

Electronic Supporting Information

Tunable Assembly and Disassembly of Responsive Supramolecular Polymer Brushes

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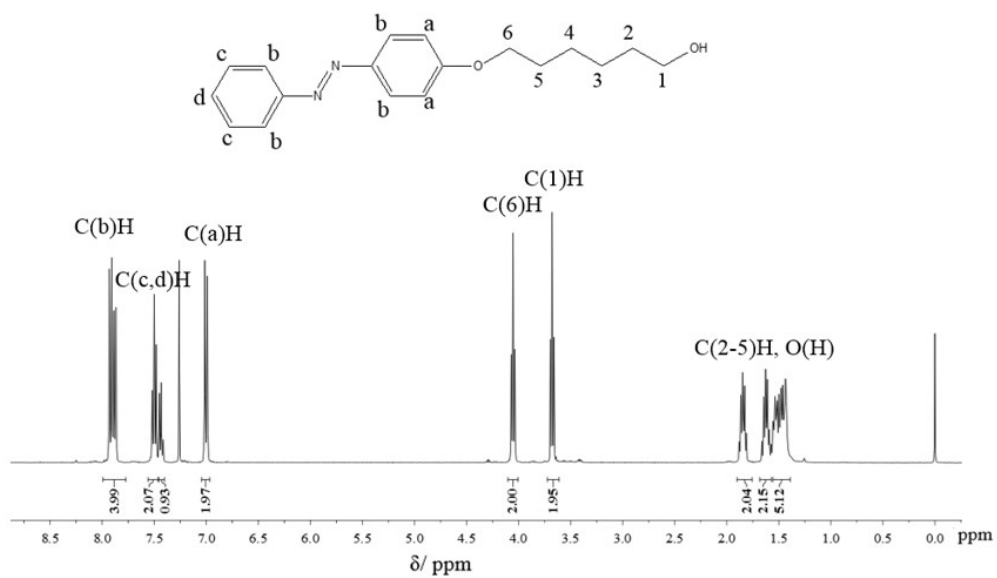


Fig. S1. ¹H NMR spectrum (400MHz, CDCl₃, room temperature) of product 1.

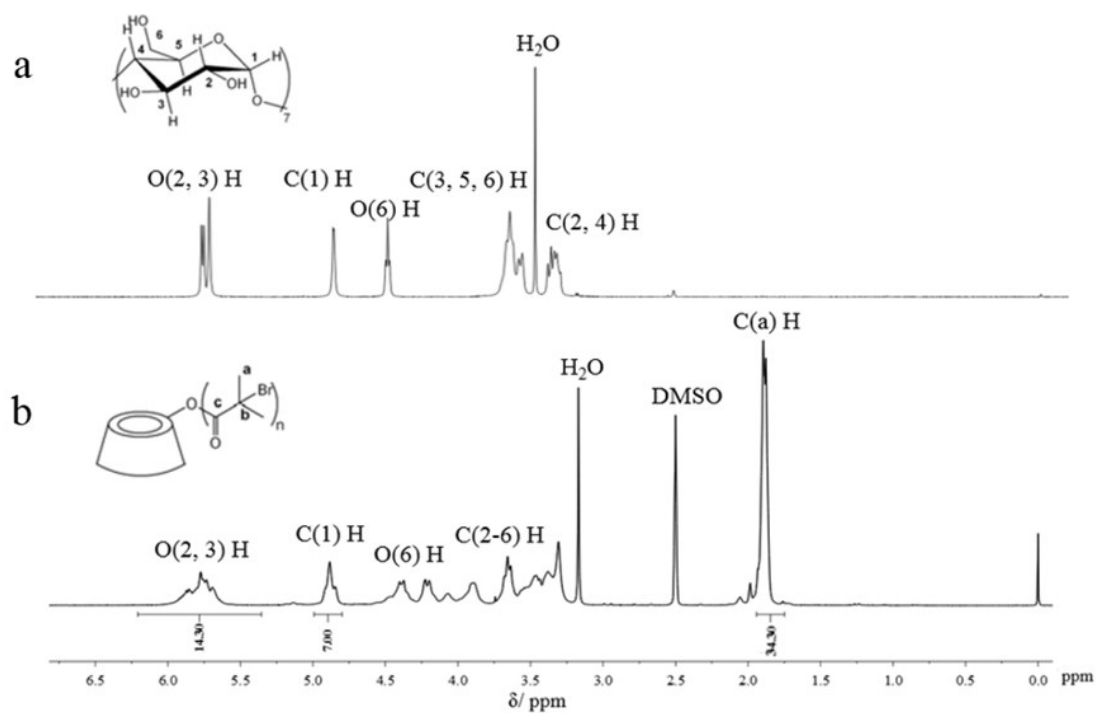


Fig.e S2. ¹H NMR spectrum (400MHz, DMSO-d₆, room temperature) of 5Br-β-CD.

