

Supporting Information

Self-Targeted Nanosystem for Enhanced Chemodynamic Cancer Therapy

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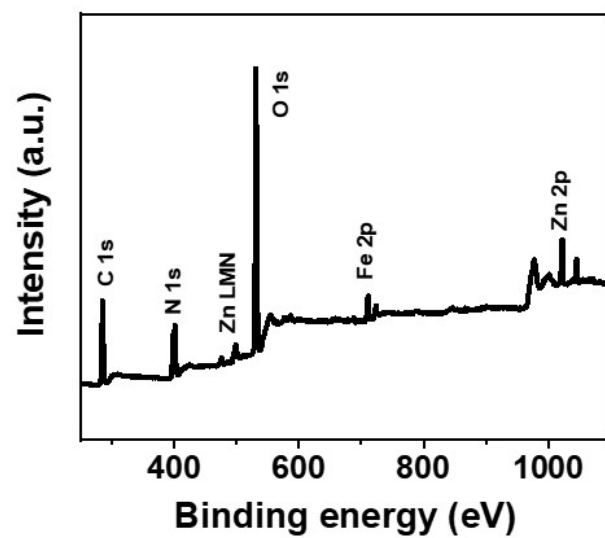


Fig. S1. Survey XPS spectrum of ZnNP.

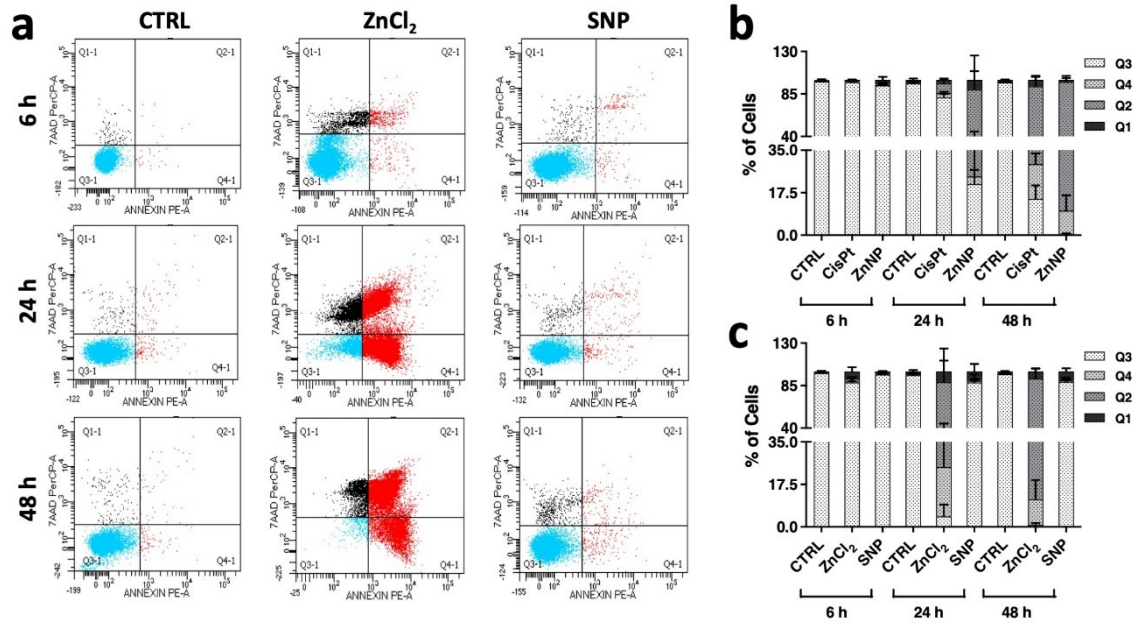


Fig. S2. (a) Apoptosis evaluation. FACS analysis on A2780 using Annexin V/7AAD double staining after 6, 24 and 48 h treatment of (50 $\mu\text{g/ml}$) ZnCl₂ and SNP. (b) The corresponding results of quantitative analysis from Figure 3b. (c) The corresponding results of quantitative analysis from a. (Q3: Viable cells, Q4: Early apoptosis, Q2: Late apoptosis, Q1: Necrosis) Error bars indicate SD.

