

**Tetrasulfide bond-bridged mesoporous organosilica-based
nanoplatfom for triple-enhanced chemodynamic therapy combined
with chemotherapy and H₂S therapy**

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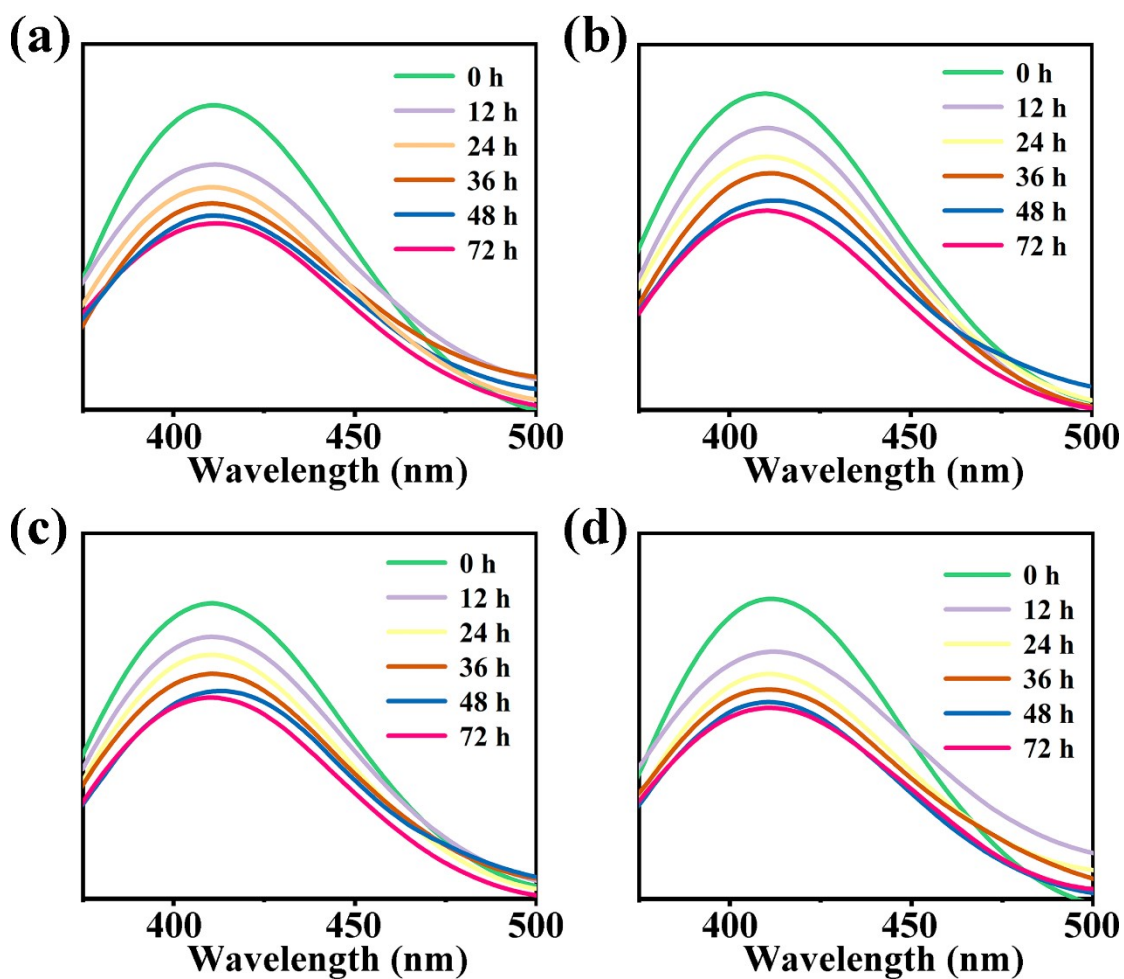


Fig. S1 UV-vis spectra of DTNB+10 mM GSH solution after treatment with (a) S4MSN (200 $\mu\text{g/mL}$), S4MSN@Fe²⁺ (at S4MSN dose of 200 $\mu\text{g/mL}$), (c) S4MSN@DOX (at S4MSN dose of 200 $\mu\text{g/mL}$) and S4MSN@DOX-Fe²⁺ (at S4MSN dose of 200 $\mu\text{g/mL}$) for different times.

