Supporting information of

Highly stable, coordinated polymeric nanoparticles loading copper(II) diethyldithiocarbamate for combinational chemo/chemodynamic therapy of cancer

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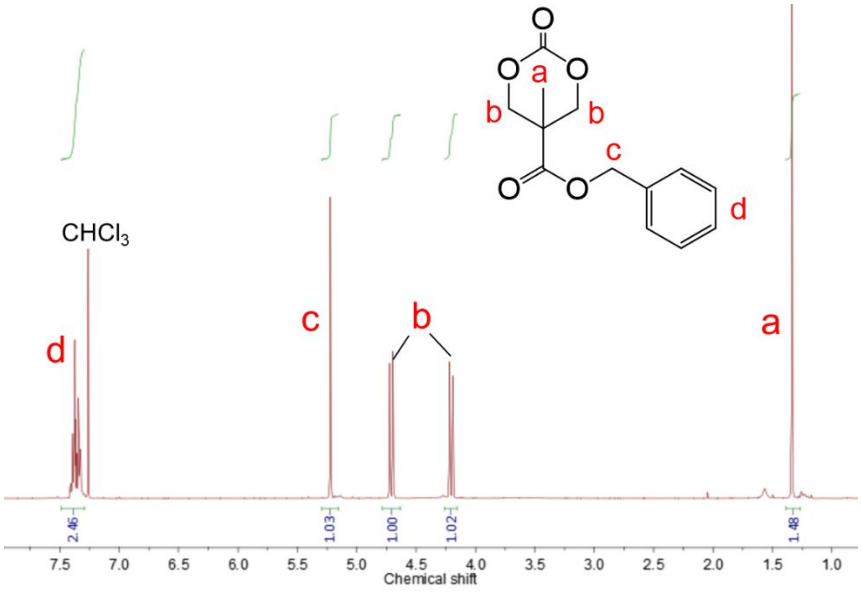

Figure S1. ^{1}H NMR spectrum of monomer MTC-OBn in $CDCl_3$.

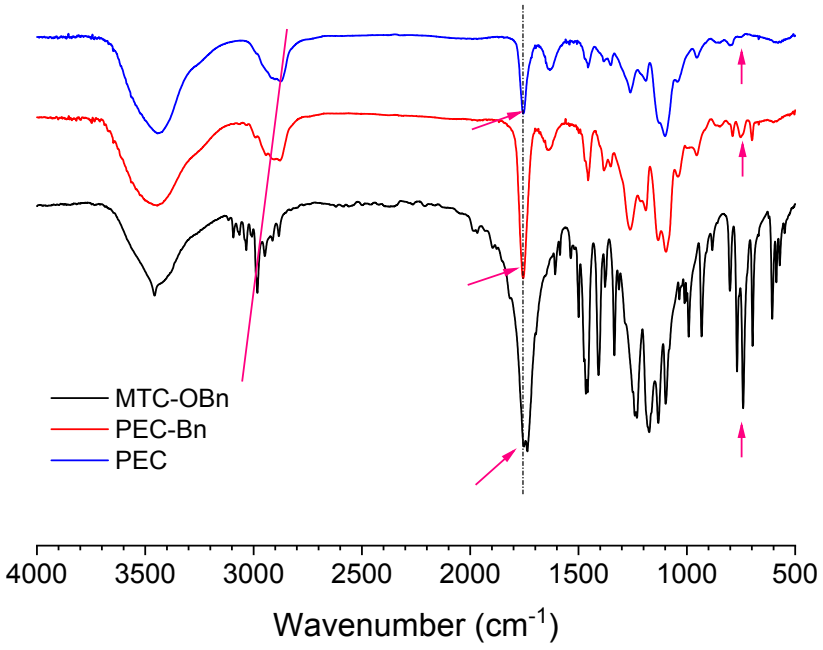

Figure S2. FT-IR spectra of MTC-OBn, PEC-Bn, and PEC.

