Electronic Supplementary Information

Hydrous RuO_2 nanoparticles as an efficient NIR-light induced photothermal agent for ablation of cancer cells *in Vitro* and *in Vivo*

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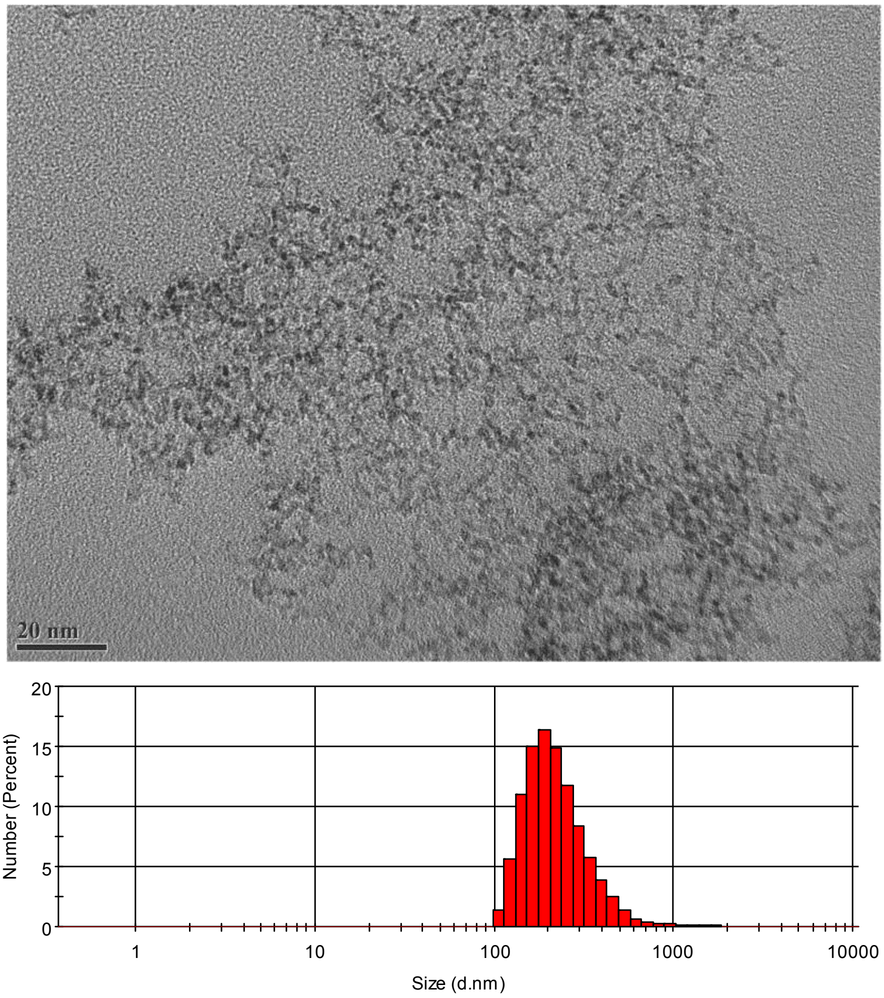

Fig. S1 TEM image and dynamic light scattering (DLS) diameter distribution of the hydrous RuO_2 nanoparticles.

