Electronic Supplementary Material (ESI) for Soft Matter

Architecture-driven aqueous stability of hydrophobic, branched polymer nanoparticles prepared by rapid nanoprecipitation.

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Electronic Supporting Information

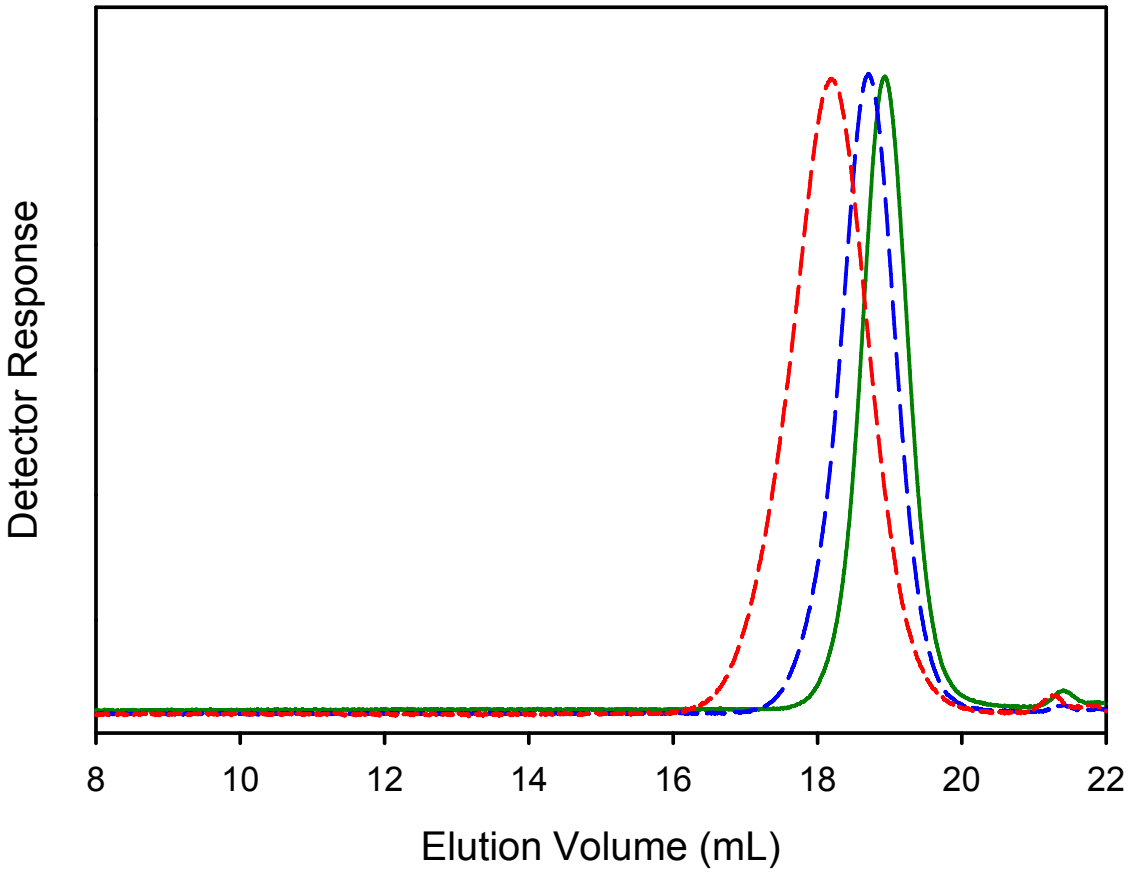

Fig S1: Gel permeation chromatograms (refractive index detector) of linear p($HPMA_x$) with a target DP_n = 50 (green), 80 (blue) and 120 (red) monomer units.

