Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

pH/Redox Dual Stimuli-Responsive Sheddable Nanodaisies for Efficient Intracellular Tumour-Triggered Doxorubicin Delivery

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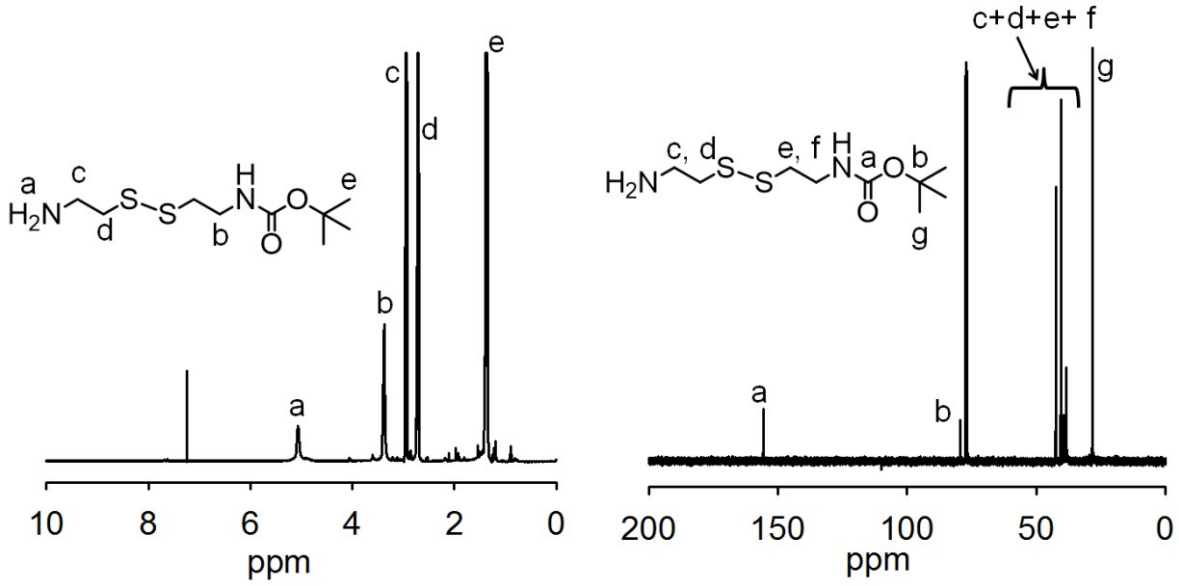

Figure S1. (i) ^{1}H and (ii) ^{13}C NMR spectra of mono–Boc–cystamine, $CDCl_3$ as a solvent.

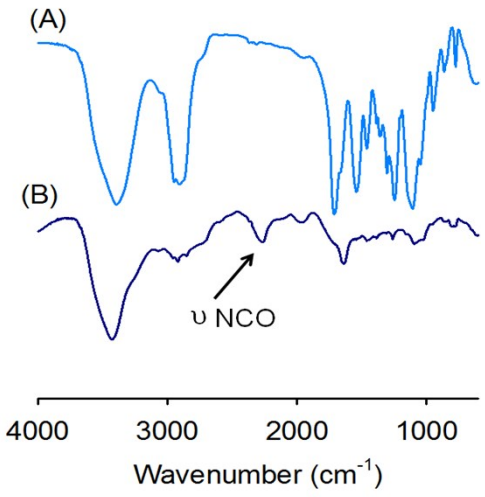

Figure S2. FT-IR spectra of (A) mono–Boc–cystamine–PU–mono–Boc–cystamine, and (B) NCO–PU–NCO.

