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Supplementary Material

Understanding the Polymer Rearrangement of pH Responsive Nanoparticles

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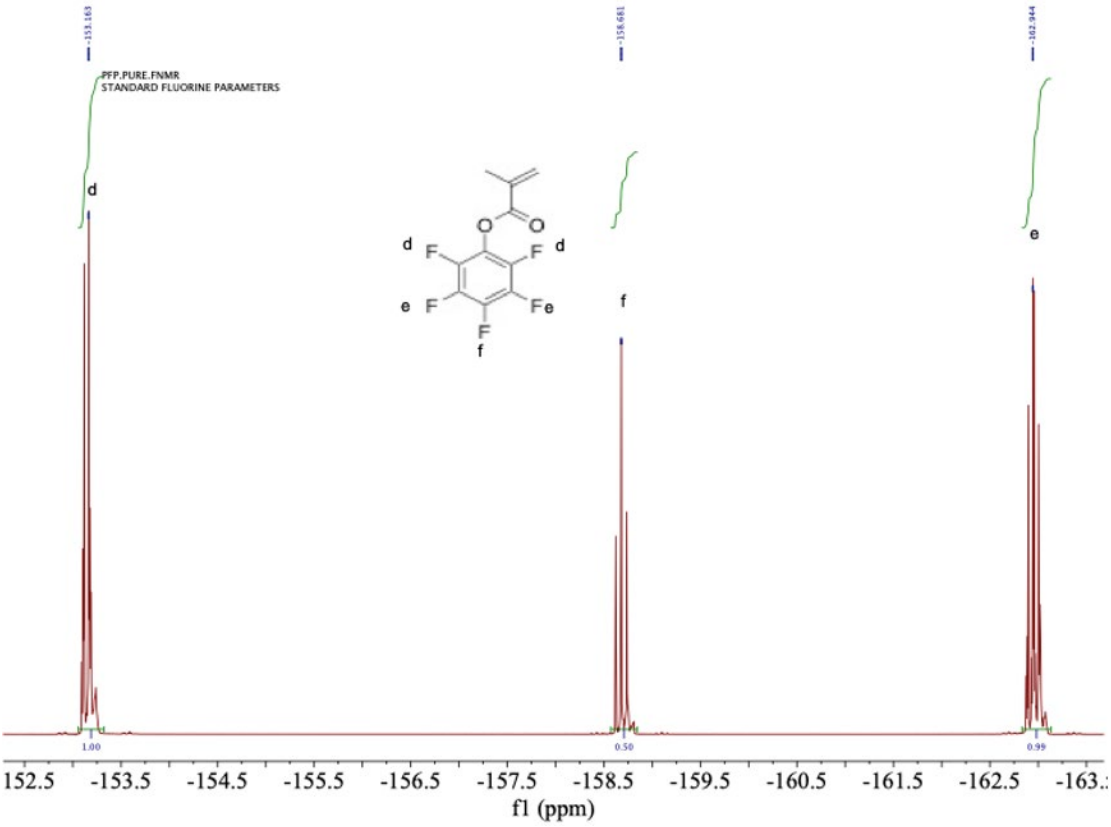

Figure S1. ^{16}F NMR of Pentafluorophenyl Methacrylate (PFPMA).

