Supporting Information

Biocompatible tumor-targeted GQDs nanocatalyst for chemodynamic tumor therapy

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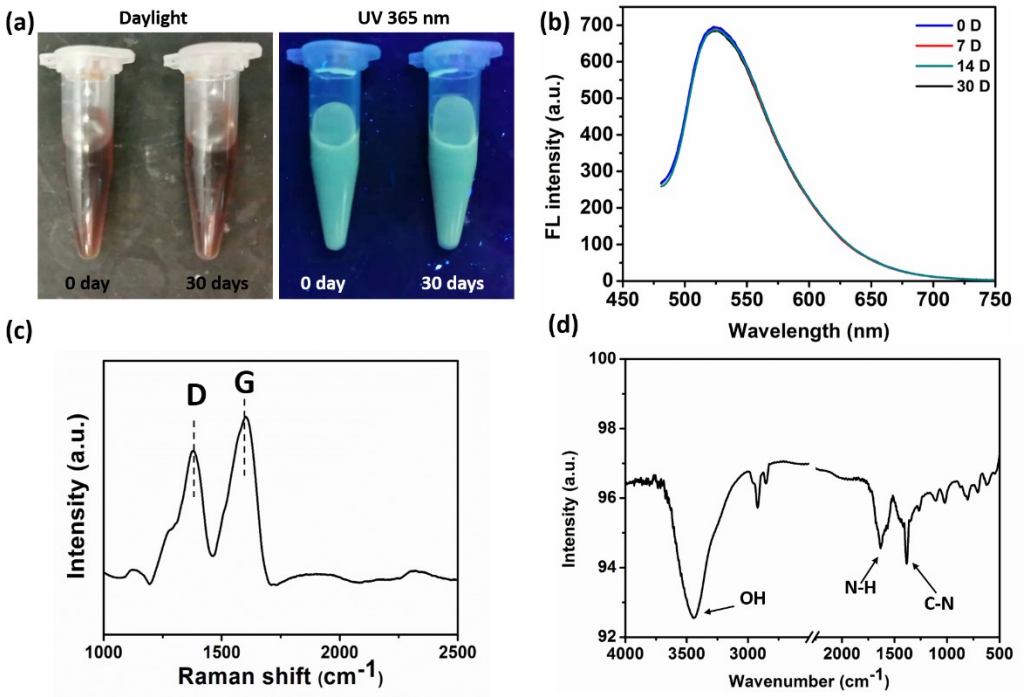

Fig. S1 (a) the photograph of NGQDs solution under daylight and UV light at 365 nm; (b) The emission spectra of NGQDs at the 0, 7th, 14th and 30th day (Ex: 460 nm); (c) Raman spectrum of NGQDs; (d) FTIR spectra of NGQDs.

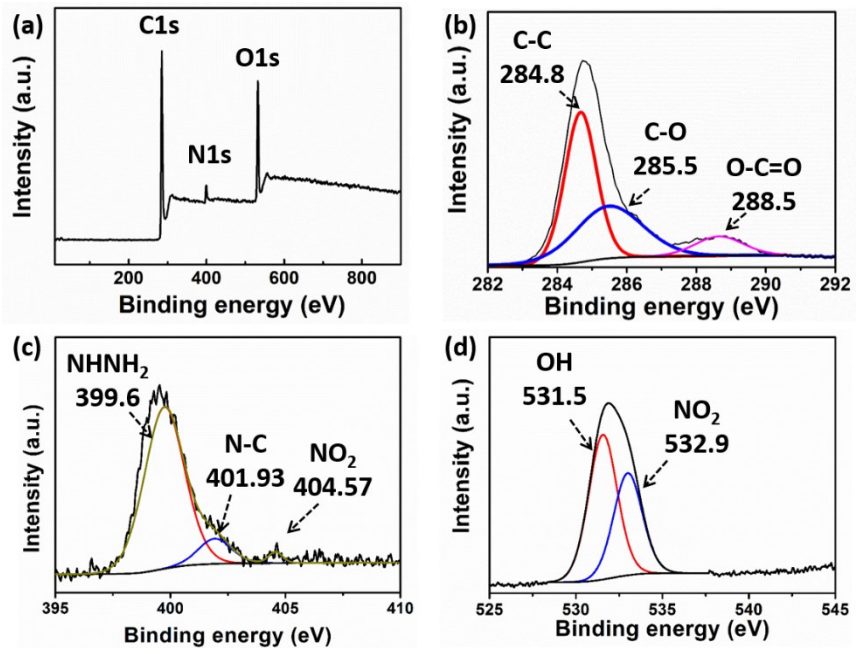

Fig. S2 The XPS spectra of NGQDs. (a) The survey of the XPS spectra; (b-d) the high-resolution of C1s, N1s and O1s spectra.

