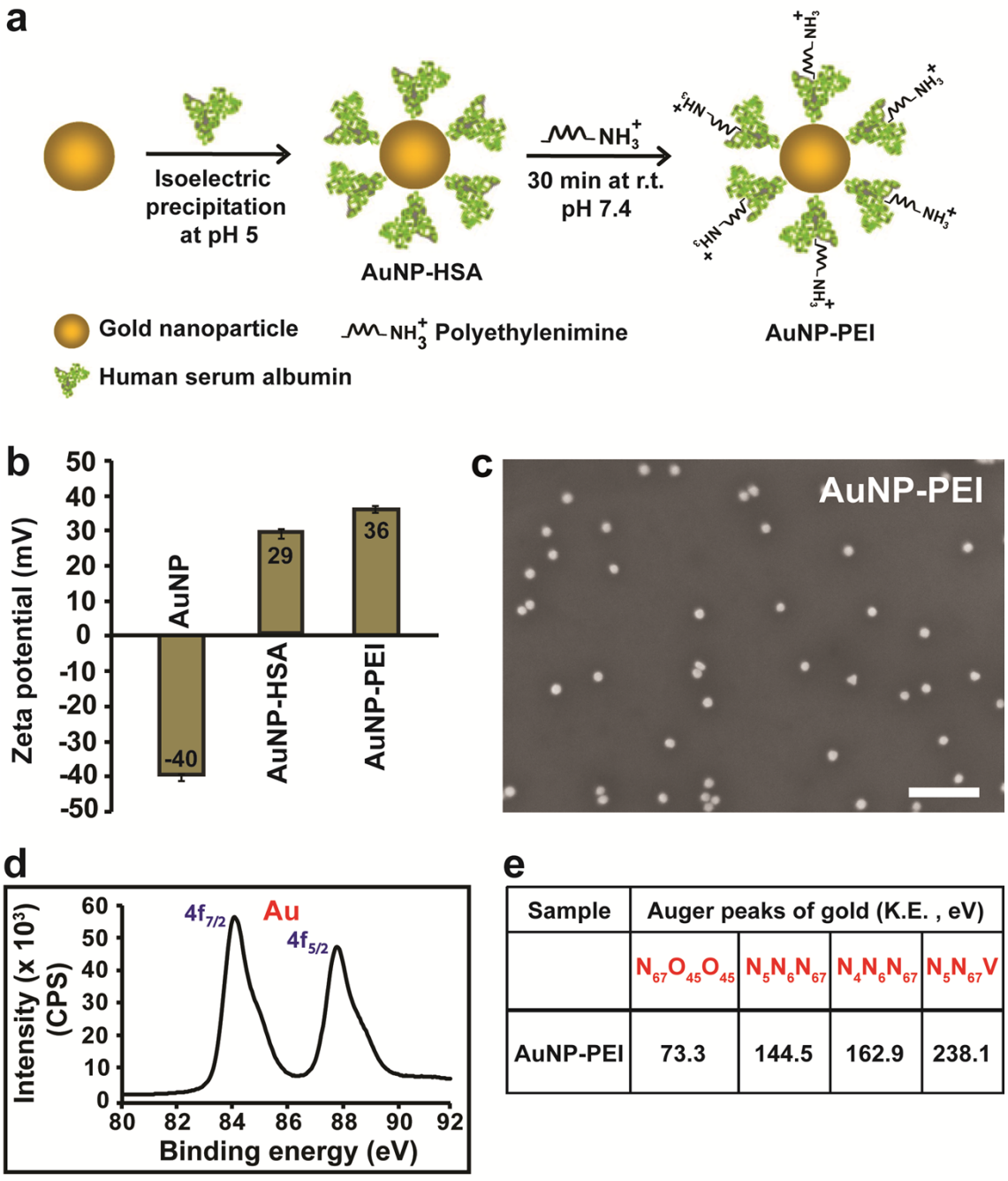

Sample	Auger peaks of gold (K.E. , eV)			
	$N_{67}O_{45}O_{45}$	$N_5N_6N_{67}$	$N_4N_6N_{67}$	$N_5N_{67}V$
AuNP-PEI	73.3	144.5	162.9	238.1

Fig. S1 Synthesis and characterization of AuNPs-PEI. (a) Schematic showing preparation of AuNPs-PEI. (b) Zeta potential of AuNPs, AuNPs-HSA and AuNPs-PEI. (c) SEM image of AuNPs-PEI (scale bar = 0.4 μm). (d and e) XPS analysis of AuNPs-PEI showing the presence of Au as indicated by the photoelectron peaks (d) and Auger peak positions (e) of Au.

