Journal Name

ARTICLE

Supporting information

for

Near-infrared laser-triggered drug release in tellurium nanosystem for simultaneous chemo-photothermal cancer therapy

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Methods

Cells survival rate under laser irradiation: The cells were seeded in 96-well plate. After cells attachment, different concentrations of the drug were added to the plate and pre-treated for 1 h. After pre-treatment, the upper clear liquid was moved and the cells were washed three times with PBS to remove residual nanoparticles which do not enter the cells. Except the control group, the other groups were irradiated with laser (2 W/cm^2) for 5 min, and then continued to incubate in the incubator. The experimental procedure was the same as above.

Results

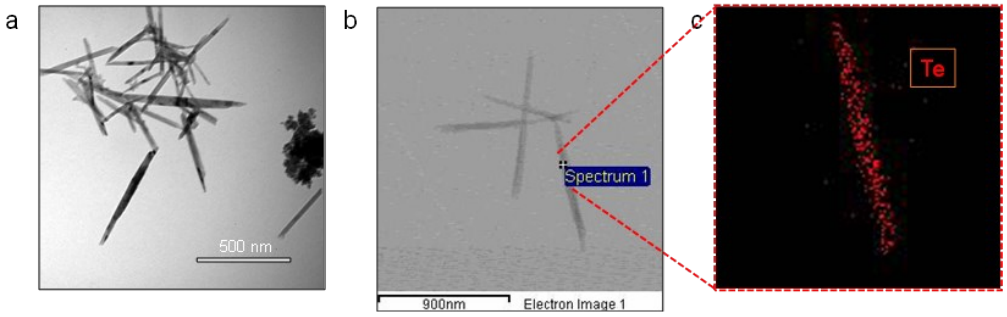

Figure S1 TEM image of TeNRs (a). (b, c) HRTEM images of TeNRs.

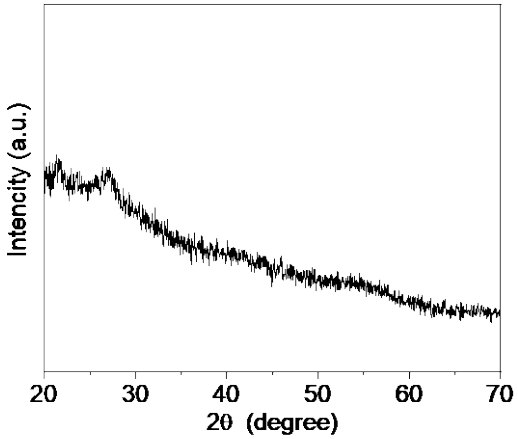

Figure S2 XRD spectrum of DOX/PEI@TeNPs.

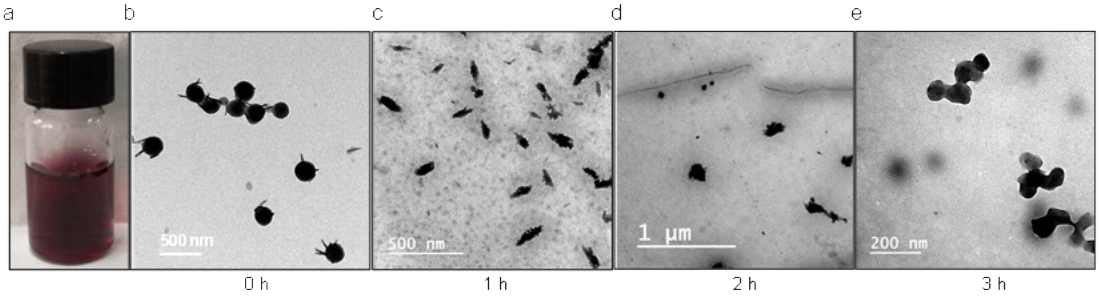

Figure S3 Effect of DOX on the formation of nanoparticles. (a) Picture of DOX/PEI@TeNPs solution at the end of reaction. (b-e) TEM images of DOX/PEI@TeNPs by the addition of DOX at different reaction times (0, 1, 2, 3 h, respectively).

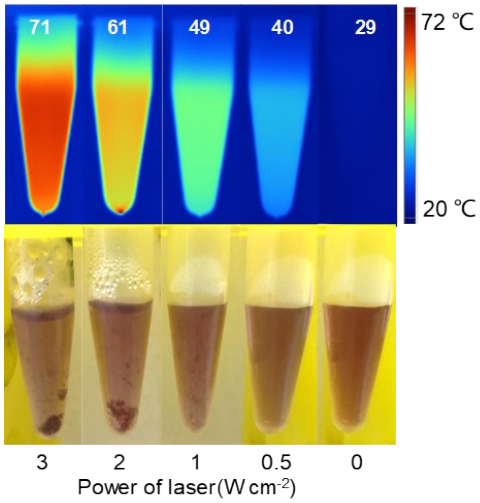

Figure S4 Photothermal images of DOX/PEI@TeNPs with 15 minutes various power of laser irradiation, recorded by IR camera.