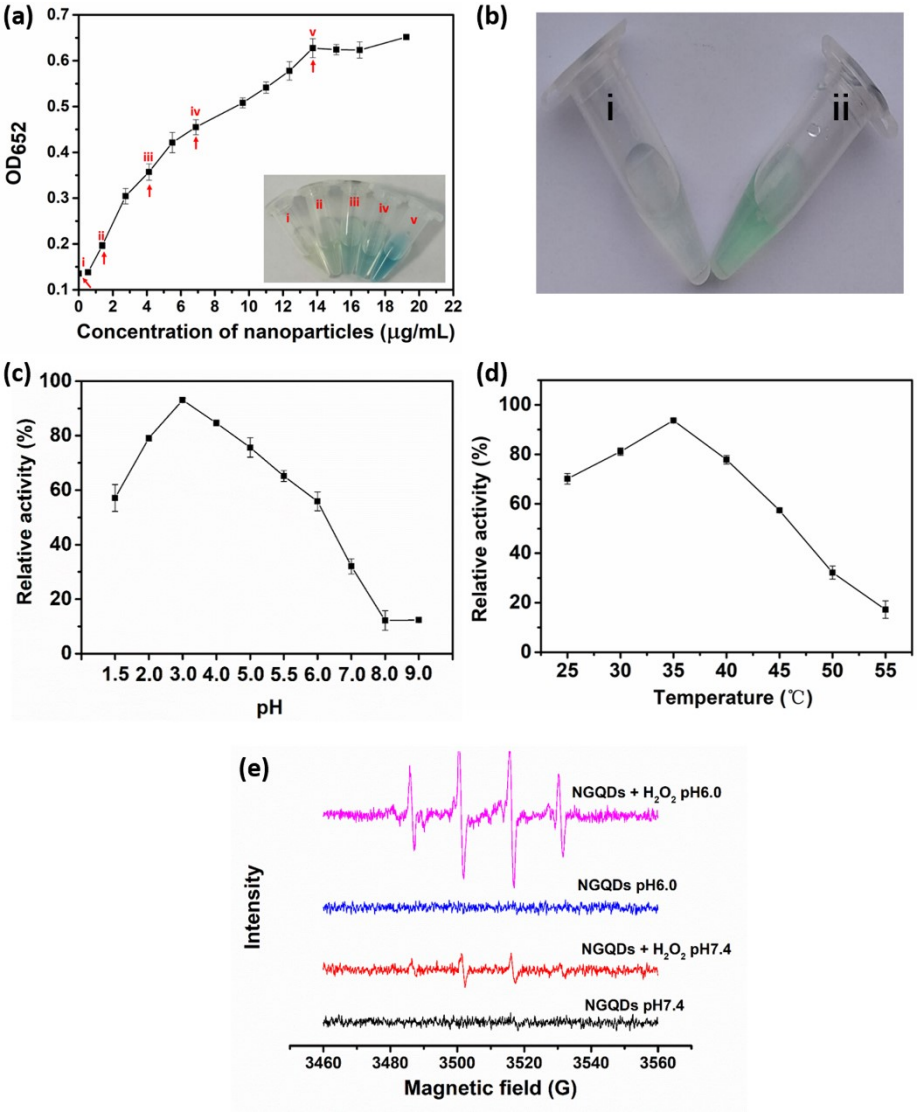

Fig. S3 (a) The UV value of NGQDs with a supply of H_2O_2 at acidic condition at 652 nm (inset shows the typical digital images of the "NGQDs + TMB + H_2O_2" mixture at the 10th min); (b) the digital images of the "NGQDs + TMB" (i) and "NGQDs + TMB + H_2O_2" (ii) mixture at the 10th min; (c) the optimal pH of NGQDs; (d) the optimal temperature of NGQDs; (e) ESR spectra of NGQDs and NGQDs after the addition of H_2O_2 (10 mM) under acidic (pH 6.0) or neutral (pH 7.4) condition).