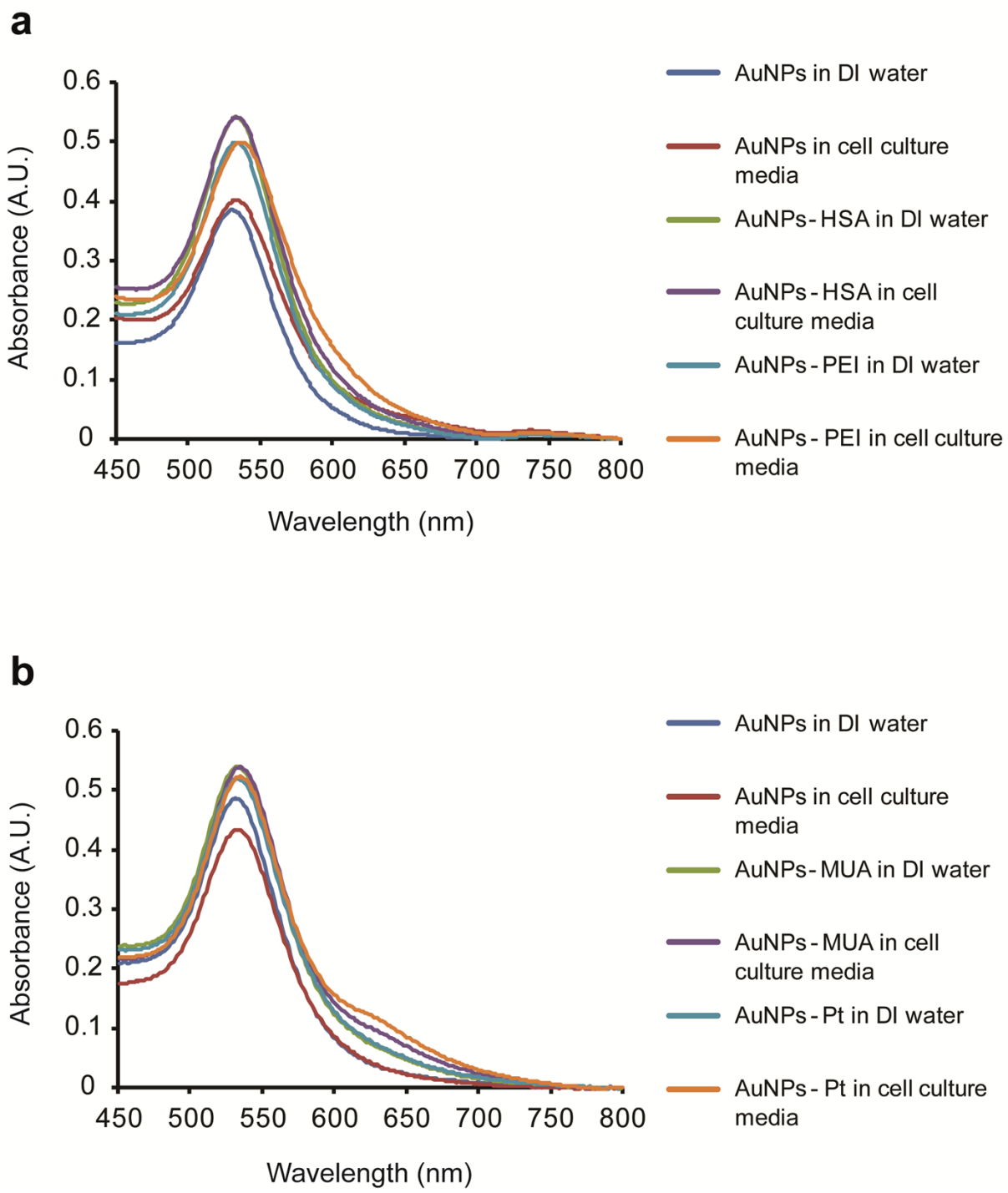

Fig. S2 UV-Vis absorption spectroscopy showing colloidal stability of AuNPs-HSA, AuNPs-PEI (a), AuNPs-MUA, and AuNPs-Pt (b). The nanoconjugates could maintain their colloidal stability under the high ionic strength and physiological pH (7.4) of cell culture media, as indicated by the characteristic SPR peak position at 530 nm.

