

Hyperbranched Copolymers Based on Glycidol and Amino Glycidyl Ether: Highly Biocompatible Polyamines Sheathed in Polyglycerols

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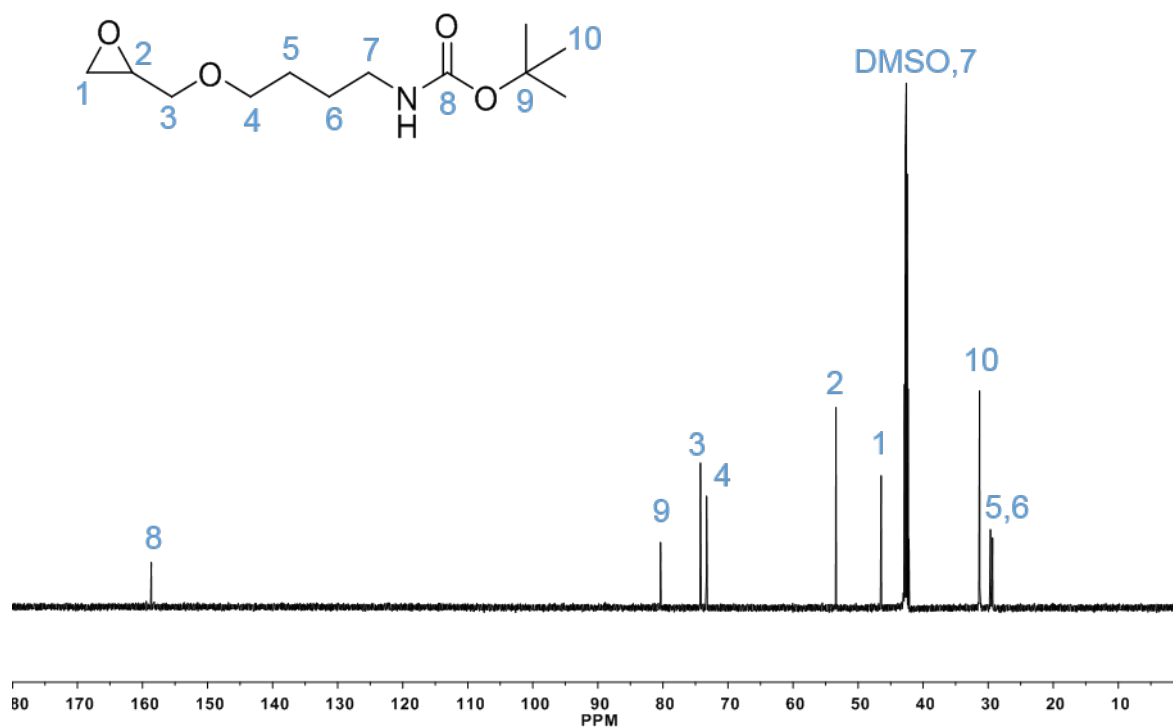


Figure S1. ^{13}C NMR spectrum of BBAG monomer in $\text{DMSO}-d_6$.

