SUPPORTING INFORMATION

# Approaches to the functionalization of carbosilane and carbosilane-siloxane dendrons based on limonene

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CONTENT

SI1. NMR spectra

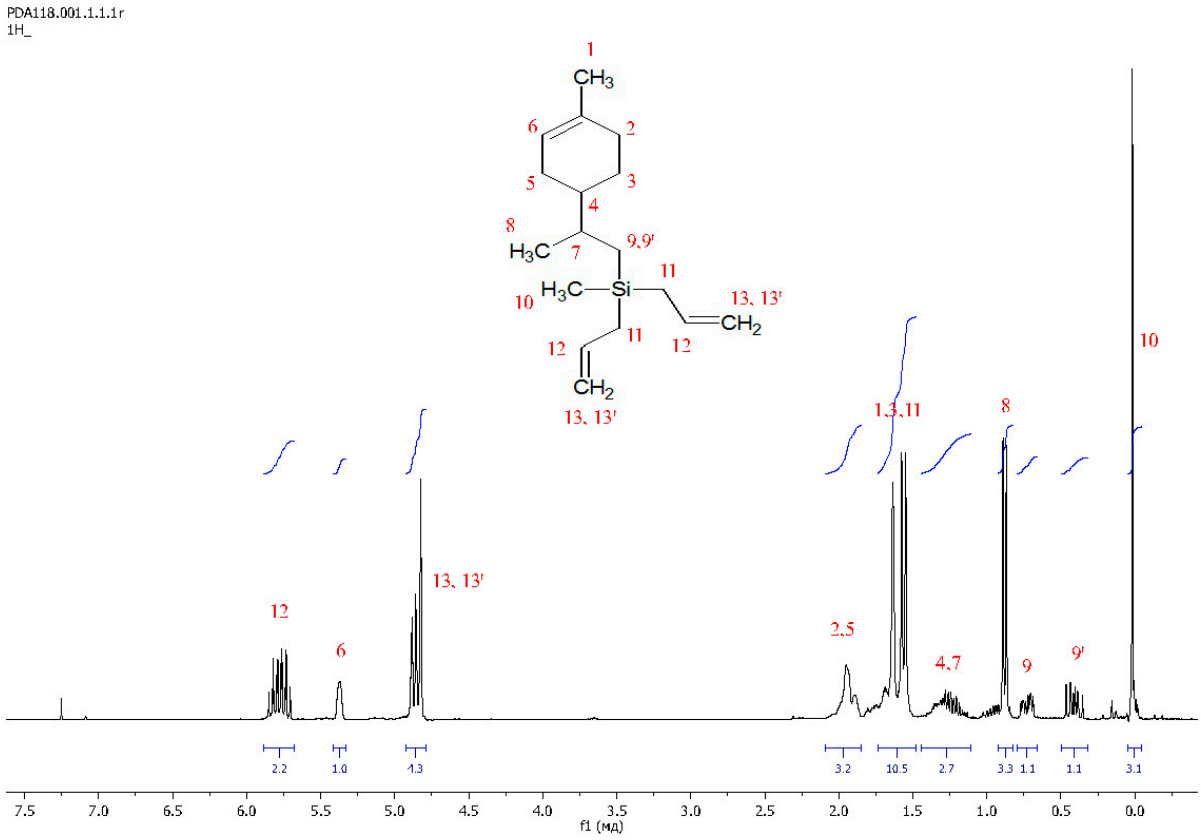


Figure S1. $^{1}$H NMR spectrum of *Lim-G$_0$All$^2$*.