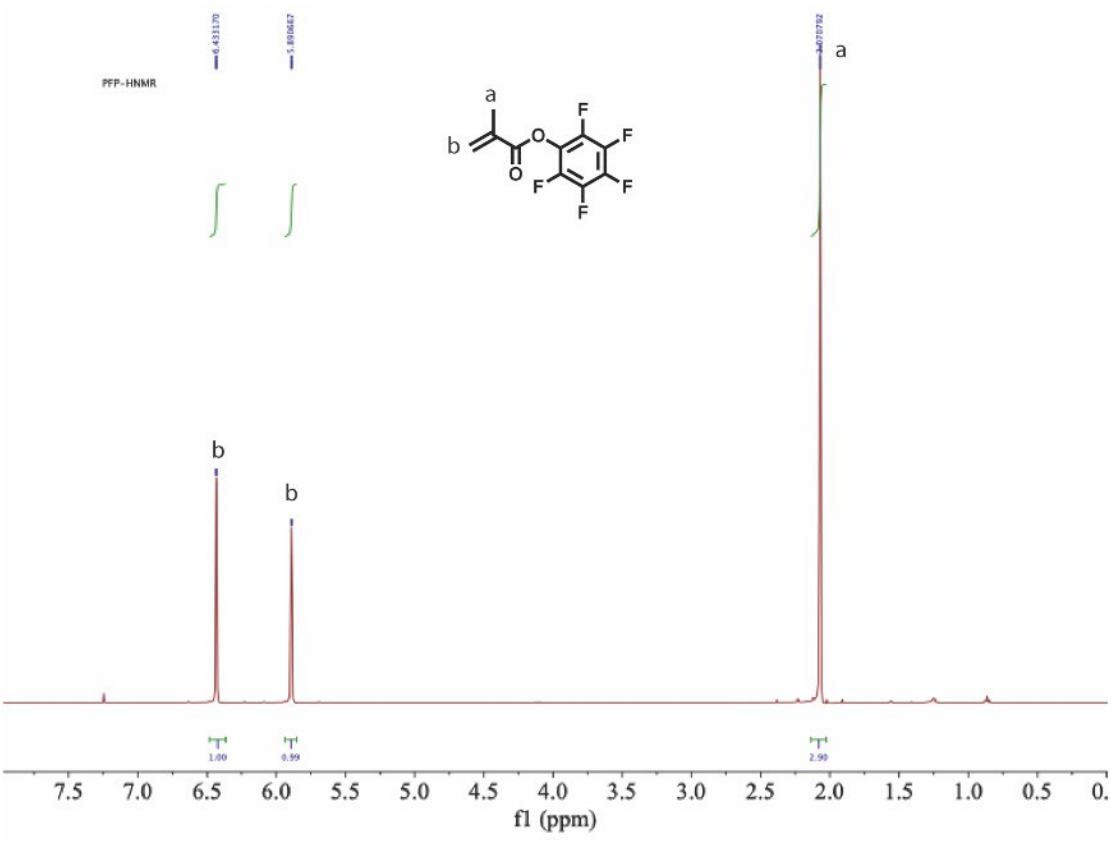

Figure S2. ^{1}H NMR of Pentafluorophenyl Methacrylate (PFPMA).

