

Supplementary Materials

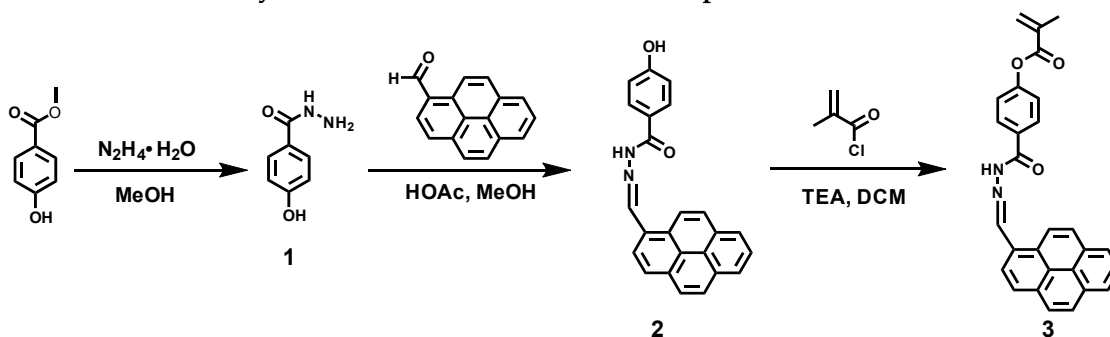
AI-Eigen-Enabled Multicolor Visualization for the Formation of Supramolecular Polymer Networks

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1. Synthesis and characterization of compound 3.



Scheme S1. Synthetic route of compound 3.

Characterization of compound 1.

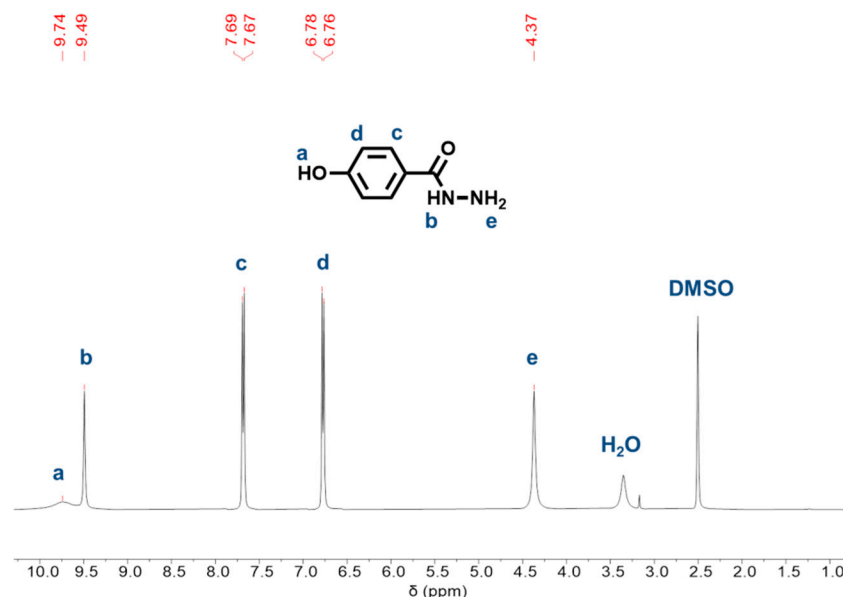


Figure S1. ^1H NMR spectrum ($\text{DMSO}-d_6$, 400 MHz, 298 K) of 1.

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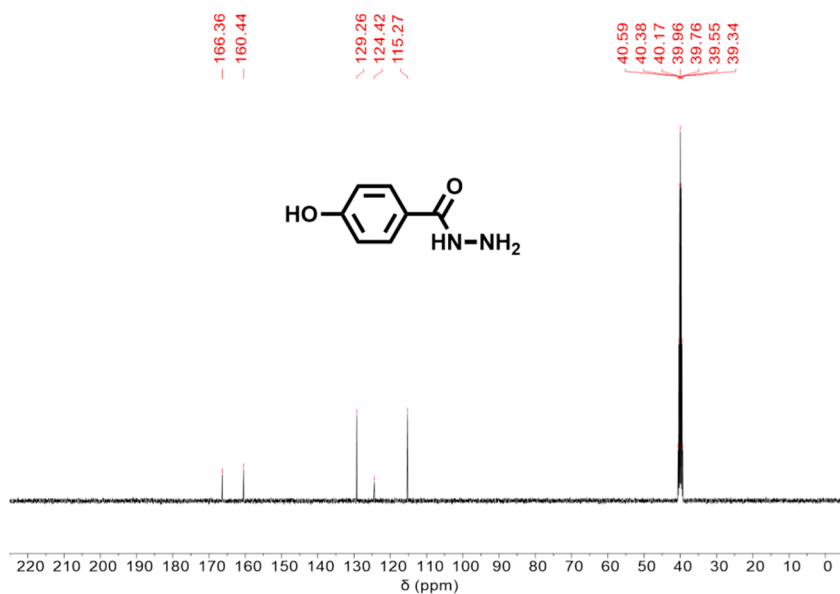