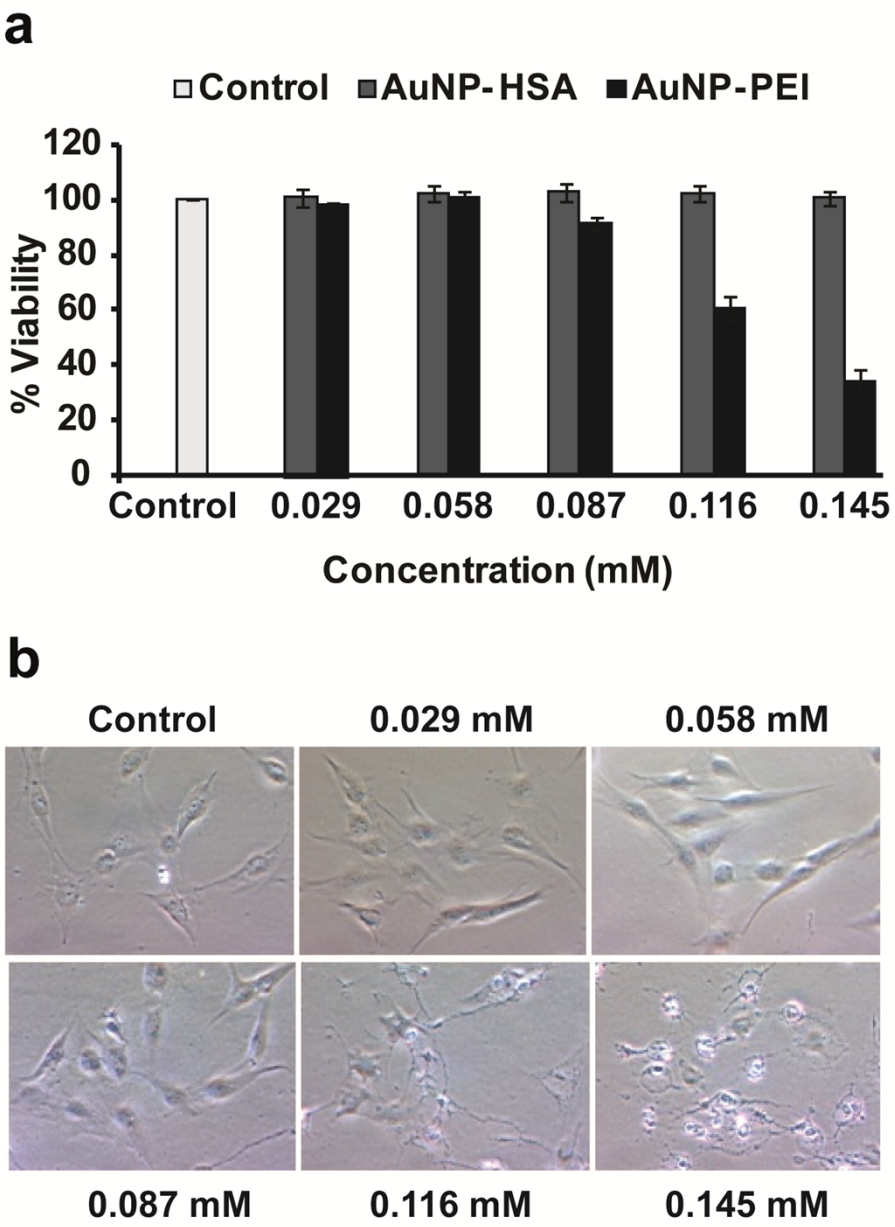

Fig. S3 Toxicity test of AuNPs-PEI in S2 cells by MTS assay. (a) *In vitro* viability of S2 cells treated with various concentrations of AuNPs-HSA or AuNPs-PEI, Means ± s.e.m. (n=3). (b) Images of S2 cells demonstrating the effect of AuNPs-PEI treatment on cell morphology.

