SUPPORTING INFORMATION

Lipase-mediated Synthesis of Sugar-PEG-based Amphiphiles for Encapsulation and Stabilization of Indocyanine Green

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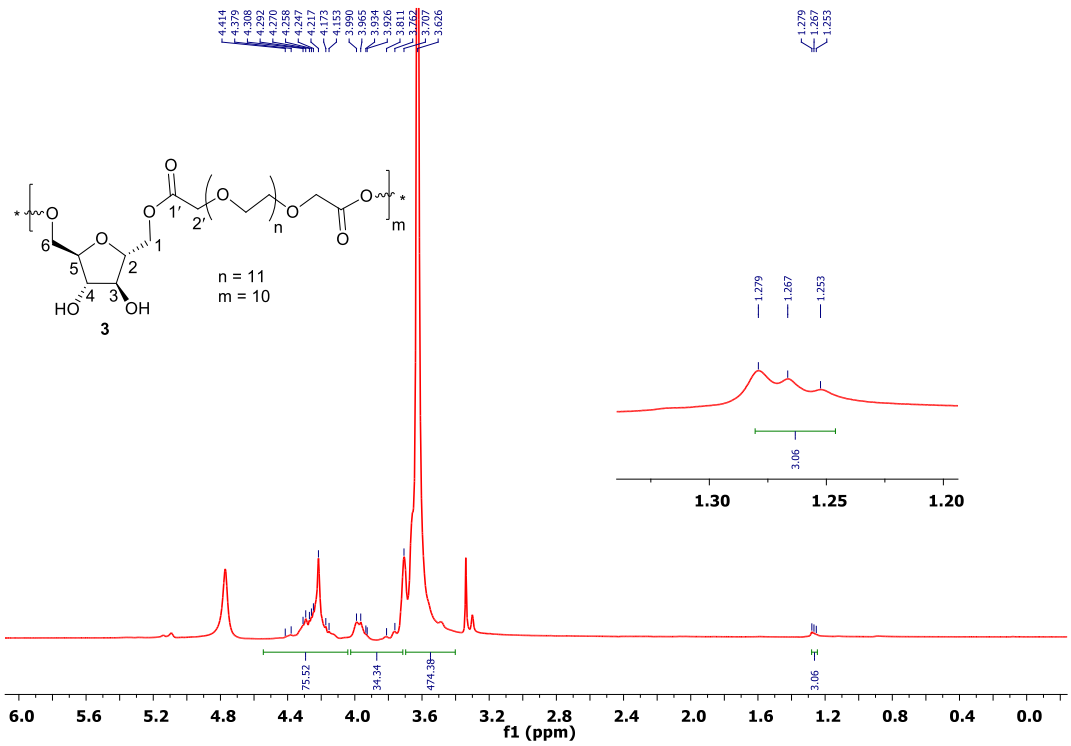


Figure S1. ^{1}H NMR spectrum (500 MHz, CD_3OD) of copolymer **3**.

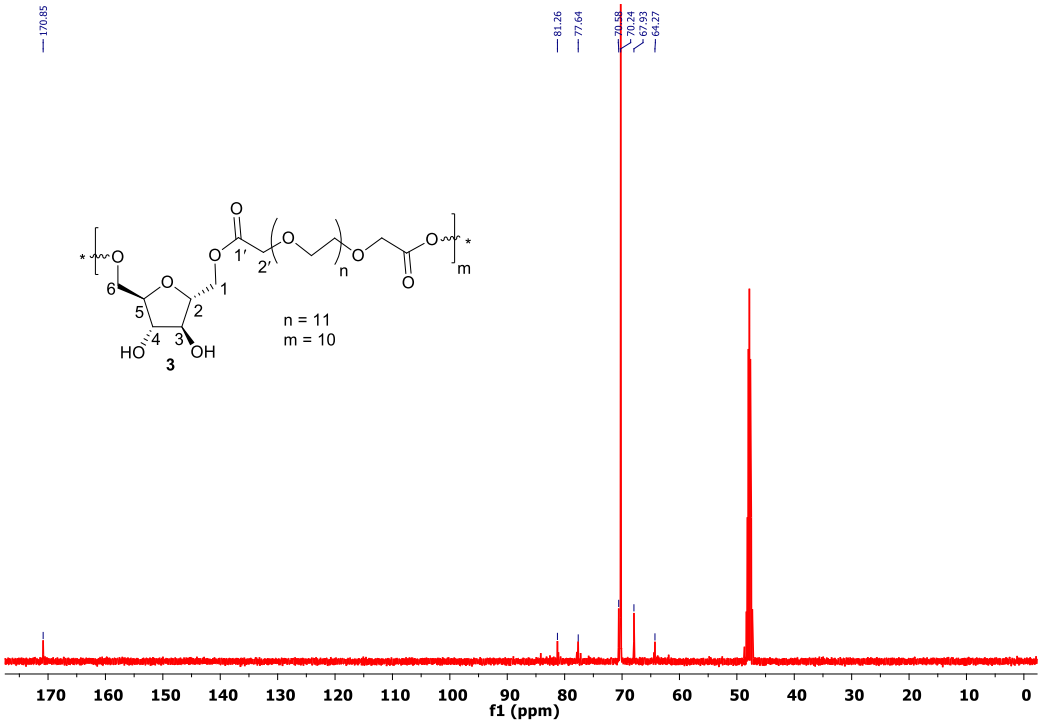


Figure S2. ^{13}C NMR spectrum (125 MHz, CD_3OD) of copolymer **3**.

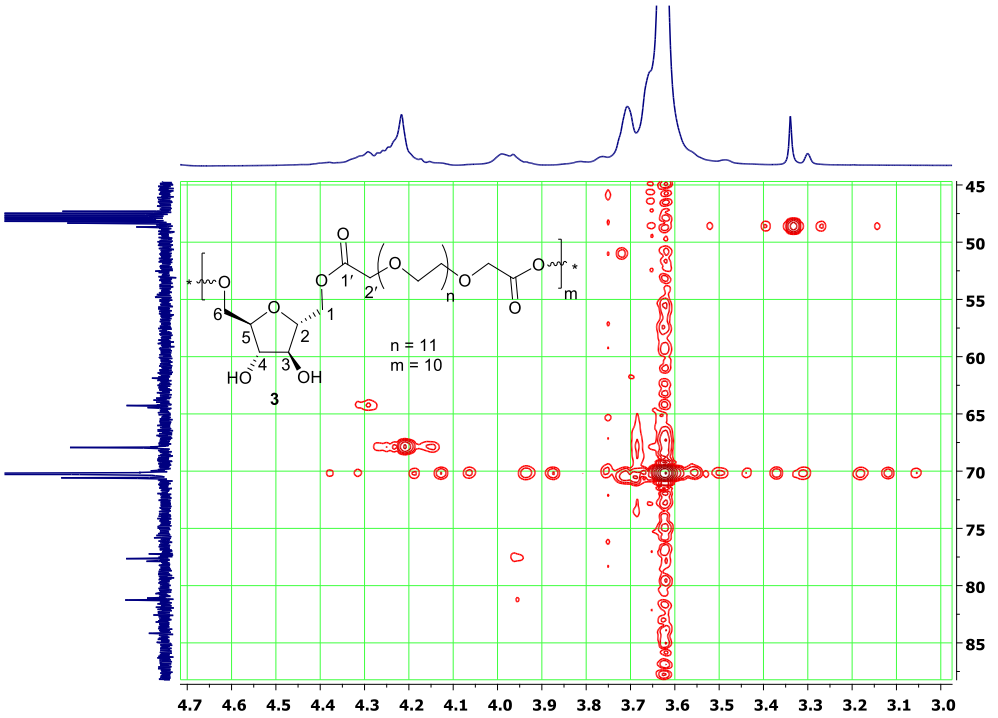


Figure S3. (^{1}H-^{13}C) HSQC spectrum (500 MHz, CD_3OD) of copolymer **3**.

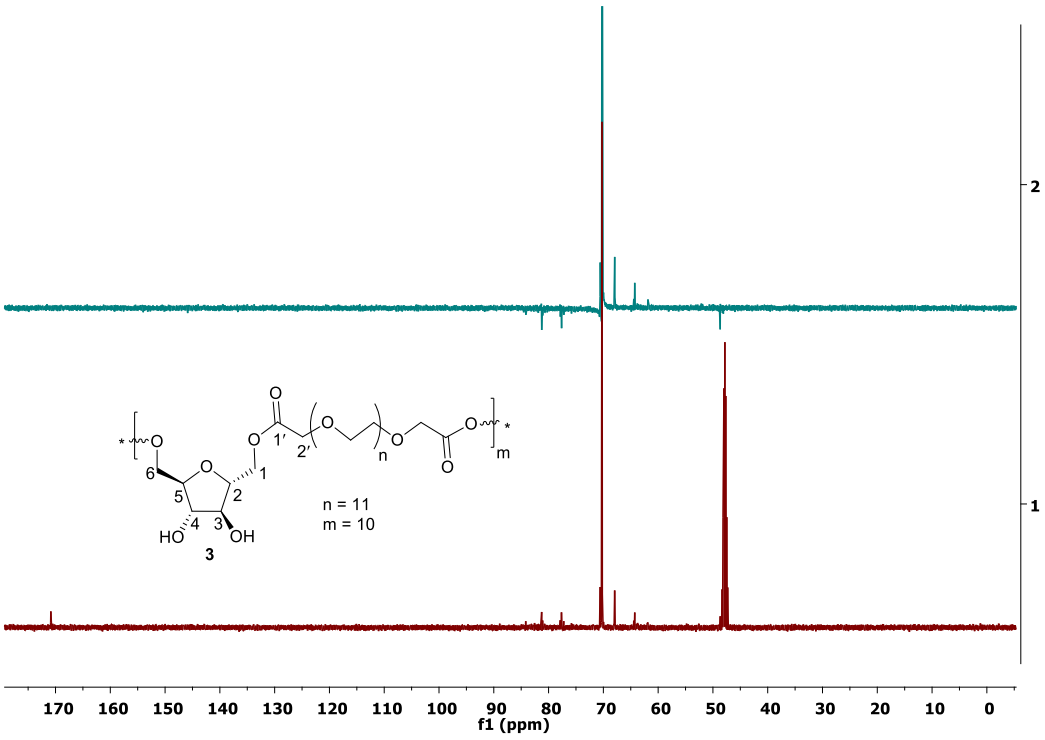


Figure S4. DEPT-135 NMR spectrum (125 MHz, CD_3OD) of copolymer **3**.

