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Electronic Supporting Information for:

AIE-Active Miktoarm Star Polymer Nanoassemblies: Structure-Dependent Self-assembly and Photoluminescence Behavior

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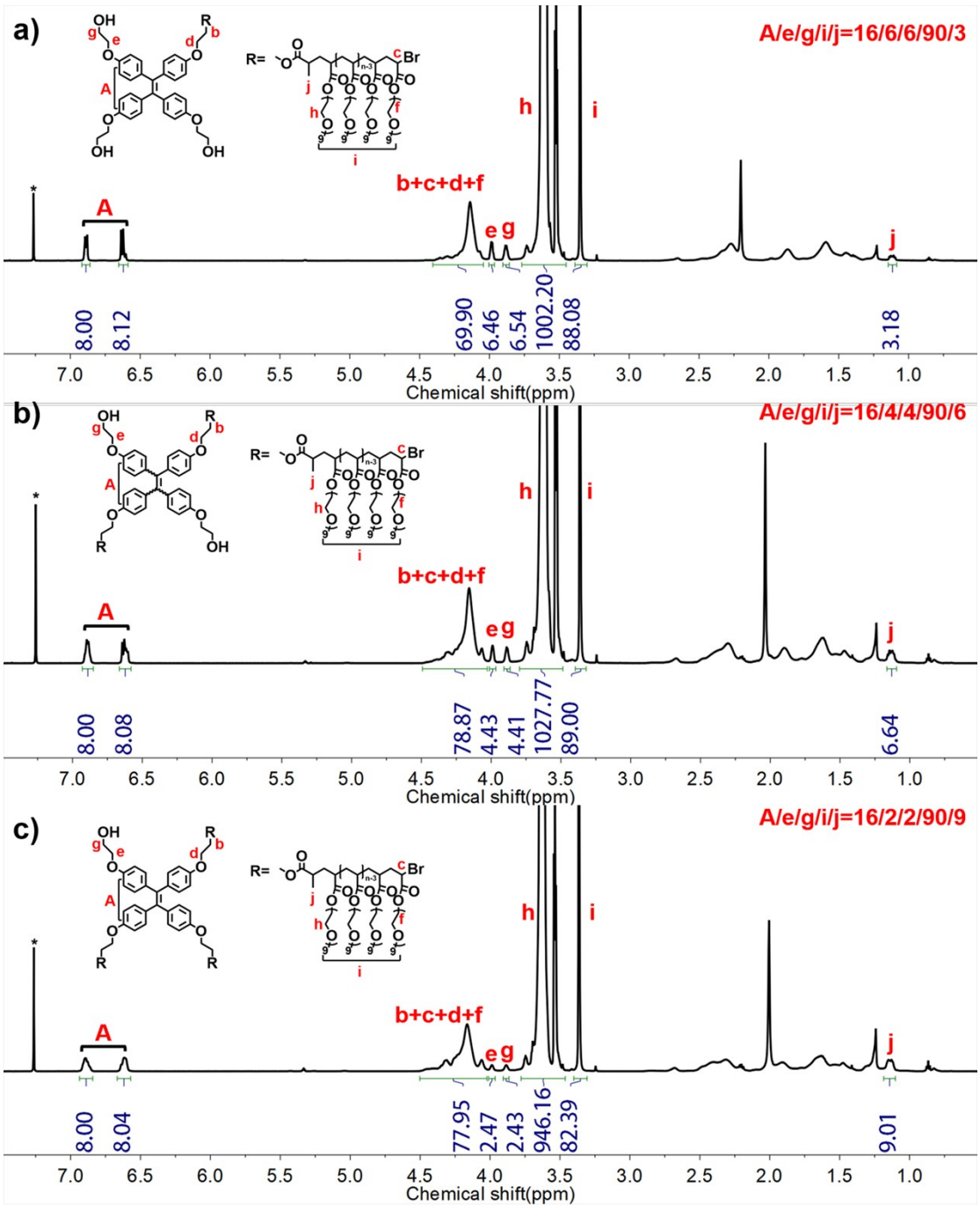

Fig. S1 ^{1}H NMR spectra of (a) TPE-POEGA$_{29}$-3OH, (b) TPE-(POEGA$_{15}$)$_2$-2OH, and (c) TPE-(POEGA$_9$)$_3$-1OH in $CDCl_3$. ^{1}H NMR resonances from residual solvent in $CDCl_3$ are indicated by an asterisk (*). The ratios on the top right are theoretical values obtained assuming 100% conversion of OEGA and initiation efficiency f = 1.

