

Electronic Supplementary Information

Hg²⁺-selective chemosensor based on a novel amphiphilic block copolymer bearing rhodamine 6G derivative moieties self-assembly in purely aqueous media

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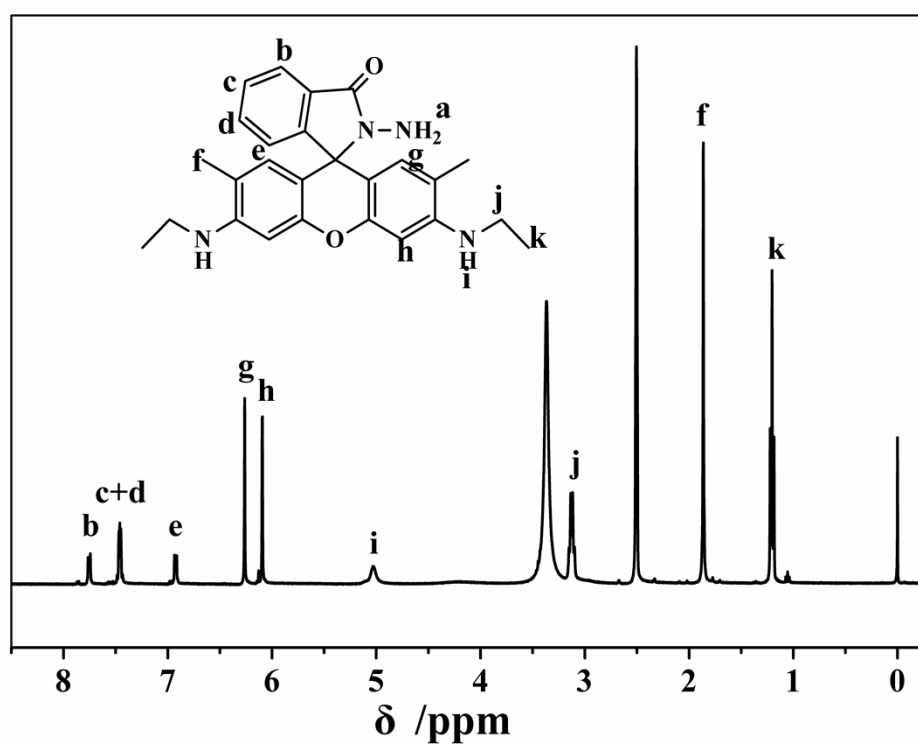


Figure S1. ¹H NMR spectra recorded for **compound 1** in d₆-DMSO

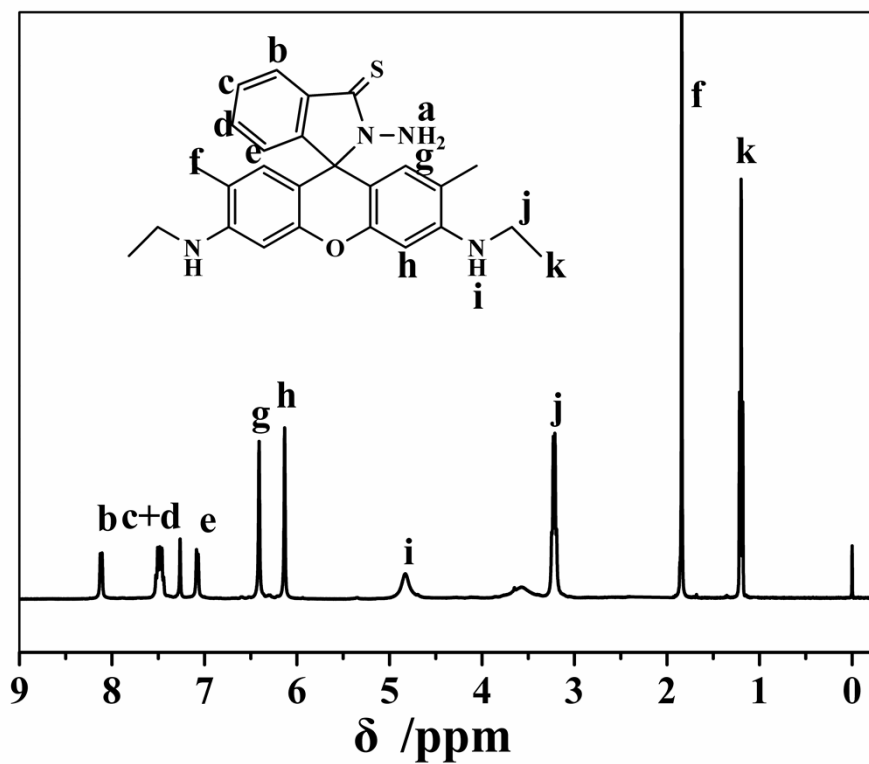


Figure S2. ¹H NMR spectra recorded for **compound 2** in CDCl₃

wzh-141120-444 #27 RT: 0.49 AV: 1 SB: 4 0.03-0.08 NL: 2.07E7
T: + c ESI ms [50.00-1000.00]

