Electronic Supplementary Material (ESI) for Polymer Chemistry.

SUPPORTING INFORMATION

Aggregation-Induced Emission Polymer Nanoparticles with pH-Responsive Fluorescence

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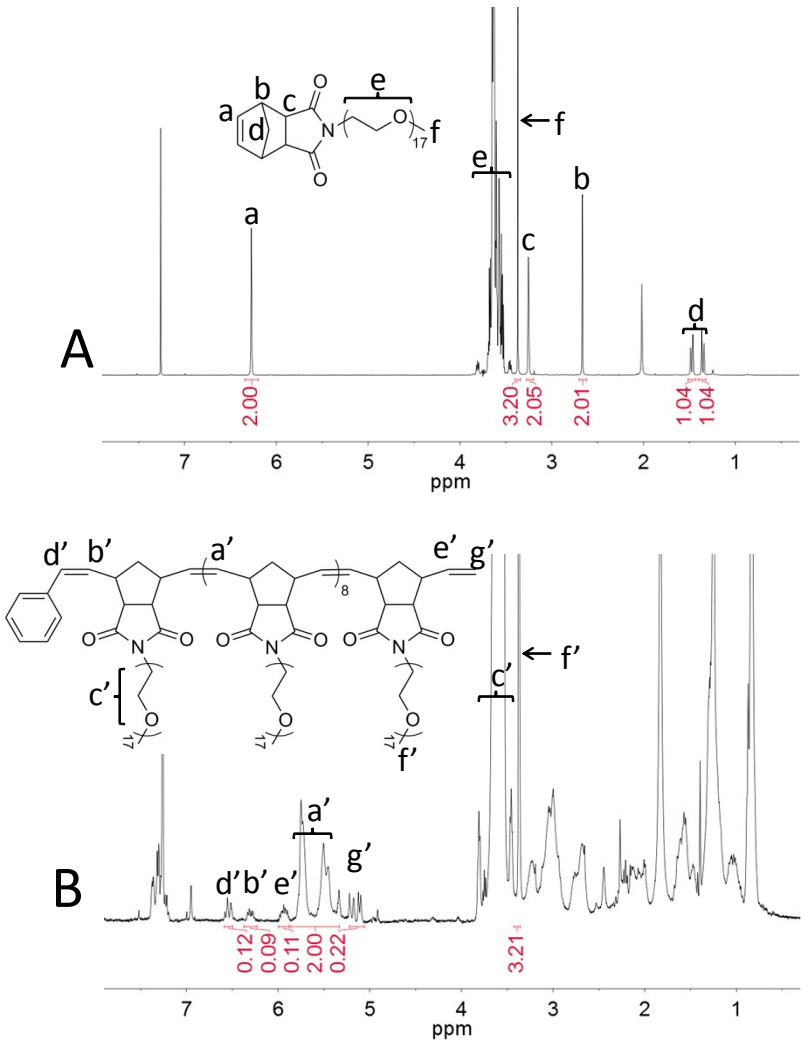

Figure S1. ^{1}H-NMR spectra of **M1** (A) and the corresponding raw poly(**M1**)$_{10}$ polymerization solution (B) in $CDCl_3$.

