Supplementary information

Stealth nanocarriers based sterosomes using PEG post-insertion process.

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**Fig. S1.** Sterosome (STE) surface modification. Variation of hydrodynamic diameter (Z-Ave) and zeta potential (ZP) vs. time when STEs were incubated at 50°C with DSPE-PEG whose PEG chain lengths were 1 (A), 2 (B), 3 (C) and 5kDa (D), at R = 7 (■), 14 (□), 36 (●) and 72% (○). R is the ratio DSPE-PEG/PA-Chol (w/w). (n = 3, mean ± SD).
**Fig. S2.** Sterosome (STE) stability. Variation of hydrodynamic diameter (Z-Ave) and zeta potential (ZP) of non-modified (■) and PEG-modified STEs: 2kDa PEG and R = 7% (●), 2kDa PEG and R = 72% (○), 5kDa PEG and R = 7% (▲), 5kDa PEG and R = 72% (△), at 37°C. R is the ratio DSPE-PEG/PA-Chol (w/w). (n = 3, mean ± SD).
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**Fig. S3.** Pictures of mice intravenously administered with PEG-modified sterosomes (STEs) (2kDa PEG, DSPE-PEG/PA-Chol ratio of 72% (w/w)) (PEG-modif. STEs), with non-modified STEs (non-modif. STEs) and without administration as control (Ø). STEs were loaded with DiD (dose of 32.5 µg.kg⁻¹). Color scale pictures of the 3 mice in dorsal position were obtained under fluorescence lamp during a 500ms-time exposition, 4, 8, 24, 48 and 96h NPL post-administration.
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**Fig. S4.** Pictures of mice intravenously administered with PEG-modified sterosomes (STEs) (2kDa PEG, DSPE-PEG/PA-Chol ratio of 72% (w/w)) (PEG-modif. STEs), with non-modified STEs (non-modif. STEs) and without administration as control (Ø). STEs were loaded with DiD (dose of 32.5µg.kg⁻¹). Color scale pictures of the 3 mice in ventral position were obtained under fluorescence lamp during a 500ms-time exposition, 4, 8, 24, 48 and 96h NPL post-administration.
Fig. S5. (A and B) Grayscale pictures under light lamp (automatic mode) and (C and D) color-scale pictures under fluorescence lamp of (A and C) dissected mice in ventral position, intravenously administered with PEG-modified sterosomes (STEs) (2kDa PEG, DSPE-PEG/PA-Chol ratio of 72% (w/w)) 168h post-injection and (B and D) corresponding *ex vivo* organs.