Electronic Supplementary Information

Se@SiO₂-FA-CuS Nanocomposites for Targeted Delivery of DOX and Nano Selenium in Synergistic Combination of Chemo-photothermal Therapy

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1. Supplementary Figures



Fig. S1 High-magnification TEM images of Se@SiO₂ nanospheres.



Fig. S2 HAADF-STEM-EDS images of Se@SiO₂-FA-CuS nanocomposites. The element maps showed the distribution of Se (yellow), Si(green), O (blue), Cu (red) and S (Orange).



Fig. S3 TEM images of Se@SiO₂-FA-CuS/DOX nanocomposites in the (a) PBS solution and (b) FBS solution.



Fig. S4 (a) The size distribution of Se@SiO₂, porous Se@SiO₂ and Se@SiO₂-FA-CuS nanocomposites, respectively. (b) The zeta potential of Se@SiO₂, Se@SiO₂-NH₂, Se@SiO₂-FA, Se@SiO₂-FA-CuS and Se@SiO₂-FA-CuS/DOX nanocomposites, respectively.



Fig. S5 (a) FTIR spectra of Se@SiO₂, Se@SiO₂-NH₂, Se@SiO₂-FA and Se@SiO₂-FA-CuS nanocomposites, respectively. (b) XRD pattern of Se@SiO₂-FA-CuS nanocomposites.



Fig. S6 UV-Vis-NIR spectra of FA, $Se@SiO_2$, $Se@SiO_2$ -FA and $Se@SiO_2$ -FA-CuS nanocomposites, respectively.



Fig. S7 (a) N_2 adsorption-desorption isotherms and (b) pore size distribution of Se@SiO₂-FA-CuS nanocomposites.



Fig. S8 UV-Vis-NIR spectra of the DOX before and after 300 s of laser exposure at an output power density of 1.0 W/cm².



Fig. S9 Cumulative Se release from Se@SiO₂-FA-CuS nanocomposites at 37 °C in PBS with pH 5.0 and 7.4, respectively.



Fig. S10 (a) Viability of human endothelial cells (normal cells) incubated with DOX, Se@SiO₂-FA-CuS and Se@SiO₂-FA-CuS/DOX at various concentrations, respectively. (b)

Viability of HeLa cells incubated for 24 h with Se@SiO₂-FA-CuS nanocomposites at various concentrations.