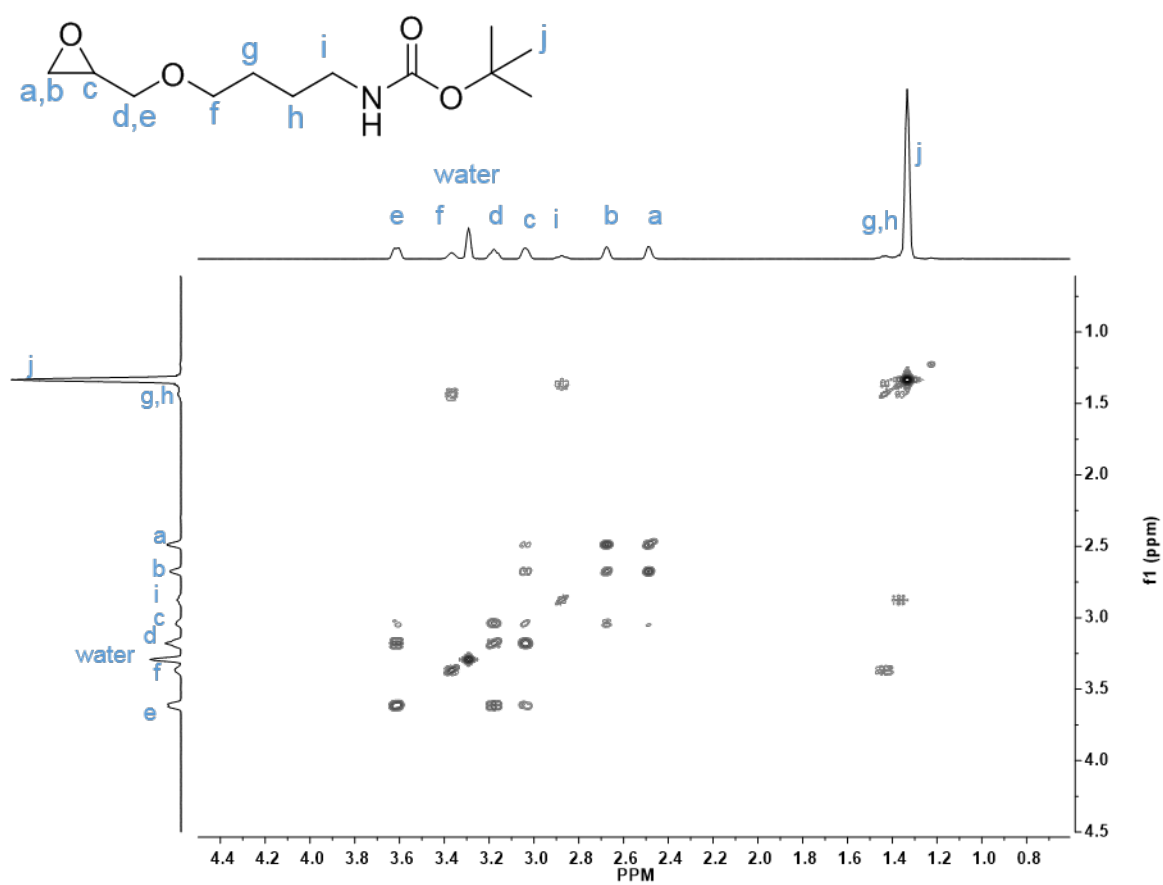


Figure S2. COSY spectrum of BBAG monomer in DMSO-*d*₆.

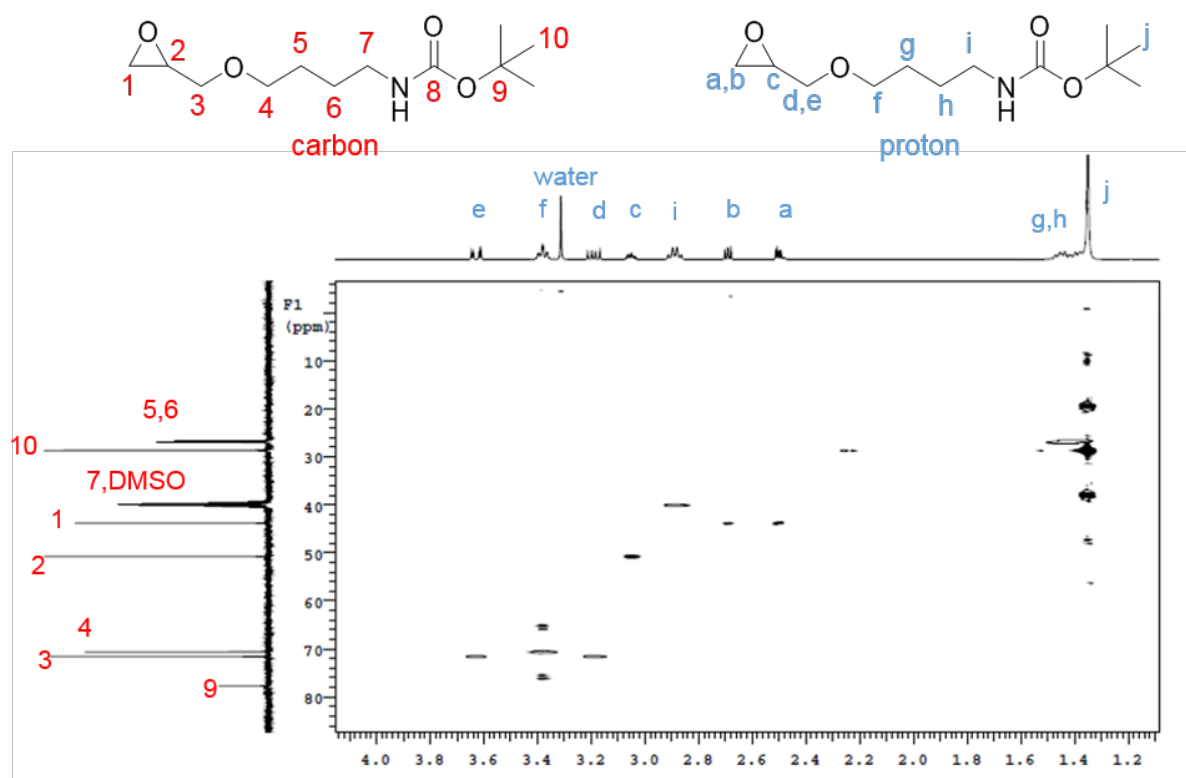


Figure S3. HMQC spectrum of BBAG monomer in DMSO-*d*₆.