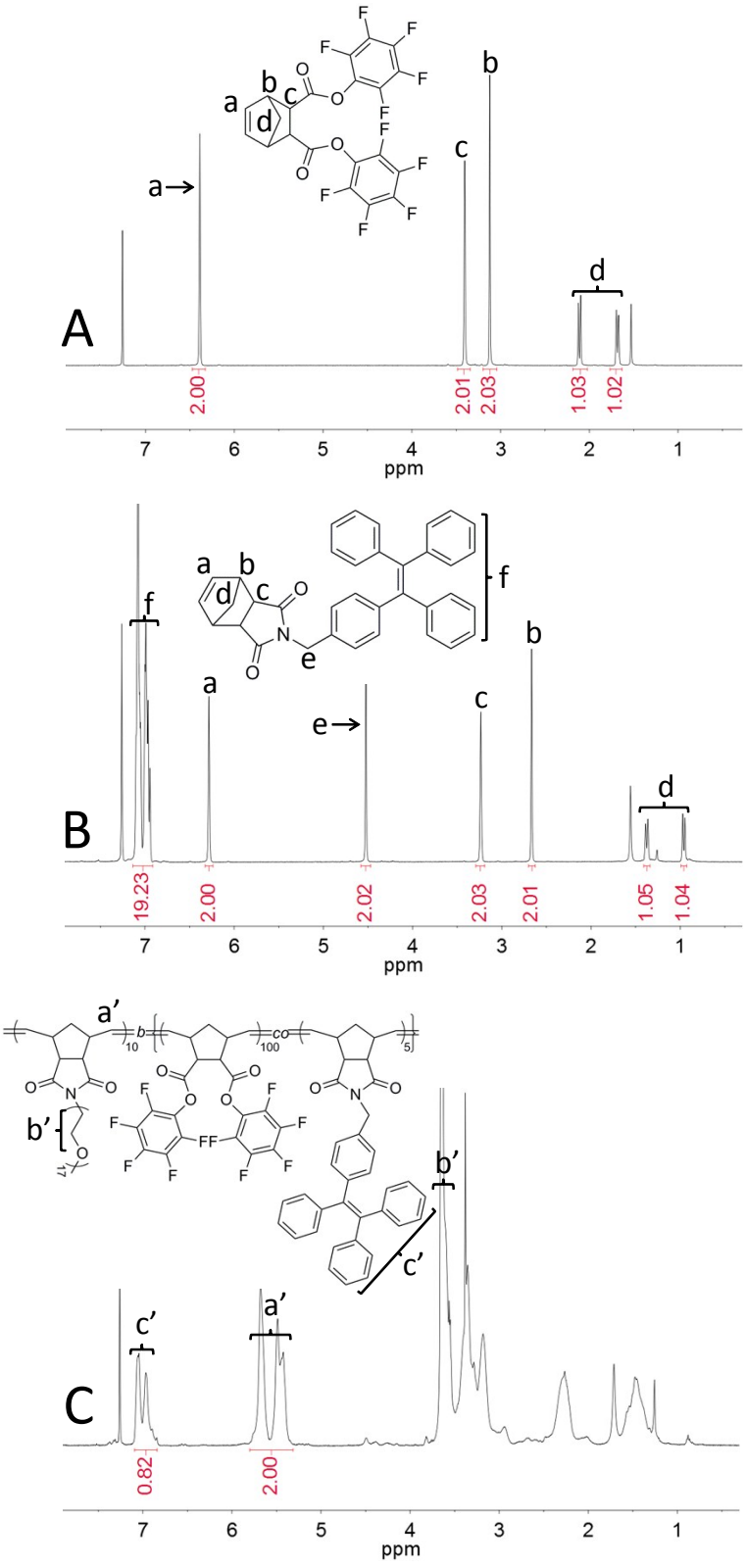

Figure S2. ^{1}H-NMR spectra of **M2** (A), **M3** (B), and the corresponding raw poly(**M1**)$_{10}$-*b*-poly(**M2**$_{100}$-*co*-**M3**$_{5}$) polymerization solution (C) in $CDCl_3$.

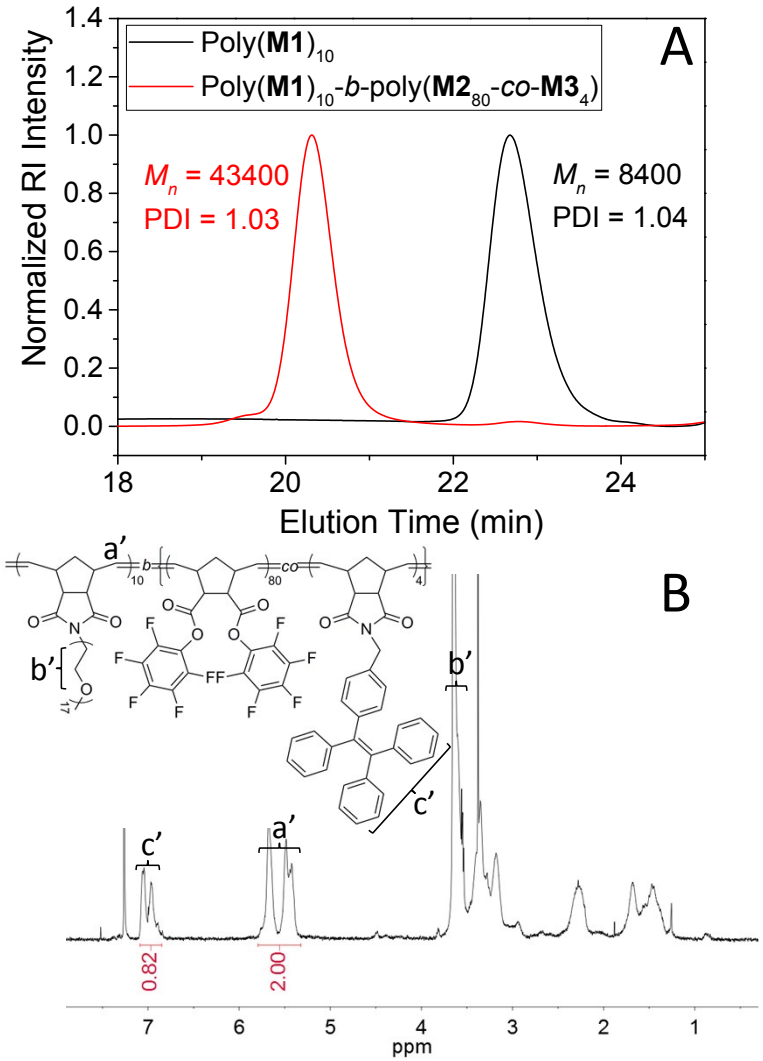

Figure S3. (A) GPC curves of poly(**M1**)$_{10}$ (black) and poly(**M1**)$_{10}$-*b*-poly(**M2**$_{80}$-*co*-**M3**$_4$) (red), in which THF was used as the eluent and PS standards were used for the calibration. (B) ^{1}H-NMR spectra of poly(**M1**)$_{10}$-*b*-poly(**M2**$_{80}$-*co*-**M3**$_4$) in $CDCl_3$.