Figure S2. ¹³C NMR spectrum (DMSO-*d*₆, 100 MHz, 298 K) of 1.

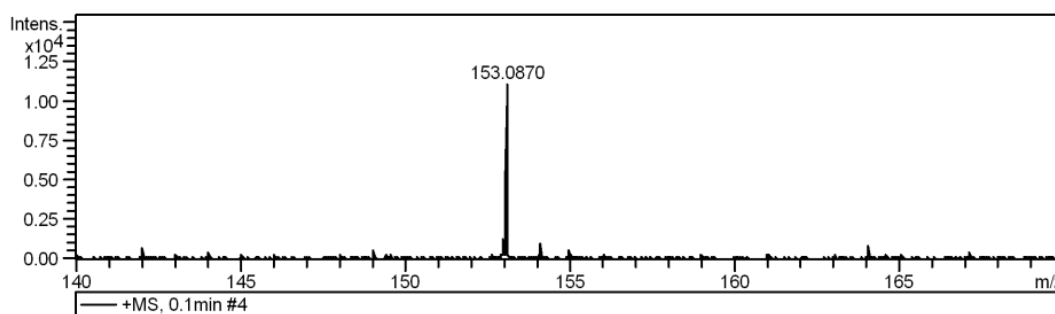


Figure S3. HR-ESI⁺-MS spectrum of 1.

Characterization of compound 2.

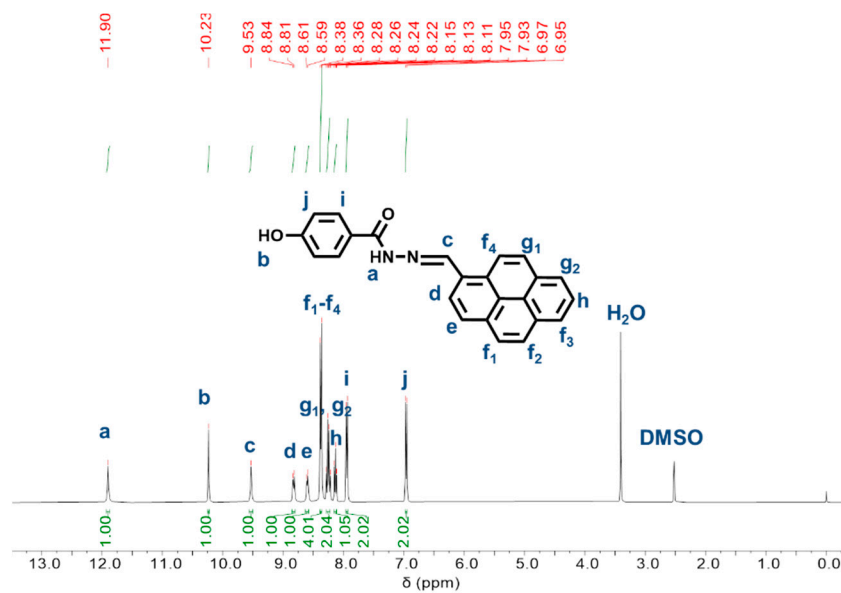


Figure S4. ¹H NMR spectrum (DMSO-*d*₆, 400 MHz, 298 K) of 2.

