

Supporting Information

Thermoresponsive Dendronized Polypeptides showing Switchable Recognition to Catechols

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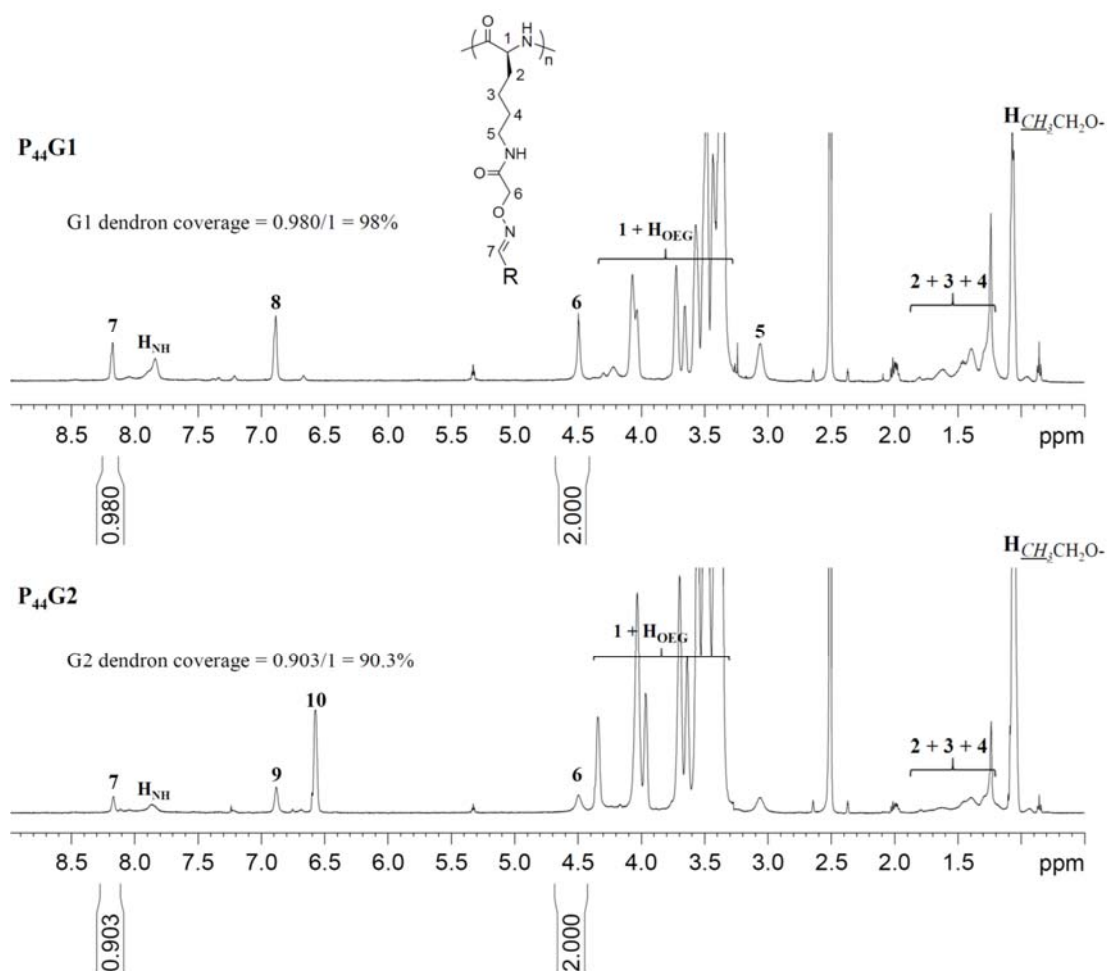


Figure S1. ¹H NMR spectra of **P₄₄G1** and **P₄₄G2** in *d*₆-DMSO. The dendron coverage was calculated by comparing the integration of proton signal 7 with that of signal 6.

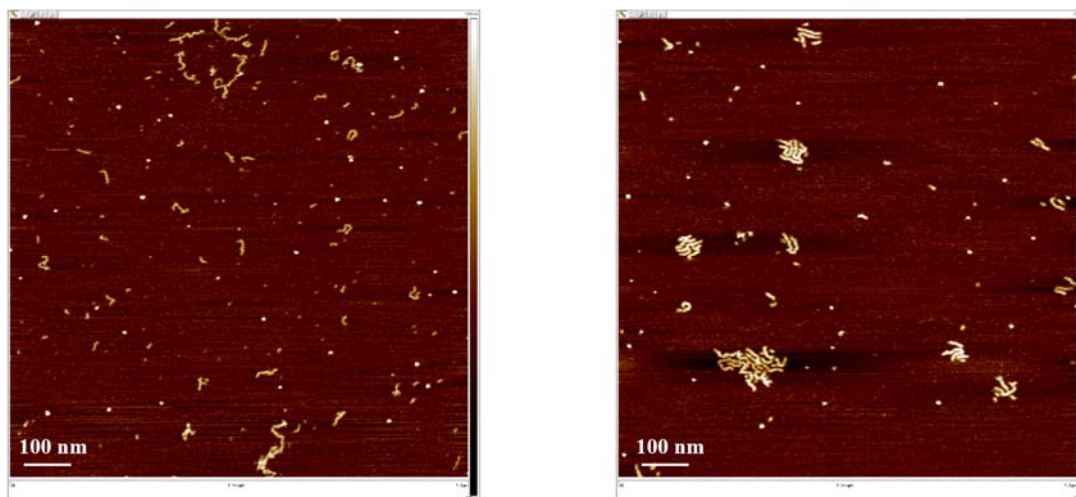


Figure S2. AFM height images of **P₂₀₅G1** (left) and **P₂₀₅G2** (right) spin-coated on mica.