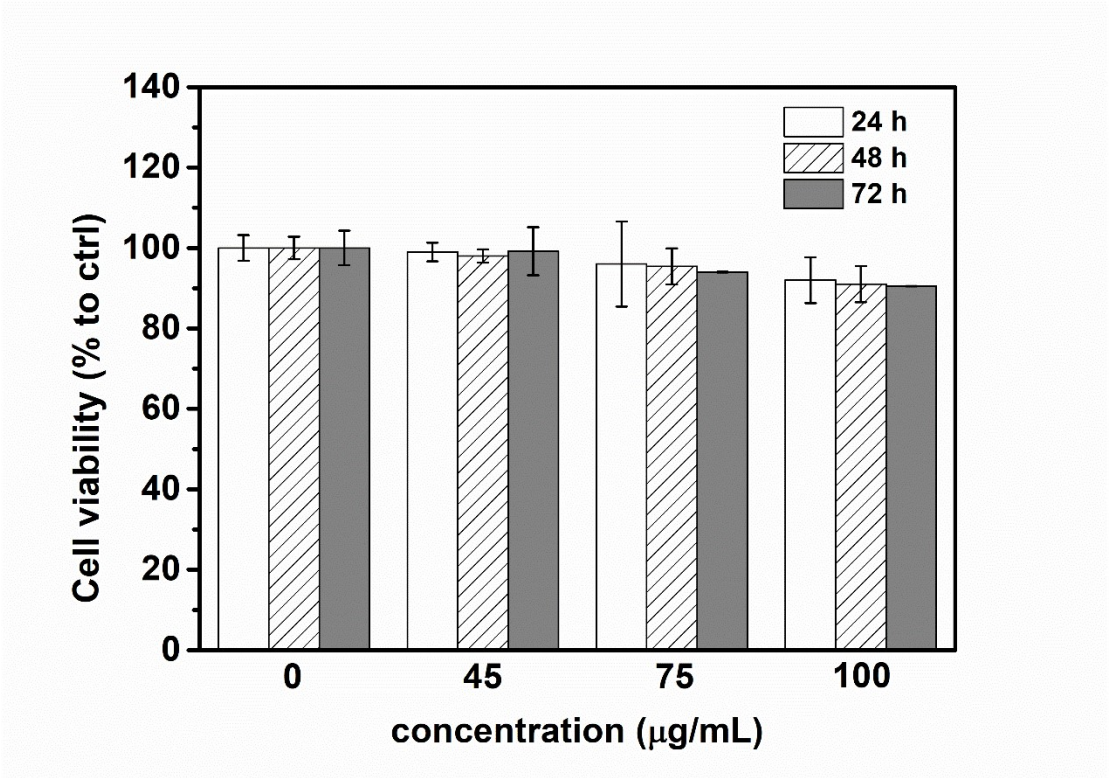

Fig. S4 Cell viability of L929 cells after the addition of different concentrations of NGQDs for 24, 48 or 72h.