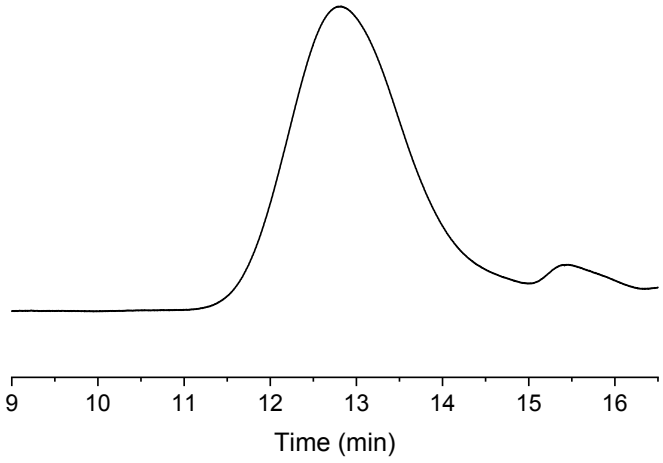

Figure S3. GPC trace of PEC-Bn.

Table S1 Molecular weights of PEC-Bn detected by GPC.

	Feeding molar ratio of LA:C:PEG	**LA:C:PEG in Polymers[a]**	M_n **(kDa)[b]**	M_w **(kDa)[b]**	$Đ_M$
PEC-Bn	26:13:1	22:11:1	4.71	12.7	2.70

a) Calculated by NMR; b) Determined by GPC. (LA: L-lactide; C: carbonate monomer)

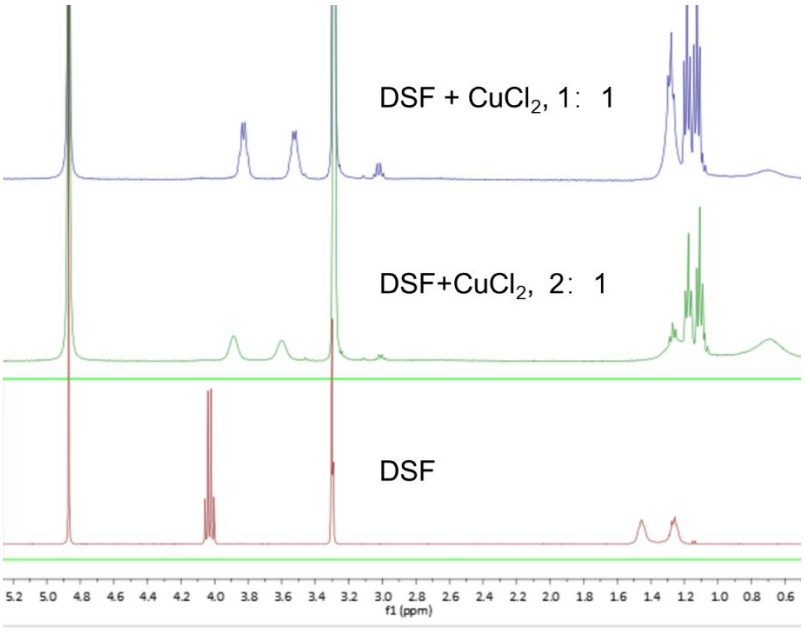

Figure S4. ^{1}H NMR spectra of DSF and the mixtures of DSF and $CuCl_2$ with different molar ratios in CD_3OD.

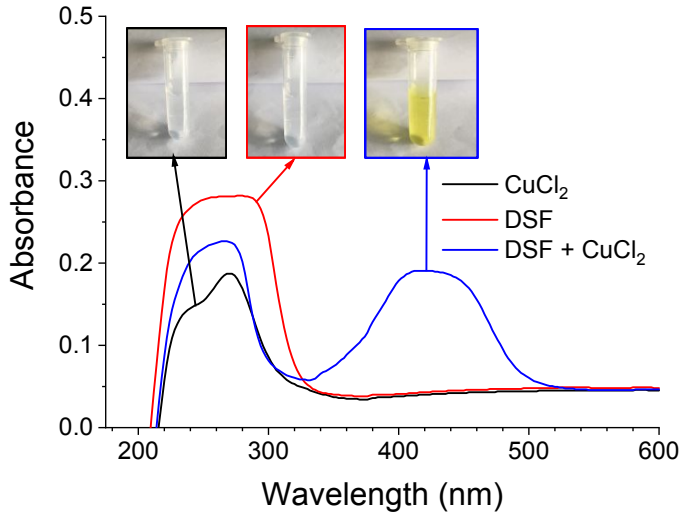

Figure S5. The UV-IS spectra of the DSF, $CuCl_2$, and their mixture in CH_3OH.