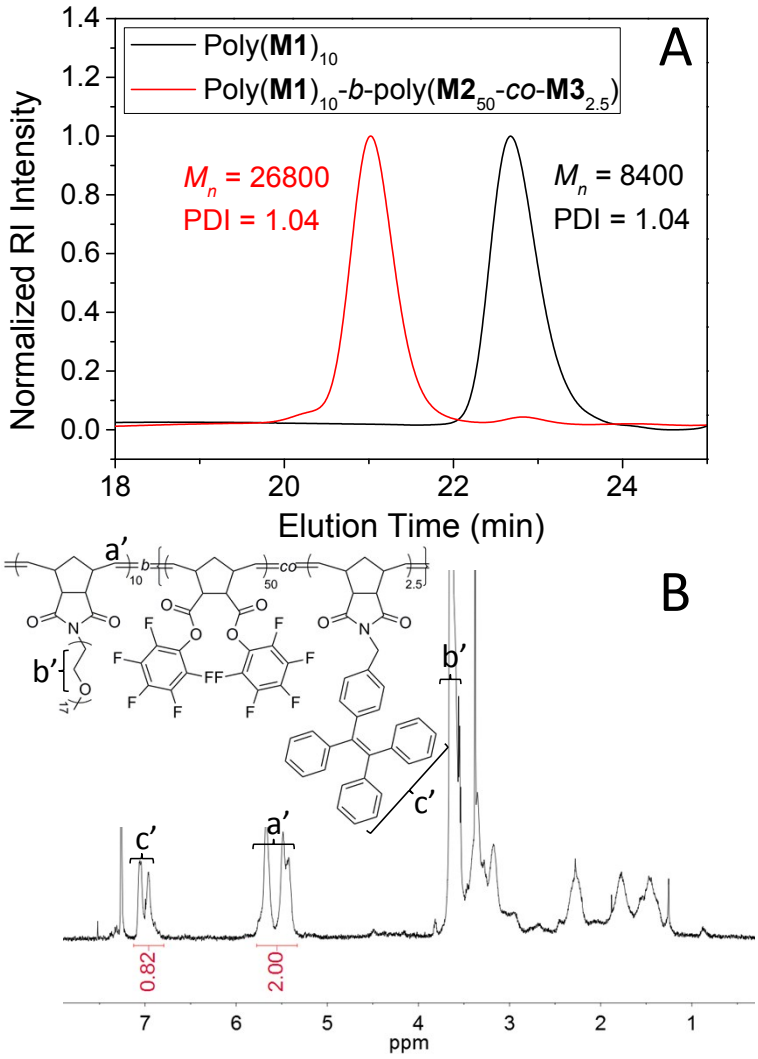

Figure S4. (A) GPC curves of poly(**M1**)$_{10}$ (black) and poly(**M1**)$_{10}$-*b*-poly(**M2**$_{50}$-*co*-**M3**$_{2.5}$) (red), in which THF was used as the eluent and PS standards were used for the calibration. (B) ^{1}H-NMR spectra of poly(**M1**)$_{10}$-*b*-poly(**M2**$_{50}$-*co*-**M3**$_{2.5}$) in $CDCl_3$.

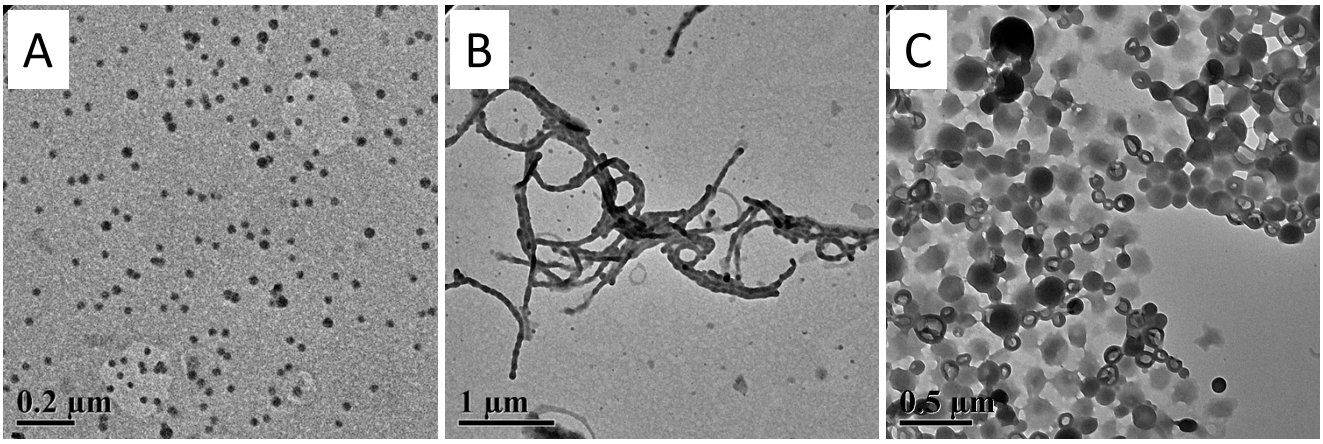

Figure S5. TEM images of crosslinked PNPs from poly(**M1**)$_{10}$-*b*-poly(**M2**$_{50}$-*co*-**M3**$_{2.5}$) (A), poly(**M1**)$_{10}$-*b*-poly(**M2**$_{80}$-*co*-**M3**$_4$) (B), and poly(**M1**)$_{10}$-*b*-poly(**M2**$_{100}$-*co*-**M3**$_5$) (C) dispersed in THF/H_2O (v/v = 85/15).