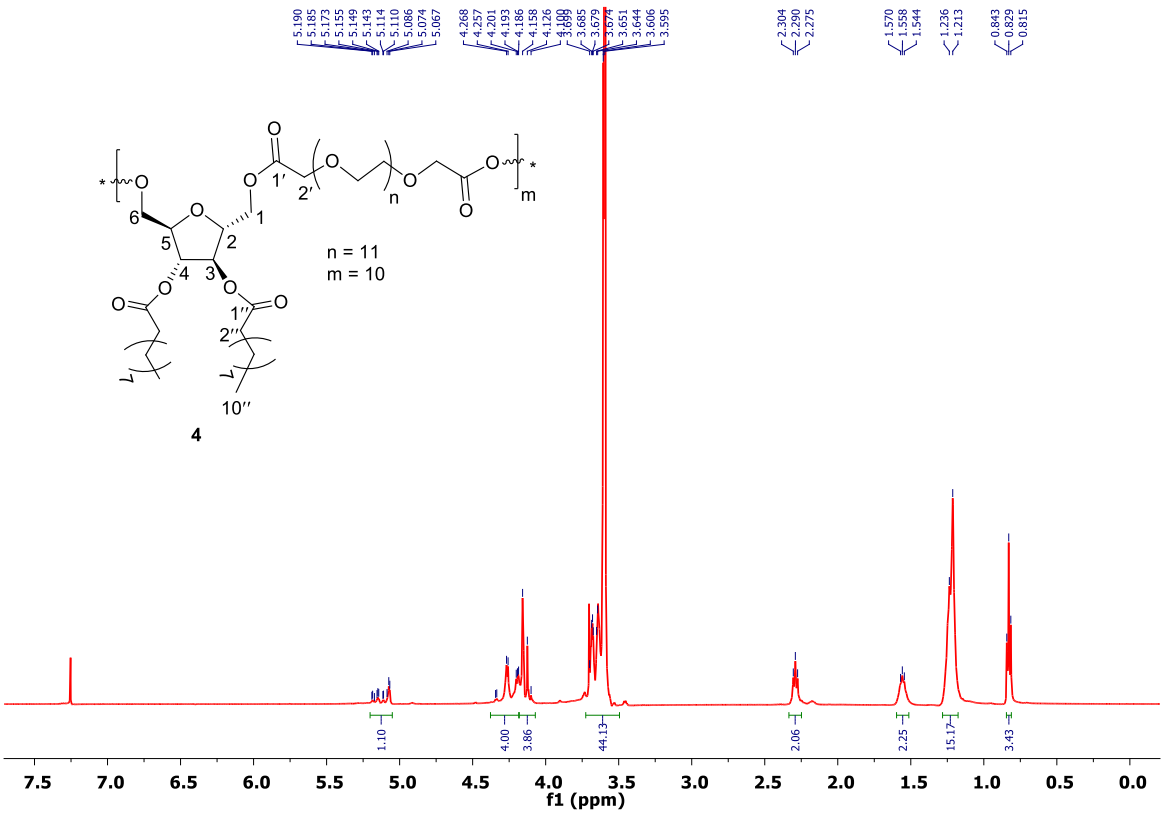


Figure S5. ^{1}H NMR spectrum (500 MHz, $CDCl_3$) of copolymer **4**.

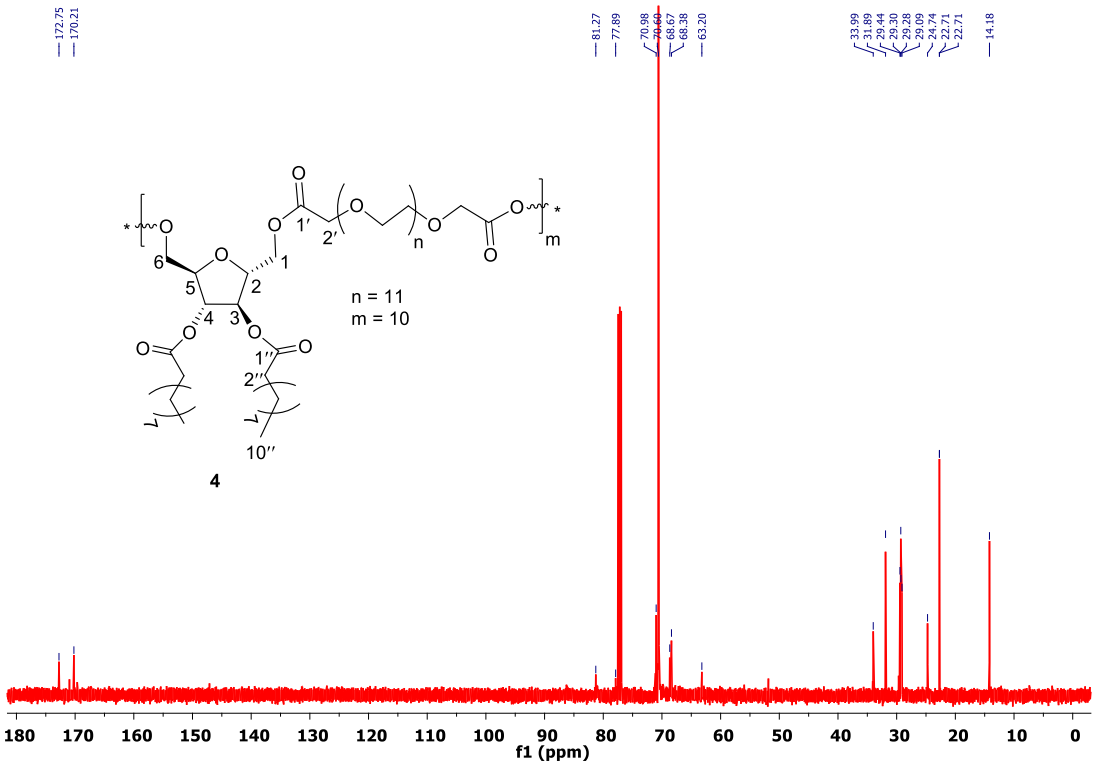


Figure S6. ^{13}C NMR spectrum (125 MHz, $CDCl_3$) of copolymer **4**.

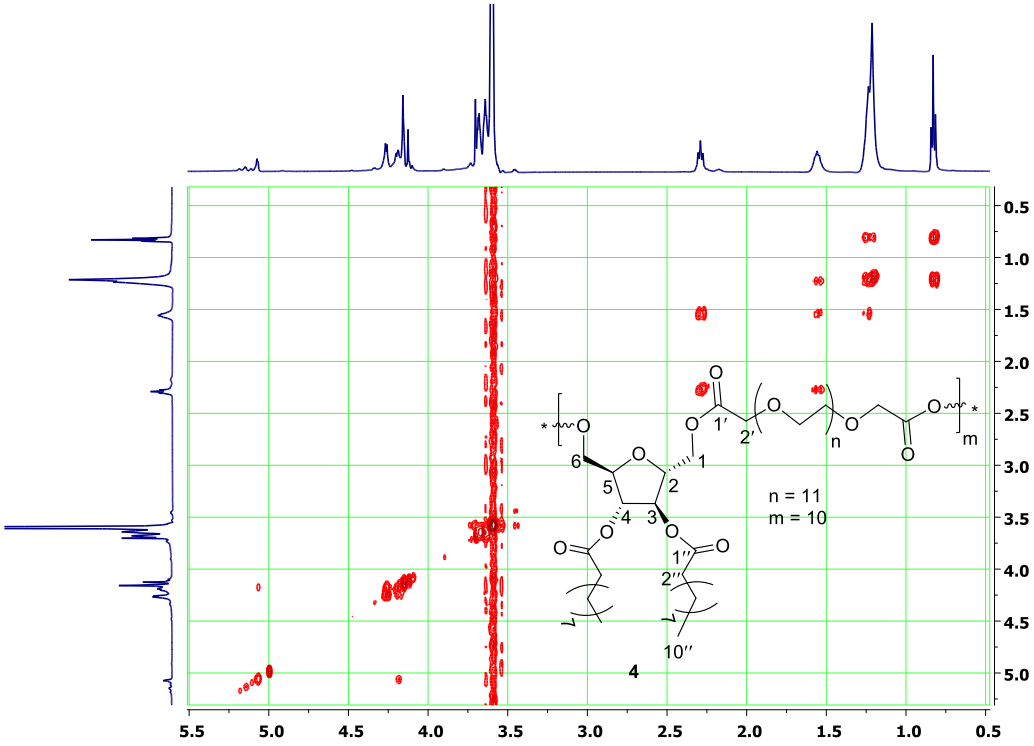


Figure S7. (^{1}H-^{1}H) COSY spectrum (500 MHz, $CDCl_3$) of copolymer **4**.

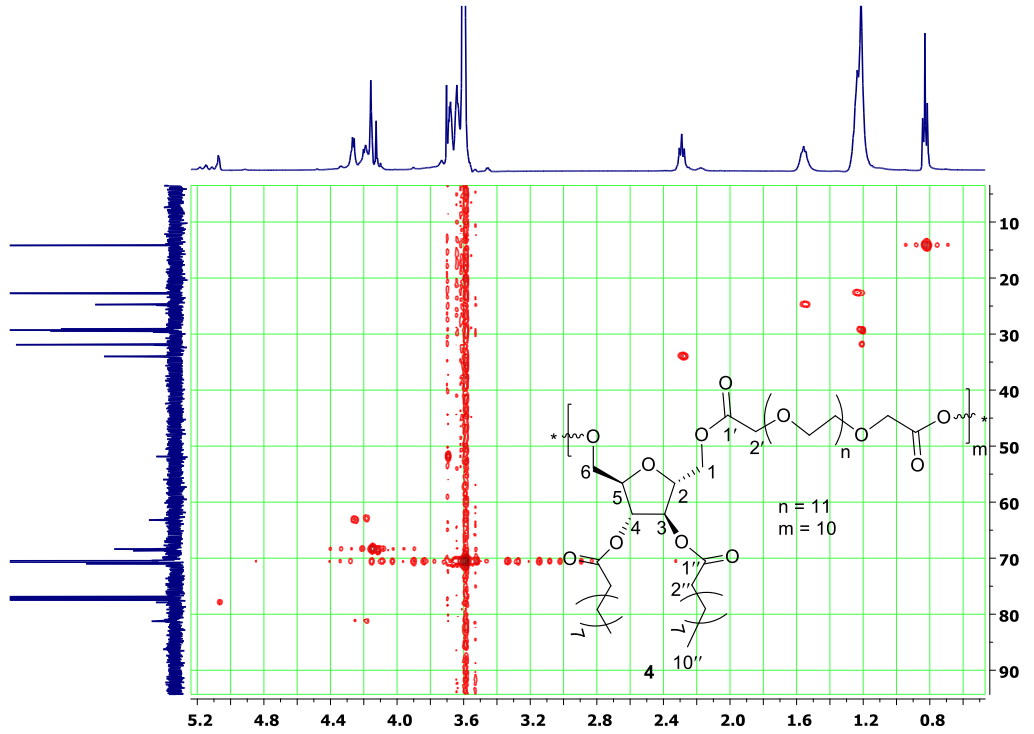


Figure S8. (^{1}H-^{13}C) HSQC spectrum (500 MHz, $CDCl_3$) of copolymer **4**.