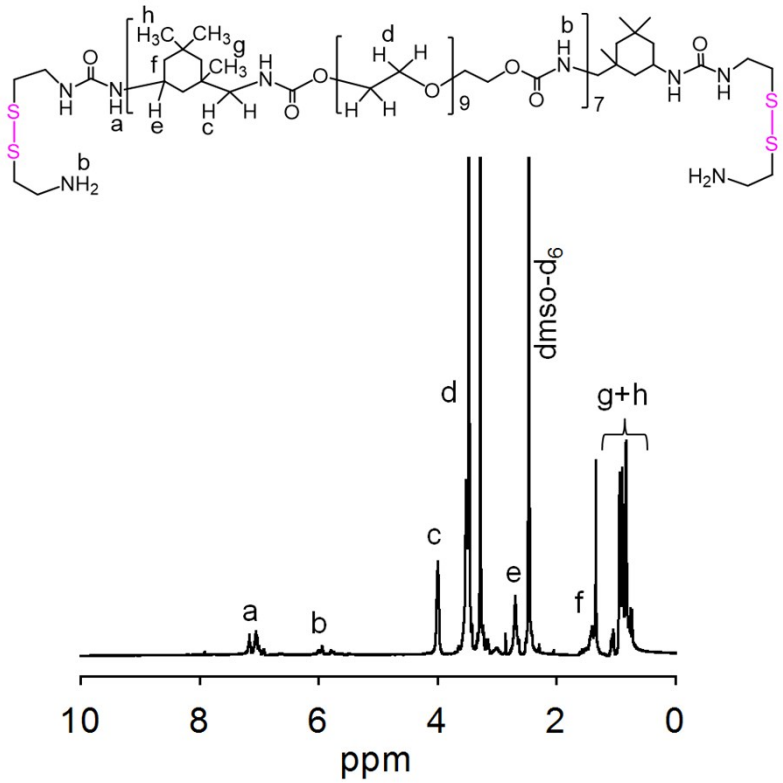

Figure S3. ^{1}H NMR spectra of NH_2–SS–Polyurethane–SS–NH_2 polyurethanes in DMSO-d_6.

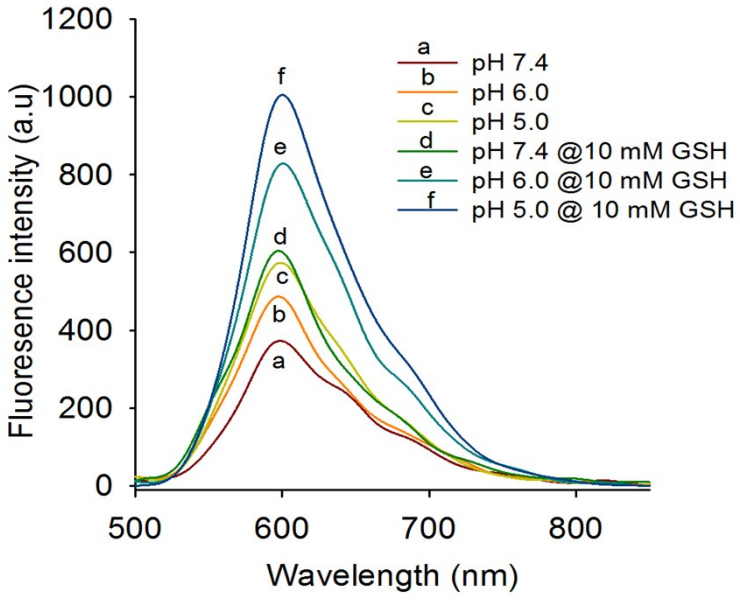

Figure S4. Dual stimuli-responsive flouresence spectra of p(L–histidine)$_{75}$–SS–polyurethane–SS–p(L–histidine)$_{75}$ [p(His)$_{75}$–SS–PU–SS–p(His)$_{75}$]driven Dox loaded NDs.