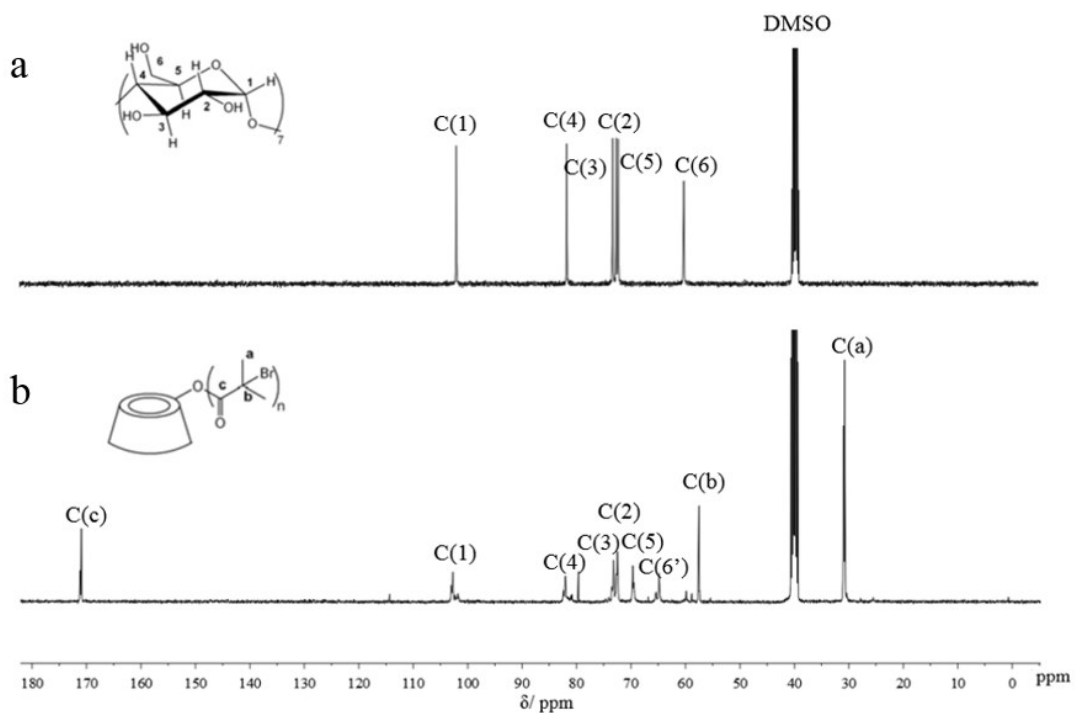


Fig. S3. ^{13}C NMR spectrum (400MHz, DMSO- d_6 , room temperature) of $\beta\text{-CD}$ and $5\text{Br-}\beta\text{-CD}$.

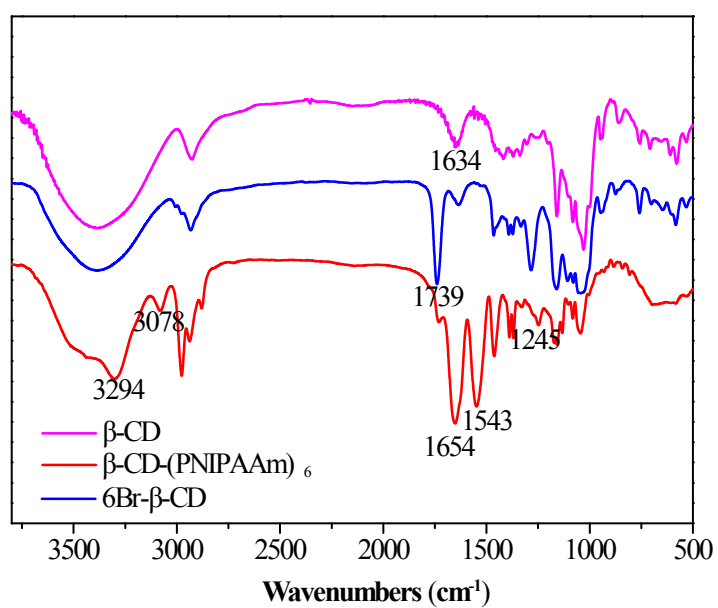


Fig. S4. FT-IR spectra of $\beta\text{-CD}$, $5\text{Br-}\beta\text{-CD}$ and $\beta\text{-CD-(PNIPAAm)}_5$.