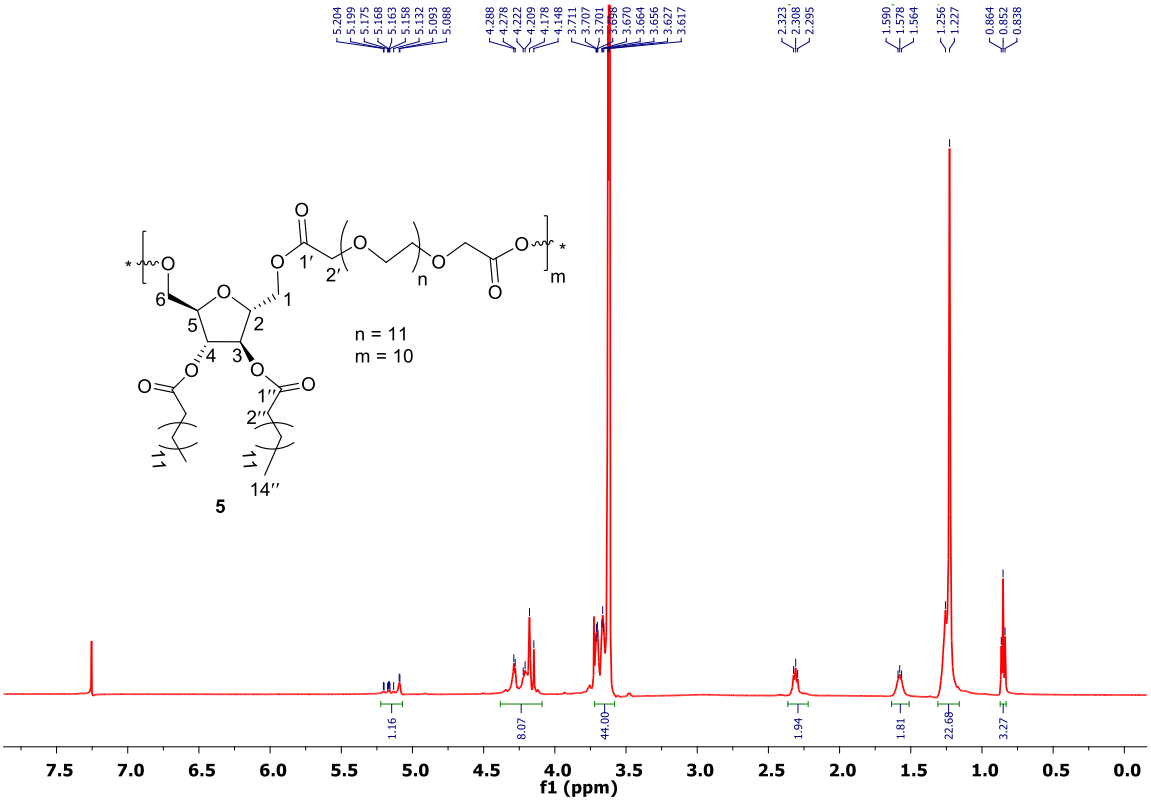


Figure S9. ^{1}H NMR spectrum (500 MHz, $CDCl_3$) of copolymer **5**.

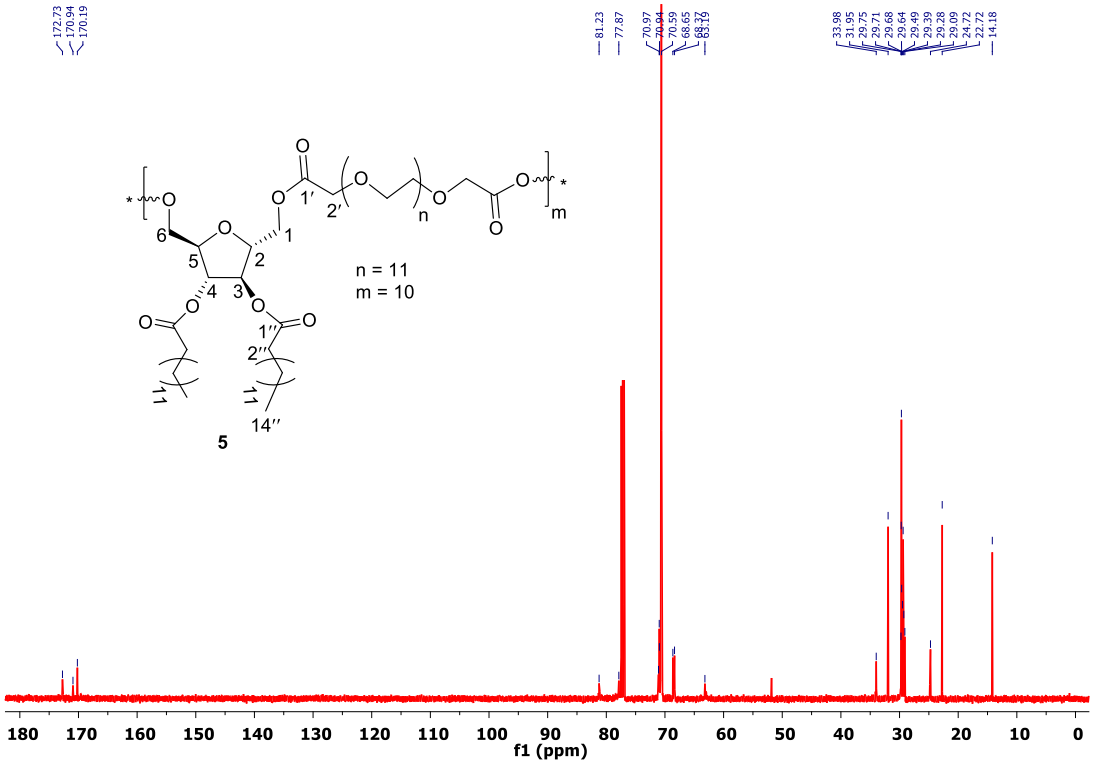


Figure S10. ^{13}C NMR spectrum (125 MHz, $CDCl_3$) of copolymer **5**.

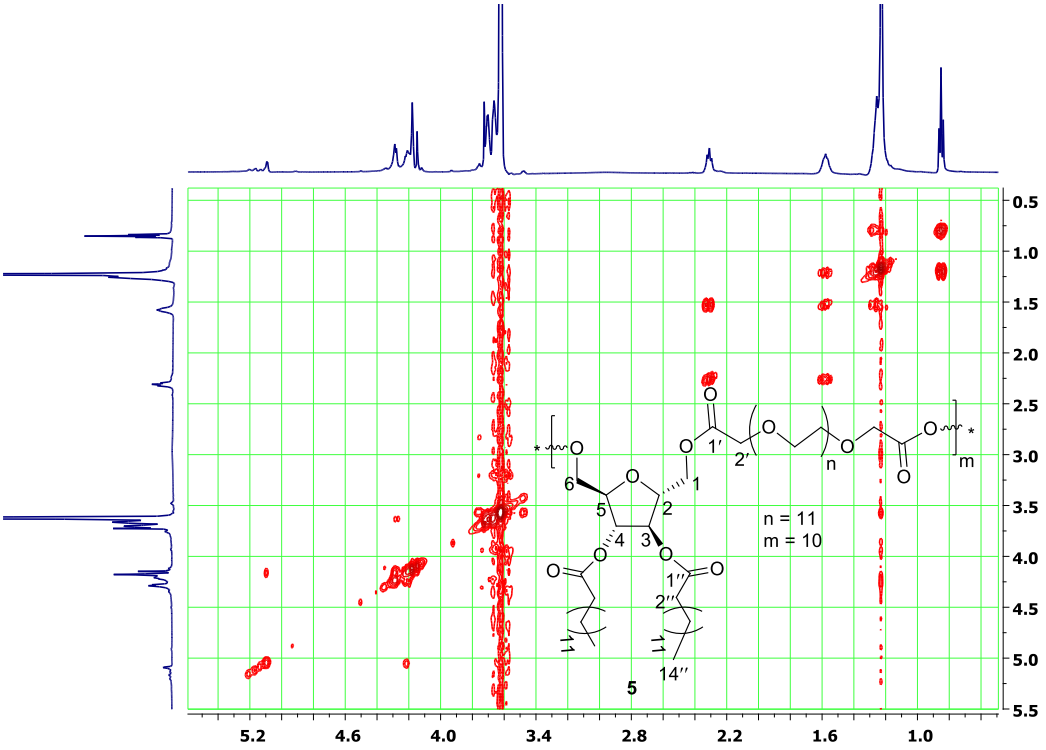


Figure S11. (^{1}H-^{1}H) COSY spectrum (500 MHz, $CDCl_3$) of copolymer **5**.

