Supporting Information

Theranostic CuS Nanoparticles Targeting Folate Receptors for PET Image-Guided Photothermal Therapy

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Figure S1: Zeta potential analysis of FA-CuS NPs.

-27.88 mV
Figure S2. ¹H NMR analysis of FA-CuS NPs. The typical peaks of FA at 8.98, 7.59, 6.76, 4.20, and 2.22 ppm representative of FA molecules were observed in the spectrum acquired with purified FA-CuS NPs, indicating FA molecules were successfully coated to the surface of CuS NPs.
Figure S3. Temperature change curve of FA-CuS NPs (100 µg/mL) under NIR laser irradiation (808 nm, 1.5 W/cm²).
Figure S4. Dynamic light scattering (DLS) of FA-CuS NPs in PBS or PBS containing 10% FBS at 37°C for up to 7 days.
Figure S5. Radiolabeling efficiency of FA-[⁶⁴Cu]CuS NPs. Greater than 99% of the radioactivity was associated with FA-[⁶⁴Cu]CuS NPs at the end of synthesis.
Figure S6. Comparison of the UV-vis spectra of FA-CuS NPs and FA-[\textsuperscript{64}Cu]CuS NPs. FA-[\textsuperscript{64}Cu]CuS NPs correlated well with the spectroscopic features observed for the non-radioactive FA-CuS NPs, indicating similarity between the two NPs at the tracer and macroscopic levels.
Figure S7. Dynamical light scatting (DLS) of FA-[\textsuperscript{64}Cu]CuS NPs. The hydrodynamic diameter of the FA-[\textsuperscript{64}Cu]CuS NPs is 21.2 nm. There is no significant difference with the non-radioactive FA-CuS NPs (21.0 nm).
Figure S8. Stability of FA-[\textsuperscript{64}Cu]CuS NPs. After incubation in 10% FBS-PBS solution at 37°C for 24 h, less than 5% of radioactivity was dissociated from FA-[\textsuperscript{64}Cu]CuS NPs.
Figure S9. Biodistribution of FA-[\textsuperscript{64}Cu]CuS NPs in orthotopic HeyA8 ovarian tumor model.

Female nude mice were inoculated with HeyA8 cells intraperitoneally (1x 10^6 cells/mouse). At 20 days after tumor inoculation, mice were injected with FA-[\textsuperscript{64}Cu]CuS NPs intravenously (200 \(\mu\text{Ci/mouse}\)). Mice were killed at 24 h after NP injection, and various tissues were removed for radioactivity counting. The data are presented as mean ± standard deviation (n = 6).