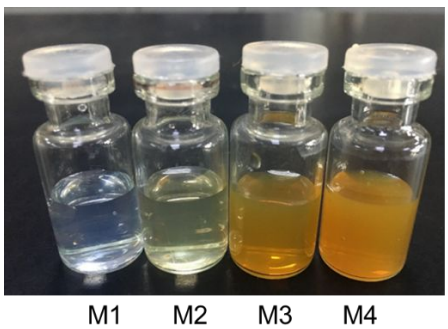

Figure S6. Photographs of M1−M4.

Table S2 Drug loading contents and efficiencies of Cu(II)- and Cu(II)/DDC-loaded micelles.

Cu(II)/COOH[a]	DSF/Cu(II) [a]	[DDC] (mM)[b]	[Cu(II)] (mM)[c]	DLCs/DLEs of DDC	DLCs/DLEs of Cu(II)	DLCs of $Cu(DDC)_2$
1:3	0	0	0.20	- / -	2.66% / 71.8%	-
	0.5	0.01	0.22	0.46% / 5.38%	3.09% / 84.4%	0.56%
	1	0.20	0.24	6.39% / 40.1%	3.17% / 92.4%	7.76%
	1.5	0.24	0.18	7.66% / 31.8%	2.54% / 74.5%	9.30%
2:3	0 **(M1)**	0	0.22	- / -	3.04% / 40.9%	-
	0.5 **(M2)**	0.05	0.29	1.41% / 8.27%	3.84% / 51.8%	1.71%
	1 **(M3)**	0.22	0.36	6.40% / 20.4%	4.55% / 66.6%	7.77%
	1.5 **(M4)**	0.27	0.17	8.28% / 17.3%	2.11% / 30.7%	10.0%
1:1	0	0	0.24	- / -	3.10% / 27.7%	-
	0.5	0.21	0.35	6.06% / 25.2%	4.28% / 41.4%	7.36%
	1	0.28	0.26	8.04% / 16.9%	3.13% / 30.5%	9.77%
	1.5	0.24	0.21	7.07% / 9.74%	2.65% / 25.4%	8.58%
4:3	0	0	0.20	- / -	2.68% / 17.9%	-
	0.5	0.16	0.30	4.25% / 12.9%	3.37% / 23.8%	5.17%
	1	0.29	0.27	8.13% / 12.8%	3.18% / 23.4%	9.87%
	1.5	0.09	0.04	2.79% / 2.69%	0.56% / 3.80%	3.39%

a) Feeding molar ratios. b) Determined by HPLC. c) Measured by ICP-AES.

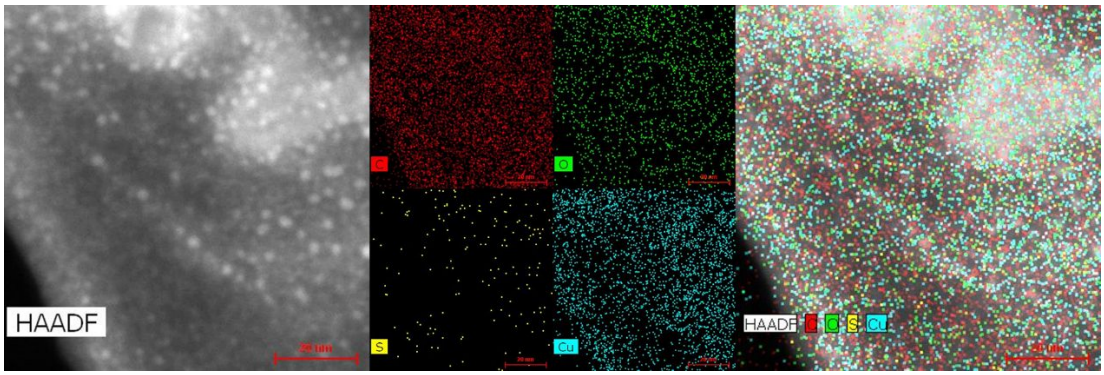

Figure S7. The STEM images of M3 micelle.