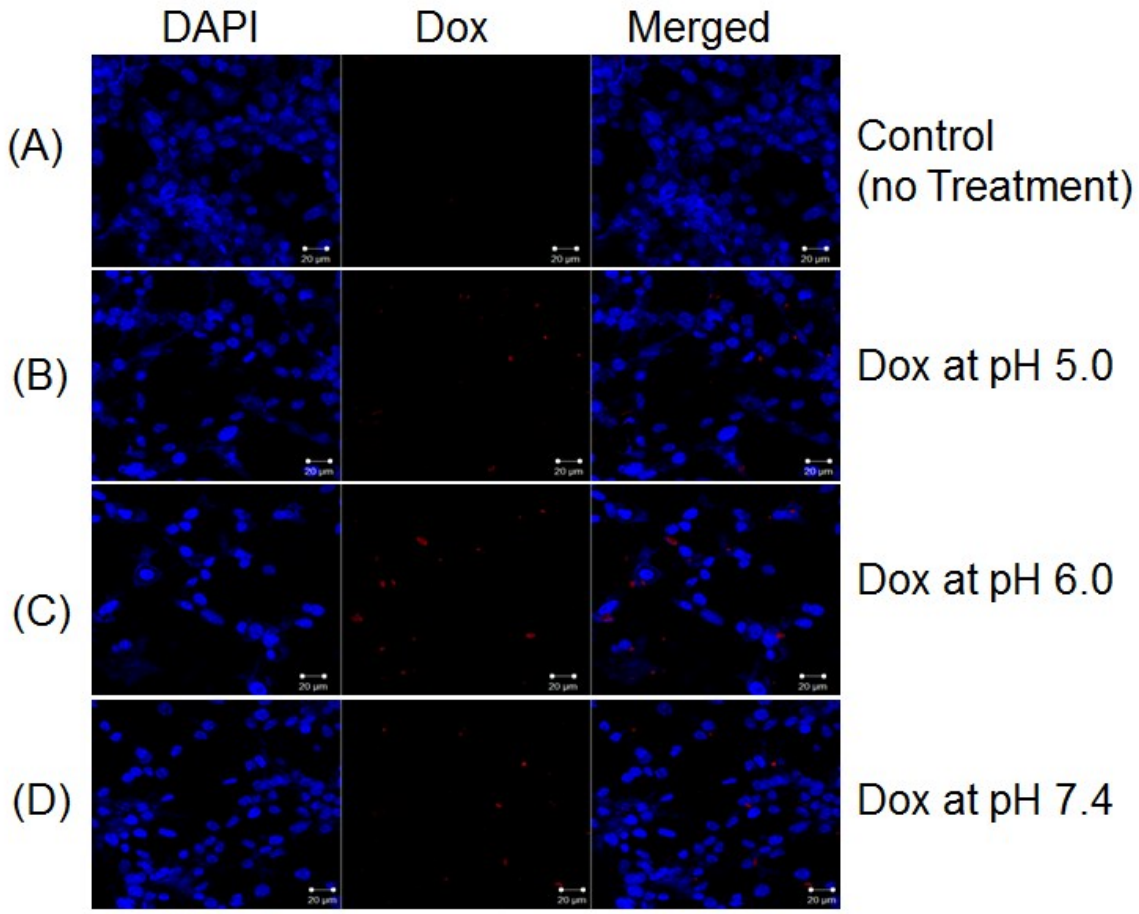

Figure S5. Confocal laser scanning microscopy (CLSM) images of CT26 cells incubated with Free Dox. (A) Free Dox (B) at pH 7.4 (C) pH 6.0 and (D) pH 4.0. All samples were incubated for 4 h, after which images were captured. A final Dox concentration of 2.5 μg/mL was used for all experiments [DAPI, 4',6-diamidino-2-phenylindole].