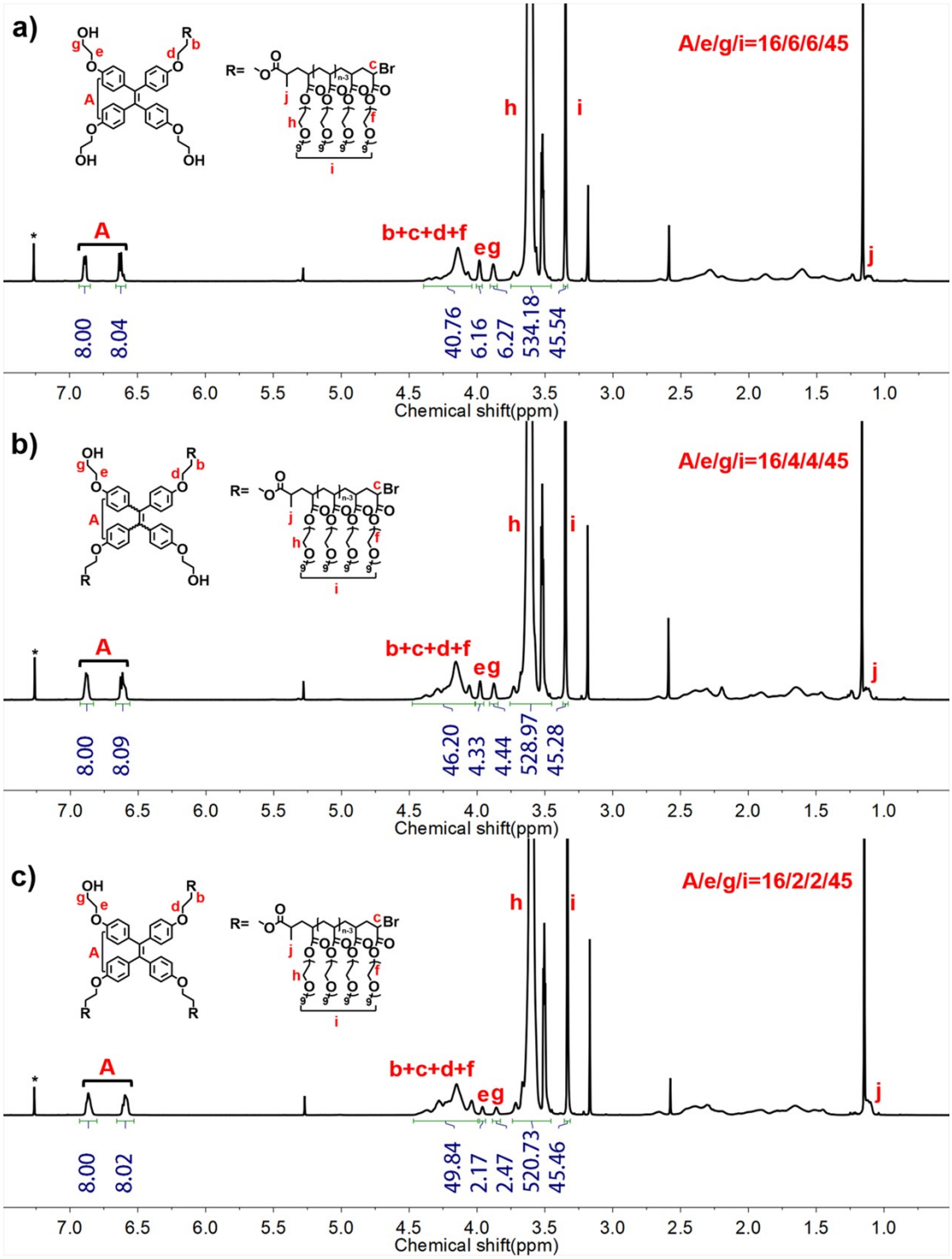

Fig. S2 ^{1}H NMR spectra of (a) TPE-POEGA$_{15}$-3OH, (b) TPE-(POEGA$_{7.5}$)$_2$-2OH, and (c) TPE-(POEGA$_5$)$_3$-1OH in $CDCl_3$. ^{1}H NMR resonances from residual solvent in $CDCl_3$ are indicated by an asterisk (*). The ratios on the top right are theoretical values obtained assuming 100% conversion of OEGA and initiation efficiency f = 1.

