Supporting Information for:

Biocompatible Graft Copolymers from Bacterial Poly(γ-Glutamic Acid) and Poly(Lactic Acid)

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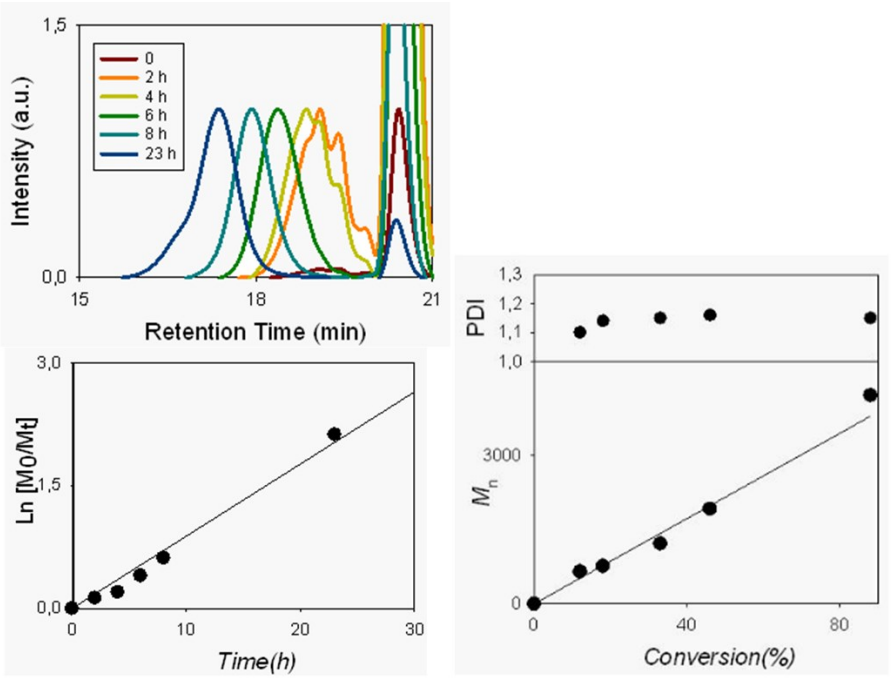


Figure S1. Monitoring the formation of polymer **4c**. Top: normalized GPC traces. The peak at retention time ca. 20 min corresponds to unreacted lactide monomer. Bottom: linear relationship between conversion and number average M_n, first order nature of the kinetics, and the narrow resulting dispersities.

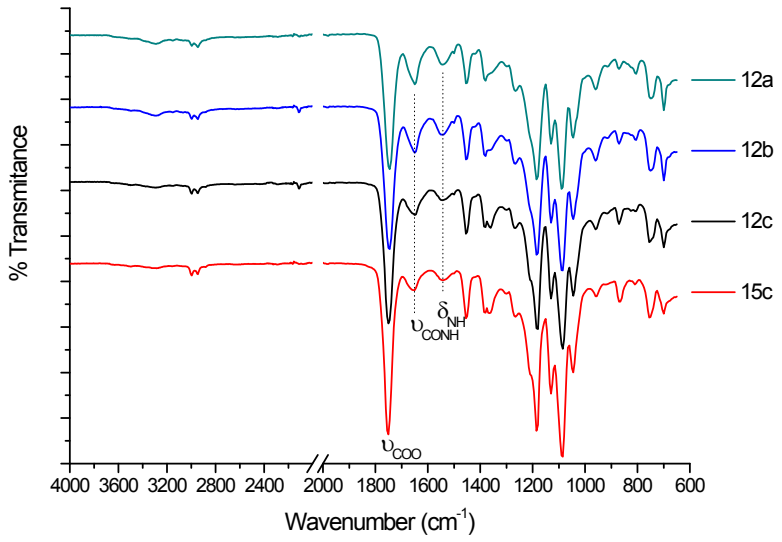


Figure S2. IR spectra of copolymers **12a-c**; **15c**.

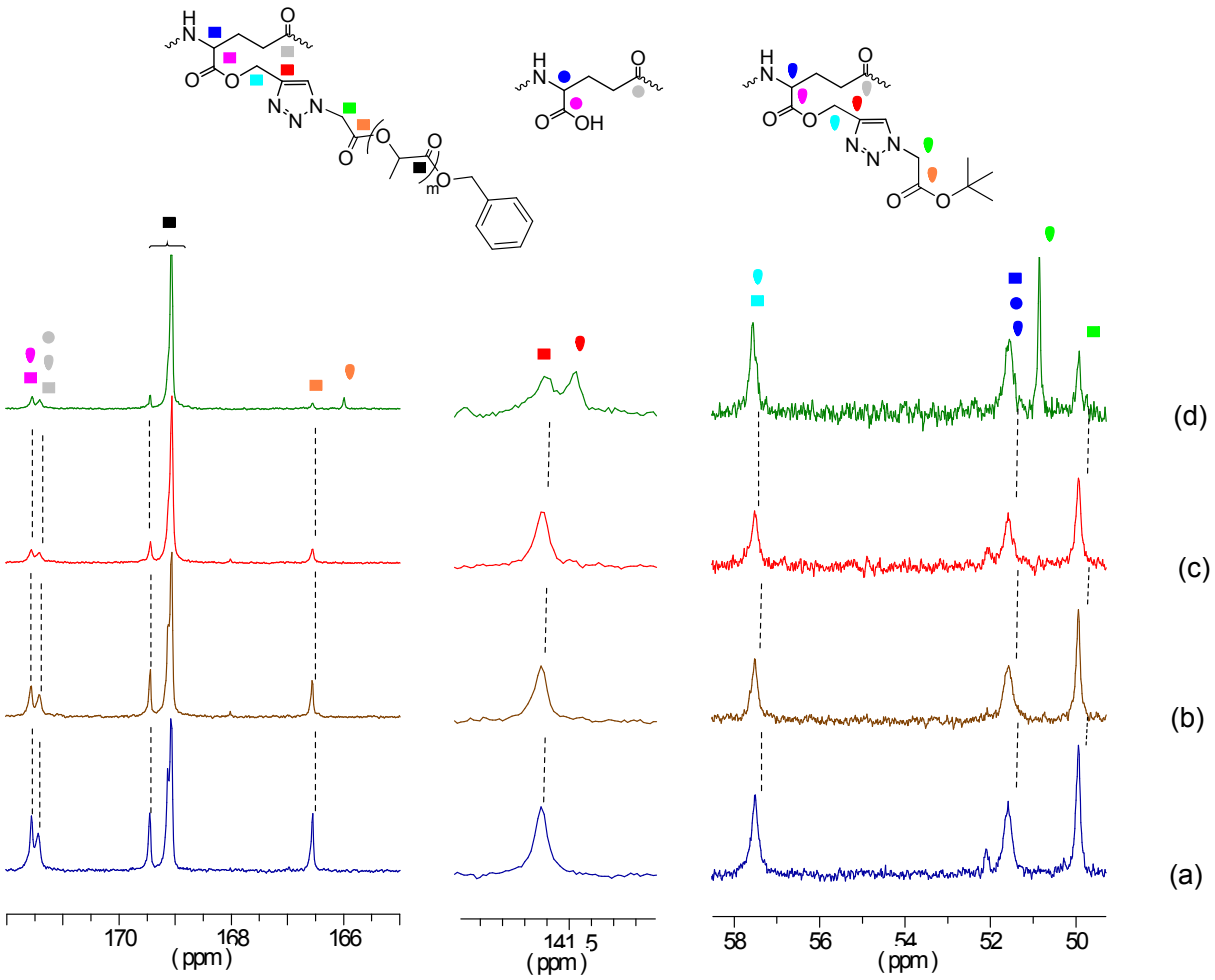


Figure S3. Expanded regions of the ^{13}C-NMR spectra of (a) polymer **12a**, (b) polymer **12b**, (c) polymer **12c** with increasing length of PLA side chains and (d) polymer **15c**.

