Electronic Supplementary Material (ESI) for RSC Advances.

Biodegradable multiblock polyurethane micelles with tunable reduction-sensitivity for on-demand intracellular drug delivery

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Supporting Information

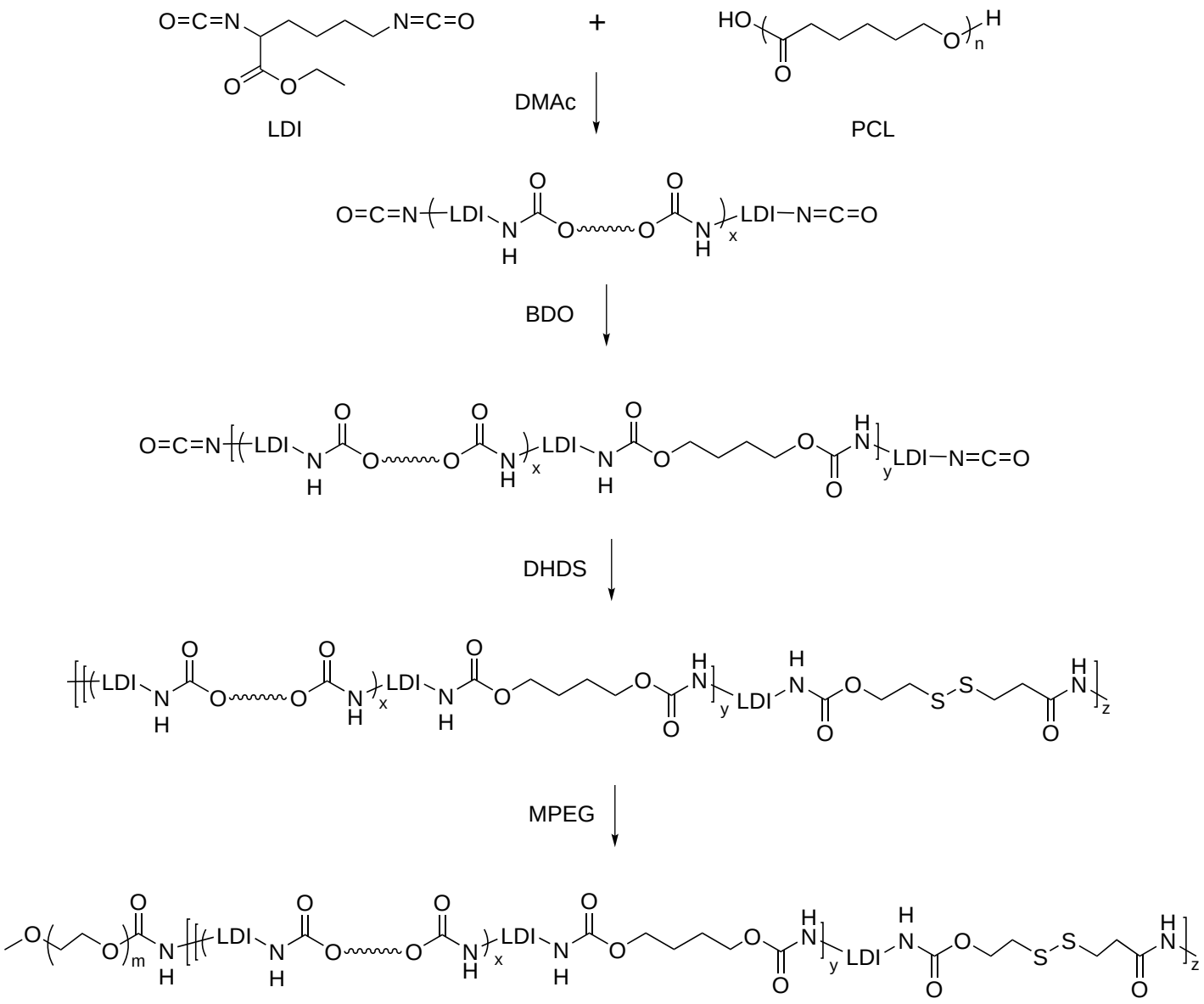

Fig. S1. Synthesis of reduction-sensitive biodegradable multiblock polyurethanes, x, y, z, m = 1, 2, 3, …, ~~~ represents PCL segment.

