

Supporting Information

Influence of hydrophilic dyes on the phase transition of thermoresponsive hyperbranched polymer

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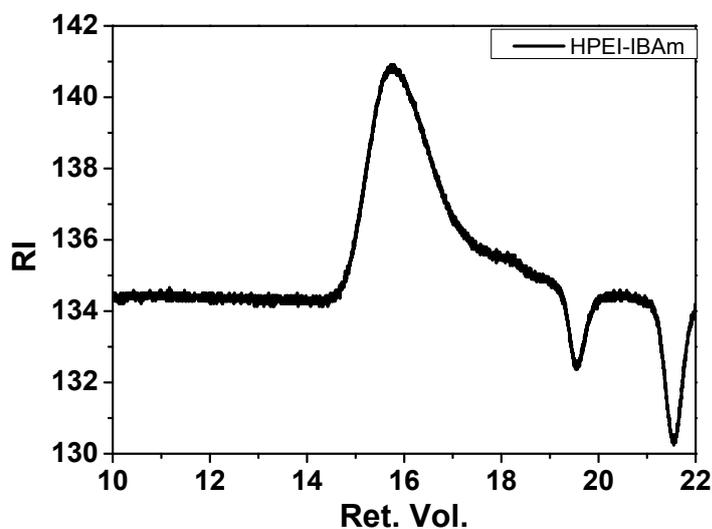


Fig. S1. Typical GPC trace of HPEI-IBAm.

The M_n value of HPEI-IBAm determined by GPC is 1.87×10^2 g/mol that is much smaller than 1.98×10^4 calculated from ^1H NMR). The reasons are as follows: (1) M_n value determined by GPC with PMMA standards gives only relative M_n value. (2) The M_n determined by GPC is obtained from the hydrodynamic volume of the polymers. HPEI-IBAm has a very compact structure, thus its hydrodynamic volume is much smaller than that of linear polymer with the same molecular weight, which leads to the underestimation of the M_n of HPEI-IBAm. (3) HPEI-IBAm has a lot of amine and amide groups that have some hydrogen-bonding interactions with the residual hydroxyl groups of the GPC columns, which retards the outflow of HPEI-IBAm from the column.

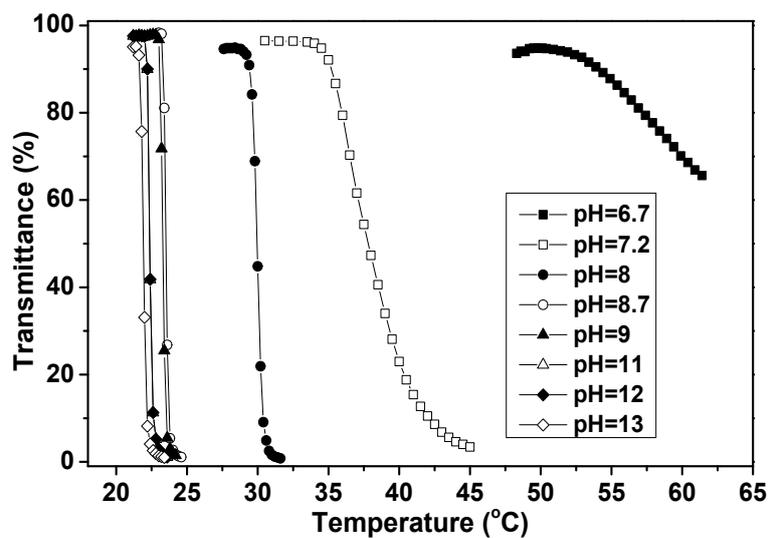


Fig. S2. Temperature-dependent light transmittance of the HPEI-IBAm aqueous solution at different pH (concentration of HPEI-IBAm is 4.0×10^{-4} M).