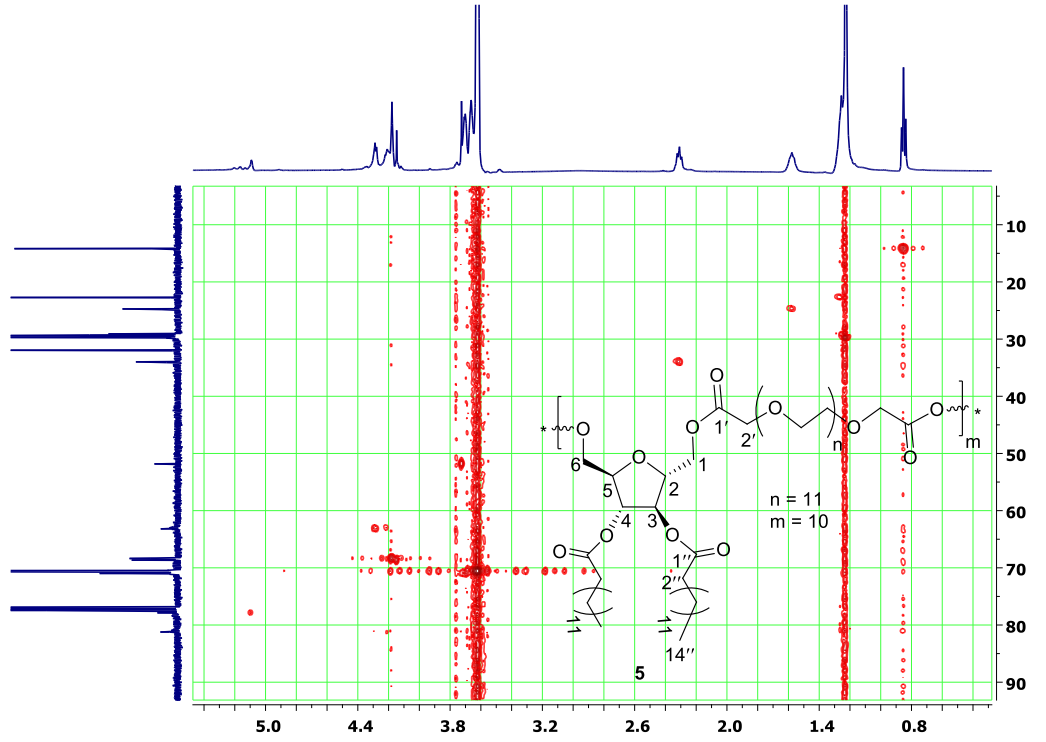


Figure S12. (^{1}H-^{13}C) HSQC spectrum (500 MHz, $CDCl_3$) of copolymer **5**.

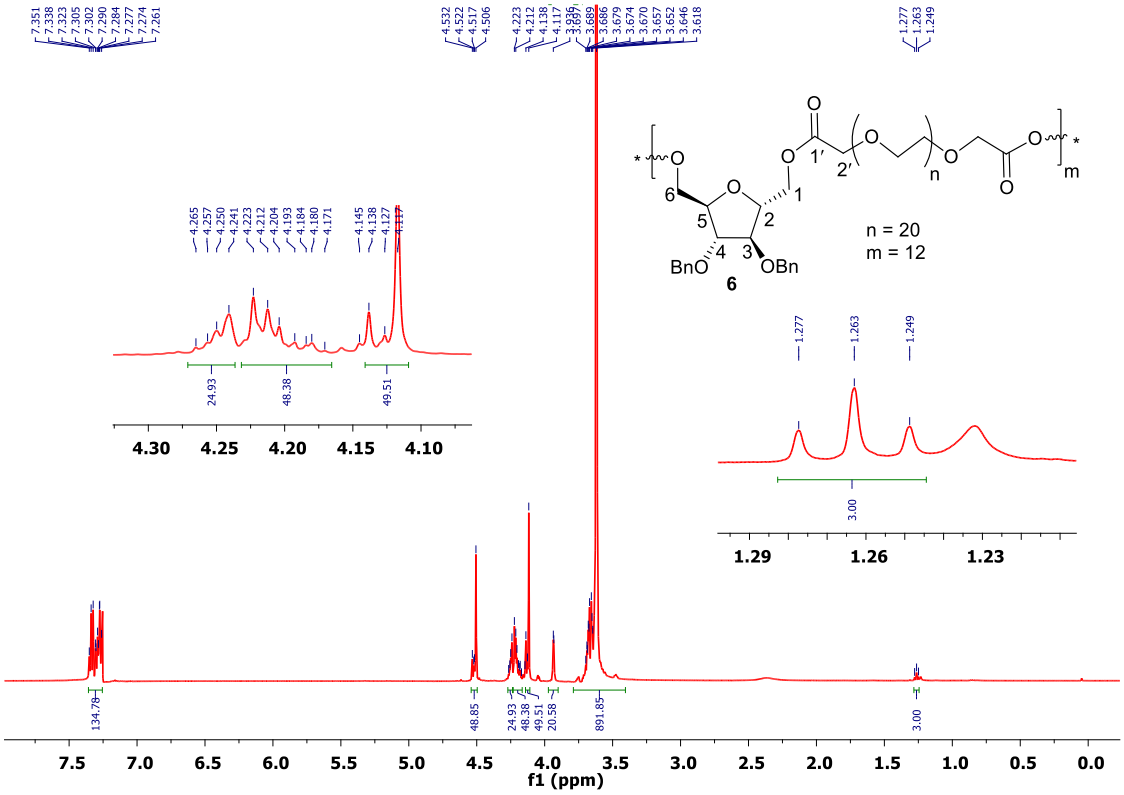


Figure S13. ^{1}H NMR spectrum (500 MHz, $CDCl_3$) of copolymer **6**.

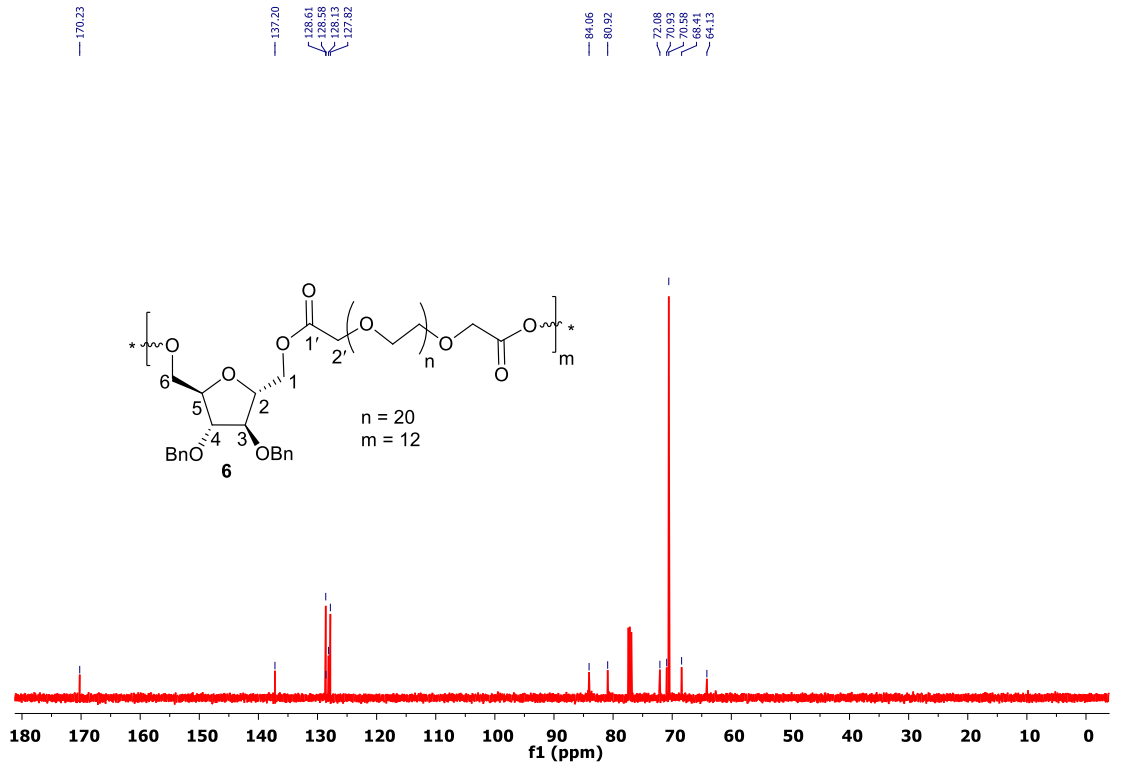


Figure S14. ^{13}C NMR spectrum (125 MHz, $CDCl_3$) of copolymer **6**.

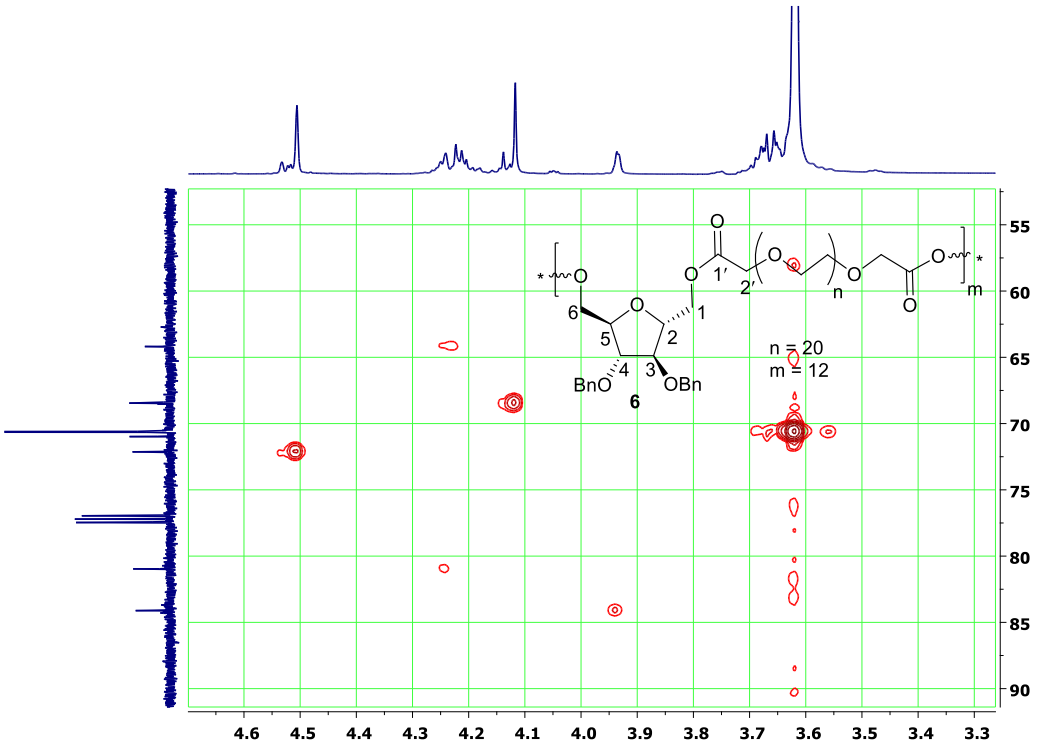


Figure S15. (^{1}H-^{13}C) HSQC spectrum (500 MHz, $CDCl_3$) of copolymer **6**.