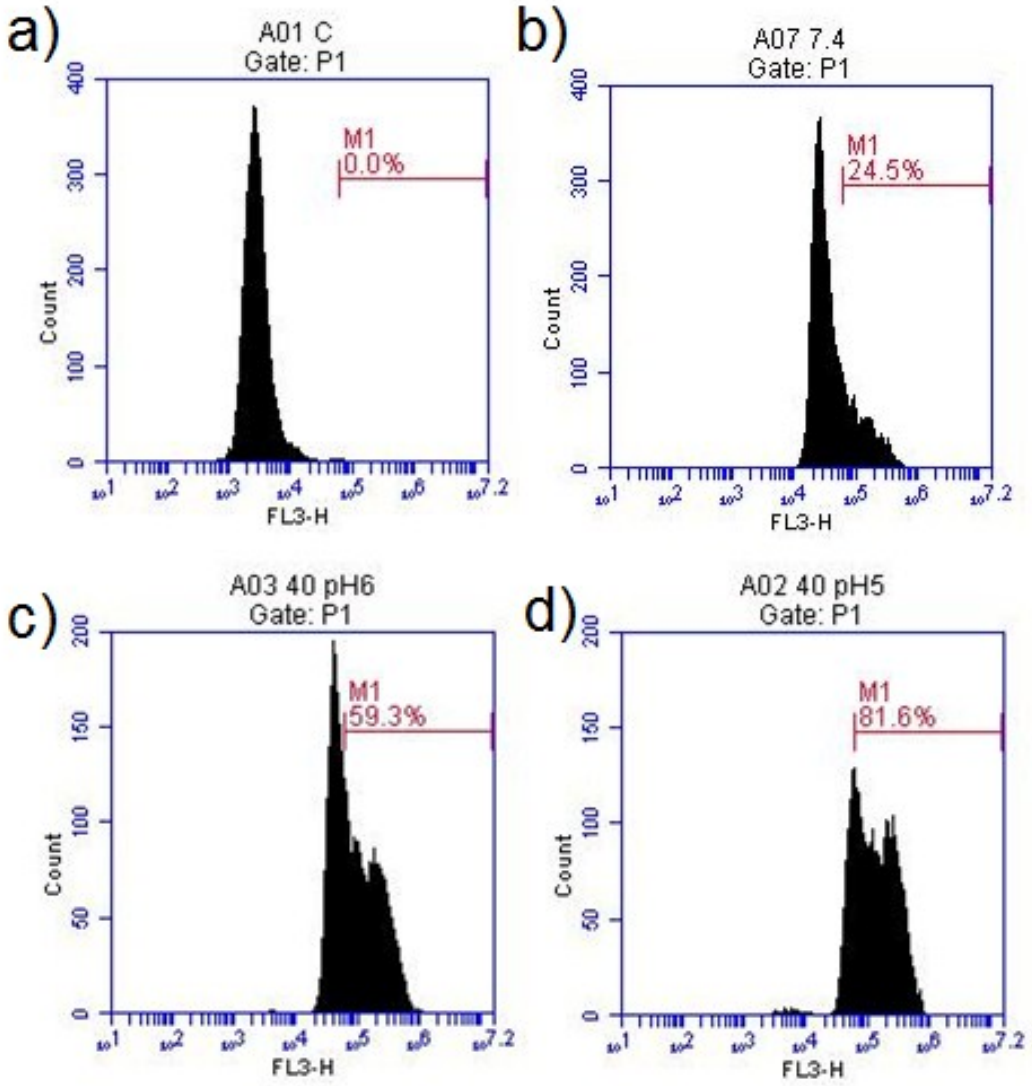

Figure S6. Flow cytometric analysis of CT26 cells after exposure for 2 h to (a) free Dox as control and Dox-loaded p(L–histidine)n–SS–polyurethane–SS–p(L–histidine)$_{75}$ [p(His)$_{75}$–SS–PU–SS–p(His)$_{75}$] nanodaisies (10 μg/mL) incubate at pH 7.4 (b) , pH 6.0 (c), and pH 5.0 (d).

