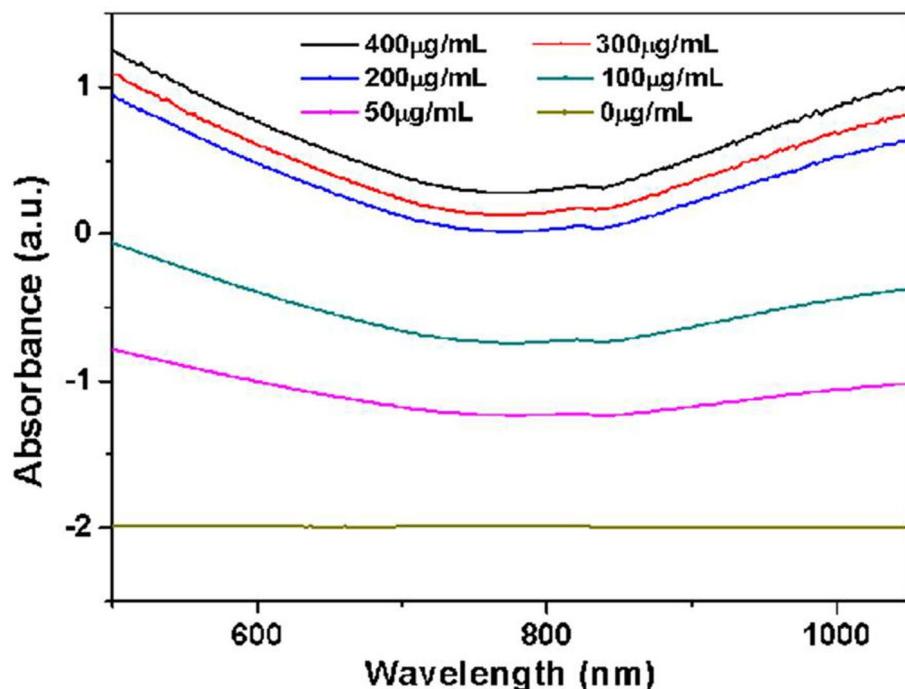


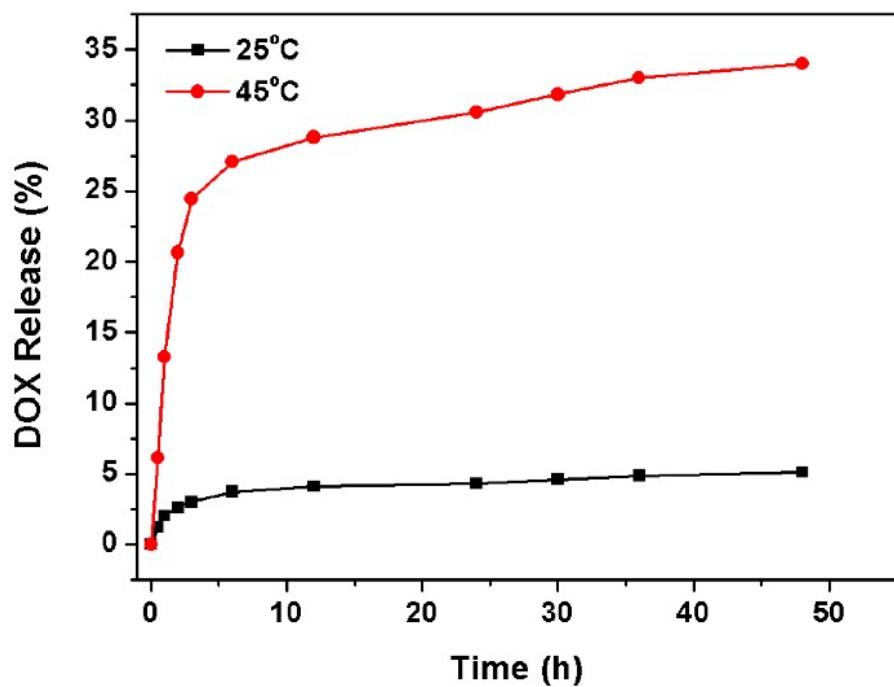
## Supporting Information

### Controllable Drug Release System based on phase change molecules as gatekeepers for Bimodal Tumor Therapy with Enhanced Efficacy

