Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary information for:

Graphitic Hollow Carbon Nitride Nanosphere as a Novel Photochemical Internalization Agent for Targeted and Stimuli-responsive Cancer Therapy

*Chaoqun Liu,[a,b] Zhaowei Chen,[a,b] Zhenzhen Wang,[a,b] Wei Li,[a,b] Enguo Ju,[a,b] Zhengqing Yan,[a,b] Zhen Liu, *[a] Jinsong Ren*[a] and Xiaogang Qu[a]*

a. Laboratory of Chemical Biology, State Key Laboratory of Rare Earth Resource Utilization, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, 130022, China.

b. University of the Chinese Academy of Sciences, Beijing, 100039, China

E-mail: jren@ciac.ac.cn; xqu@ciac.ac.cn.

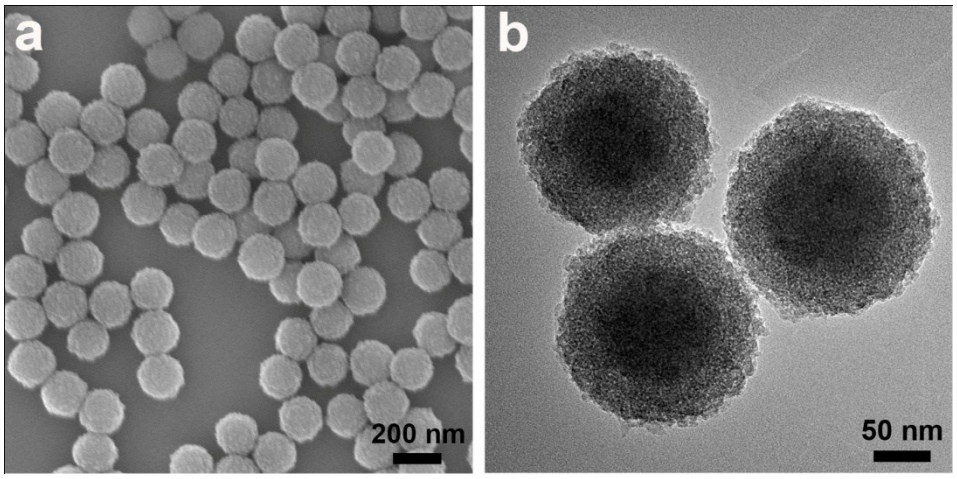

Figure S1. SEM (a) and TEM (b) images of the silica templates.

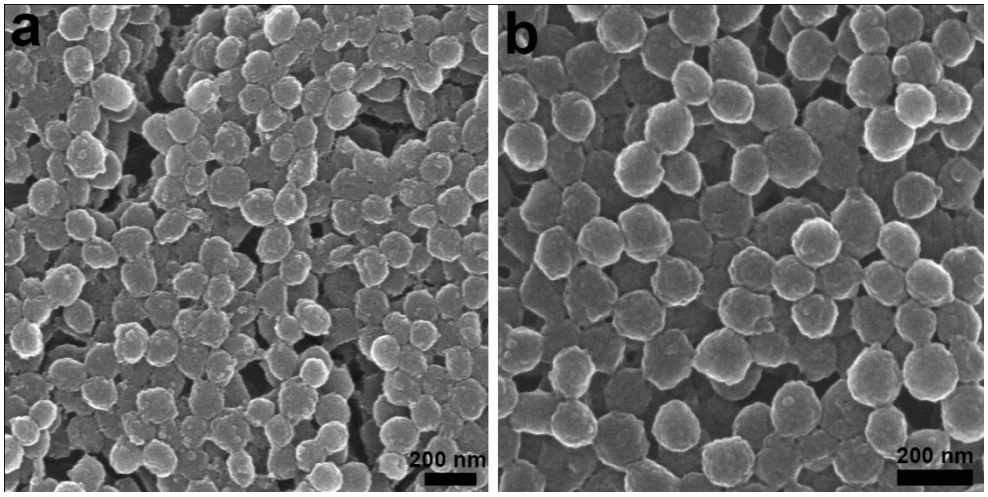

Figure S2. SEM images of GHCNS (a) and GHCNS-HA (b).