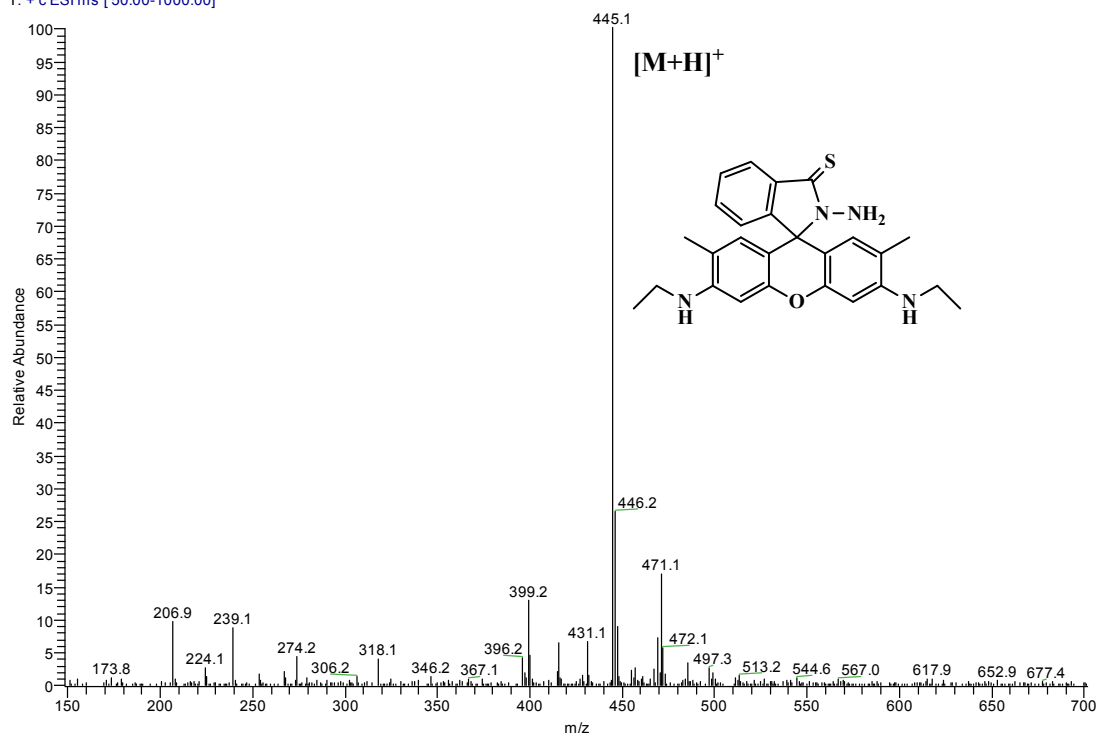
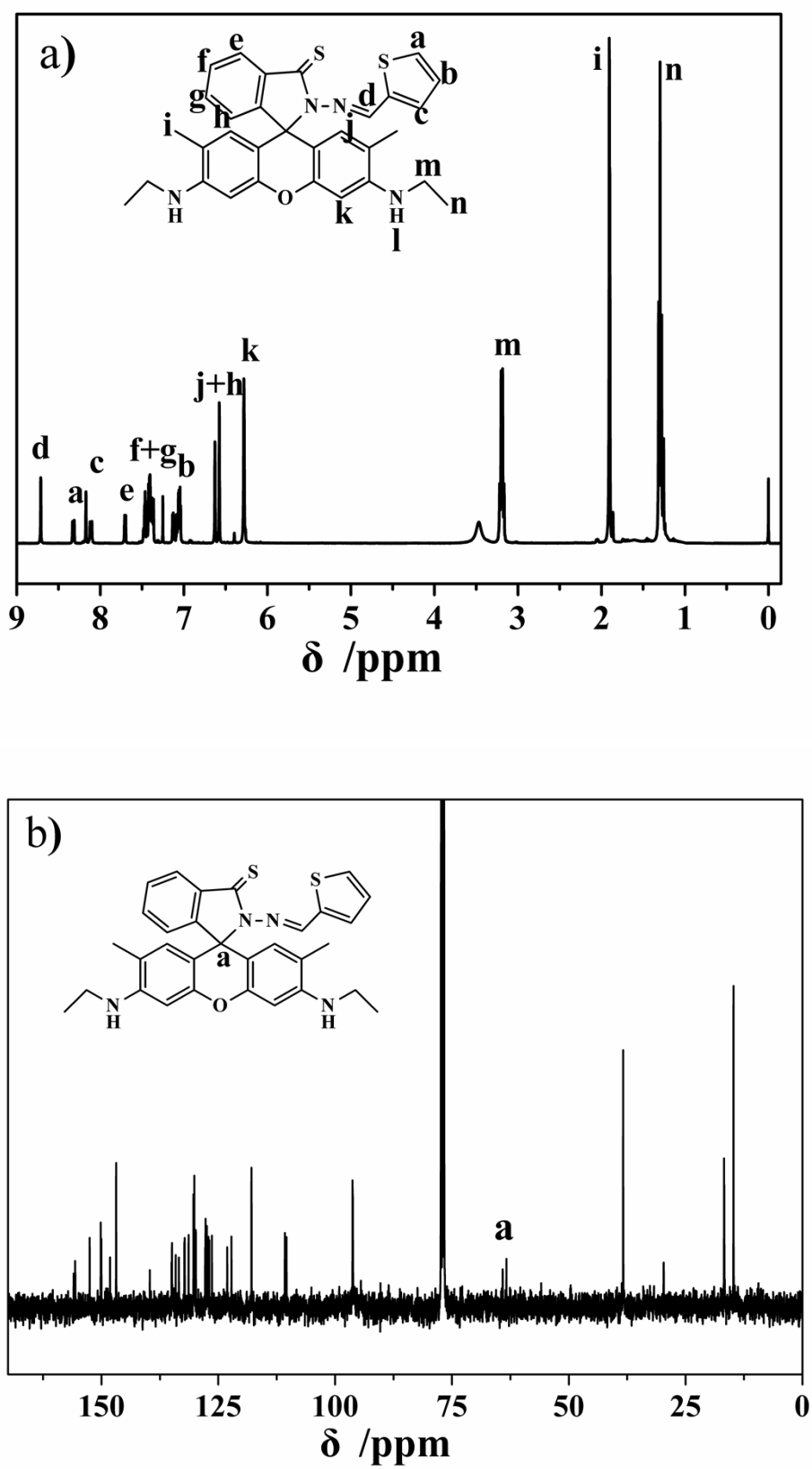