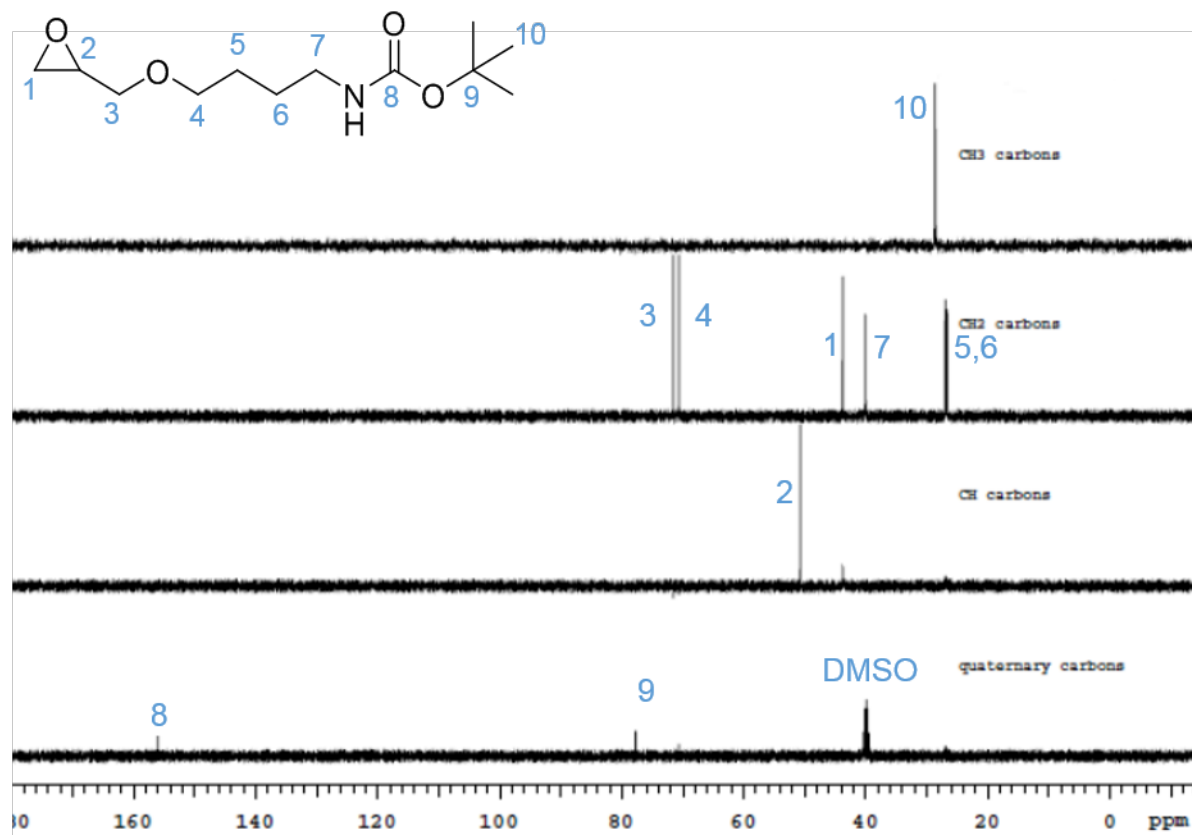


Figure S4. DEPT spectra of BBAG monomer in DMSO- d_6 .