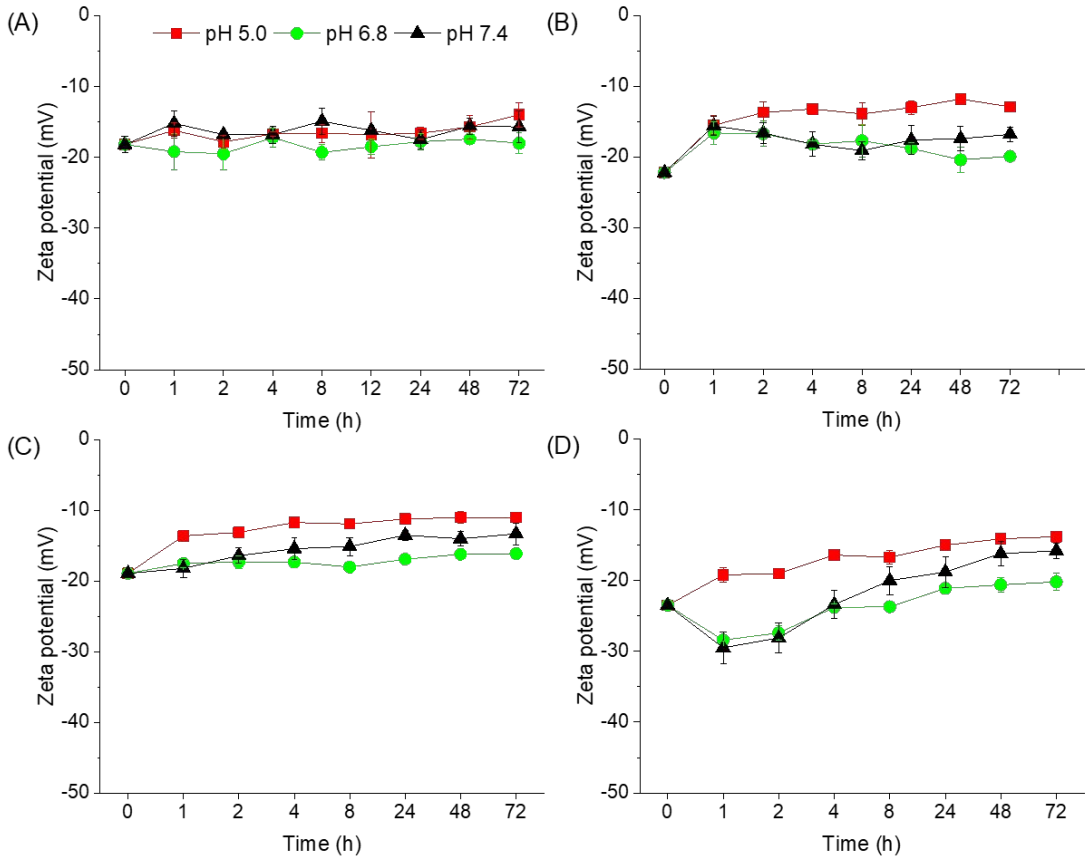

Figure S8. The zeta potential changes of M1−M4 micelles in different pH conditions.