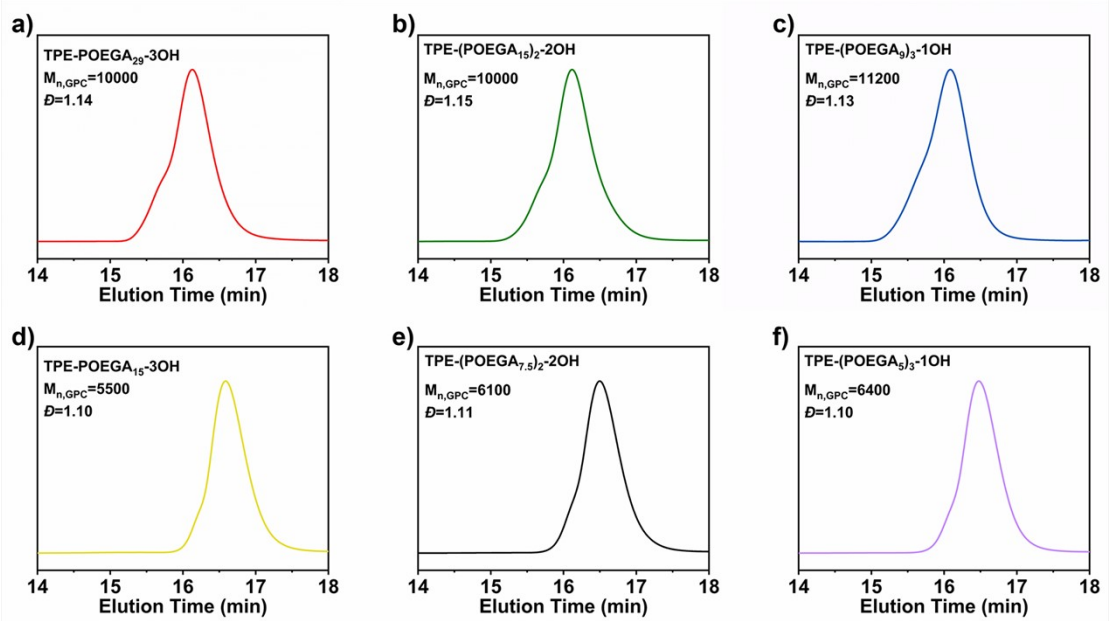

Fig. S3 GPC traces of (a) TPE-POEGA$_{29}$-3OH, (b) TPE-(POEGA$_{15}$)$_2$-2OH, (c) TPE-(POEGA$_9$)$_3$-1OH, (d) TPE-POEGA$_{15}$-3OH, (e) TPE-(POEGA$_{7.5}$)$_2$-2OH, and (f) TPE-(POEGA$_5$)$_3$-1OH.

Table S1 Characterization results of TPE-(POEGA)$_n$-(4-n)CDPA (n = 1–3)

	DP[a]	$M_{n,NMR}$ (g/mol)[b]	$M_{n,GPC}$ (g/mol)[c]	*Đ*
TPE-POEGA$_{29}$-3CDPA	29	15800	13700	1.14
TPE-(POEGA$_{15}$)$_2$-2CDPA	30	16000	12900	1.15
TPE-(POEGA$_9$)$_3$-1CDPA	27	14300	12900	1.15
TPE-POEGA$_{15}$-3CDPA	15	9070	5900	1.10
TPE-(POEGA$_{7.5}$)$_2$-2CDPA	15	8810	6000	1.10
TPE-(POEGA$_5$)$_3$-1CDPA	15	8570	6200	1.10

[a] Theoretical DP of POEGA; [b] M_n calculated by ^{1}H NMR; [c] M_n measured by GPC. Polymerization conditions: [TPE-(POEGA)$_n$-(4-n)OH]/[CDPA]/[DCC]/[DMAP] = 1/3/3/0.3, 40 °C, 48 h.