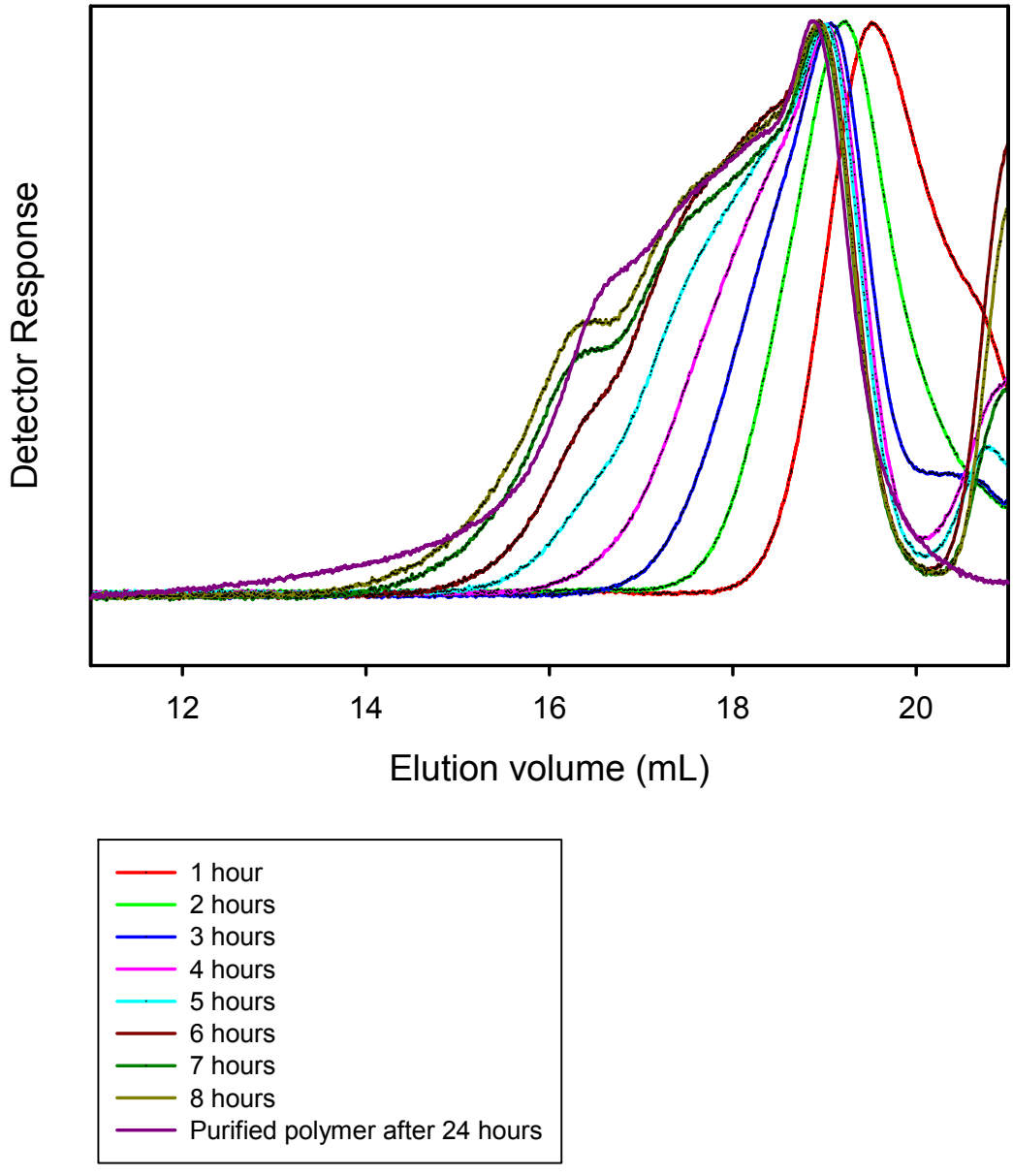

Fig S2: Gel permeation chromatograms of samples taken during the branched polymerisation of p(HPMA$_{50}$-EGDMA). Refractive index detection shown.