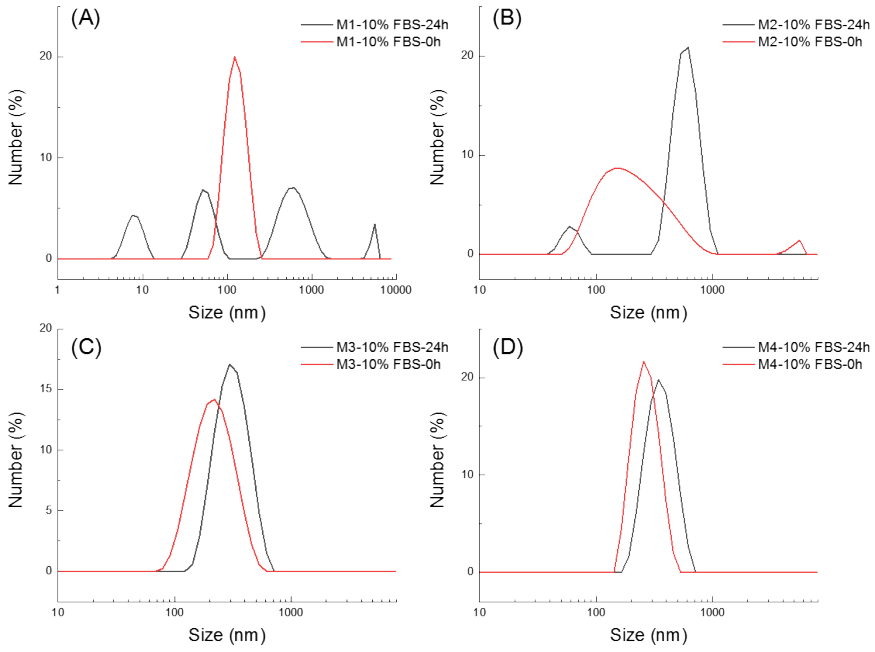

Figure S9. The sizes of M1 (A), M2 (B), M3 (C), and M4 (D) before and after an incubation with 10% FBS PBS for 24 h.

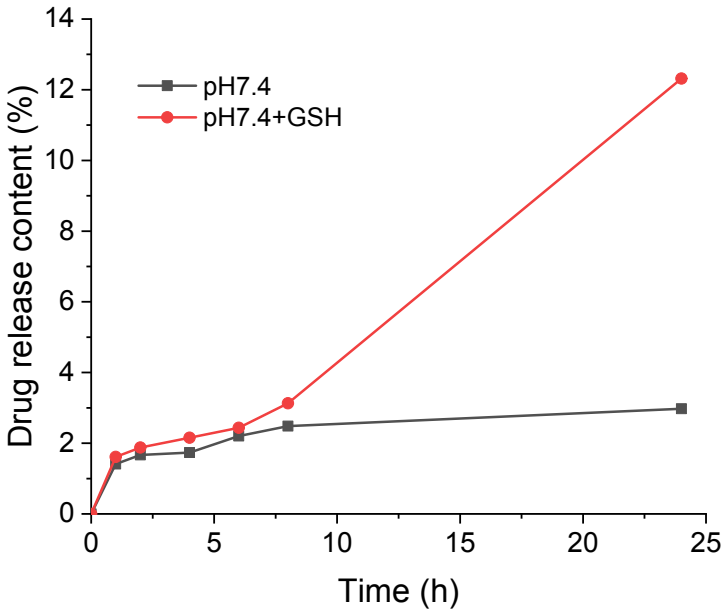

Figure S10. The release behavior of Cu(II)-loaded nanoparticles in the presence and absence of 5 mM GSH.

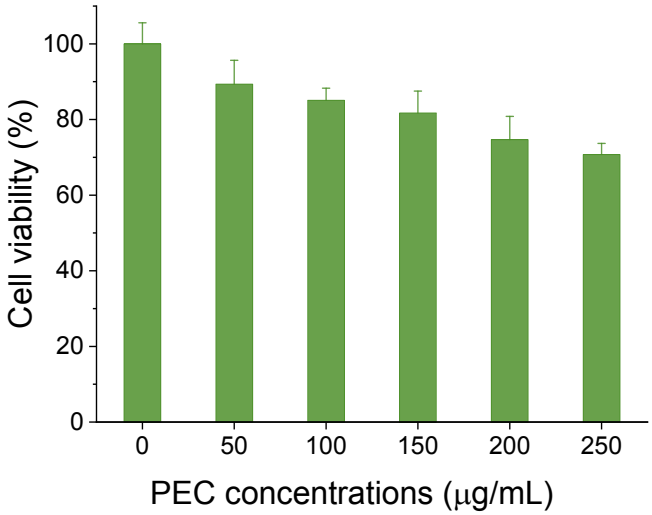

Figure S11. The cell viability of NIH 3T3 cells after incubation with PEC at various concentrations for 48 h.