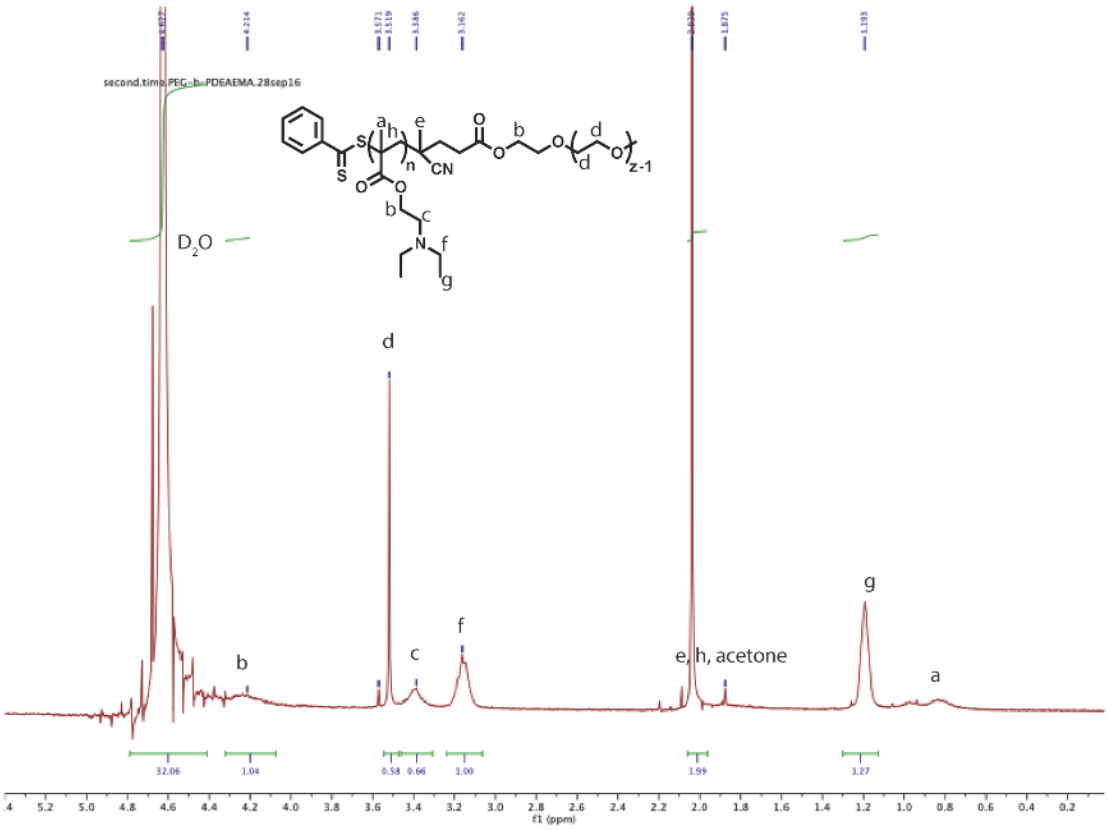

Figure S3. ^{1}H NMR of poly(ethylene glycol)-*block*-poly(2-(diethylamino)ethyl methacrylate) (PEG-*b*-PDEAEMA).