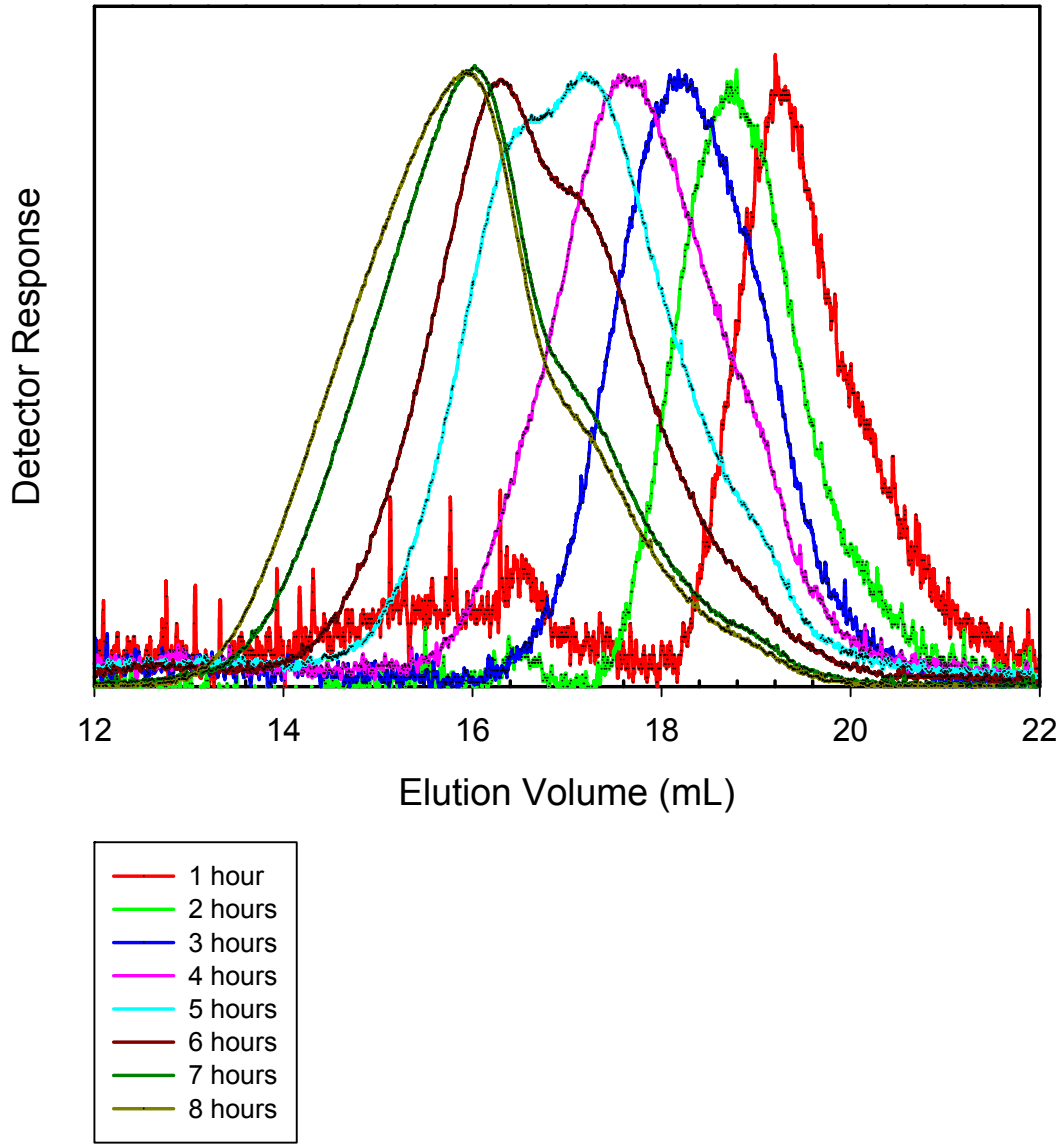

Fig S3: Gel permeation chromatograms of samples taken during the branched polymerisation of p(HPMA$_{50}$-EGDMA). Right angle light scattering detection shown.