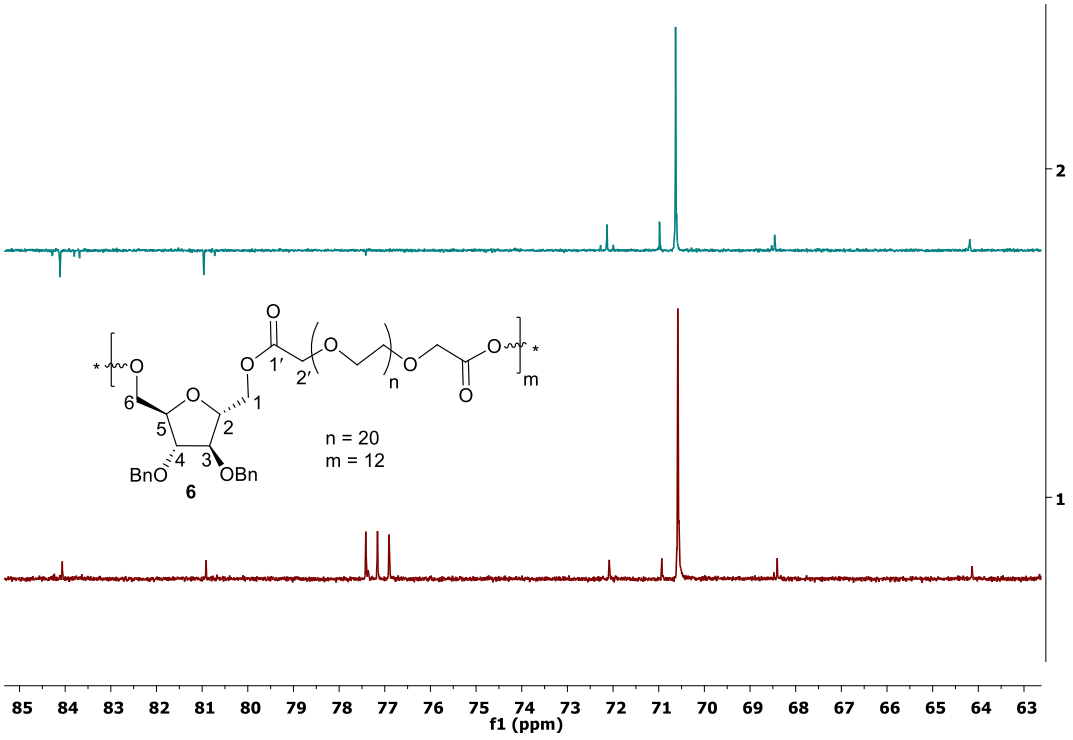


Figure S16. DEPT-135 NMR spectrum (125 MHz, $CDCl_3$) of copolymer **6**.

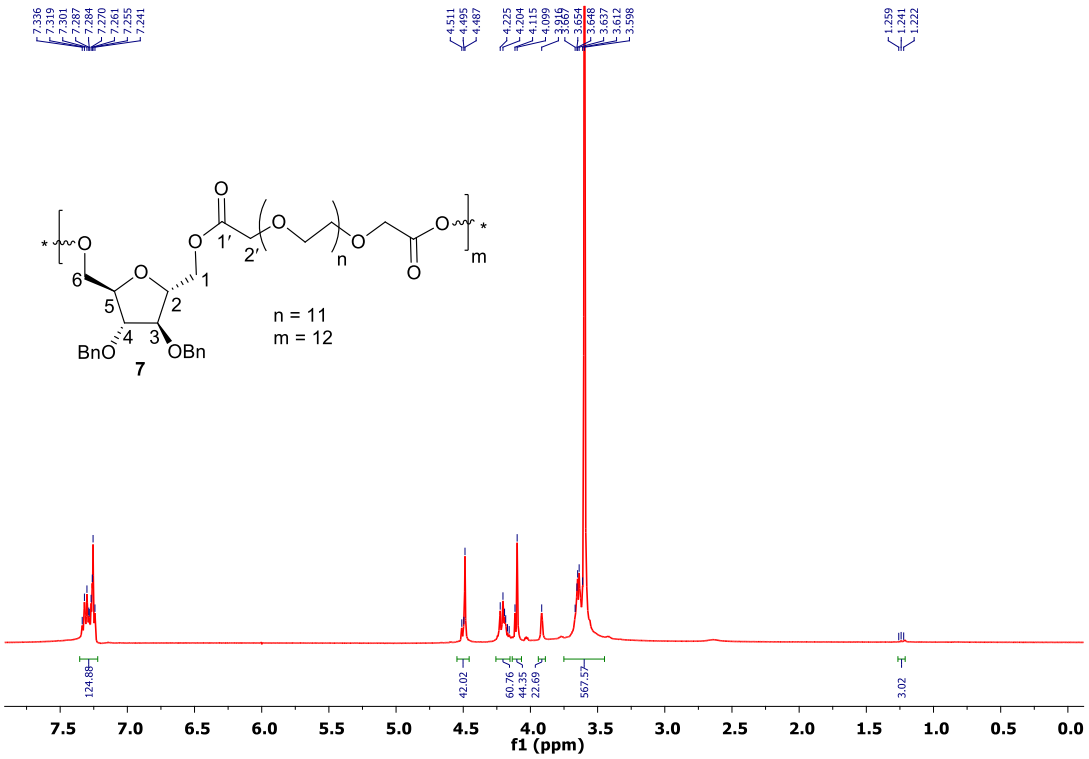


Figure S17. ^{1}H NMR spectrum (400 MHz, $CDCl_3$) of copolymer **7**.

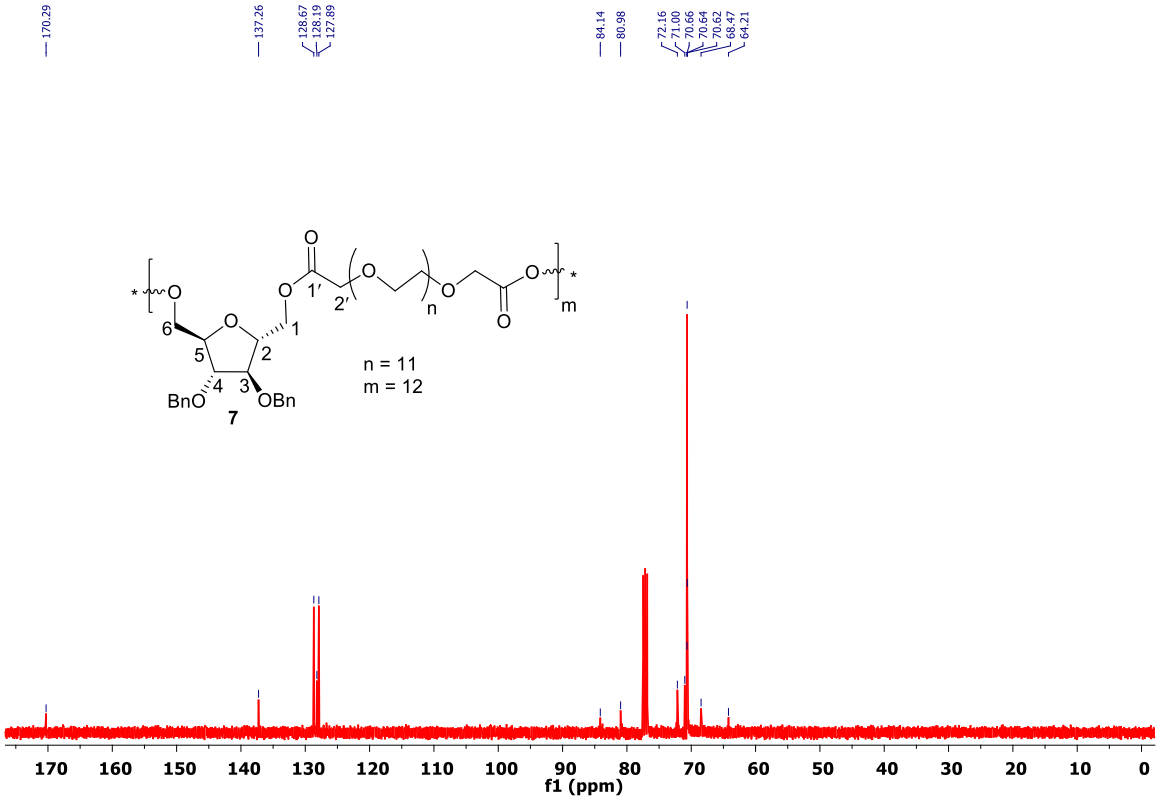


Figure S18. ^{13}C NMR spectrum (100 MHz, $CDCl_3$) of copolymer **7**.

Table S1. Number average molecular weight (M_n) of copolymers **3-7** by GPC and ^{1}H NMR spectra.

Copolymer	M_n (GPC) (g/mol)	M_n (^{1}H NMR) (g/mol)	PDI
3	7893	7460	1.17
4	5757	-	1.59
5	4264	-	1.27
6	12485	15336	1.20
7	8502	10920	1.24

Table S2. Zeta-potential of Nile red and ICG loaded micelles.