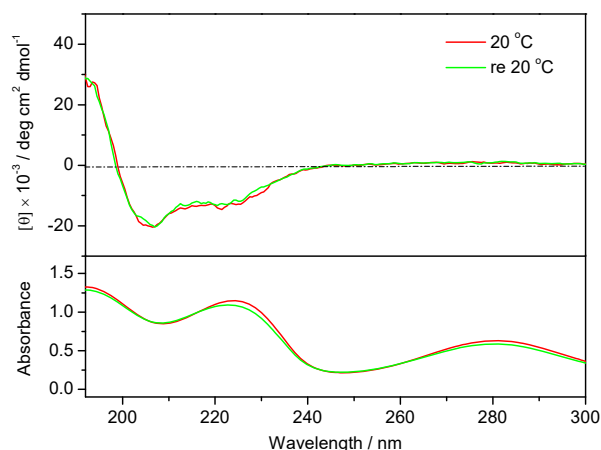


Figure S3. The overlay of CD (top) and UV (bottom) spectra of **P₄₄G1** at 20 °C without or with heating history (cooling from 50 °C).

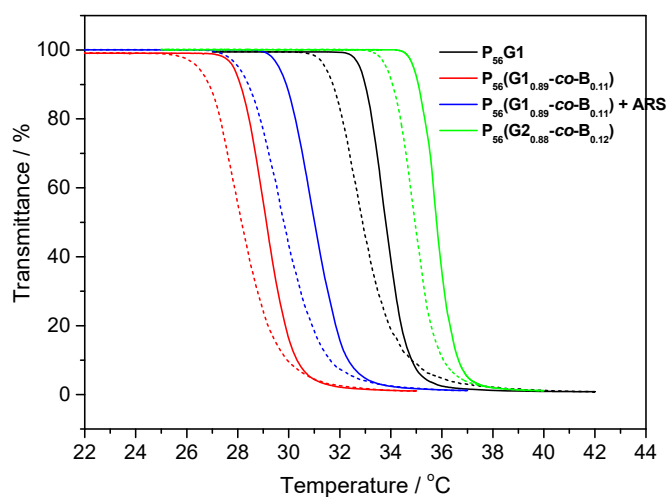


Figure S4. Plots of transmittance versus temperature for 0.1 wt% **P₅₆G1**, **P₅₆(G_{10.89}-*co*-**B_{0.11}**)**, and **P₅₆(G_{20.88}-*co*-**B_{0.12}**)** with or without ARS in pH 7 buffer. [ARS] = 50 μ M.

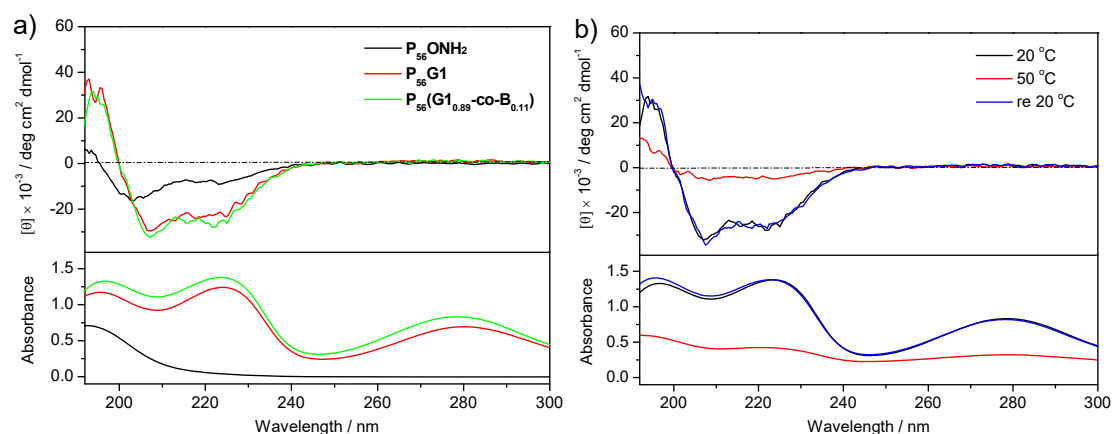


Figure S5. (a) The CD (top) and UV (bottom) spectra of **P₅₆ONH₂**, **P₅₆G1**, and **P₅₆(G_{10.89}-*co*-**B_{0.11}**)** at 20 °C. (b) The CD (top) and UV (bottom) spectra of **P₅₆(G_{10.89}-*co*-**B_{0.11}**)** at 20 and 50 °C, or when recovered to 20 °C.