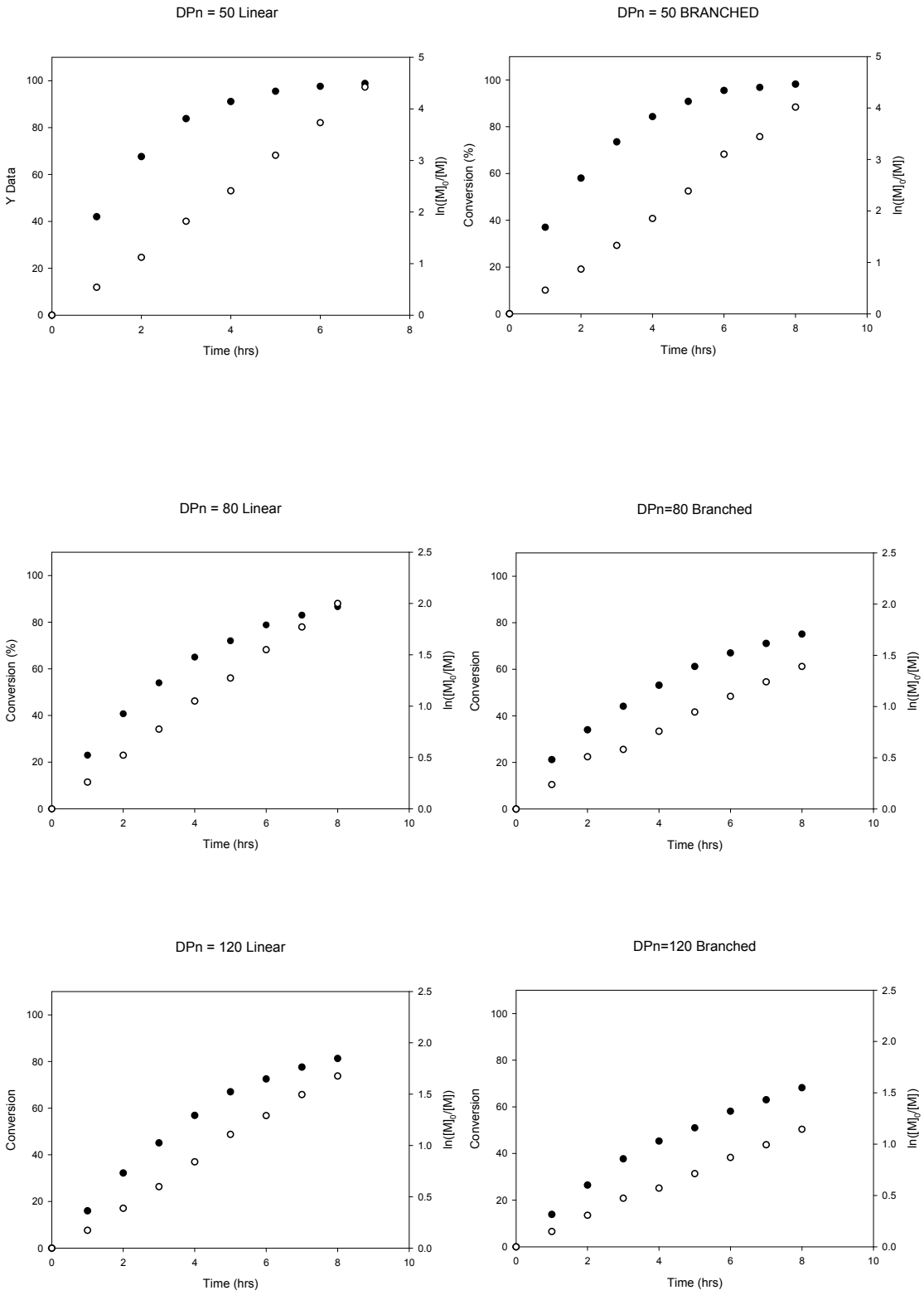

Fig S4: ^{1}H NMR spectroscopy-derived conversion vs time and semilog plots for the polymerisation of linear p(HPMA$_x$) and p(HPMA$_x$-EGDMA).