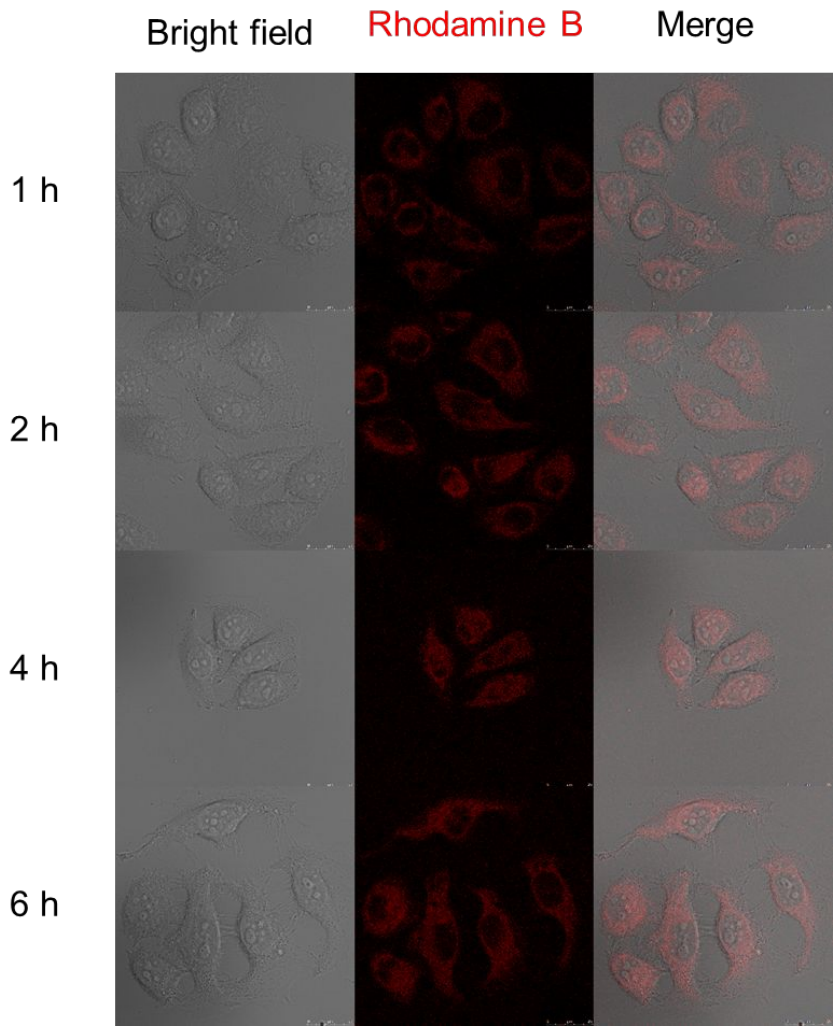

Figure S12. The CLSM images of A549 cells treated with Rhodamine B-loaded PEC micelle for different times.