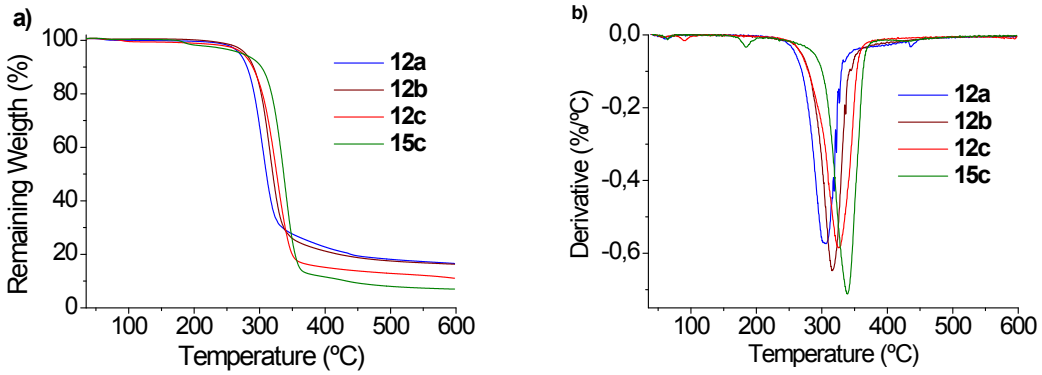


Figure S4. TGA traces (a) and derivative curves (b) of PLA grafted γ-PGA samples **12a-c** and **15c**.

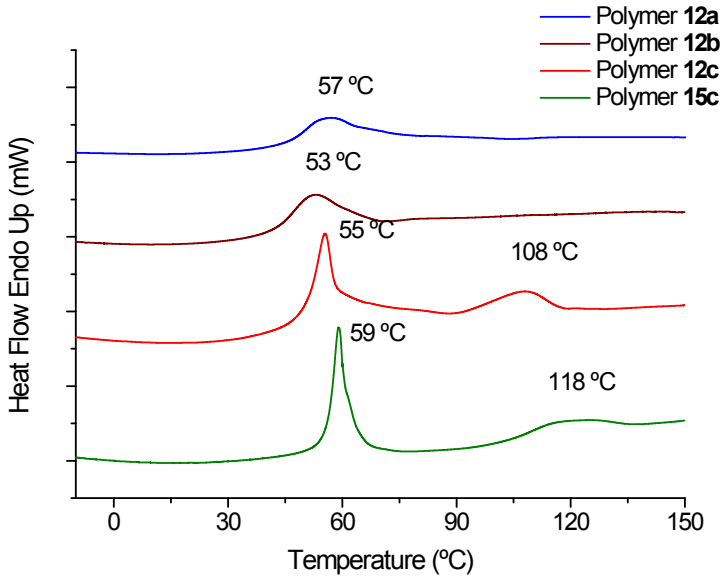


Figure S5. First scan DSC traces of PLA grafted γ-PGA samples **12a-c** and **15c** recorded at 10 ºC/min.

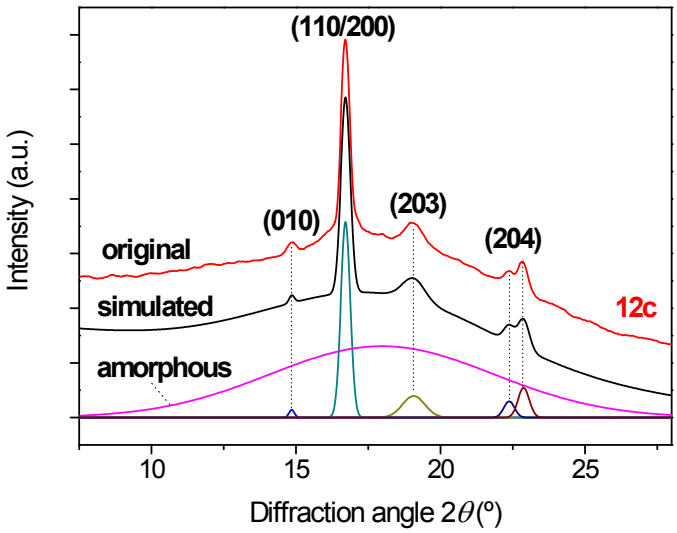


Figure S6. Peaks deconvolution of WAXS diffractogram using PeakFit 4.6 software.