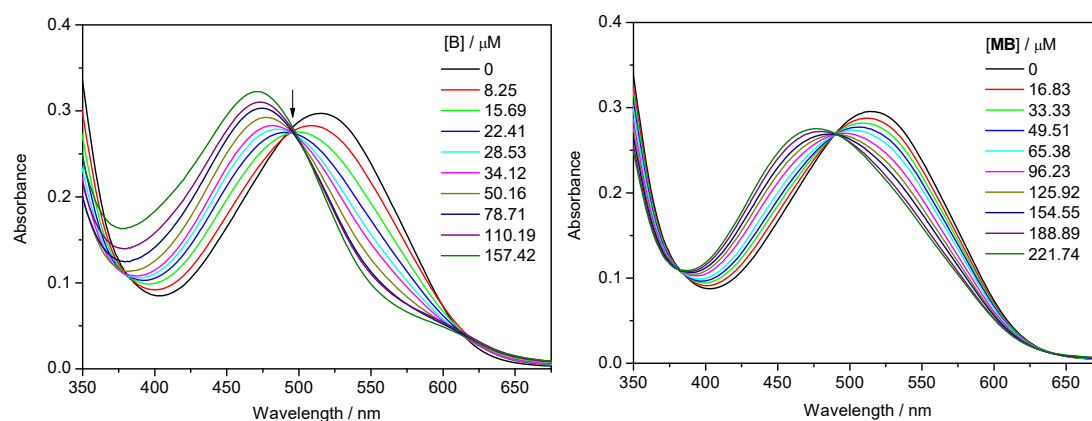


Figure S6. UV-vis spectra of ARS in the presence of **P₅₆(G_{20.88}-co-B_{0.12})** (left) and **MB** (right). [ARS] = 50 μM , pH = 7. [B] represents the concentration of phenylboronic acid unit in copolypeptides.

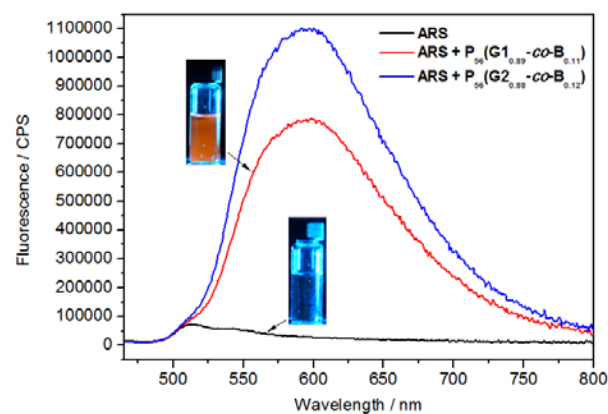


Figure S7. Fluorescence spectra of ARS without or with copolypeptides at 20 °C. Inserted photos were taken under blue light. [ARS] = [B] = 50 μM , pH = 7.

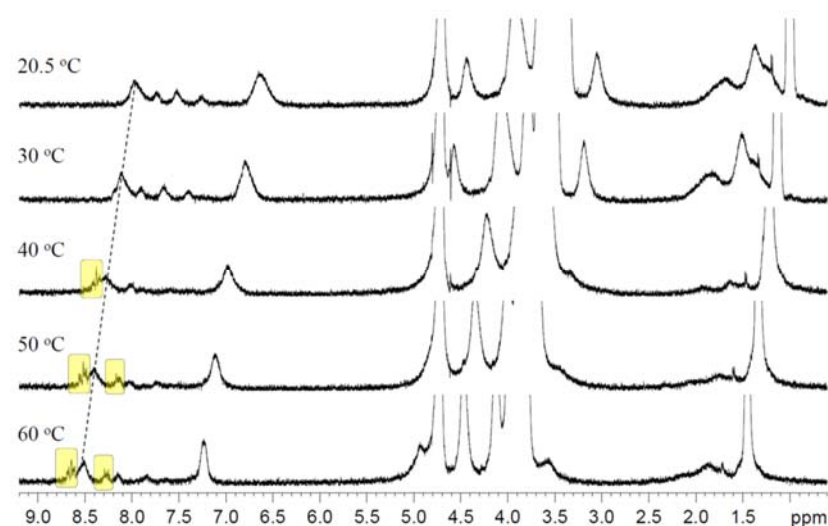


Figure S8. Temperature-varied ¹H NMR spectra of the complex **ARS/P₅₆(G_{10.89}-co-B_{0.11})** in pH 7 buffer. The proton signals marked in yellow come from decomplexed ARS during phase transition.

