

Supporting Information

Functional Nanoassemblies of Cyclic Polymers Show Amplified Responsiveness and Enhanced Protein-Binding Ability

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Cantilever	K_N (N m ⁻¹)	K_T (N m)
Linear	0.096	2.36E-9
Cyclic	0.096	2.54E-9

Table S1: Normal (K_N) and torsional (K_T) spring constant values of the cantilevers.

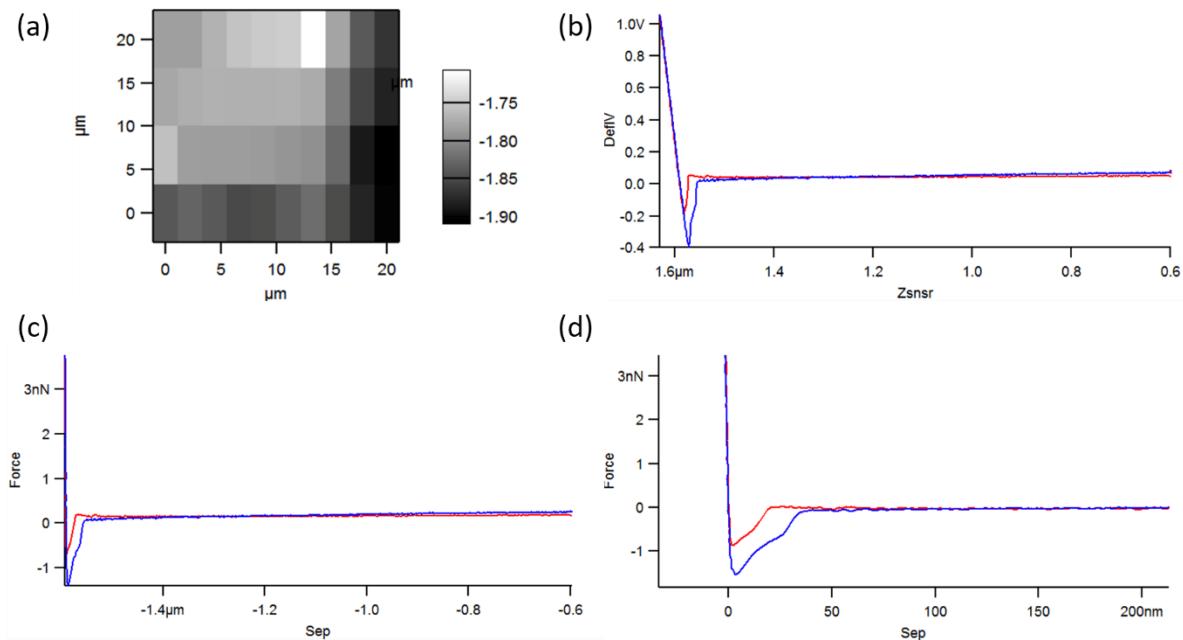


Figure S1. (a) Force map recorded on l-PCPOXA brushes immersed in buffered medium with pH = 3. (b) Deflection-*vs*-Zsensor curve directly extracted from the force map reported in (a). (c) Force-*vs*-separation curve obtained by processing the corresponding Deflection-*vs*-Zsensor profile. (d) Separation = zero was assigned in correspondence of the maximum slope of the FS curve, where the two opposing brushes are fully compressed.

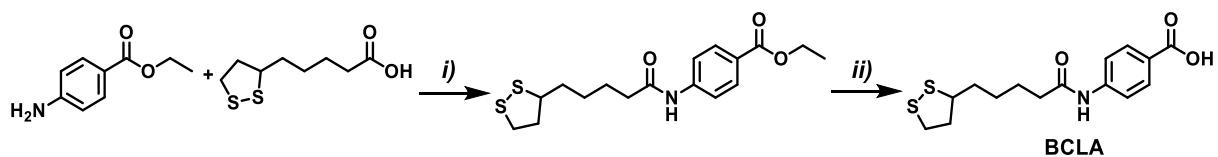


Figure S2. Synthesis of BCLA.

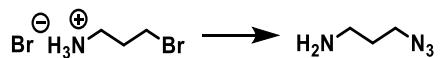


Figure S3. Synthesis of 3-azidopropylamine.

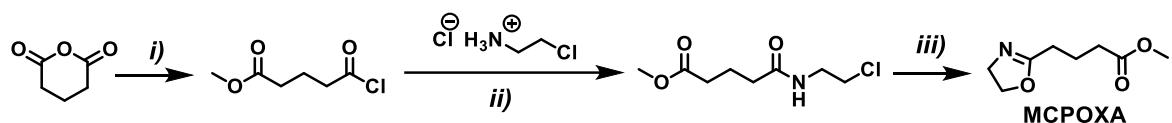


Figure S4. Synthesis of MCPOXA.

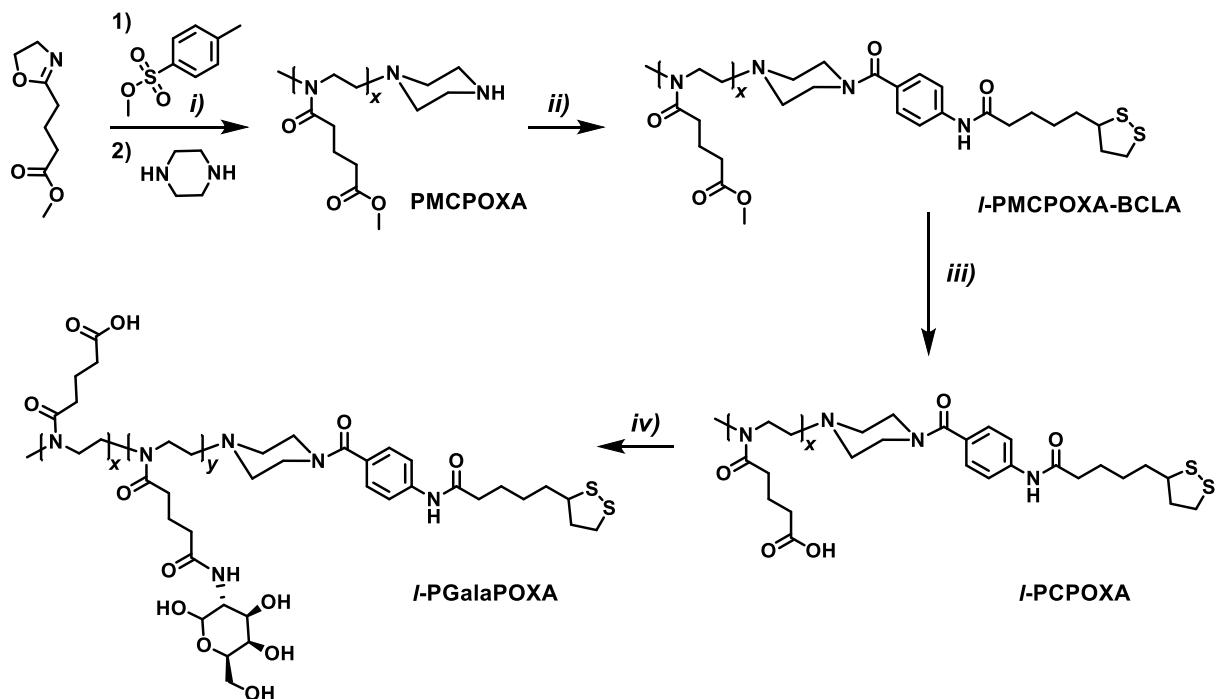


Figure S5. Synthesis of *l*-PCPOXA and *l*-PGalaPOXA.