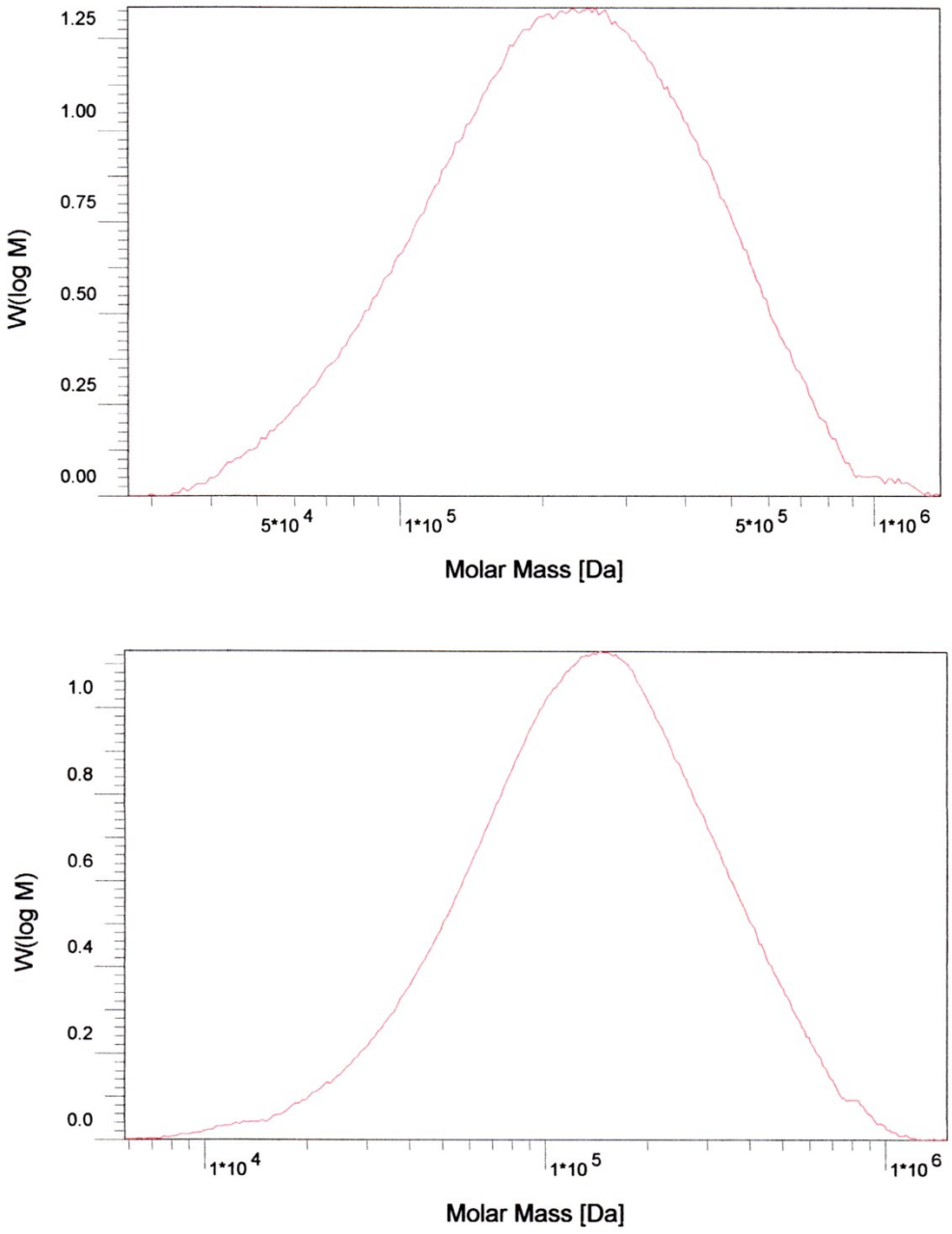


Figure S7. GPC traces of polymer**12b** (top) and **15c** (bottom)

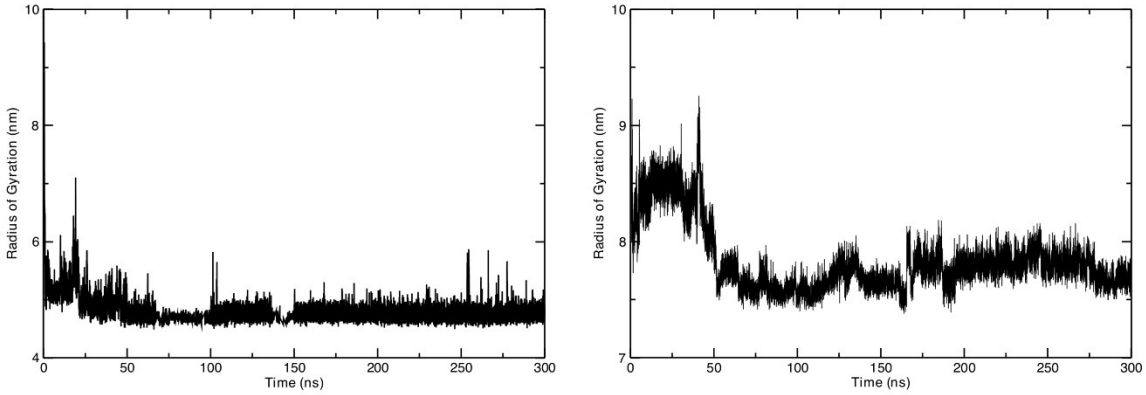


Figure S8. The time evolution of the radius of gyration from MD simulations for the PLA-PGA copolymers. Left: n=1, m=5; Right: n=5, m=5 (see Figure 5 in the main text for reference)

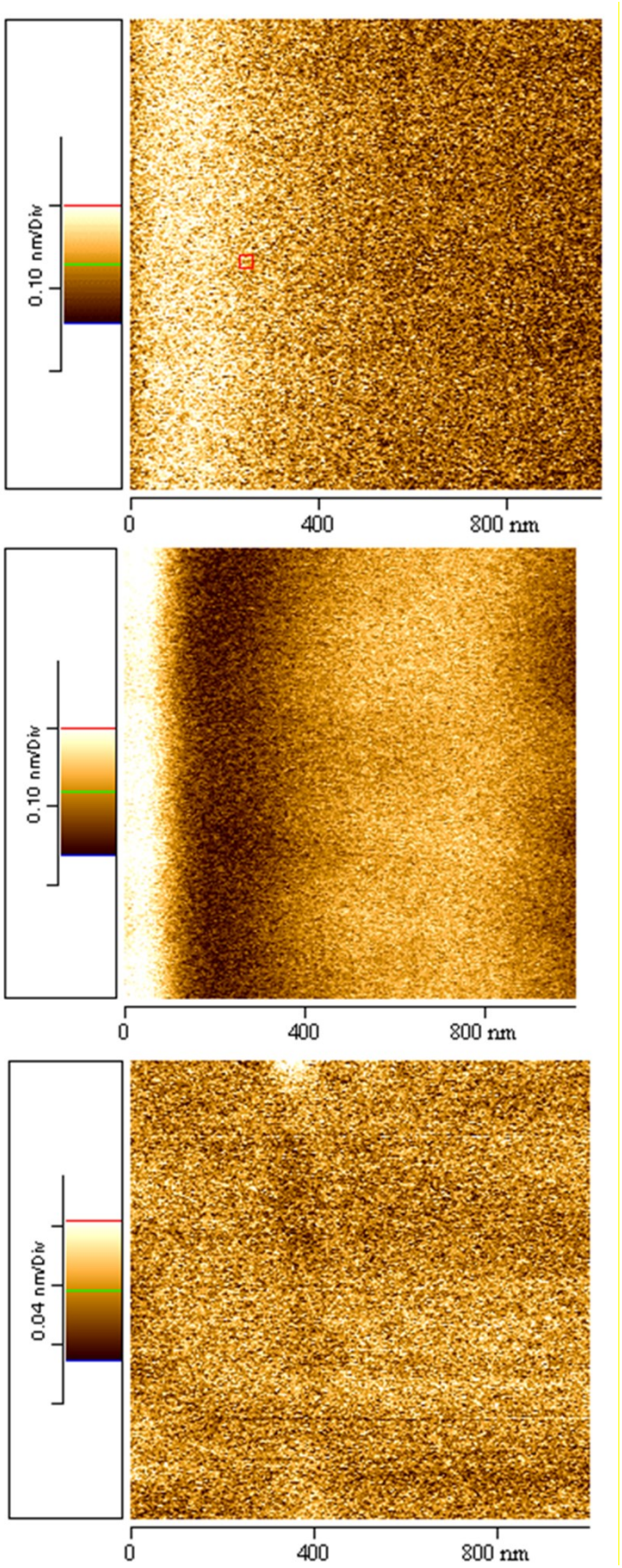


Figure S9. AFM images of copolymers (from top to bottom): **12b**; **12c**; **12a**.