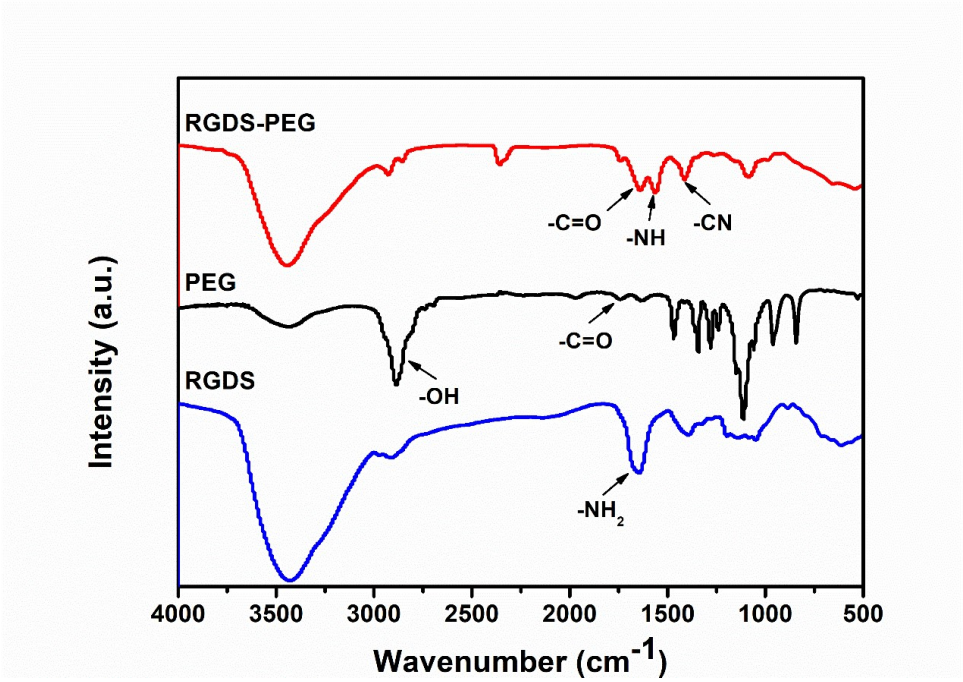

Fig. S5 The FTIR spectrum of RGDS-PEG, COOH-PEG-SH and RGDS peptide.

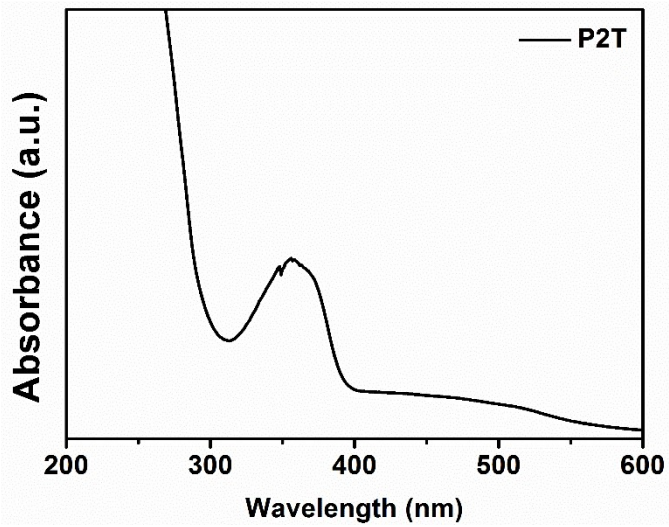

Fig. S6 The UV-vis spectrum of RGDS-PEG and NGQDs reaction by-product.

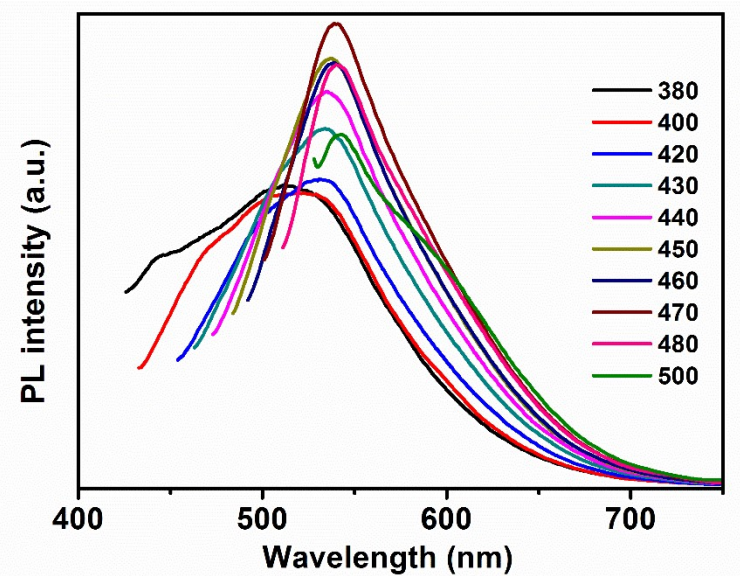

Fig. S7 The emission spectra of RGDS-PEG@NGs.

