

Supporting Information

Engineering temperature-sensitive plateletsomes as a tailored chemotherapy platform in combination with HIFU ablation for cancer treatment

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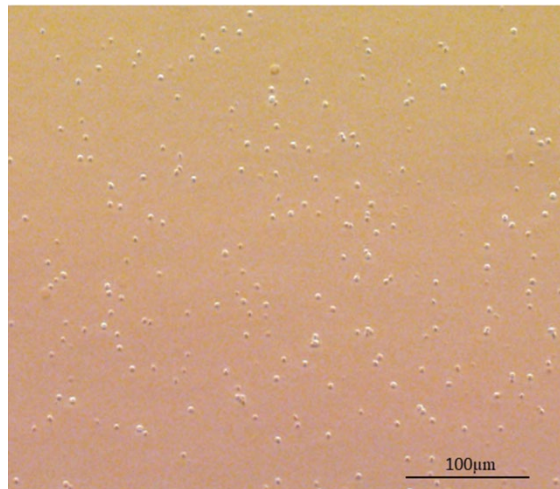


Figure S1. Microscopy image of PLTs collected from fresh mouse blood.

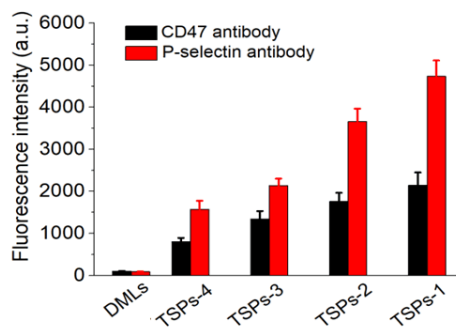


Figure S2. The fluorescence intensities of the same amount of nanovesicles after incubating with fluorescent antibodies.

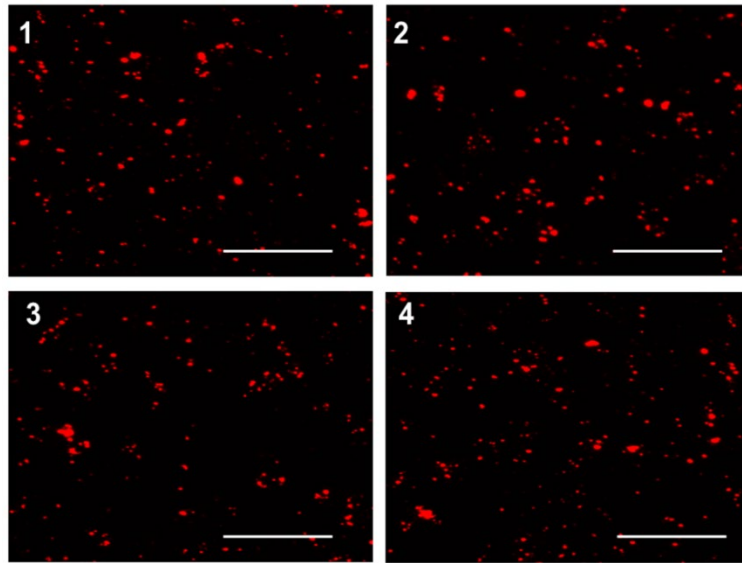


Figure S3. Confocal fluorescent microscopy images of DOX loaded TSPs. 1) TSPs-1, 2) TSPs-2, 3) TSPs-3, and 4) TSPs-4. (red signal, DOX; scale bar =10 μm).