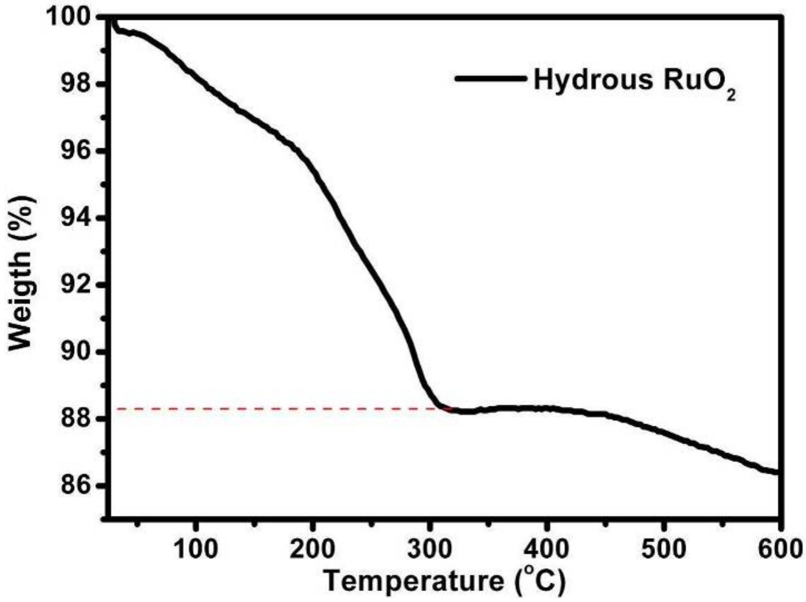

Fig. S2 Thermal gravimetric (TG) analysis of the hydrous RuO_2 nanoparticles.

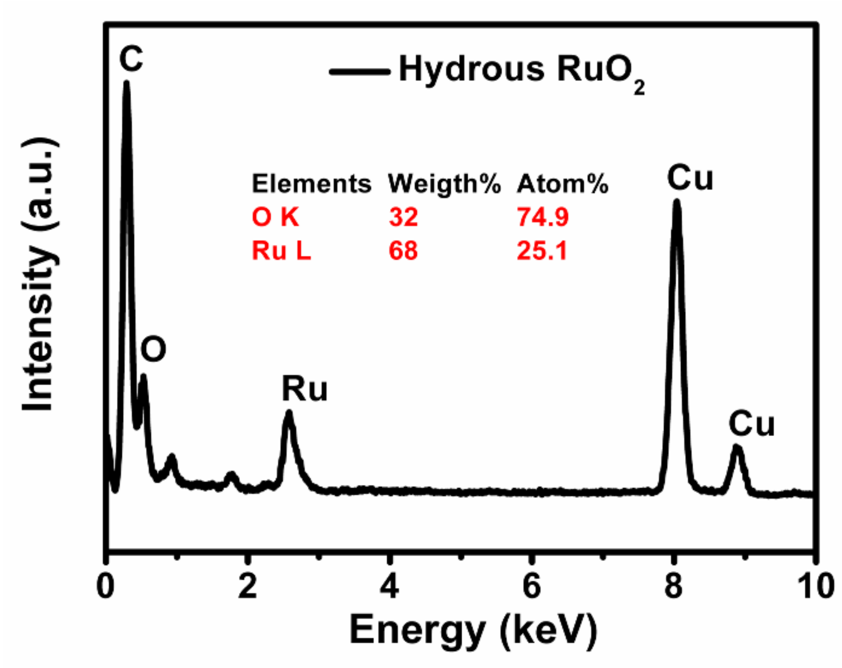

Fig. S3 Energy dispersed spectroscopy (EDS) of the hydrous RuO_2 nanoparticles.

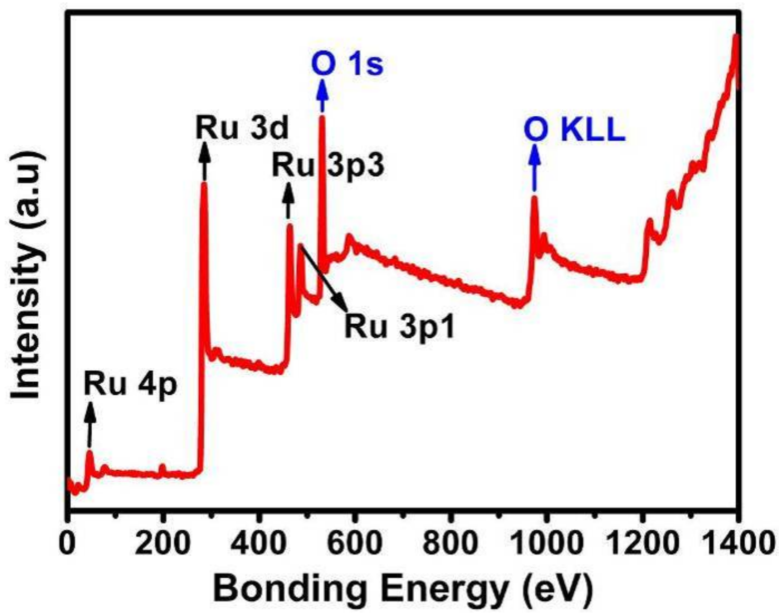

Fig. S4 A wide-scan XPS spectrum of the hydrous RuO_2 nanoparticles.