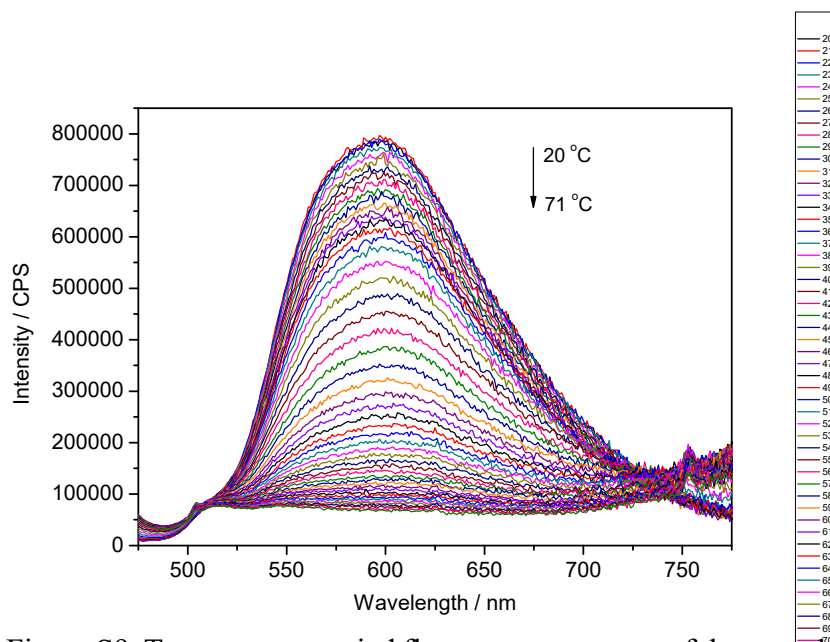


Figure S9. Temperature-varied fluorescence spectra of the complex ARS/**P₅₆(G_{10.89-co-B_{0.11})}** from 20 to 71 °C in pH 7 buffer. The interval of temperature change is 1 °C.

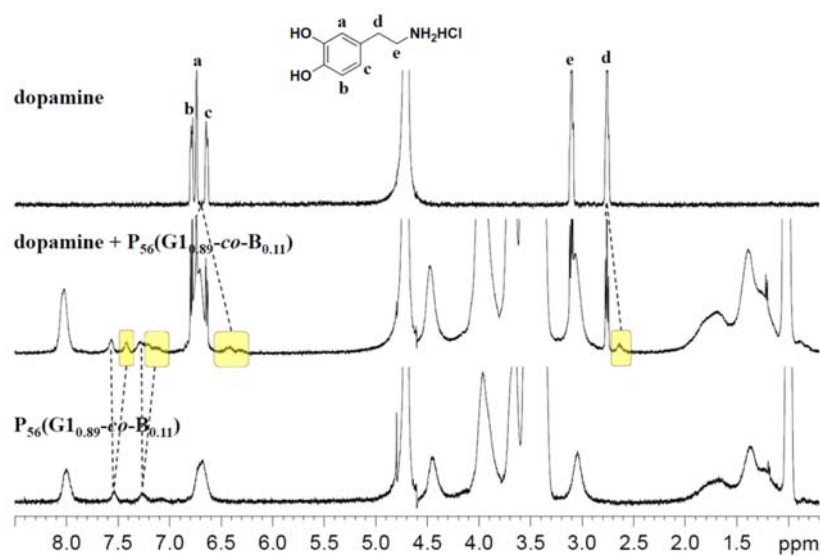


Figure S10. ¹H NMR spectra of dopamine, **P₅₆(G_{10.89-co-B_{0.11})}**, and their mixture in pH 7 buffer. The peaks marked in yellow correspond to the new formed boronate.

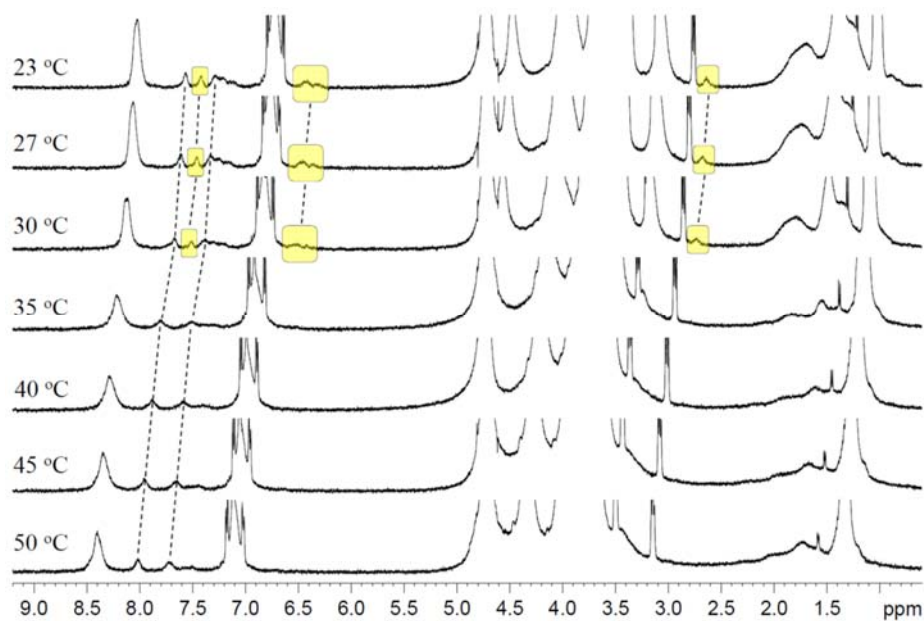


Figure S11. Temperature-varied ^1H NMR spectra of the complex dopamine/**P56(G10.89-co-B0.11)** in pH 7 buffer. The proton signals from boronate (marked in yellow) gradually disappear with the increase of solution temperature.