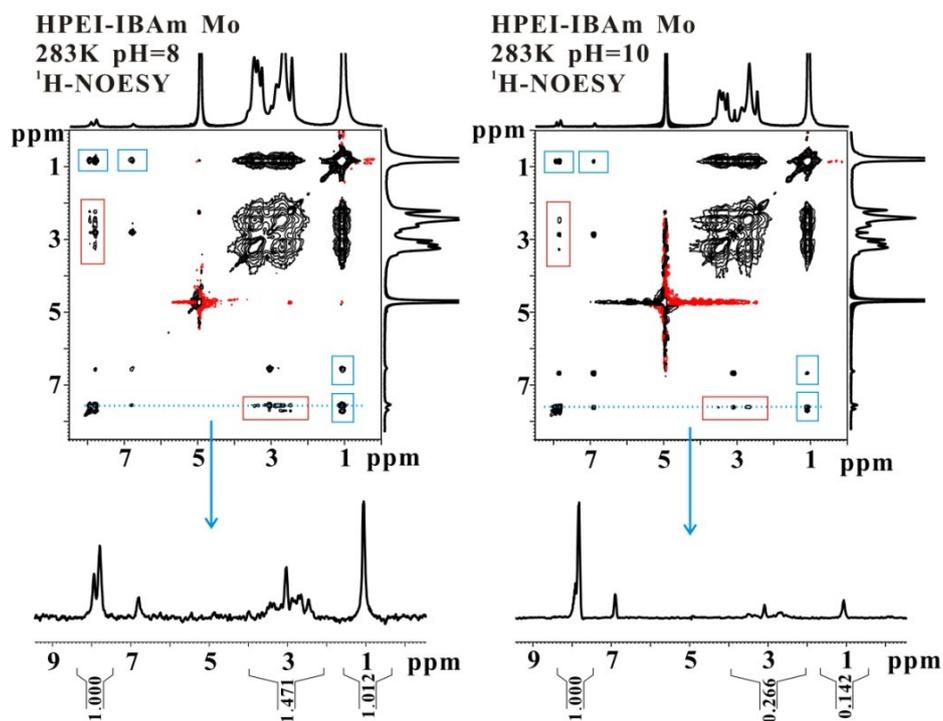


Fig. S3. Typical 2D NOESY ^1H NMR spectra of the mixture of HPEI-IBAm and MO at pH 8 and 10

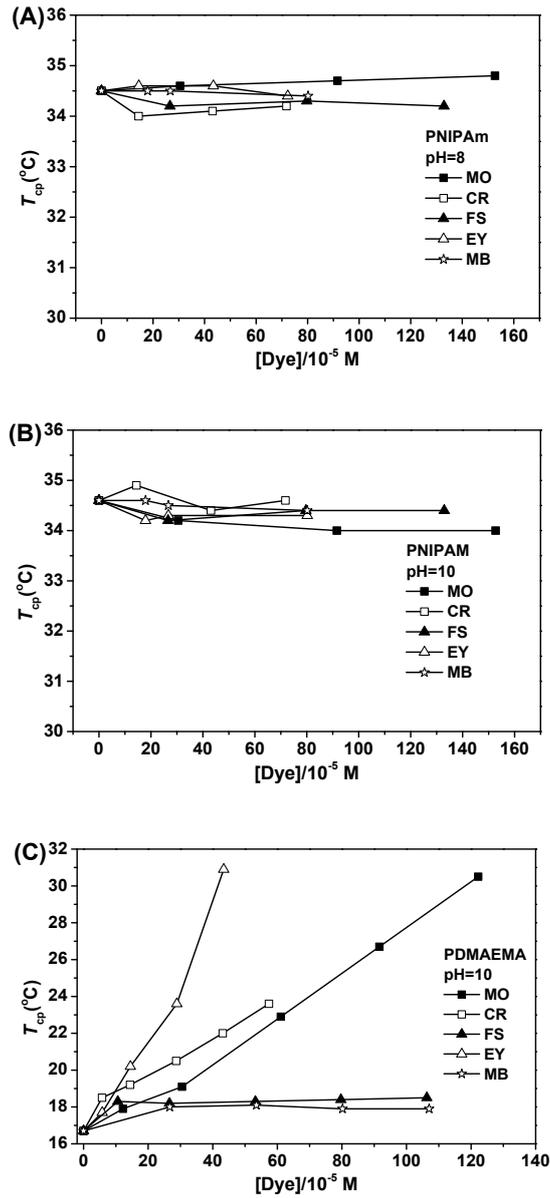


Fig. S4. Influence of dye concentration on the T_{cp} of (A) PNIPAm at pH 8, (B) PNIPAm at pH 10, (C) PDMAEMA at pH 10 (concentration of polymer is 8 mg/mL).