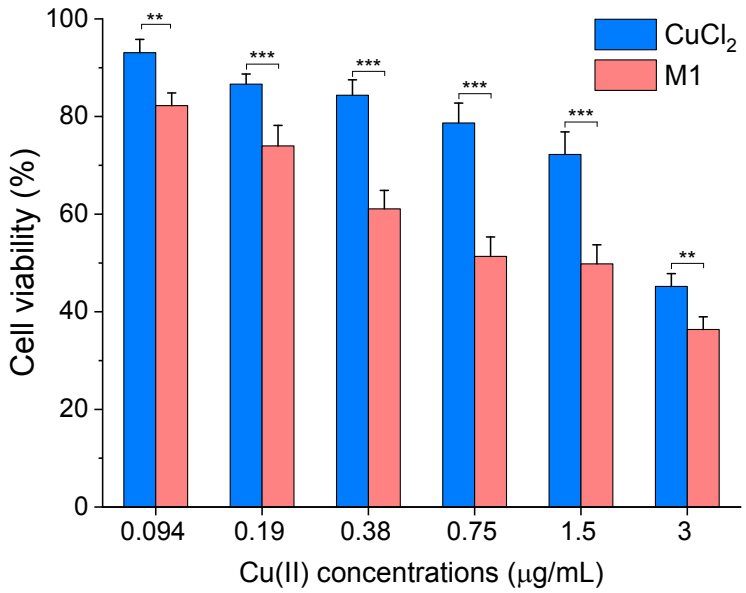

Figure S13. The cell viability of A549 cells after incubation with $CuCl_2$ and M1 at various Cu(II) concentrations for 48 h (n = 5. ** indicates $P < 0.01$ and *** indicates $P < 0.001$).

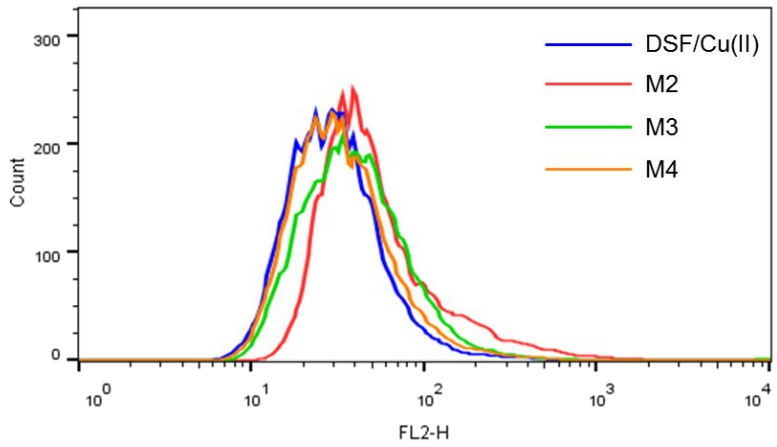

Figure S14. The intracellular ROS level of cells treated by DSF/Cu(II), M2, M3 and M4 detected by flow cytometry.