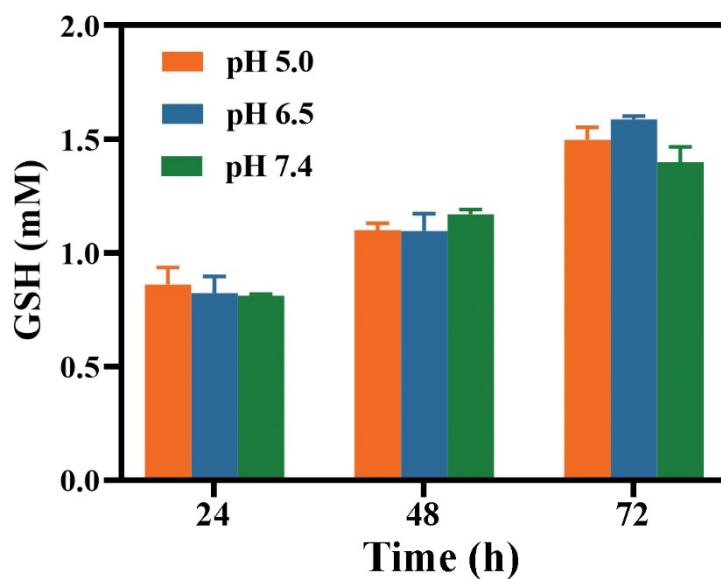


Fig. S2 The depleting amount of GSH by S4MSN@DOX-Fe²⁺ (200 $\mu\text{g/mL}$) at pH 7.4, 6.5 and 5.0.

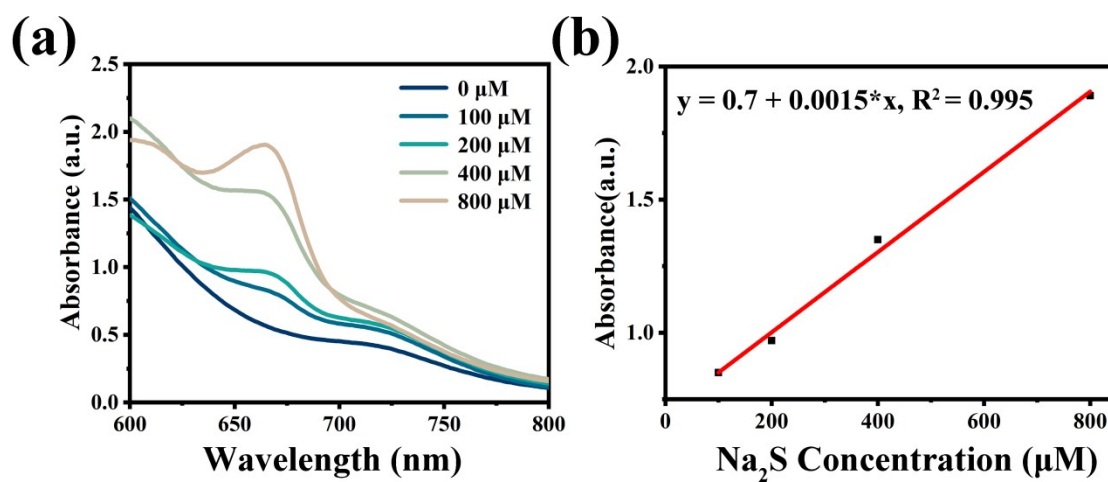


Fig. S3 (a) UV-vis absorption of DMPD•2HCl solution reacted with different concentrations of Na₂S. (b) The standard curve of Na₂S reacted with DMPD•2HCl at 660 nm wavelength.

