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

Supporting Information

Amphiphilic Star-Shaped Poly(sarcosine)-*block*-poly(ε-caprolactone) Diblock Copolymers: One-Pot Synthesis, Characterization, and Solution Properties

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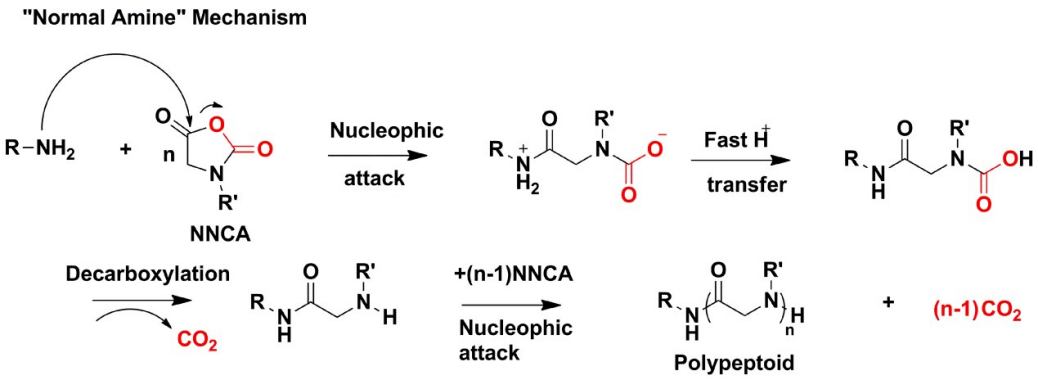

Scheme S1. The "normal amine" mechanism for the ring-opening polymerization of NNCAs initiated by primary amines.[1]

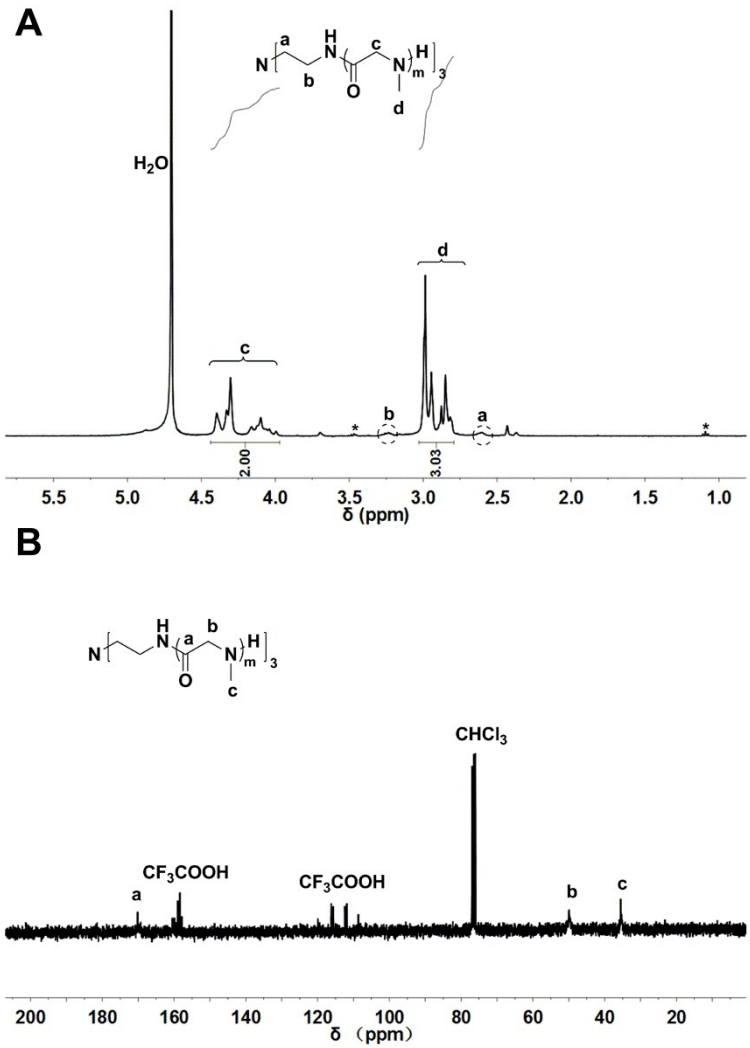

Figure S1. (A) ^{1}H spectrum of a star-shaped PSar sample in D_2O. Asterisk refers to the residual diethyl ether in sample. (B) ^{13}C NMR spectrum of a star-shaped PSar sample in $CDCl_3/CF_3COOD$.