Copolymer	Zeta potential of polymeric micelles (mV)	Zeta potential of Nile red loaded micelles (mV)	Zeta potential of ICG loaded micelles (mV)
4	-15.9 ± 1.4	-4.36 ± 2.7	-1.64 ± 0.5
5	-16.3 ± 2.0	8.17 ± 0.8	-3.44 ± 0.9

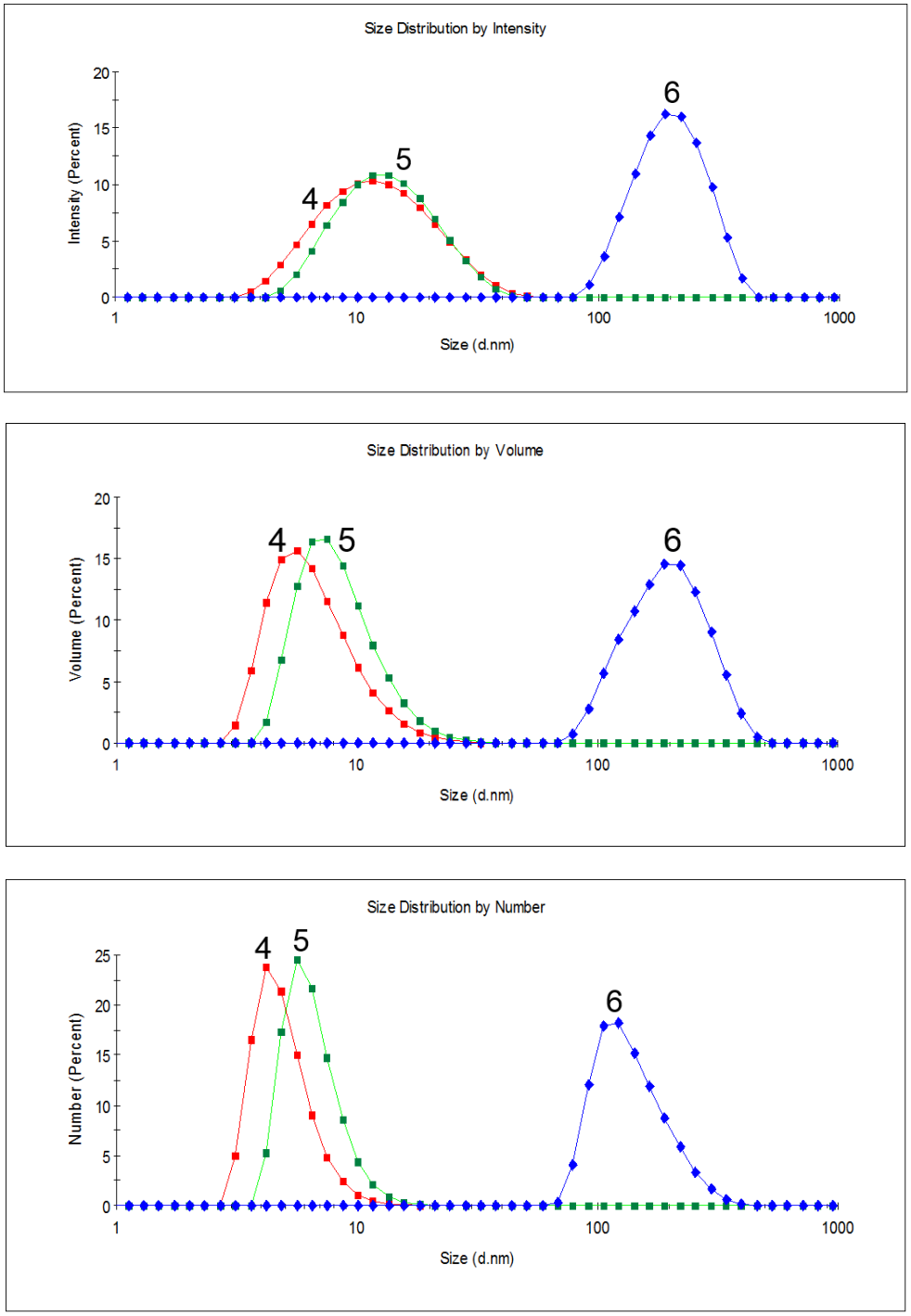


Figure S19. Size distribution of aggregates of copolymers **4**-**6** in aqueous solution.

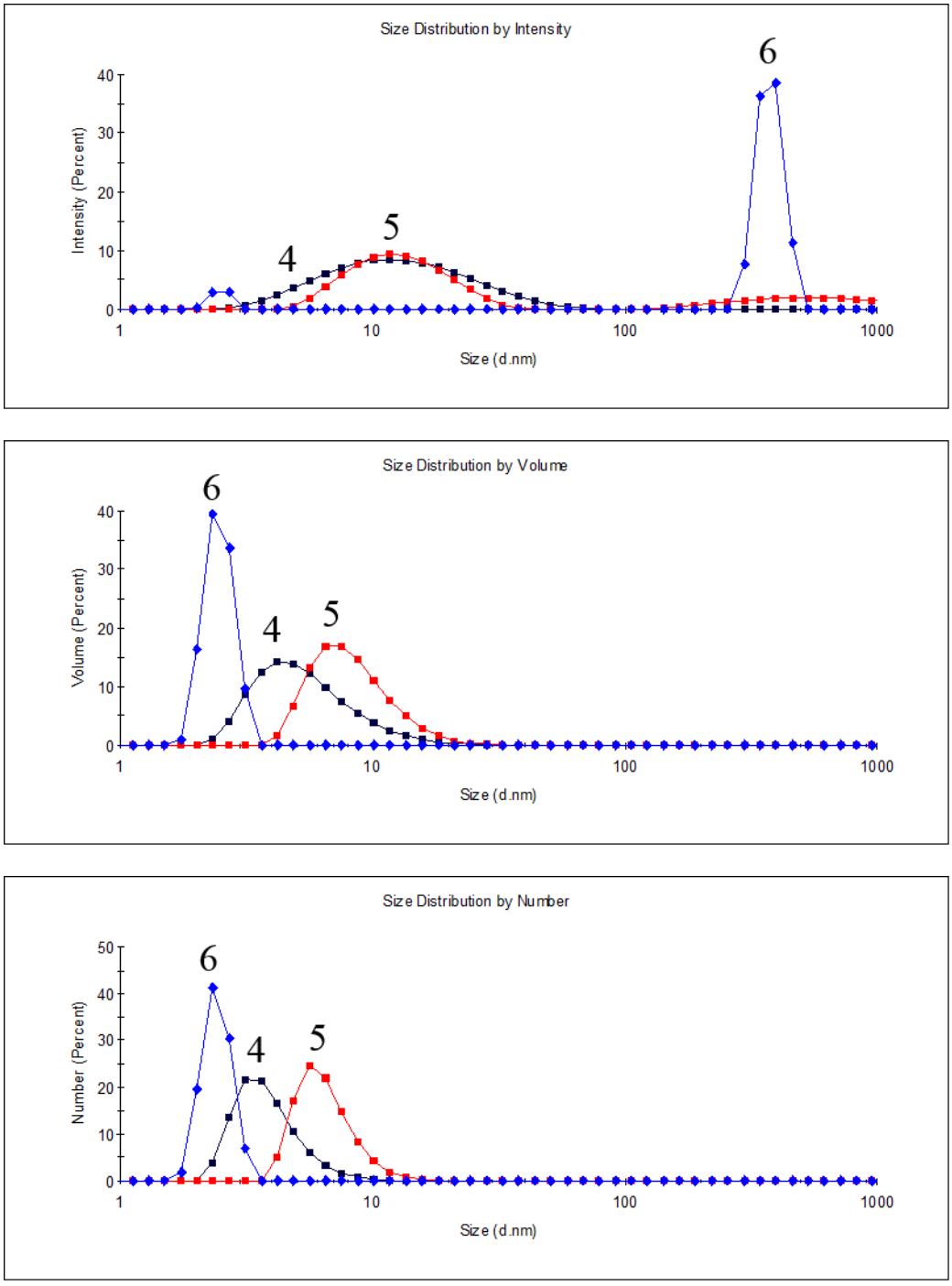


Figure S20. Size distribution of aggregates of copolymers **4**-**6** after encapsulation of ICG in aqueous solution.

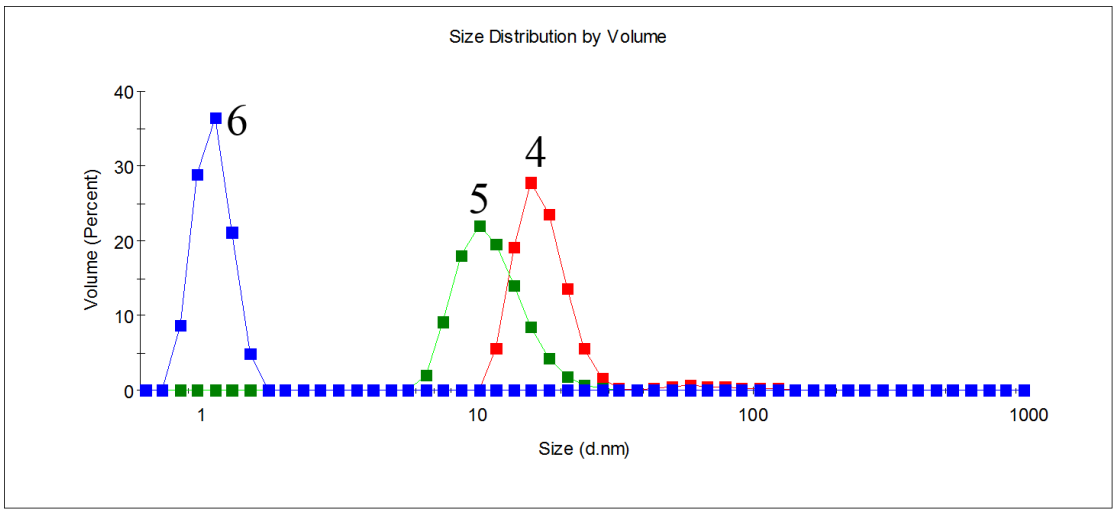


Figure S21. Size distribution of aggregates of copolymers **4**-**6** after 15 days incubation at 37 ºC in aqueous solution.