Table S1. Thermal parameters of Polymers **12a-c** and **15c.**

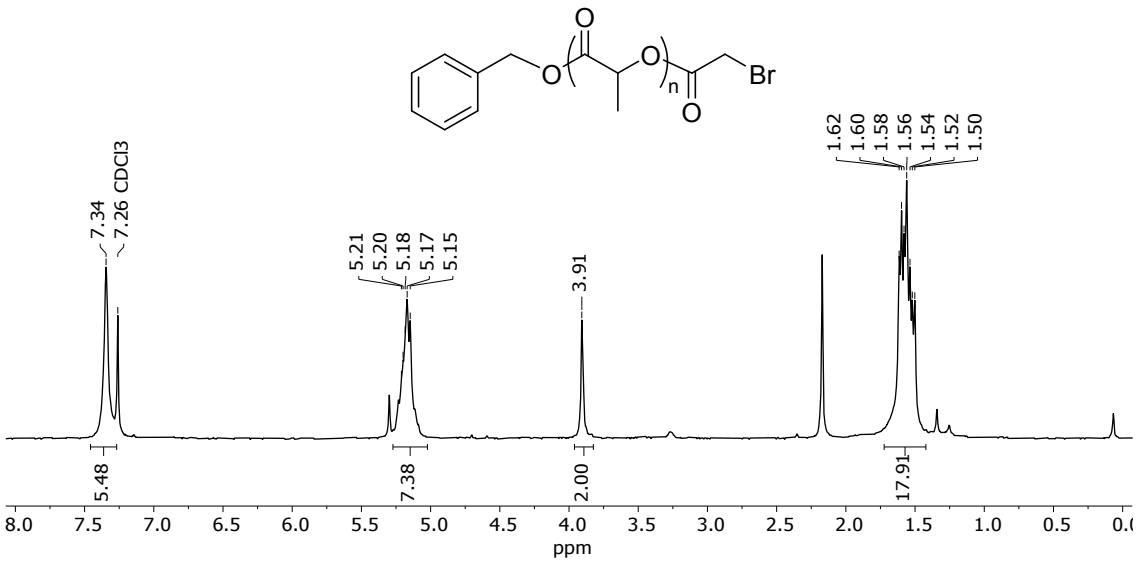
Sample	TGA[a]			DSC		
				T (ºC) and ΔH (J·g^{-1})		
	$^{o}T_d$ (ºC)	$^{max}T_d$ (ºC)	W (%)	T_g[b] / ΔH[b]	T_m[b] / ΔH[b]	T_g[c]
Polymer **12a**	270	305	16	56 / 13.1	-	45
Polymer **12b**	280	316	16	51 / 11.0	-	41
Polymer **12c**	275	325	11	55 / 9.7	108 /4.7	46
Polymer **15c**	270	336	7	59 / 16.4	118 / 8.1	47

[a] Thermal stability of under nitrogen atmosphere. $^{o}T_d$ the onset decomposition temperature for 5 % weight loss. $^{max}T_d$ the maximum rate decomposition temperature and W the remaining weight at 600 ºC. [b] First heating scan recorded at 10 ºC·min^{-1}. [c] 2nd heating scan recorded at 20 º C·min^{-1}.

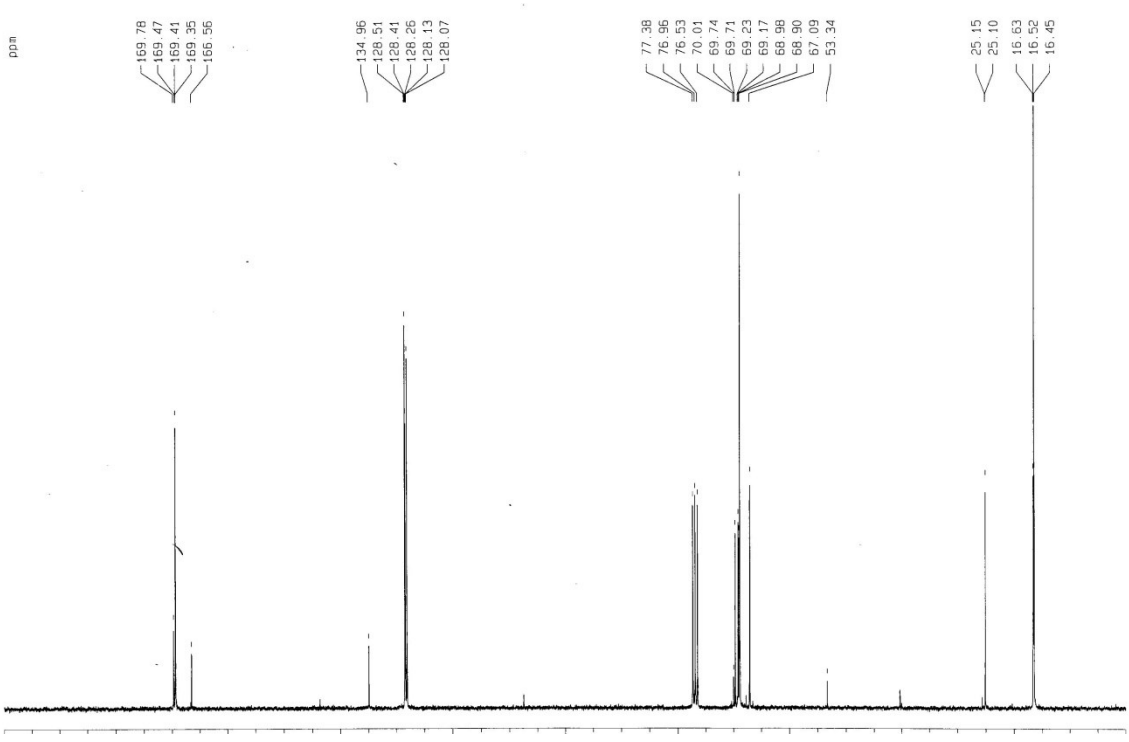
Copies of NMR Spectra for Polymers.

Polymer 6a.