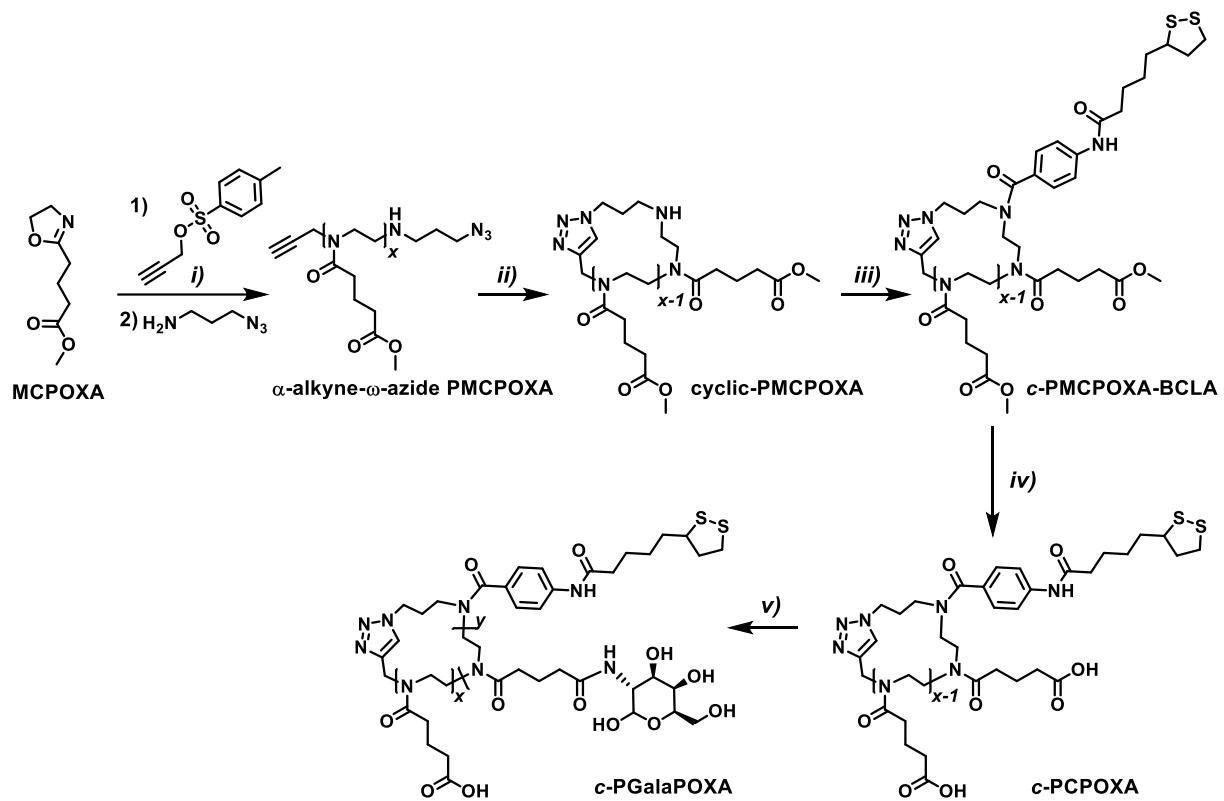


Figure S6. Synthesis of *c*-PCPOXA and *c*-PGalaPOXA.

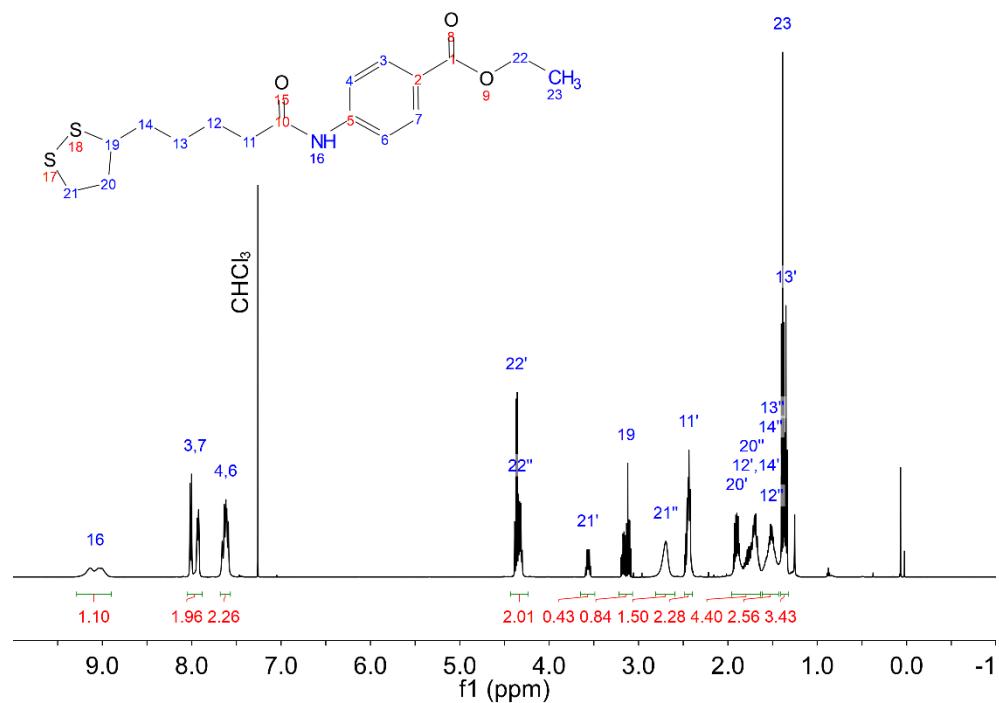


Figure S7. ^1H -NMR (500 MHz) spectrum of BCLE in CDCl_3 .