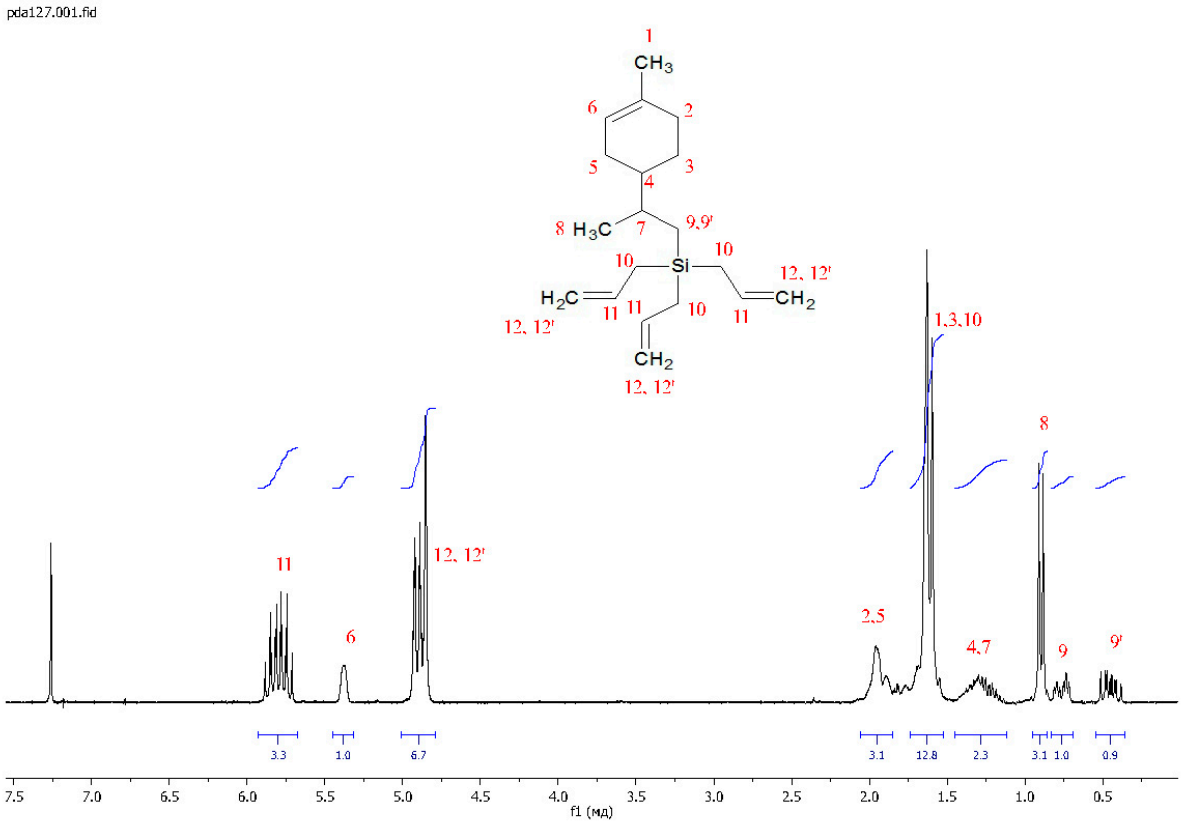


Figure S2. $^{1}$H NMR spectrum of *Lim-G$_0$All$^3$*.