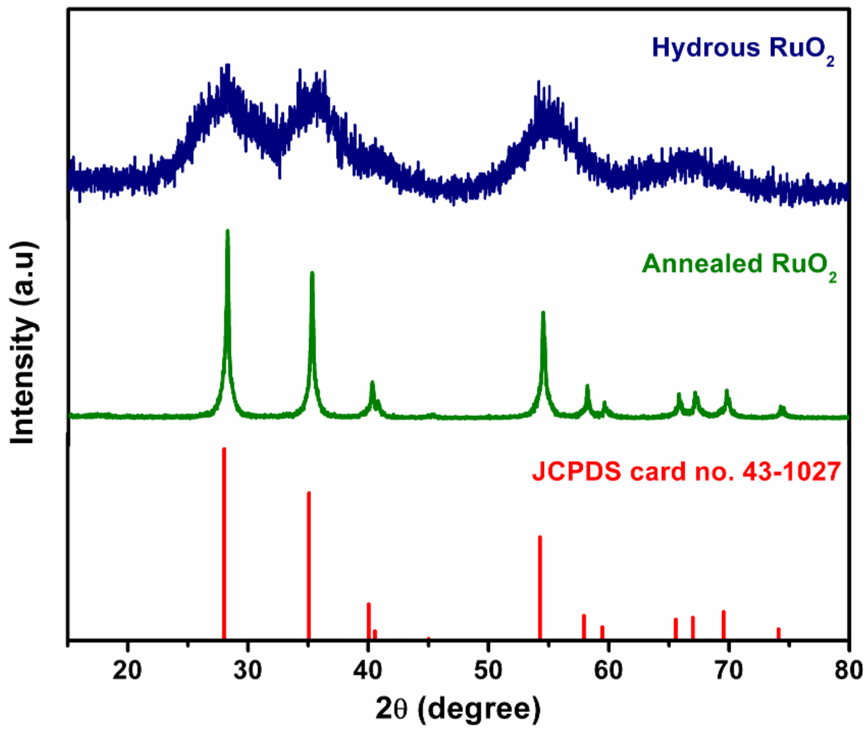

Fig. S5 X-ray powder diffraction patterns of the hydrous RuO_2 NPs and annealed RuO_2 (400 °C) NPs with the standard JCPDS file (No. 43-1027).

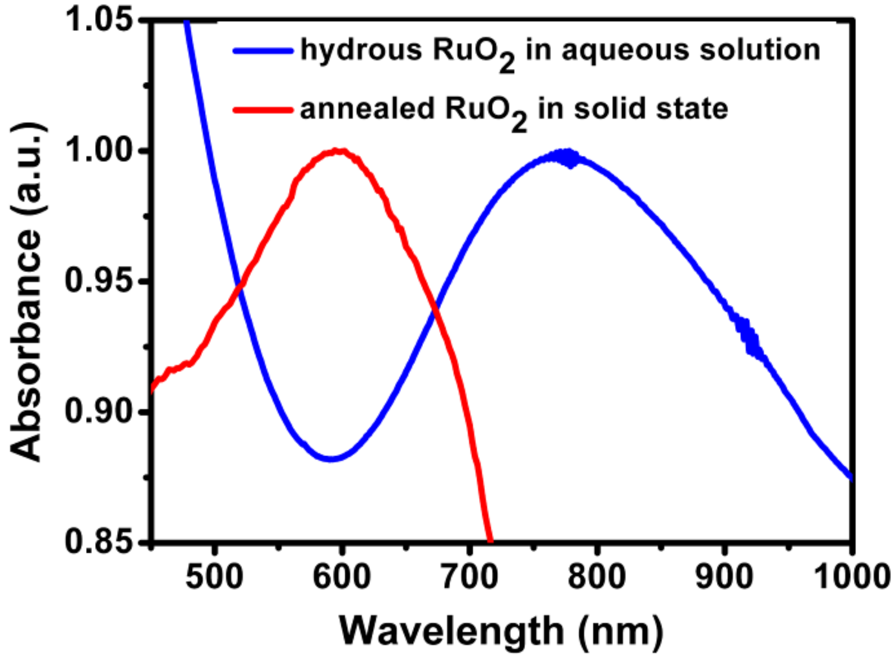

Fig. S6 UV-Vis-NIR absorption spectra of the hydrous RuO_2 NPs and annealed RuO_2 nanoparticles.