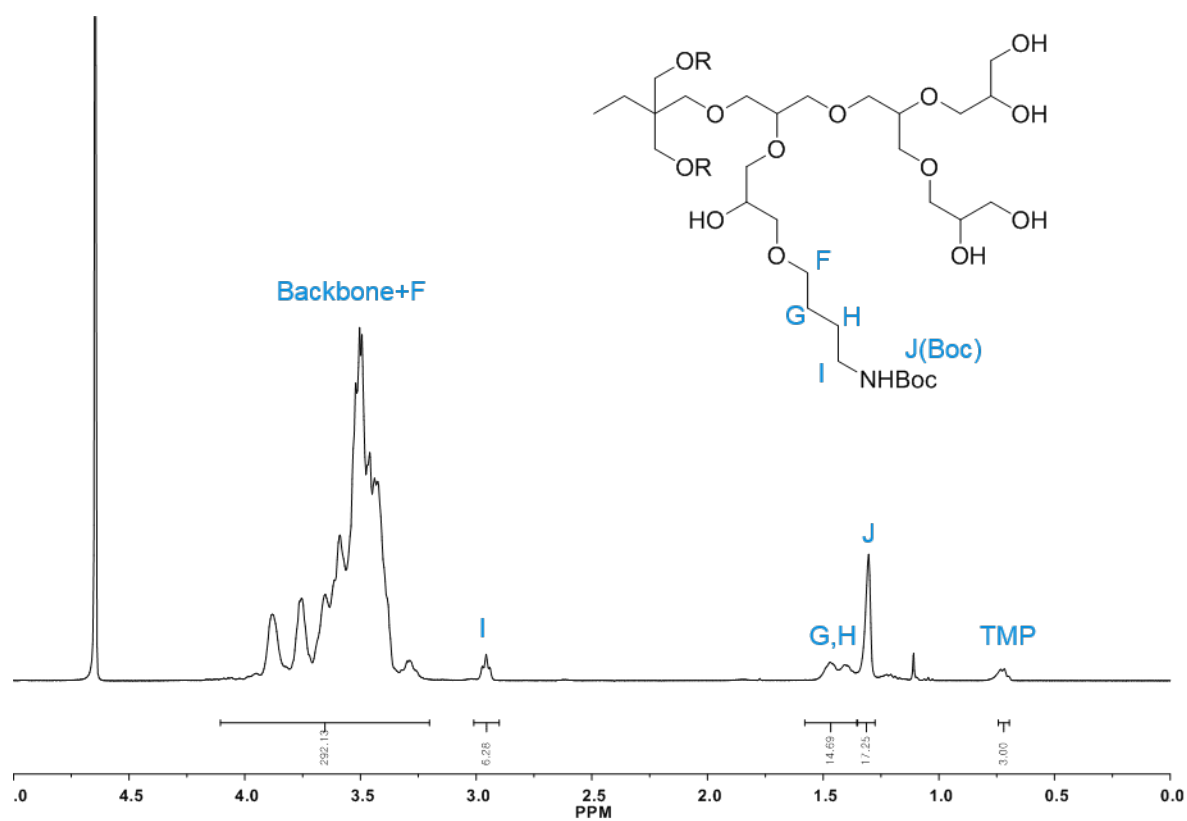


Figure S5. ^1H NMR spectrum of $\text{P}(\text{G}_{56}\text{-co-BBAG}_2)$ polymer (polymer 1) in D_2O .

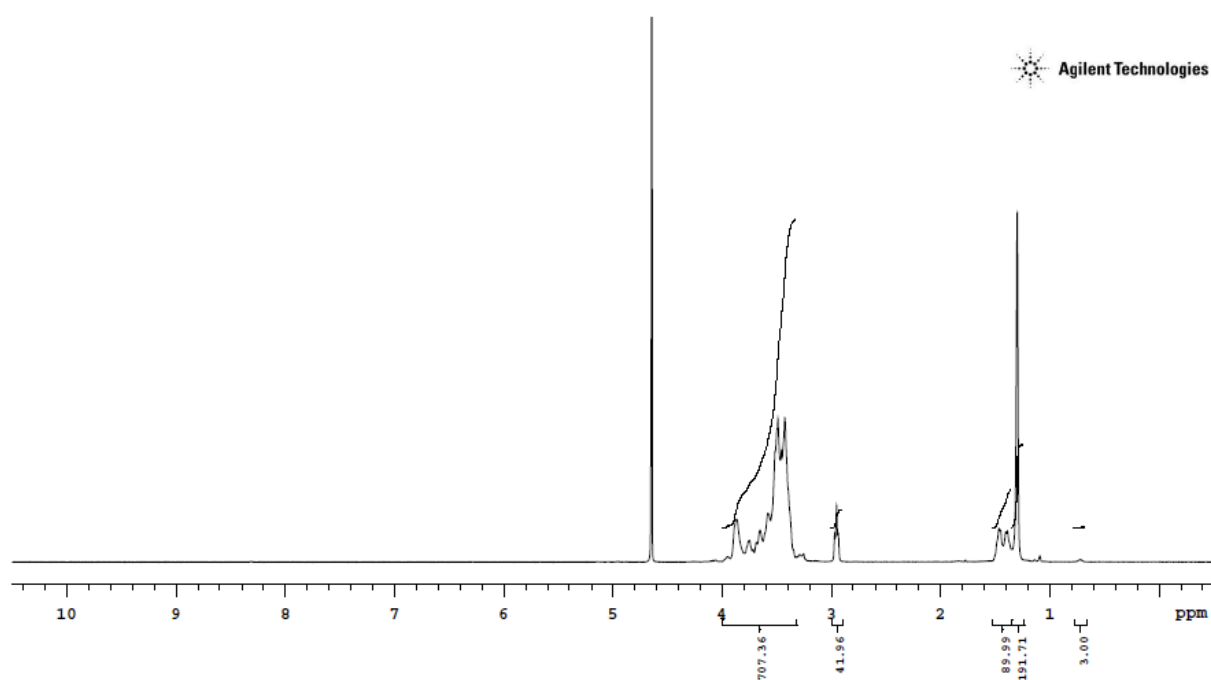


Figure S6. ^1H NMR spectrum of P(G₁₁₃-co-BBAG₂₁) polymer (polymer 7) in D₂O.