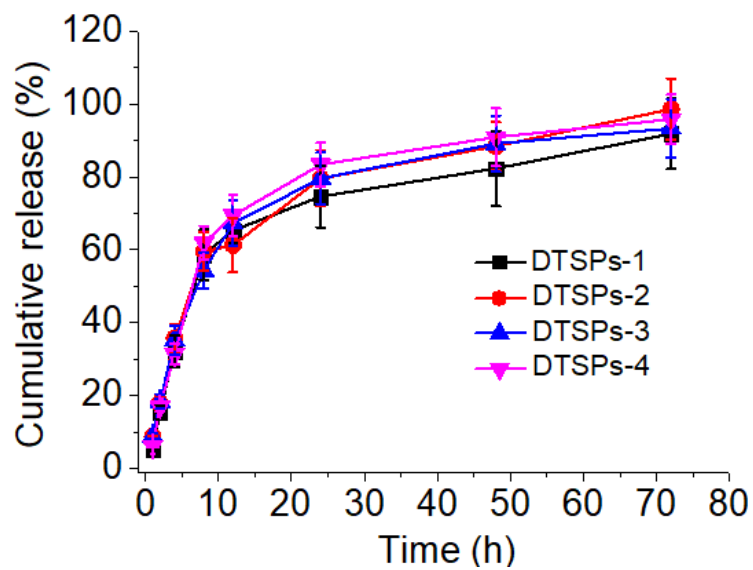


Figure S4. *In vitro* release behavior of DOX from different TSPs at 37 °C in RPMI-1640 medium containing 10% FBS.

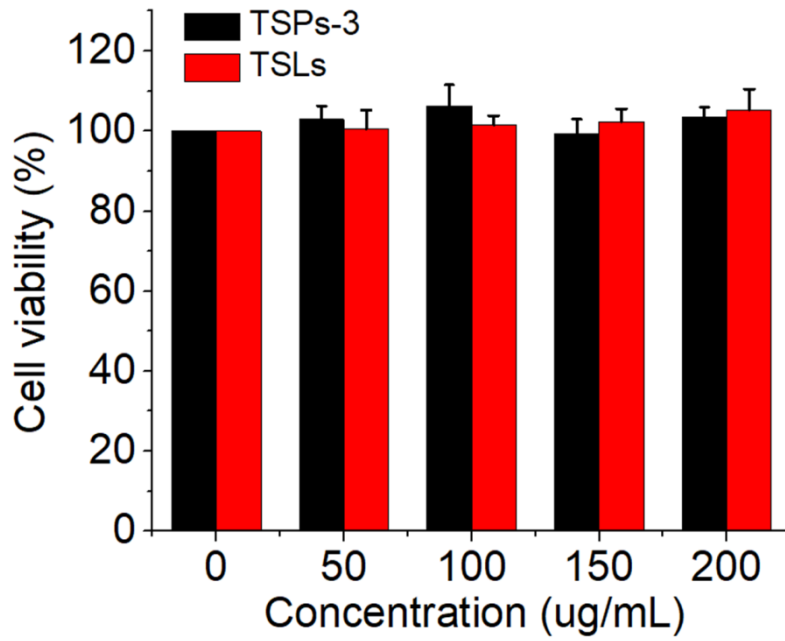


Figure S5. Cell viability of HeLa cells after incubation with TSPs-3 and TSLs at different concentrations for 48 h.

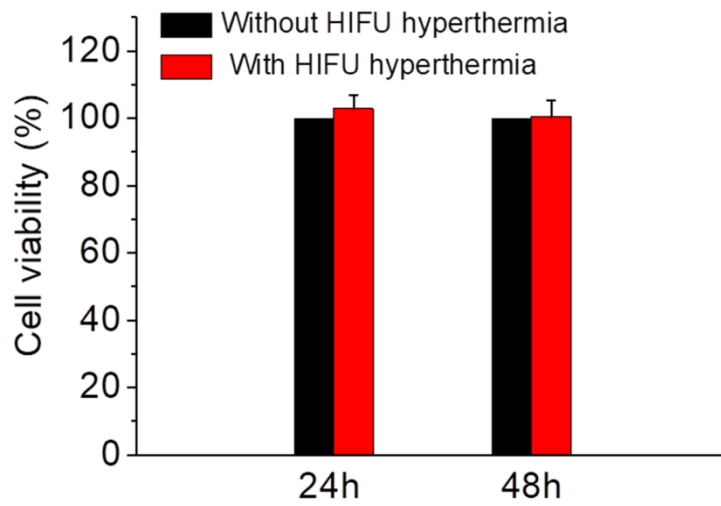


Figure S6. Cell viability of HeLa cells determined after treatment with or without HIFU hyperthermia (42 °C, 2 min) for 24 and 48 h.