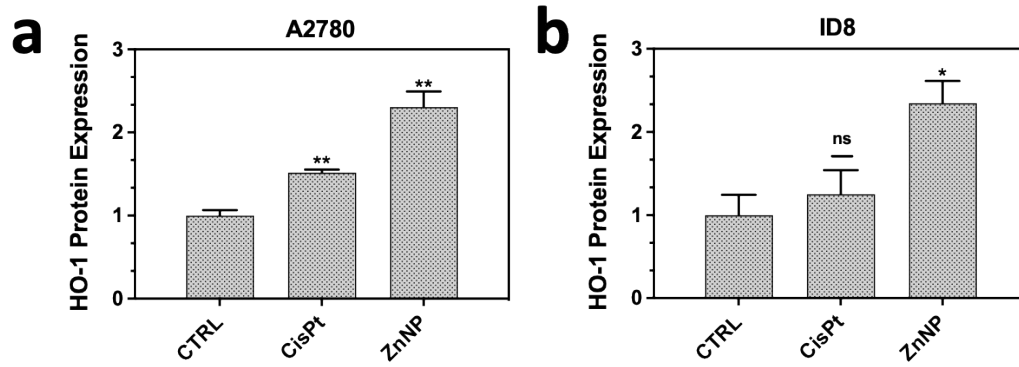


Fig. S3. Effect of ZnNP on HO-1 on A2780 and ID8, assessed by western blot after 24 h of treatment with ZnNP. (a) A2780 (b) ID8. Cells were incubated with ZnNP, (25 μ g/ml) and CisPt (3 μ g/ml; 10 μ M) for 24 h. Bar graphs show quantitative analysis of western blots. Error bars indicate SEM. Groups were considered statistically significant if $p < 0.05$ (*), $p < 0.01$ (**); non-significant (ns).