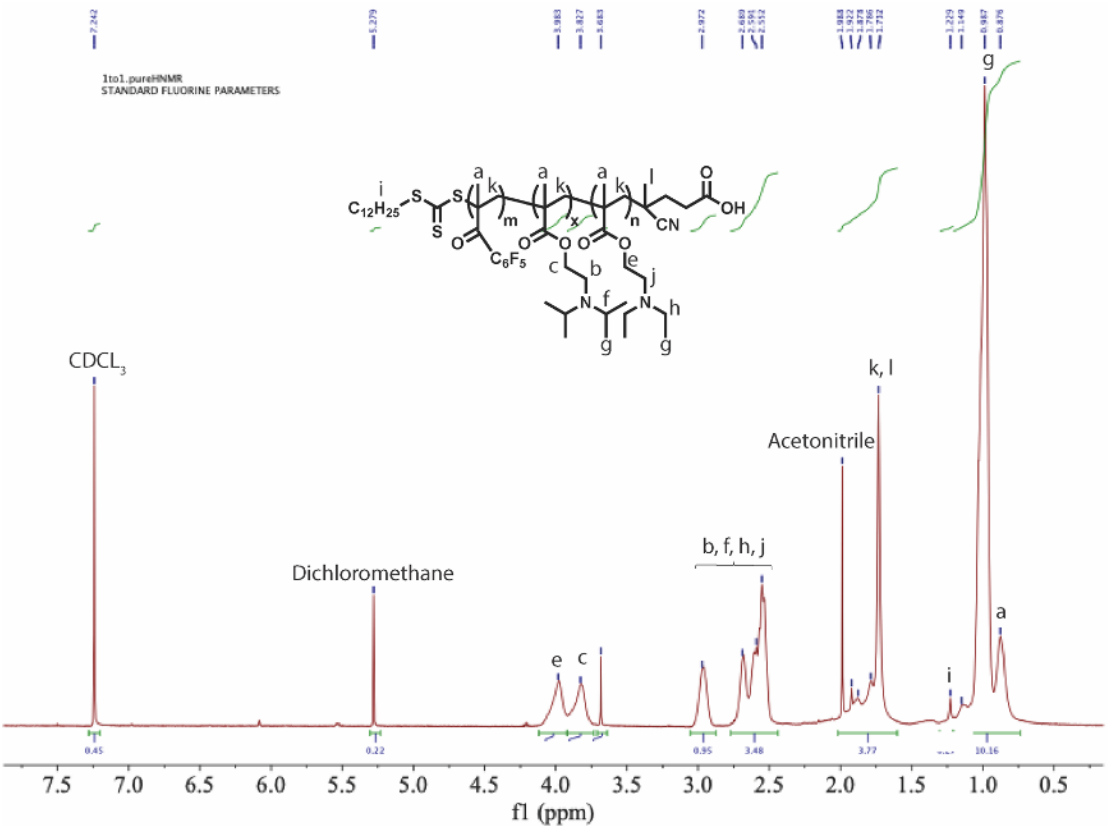

Figure S4. ^{1}H NMR of 2-(diethylamino) ethyl methacrylate-*random*-2-(diisopropylamino) ethyl methacrylate-*random*-pentafluorophenyl methacrylate (PDEAEMA-*r*-PDPAEMA)-*r*-PPFPMA)).

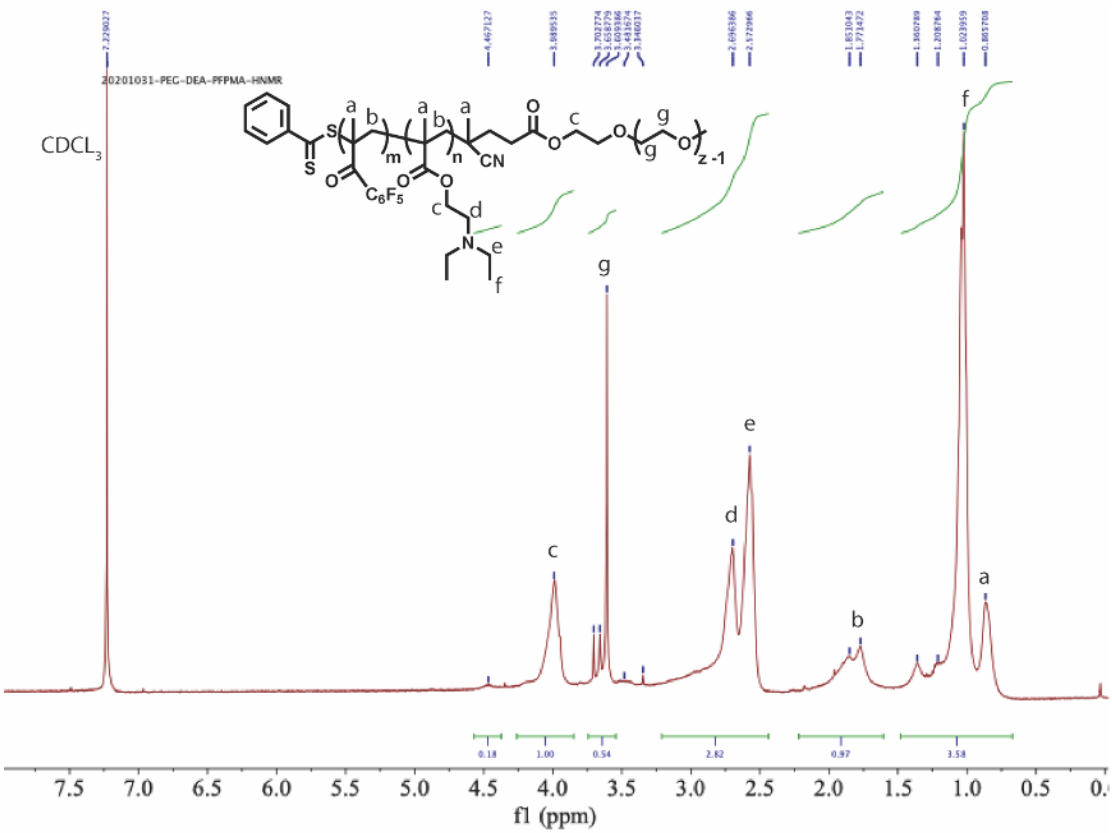

Figure S5. ^{1}H NMR of [poly(ethylene glycol-*b*-(2-(diethylamino) ethyl methacrylate-*random*-pentafluorophenyl methacrylate] ((PEG-*b*-PDEAEMA)-*r*-PPFPMA).