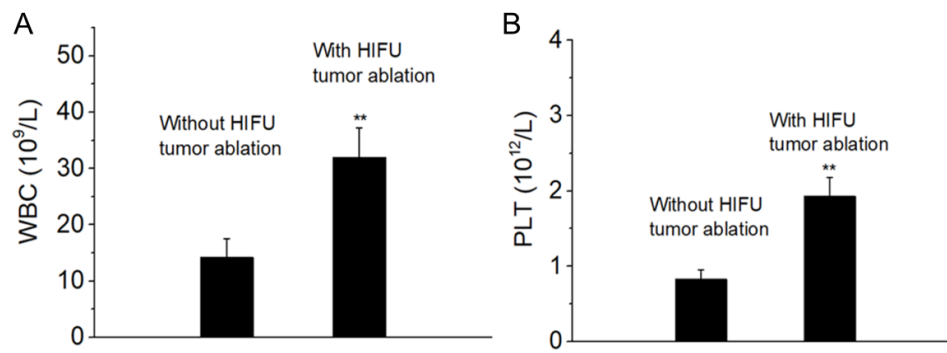


Figure S7. The levels of (A) white blood cells (WBC) and (B) platelets (PLT) in the blood samples of mice with or without HIFU tumour ablation.

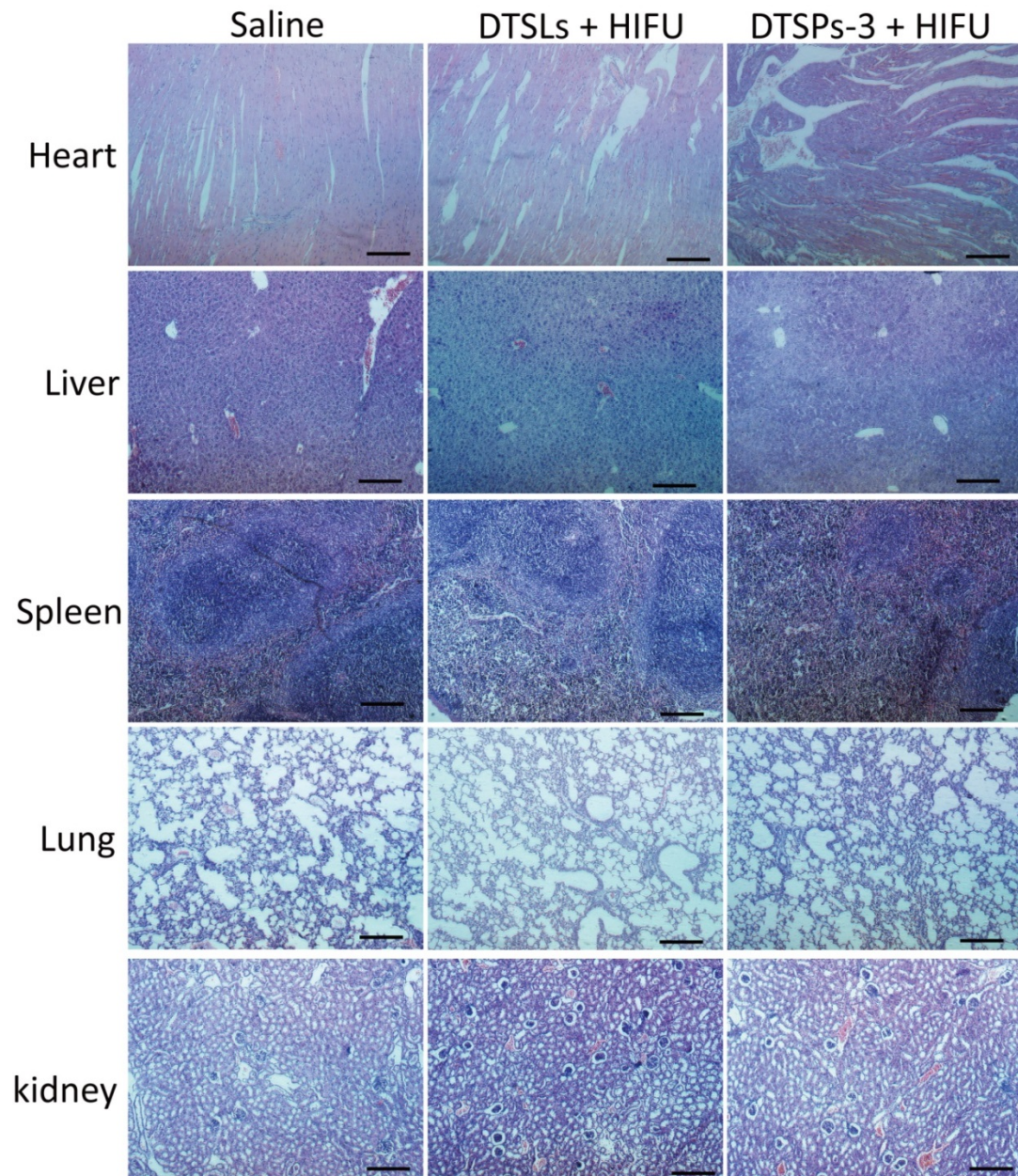


Figure S8. Histological section of vital organs (heart, liver, spleen, lung and kidney) with H&E staining at 18 days after administration of saline, DTSLs + HIFU and DTSPs-3 + HIFU (Scale bar = 100 μ m).