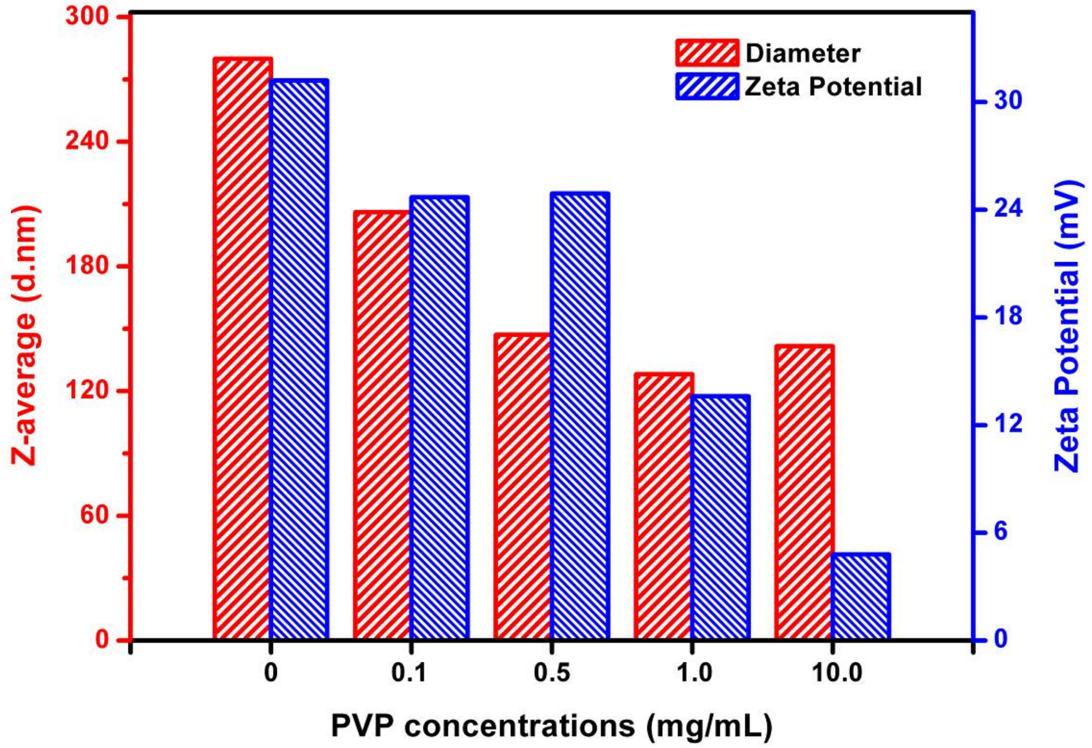

Fig. S7 Diameter and zeta potential of the RuO_2 NPs with different PVP concentrations.