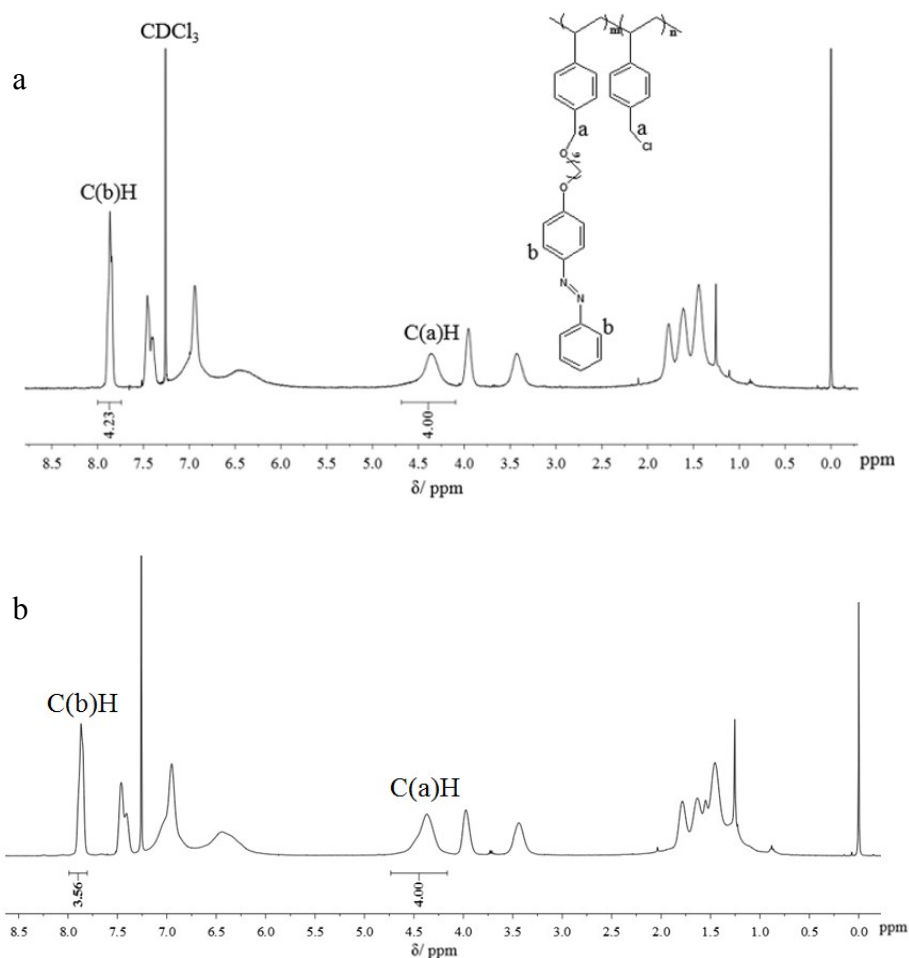


Fig. S5. ^1H NMR spectrum (400MHz, CDCl_3 , room temperature) of product 2. (a) PVBC-Azo synthesized by RAFT; (b) PVBC-Azo synthesized by FRP.

Table S1. Characterization of the Main Chains

Sample	Polymerization methods	M_n	M_w	$\text{PDI}(M_w/M_n)$
PVBC	FRP ^a	41000	71600	1.75
PVBC	RAFT ^b	47300	58900	1.25
PVBC-Azo	FRP	78600	143100	1.82
PVBC-Azo	RAFT	88700	110500	1.25