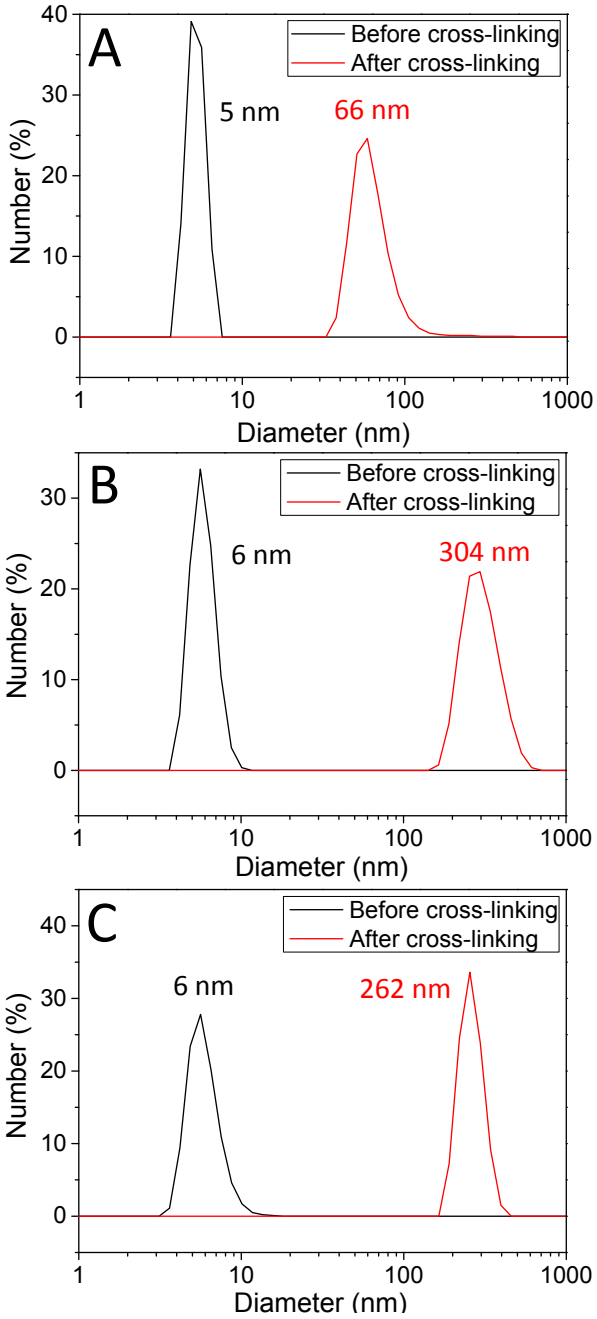

Figure S6. DLS characterization of the PNPs in THF before (black) and after (red) cross-linking from poly(**M1**)$_{10}$-*b*-poly(**M2**$_{50}$-*co*-**M3**$_{2.5}$) (A), poly(**M1**)$_{10}$-*b*-poly(**M2**$_{80}$-*co*-**M3**$_{4}$) (B), and poly(**M1**)$_{10}$-*b*-poly(**M2**$_{100}$-*co*-**M3**$_{5}$) (C).

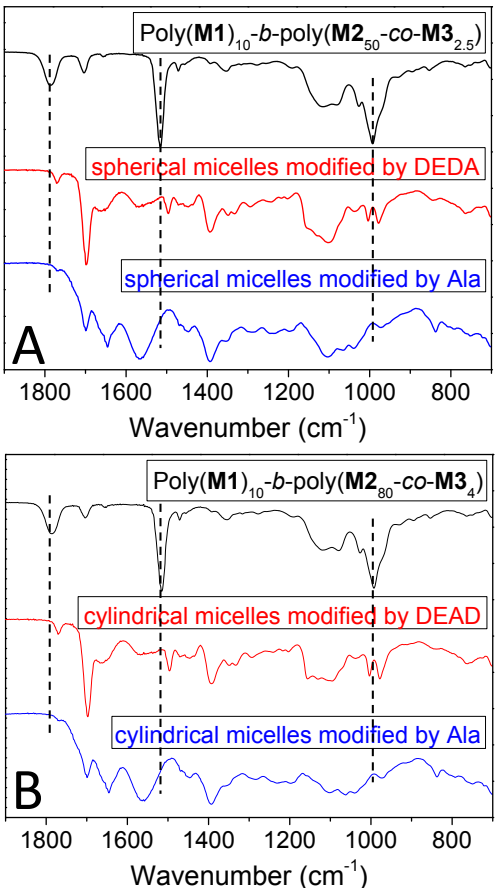

Figure S7. (A) FT-IR spectra of poly(**M1**)$_{10}$-*b*-poly(**M2**$_{50}$-*co*-**M3**$_{2.5}$) (black) and the resultant spherical micelles post-functionalized by DEDA (red) and Ala (blue). (B) FT-IR spectra of poly(**M1**)$_{10}$-*b*-poly(**M2**$_{80}$-*co*-**M3**$_{4}$) (black) and the resultant cylindrical micelles post-functionalized by DEDA (red) and Ala (blue).

