

Supplementary Materials

Polypeptide micelles with dual pH activable dyes for sensing cells and cancer imaging

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Characterization of the Molecular Weight of PEG-PLL-PLLeu

The apparent molecular weight and polydispersity of each PEG-PLL-PLLeu was determined by gel permeation chromatography (VE2001 GPCmax, Malven Company) at 40°C and 2xPLgel 5µm MIXED-C 300x7.5mm column was used. Freeze-dried samples were dissolved in DMF and filtered on 0.45 µm filters, before being injected in the apparatus. A calibration based on polyethylene glycol (PEG) standards ($K=14.1 \times 10^{-5}$ dL/g and $\alpha=0.7$ at 40°C. in DMF) was employed on order to calculate the molecular weight from times of elution measured by the instrument. Flow rate was 1.0 mL/min, concentration of sample was 3.0-4.0 mg/mL and injection volume was 200 uL.

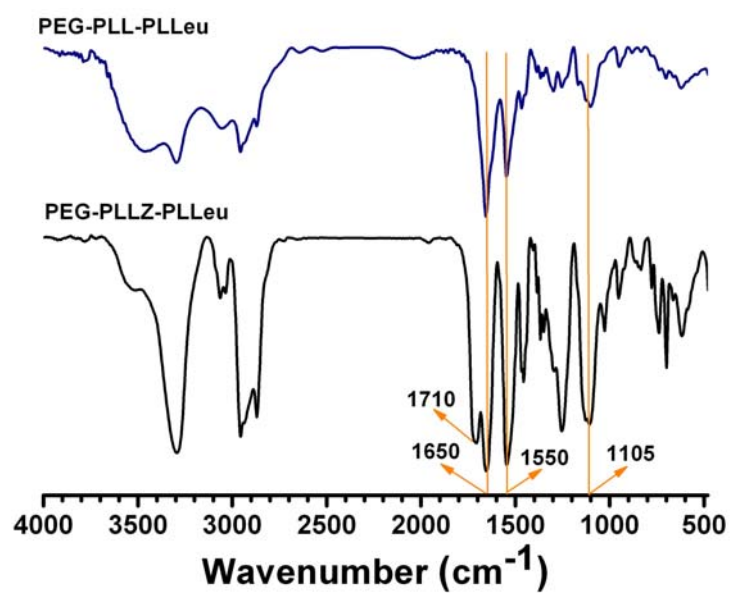


Fig. S1. FT-IR spectrum of PEG-PLLZ-PLLeu and PEG-PLL-PLLeu copolymers

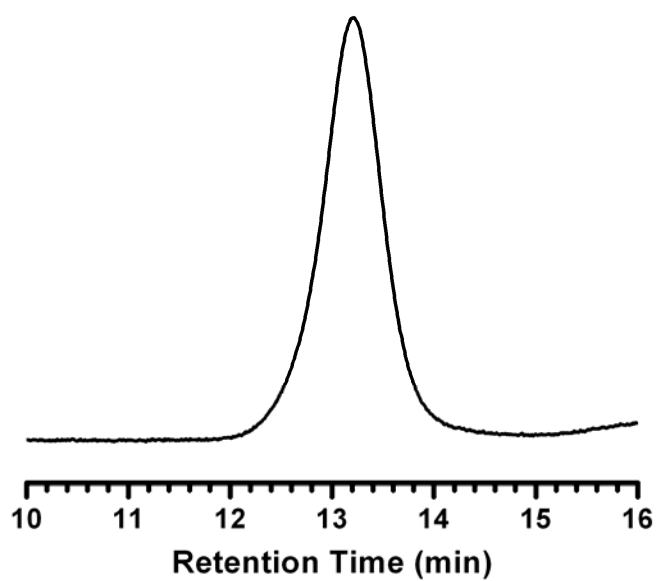


Fig. S2. Gel permeation chromatography (GPC) of PEG-PLL-PLLeu.

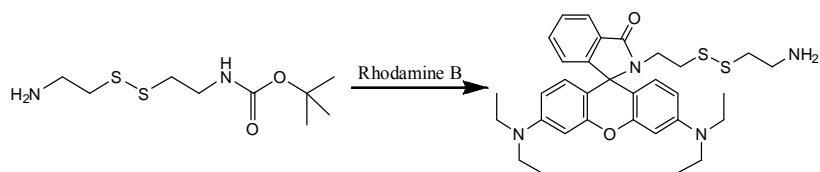


Fig. S3. Synthesis of rhodamine B-cystamine (RBLC)