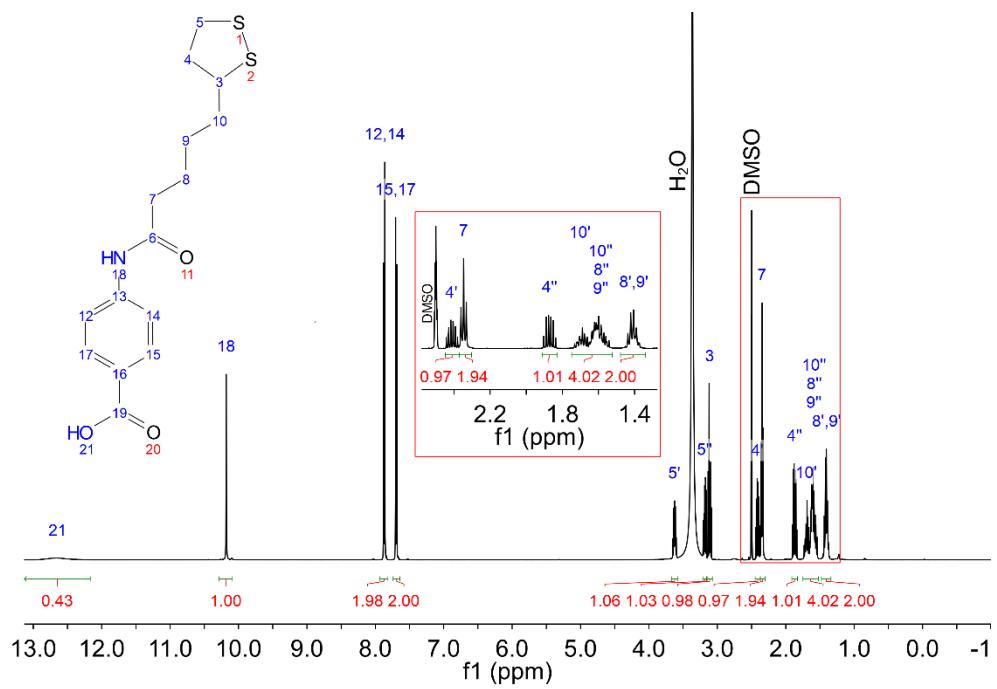


Figure S8. ^1H -NMR (500 MHz) spectrum of BCLA in DMSO-d_6 .

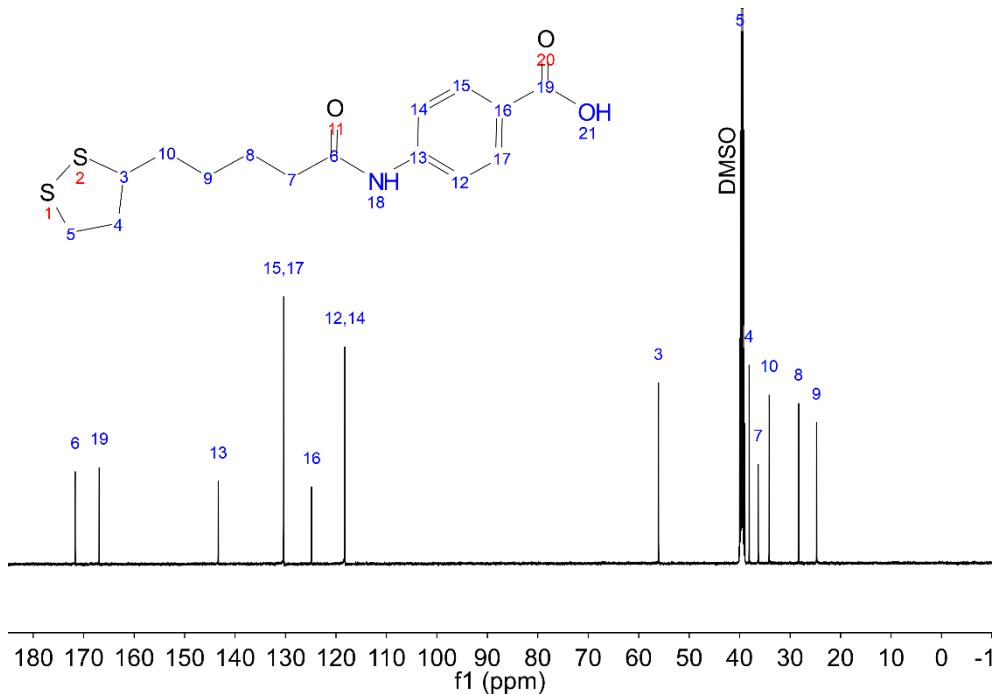


Figure S9. ^{13}C -NMR (126 MHz) spectrum of BCLA in DMSO-d_6 .

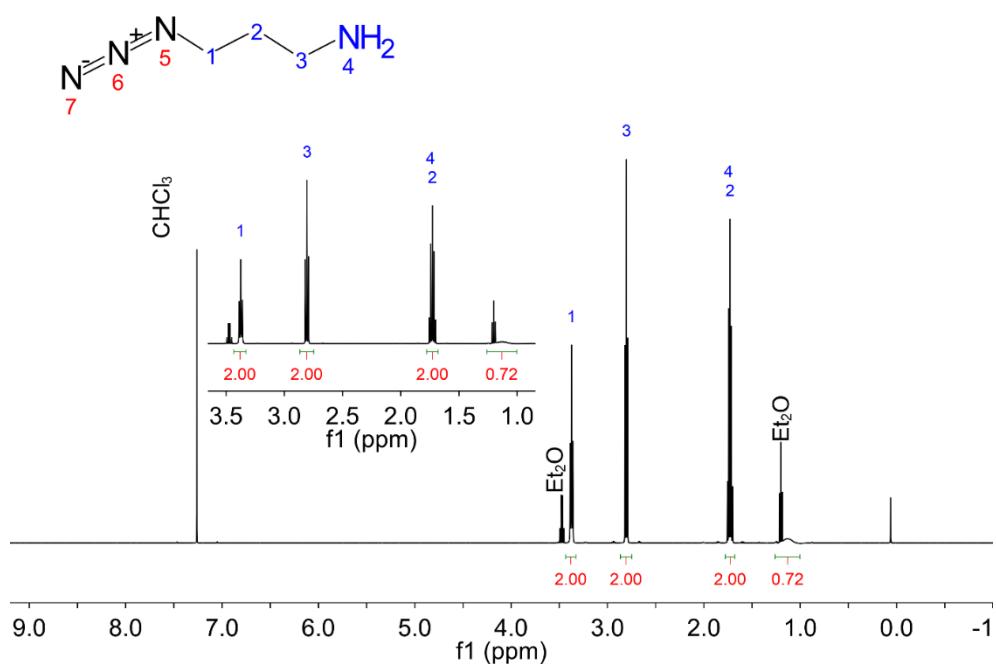


Figure S10. ^1H -NMR (500 MHz) spectrum of 3-azidopropylamine in CDCl_3 .