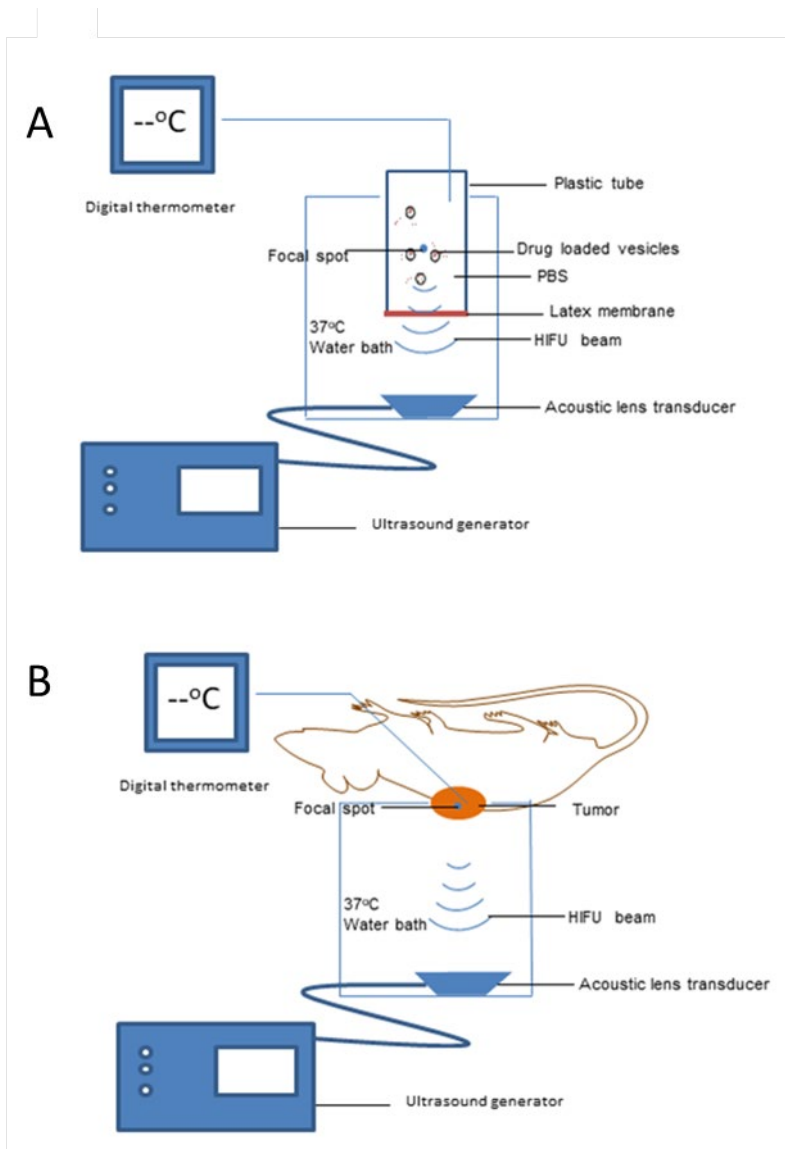


Figure S9. HIFU equipments for investigation of drug release (A) and *in vivo* tumour therapy (B).

Table S1. Summary of formulation parameters

Formulation	Compositions	Size distribution [nm]	PDI	Drug encapsulation efficiency [%]
TSPs-1	DPPC &MSPC/ PLT membrane (20:80 in mass ratio); DPPC/MSPC (80: 20 in molar ratio)	118.6 ± 2.86	0.053	80.45 ± 2.23
TSPs-2	DPPC &MSPC/ PLT membrane (35:65 in mass ratio); DPPC/MSPC (80: 20 in molar ratio)	121.72 ± 3.12	0.045	84.36 ± 3.57
TSPs-3	DPPC &MSPC/ PLT membrane (50:50 in mass ratio); DPPC/MSPC (80: 20 in molar ratio)	119.26 ± 5.77	0.039	85.27± 4.12
TSPs-4	DPPC &MSPC/ PLT membrane (65:35 in mass ratio); DPPC/MSPC (80: 20 in molar ratio)	123.67 ± 4.52	0.092	88.54 ± 5.45
