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## Supporting Information

## ROS-responsive self-assembly nanoplatform overcomes hypoxia for enhanced photodynamic therapy

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$$R_1$$
-SH + O  $R_2$ -SH +  $R_2$ -SH +  $R_1$ -SH + SH- $R_2$  + O<sub>2</sub> Thiols Thioketal

Figure S1. The schematic diagram of synthesis of TK and degradation of TK groups by ROS.

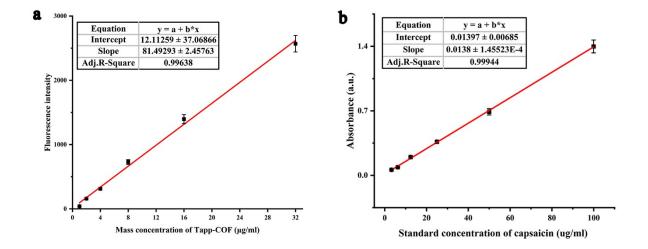
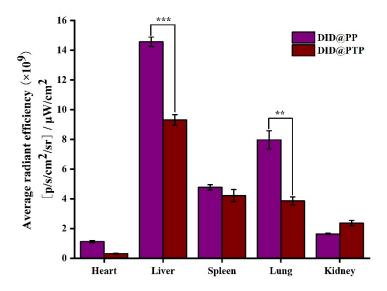


Figure S2. a) Standard curve of Tapp-COF (Fluorescence intensity - Mass concentration.  $R^2 = 0.99$ .). b) Standard curve (Absorbance - Mass concentration) of capsaicin.  $R^2 = 0.99$ .



**Figure S3.** Semi-quantitative analysis of fluorescence of the ex vivo organs from tumor-bearing mice after administration of various preparations (mean  $\pm$  SD, n=3).

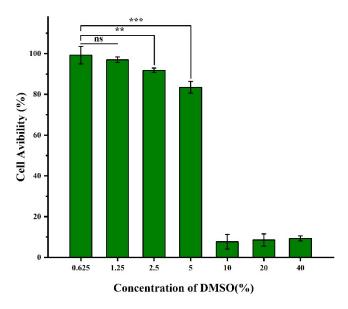
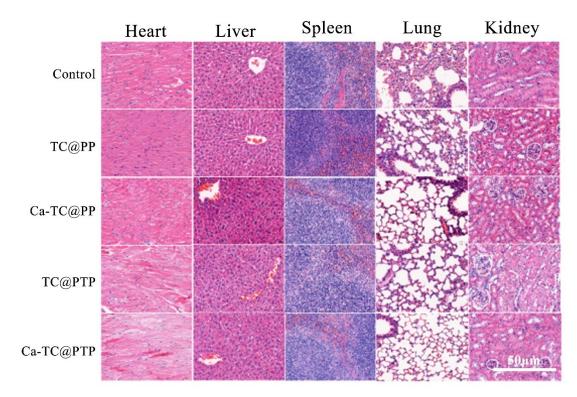


Figure S4. The cytotoxicity of co-solvent DMSO.

Tabel S1. Study on the irritation of capsaicin injected into mice (n = 3).

Indicator	Concentration (	Anesthesia	Short-term	Survival 24h
	μg/ml)		behavioral	after
			characteristics	injection
Capsaicin	70	-	Very manic	1
	7	-	More manic	2
	70	+	Quiet	3
	7	+	Quiet	3
Ca-TC@PTP	70	-	Quiet	3
	7	-	Quiet	3



**Figure S5.** Internal organs tissue sections of mice in the treatment group. All images were captured by 400× magnification.