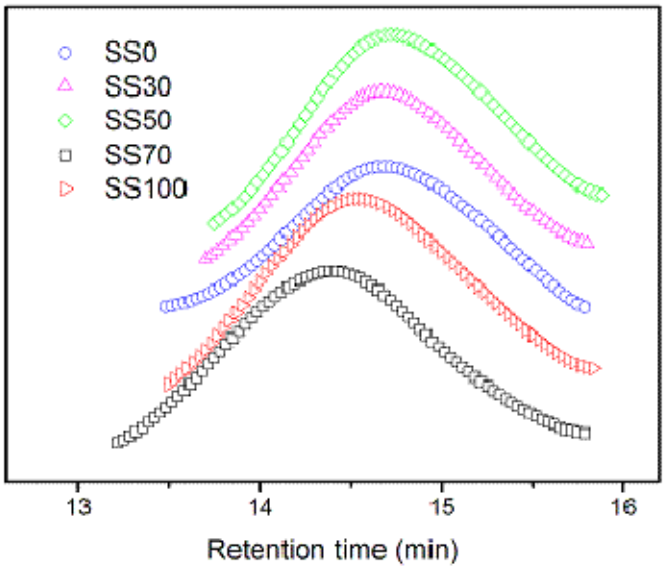

Fig. S2. GPC diagrams of reduction-sensitive biodegradable multiblock polyurethanes.

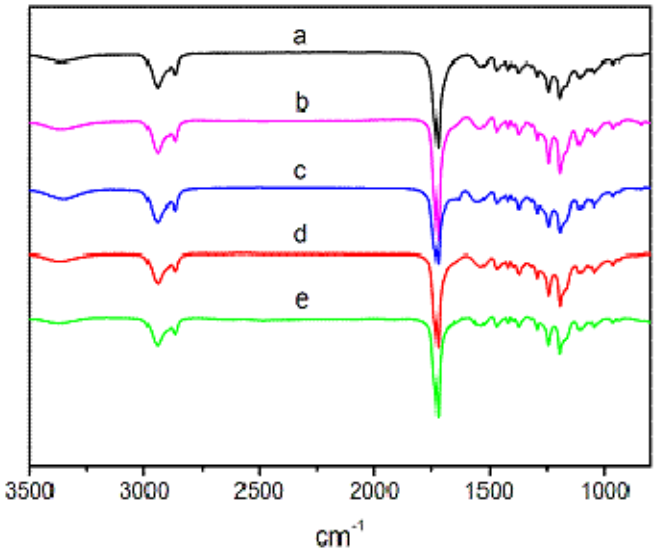

Fig. S3. FTIR spectra of reduction-sensitive biodegradable multiblock polyurethanes: (a) SS0, (b) SS30, (c) SS50, (d) SS70 and (e) SS100.

