Electronic Supplementary Material (ESI) for RSC Advances.

Biodegradable multi-blocked polyurethane micelles for intracellular drug delivery: the effect of disulfide location on the drug release profile

Electronic Supplementary Information

Yongchao Yao[†a], He Xu[†b], Chang Liu[a], Yayuan Guan[a], Deqiu Xu[a], Jiya Zhang[a] , Yuling Su[a], Lili Zhao[a] and Jianbin Luo*[a]

[a] College of Chemistry and Environmental Protection Engineering, Southwest University for Nationalities, 610041 Sichuan, China. *E-mail: luojb1971@163.com*

[b] Department of Immunology, West China School of Preclinical and Forensic Medicine, Sichuan University

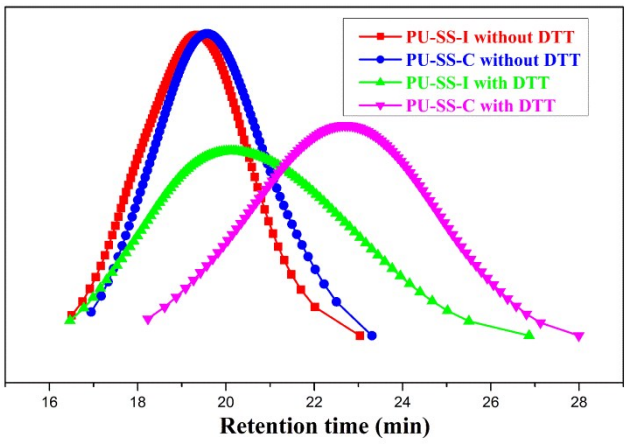

Fig. S1 GPC curves of purified PU-SS-C and PU-SS-I

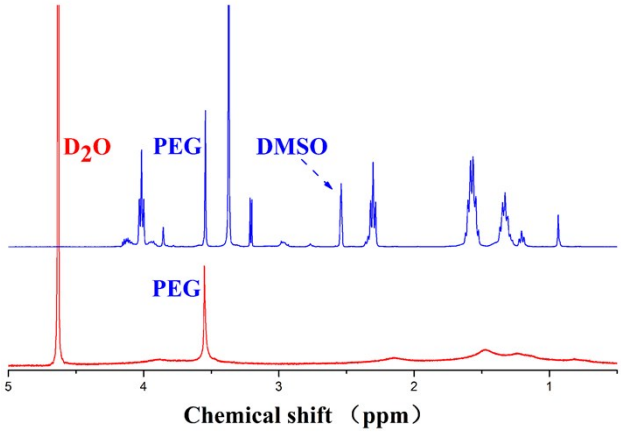

Fig.S2 ^{1}H NMR spectra of reduction-sensitive polyurethane (PU-SS-I) in DMSO-d6 and its micelles in D_2O

.

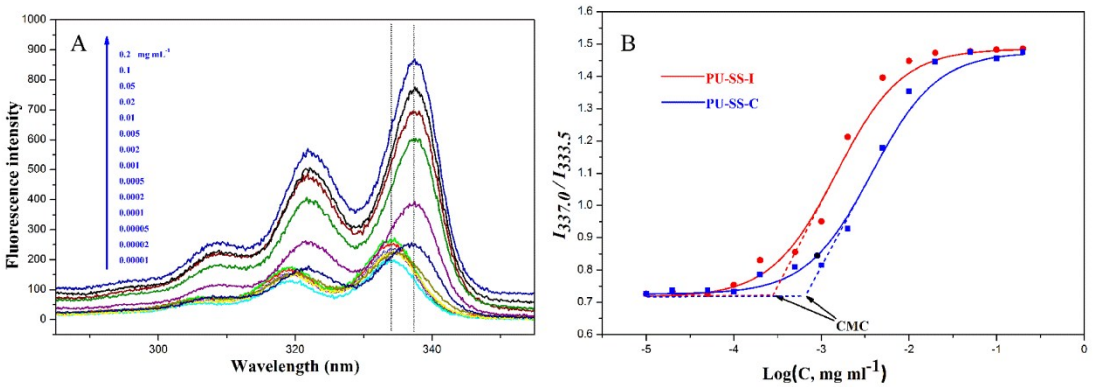

Fig. S3 (A) Typical fluorescence excitation spectra (λ_{em}=372 nm) of reduction-sensitive polyurethane micelles. (B) $I_{337.0}/I_{333.5}$ratios in the excitation spectra as a function of micellar concentrations (Log C). The CMCs are obtained from the intersection of the two tangent lines shown by the arrows.

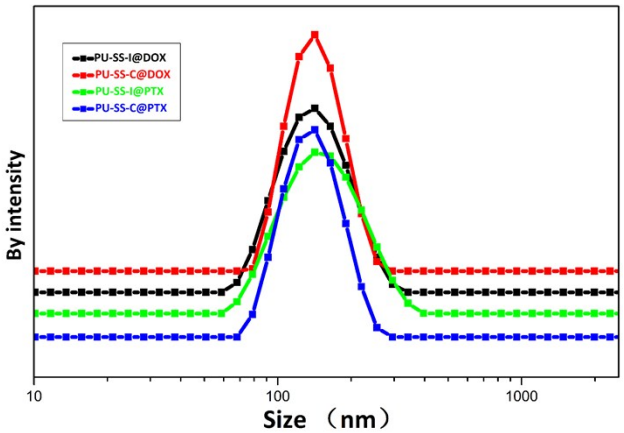

Fig. S4 Size distribution of reduction-sensitive polyurethanes determined by DLS

Table S1. Composition and characteristics of reduction-sensitive polyurethanes and their micelles

	Feed ratio (mmol)						Molecular weights (g/mol)					
Samples	PCL	PEG	LDI	Cys	LDI	PEG	*M*n	*M*w	*M*n/ *M*w	Size(nm)	PDI	Zeta potential (mv)
PU-SS-I	3.2		3.87	1	1.13	0.8	24121	40748	1.69	132.0 ±1.1	0.12±0.01	-20.7±1.56
PU-SS-C	3.2	0.8	5	1			19150	31586	1.65	137.2±1.9	0.14±0.02	-7.2±0.89

Table S2. Elemental analysis results of PU-SS-I and PU-SS-C

Sample	N (%)	C (%)	H (%)	S (%)
PU-SS-I	3.00	61.79	8.70	0.526
PU-SS-C	3.22	61.11	8.67	0.481