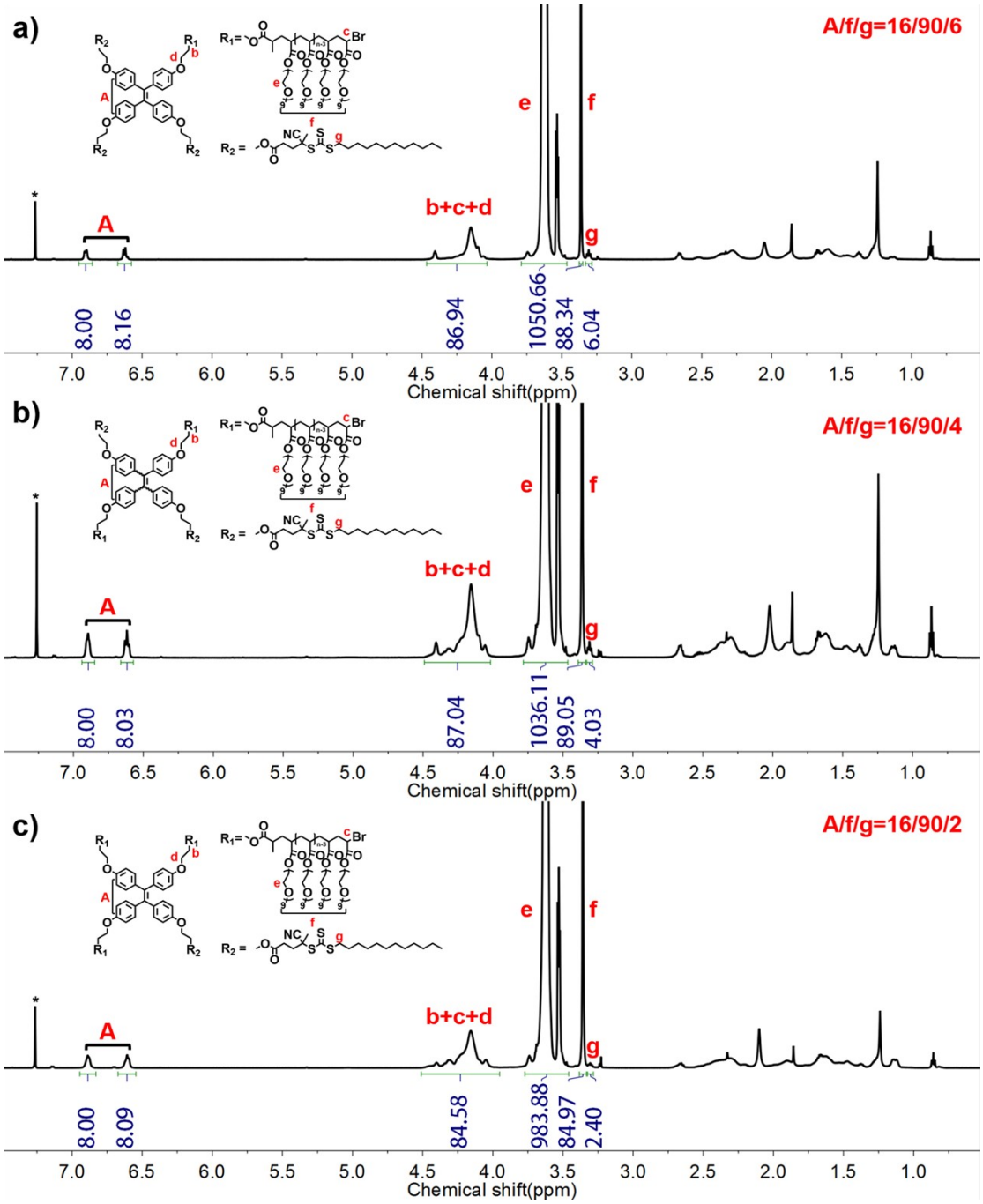

Fig. S4 ^{1}H NMR spectra of (a) TPE-POEGA$_{29}$-3CDPA, (b) TPE-(POEGA$_{15}$)$_2$-2CDPA, and (c) TPE-(POEGA$_9$)$_3$-1CDPA in $CDCl_3$. ^{1}H NMR resonances from residual solvent in $CDCl_3$ are indicated by an asterisk (*).

