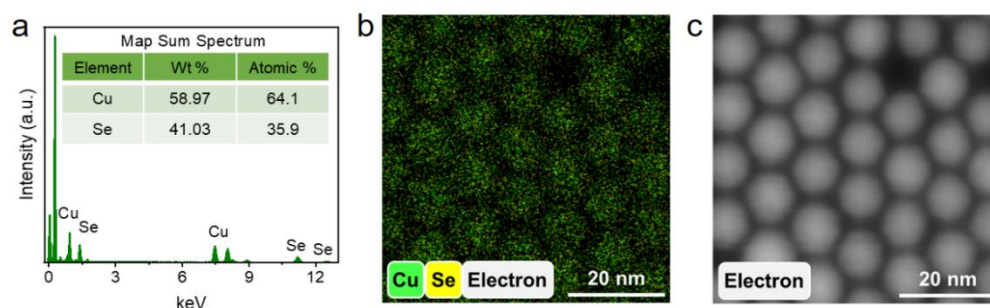
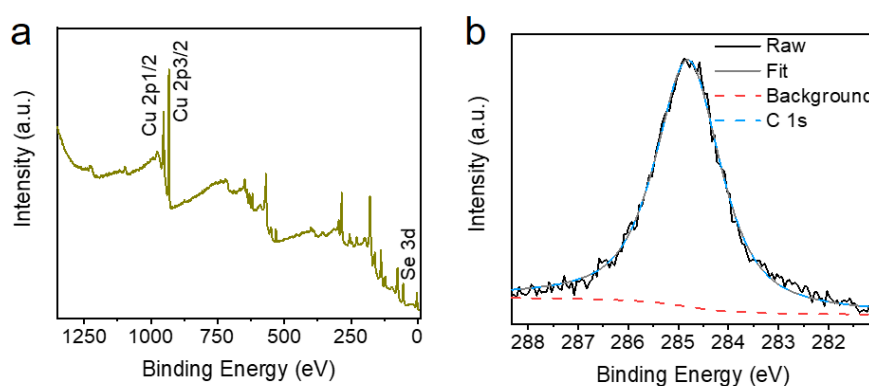


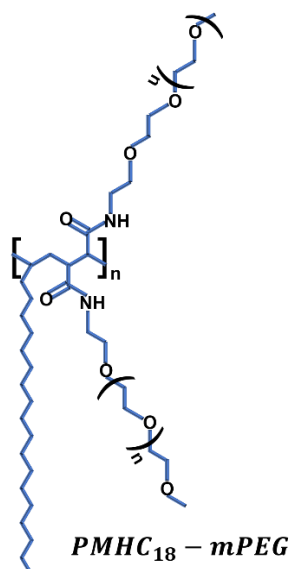
# Sorafenib-Loaded $\text{Cu}_{2-x}\text{Se}$ Nanoparticles Boost Photothermal-Synergistic Targeted Therapy against Hepatocellular Carcinoma



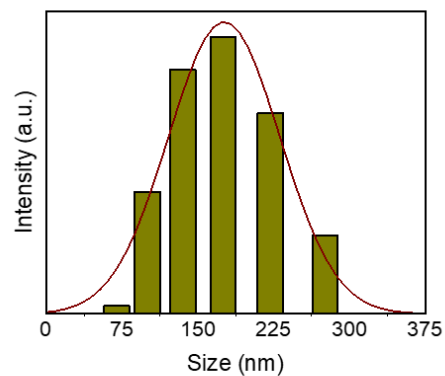
**Figure S1.** Elemental analysis of  $\text{Cu}_{2-x}\text{Se}$ . (a) Energy-dispersed spectrum (EDS), (b) merged EDS mapping of Cu and Se elements, and (c) HAADF-STEM image.



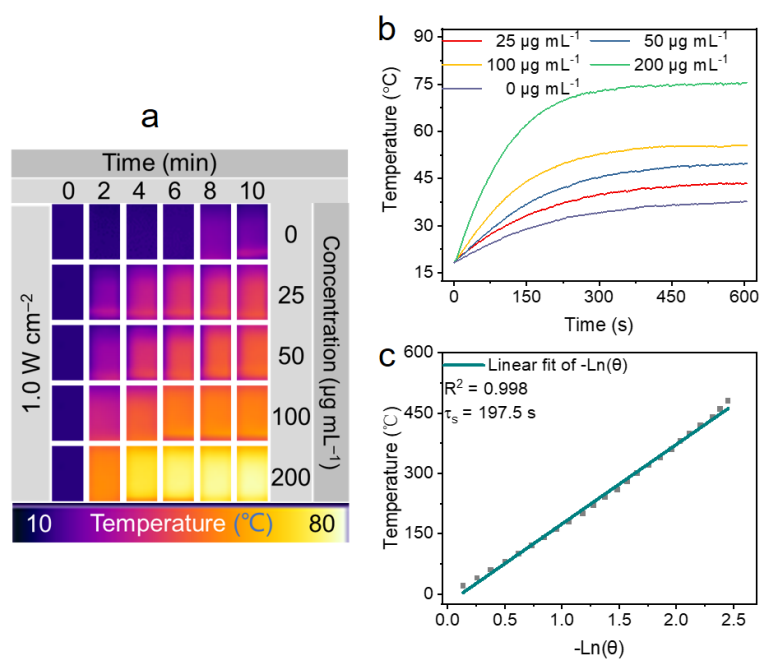
**Figure S2.** XPS of  $\text{Cu}_{2-x}\text{Se}$ . (a) the survey spectrum and (b) the HR-XPS of C 1s.



**Figure S3.** Structure of  $\text{PMHC}_{18}\text{-mPEG}$ .



**Figure S4.** The hydrodynamic size of  $\text{Cu}_{2-x}\text{Se@PEG}$ .



**Figure S5.** Photothermal properties of  $\text{Cu}_{2-x}\text{Se@PEG}$  excited by laser of 808 nm in water with the laser power of 1.0 W  $\text{cm}^{-2}$ . (a) Photothermal images with different concentrations, (b) temperature change with increasing concentration, (c)  $-\text{Ln}(\theta)$  fitted from Figure. 2e.