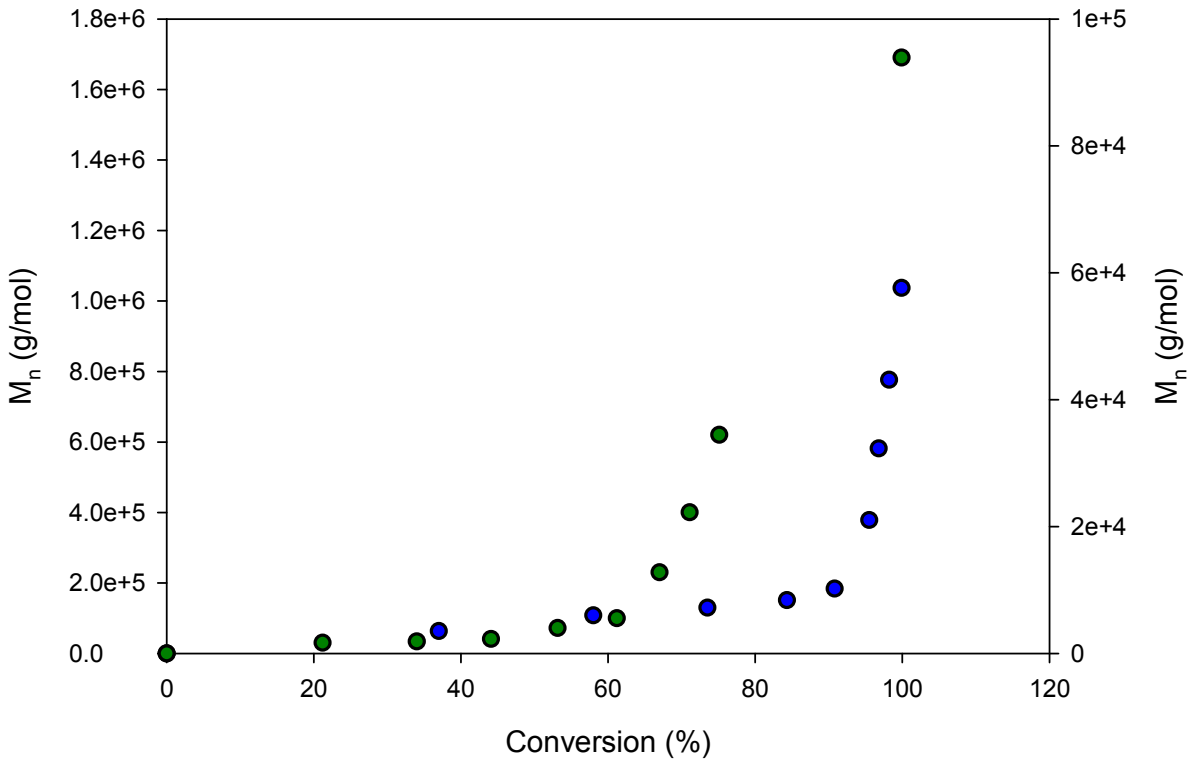

Fig S5: Number average molecular weight (M_n) vs conversion plots for samples taken during the synthesis of p(HPMA$_{50}$-EGDMA) – blue circles, left y axis - and p(HPMA$_{80}$-EGDMA) – green circles, right y axis.

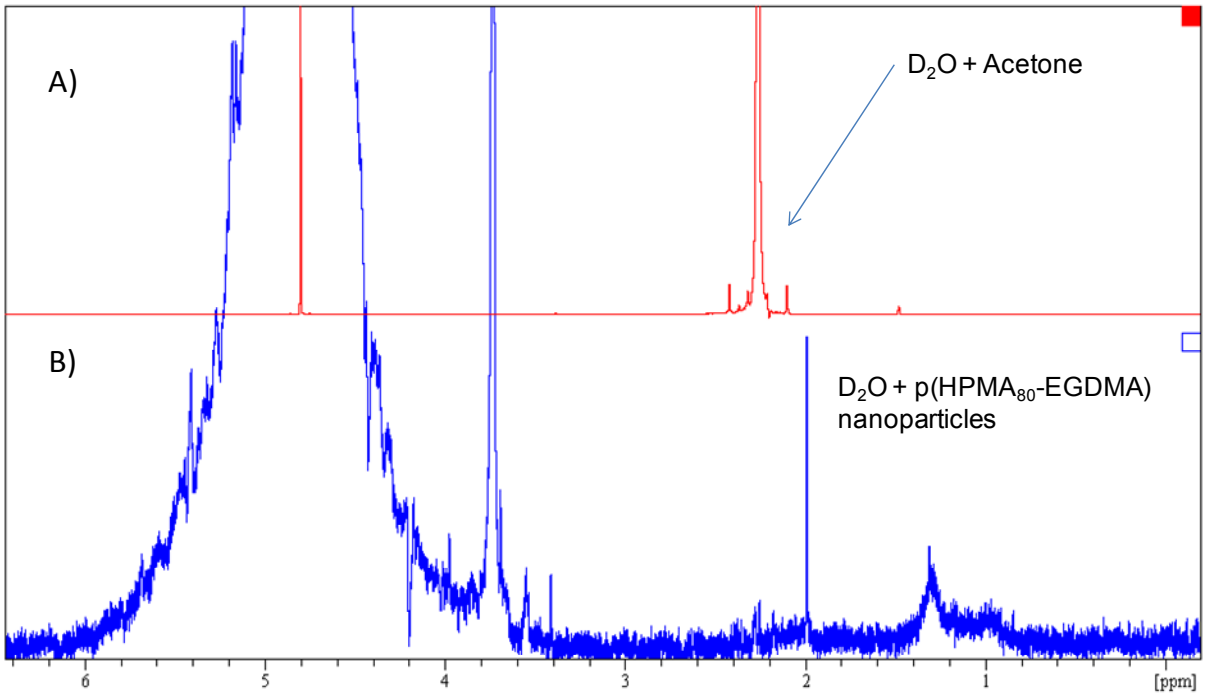

Fig S6: Expansion of ^{1}H NMR spectra of A) acetone in D_2O and B) nanoparticles of p(HPMA$_{80}$-EGDMA) prepared from a 5mg/mL acetone solution and forming a 1 mg/mL aqueous dispersion – sample added to D_2O and baseline significantly expanded. No obvious residual acetone in nanoparticle dispersion.