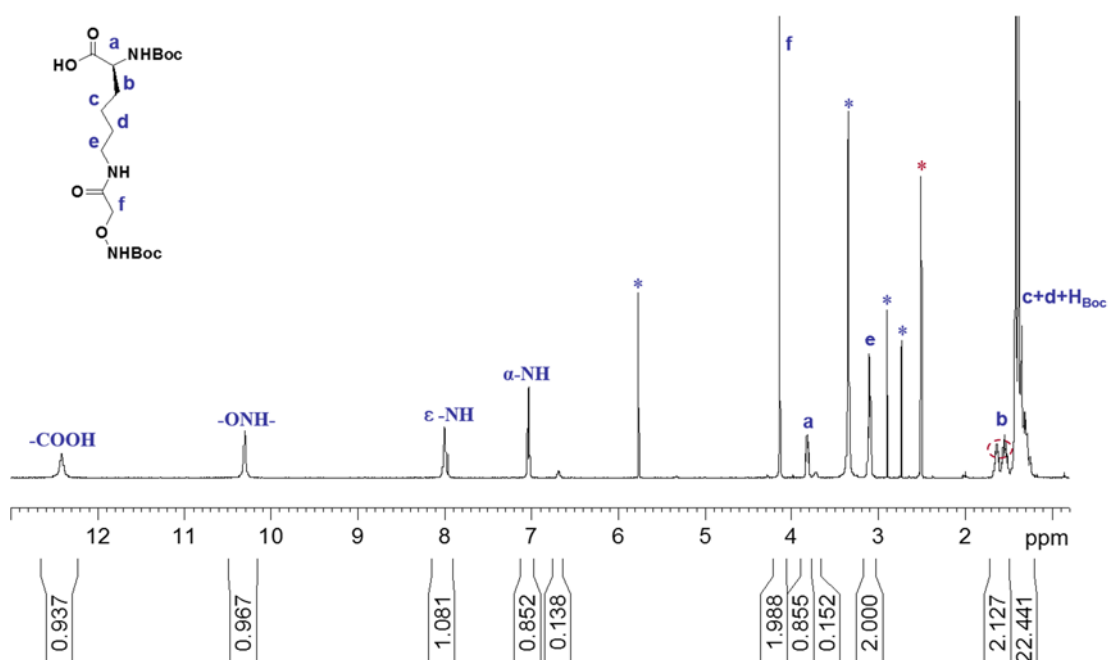


Figure S12. ^1H NMR spectrum of compound **1** in d_6 -DMSO. Signals from residual solvents (DMSO, DMF, and dichloromethane) are marked with asterisks.

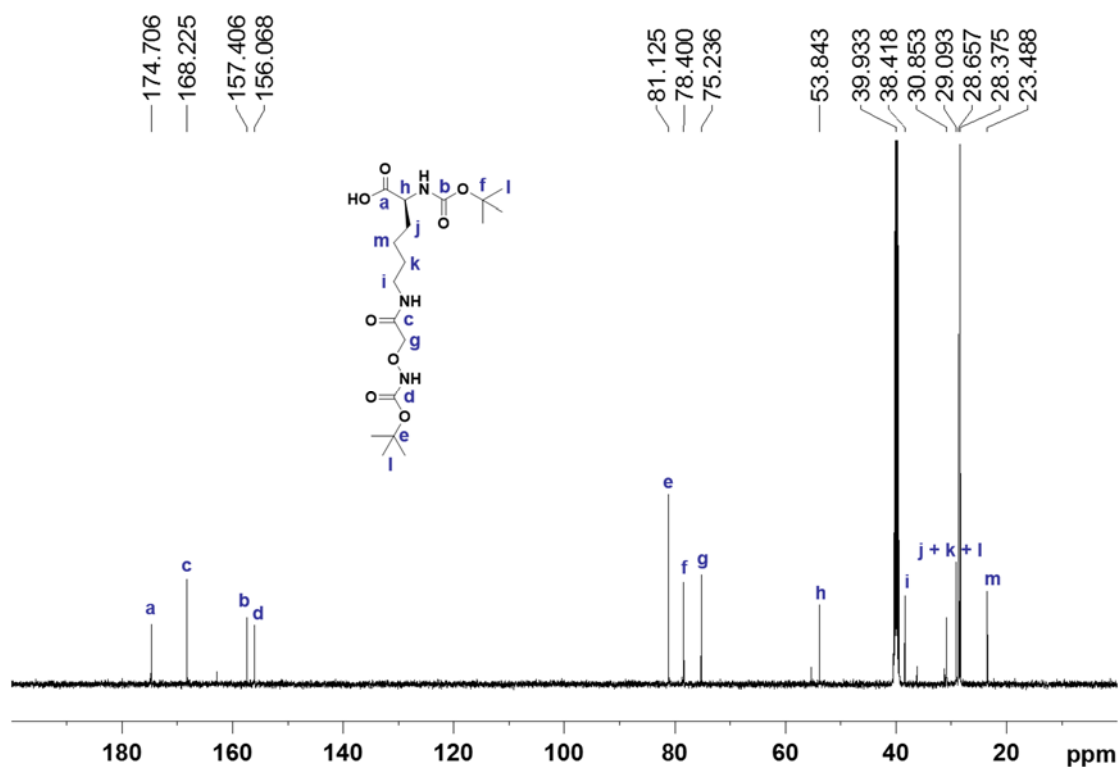


Figure S13. ^{13}C NMR spectrum of compound **1** in d_6 -DMSO.