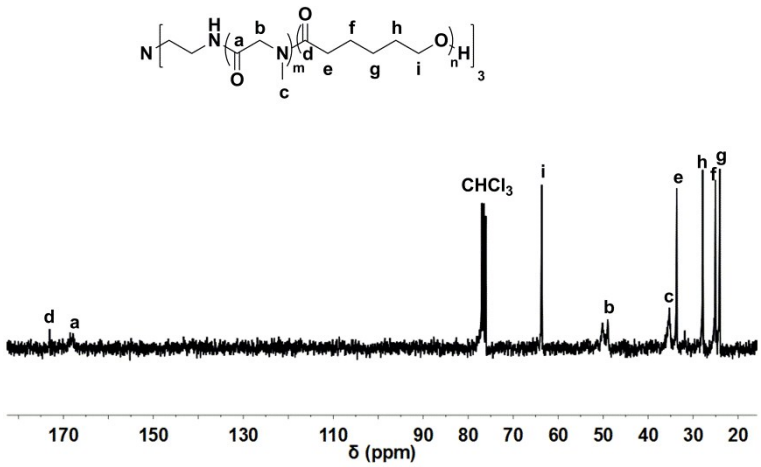

Figure S2. ^{13}C NMR spectrum of a star-shaped poly(sarcosine)-*b*-poly(*ε*-caprolactone)

diblock copolymer sample in $CDCl_3$.

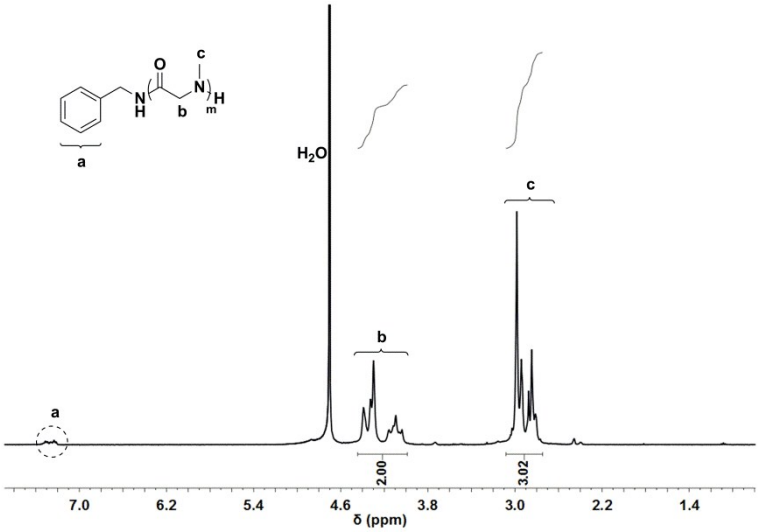

Figure S3. ^{1}H NMR spectrum of linear poly(sarcosine) in D_2O.

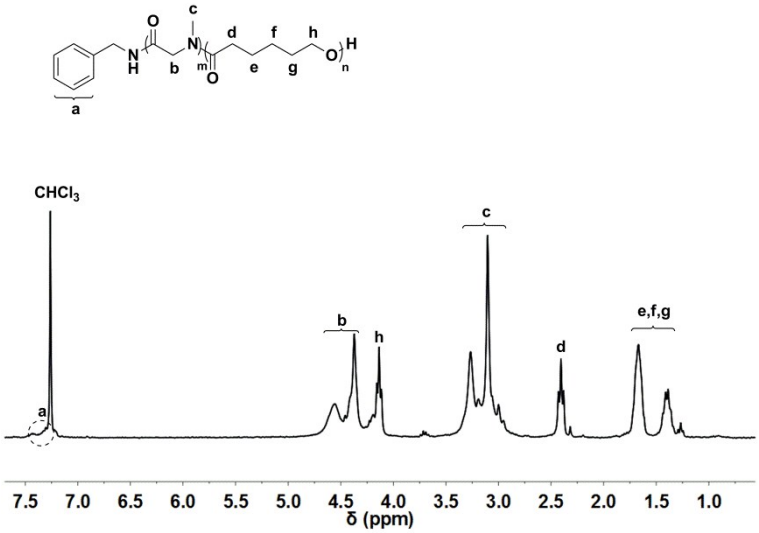

Figure S4. ^{1}H NMR spectrum of linear poly(sarcosine)-*b*-poly(*ε*-caprolactone) diblock copolymer in $CDCl_3$/TFA.