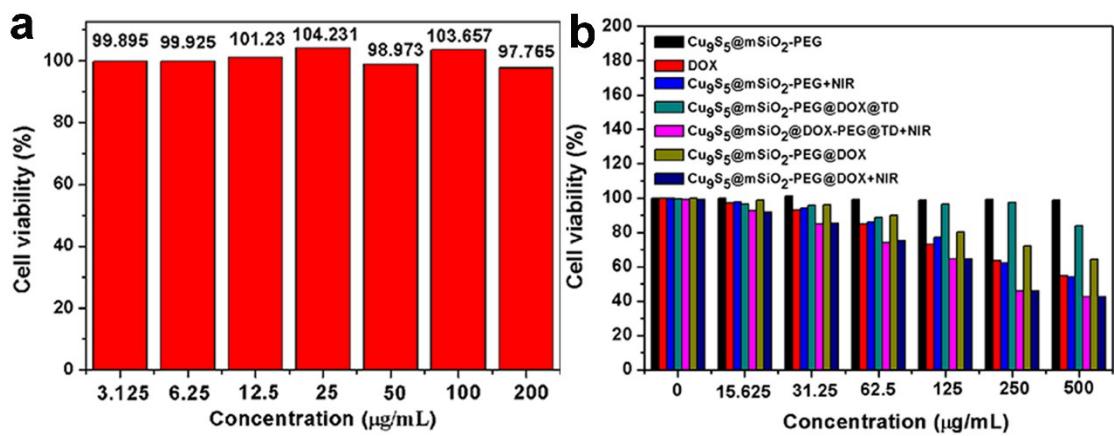
Fei He,<sup>a,b</sup> Yinyin Chen,<sup>a,b</sup> Chunxia Li,<sup>a,\*</sup> Xiaoran Deng,<sup>a,b</sup> Bin Liu,<sup>a</sup> Bei Liu,<sup>a,b</sup> Shanshan Huang,<sup>a</sup> Zhiyao Hou,<sup>a</sup> Ziyong Cheng<sup>a</sup> and Jun Lin<sup>a,\*</sup>



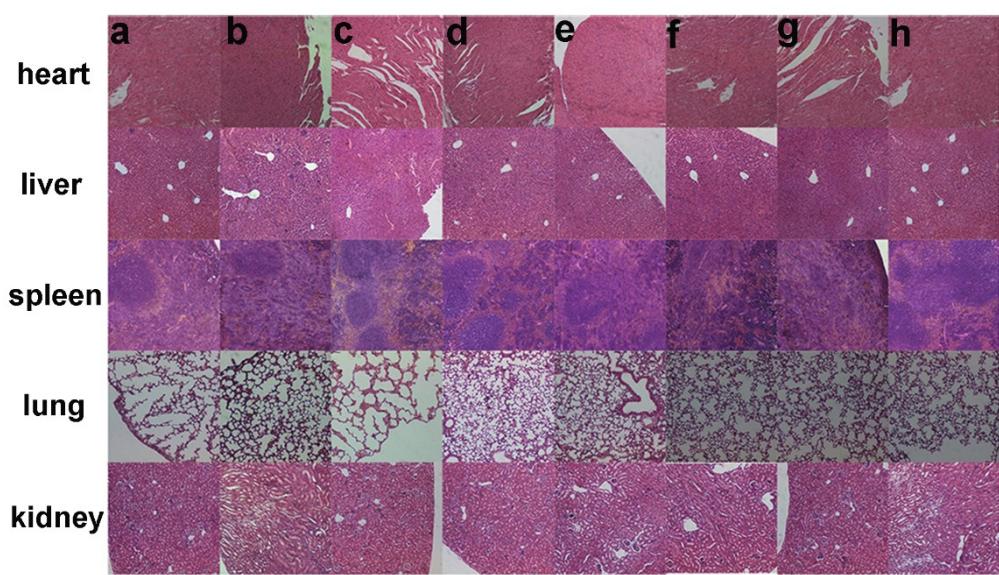
**Fig S1.** The UV-Vis-NIR absorption spectra of Cu<sub>9</sub>S<sub>5</sub>@mSiO<sub>2</sub>-PEG.



**Fig S2.** DOX cumulative release from  $\text{Cu}_9\text{S}_5@\text{mSiO}_2\text{-PEG}@DOX@\text{TD}$  core-shell nanoparticles in phosphate-buffer saline ( $\text{pH}=5.0$ ) at different temperatures ( $T=25\text{ }^{\circ}\text{C}$  and  $45\text{ }^{\circ}\text{C}$ ).



**Fig S3.** (a) Cell viability of HeLa cells after incubation with  $\text{Cu}_9\text{S}_5@\text{mSiO}_2\text{-PEG}$  for 24 h by using MTT assay; (b) The cell inhibition rate of DOX,  $\text{Cu}_9\text{S}_5@\text{mSiO}_2\text{-PEG}$ ,  $\text{Cu}_9\text{S}_5@\text{mSiO}_2\text{-PEG@DOX}$  and  $\text{Cu}_9\text{S}_5@\text{mSiO}_2\text{-PEG}$  @ DOX@TD incubated with Hell cells versus the  $\text{Cu}_9\text{S}_5@\text{mSiO}_2$  concentration. Some groups were exposed to 980 nm laser ( $0.5 \text{ W/cm}^2$ ) for 5 min.



**Fig S4.** Hmatoxylin and Eosin (H&E) stained images of organs of the groups (a)  $\text{Cu}_9\text{S}_5@\text{mSiO}_2\text{-PEG}@\text{DOX}@TD + \text{NIR}$ , (b) DOX, (c)  $\text{Cu}_9\text{S}_5@\text{mSiO}_2 - \text{PEG} + \text{NIR}$ , (d)  $\text{Cu}_9\text{S}_5@\text{mSiO}_2\text{-PEG}@DOX@TD$ , (e)  $\text{Cu}_9\text{S}_5@\text{mSiO}_2\text{-PEG}$ , (f) control, (g)  $\text{Cu}_9\text{S}_5@\text{mSiO}_2\text{-PEG}@DOX$  and (h)  $\text{Cu}_9\text{S}_5@\text{mSiO}_2\text{-PEG}@DOX + \text{NIR}$ , respectively.