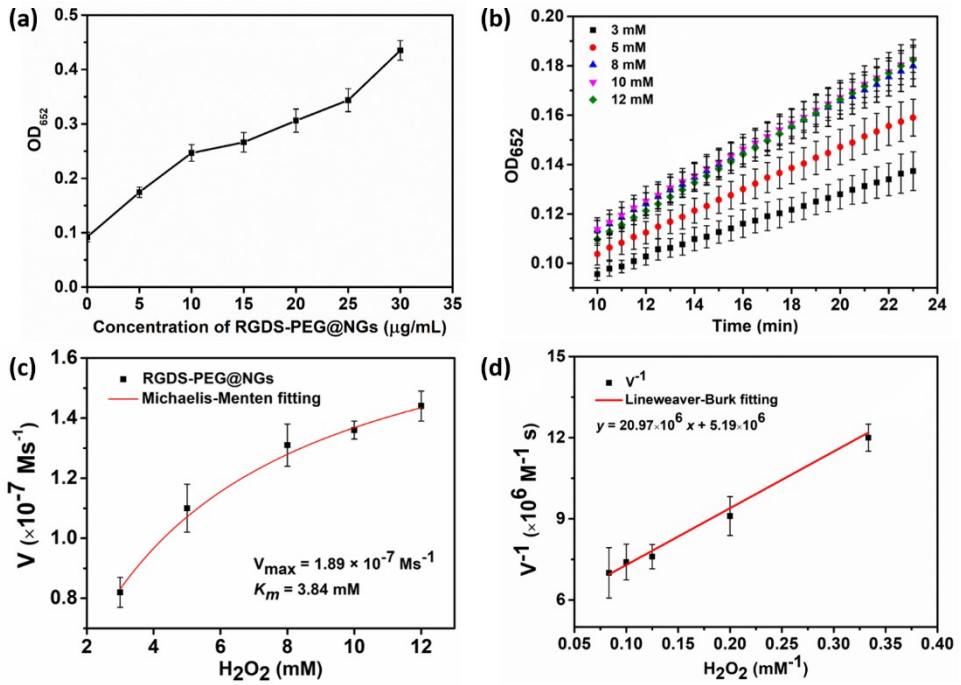

Fig. S8 The peroxidase activity of RGDS-PEG@NGs with a supply of H_2O_2 (a. the UV value of RGDS-PEG@NGs (0, 5, 10, 15, 20, 25, 30 μg/mL) with a supply of H_2O_2 (10 mM) at 652 nm; b. the time-course absorbance plots of RGDS-PE@NGs (10 μg mL^{-1}); c. the Michaelis-Menten curve of RGDS-PEG@NGs (10 μg mL^{-1}); d. the Lineweaver-Burk plots of RGDS-PE@NGs (10 μg mL^{-1}))

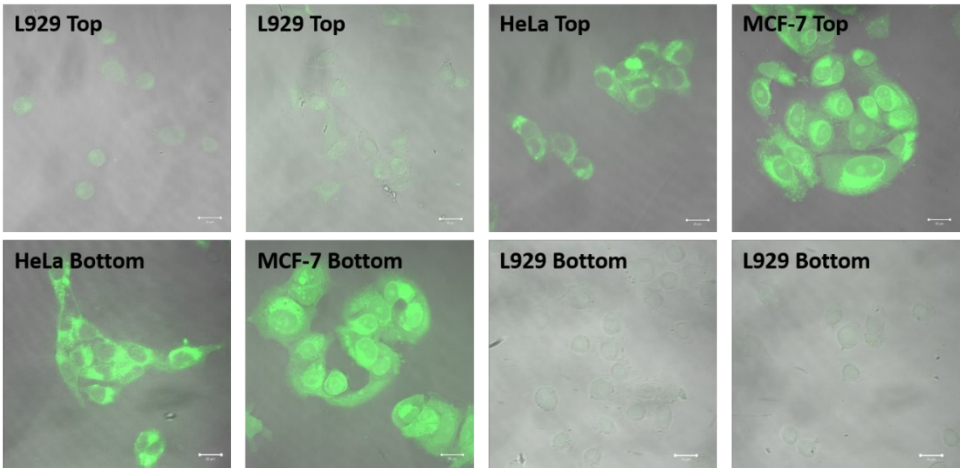

Fig. S9 CLSM images of the co-cultured somatic cells (L929) and tumor cells (HeLa or MCF-7) on the transwells plates which treated with RGDS-PEG@NGs at a concentration of 45 μg/mL under neutral conditions (the images are overlays of the white light channel and green fluorescence channel images). The scale bar represents 20 μm.