Figure S3. ESI-MS spectra for **compound 2**



wzh-140917-538 #34 RT: 0.62 AV: 1 SB: 4 0.17-0.22 NL: 3.91E7
T: + c ESI ms [50.00-1000.00]

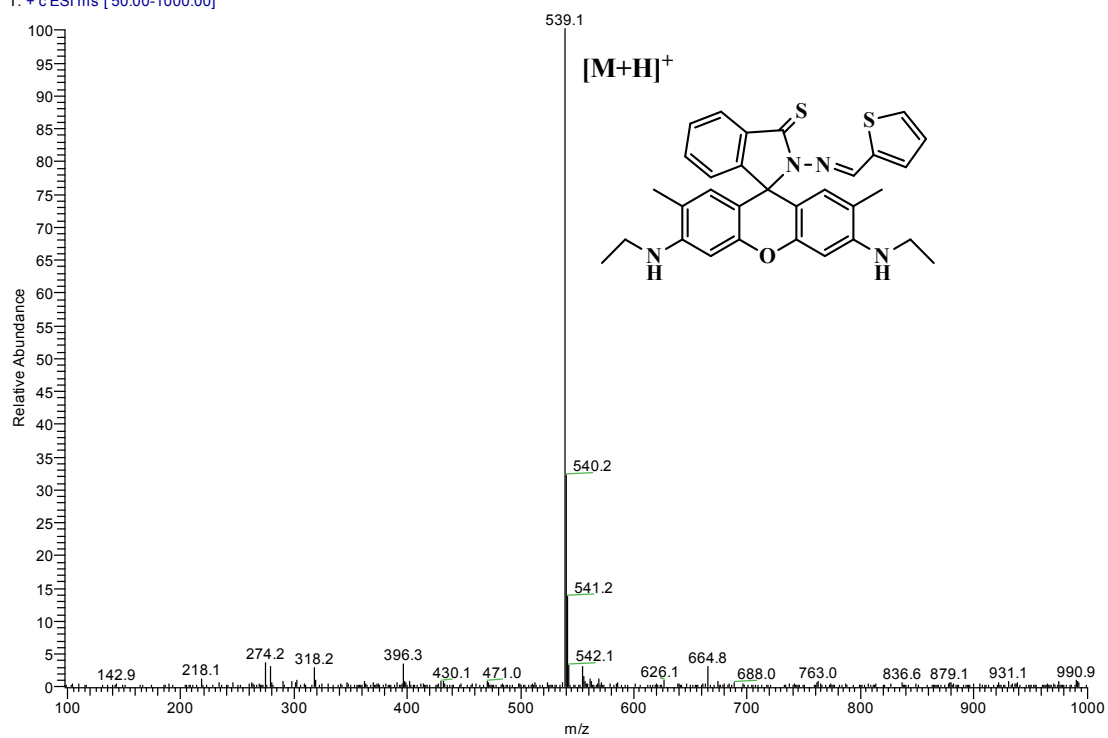
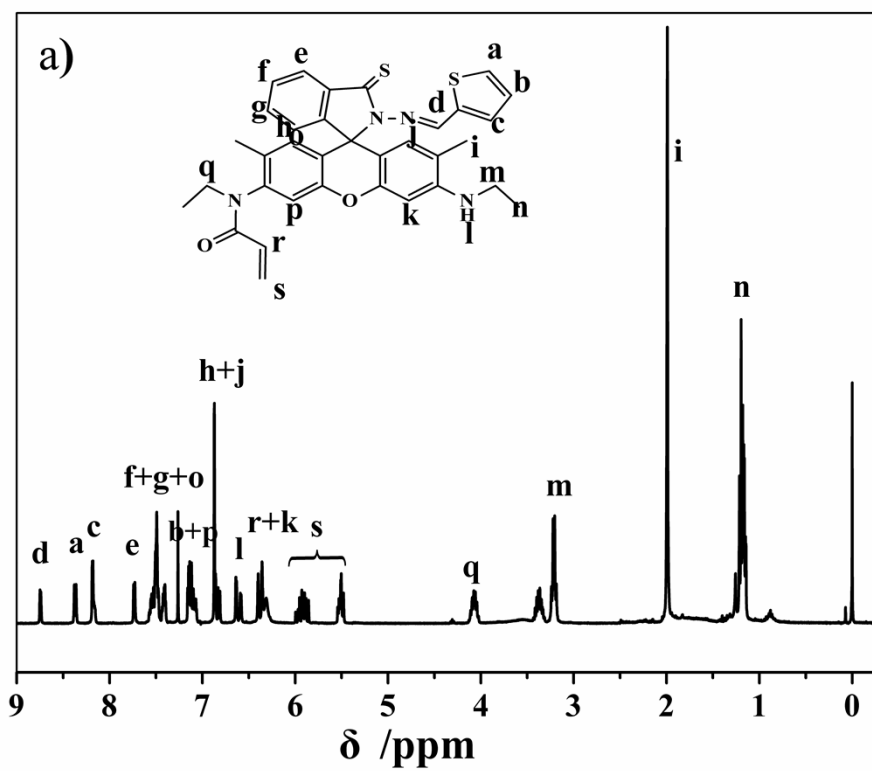