Table S1: Library of core-Cy3 nanoparticles with different amounts of labelled polymer within core.

Core-Cy3 nanoparticles	Core		Shell
Cy3-labelled polymer (%)	(PDEAEMA-*r*-PDPAEMA)-*r*-(PMA-Cy3) (mg)	PDEAEMA-*r*-PDPAEMA (mg)	PEG-*b*-PDEAEMA (mg)
66.7	2	0	1
25	0.75	1.25	1
16.7	0.5	1.5	1
13.3	0.4	1.6	1
8.3	0.25	1.75	1

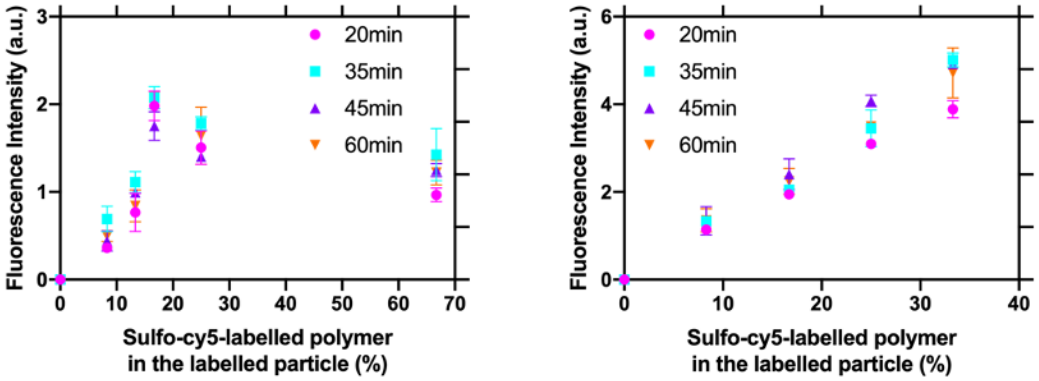

Figure S6. Fluorescence intensity of mixed Sulfo-Cy5-labelled particles after different times. A) Fluorescence intensity of mixed labelled core-Sulfo-Cy5 nanoparticles with unlabelled particles in PBS pH 7.4 after 20 min, 35 min, 45 min and 60 min B) Fluorescence intensity of mixed labelled shell-Sulfo-Cy5 nanoparticles with unlabelled particles in PBS pH 7.4 after 20 min, 35 min, 45 min and 60 min.

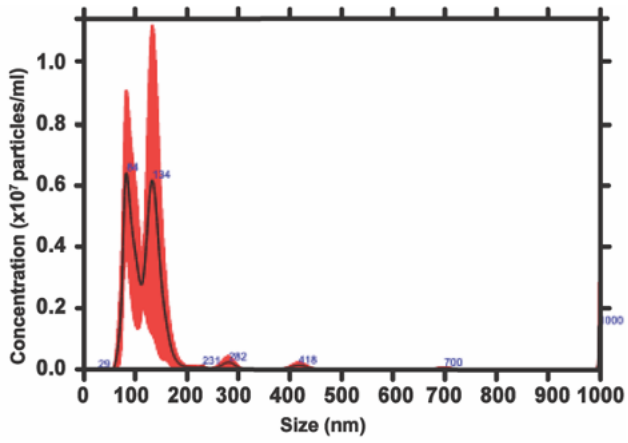

Figure S7. NanoSight result of core-Sulfo-Cy5 labelled nanoparticles in PBS pH 6.0.