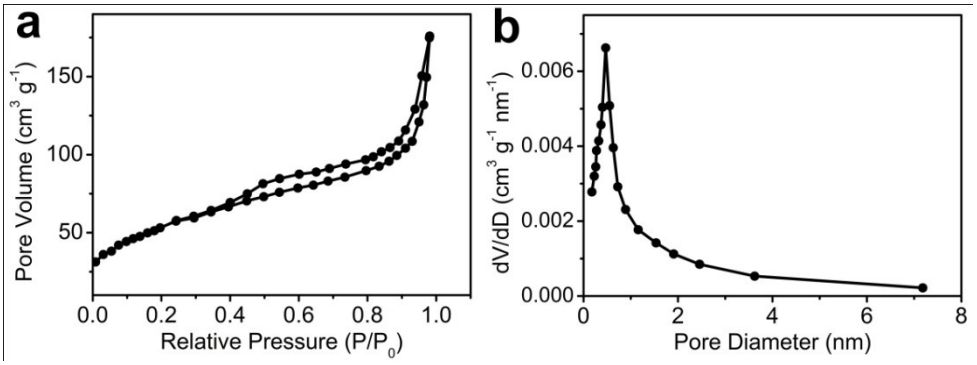

Figure S3. N_2 adsorption-desorption isotherms (a) and the corresponding pore size distribution (b) of GHCNS.

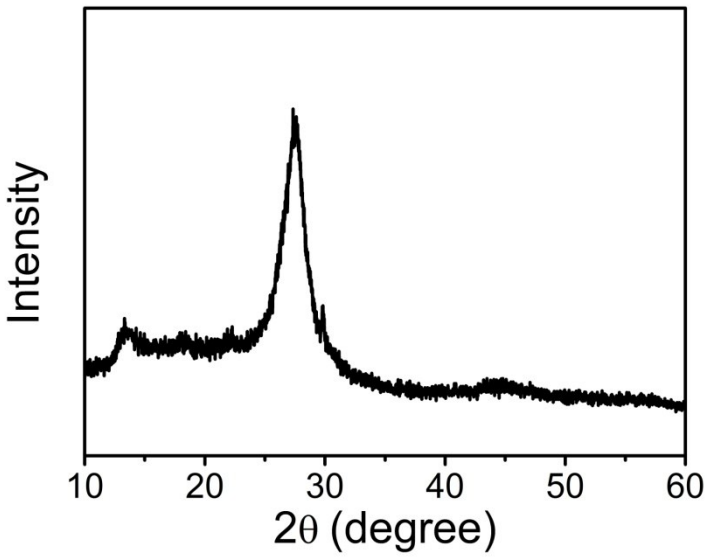

Figure S4. XRD patterns of GHCNS.

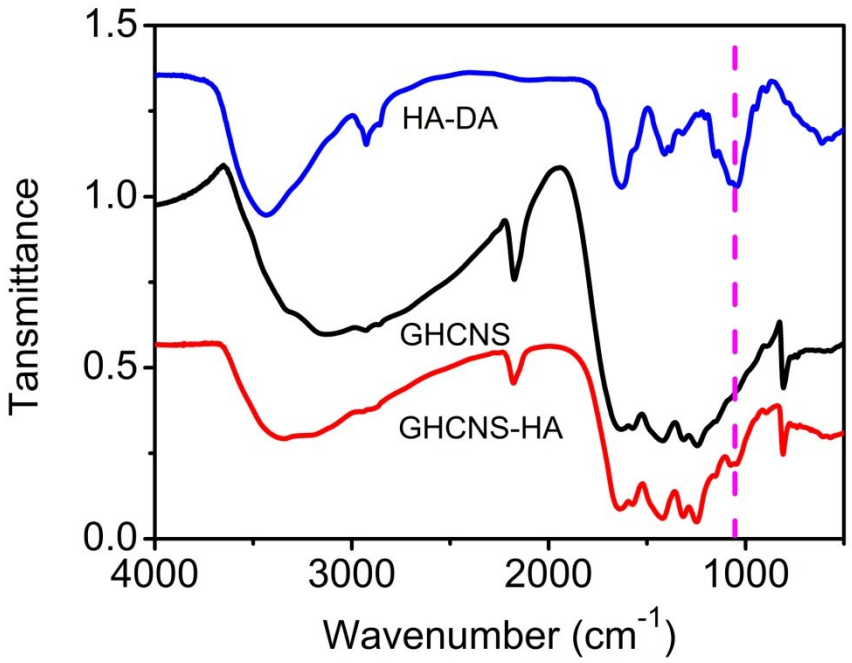

Figure S5. FT-IR spectra of HA-DA, GHCNS and GHCNS-HA.