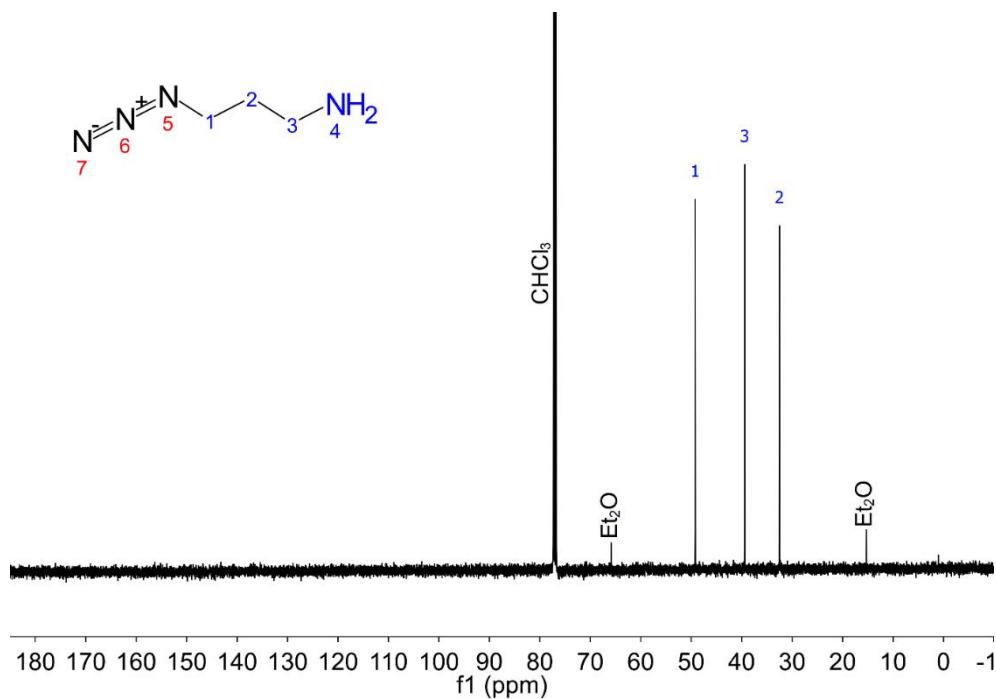


Figure S11. ^{13}C -NMR (126 MHz) spectrum of 3-azidopropylamine in CDCl_3 .

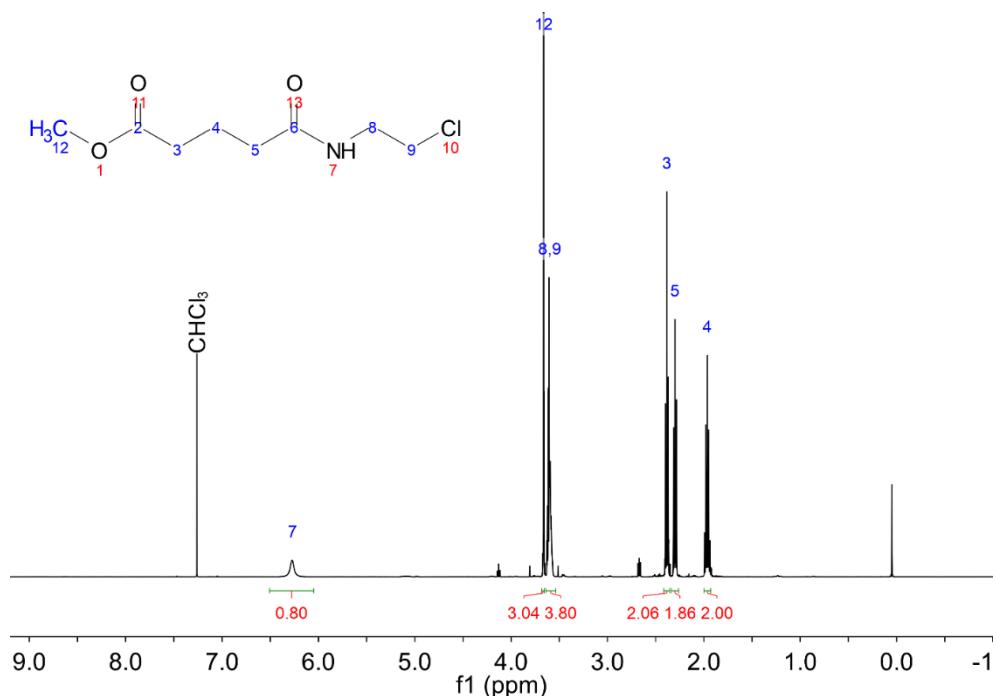


Figure S12. ^1H -NMR (500 MHz) spectrum of methyl 5-((2-chloroethyl)amino)-5-oxopentanoate in CDCl_3 .

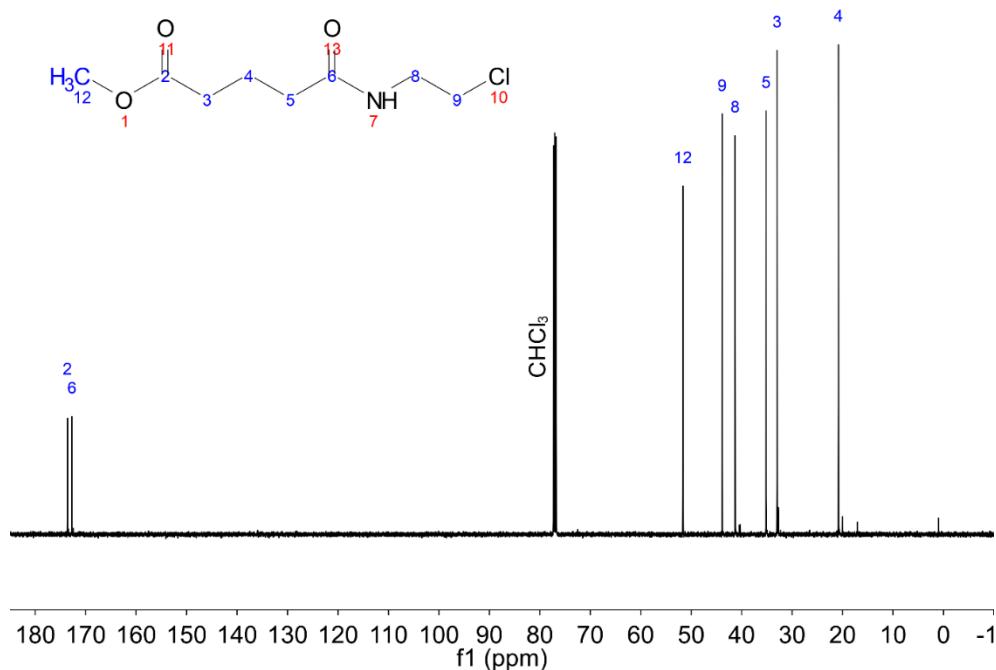


Figure S13. ^{13}C -NMR (126 MHz) spectrum of methyl 5-((2-chloroethyl)amino)-5-oxopentanoate in CDCl_3 .

