

**Supplementary Material**

**A Sulfobetaine Zwitterionic Polymer-Drug Conjugate  
for Multivalent Paclitaxel and Gemcitabine Co-Delivery**

Haotian Sun,<sup>‡a</sup> Lingyue Yan,<sup>‡b</sup> Runsheng Zhang,<sup>a</sup> Jonathan F. Lovell,<sup>b</sup> Yun Wu,<sup>\*b</sup> and  
Chong Cheng<sup>\*a</sup>

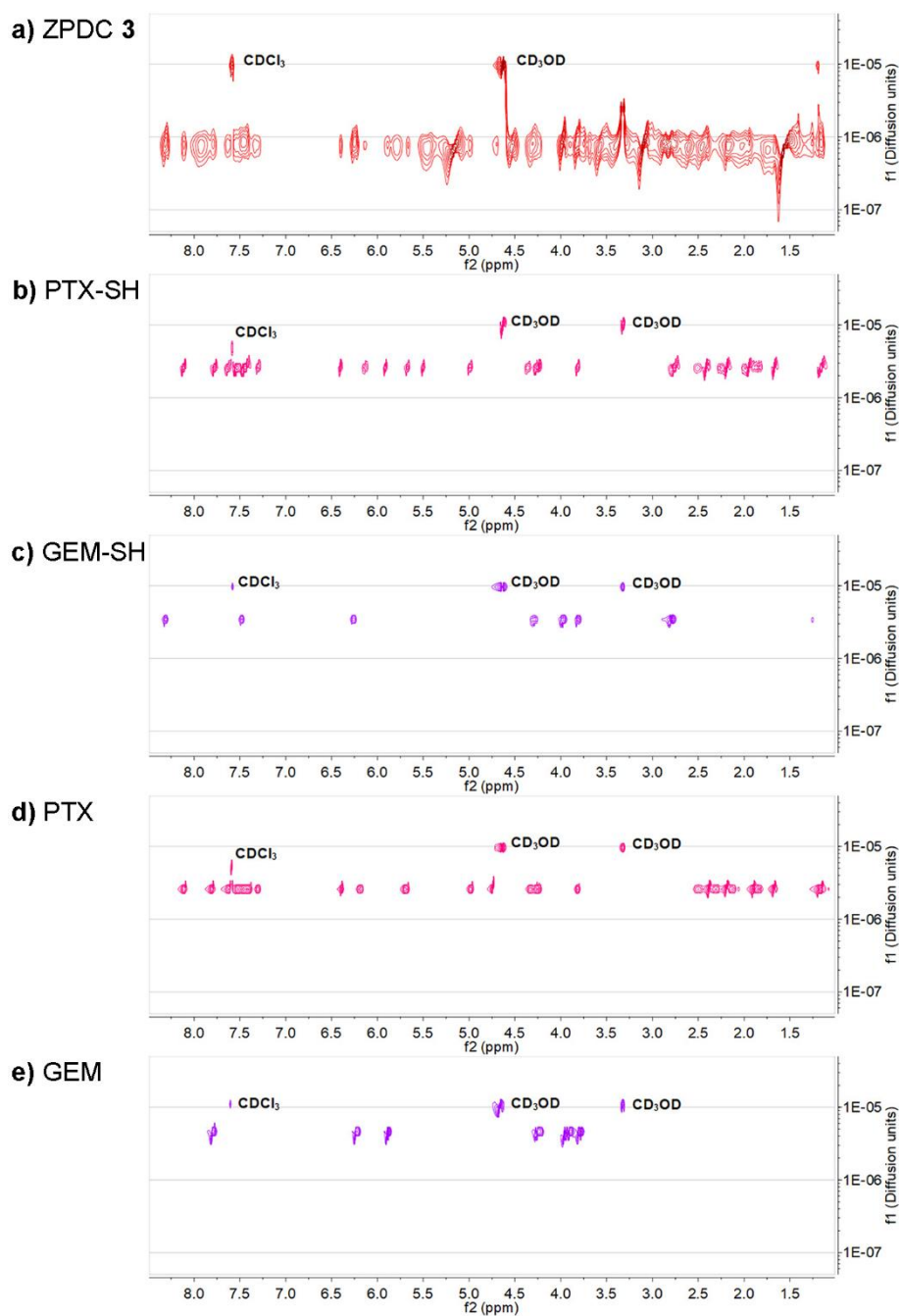
<sup>1</sup> Department of Chemical and Biological Engineering, University at Buffalo, The  
State University of New York, Buffalo, NY