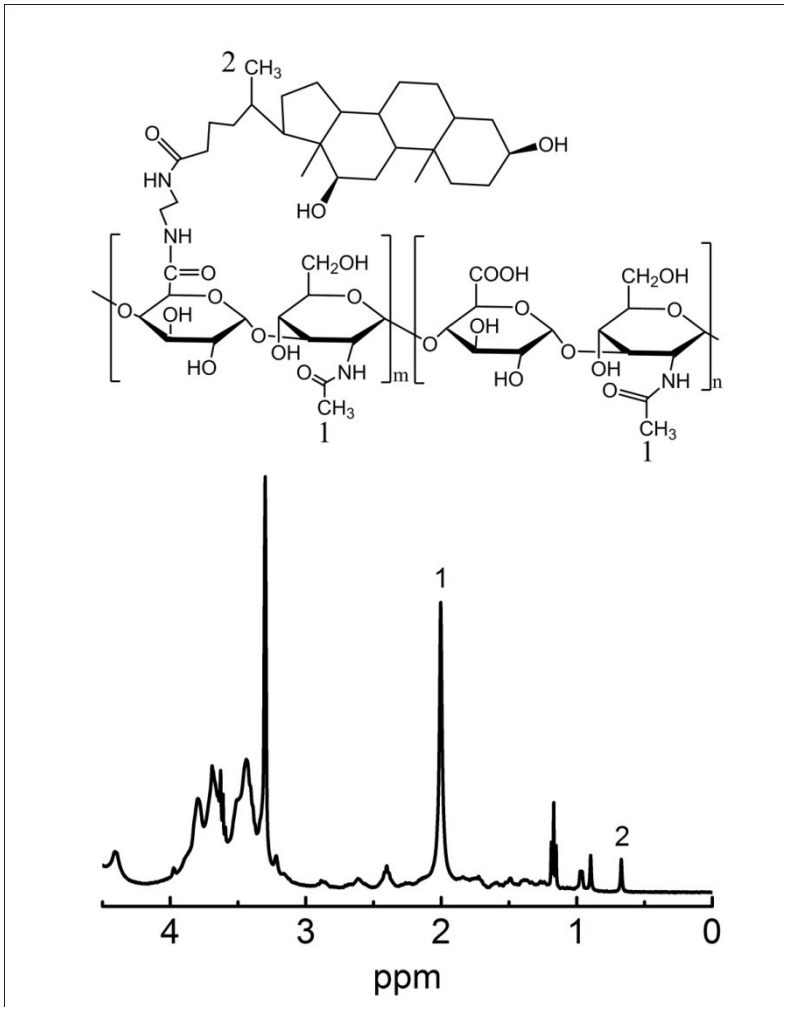

Figure S6. The structure and ^{1}H NMR spectrum of HA-DA conjugates.