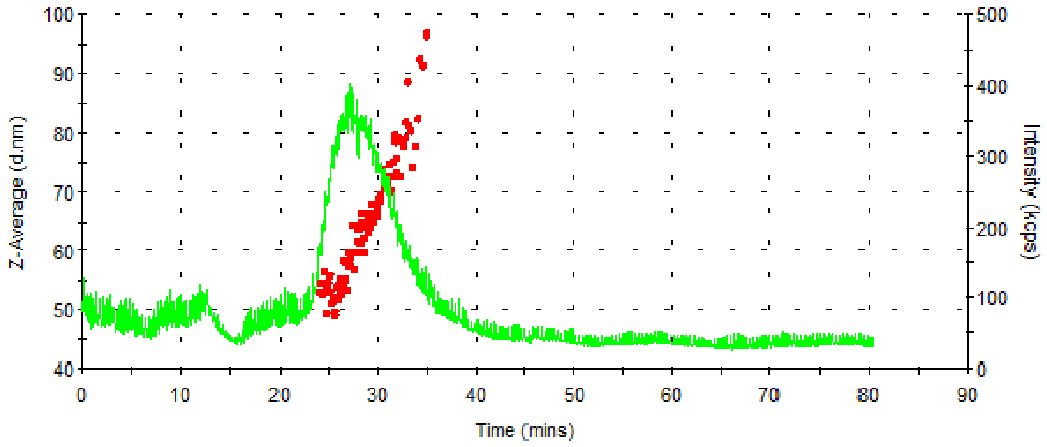

Fig S7: Asymmetric flow field flow fractionation and flow-through dynamic light scattering of p(HPMA$_{80}$-EGDMA) branched polymer nanoparticles (initial acetone concentration of 5 mg/mL and final aqueous nanoparticle concentration of 1 mg/mL). Simultaneous intensity vs time (green line) and z-average vs time (red circles) graphs showing narrow distribution and size range from 48 nm-97 nm.