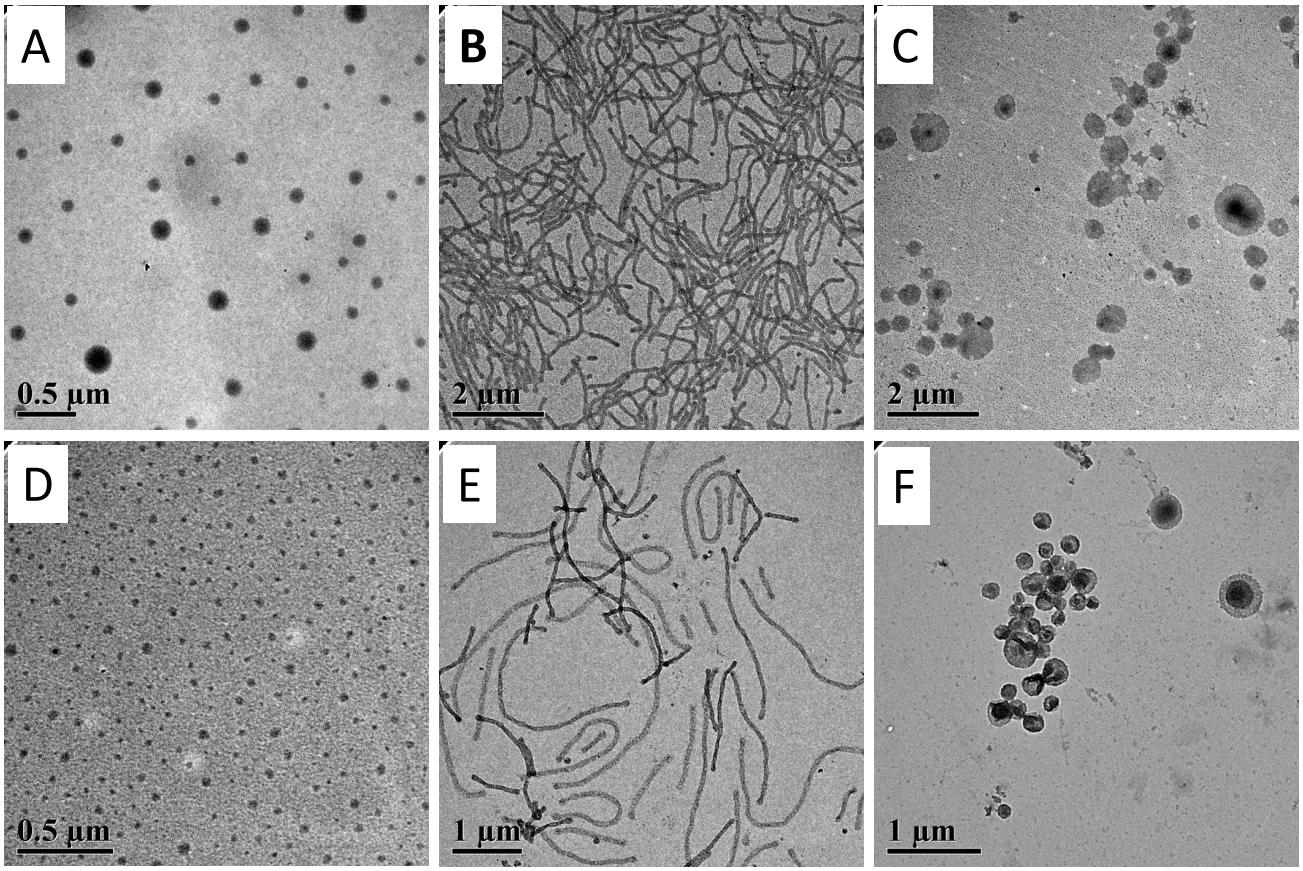

Figure S8. TEM images of post-functionalized PNPs stored in water after two months: DEDA post-functionalized PNPs from poly(**M1**)$_{10}$-*b*-poly(**M2**$_{50}$-*co*-**M3**$_{2.5}$) (A), poly(**M1**)$_{10}$-*b*-poly(**M2**$_{80}$-*co*-**M3**$_4$) (B), and poly(**M1**)$_{10}$-*b*-poly(**M2**$_{100}$-*co*-**M3**$_5$) (C); Ala post-functionalized PNPs from poly(**M1**)$_{10}$-*b*-poly(**M2**$_{50}$-*co*-**M3**$_{2.5}$) (D), poly(**M1**)$_{10}$-*b*-poly(**M2**$_{80}$-*co*-**M3**$_4$) (E), and poly(**M1**)$_{10}$-*b*-poly(**M2**$_{100}$-*co*-**M3**$_5$) (F).