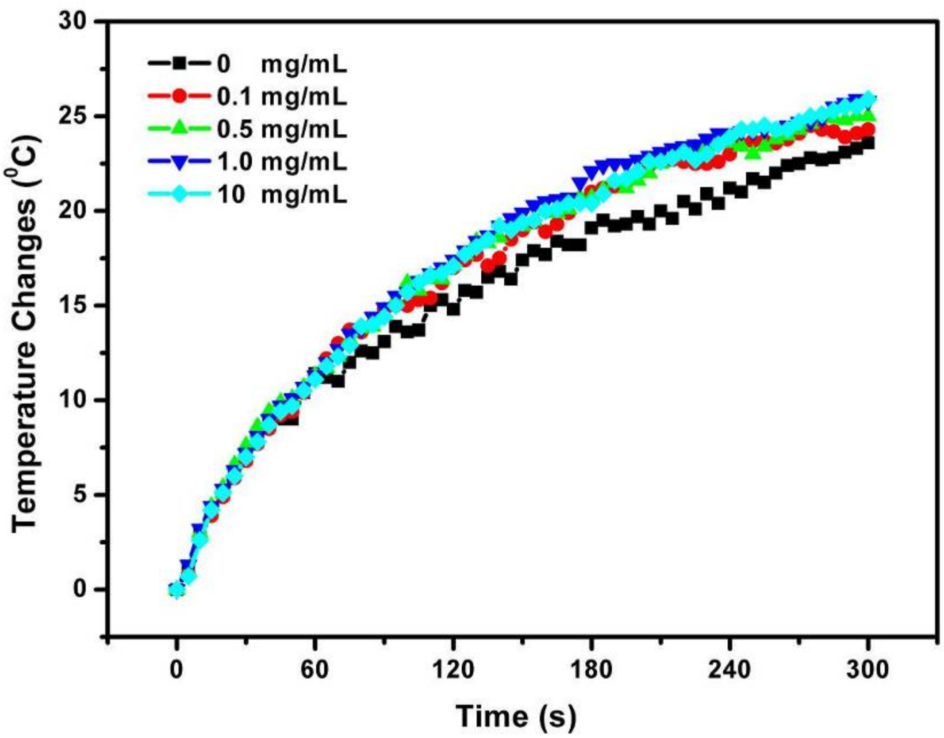

Fig. S8 Temperature elevation curves of the RuO_2 NPs solutions (1600 ppm) with different PVP concentrations.