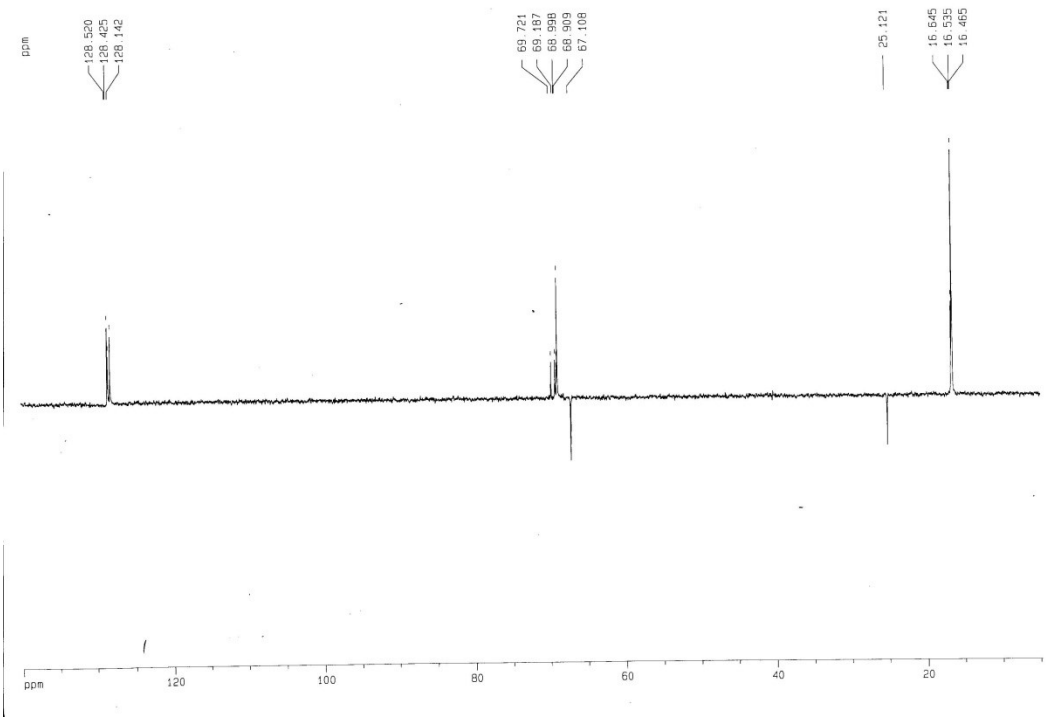
1HNMR.14.fid
CZ6 dopo lavaggio CDCl3



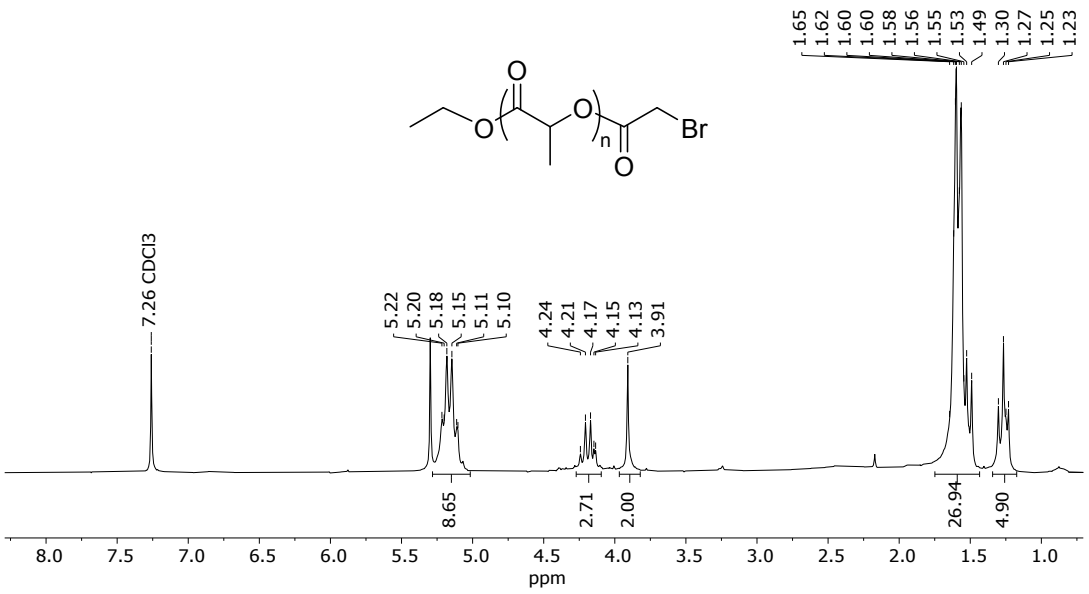
^{13}C NMR ($CDCl_3$, 75 MHz)



^{13}C NMR DEPT ($CDCl_3$, 75 MHz)