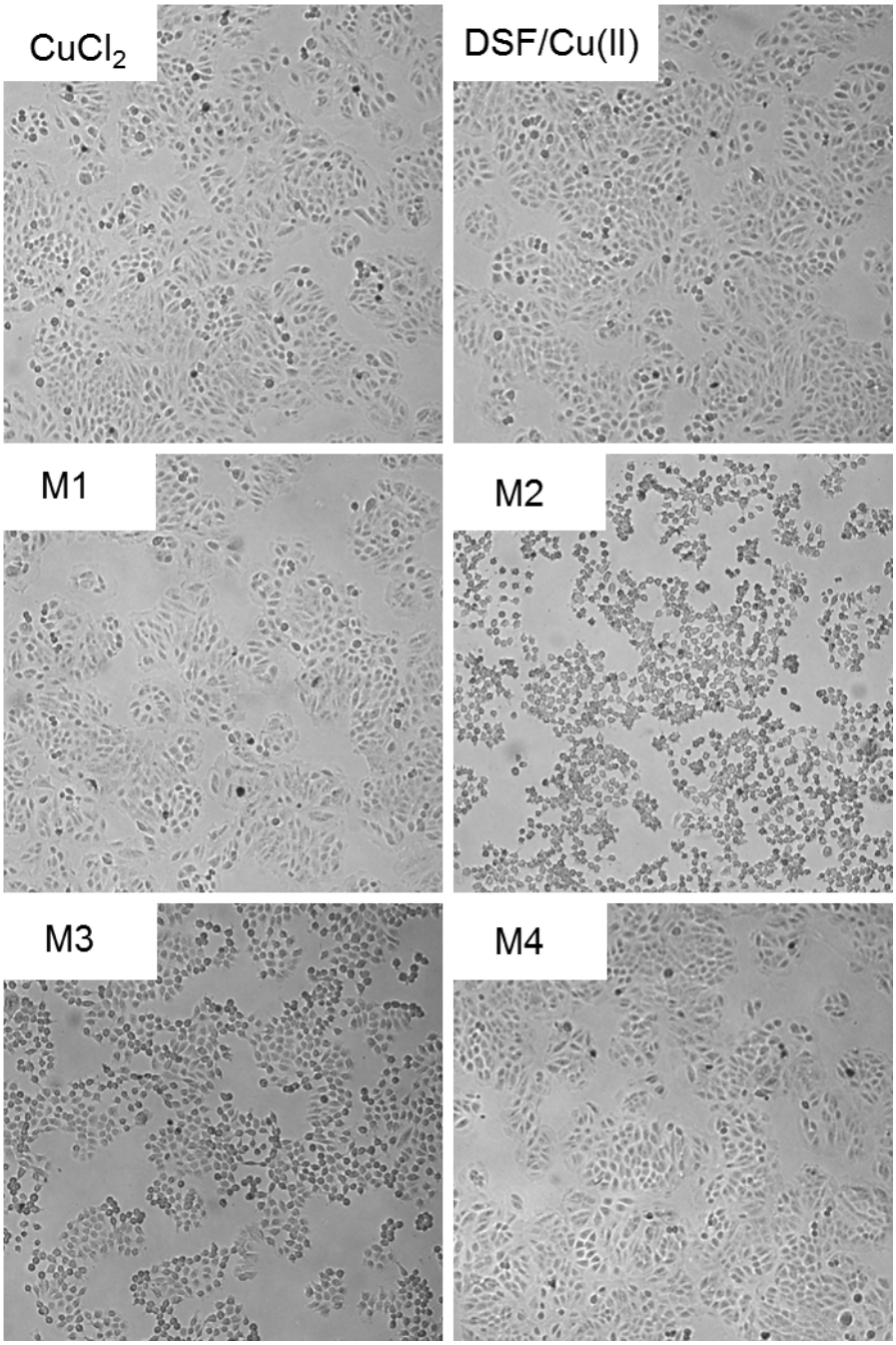

Figure S15. The microphotographs of A549 cells treated with $CuCl_2$, DSF/Cu(II), and M1−M4 at a Cu(II) concentration of 2 μg/mL for 4 h.

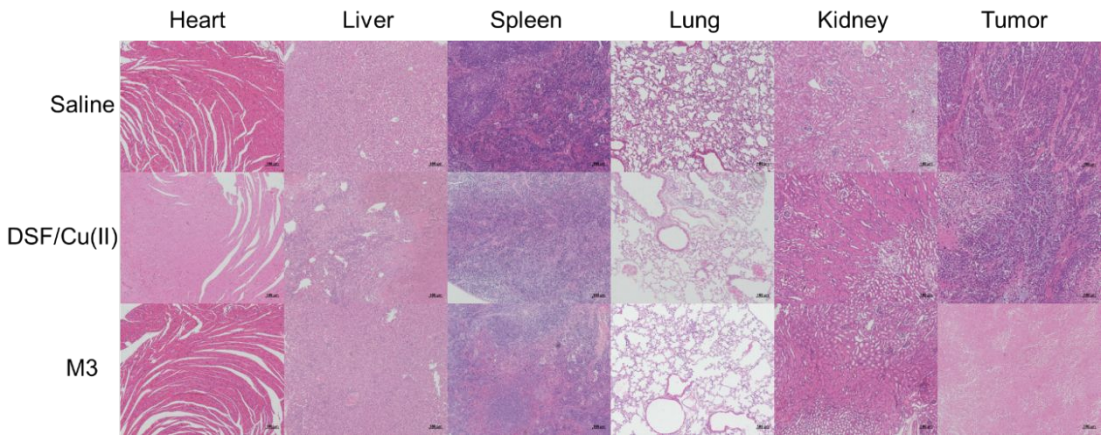

Figure S16. The H&E histological analysis (100×) of heart, liver, spleen, lung, kidney, and tumor in different groups (saline, DSF/Cu(II) and M3).