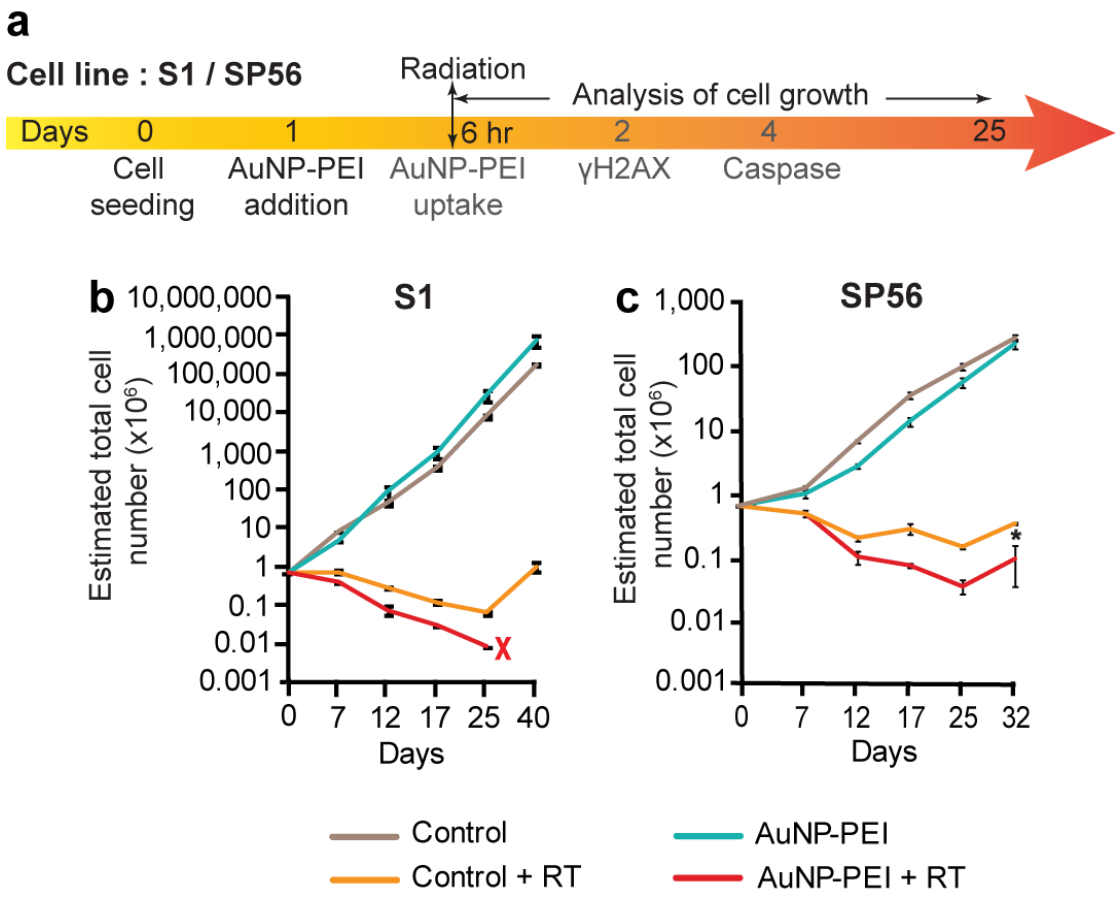

Fig. S4 Effect of AuNPs-PEI mediated radiosensitization on S1 and SP56 cells. (a) Schematic diagram of the experimental design. (b and c) Patterns of *in vitro* cell growth of different treatment groups of S1 (b) and SP56 (c) cells. RT= 10 Gy. Means ± s.e.m. (n=3). * $P < 0.05$, Student's t-test.