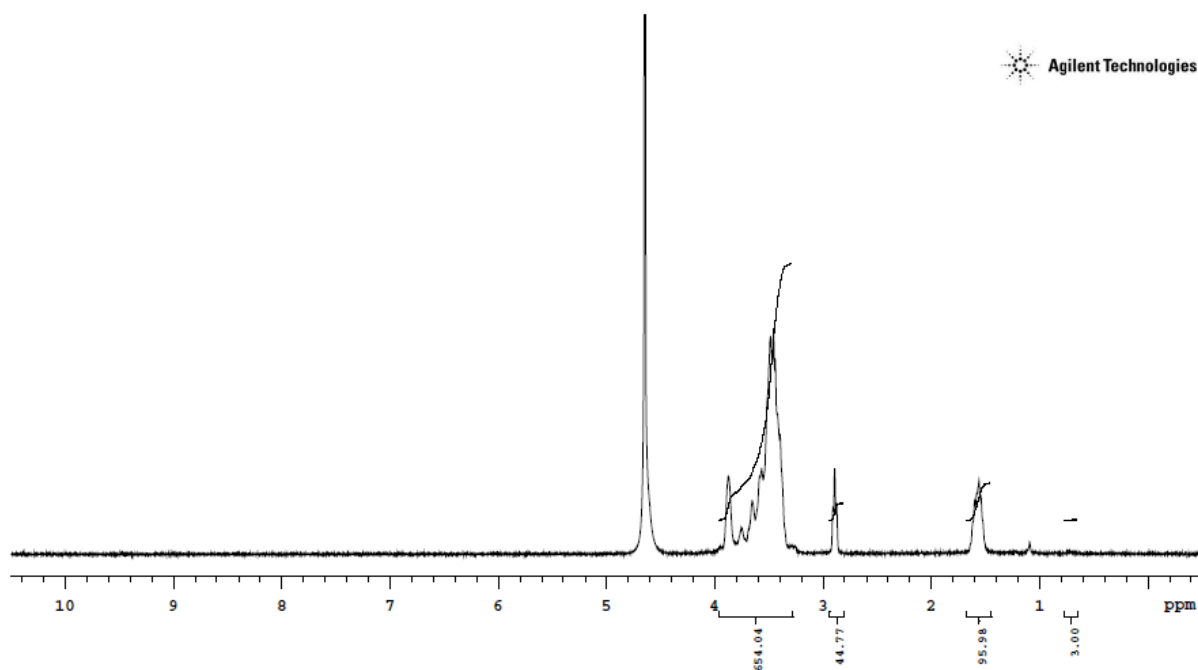


Figure S7. ^1H NMR spectrum of P(G₁₁₃-co-BAG₂₁) polymer (deprotected polymer 7) in D₂O.