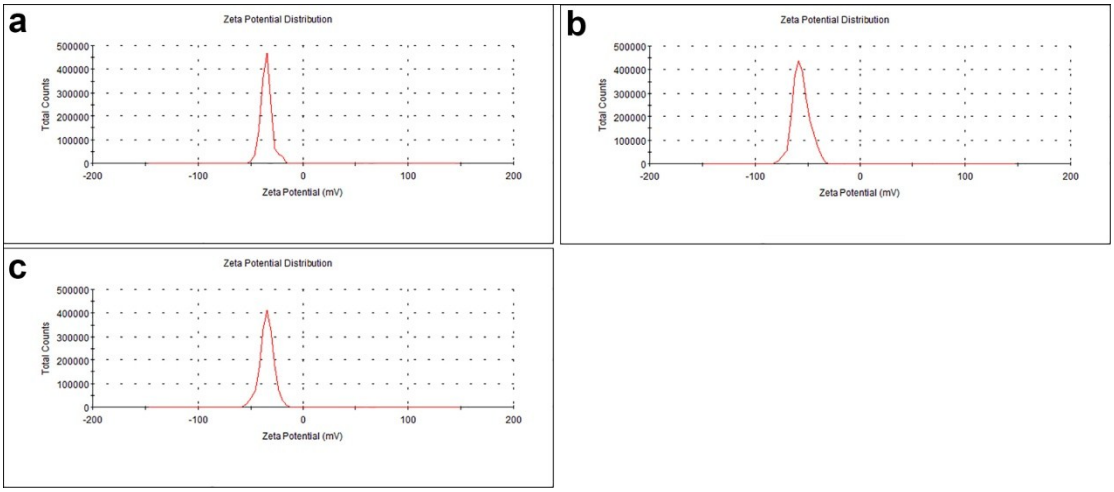

Figure S7. Zeta potential of GHCNS (a), GHCNS-HA (b) and GHCNS-HA in the presence of Hyal (c) in acetate buffer.

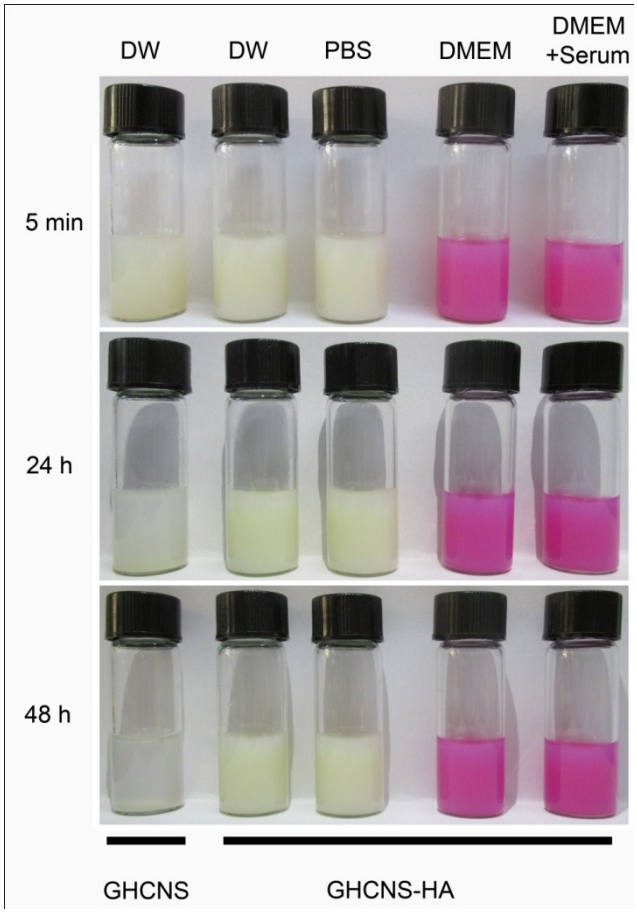

Figure S8. The photographs of GHCNS and GHCNS-HA dispersed in deionized water (DW), PBS solution, cell culture medium (DMEM) and 10% serum contained DMEM.