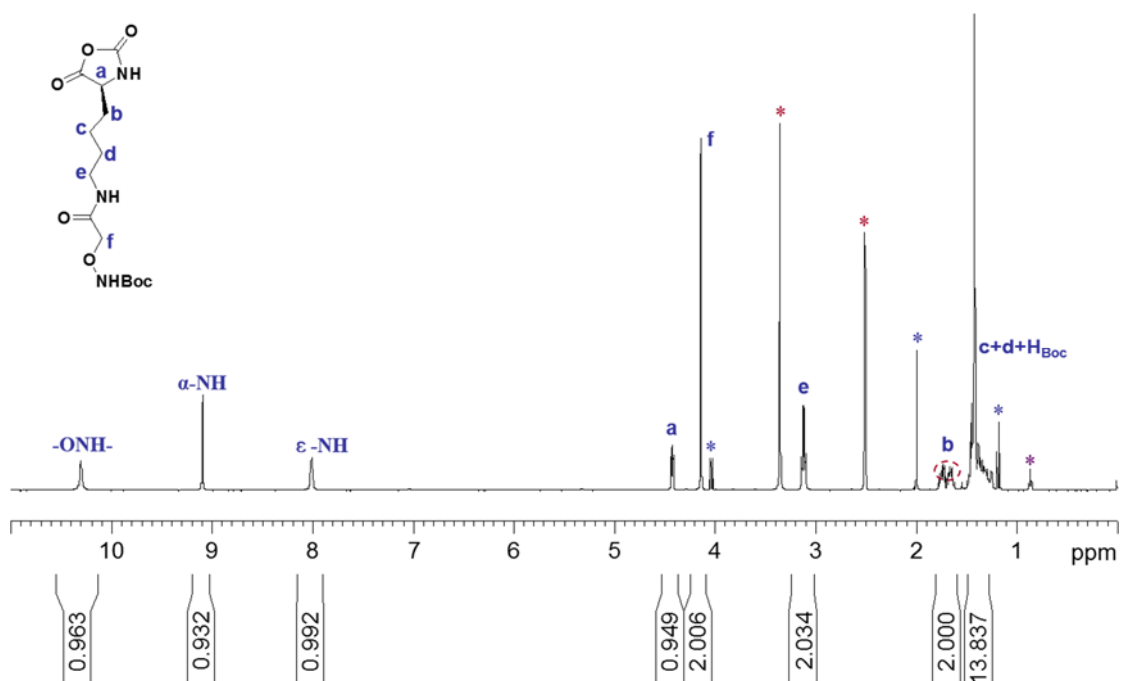


Figure S14. ¹H NMR spectrum of NCA monomer **2** in *d*₆-DMSO. Signals from residual solvents (DMSO and ethyl acetate) are marked with asterisks.

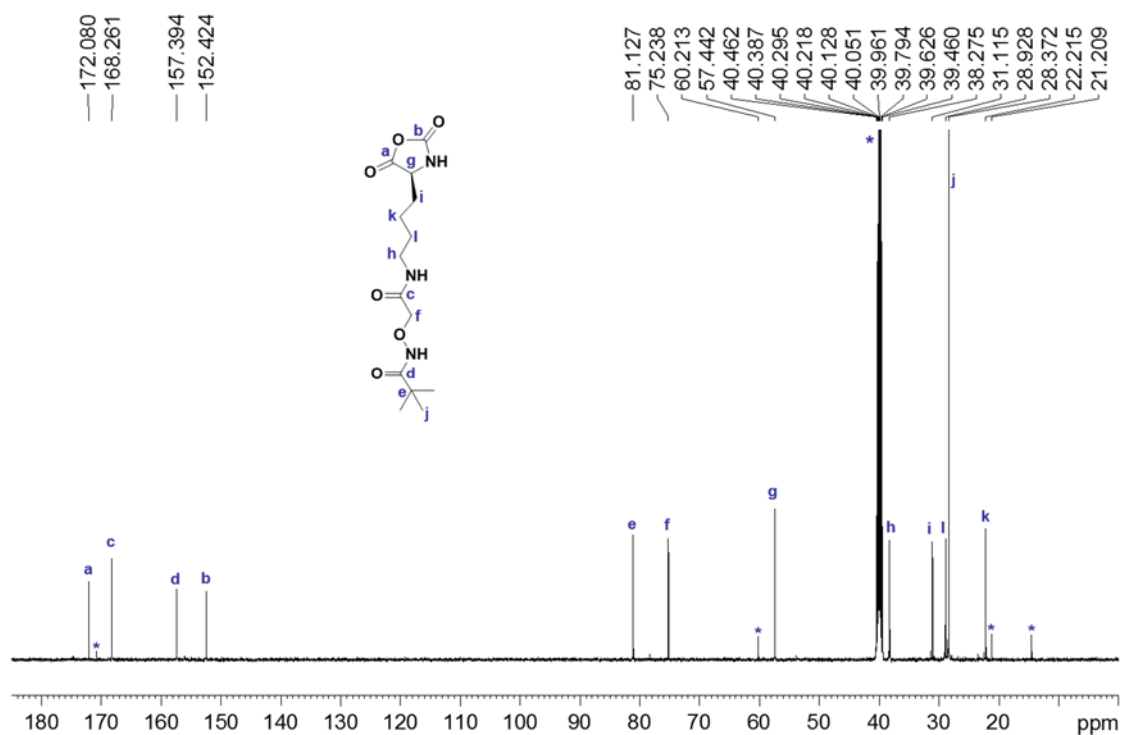


Figure S15. ¹³C NMR spectrum of NCA monomer **2** in *d*₆-DMSO. Solvent signals are marked with asterisks.