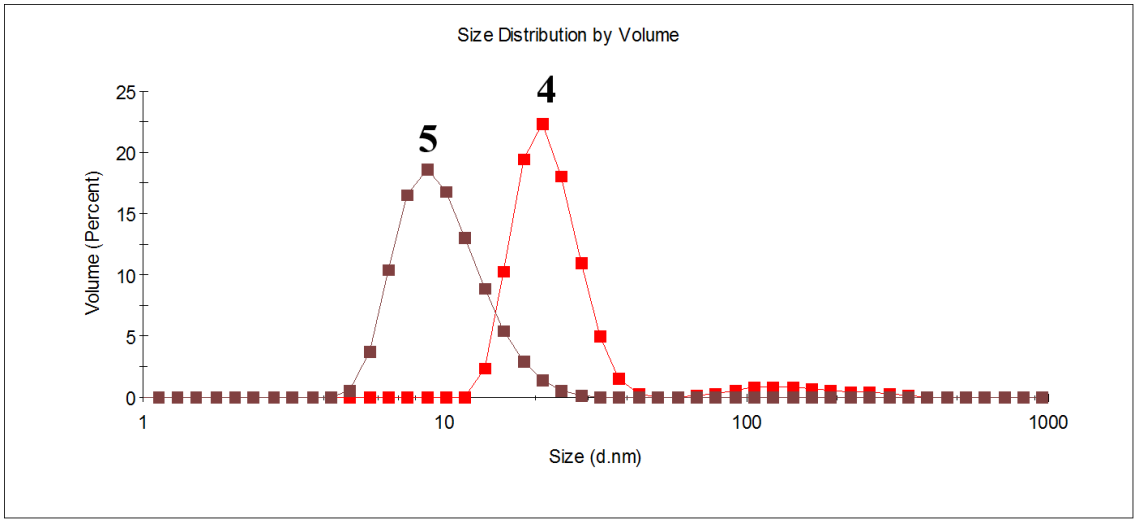


Figure S22. Size distribution of aggregates of copolymers **4** and **5** after encapsulation of Nile red in aqueous solution.

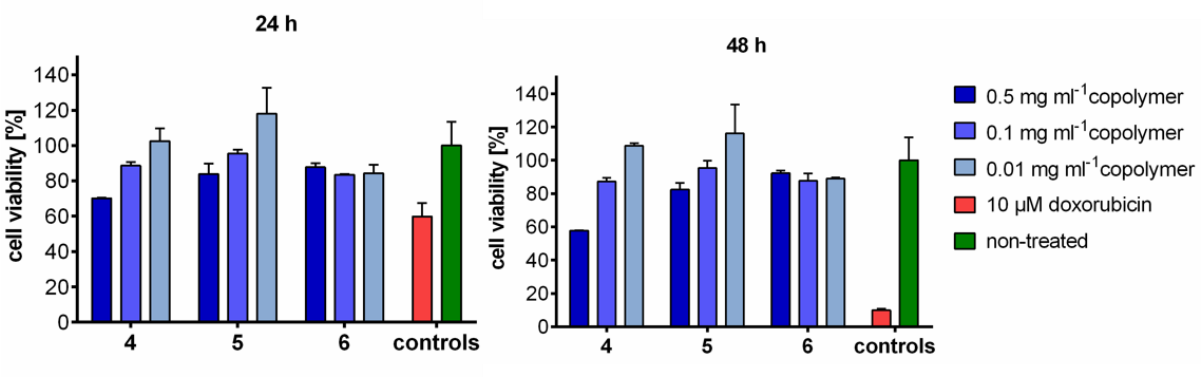


Figure 23. Cytotoxicity data of copolymers **4**, **5**, and **6** with doxorubicin as control.

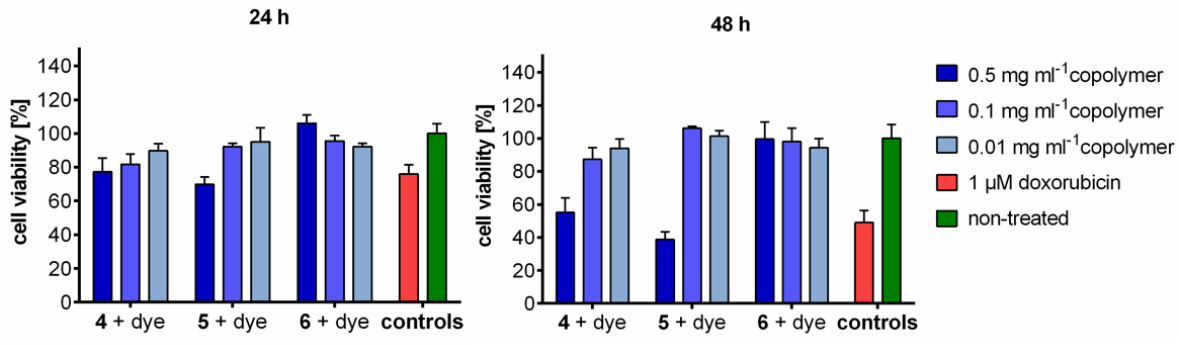
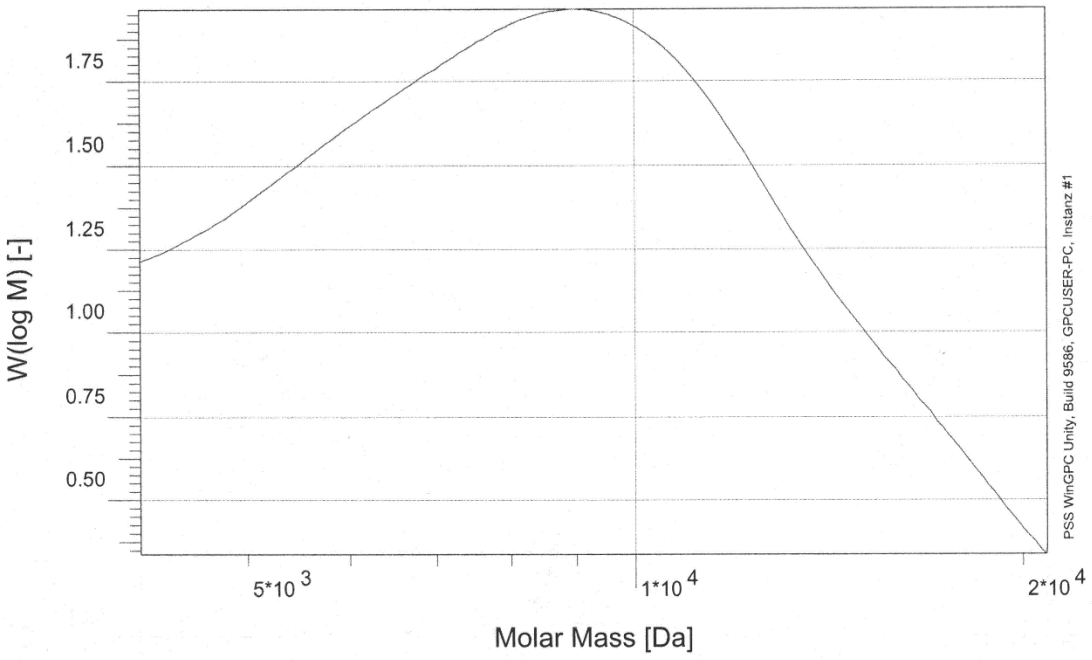


Figure 24. Cytotoxicity data of ICG-loaded copolymers **4**, **5**, and **6** with doxorubicin as control.

Figure S25. Gel permeation chromatogram of copolymer **3**.



M_w = 9258 g/mol, M_n = 7893 g/mol, M_z = 10824 g/mol, D = 1.1

Detector: RI, Eluent = THF, Flow rate = 1 mL/min, Standard = Polystyrol

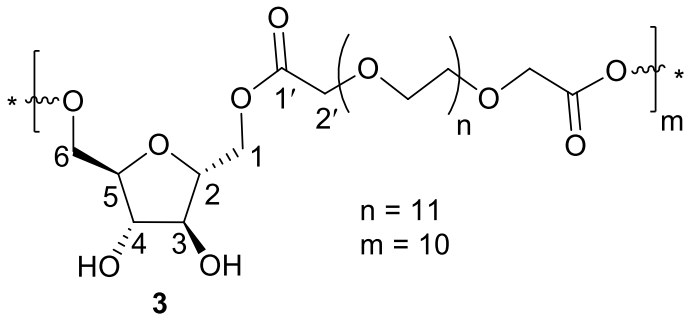


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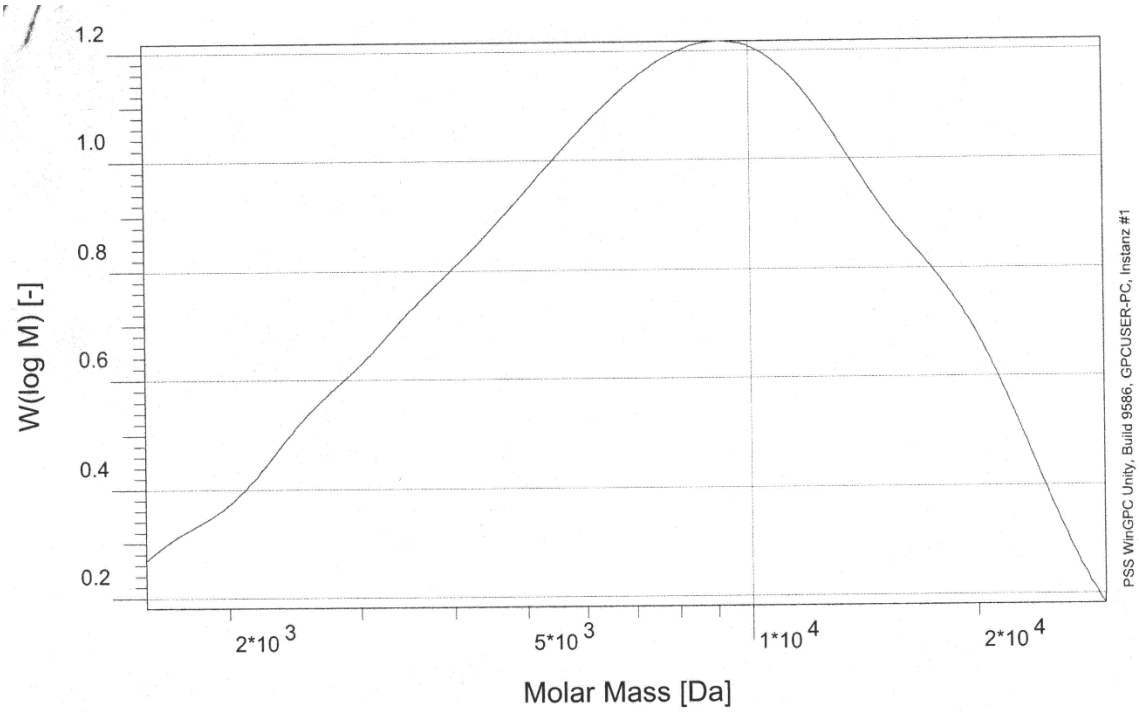
Figure S26. Gel permeation chromatogram of polymer **4**.