<sup>2</sup> Department of Biomedical Engineering, University at Buffalo, The State University  
of New York, Buffalo, NY

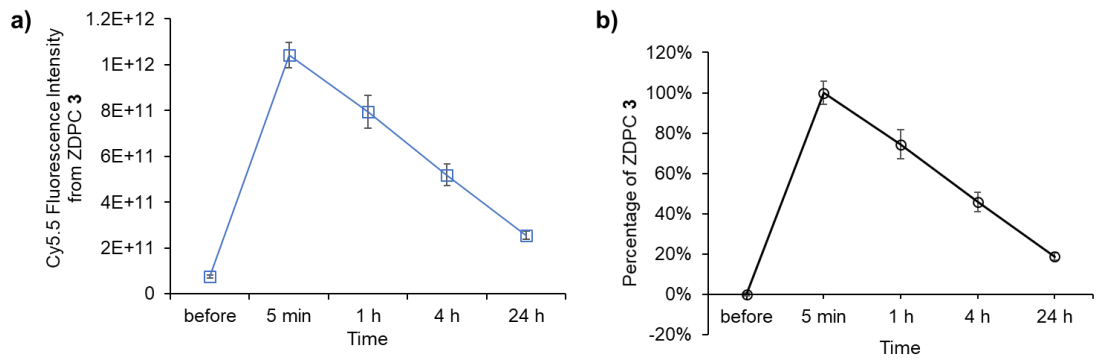
<sup>‡</sup> These authors contributed equally.

\* Corresponding authors. E-mail addresses: ccheng8@buffalo.edu (C. Cheng);

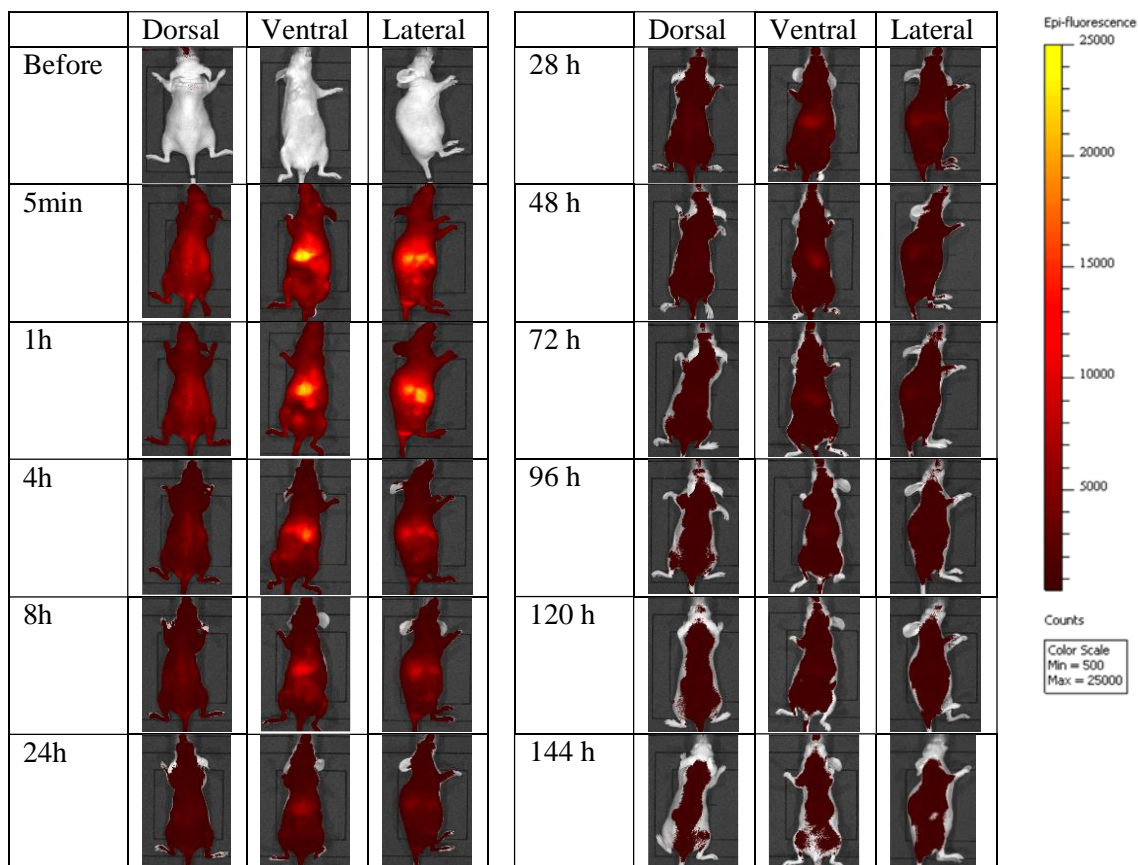
ywu32@buffalo.edu (Y. Wu)