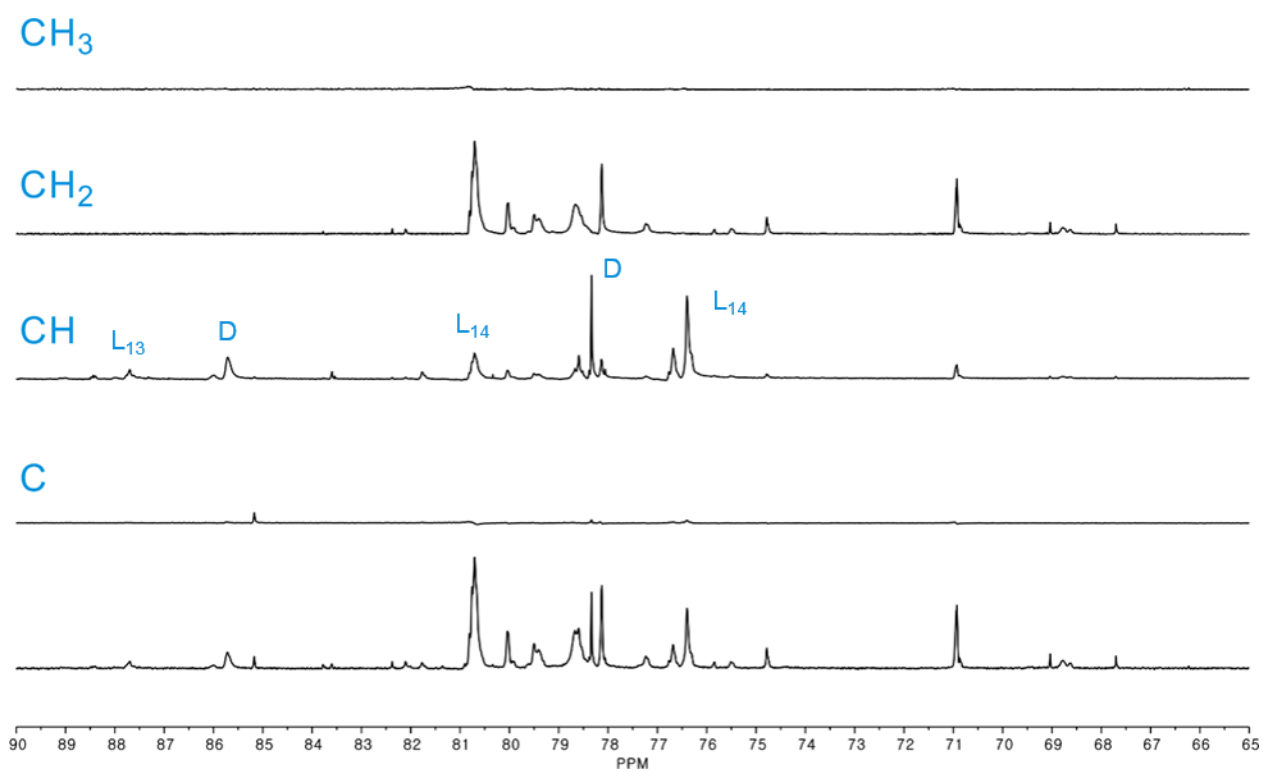


Figure S8. DEPT spectra of P(G₁₁₃-co-BBAG₂₁) polymer (polymer 7) in DMSO-*d*₆.