Figure S5. ESI-MS spectra for compound 3



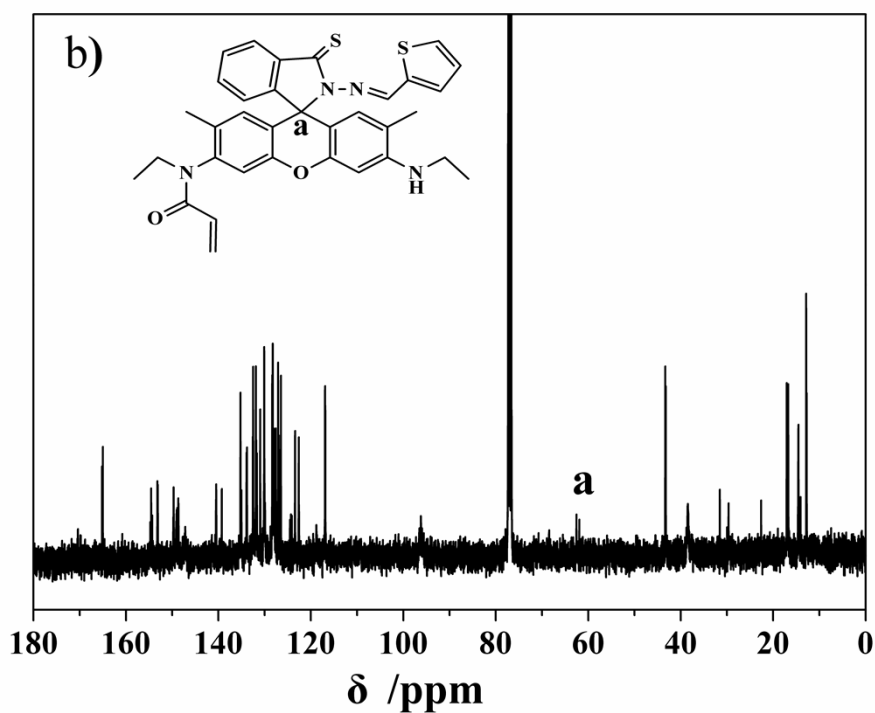


Figure S6. (a) ^1H NMR and (b) ^{13}C NMR spectra recorded for **compound 4** in CDCl_3

wzh-140903-592-2 #3 RT: 0.09 AV: 1 NL: 1.20E7
T: + c ESI ms [50.00-1500.00]