M_w = 9200 g/mol, M_n = 5757 g/mol, M_z = 13173 g/mol, D = 1.5

Detector: RI, Eluent = THF, Flow rate = 1 mL/min, Standard = Polystyrol

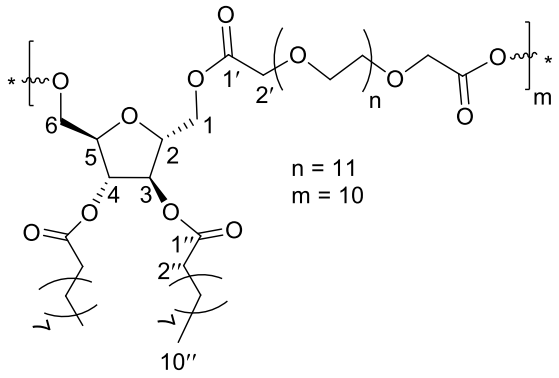


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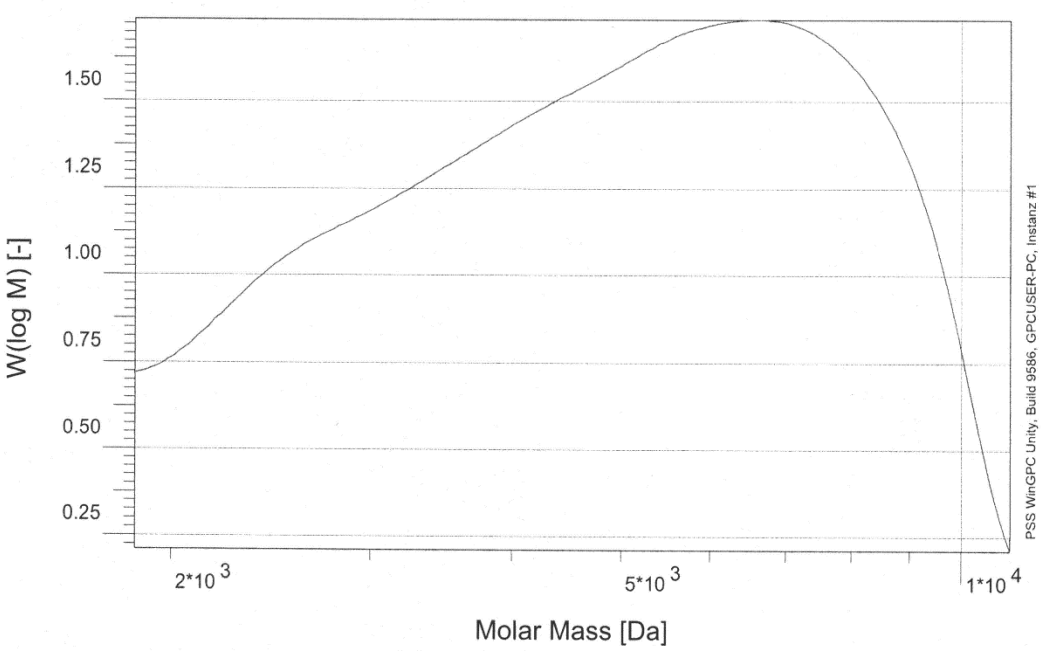
Figure S27. Gel permeation chromatogram of copolymer **5**.



M_w = 5239 g/mol, M_n = 4264 g/mol, M_z = 6219 g/mol, D = 1.2

Detector: RI, Eluent = THF, Flow rate = 1 mL/min, Standard = Polystyrol

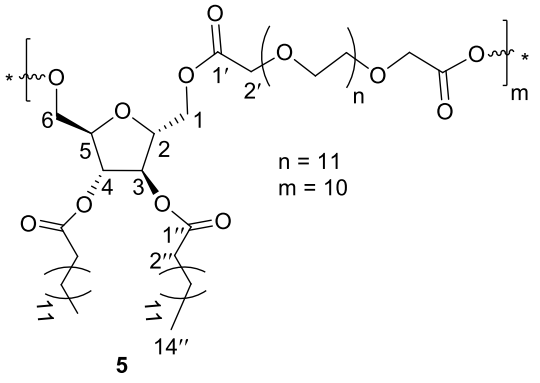


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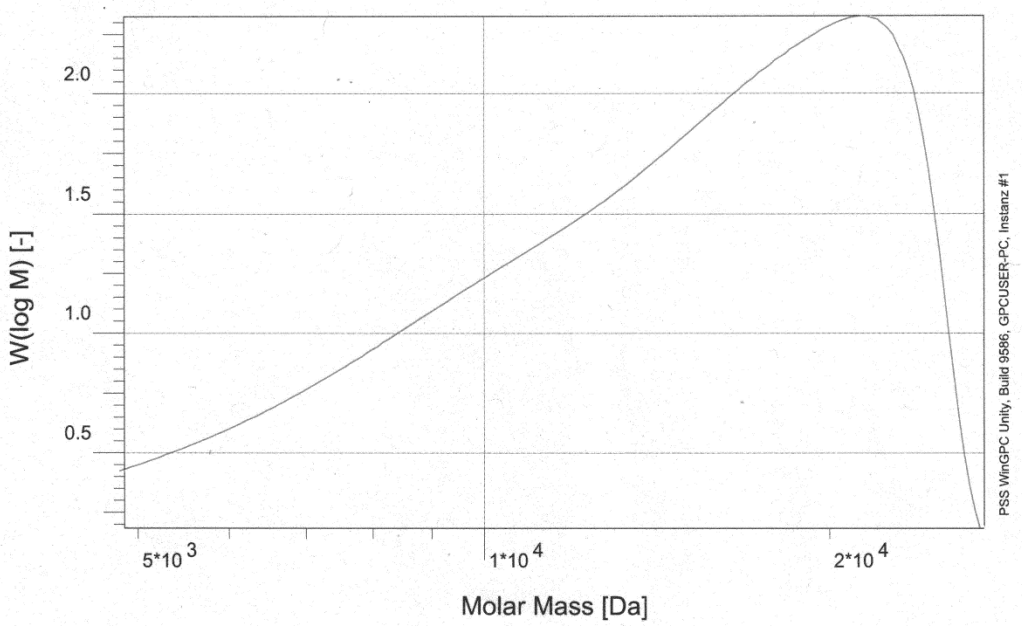
Figure S28. Gel permeation chromatogram of copolymer **6**.



M_w = 14987 g/mol, M_n = 12485 g/mol, M_z = 17182 g/mol, D = 1.2

Detector: RI, Eluent = THF, Flow rate = 1 mL/min, Standard = Polystyrol

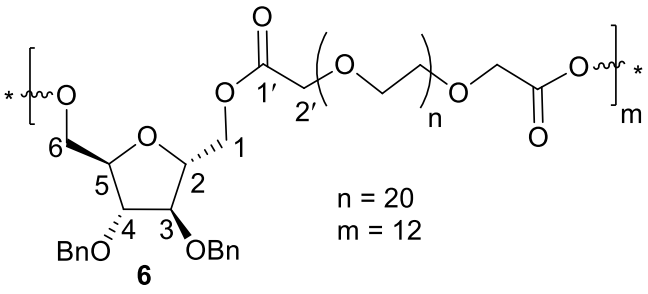


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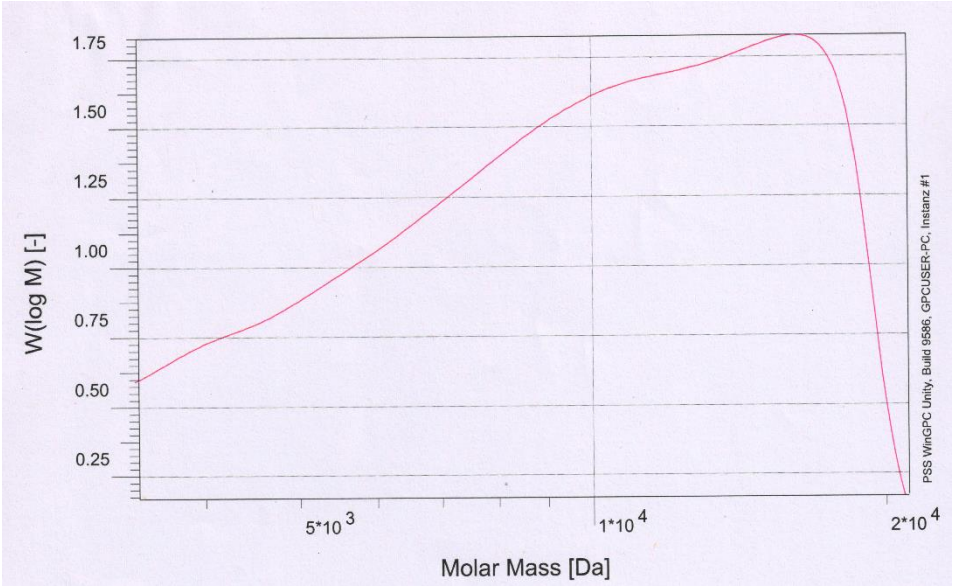
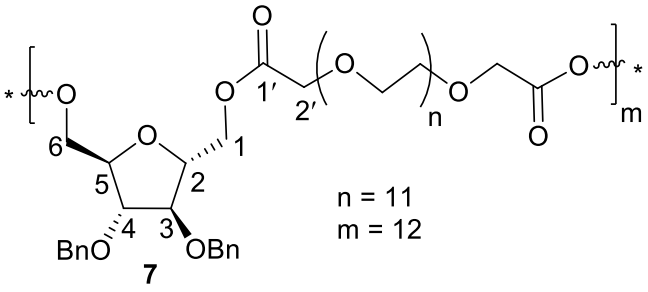
Figure S29. Gel permeation chromatogram of copolymer **7**.



M_w = 10573 g/mol, M_n = 8502 g/mol, M_z = 12525 g/mol, D = 1.24

Detector: RI, Eluent = THF, Flow rate = 1 mL/min, Standard = Polystyrol



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