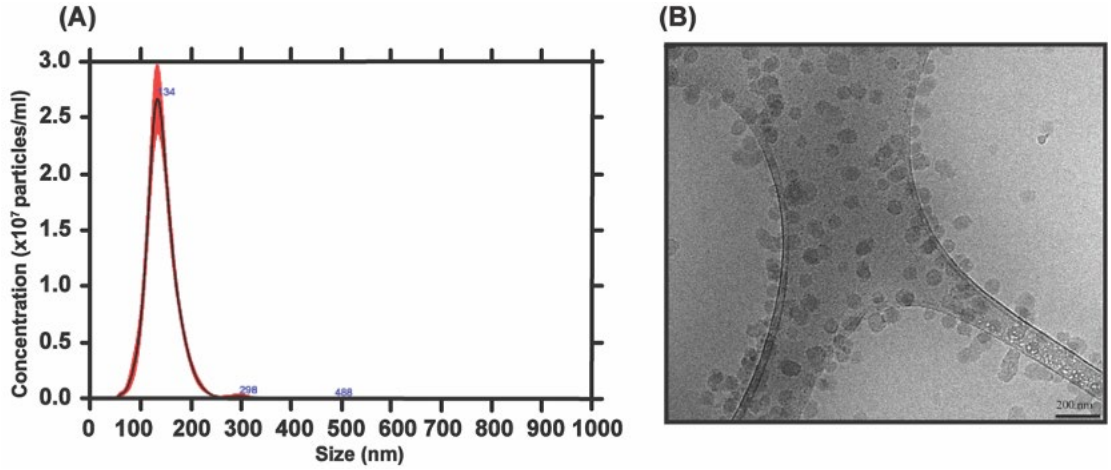

Figure S8. A) NanoSight of core-Cy3 nanoparticles in PBS pH 7.4 B) Cryo-TEM of core-Cy3 nanoparticles.

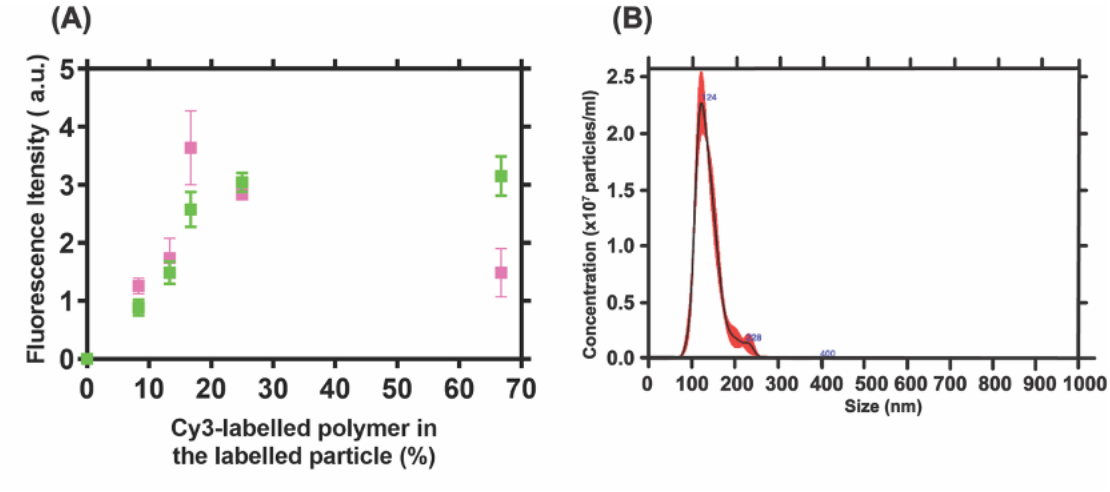

Figure S9. Fluorescence intensity and NanoSight of reformed and non-reformed Cy3-labelled particles. A) Fluorescence intensity of mixed core-Cy3 nanoparticles with unlabelled nanoparticles which were mixed at 1:1 (w/w) ratio, incubated in PBS pH 6.0 and then reformed in PBS pH 7.4 (green). The fluorescence intensity of mixing labelled core-Cy3 nanoparticles with unlabelled nanoparticles in PBS pH 7.4 has been brought here from **Figure 4** for comparison (non-reformed particles (pink)). B) NanoSight of reformed core-Cy3 nanoparticles in PBS pH 7.4.