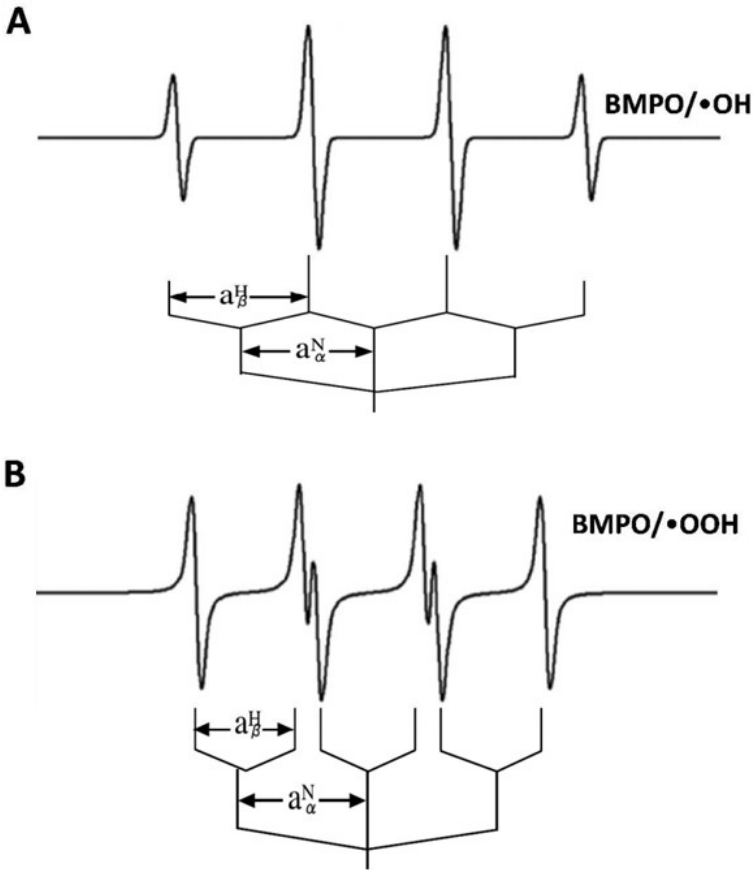

Fig. S7 ESR spectra of (A) BMPO/•OH spin adduct and (B) BMPO/•OOH spin adduct.

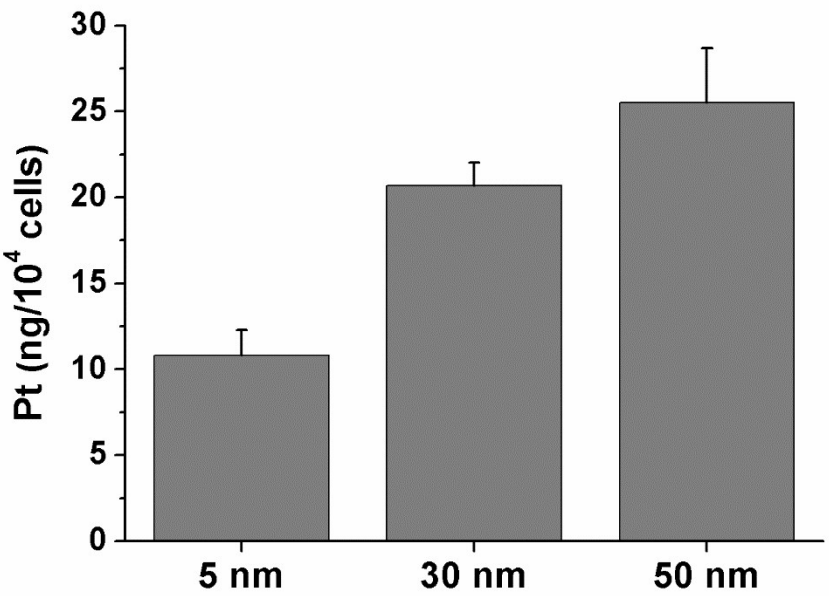

Fig. S8 Uptake level of Pt NPs in Hs27 cells after incubation for 2 h.