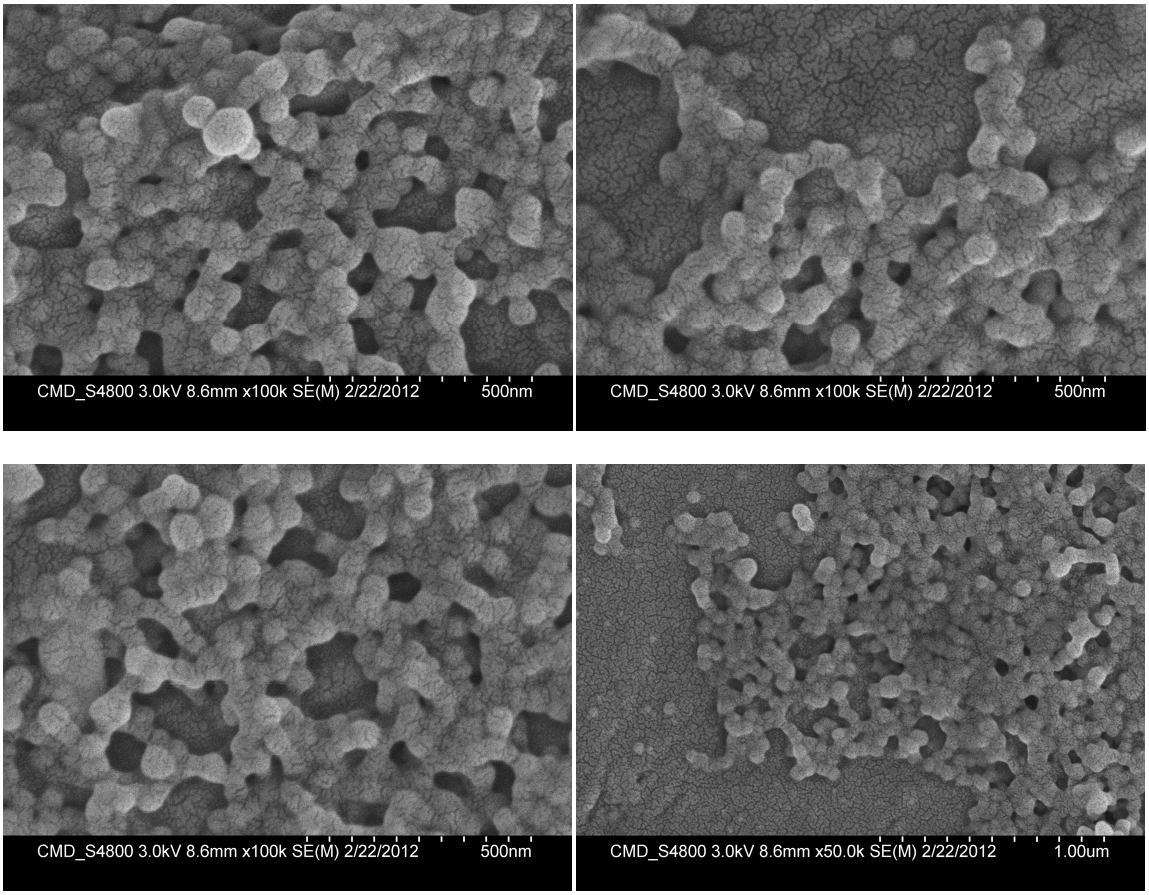

Fig S8: Scanning electron micrographs of p(HPMA$_{80}$-EGDMA) nanoparticles formed by rapid nanoprecipitation from an initial 5 mg/mL acetone solution to form a final 1 mg/mL aqueous nanoparticle dispersion.

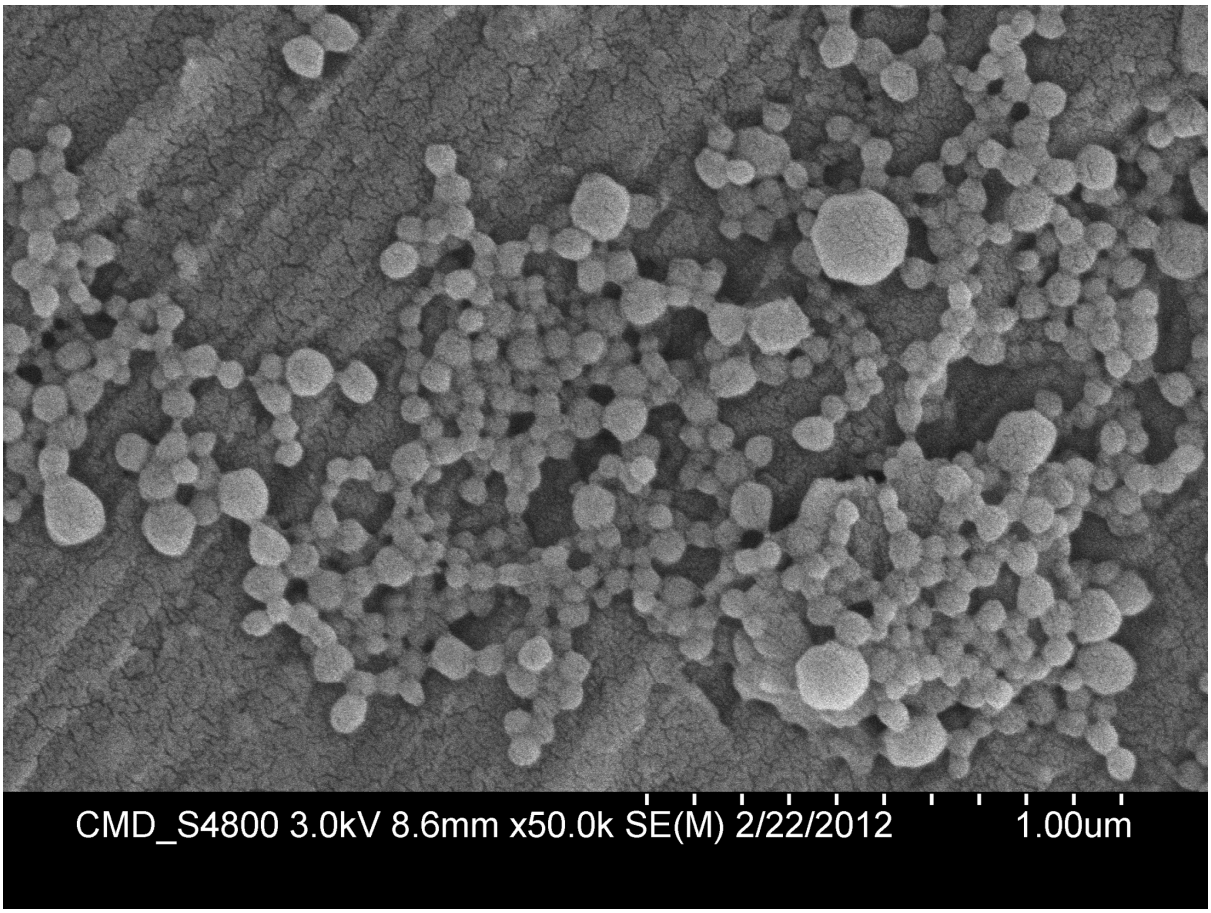

Fig S9: Scanning electron micrograph of p(HPMA$_{80}$-EGDMA) nanoparticles formed by rapid nanoprecipitation from an initial 5 mg/mL acetone solution to form a final 2 mg/mL aqueous nanoparticle dispersion.