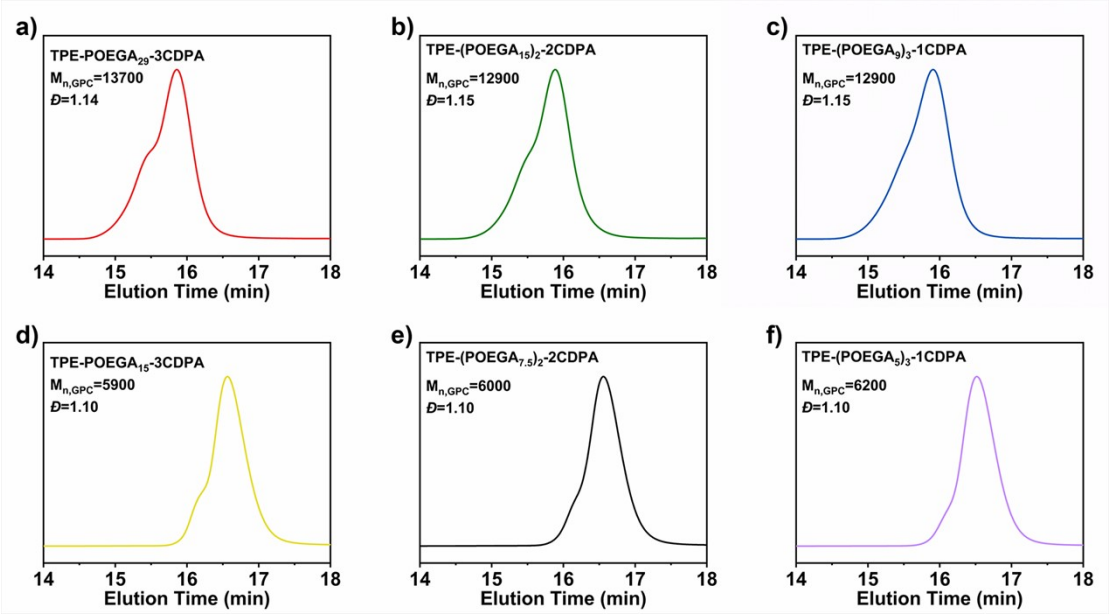

Fig. S5 GPC traces of (a) TPE-$POEGA_{29}$-3CDPA, (b) TPE-$(POEGA_{15})_2$-2CDPA, (c) TPE-$(POEGA_9)_3$-1CDPA, (d) TPE-$POEGA_{15}$-3CDPA, (e) TPE-$(POEGA_{7.5})_2$-2CDPA, and (f) TPE-$(POEGA_5)_3$-1CDPA.

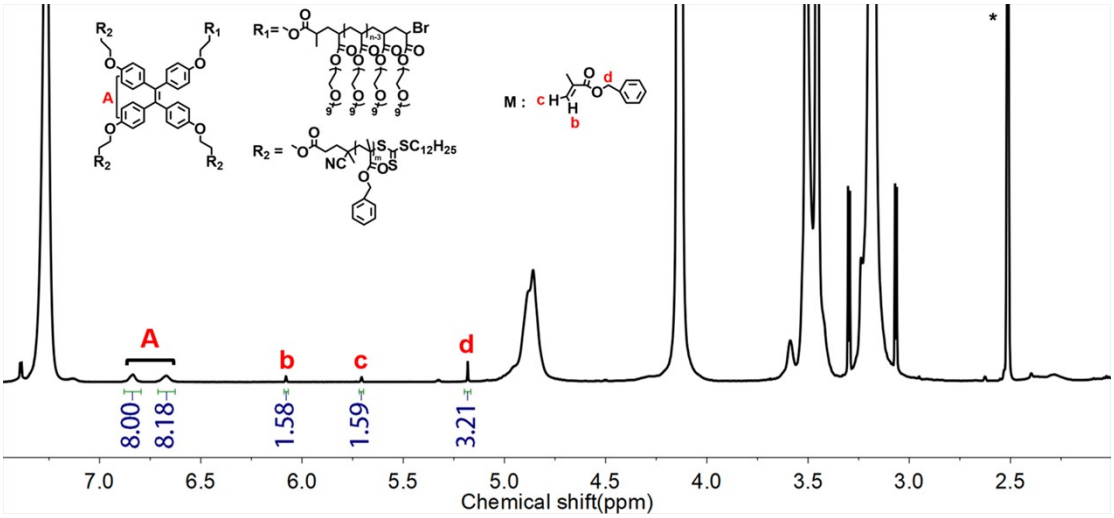

Fig. S6 ^{1}H NMR spectra for TPE-POEGA$_{15}$-3CDPA mediated RAFT dispersion polymerization of BzMA. ^{1}H NMR resonances from residual solvent in DMSO-d_6 are indicated by an asterisk (*).

$$Conversion\% = \frac{DP_{design} - S_b}{DP_{design}}$$

Equation S1. Calculation of conversion by ^{1}H NMR.