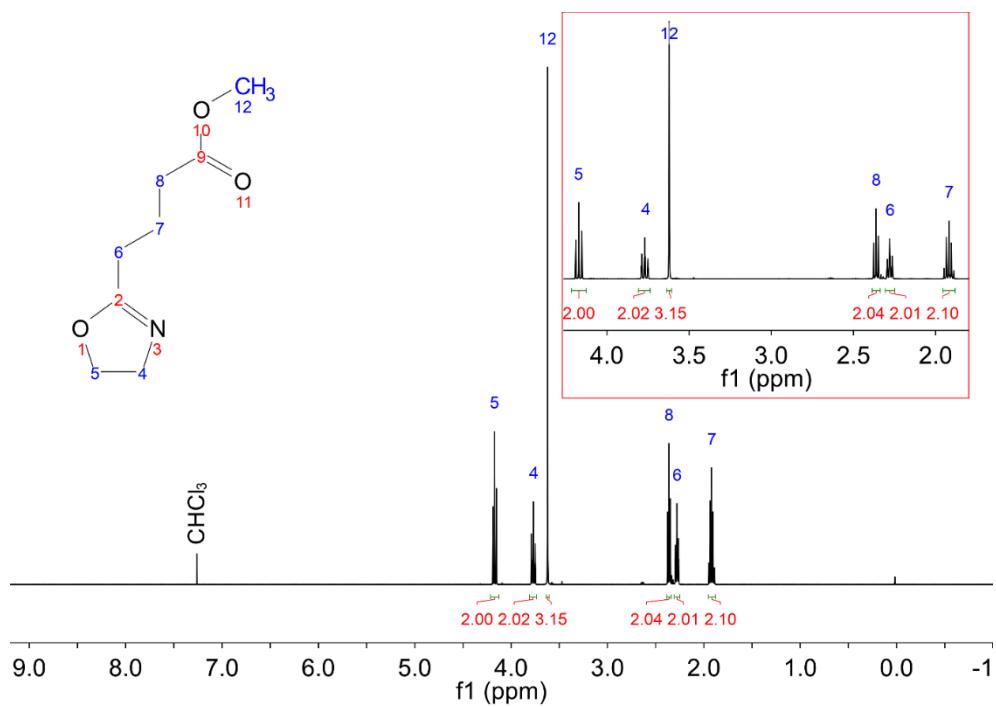


Figure S14. ^1H -NMR (500 MHz) spectrum of MCPOXA in CDCl_3 .

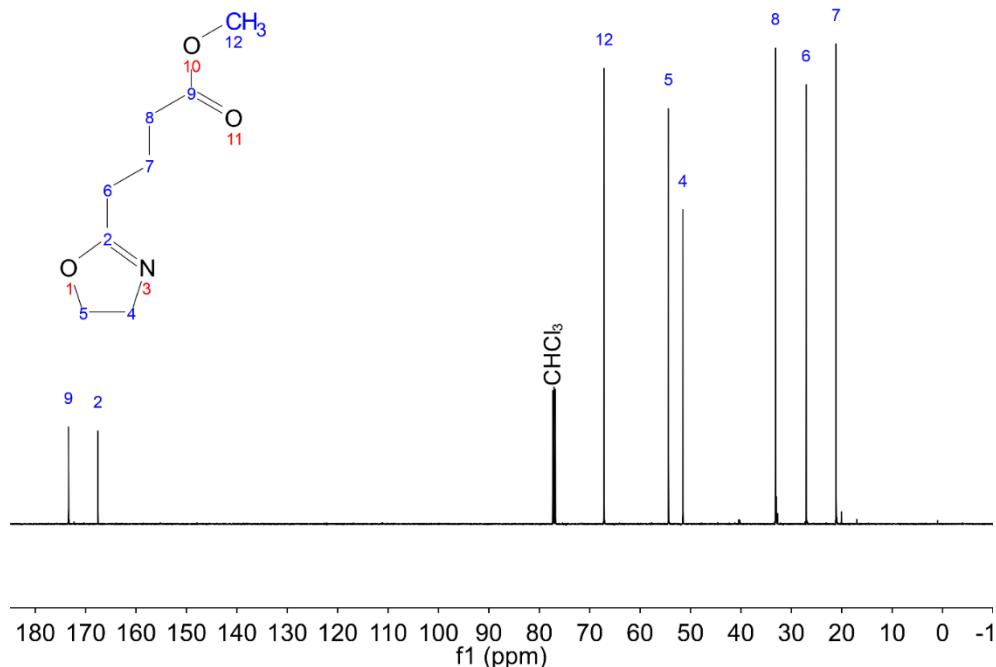


Figure S15. ^{13}C -NMR (126 MHz) spectrum of MCPOXA in CDCl_3 .

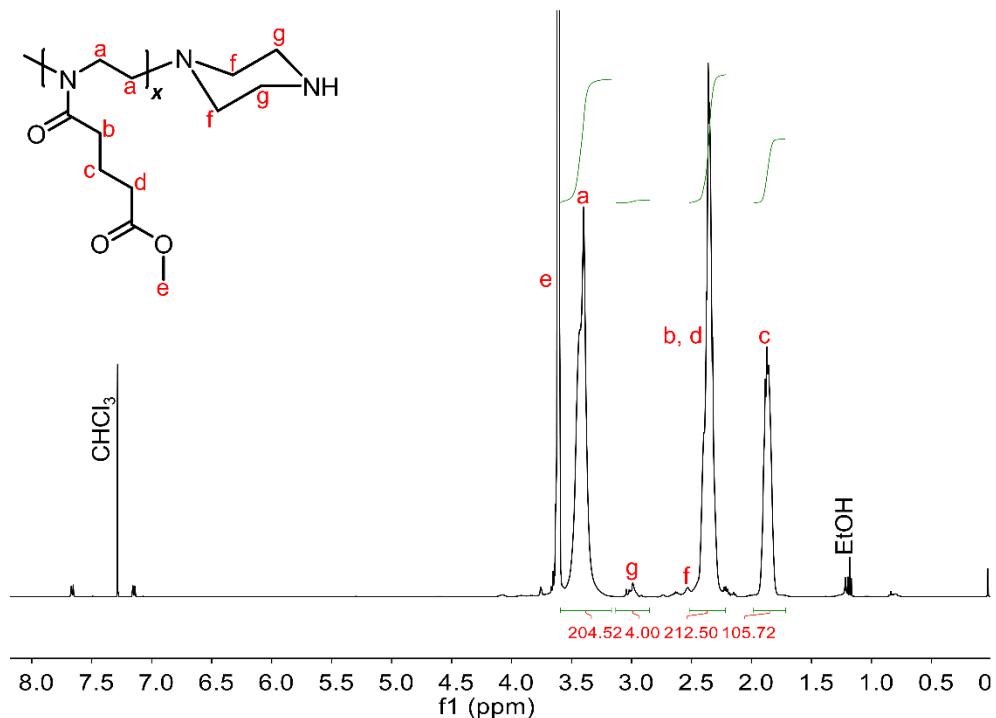


Figure S16. ^1H -NMR (500 MHz) spectrum of PMCPOXA in CDCl_3 .

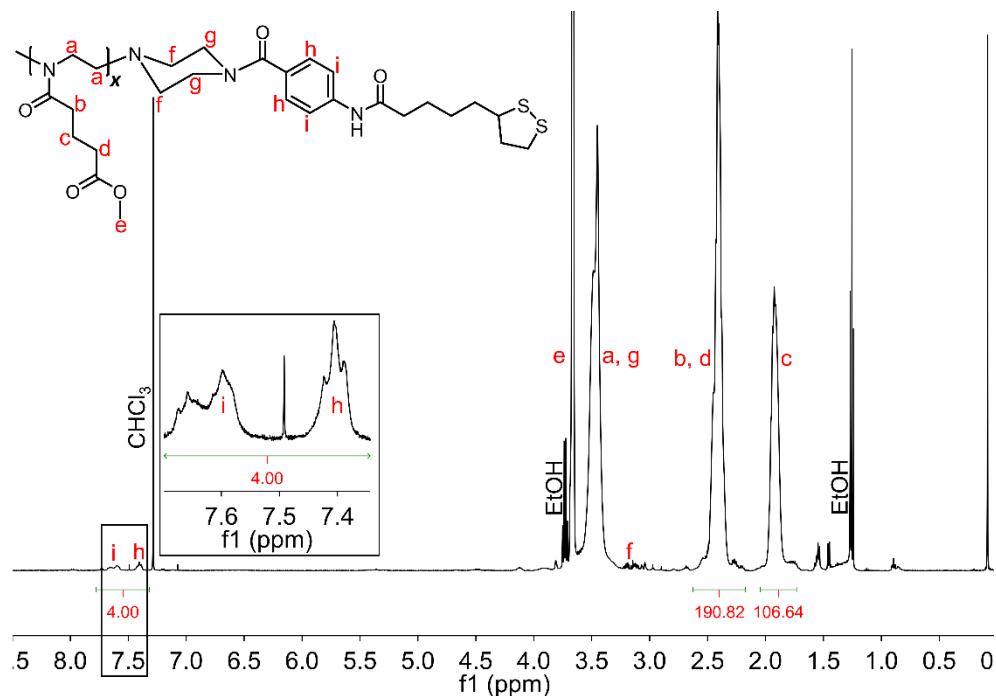


Figure S17. ^1H -NMR (500 MHz) spectrum of *l*-PMCPOXA-BCLA in CDCl_3 .