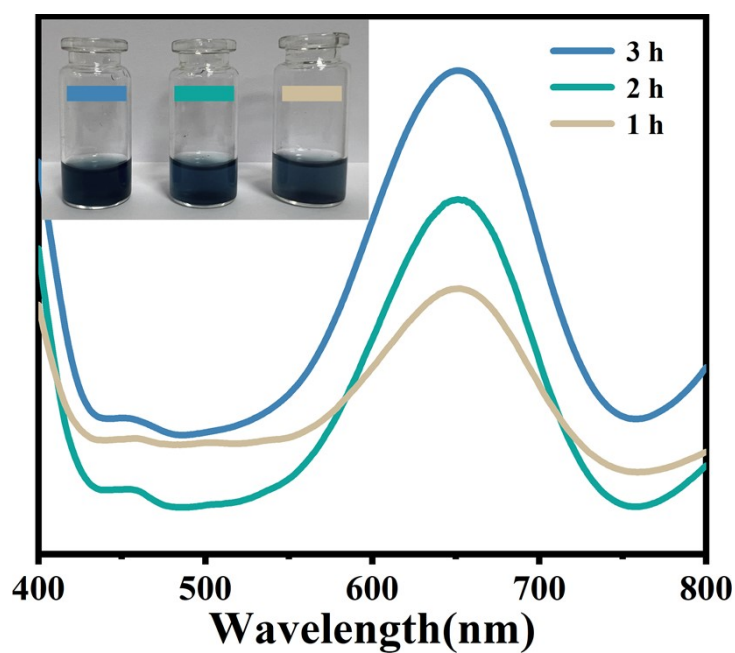


Fig. S4 UV-vis absorption of TMB treated with 100 μg/ml S4MSN@DOX-Fe²⁺ and 0.5 mM H₂O₂ for 1, 2 and 3 h.

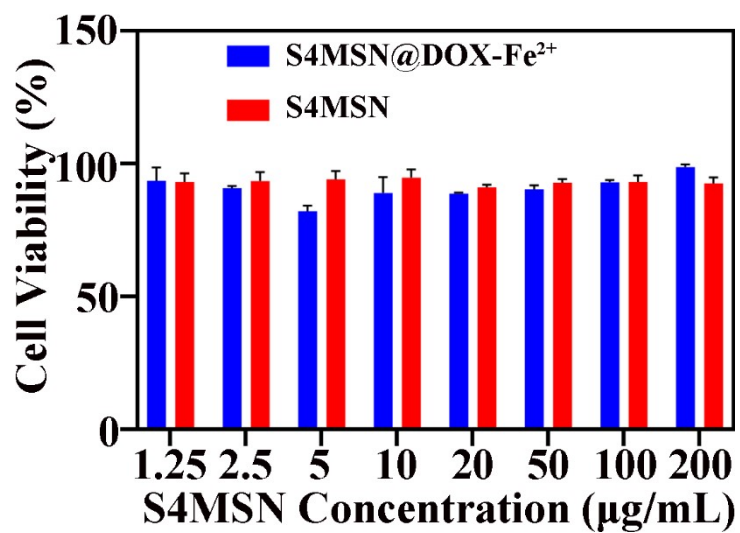


Fig. S5 Viability of MOVAS cells after 48 h treatment with different formulations.

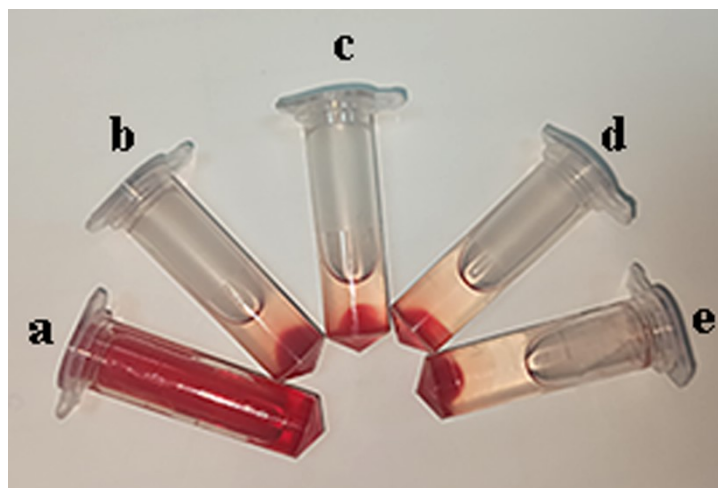


Fig. S6 Hemolysis assay of S4MSN@DOX-Fe²⁺ after incubation with RBC suspension for 24 h. (a, b, c, d, e were deionized water, PBS, PBS containing 100 µg/mL, 200 µg/mL and 300 µg/mL S4MSN@DOX-Fe²⁺, respectively)

