Supplementary information for:

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

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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. N₂ 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 (DME) 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.