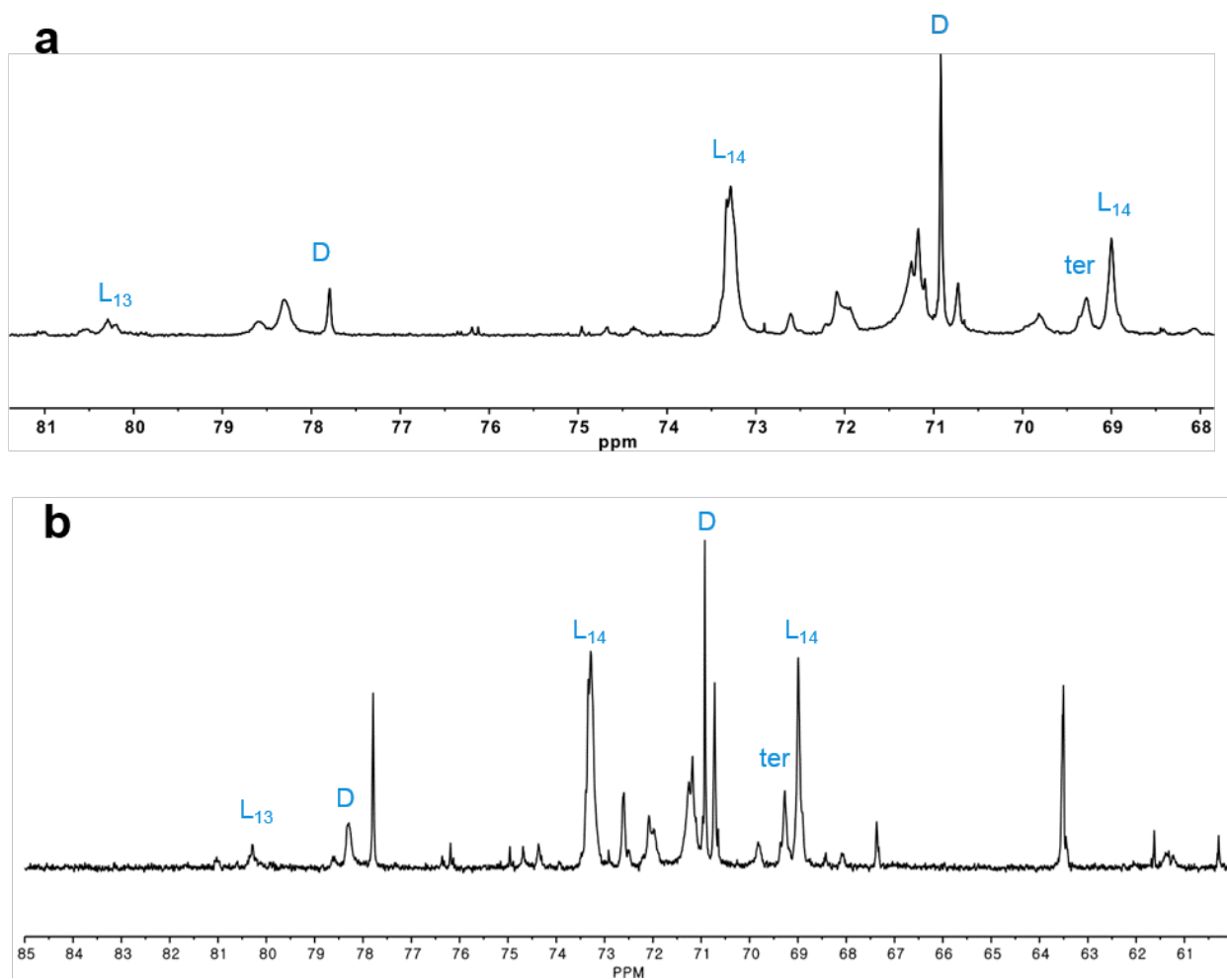


Figure S9. Detailed ^{13}C NMR spectrum of (a) $\text{P}(\text{G}_{149}\text{-co-BBAG}_{11})$ polymer (polymer 5) and (b) $\text{P}(\text{G}_{113}\text{-co-BBAG}_{21})$ polymer (polymer 7) in $\text{DMSO-}d_6$.

Calculation of Degree of Branching

Using relative integral values from ^{13}C NMR in Table S1, degree of branching (DB) of the copolymers was determined according to the equation for AB/AB₂ systems below.

$$DB_{AB/AB_2} = \frac{2D}{2D + \sum L}$$

Table S1. Calculation of degree of branching based on the ^{13}C NMR spectra of copolymers.

Region	Chemical Shift (ppm)	Relative Integral Values	
		Polymer 5	Polymer 7
L ₁₃	80.0-81.5	1.00	1.00
D	78.0-78.5	3.19	3.53
L ₁₄	73.0-73.5	4.22	4.80
D	70.5-71.0	6.13	8.42
Terminal	68.7-69.2	2.60	5.13
L ₁₄	69.2-69.5	5.54	13.7

$$DB_{polymer\ 5} = \frac{\{2 \times (3.19 + 6.13)\}}{\{2 \times (3.19 + 6.13) + (1 + 4.22 + 5.54)\}} = 0.63$$

$$DB_{polymer\ 7} = \frac{\{2 \times (3.53 + 8.42)\}}{\{2 \times (3.53 + 8.42) + (1 + 4.80 + 13.07)\}} = 0.56$$

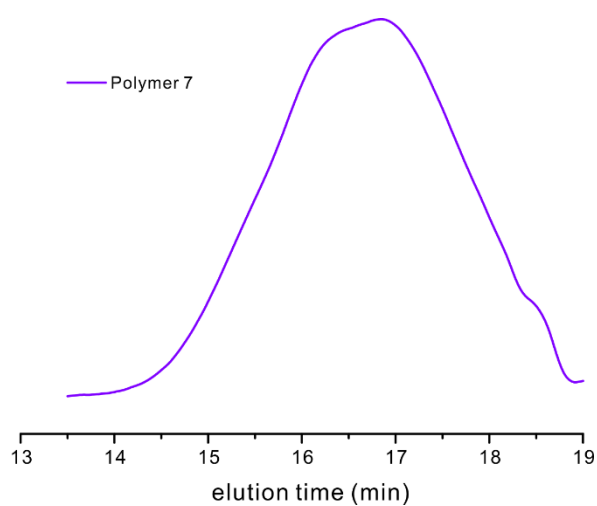


Figure S10. Representative gel permeation chromatogram of P(G₁₁₃-*co*-BBAG₂₁) polymer (polymer 7).