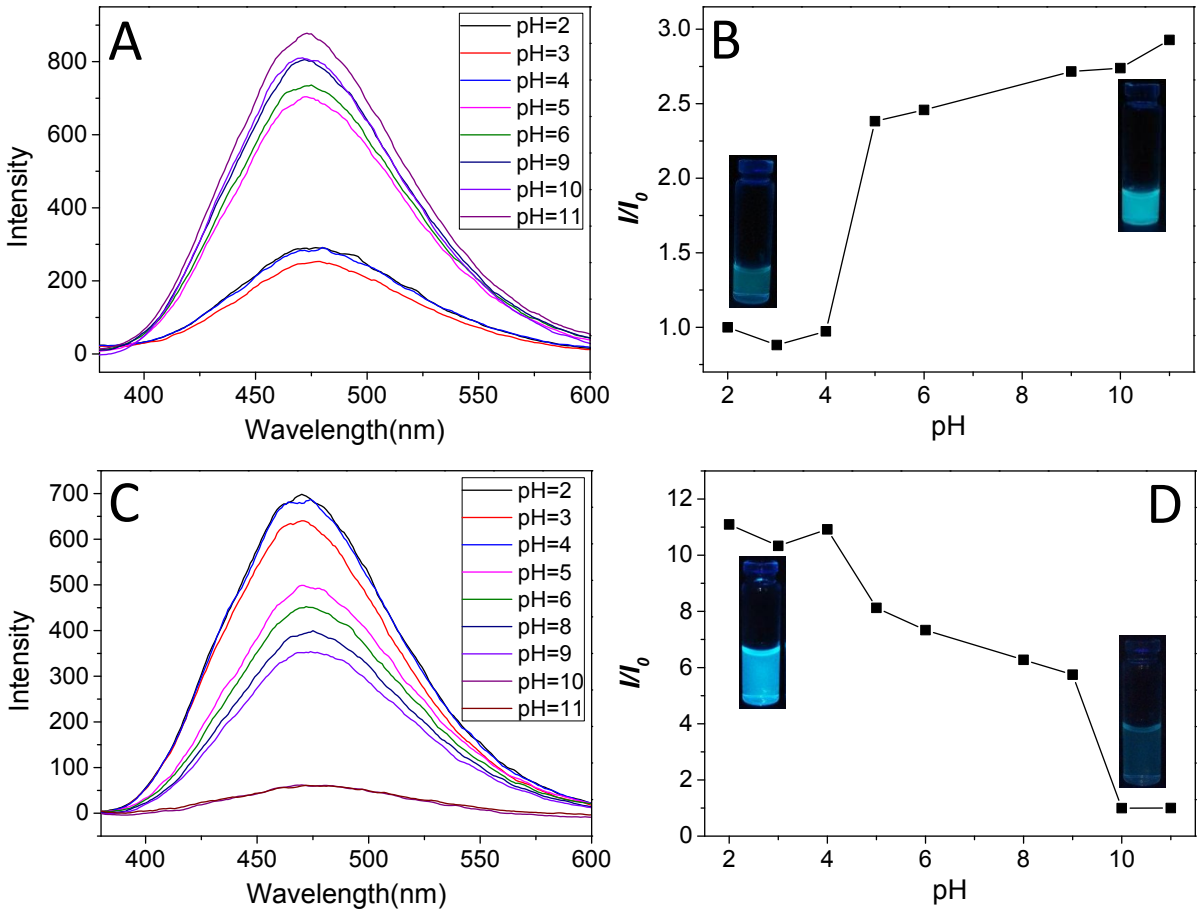

Figure S9. Fluorescence spectra of DEDA post-functionalized spherical micelles from poly(**M1**)$_{10}$-*b*-poly(**M2**$_{50}$-*co*-**M3**$_{2.5}$) in water with a concentration of 20 mg/L at varied pH from 2 to 11 (A) and the corresponding fluorescence intensity ratio (I/I_0) at the given pH values, in which the fluorescence intensity at pH = 2 was chosen as I_0 (B). Fluorescence spectra of Ala post-functionalized spherical micelles from poly(**M1**)$_{10}$-*b*-poly(**M2**$_{50}$-*co*-**M3**$_{2.5}$) in water with a concentration of 20 mg/L at varied pH from 2 to 11 (C) and the corresponding fluorescence intensity ratio (I/I_0) at the given pH values, in which the fluorescence intensity at pH = 11 was chosen as I_0 (D). The inserted pictures in (B) and (D) were taken from the UV (365 nm) irradiated vesicle aqueous solutions at pH = 2 and pH = 11.