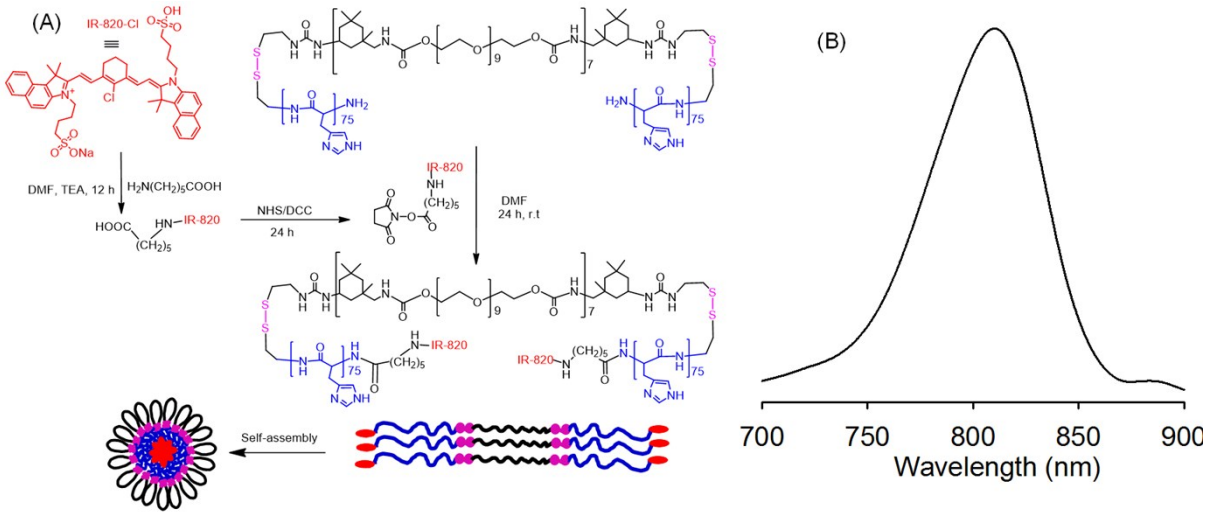

Figure S7. (A) Synthesis pathway of the IR-820 conjugated p(L–histidine)$_n$–SS–polyurethane–SS–p(L–histidine)$_{75}$ [p(His)$_{75}$–SS–PU–SS–p(His)$_{75}$] triblock copolymers and schematic represntation of IR-820 formulated micelles and (B) fluorescence spectra of the IR-820 labeled nanodaisies.

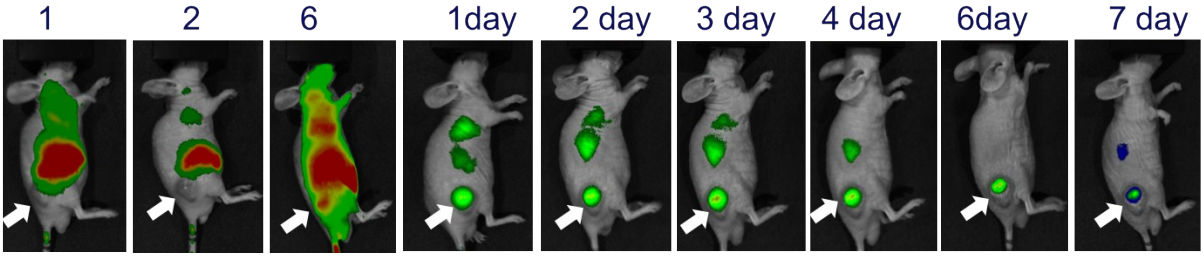

Figure S8. *In vivo* biodistribution of infrared (IR)-820-conjugated p(L–histidine)$_{75}$–SS–polyurethane–SS–p(L–histidine)$_{75}$ [p(His)$_{75}$-SS-PU-SS-p(His)$_{75}$] nanodaisies in CT26 tumour-bearing Balb/C nude mice.

Table S1. Compositions and physical properties of mono–Boc–cystamine end-capped polyurethane.

Sample	Feed ratio	M_n		[a]$Đ$
	PEG/IPDI/ mono–Boc–cystamine (mol/mol/mol)	Theor. (g/mol)	GPC (g/mol)	
mono–Boc–cystamine-PU–mono–Boc–cystamine	0.95/1/1	6000	9500	1.42

[a]Polydispersity index measured by GPC.