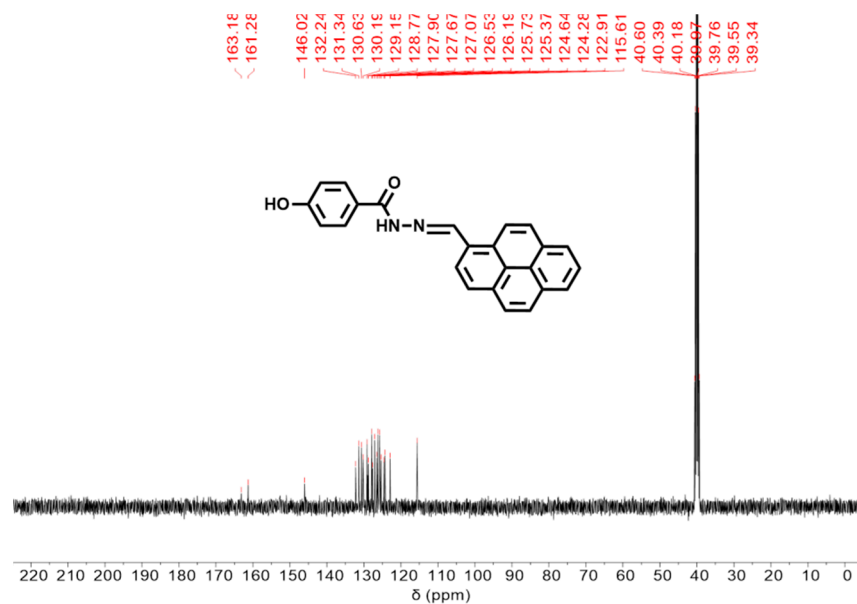


Figure S5. ¹³C NMR spectrum (DMSO-*d*₆, 100 MHz, 298 K) of 2.

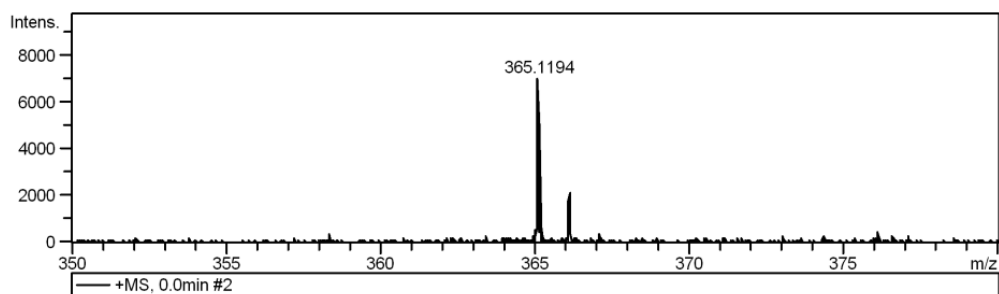


Figure S6. HR-ESI⁺-MS spectrum of 2.

Characterization of compound 3.

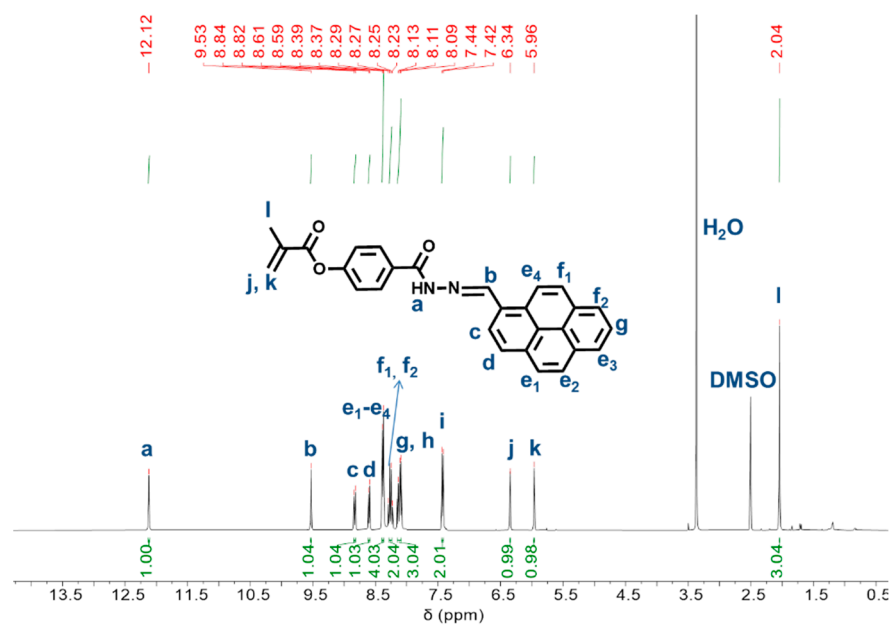


Figure S7. ¹H NMR spectrum (DMSO-*d*₆, 400 MHz, 298 K) of 3.