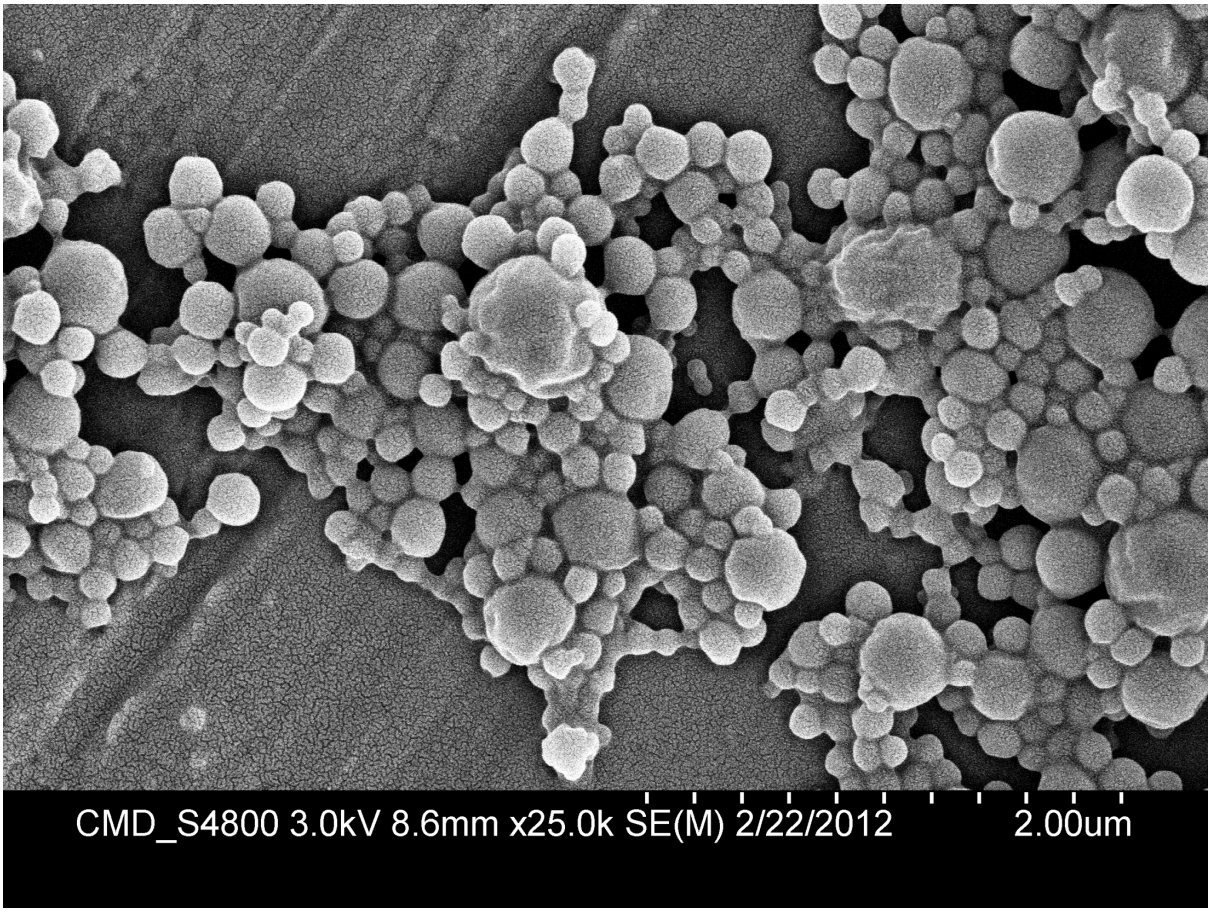

Fig S10: Scanning electron micrograph of p(HPMA$_{80}$-EGDMA) nanoparticles formed by rapid nanoprecipitation from an initial 5 mg/mL acetone solution to form a final 5 mg/mL aqueous nanoparticle dispersion.