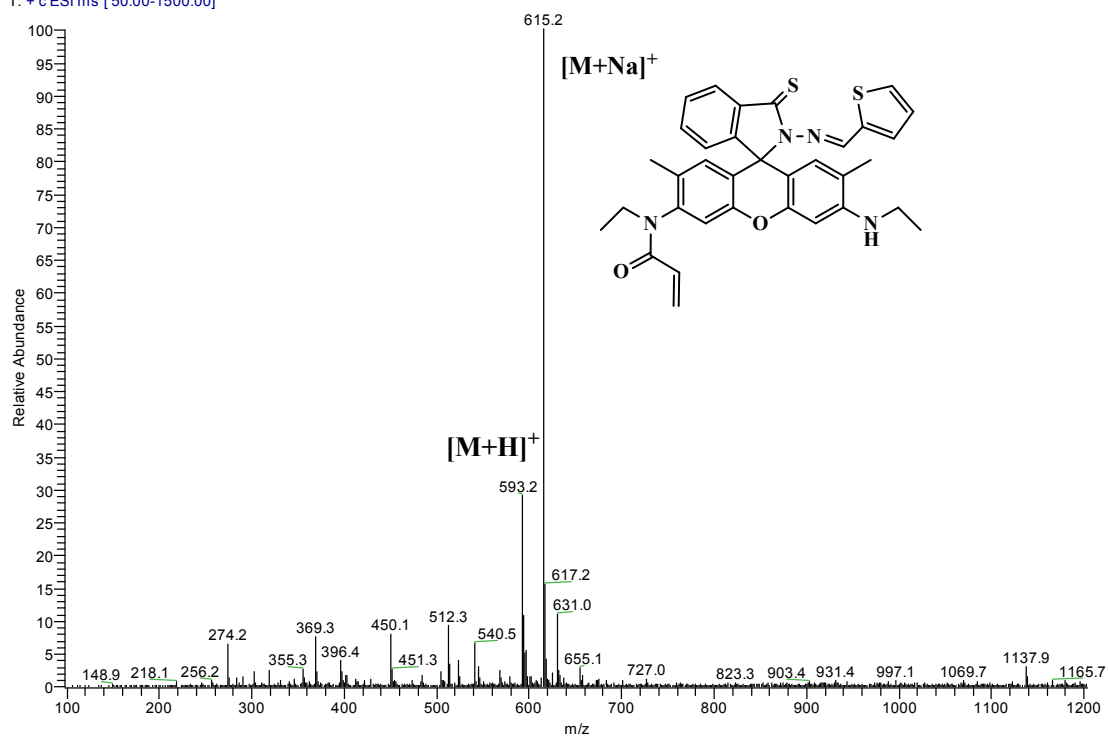


Figure S7. ESI-MS spectra for **compound 4**

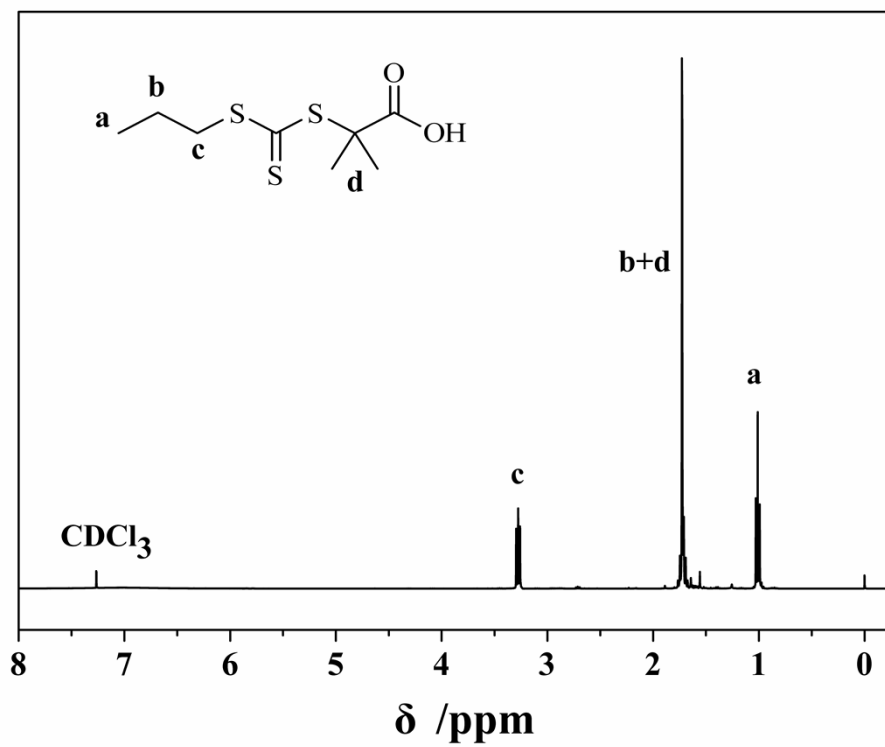


Figure S8. ¹H NMR spectra recorded for PTPA in CDCl₃

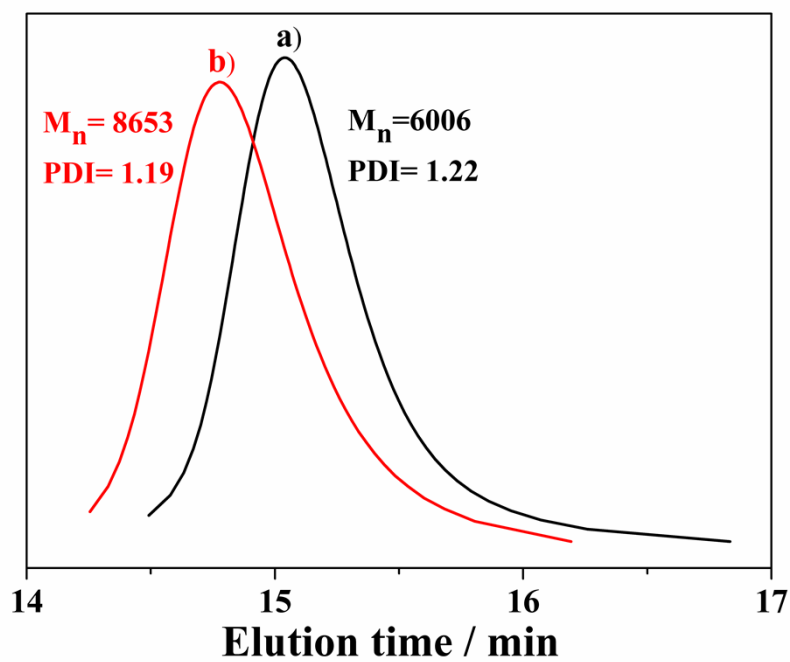


Figure S9. THF GPC traces recorded for (a) PNIPAM-based macroRAFT agent, (b) P[NIPAM]₇₅-b-P[R6GDM]₅