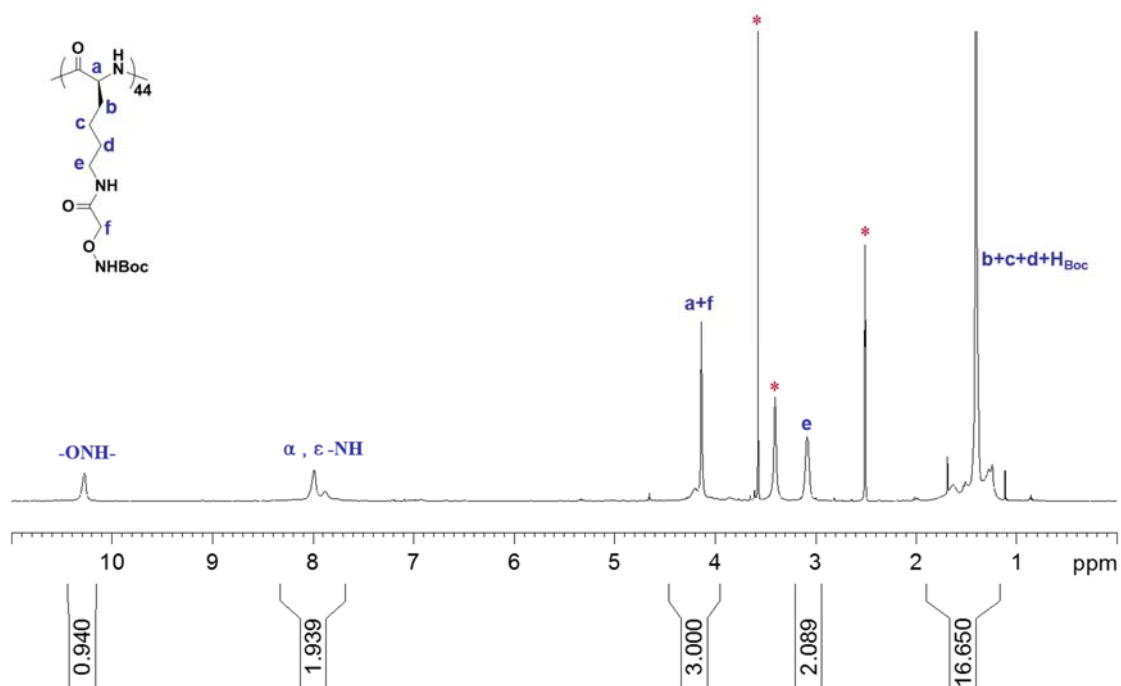


Figure S16. 1H NMR spectrum of $P_{44}Boc$ in d_6 -DMSO. Solvent signals are marked with asterisks.

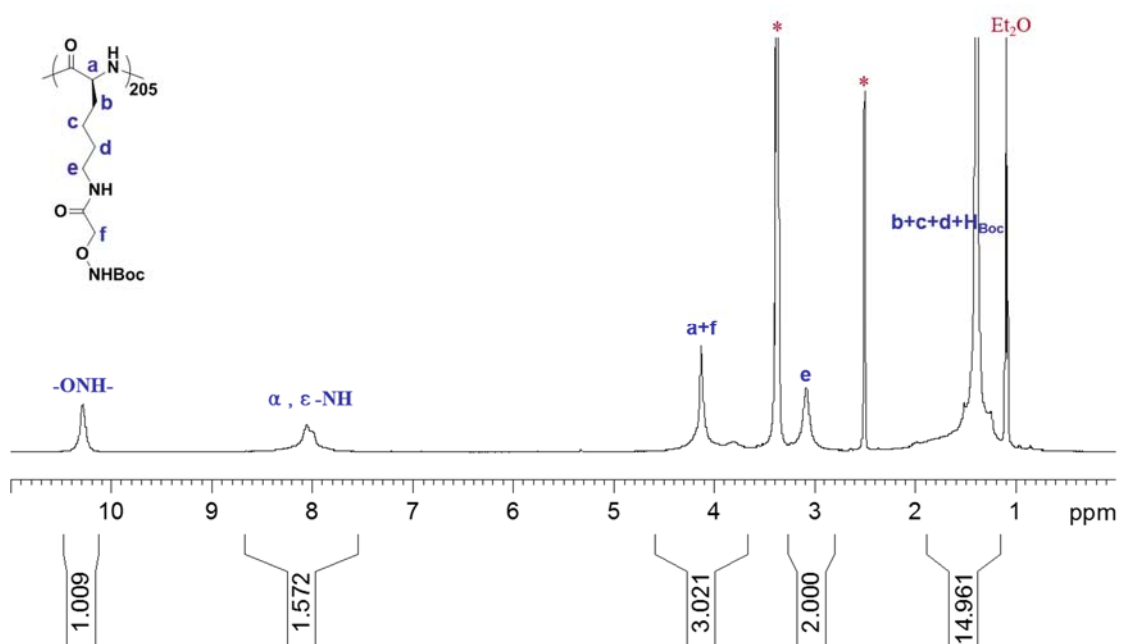


Figure S17. 1H NMR spectrum of $P_{205}Boc$ in d_6 -DMSO. Solvent signals are marked with asterisks.