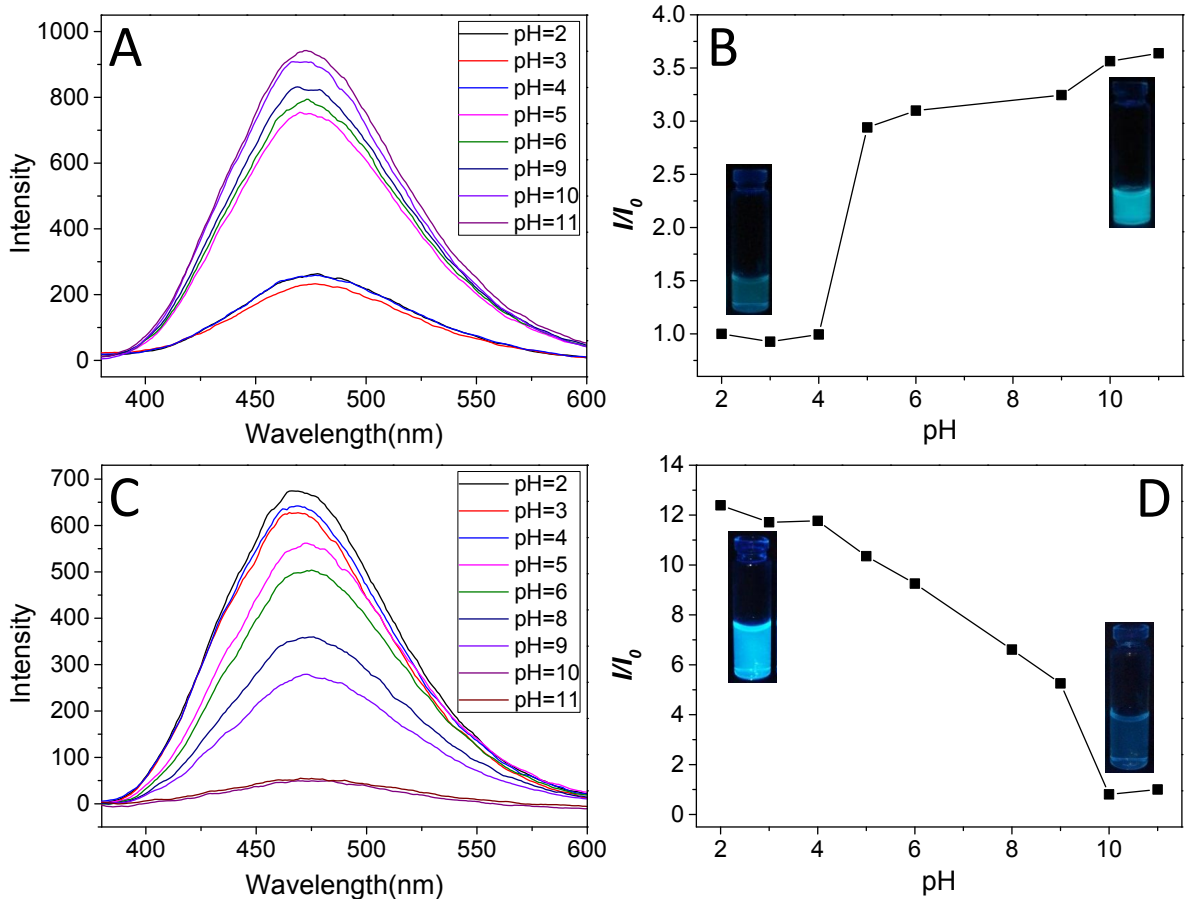

Figure S10. (A) Fluorescence spectra of DEDA post-functionalized cylindrical micelles from poly(**M1**)$_{10}$-*b*-poly(**M2**$_{80}$-*co*-**M3**$_4$) in water with a concentration of 20 mg/L at varied pH from 2 to 11 (A) and the corresponding fluorescence intensity ratio (I/I_0) at the given pH values, in which the fluorescence intensity at pH = 2 was chosen as I_0 (B). Fluorescence spectra of Ala post-functionalized cylindrical micelles from poly(**M1**)$_{10}$-*b*-poly(**M2**$_{80}$-*co*-**M3**$_4$) in water with a concentration of 20 mg/L at varied pH from 2 to 11 (C) and the corresponding fluorescence intensity ratio (I/I_0) at the given pH values, in which the fluorescence intensity at pH = 11 was chosen as I_0 (D). The inserted pictures in (B) and (D) were taken from the UV (365 nm) irradiated vesicle aqueous solutions at pH = 2 and pH = 11.