Polymer 7a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1.60
1.60
1.58
1.56
1.55
1.53
1.49
1.30
1.27
1.25
1.23
O
O
O
n
O
Br
7.26 CDCl3
5.22
5.20
5.18
5.15
5.11
5.10
4.24
4.21
4.17
4.15
4.13
3.91
8.65
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2.00
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7.0
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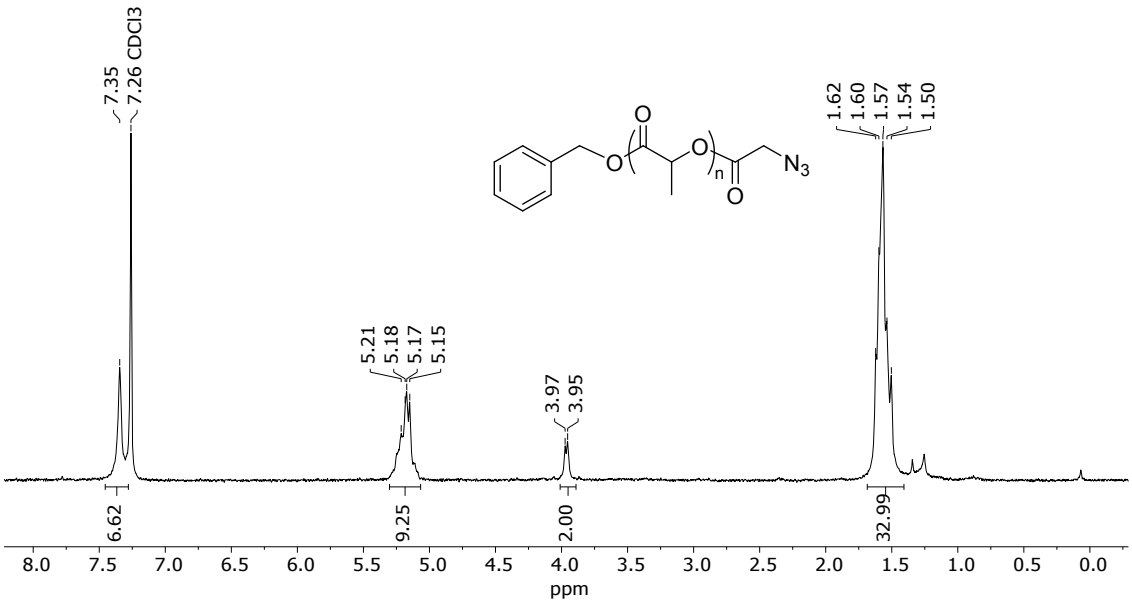
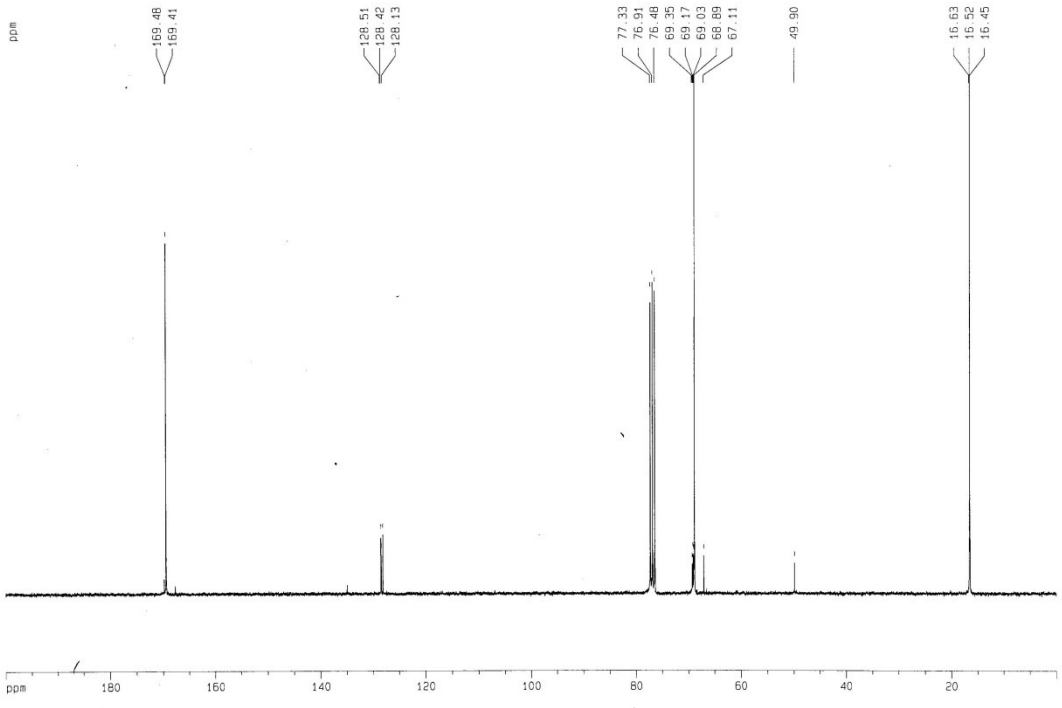
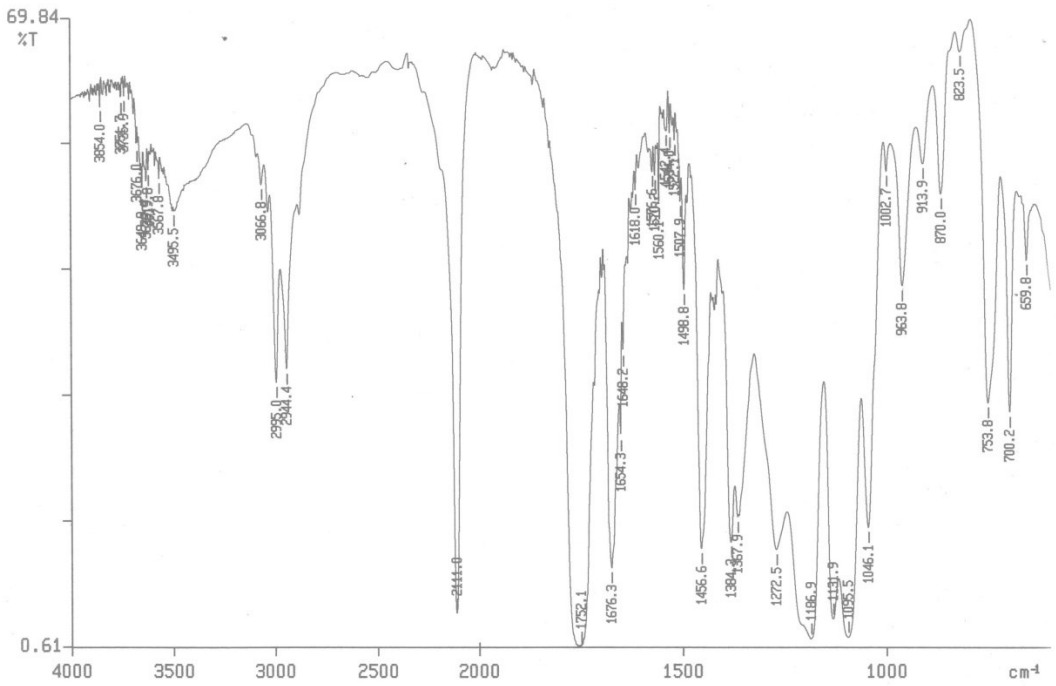
1.5
1.0
ppm

Polymer 8a



^{13}C NMR ($CDCl_3$, 75 MHz)

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%T
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3500
3000
2500
2000
1500
1000
cm-1
3654.0
3495.5
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2956.0
2944.4
2111.0
1752.1
1676.3
1654.3
1648.2
1618.0
1560.4
1507.9
1498.8
1456.6
1384.2
1357.9
1272.5
1186.9
1131.9
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1002.7
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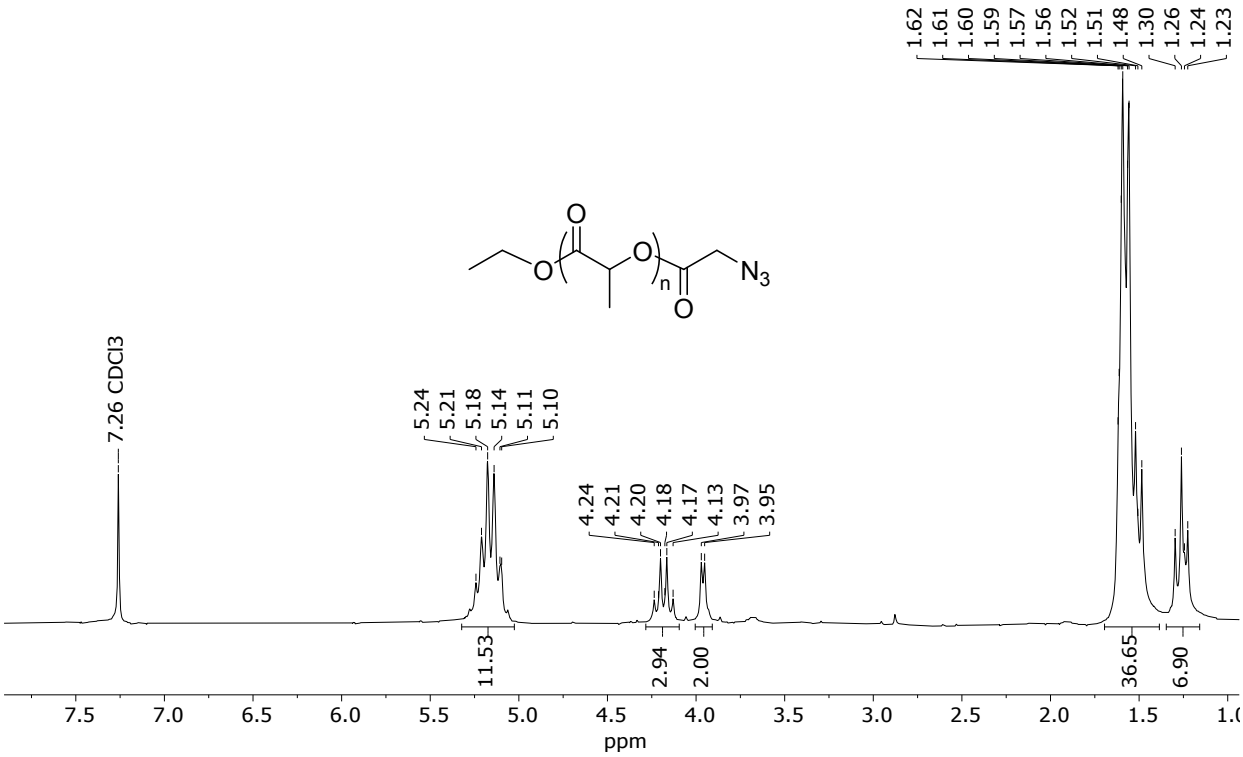
870.0
823.5
753.8
700.2
659.8