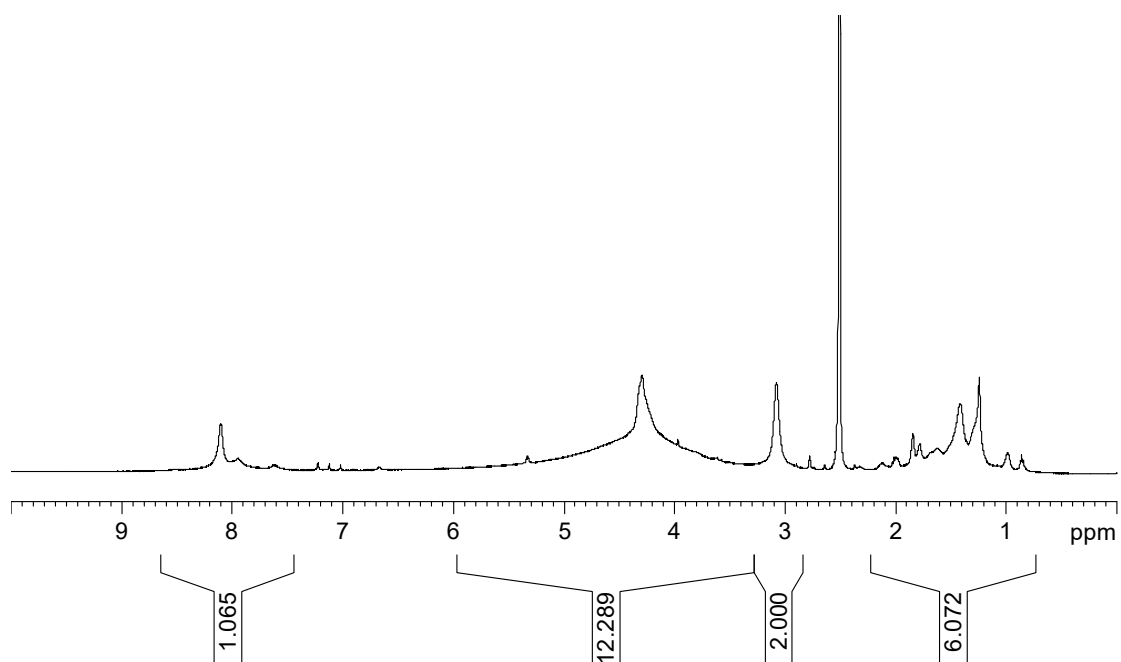


Figure S18. ¹H NMR spectrum of **P_nONH₂** in *d*₆-DMSO.

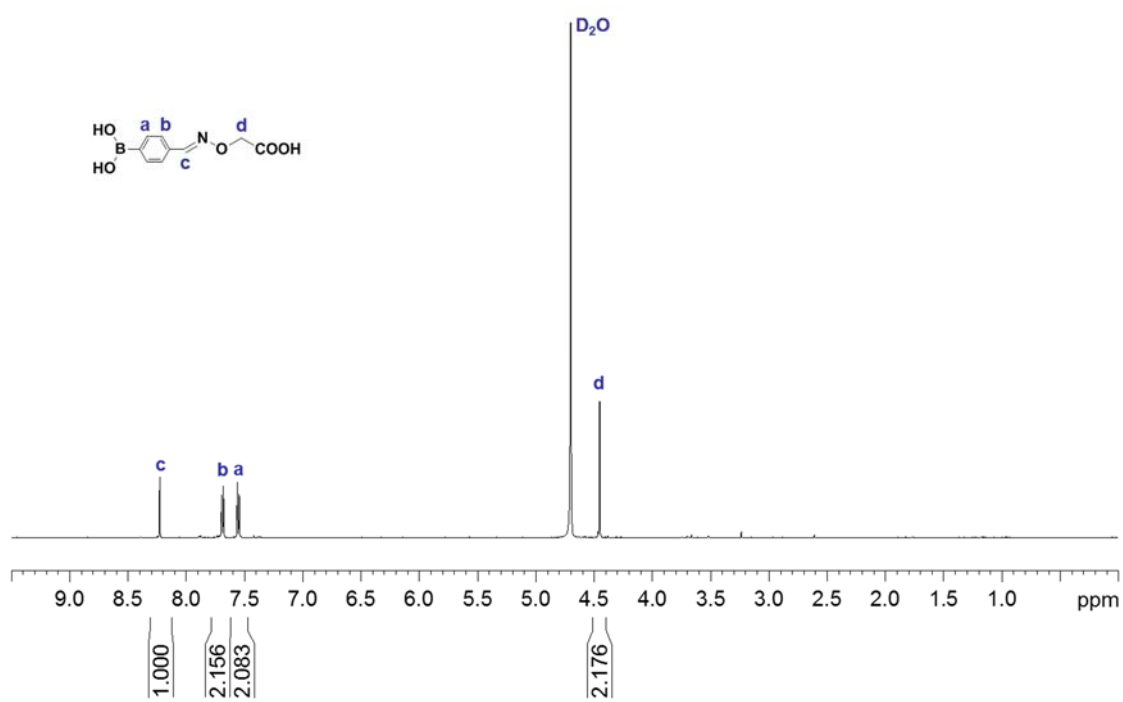


Figure S19. ¹H NMR spectrum of **MB** in pH 7 D₂O buffer.