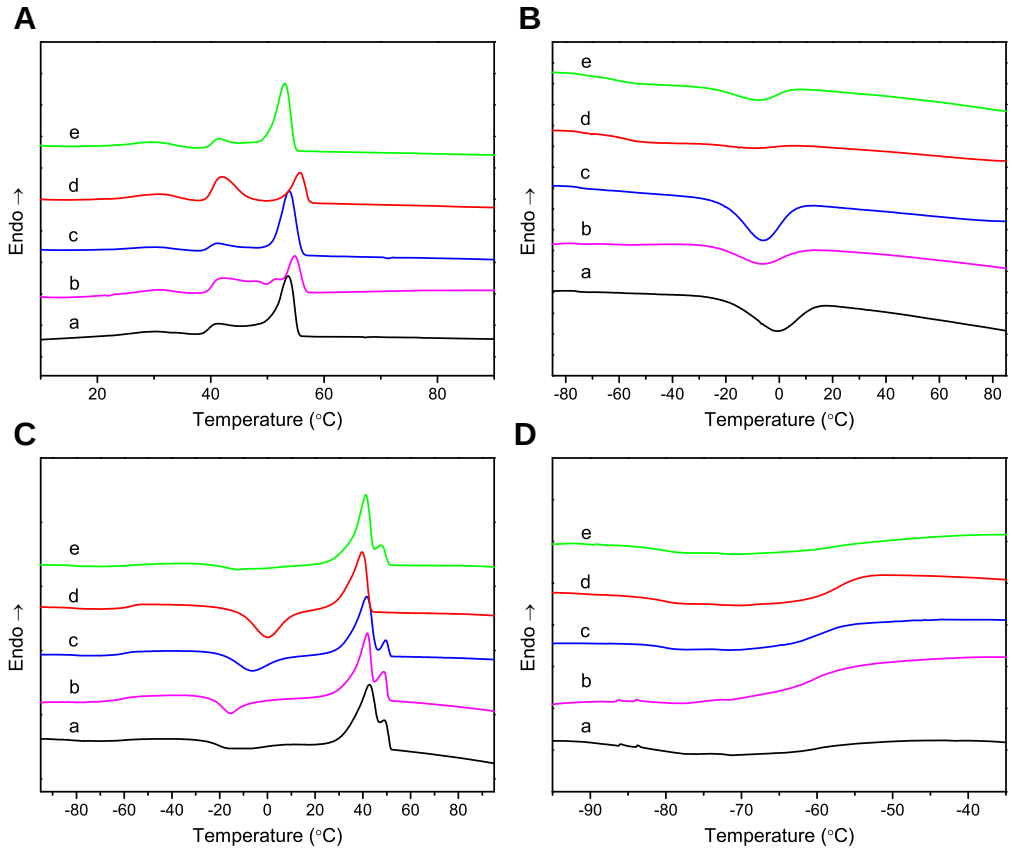

Fig. S4. DSC thermograms of reduction-sensitive biodegradable multiblock polyurethanes: (a) SS0, (b) SS30, (c) SS50, (d) SS70 and (e) SS100. A, B, C and D represent curves for first heating, first cooling, second heating procedures and glass transition regions in the second heating curves, respectively.

Table S1. Thermal properties of reduction-sensitive biodegradable multiblock polyurethanes.[a]

Samples [b]	T_g [c] (°C)	T_{cc} [d] (°C) [ΔH_c (J g^{-1})]	T_{m1} [e] (°C) [ΔH_m (J g^{-1})]	T_{c2} [f] (°C) [ΔH_c (J g^{-1})]	T_{m2} [e] (°C) [ΔH_m (J g^{-1})]
SS0	-58.73	—	53.6 [58.4]	-1.1 [26.1]	42.8 [55.6]
SS30	-60.36	-15.5 [13.4]	54.8 [49.5]	- 6.8 [15.1]	42.0 [53.4]
SS50	-60.25	-6.7 [19.4]	53.9 [45.0]	-8.3 [9.5]	41.6 [38.3]
SS70	-58.17	-0.1 [30.8]	55.8 [51.0]	—	40.0 [35.7]
SS100	-54.83	—	53.1 [51.0]	-6.3 [30.2]	41.1 [52.6]

[a] Differential scanning calorimetry (DSC) was performed on a Perkin-Elmer Pyris Diamond DSC (Perkin-Elmer Instruments, USA) at a heating/cooling rate of 10 °C min^{-1} in the range of -100 to 100 °C under a steady flow of nitrogen. [b] Reduction cleavable polyurethanes are denoted as SS*X*, where SS is for DHDS, *X* is the molar content of DHDS in chain extender. [c] T_g is defined as the midpoint of the glass transition. [d] Cold crystallization temperature. [e] T_{m1} and T_{m2} represent the melting temperatures on the first heating and second heating curves, respectively. [f] The crystallization temperature on the first cooling curve.