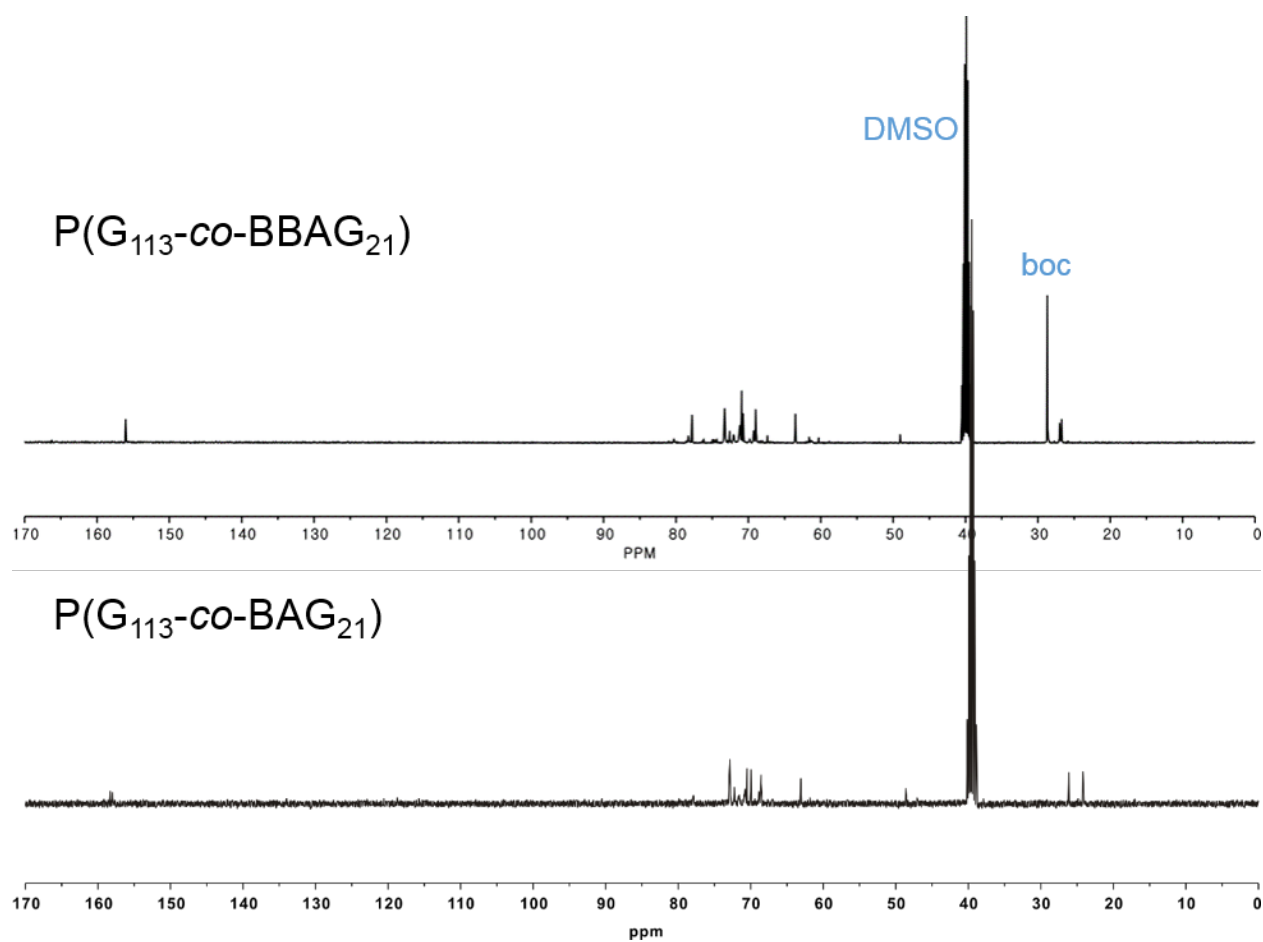


Figure S11. ^{13}C NMR spectrum of $\text{P}(\text{G}_{113}\text{-co-BBAG}_{21})$ polymer (polymer 7) and $\text{P}(\text{G}_{113}\text{-co-BAG}_{21})$ polymer in $\text{DMSO-}d_6$.

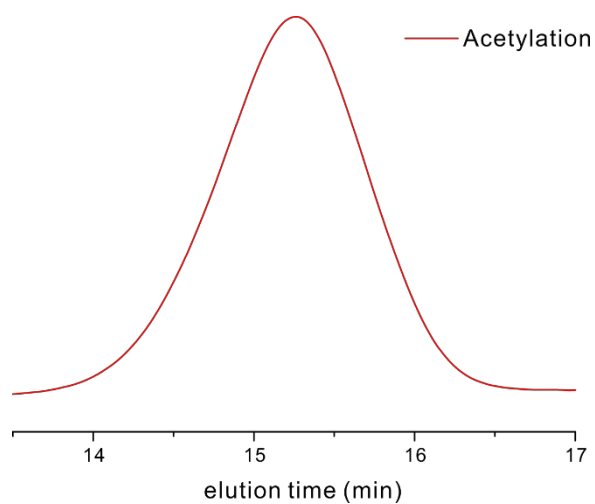


Figure S12. Gel permeation chromatogram of acetylated P(G₁₁₃-*co*-BAG₂₁) polymer (polymer 7).