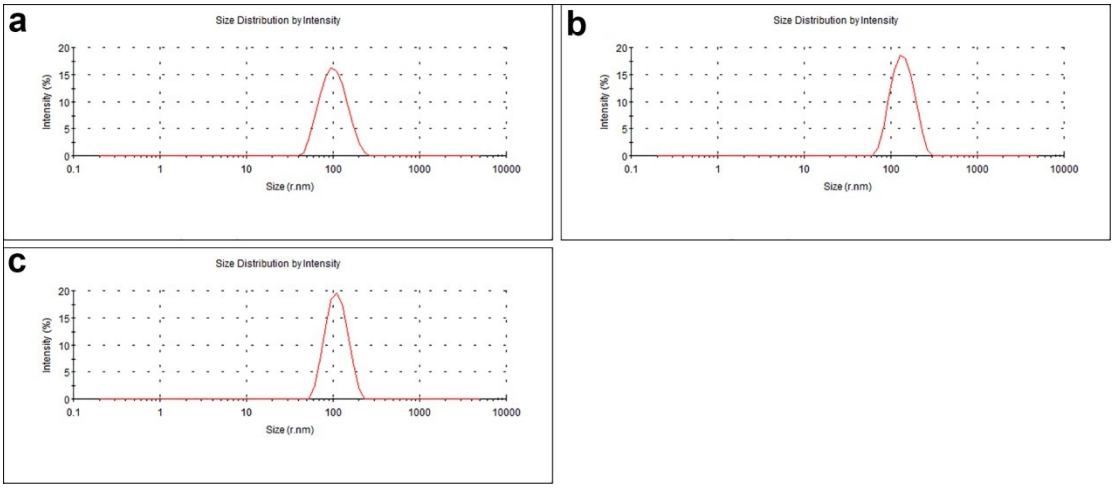

Figure S9. Hydrodynamic diameter of GHCNS (a), GHCNS-HA (b) and GHCNS-HA in the presence of Hyal (c) measured in acetate buffer.

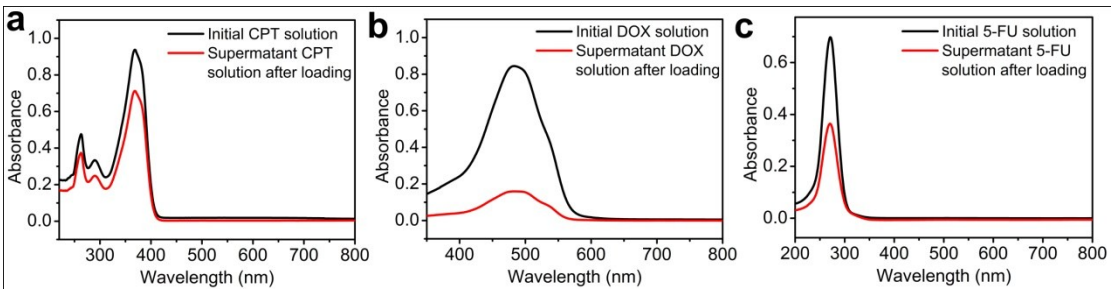

Figure S10. UV-Vis absorption spectra of (a) CPT DMSO solution and supernatant CPT solution, (b) DOX solution and supernatant DOX solution, (c) 5-FU DMSO solution and supernatant 5-FU solution after loading into GHCNS.

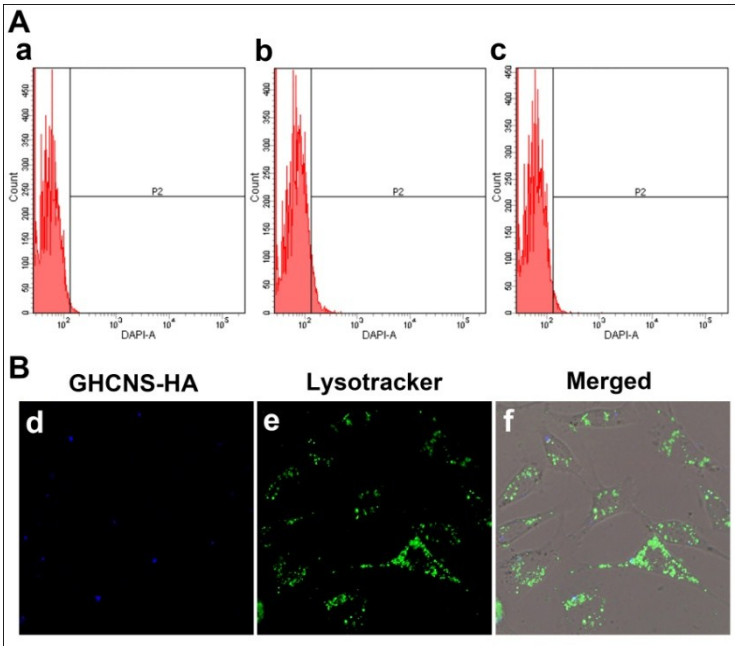

Figure S11. (A) Flow cytometry analysis to detect the binding of GHCNS-HA with MC-3T3-E1 cells: (a) cells only, (b) GHCNS-HA and (c) GHCNS-HA after preincubation for 2 h with free HA (5 mg mL^{-1}); (B) Fluorescence microscopy imaging of the intracellular distribution of GHCNS-HA (d, e, f). The images were obtained under magnification of 40.