Polymer 9a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1.59
1.57
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1.51
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1.30
1.26
1.24
1.23
O
O
O
n
O
N3
7.26 CDCl3
5.24
5.21
5.18
5.14
5.11
5.10
4.24
4.21
4.20
4.18
4.17
4.13
3.97
3.95
11.53
2.94
2.00
36.65
6.90
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
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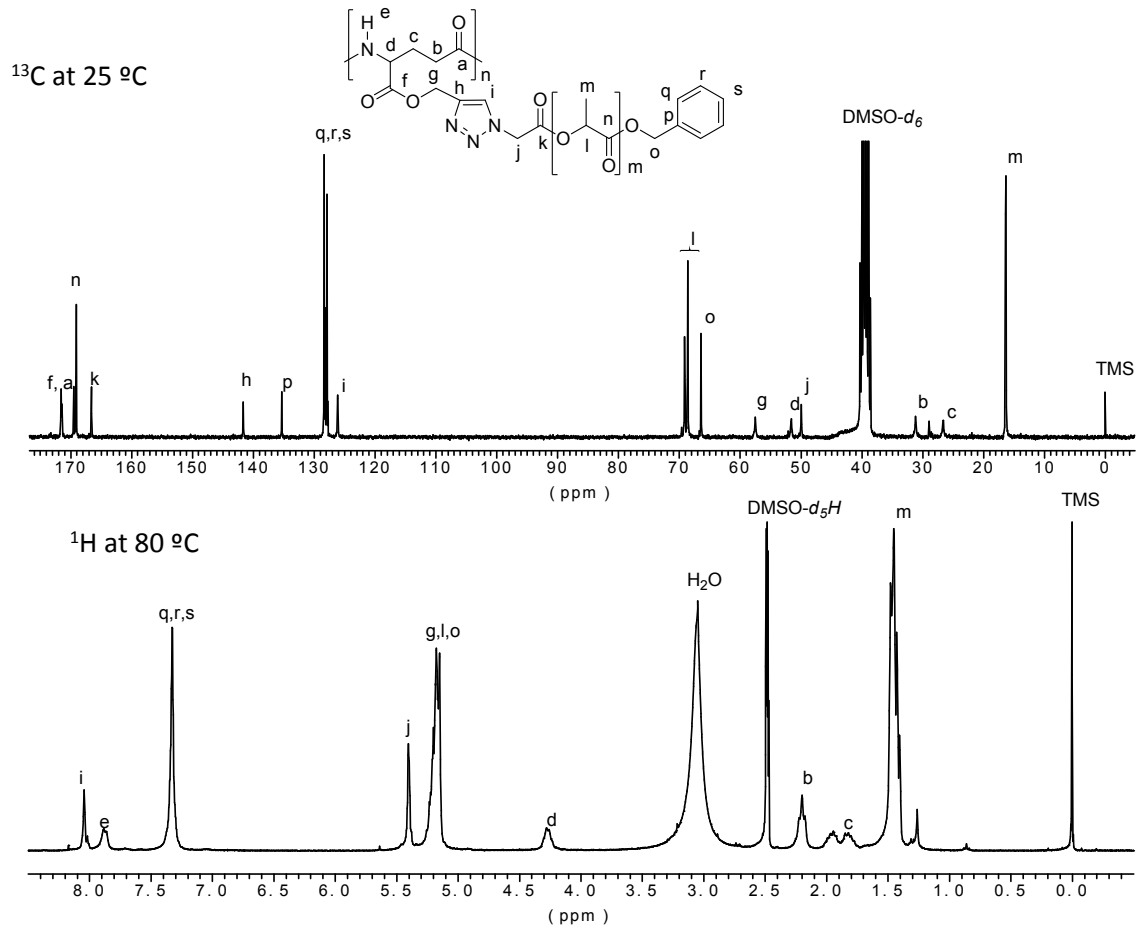
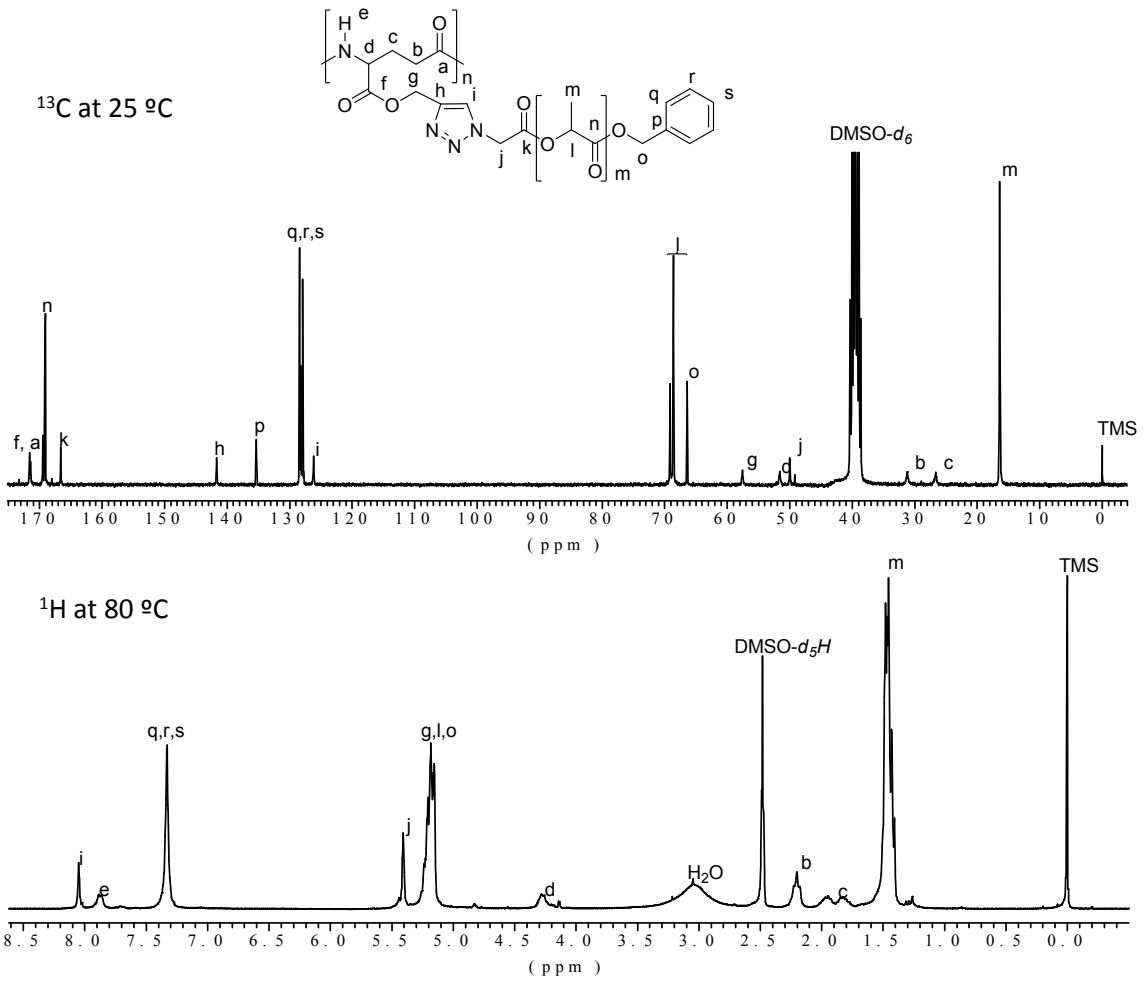
3.0
2.5
2.0
1.5
ppm