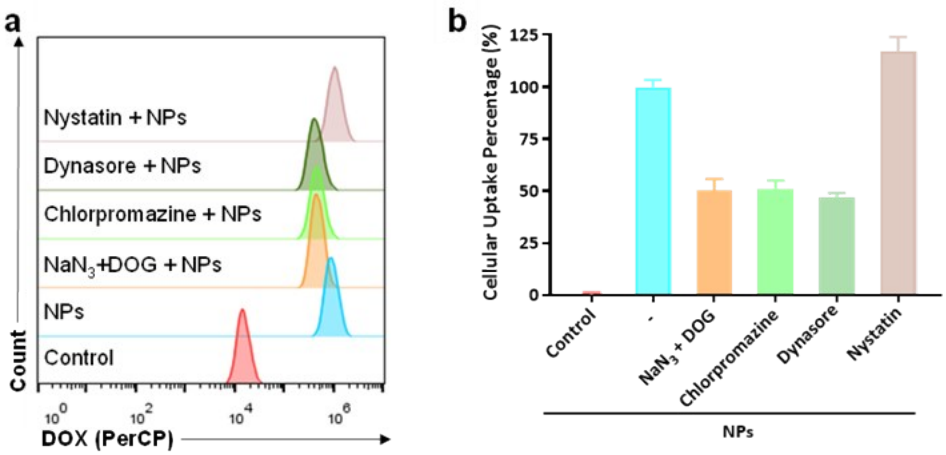

Figure S5. Intracellular uptake of DOX/PEI@TeNPs in HepG2 cells under different endocytosis-inhibited conditions. Before the incubation of DOX/PEI@TeNPs, cells were incubated with specific endocytosis inhibitors at different periods of time (37°C) treatment respectively.

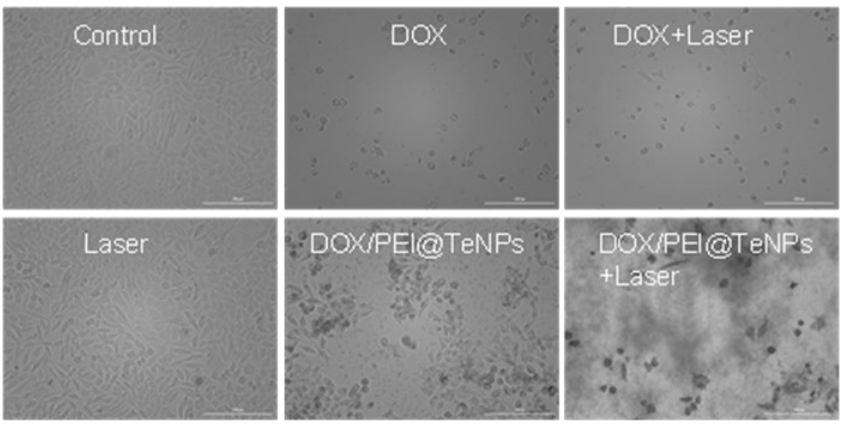

Figure S6 Images of HepG2 cells treated with the NIR and different drugs for 72 h.

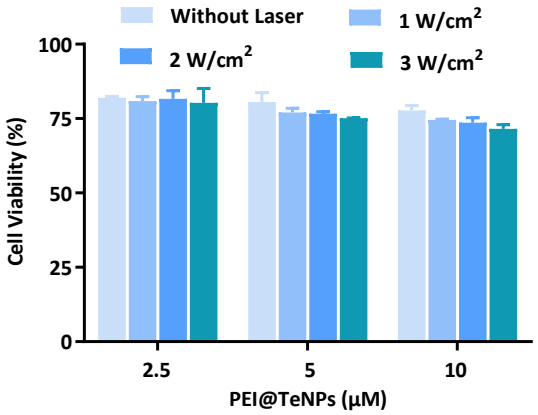

Figure S7. Cytotoxicity analysis of PEI@TeNPs in HepG2 cells with or without different NIR irradiation power *in vitro* (808 nm).

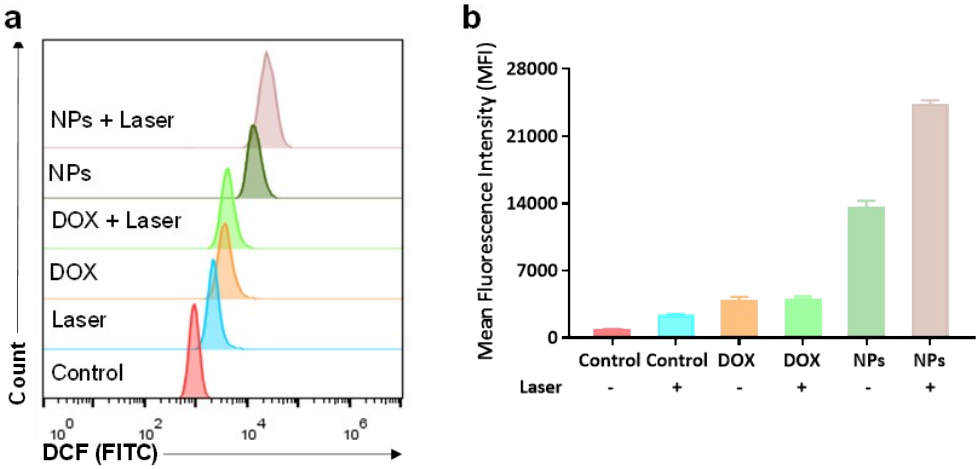

Figure S8. The effects of different treatments on ROS generation within HepG2 cells. ROS levels within HepG2 cells treated with Laser, DOX, DOX + Laser, DOX/PEI@TeNPs or DOX/PEI@TeNPs + Laser for 2 h were determined with flow cytometry using DCFH-DA probe (**a**) and its corresponding mean fluorescence intensity (MFI, **b**).

Table S1. Cytotoxic effects on cancer cell lines and normal cell lines (IC_{50}) after treatment with drugs and laser (808 nm, 2 W/cm^2).

Drugs	IC_{50} (μM, DOX)		SI*
	L02	HepG2	
DOX	0.75	5.04	0.15
DOX/PEI@TeNPs	42.94	55.97	0.77
DOX/PEI@TeNPs+Laser	2.50	3.77	0.66

SI* (Safe Index) = IC_{50} (L02)/IC_{50} (HepG2), which reflects the side effect of Drugs.