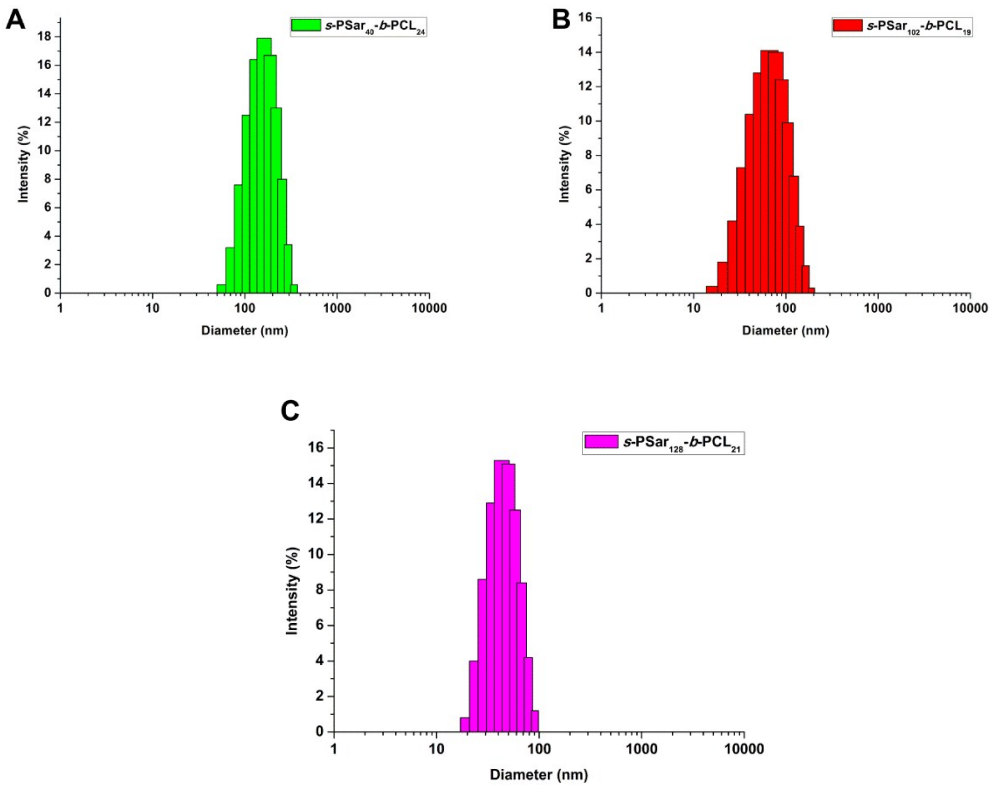

Figure S5. Particles size distributions in aqueous solution of (A) *s*-PSar$_{40}$-*b*-PCL$_{24,}$ (B) *s*-PSar$_{102}$-*b*-PCL$_{19,}$ (C) *s*-PSar$_{128}$-*b*-PCL$_{21.}$

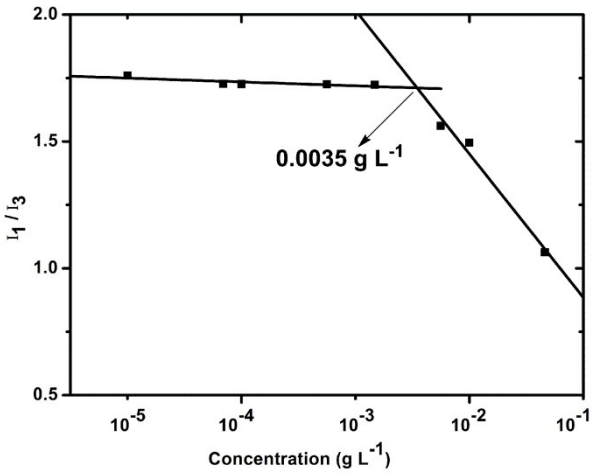

Figure S6. The ratio I_1/I_3 of pyrene emission spectra for the *s*-PSar$_{40}$-*b*-PCL$_{24}$ copolymer as a function of copolymer concentrations (measured at 25 °C).

References

1. (a) Zhang, D. H.; Lahasky, S. H.; Guo, L.; Lee, C. U.; Lavan, M., Polypeptoid Materials: Current Status and Future Perspectives. *Macromolecules* **2012,** *45* (15), 5833-5841; (b) Luxenhofer, R.; Fetsch, C.; Grossmann, A., Polypeptoids: A perfect match for molecular definition and macromolecular engineering? *J. Polym. Sci. Pol. Chem.* **2013,** *51* (13), 2731-2752; (c) Klinker, K.; Barz, M., Polypept(o)

ides: Hybrid Systems Based on Polypeptides and Polypeptoids. *Macromol. Rapid Commun.* **2015,** *36* (22), 1943-1957; (d) Hadjichristidis, N.; Iatrou, H.; Pitsikalis, M.; Sakellariou, G., Synthesis of Well-Defined Polypeptide-Based Materials via the Ring-Opening Polymerization of alpha-Amino Acid N-Carboxyanhydrides. *Chem. Rev.* **2009,** *109* (11), 5528-5578.