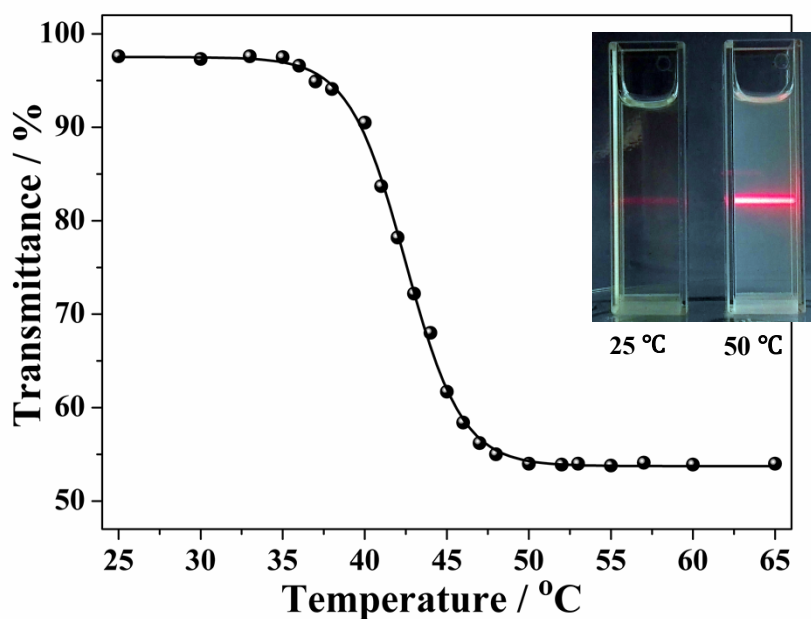


Figure S10. Temperature-dependence of optical transmittance recorded at a wavelength of 740 nm for 0.6 g/L aqueous solutions of P[NIPAM]₇₅-b-P[R6GDM]₅ diblock copolymers. The inset shows the Tyndall light scattering experiment for 0.6 g/L aqueous solutions of P[NIPAM]₇₅-b-P[R6GDM]₅ at 25 °C and 50 °C, respectively.

