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$_3$. 

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Figure S3. (A) GPC curves of poly(M1)_{10} (black) and poly(M1)_{10}-b-poly(M2_{80-co-M3}) (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}) in CDCl₃.
Figure S4. (A) GPC curves of poly(M1)\textsubscript{10} (black) and poly(M1)\textsubscript{10}-b-poly(M2\textsubscript{50}-co-M3\textsubscript{2.5}) (red), in which THF was used as the eluent and PS standards were used for the calibration. (B) \textsuperscript{1}H-NMR spectra of poly(M1)\textsubscript{10}-b-poly(M2\textsubscript{50}-co-M3\textsubscript{2.5}) in CDCl\textsubscript{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$_2$O (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_{3}}) (B), and poly(M1)_{10-b-poly}(M2_{100-co-M3_{3}}) (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_{3}}) (E), and poly(M1)_{10-b-poly}(M2_{100-co-M3_{3}}) (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).