^aFRP: Free Radical Polymerization

^bRAFT: Reversible Addition-Fragmentation Chain Transfer Polymerization

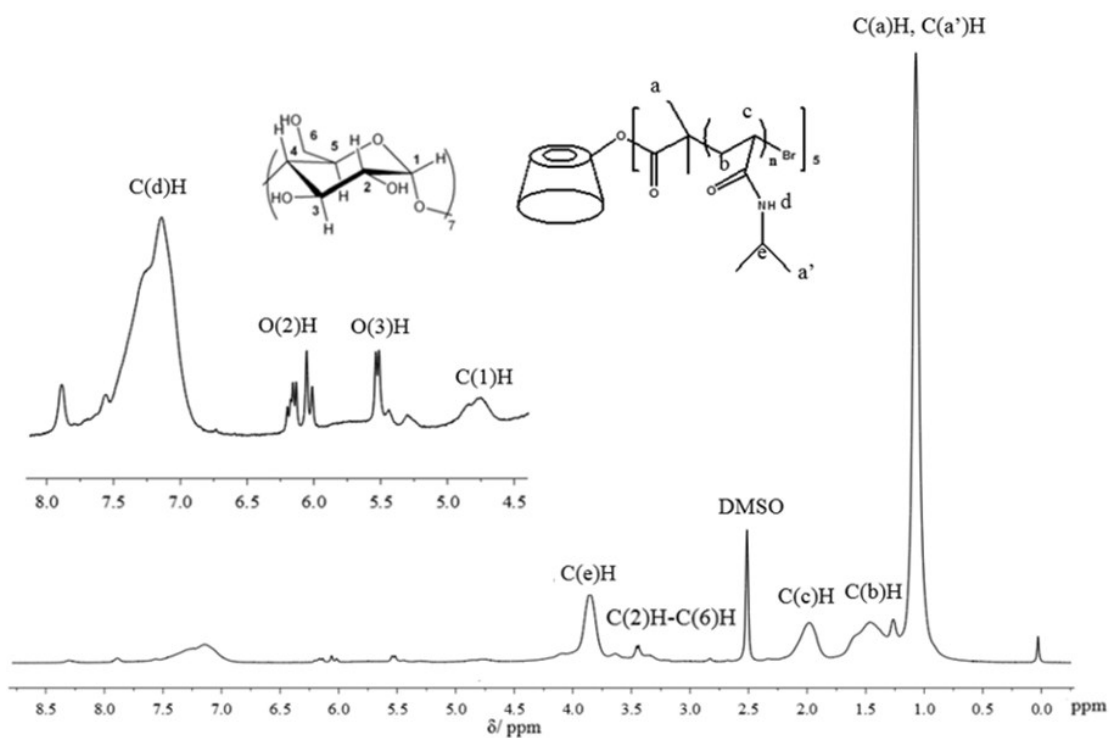


Fig. S6. ^1H NMR spectrum (400MHz, DMSO- d_6 , room temperature) of product 3.

Table S2. Characterization of the Main Chains

Sample	$M_{n, \text{NMR}}$	$M_{n, \text{GPC}}$	$M_{w, \text{GPC}}$	PDI (M_w/M_n)
β -CD-(PNIPAAm) ₅	8780	6900	7800	1.13

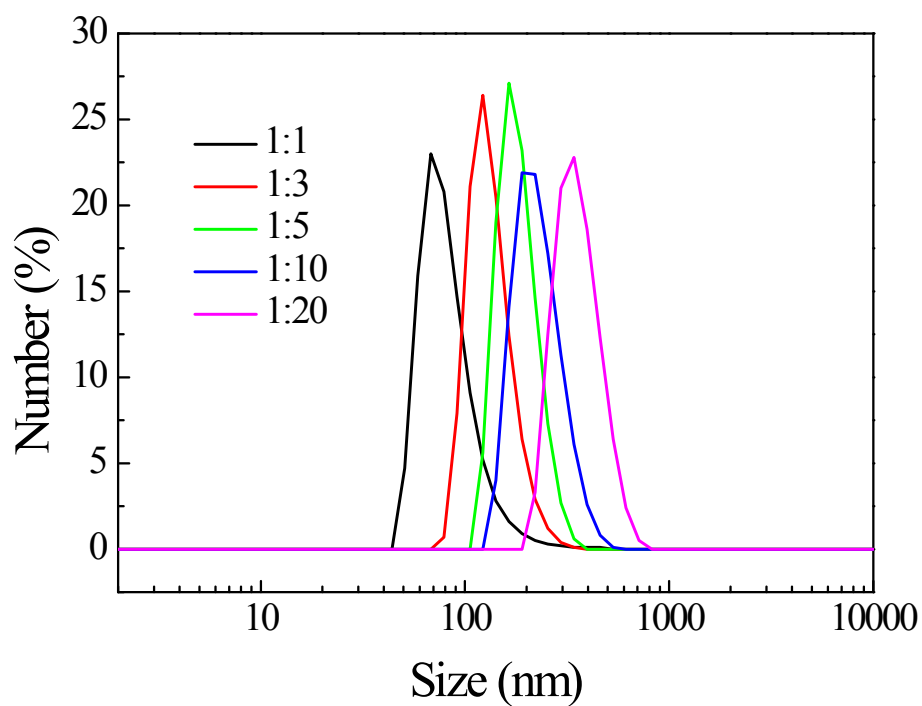


Fig. S7. DLS measurements of supramolecular polymer brushes self-assembled in water.