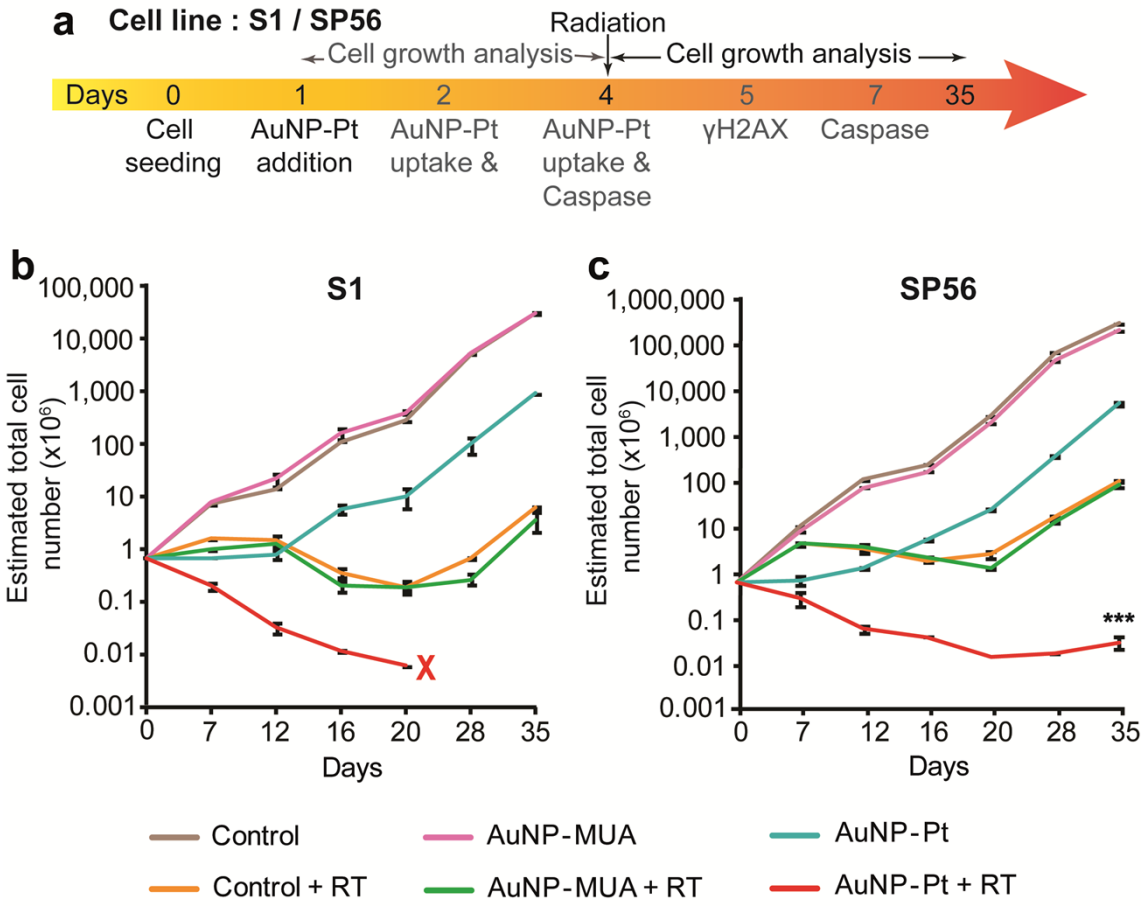

Fig. S5 Effect of AuNPs-Pt mediated chemo-radiotherapy on S1 and SP56 cells. (a) Schematic diagram of the experimental design. (b and c) Patterns of *in vitro* cell growth of different treatment groups for S1 (b) and SP56 (c). RT= 10 Gy. Means ± s.e.m. (n=3). *** $P < 0.001$, ANOVA.