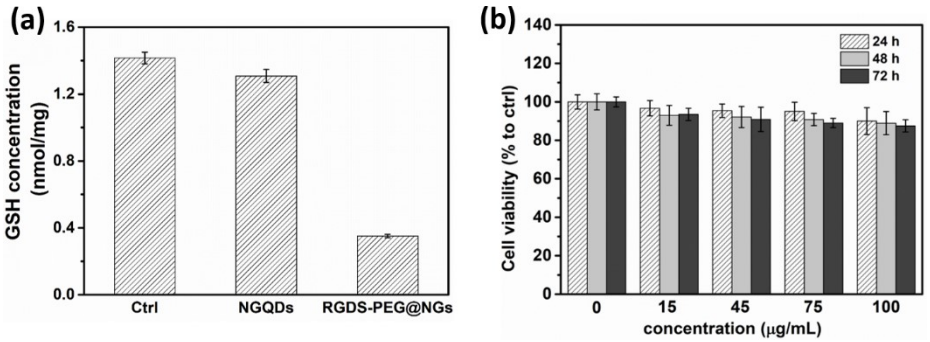

Fig. S10 (a) Intracellular GSH depletion of HeLa cells that incubated with NGQDs or RGDS-PEG@NGs; (b) Cell viability of L929 cells after the addition of different concentrations of RGDS-PEG@NGs for 24, 48 or 72h.

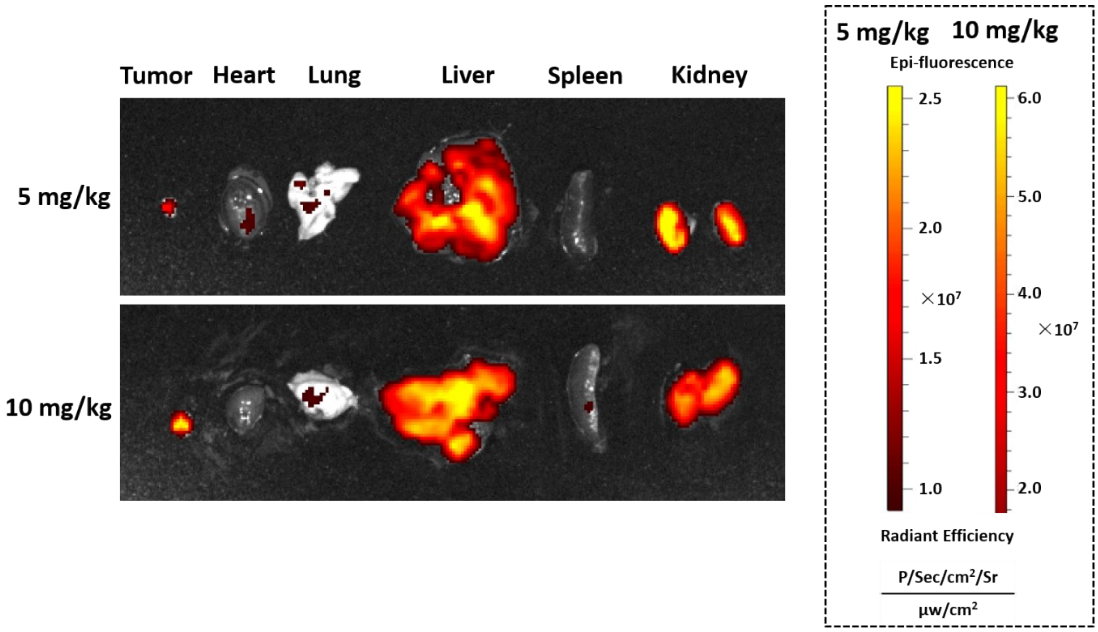

Fig. S11 The fluorescence images of the tumors and major organs from the HeLa tumor-bearing mice which were administrated with RGDS-PEG@NGs.

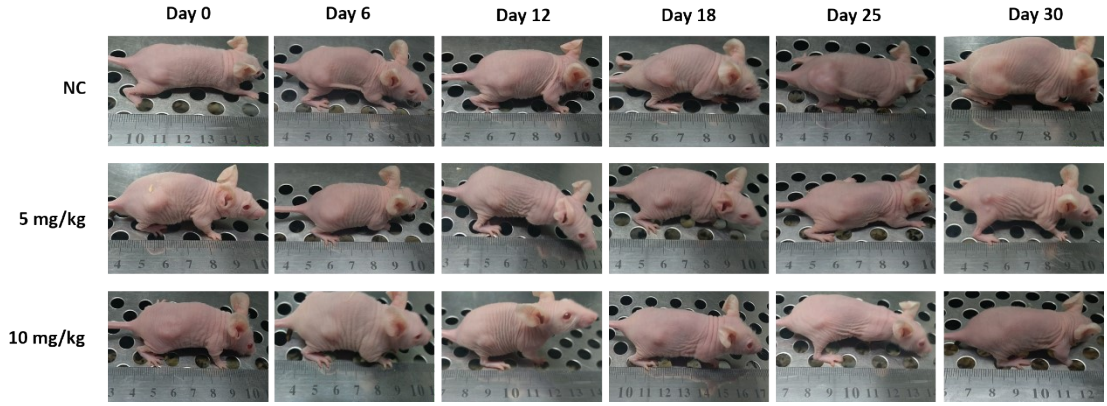

Fig. S12 The example digital photos of HeLa tumor-bearing mice after injection.