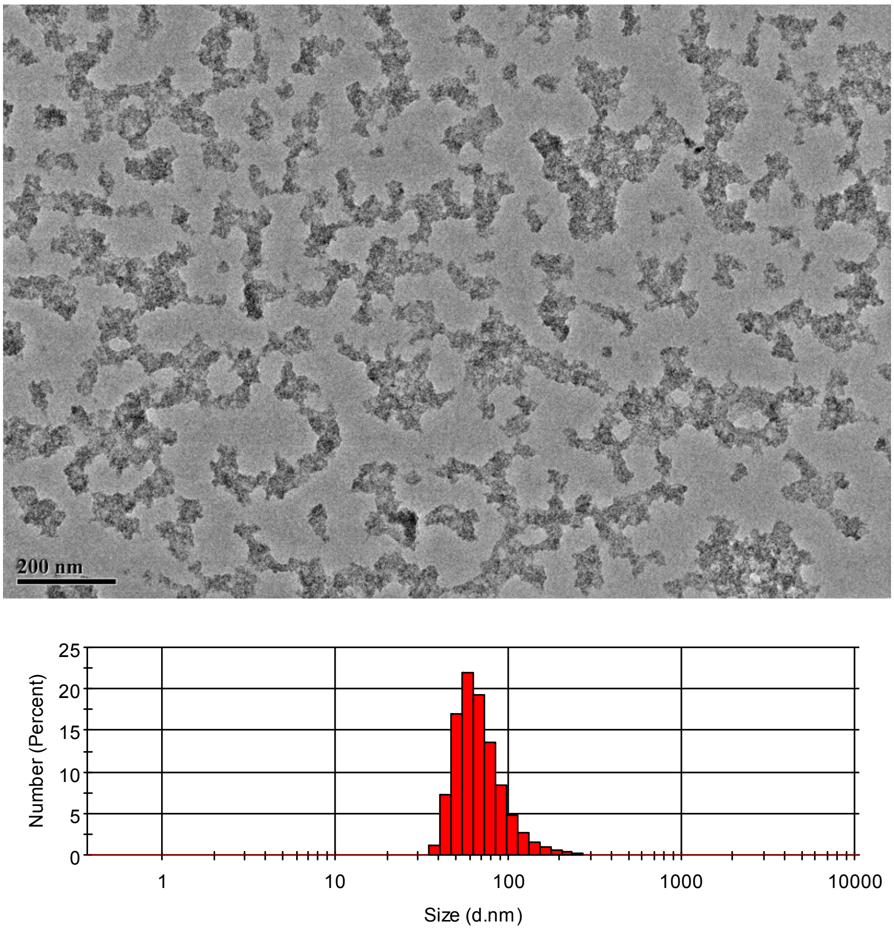

Fig. S9 Typical TEM and diameter distribution of PVP-RuO_2 NPs

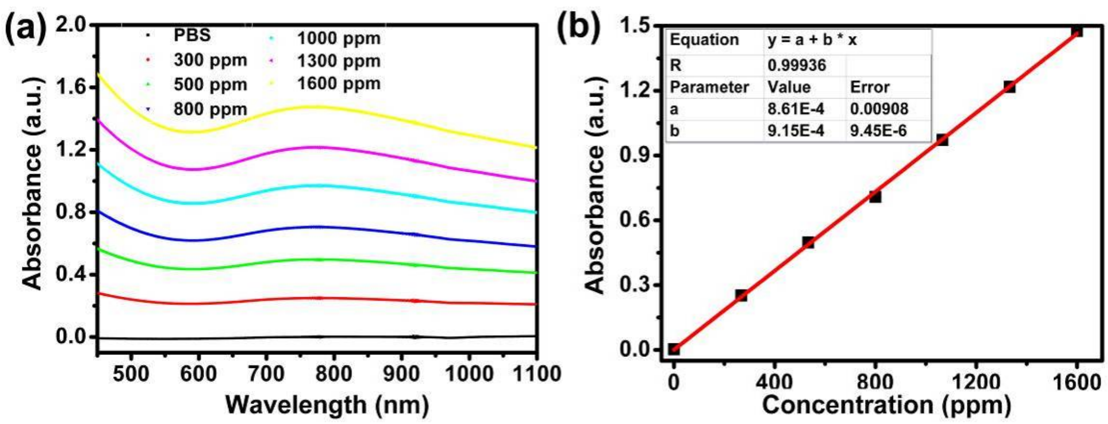

Fig. S10 (a) UV-Vis-NIR absorption spectra of the PVP-RuO_2 NPs with different concentrations and (b) corresponding linear relationship of the absorbance at 775 nm versus concentrations.

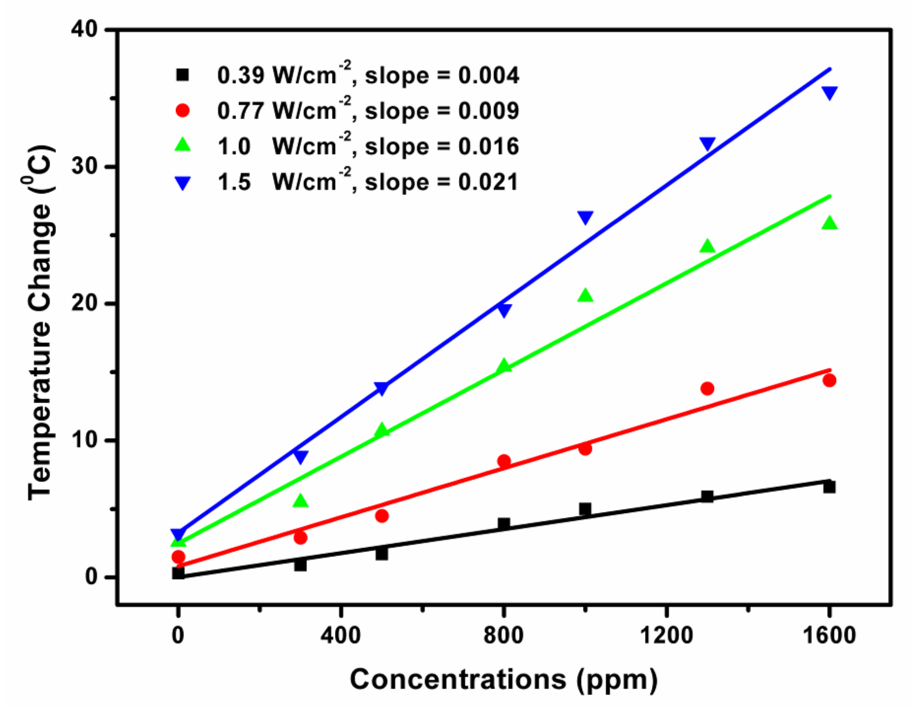

Fig. S11 Temperature changes versus NPs concentrations at different laser power densities.