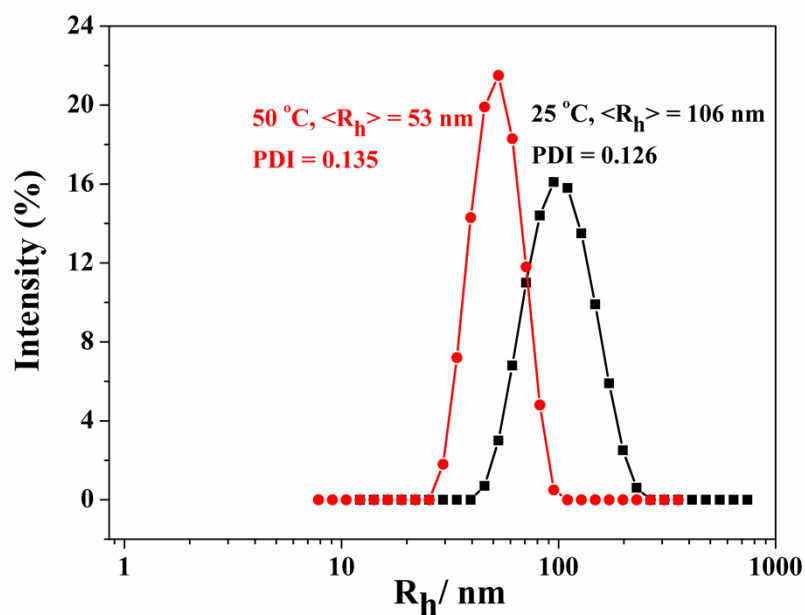


Figure S11. Hydrodynamic radius distributions, Intensity (%), recorded for the micellar solution of P[NIPAM]₇₅-b-P[R6GDM]₅ (0.2 g/L) at 25 °C and 50 °C, respectively.

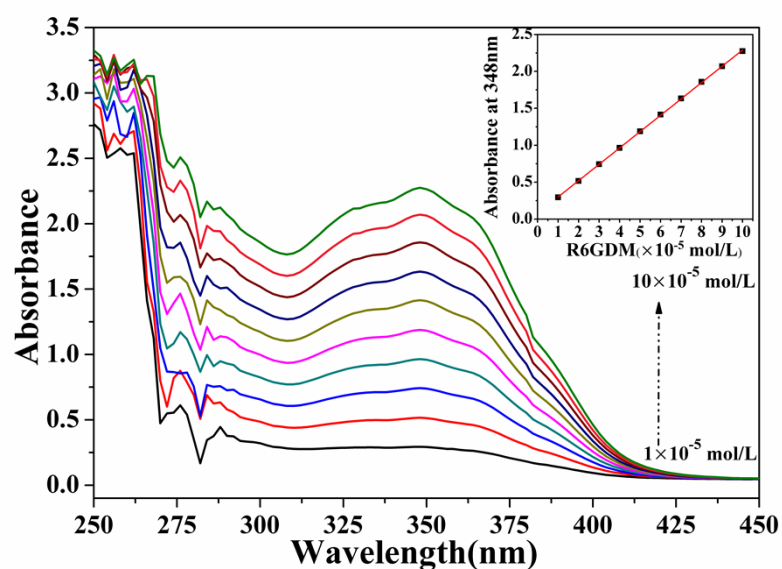


Figure S12. Absorption spectra of R6GDM in DMF solution (concentrations ranging from 1×10^{-5} mol/L to 10×10^{-5} mol/L) recorded at 25 °C. Inset: changes in the absorption intensity at 348 nm.