**Fig. S1** DOSY NMR spectra of a) ZPDC **3**, b) PTX-SH, c) GEM-SH, d) PTX, e) GEM in  $CDCl_3/CD_3OD$  (v/v, 1:1).



**Fig. S2** a) The whole body Cy5.5 fluorescence intensity of ZPDC 3, and b) the derived percentage of ZPDC 3 circulating in the mice at 5 min (as 100%), 1 h, 4 h, and 24 h post injection.



**Fig. S3** Representative whole body fluorescence images of healthy female nude mice (of dorsal, ventral, and lateral sides) at different time points post intravenous injection of Cy5.5-labelled ZP 2 at Cy5.5 dose of 1.5 mg/kg body weight.

**Table S1.** Blood panel analysis at the end of the *in vivo* study <sup>a,b</sup>

	PBS	ZP 2	PTX+GEM	ZPDC 3
BUN (mg/dl)	18.5±4.98	23.51±4.56	17.96±2.53	18.77±2.91
Creatinine (mg/dl)	≤0.2	≤0.3	≤0.2	≤0.2
Phosphorus (mg/dl)	9.53±1.43	8.75±1.82	9.79±1.03	10.07±2.11
Calcium (mg/dl)	9.92±0.68	9.06±0.34*	9.31±0.72	9.41±0.37
Total Protein (g/dl)	5.1±0.39	5.19±0.24	5.36±0.59	5.29±0.28
Albumin (g/dl)	2.44±0.15	2.55±0.21	2.61±0.46	2.56±0.24
Globulin (g/dl)	2.66±0.26	2.64±0.09	2.74±0.21	2.73±0.10
Glucose (mg/dl)	110.8±52.74	123.63±23.37	137.22±56.55	131.71±48.17
Cholesterol (mg/dl)	107.4±10.45	93.13±10.49*	103.44±15.34	91.14±13.33*
ALT (GPT) (U/l)	22.4±6.35	20±4.11	24±6.69	27.71±5.68
ALP (U/l)	66.6±16.46	57.5±8.28	65.44±10.61	70.85±7.78
GGT (U/l)	<10	<10	<10	<10
Total Bilirubin (mg/dl)	0.62±0.30	0.83±0.46	1±1.17	0.74±0.32

<sup>a</sup> In the *in vivo* study, PBS control, ZP 2, PTX+GEM, and ZPDC 3 were administrated intravenously at PTX does of 10 mg/kg body weight and GEM does of 24 mg/kg body weight (for PTX+GEM and ZPDC 3) every 3 days with a total of 6 injections.

<sup>b</sup> \**p* < 0.05, versus PBS treated group.