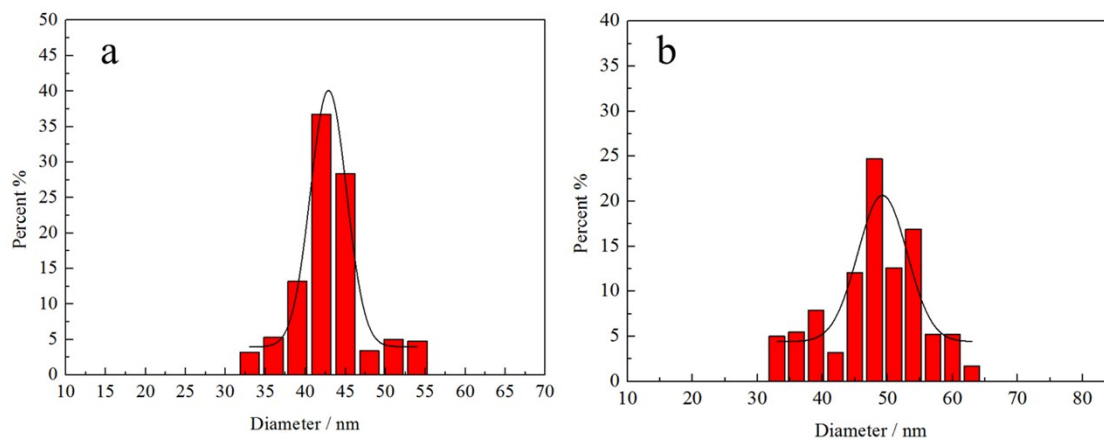


Fig. S8. Size distribution histogram of micelles through the method of statistical analysis. a. **PB2**; b. **PB3**.

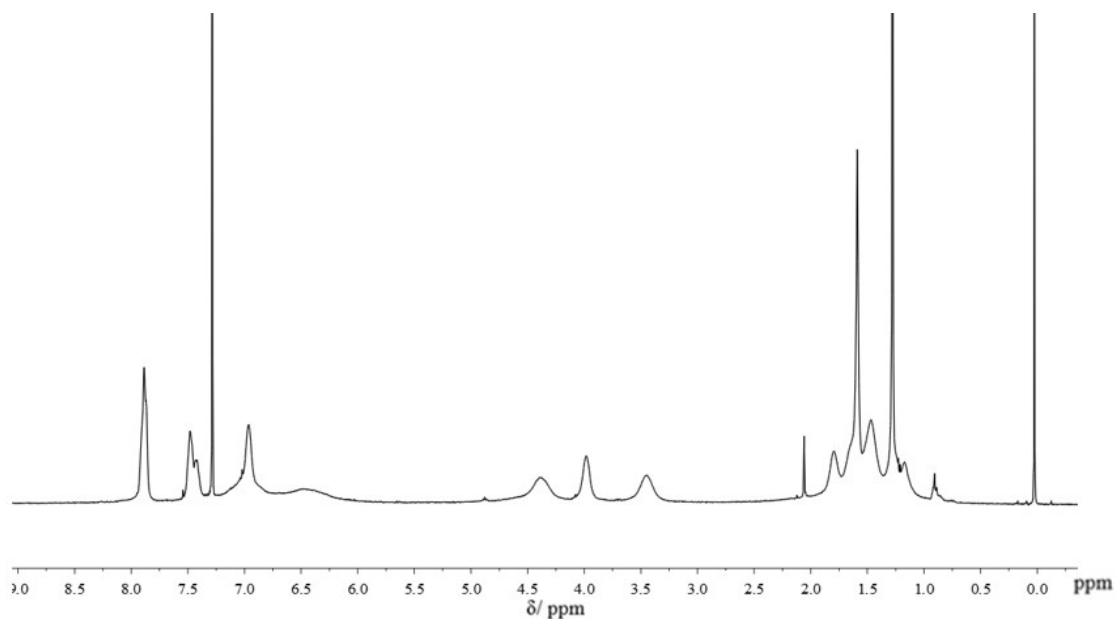


Fig. S9. ¹H NMR spectrum (400MHz, CDCl₃, room temperature) of the precipitates.