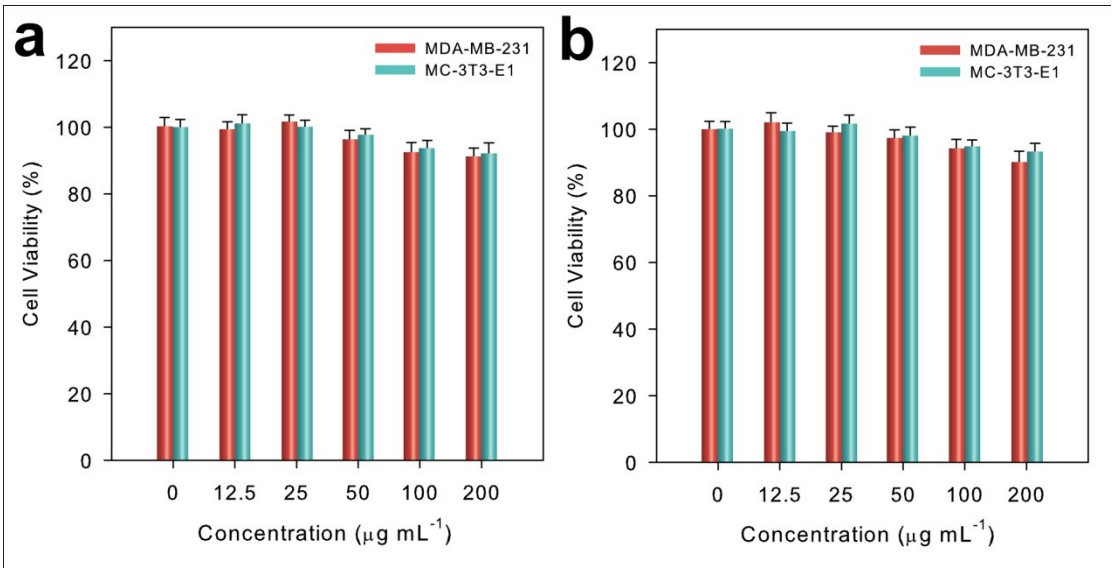

Figure S12. Cell viability of MDA-MB-231 cells (a) and MC-3T3-E1 cells (b) incubated with various concentrations of GHCNS and GHCNS-HA.

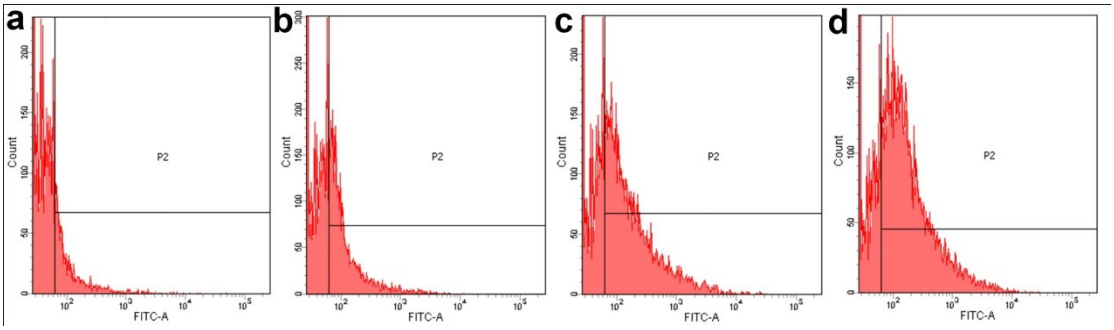

Figure S13. Flow cytometry analysis of light induced ROS generation after MDA-MB-231 cells treated with (a) 0 μg mL^{-1}, (b) 12.5 μg mL^{-1}, (c) 25 μg mL^{-1} and (d) 50 μg mL^{-1} of GHCNS-HA.