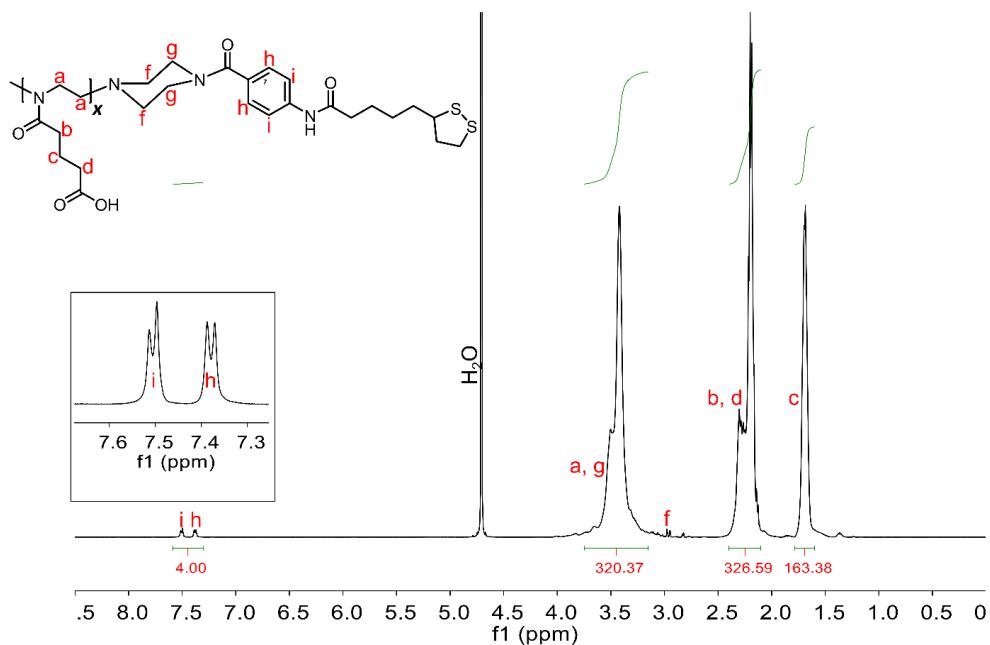


Figure S18. ^1H -NMR (500 MHz) spectrum of *l*-PCPOXA in D_2O .

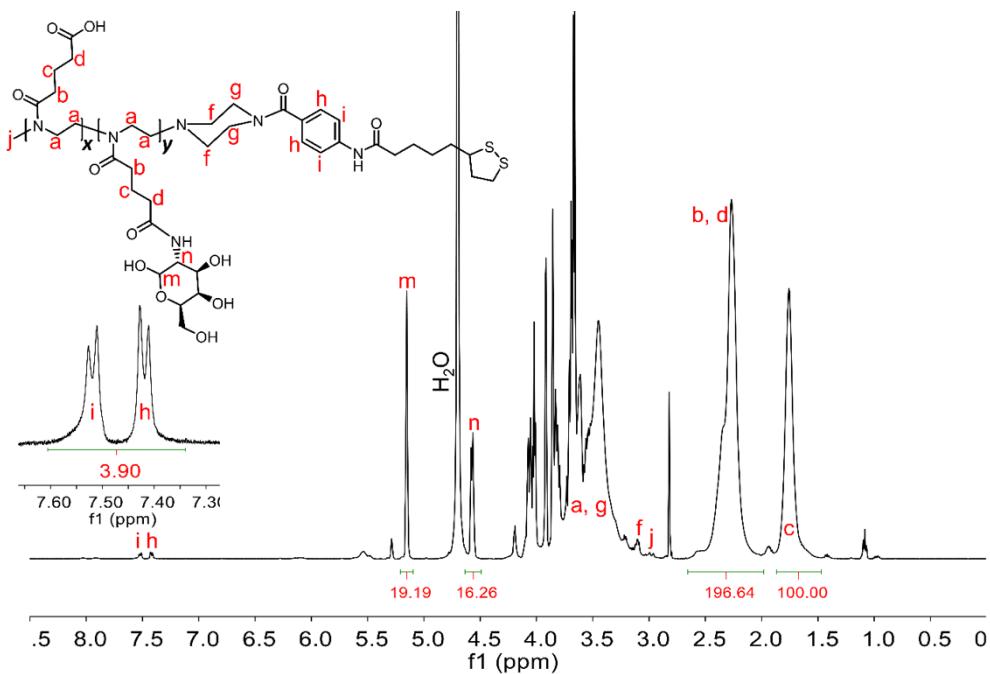


Figure S19. ^1H -NMR (500 MHz) spectrum of *l*-PGalaPOXA in D_2O .

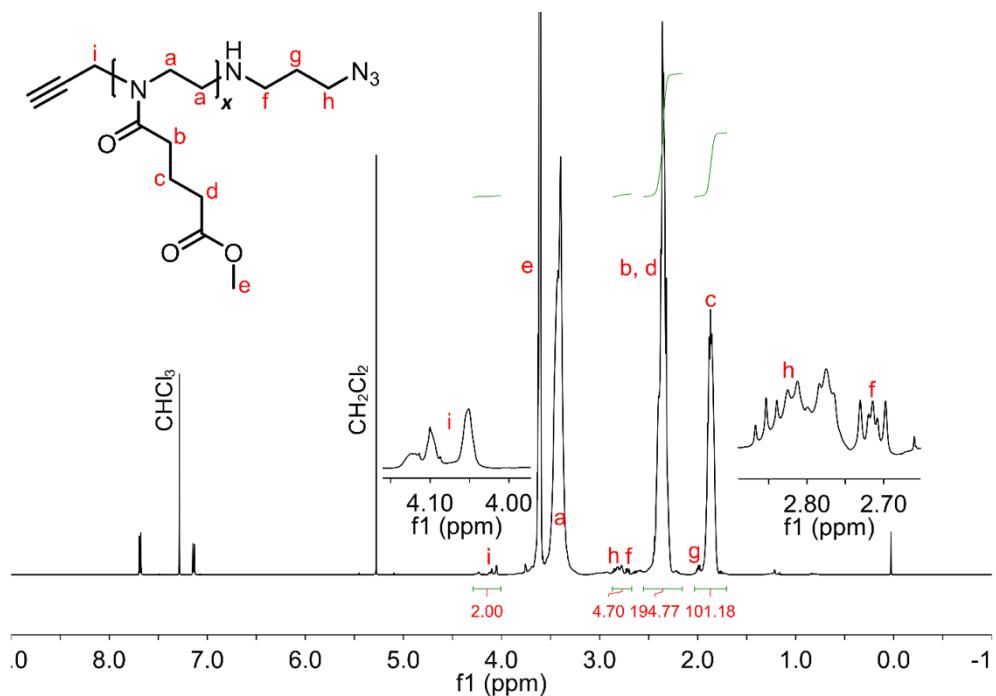


Figure S20. ^1H -NMR (500 MHz) spectrum of α -alkyne- ω -azide PMCPOXA in CDCl_3 .