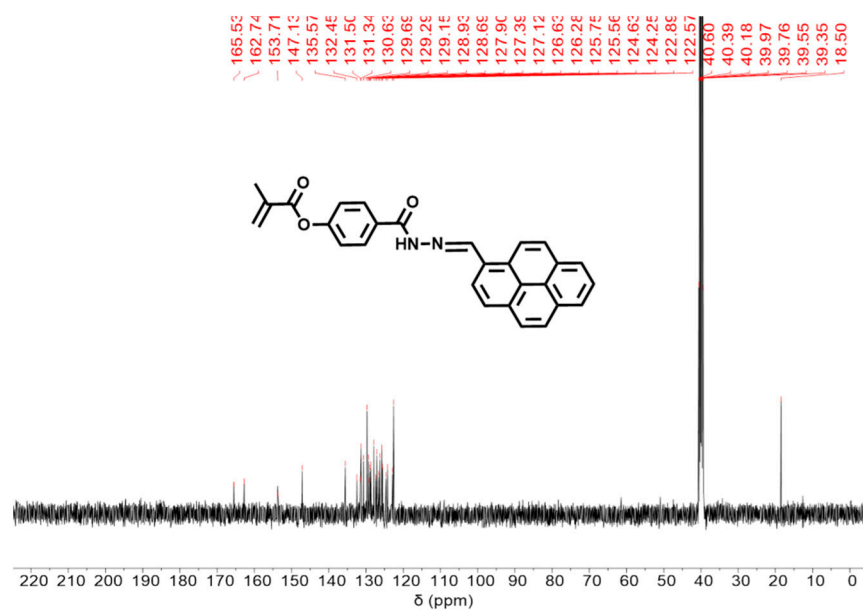


Figure S8. ¹³C NMR spectrum (DMSO-*d*₆, 100 MHz, 298 K) of **3**.

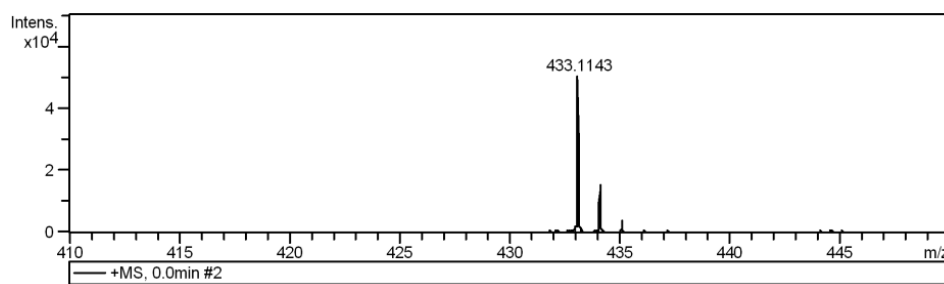
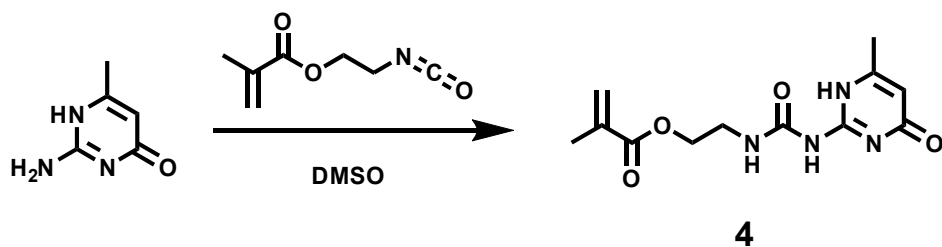


Figure S9. HR-ESI⁺-MS spectrum of **3**.

2. Synthesis and characterization of compound **4**



Scheme S2. Synthetic route of compound **4**.