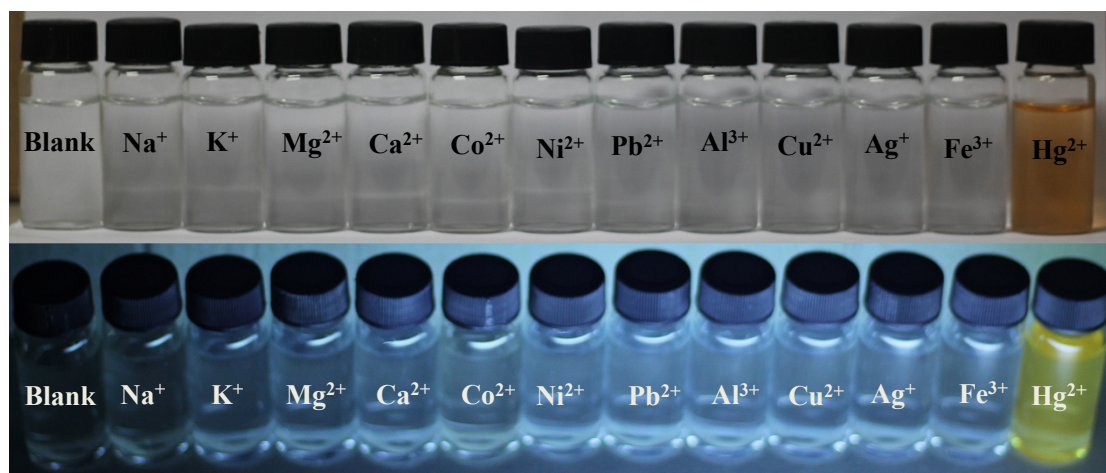


Figure S13. Optical photographs recorded under visible light (top) and UV (365 nm, bottom) for aqueous solutions (pH 7, 25 °C) of P[NIPAM]₇₅-b-P[R6GDM]₅ within 5 h upon addition of 4.0 equiv. of Hg²⁺, Fe³⁺, Ag⁺, Cu²⁺, Al³⁺, Pb²⁺, Ni²⁺, Co²⁺, Ca²⁺, Mg²⁺, K⁺ and Na⁺, respectively.

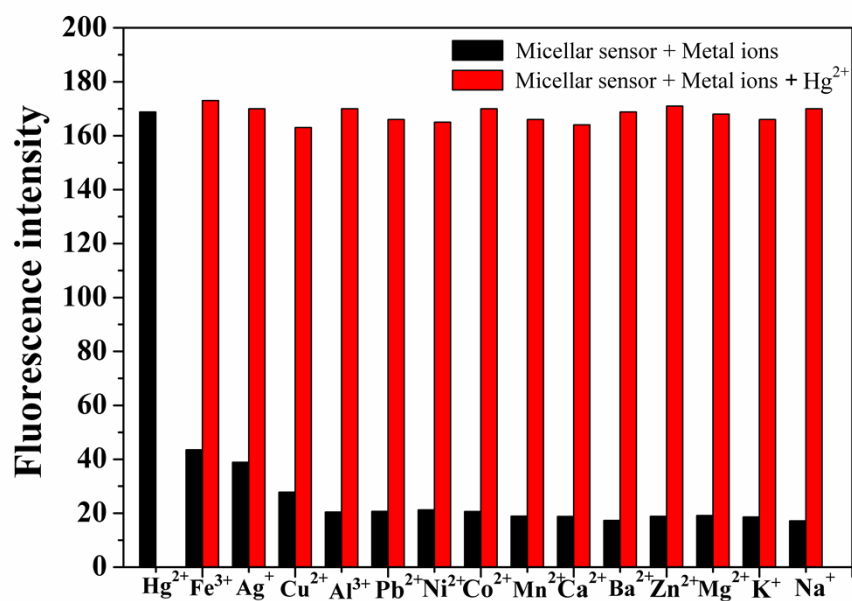


Figure S14. The fluorescence intensity at 574 nm of 0.4 g/L aqueous solution of P[NIPAM]₇₅-b-P[R6GDM]₅ (pH 7, 25 °C) with 4.0 equiv (relative to R6GDM moieties) of various metal ions (black bars), and then with addition of 4.0 equiv (relative to R6GDM moieties) of Hg²⁺ (red bars) .

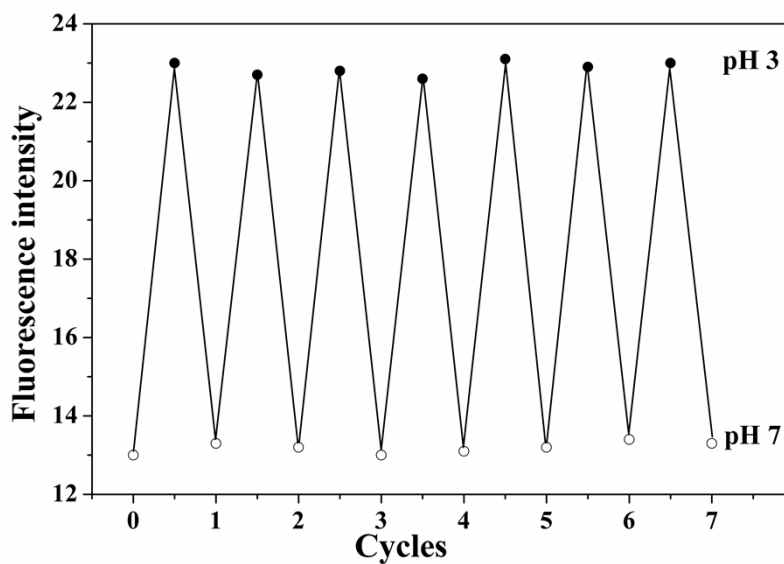


Figure S15. Changes in fluorescence emission intensity recorded for 0.2 g/L aqueous solution of P[NIPAM]₇₅-b-P[R6GDM]₅ at 25 °C when the solution pH was cycled between 3 and 7.