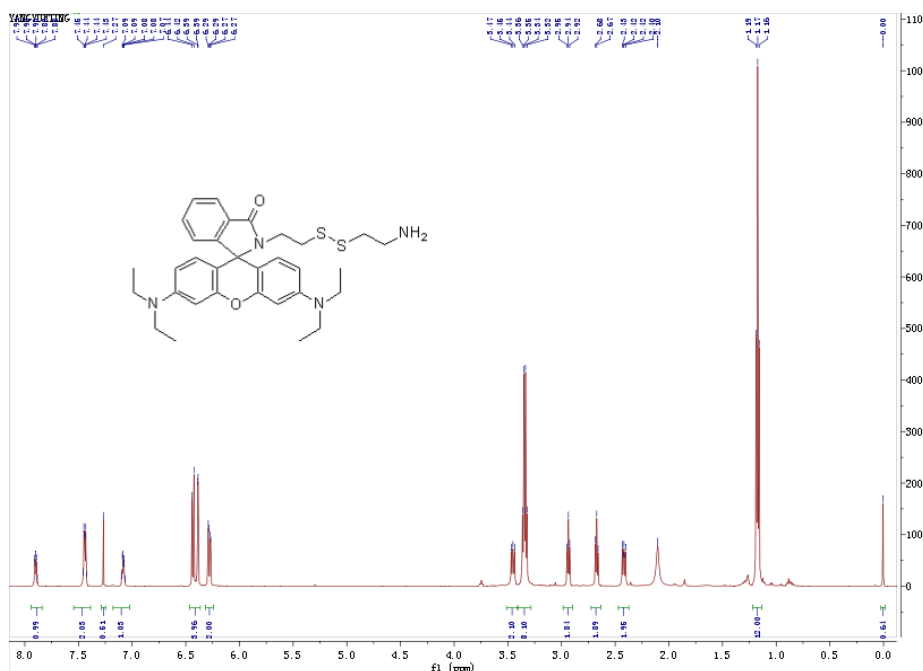


Fig. S4. Rhodamine B-cystamine (RBLC) was confirmed by HRMS. ¹H NMR (400 MHz, *d*₆-DMSO, TMS) δ 1.17 (t, *J* = 7.05 Hz, 12H, CH₃CH₂), 2.42 (t, *J* = 8 Hz, 2H, CH₂CH₂S-), 2.67 (t, *J* = 6.05 Hz, 2H, -SCH₂CH₂), 2.94 (t, *J* = 6.05 Hz, 2H, -SCH₂CH₂), 3.34 (q, *J* = 7.05 Hz, 8H, CH₃CH₂), 3.45 (t, *J* = 8 Hz, 2H, CH₂CH₂S-), 6.28 (dd, *J* = 8.9 Hz, 2.5 Hz, 2H, Xanthene-*H*), 6.39 (d, *J* = 2.5 Hz, 2H, Xanthene-*H*), 6.43 (d, *J* = 8.85 Hz, 2H, Xanthene-*H*), 7.07-7.10 (m, 1H, Ar-*H*), 7.41-7.47 (m, 2H, Ar-*H*), 7.88-7.91 (m, 1H, Ar-*H*).

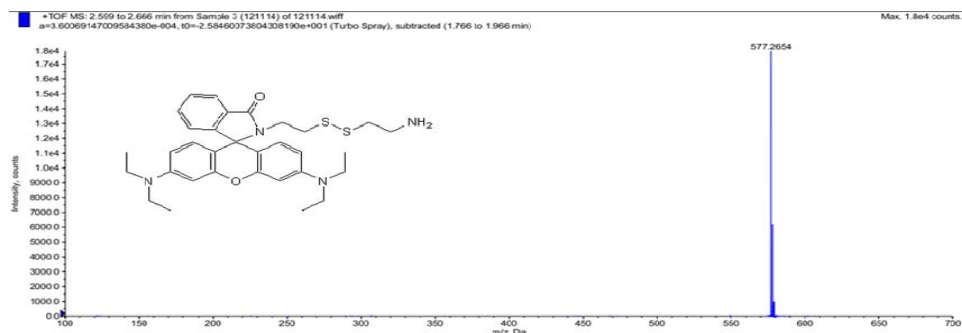


Fig. S5. Mass spectrum of RBLC. HRMS (EI) m/z $C_{32}H_{39}N_4O_2S_2^+$ (M^+): 577.2666. Found 577.2654.

Table S1. Encapsulation efficiency (EE) and drug loading efficiency (LE) of RBLC

PEG-PLL-PLLeu-FITC/RBLC ratio	feed molar	EE of RBLC (%)	LE of RBLC (%)
13.5		66.5	4.7
5.4		53.4	8.9