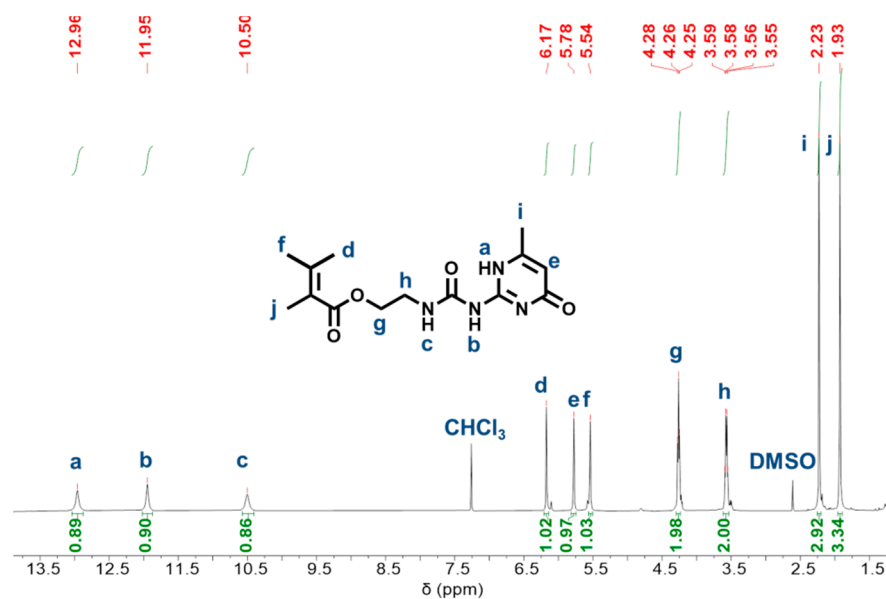


Figure S10. ¹H NMR spectrum (CDCl₃, 400 MHz, 298 K) of 4.

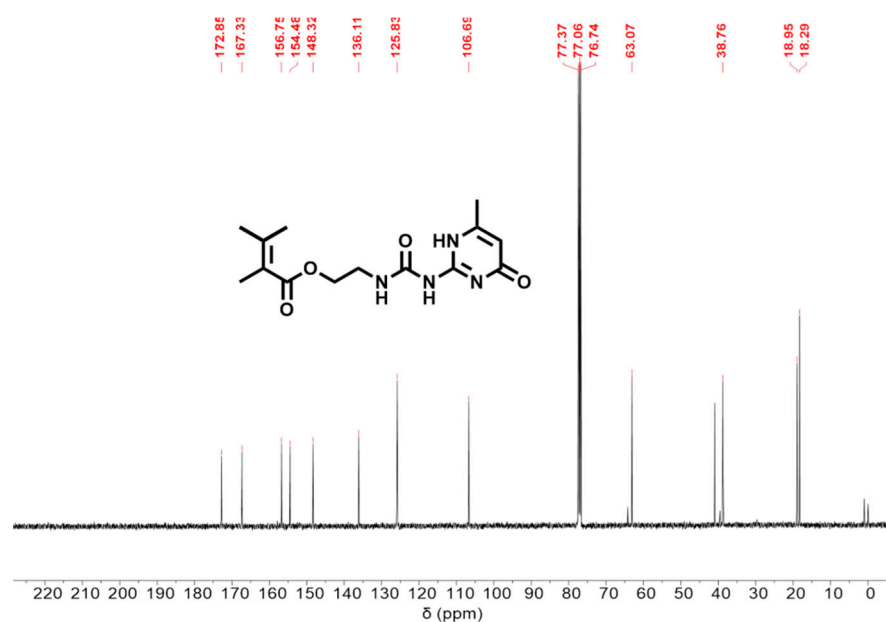


Figure S11. ¹³C NMR spectrum (CDCl₃, 100 MHz, 298 K) of 4.

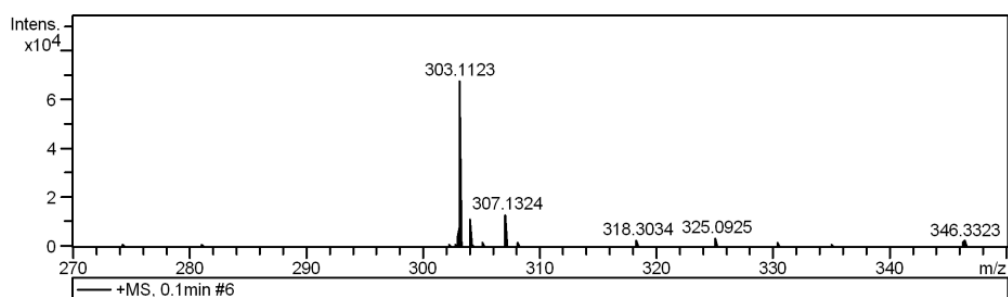
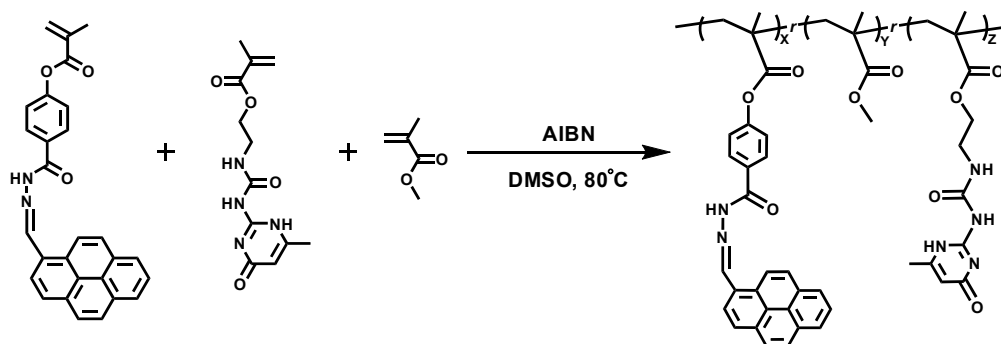