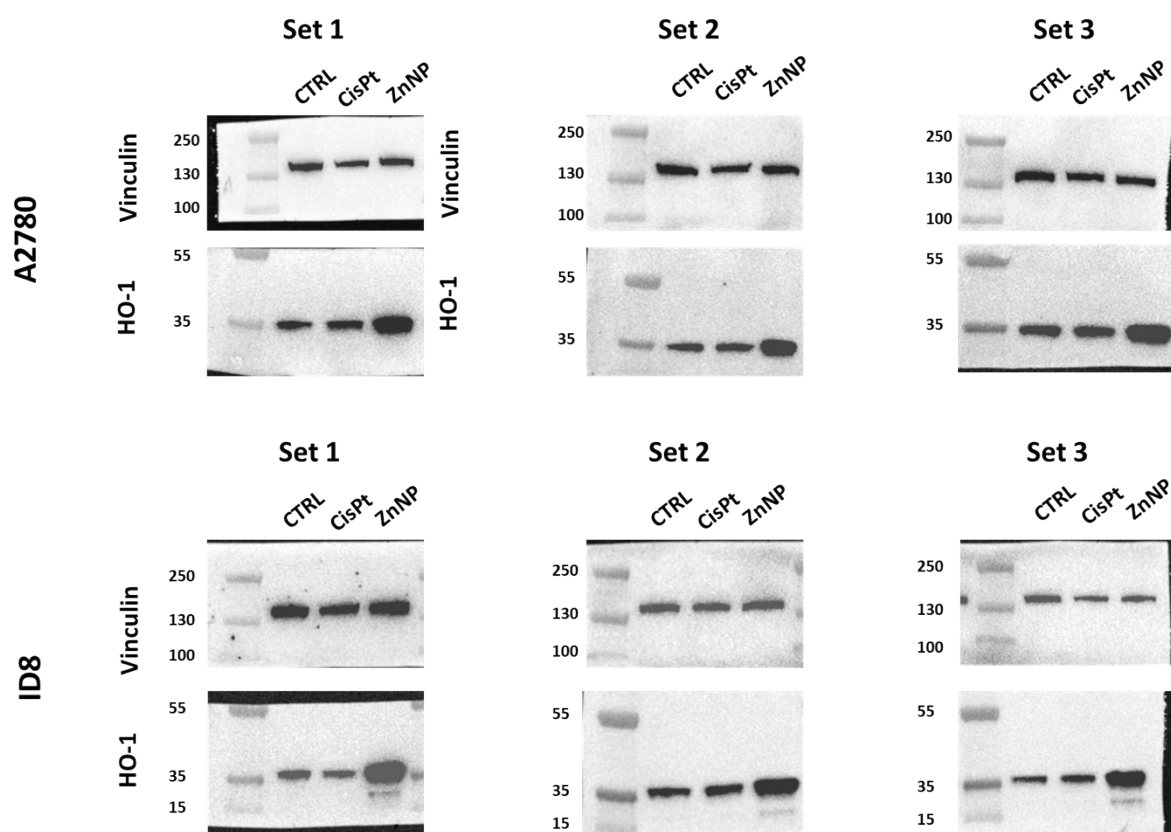


Fig. S4. Unprocessed images of Western Blot.

Table S1. Chemical Equations

$\text{Zn}[\text{Fe}(\text{CN})_5\text{NO}] + \text{e}^- \rightarrow \text{Zn}[\text{Fe}(\text{CN})_5\text{NO}]^{3-}$
$\text{Zn}[\text{Fe}(\text{CN})_5\text{NO}]^{3-} + \text{O}_2 \rightarrow \text{Zn}[\text{Fe}(\text{CN})_5\text{NO}]^{2-} + \text{O}_2^-$
$\text{O}_2^- + 2\text{H}^+ \rightarrow \text{H}_2\text{O}_2 + \text{O}_2 \quad ^1$
$\text{NO} + \text{O}_2^- \rightarrow \text{ONOO}^- \quad ^2$

Table S2. IC₅₀ values of (ZnNP, ZnCl₂, SNP and CisPt). Values are expressed as µg/ml. Relative potency is calculated by 1/(ZnNP/CisPt).

Cell lines	Drug	Average	Stdev	Relative potency ZnNP vs CisPt
A2780	ZnNP	0.11	0.05	0.82
	ZnCl ₂	1.00	0.28	0.09
	SNP	4.56	0.81	0.02
	CisPt	0.09	0.01	
A2780cis	ZnNP	0.0015	0.0014	4067
	ZnCl ₂	0.01	0.0070	610
	SNP	36.11	9.43	0.17
	CisPt	6.10	0.41	
ID8	ZnNP	1.81	0.21	0.82
	ZnCl ₂	15.10	2.79	0.1
	SNP	2.25	0.78	0.66
	CisPt	1.49	0.06	
SK-OV-3	ZnNP	0.015	0.009	63
	ZnCl ₂	25.63	1.65	0.04
	SNP	10.0	2.16	0.10
	CisPt	0.95	0.03	
MDA-MB-231	ZnNP	0.28	0.07	21
	ZnCl ₂	8.77	2.50	0.67
	SNP	0.21	0.08	28
	CisPt	5.92	0.59	
MCF-7	ZnNP	3.97	0.47	0.51
	ZnCl ₂	>200	--	
	SNP	3.10	0.59	0.65
	CisPt	2.02	0.11	
MRC-5	ZnNP	16.83	3.19	0.22
	ZnCl ₂	21.3	4.35	0.17
	SNP	4.94	0.21	0.75
	CisPt	3.72	0.15	

Table S3: IC₅₀ values (µg/ml) of ZnNP in normal liver and cancer organoids derived from HGSOC. Data were performed in triplicates. The numbers represent mean and standard error.

NPs	Mouse Liver	Patient A	Patient B	Patient C
ZnNP	21.7 ± 3.5	2.1 ± 1.2	9.8 ± 2.7	0.6 ± 0.1
ZnCl₂	18.3 ± 2.1	13.7 ± 2.5	22.8 ± 2.6	43.5 ± 6.4
SNP	>200	0.47 ± 0.17	21.5 ± 7.8	12.0 ± 6.7
Cisplatin	4.1 ± 0.8	0.5 ± 0.1	0.5 ± 0.08	0.9 ± 0.1

Supplemental References:

- 1 T. Sakamoto and H. Imai, *J Biol Chem*, 2017, **292**, 14804–14813.
- 2 H. Botti, M. N. Möller, D. Steinmann, T. Nauser, W. H. Koppenol, A. Denicola and R. Radi, *Journal of Physical Chemistry B*, 2010, **114**, 16584–16593.