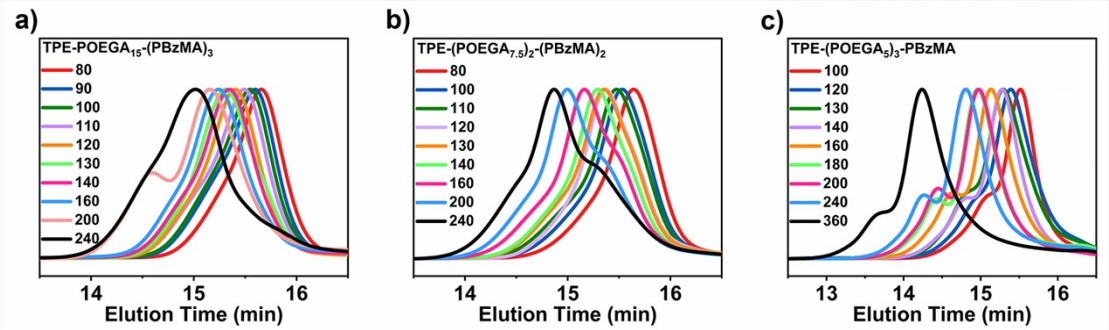

Fig. S7 GPC traces of TPE-$(POEGA)_n$-$(PBzMA)_{4-n}$.

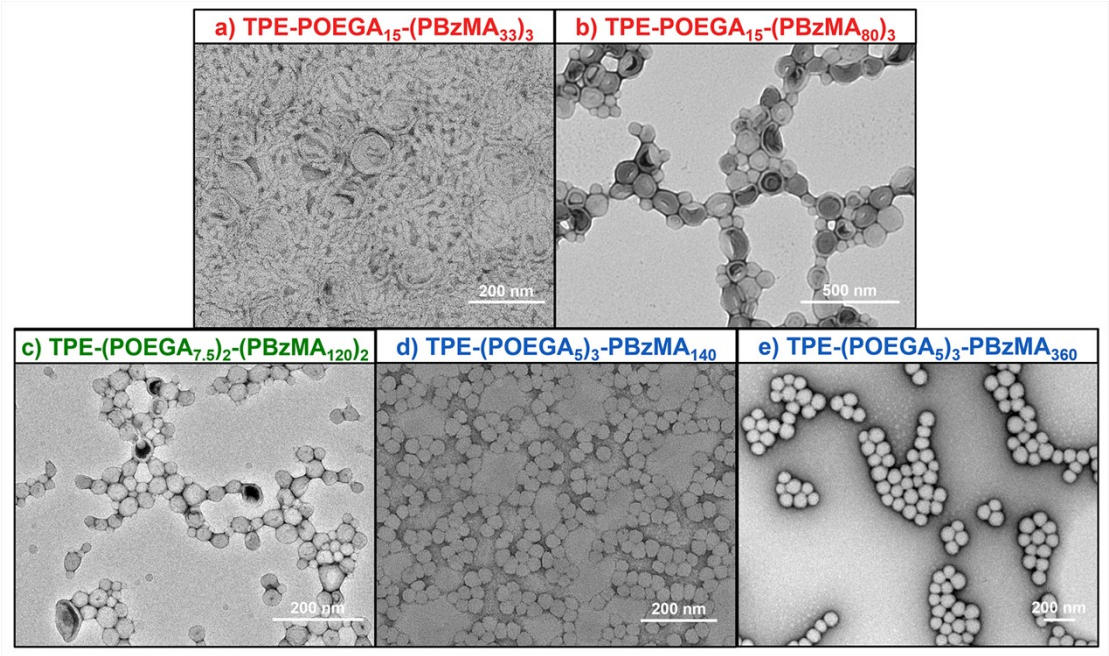

Fig. S8 TEM micrographs of (a, b) TPE-POEGA$_{15}$-(PBzMA)$_3$, (c) TPE-(POEGA$_{7.5}$)$_2$-(PBzMA)$_2$, and (d, e) TPE-(POEGA$_5$)$_3$-PBzMA nanoassemblies with different DP of PBzMA.