Fig. S13 The images of dissected HeLa tumor xenografts at the end of the therapy.

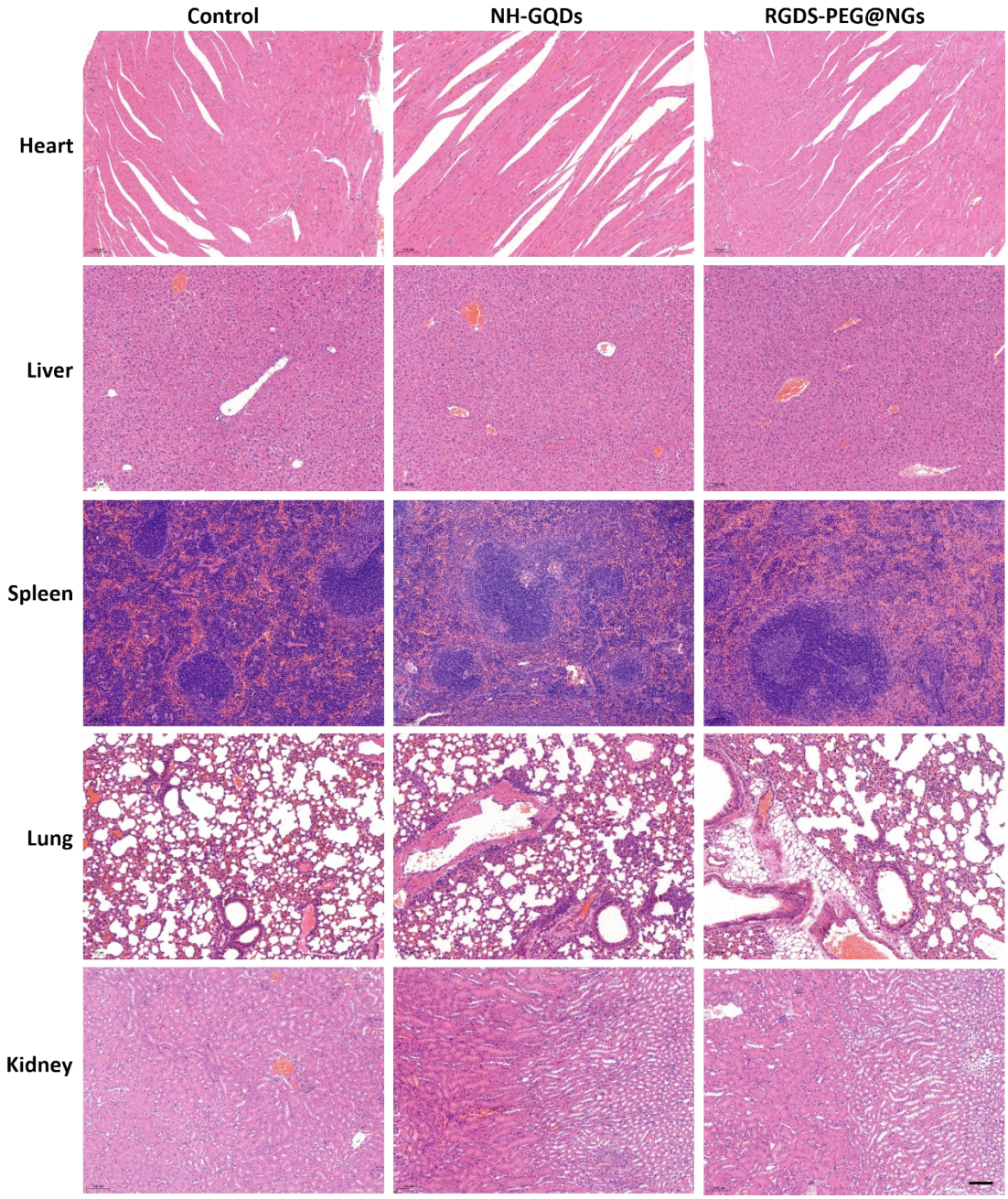

Fig. S14 Histopathology images of dissected major organs stained with H&E. Scale bar: 100 μm