Figure S12. HR-ESI⁺-MS spectrum of 4.

3. Synthesis and characterization of PPMU polymer



Scheme S3. Synthetic route of PPMU polymer.

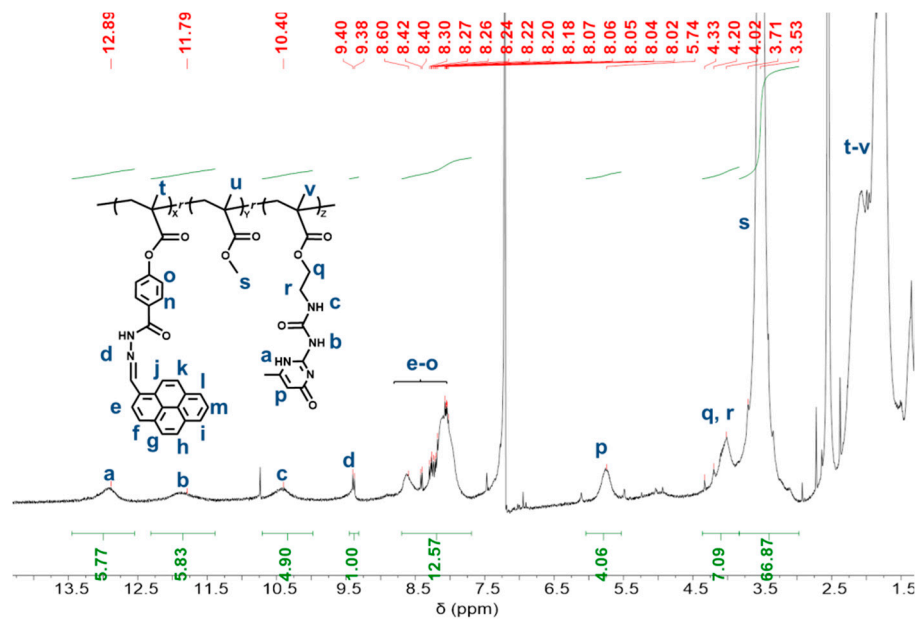


Figure S13. ^1H NMR spectrum (CDCl_3 , 400 MHz, 298 K) of PPMU polymer.

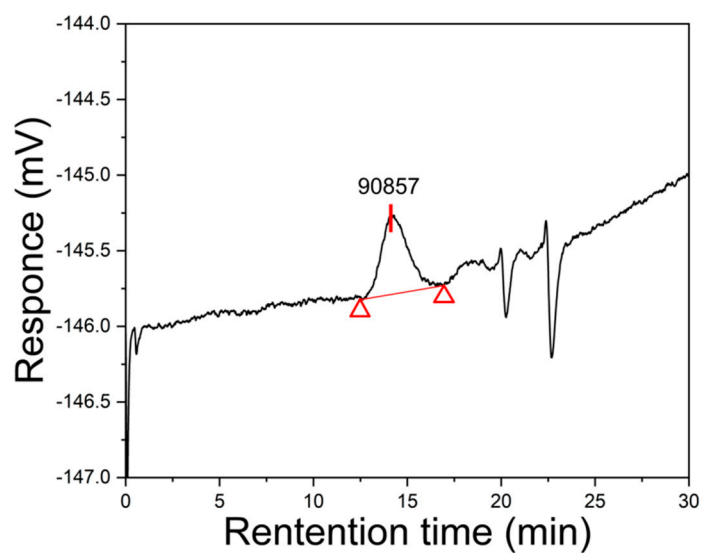


Figure S14. GPC trace of PPMU polymer.

M_n	M_w	M_p	M_z	D
6.79×10^4	1.19×10^5	9.09×10^4	1.99×10^5	1.75

Table S1. GPC analysis of **PPMU** polymer using conventional calculations, with polystyrene as the standard and THF as the solvent.