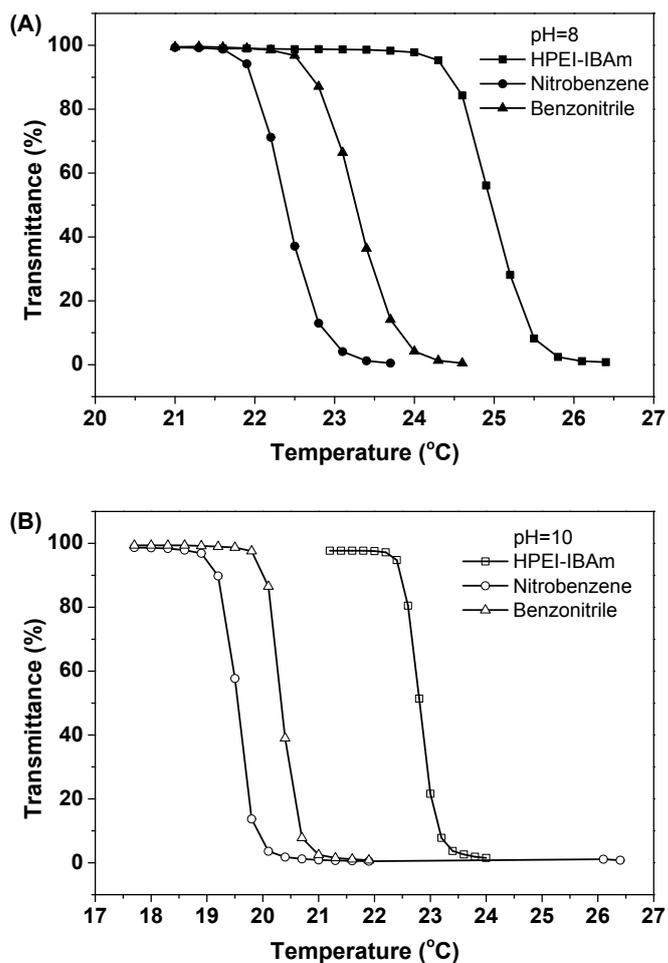


Fig. S5. Temperature-dependent light transmittance of the HPEI-IBAm aqueous solution in the presence or absence of nitrobenzene or benzonitrile at pH (A) 8 and (B) 10 (concentration of HPEI-IBAm is 4.0×10^{-4} M). ($[HPEI-IBAm]=4.0 \times 10^{-4}$ M)

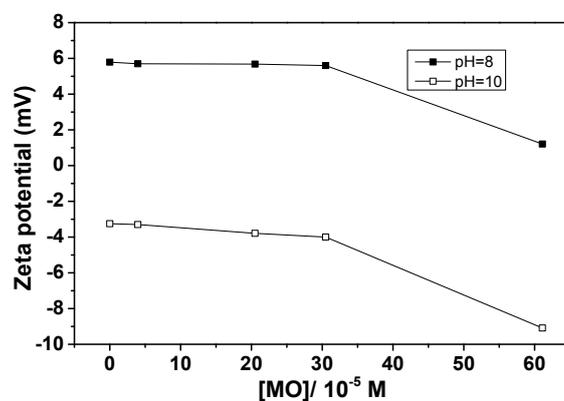


Fig. S6. The zeta potential of HPEI-IBAm at pH (■) 8 and (□) 10 in the presence of different amount of MO ($[HPEI-IBAm]=4.0 \times 10^{-4}$ M)