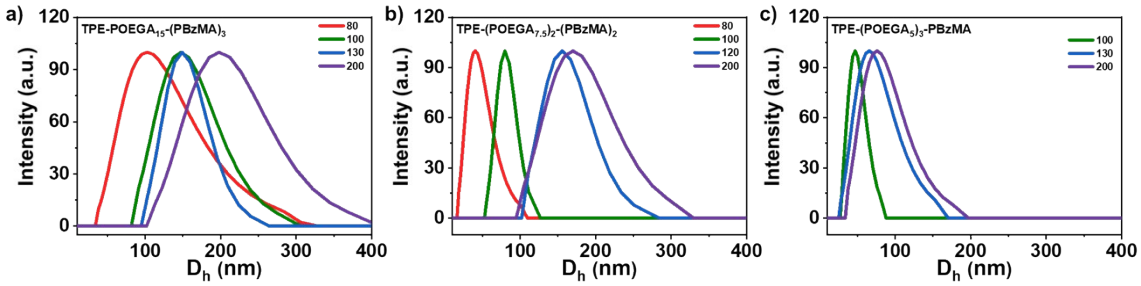

Fig. S9 Representative DLS traces of (a) TPE-POEGA$_{15}$-(PBzMA)$_3$, (b) TPE-(POEGA$_{7.5}$)$_2$-(PBzMA)$_2$, and (c) TPE-(POEGA$_5$)$_3$-PBzMA nanoassemblies with different DP$_{PBzMA}$.

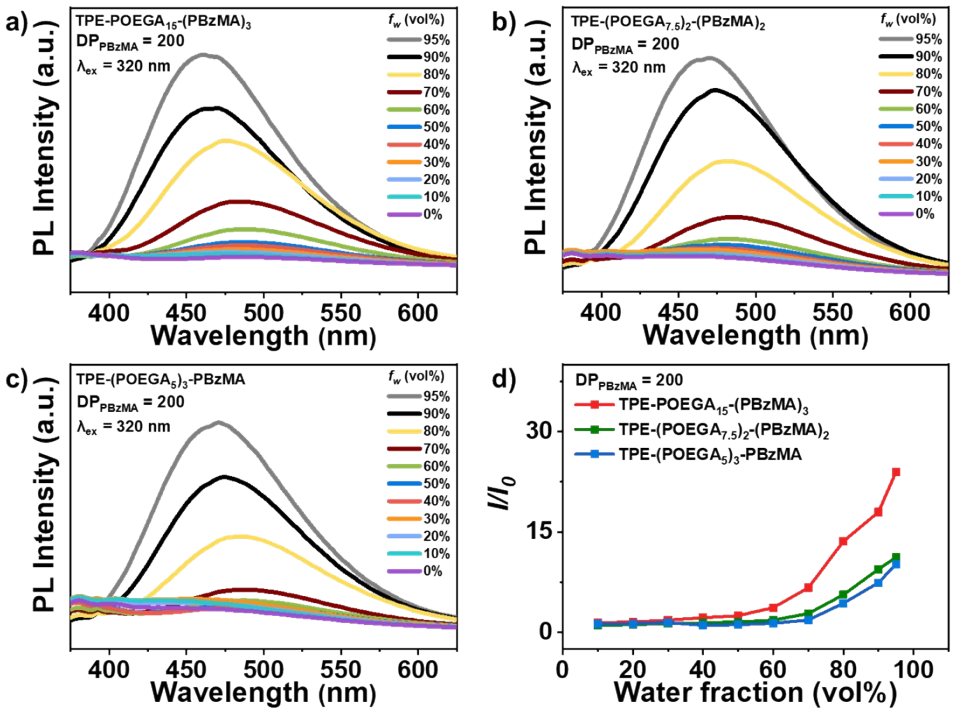

Fig. S10 Fluorescence spectra of (a) TPE-POEGA$_{15}$-(PBzMA$_{66}$)$_3$, (b) TPE-(POEGA$_{7.5}$)$_2$-(PBzMA$_{100}$)$_2$, and (c) TPE-(POEGA$_5$)$_3$-PBzMA$_{200}$ in THF/H_2O mixture with different volume fraction of H_2O. (d) Plots of I/I_0 *versus* the volume fraction of water (f_w). [TPE] = 20 μM; excitation wavelength = 320 nm; I_0: PL intensity of the polymer in pure THF.

Scheme S1 Schematic illustration of the three stereoisomers of TPE-$(POEGA_{7.5})_2$-$(PBzMA)_2$.