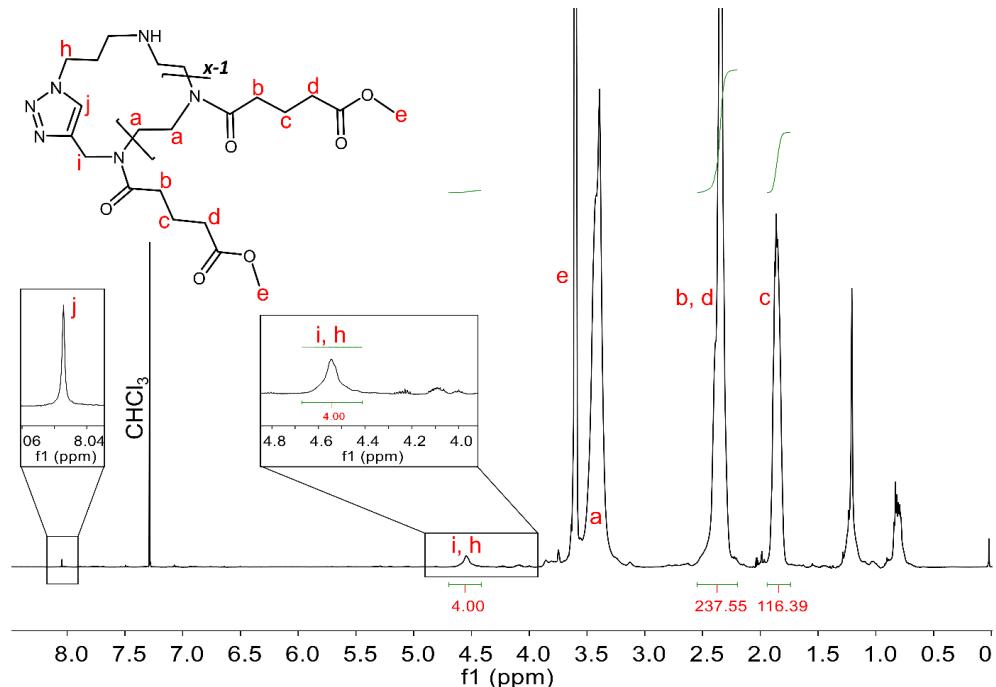


Figure S21. ^1H -NMR (500 MHz) spectrum of cyclic-PMCPOXA in CDCl_3 .

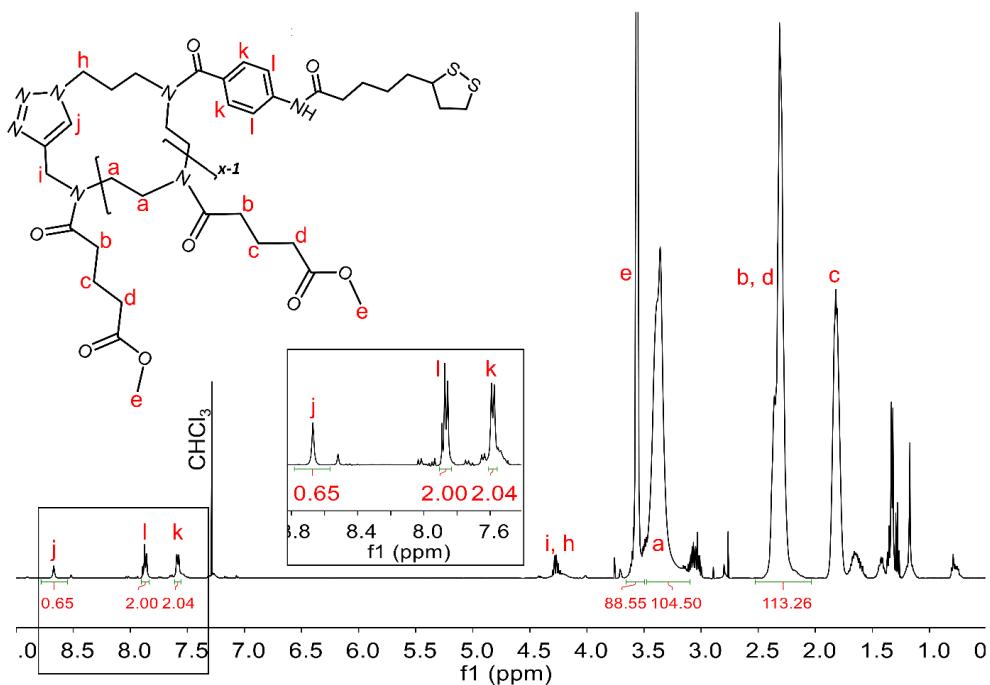


Figure S22. ¹H-NMR (500 MHz) spectrum of *c*-PMCPXA-BCLA in CDCl₃.

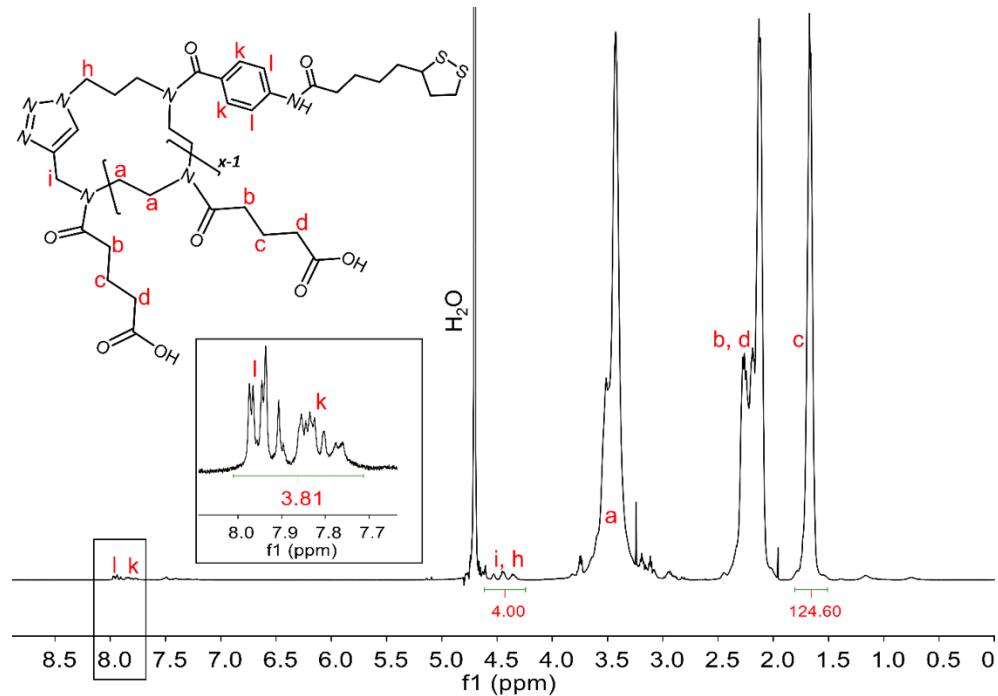


Figure S23. ¹H-NMR (500 MHz) spectrum of *c*-PCPOXA in D₂O.