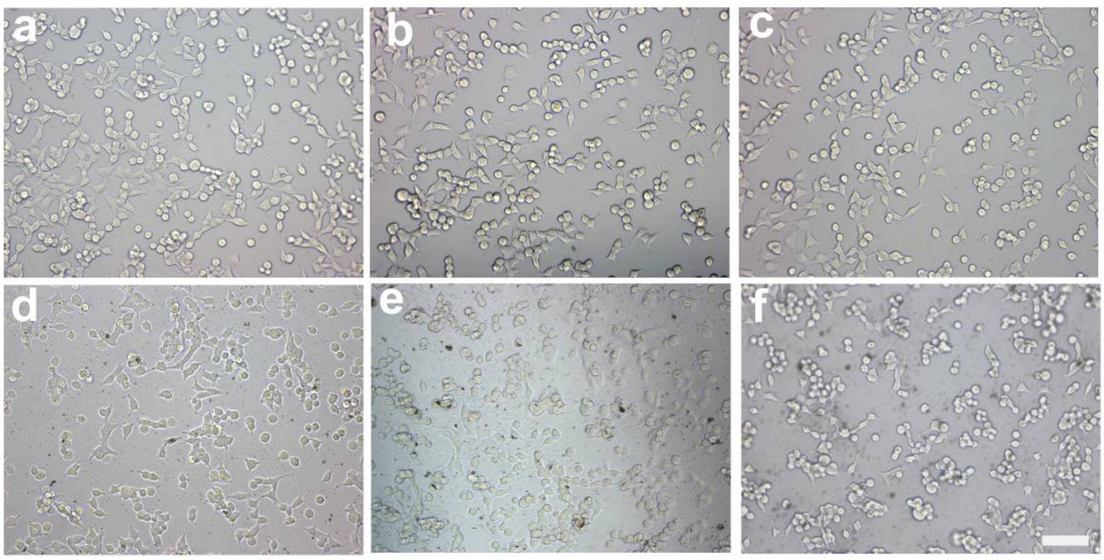

Fig. S12 Images of MCF-7 cells treated with a NPs concentration of 40 (a), 100 (b), 200 (c), 400 (d), 800 (e) and 1600 ppm (f) for 24 h (scale bar: 100 μm).

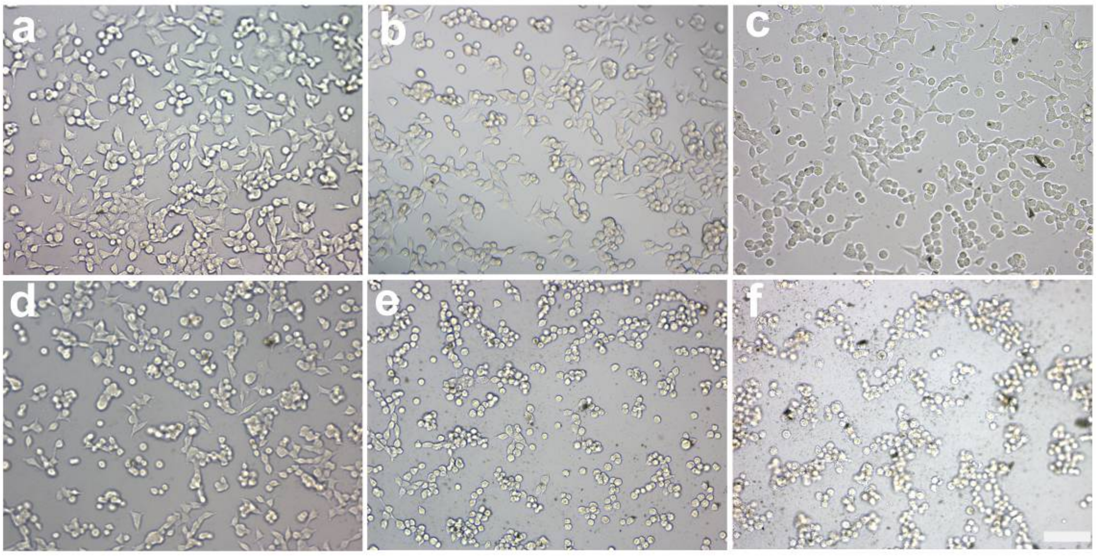

Fig. S13 Images of MCF-7 cells treated with an 808-nm laser for 5 min at a NPs concentration of 40 (a), 100 (b), 200 (c), 400 (d), 800 (e) and 1600 ppm (f) (scale bar: 100 μm).