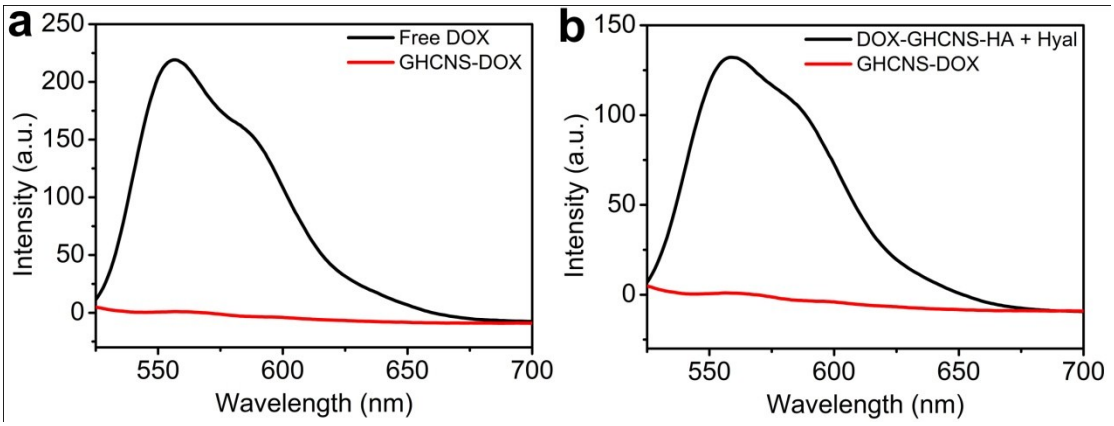

Figure S14. (a) Fluorescence spectra of free DOX and GHCNS-DOX. (b) The fluorescence recovery of DOX after incubation with Hyal in acetate buffer.

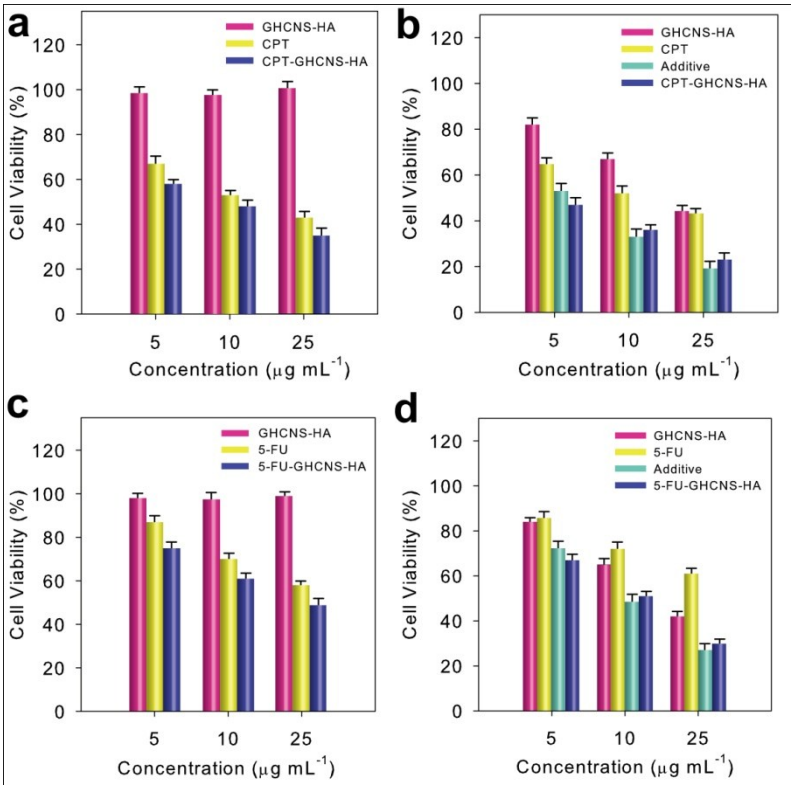

Figure S15. Cell viability with various concentration of CPT or 5-FU, GHCNS-HA and CPT-GHCNS-HA or 5-FU-GHCNS-HA under dark (a, c) or light (b, d) condition, respectively.