TSLs	DPPC/MSPC/DSPE-PEG2000 (86.5: 9.7: 3.8 in molar ratio);	109.58 ± 3.69	0.045	87.25 ± 2.68
DMLs	DPPC/MSPC (90: 10 in molar ratio)	113.09 ± 2.66	0.045	89.57 ± 5.21
NPVs	Pure PLT membrane	116.28 ± 6.88	0.091	

Table S2. Blood cellular and biochemical indexes.

Parameters	Saline	DTSLs + HIFU	DTSPs-3 + HIFU
WBC ($10^9/L$)	12.65 ± 2.83	13.02 ± 2.12	13.56 ± 1.88
RBC ($10^{12}/L$)	10.53 ± 1.62	11.88 ± 1.93	9.98 ± 2.89
PLT ($10^{12}/L$)	1.02 ± 0.12	0.97 ± 0.09	1.18 ± 0.11
GRN ($10^9/L$)	6.97 ± 0.97	7.24 ± 0.67	7.45 ± 1.23
AST U L ⁻¹	521.74 ± 96.89	495.23 ± 107.7	519.32 ± 103.96
ALT U L ⁻¹	102.41 ± 24.56	118.33 ± 15.54	109.88 ± 19.35
ALP U L ⁻¹	207.32 ± 24.53	221.34 ± 27.89	198.56 ± 18.45
CREA μ mol L ⁻¹	23.8 ± 3.5	21.98 ± 3.97	19.76 ± 1.23
BUN mmol L ⁻¹	10.04 ± 1.2	9.86 ± 1.12	10.76 ± 1.32