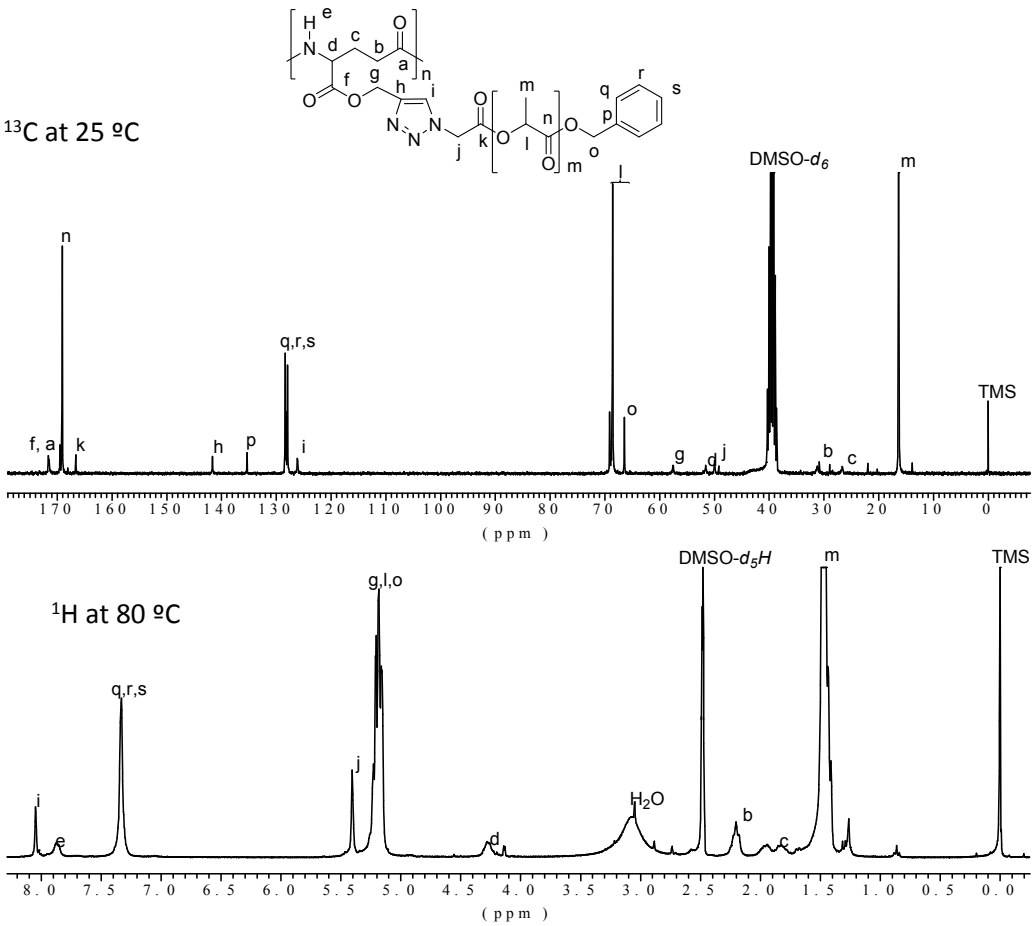
^{1}H and ^{13}C NMR of **12a** sample in DMSO-d_6



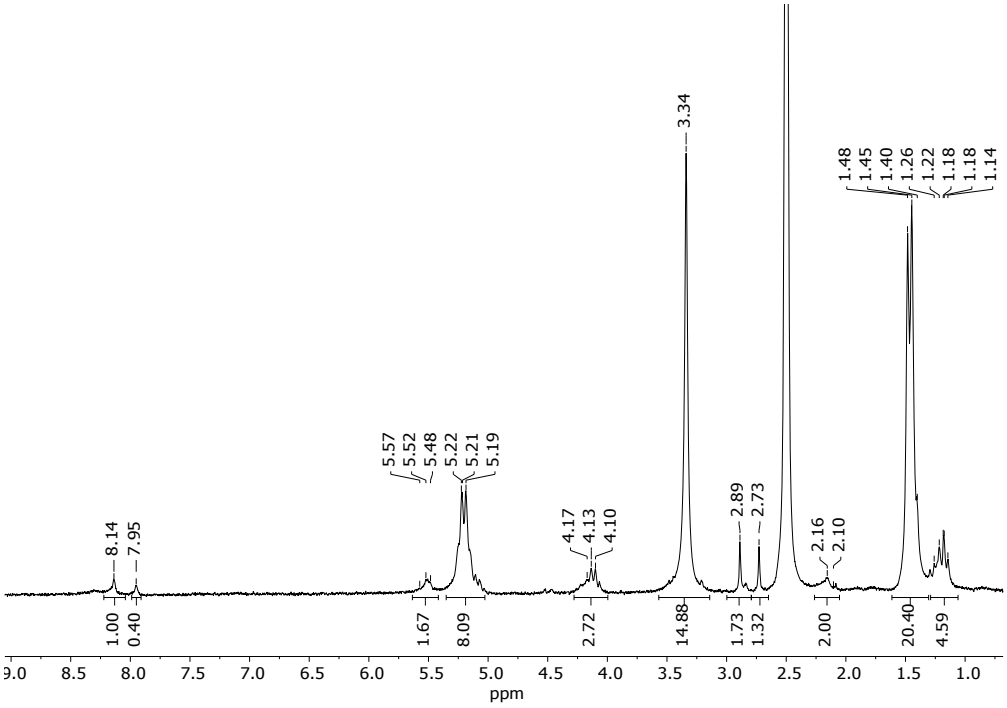
^{1}H and ^{13}C NMR of **12b** sample in DMSO-d_6



^{1}H and ^{13}C NMR of **12c** sample in DMSO-d_6



^{1}H and ^{13}C NMR of **13a** sample in DMSO-d_6



^{1}H and ^{13}C NMR of **15c** sample in DMSO-d_6