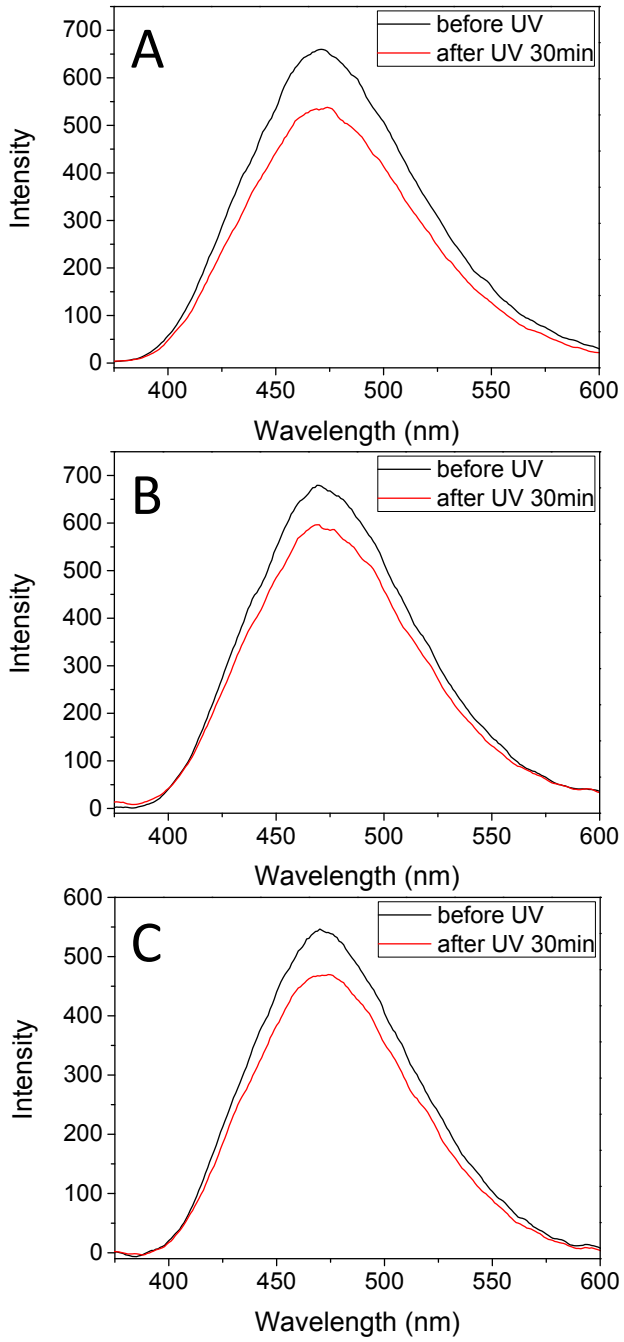

Figure S11. Fluorescence spectra of self-assemblies from poly(**M1**)$_{10}$-*b*-poly(**M2**$_{50}$-*co*-**M3**$_{2.5}$) (A), poly(**M1**)$_{10}$-*b*-poly(**M2**$_{80}$-*co*-**M3**$_4$) (B), and poly(**M1**)$_{10}$-*b*-poly(**M2**$_{100}$-*co*-**M3**$_5$) (C) in water before (black) and after (red) UV irradiation for 30 min.

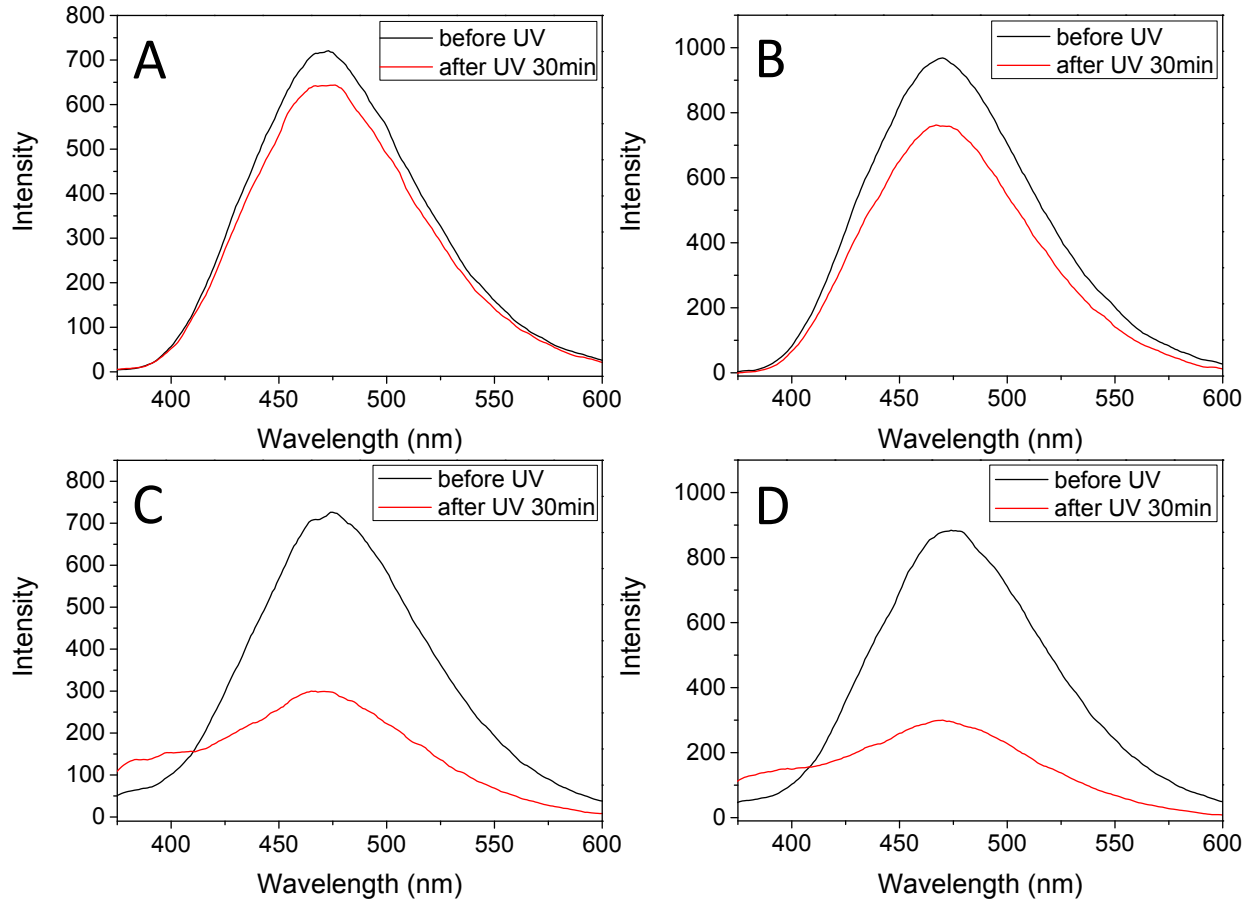

Figure S12. Fluorescence spectra of the post-functionalized vesicles from poly(**M1**)$_{10}$-*b*-poly(**M2**$_{100}$-*co*-**M3**$_5$) in water before (black) and after (red) UV irradiation for 30 min: Ala post-functionalized vesicles at pH = 7 (A) and pH = 2 (B), DEDA post-functionalized vesicles at pH = 7 (C) and pH = 11 (D).