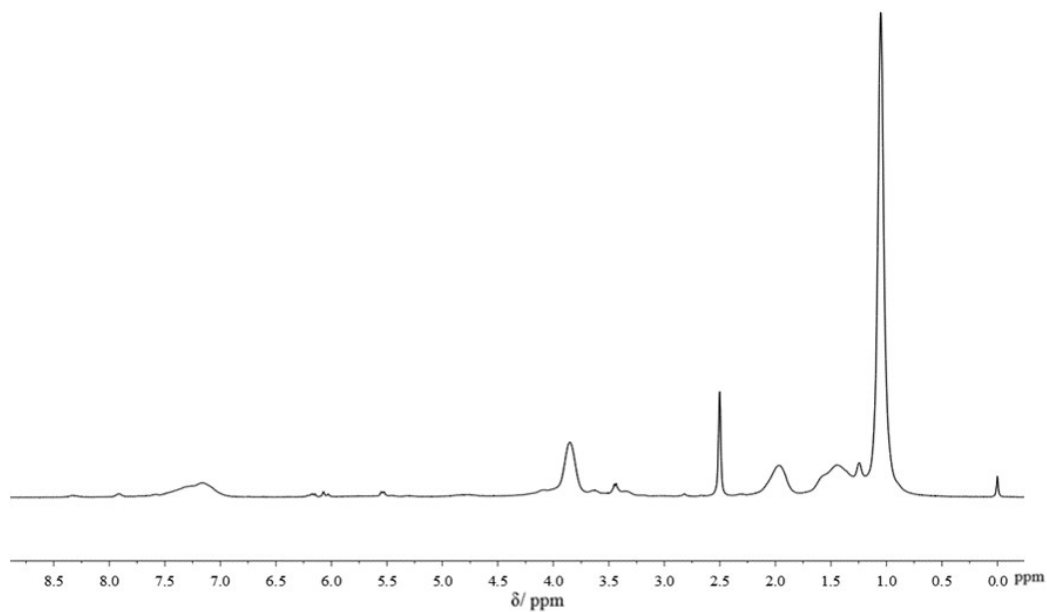


Fig. S10. ¹H NMR spectrum (400MHz, DMSO-d₆, room temperature) of the residual polymers in the transparent solution.

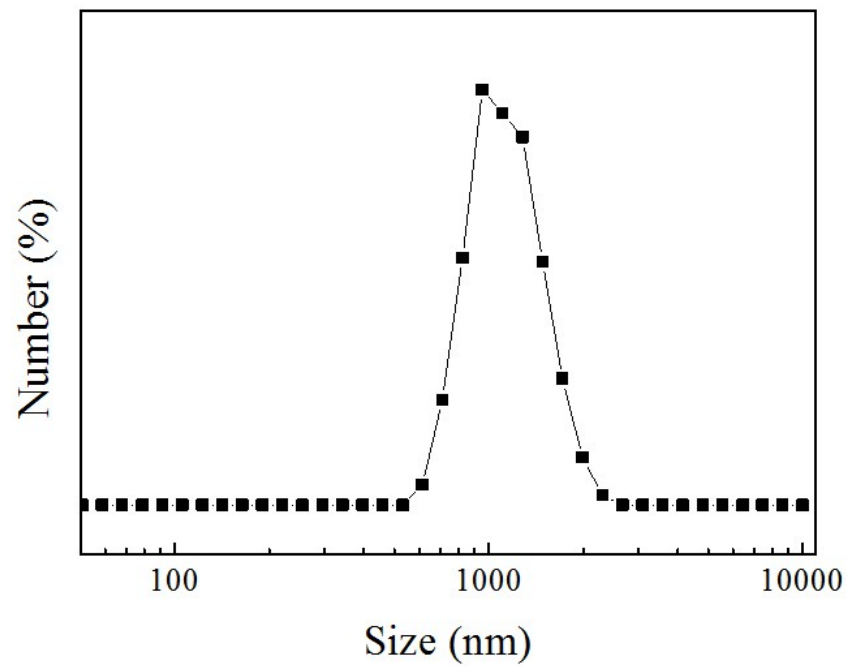


Fig. S11. DLS measurement of **PB5** self-assembled in water after heating at 50°C for 10 min.