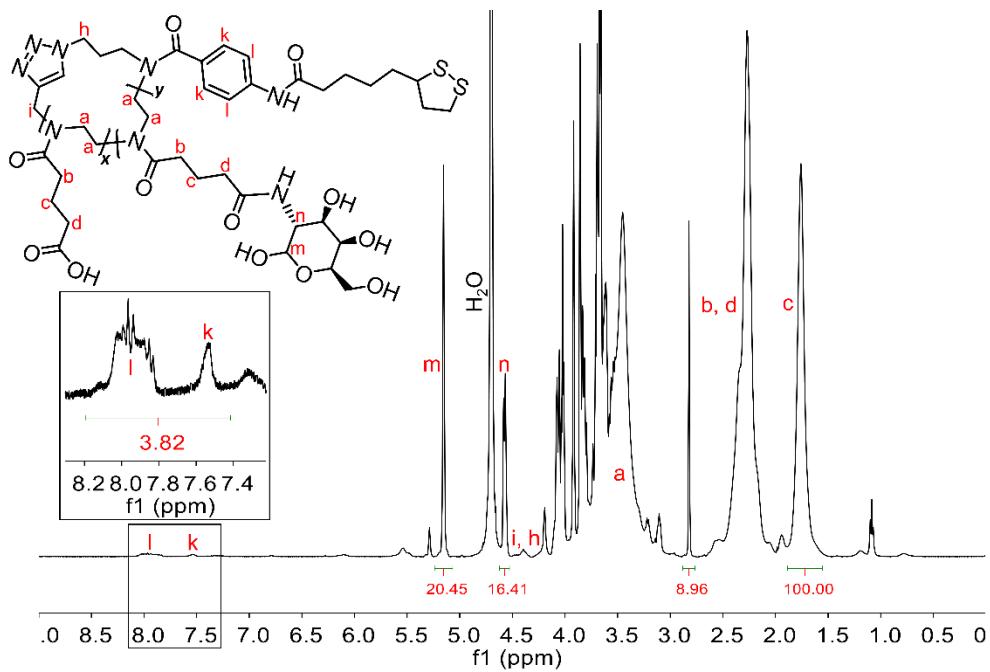


Figure S24. ¹H-NMR (500 MHz) spectrum of *c*-PGalaPOXA in D₂O.

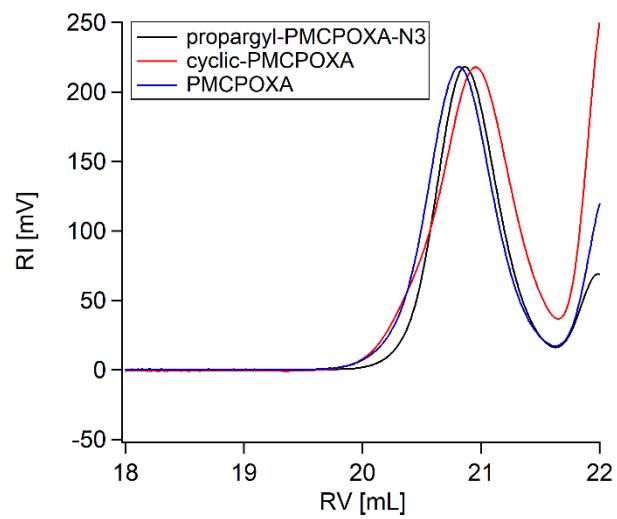


Figure S25. SEC elugram of α -alkyne- ω -azide PMCPOXA (propargyl-PMCPOXA-N₃), cyclic-PMCPOXA, and PMCPOXA.

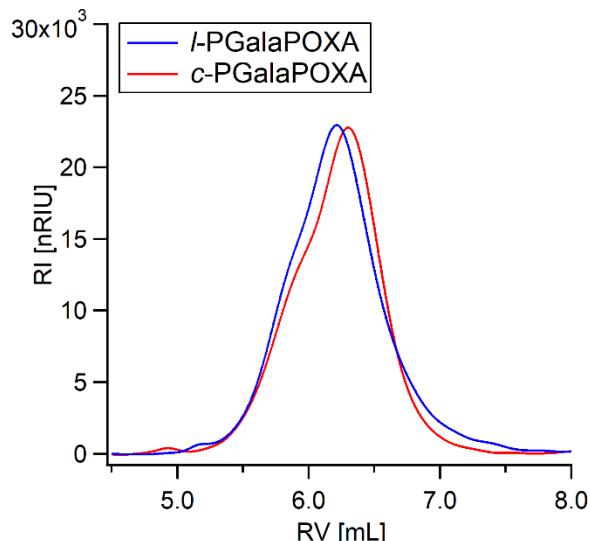


Figure S26. Aqueous SEC elograms of *l*- and *c*-PGalaPOXA.

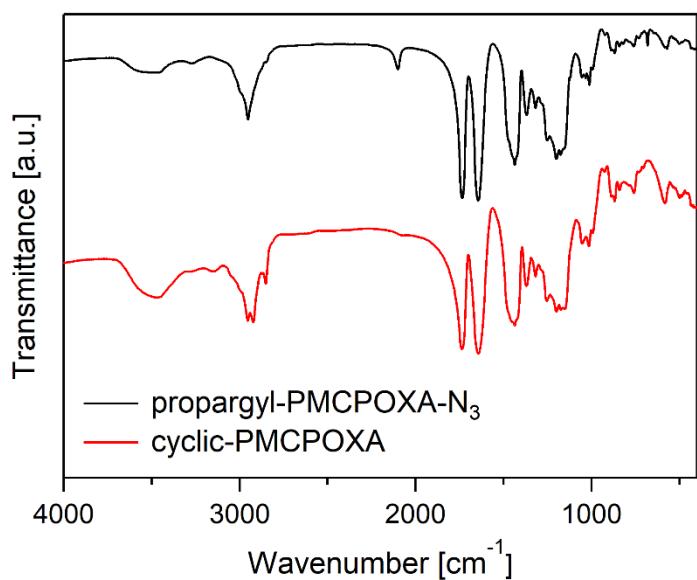


Figure S27. FT-IR spectra of α -alkyne- ω -azide PMCPOXA (propargyl-PMCPoXA- N_3 , black trace) and its cyclization product (cyclic-PMCPoXA, red trace). The absence of the peak at 2100 cm^{-1} , relative to the stretching of the azide group (N_3), in the spectrum of cyclic-PMCPoXA confirmed the ring closure.