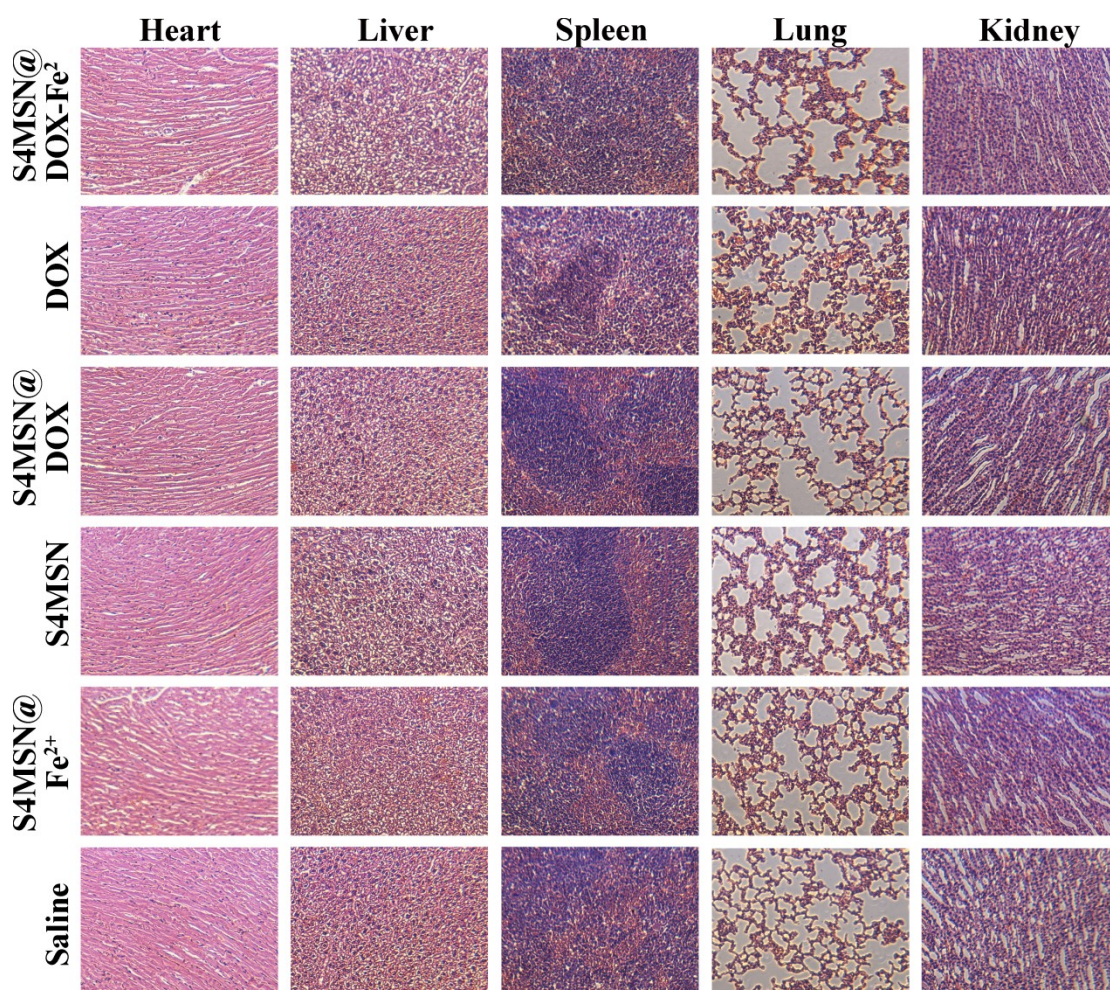


Fig. S7 H&E staining of major organs (heart, liver, spleen, lung and kidney) from different groups after 10 days treatment.

Table S1 Blood routine data of mice intravenous injection with saline and S4MSN@DOX-Fe²⁺.

Name	Saline	S4MSN@DOX-Fe ²⁺	Unit
WBC	8.46±0.81	6.8±0.26	10 ⁹ /L
RBC	10.59±0.24	9.06±0.08	10 ¹² /L
HGB	148±3.46	133±1	g/L
HCT	52.53±0.75	45.96±0.49	%
MCV	49.67±0.35	50.77±0.97	fL
RDW	14.5±0.45	15.06±0.15	%
PLT	1230±59	919.67±158.37	10 ⁹ /L
MPV	6.23±0.25	5.13±0.2	fL
PDW	16.77±0.15	16.37±0.05	/