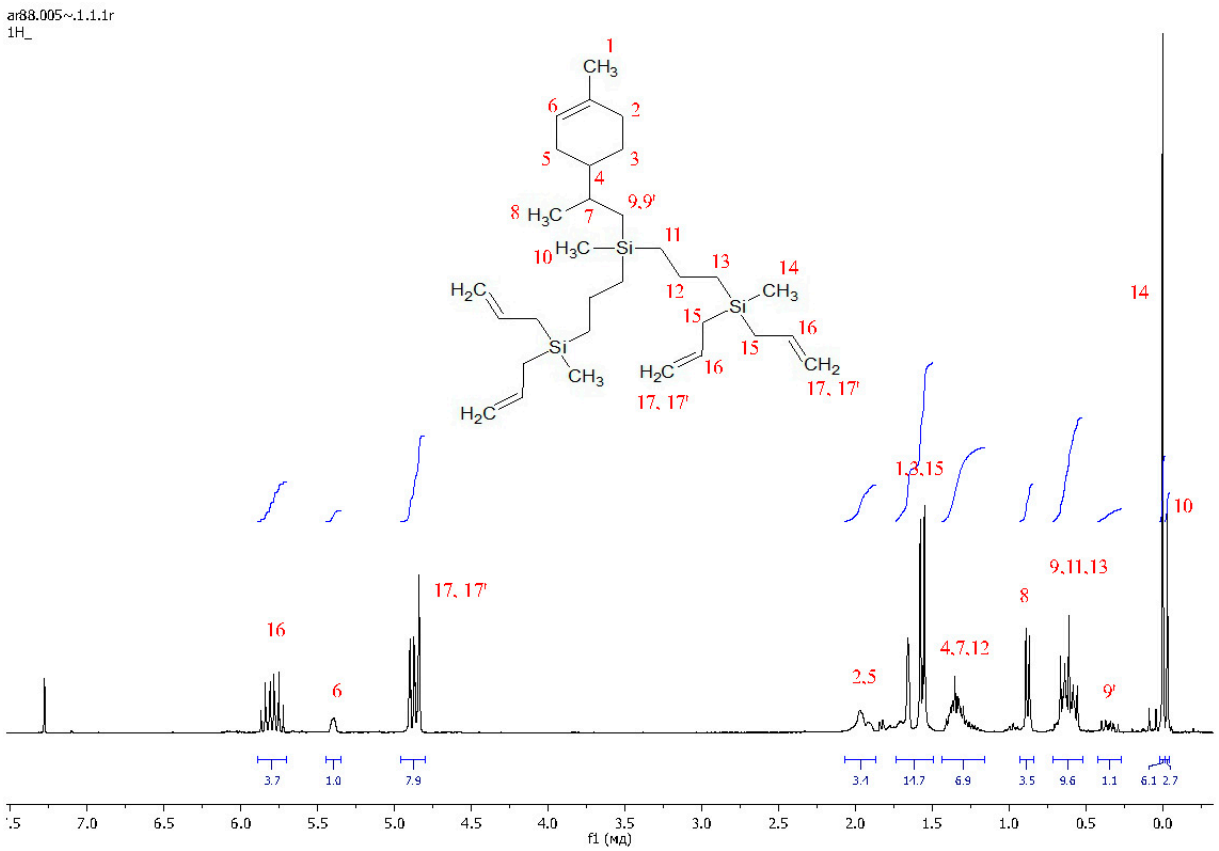


Figure S3. $^{1}$H NMR spectrum of *Lim-G1All*[4].

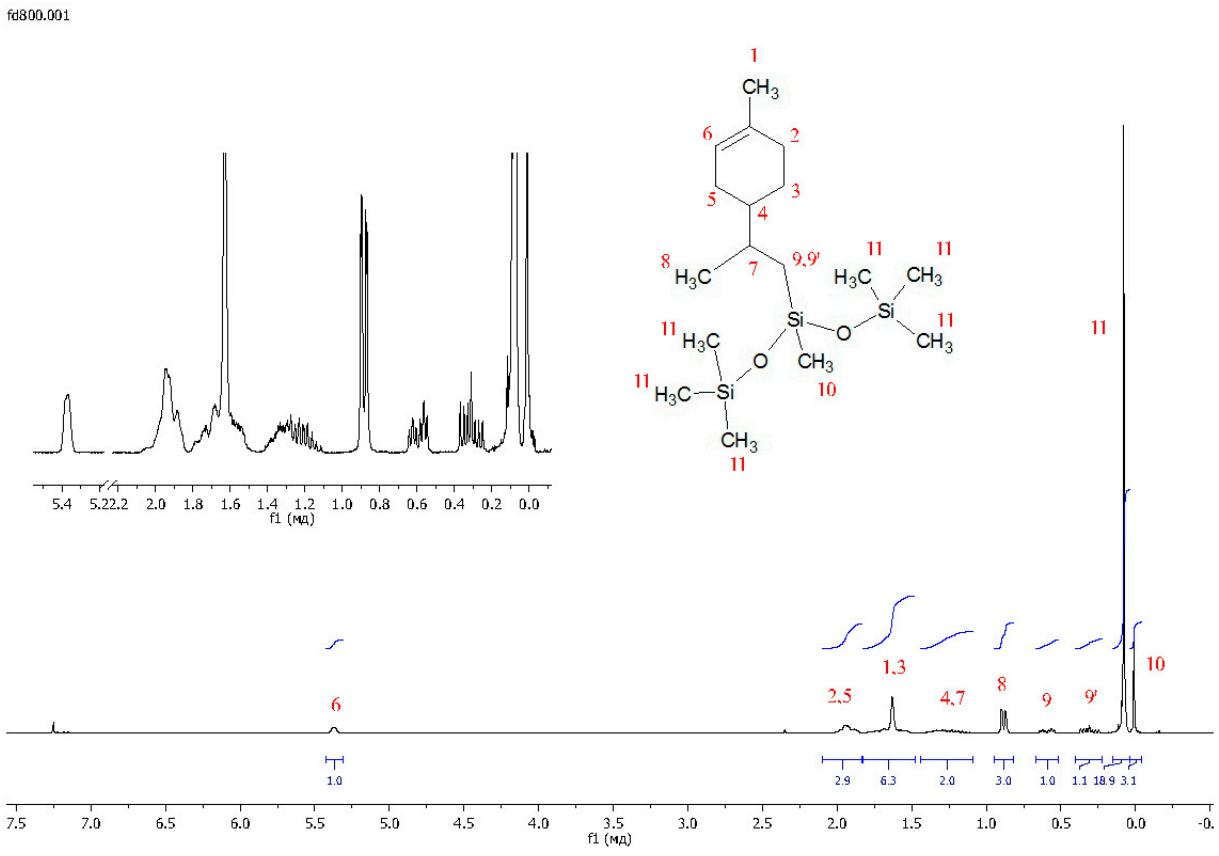


Figure S4. $^{1}$H NMR spectrum of *Lim-G0,5TMS*[2].

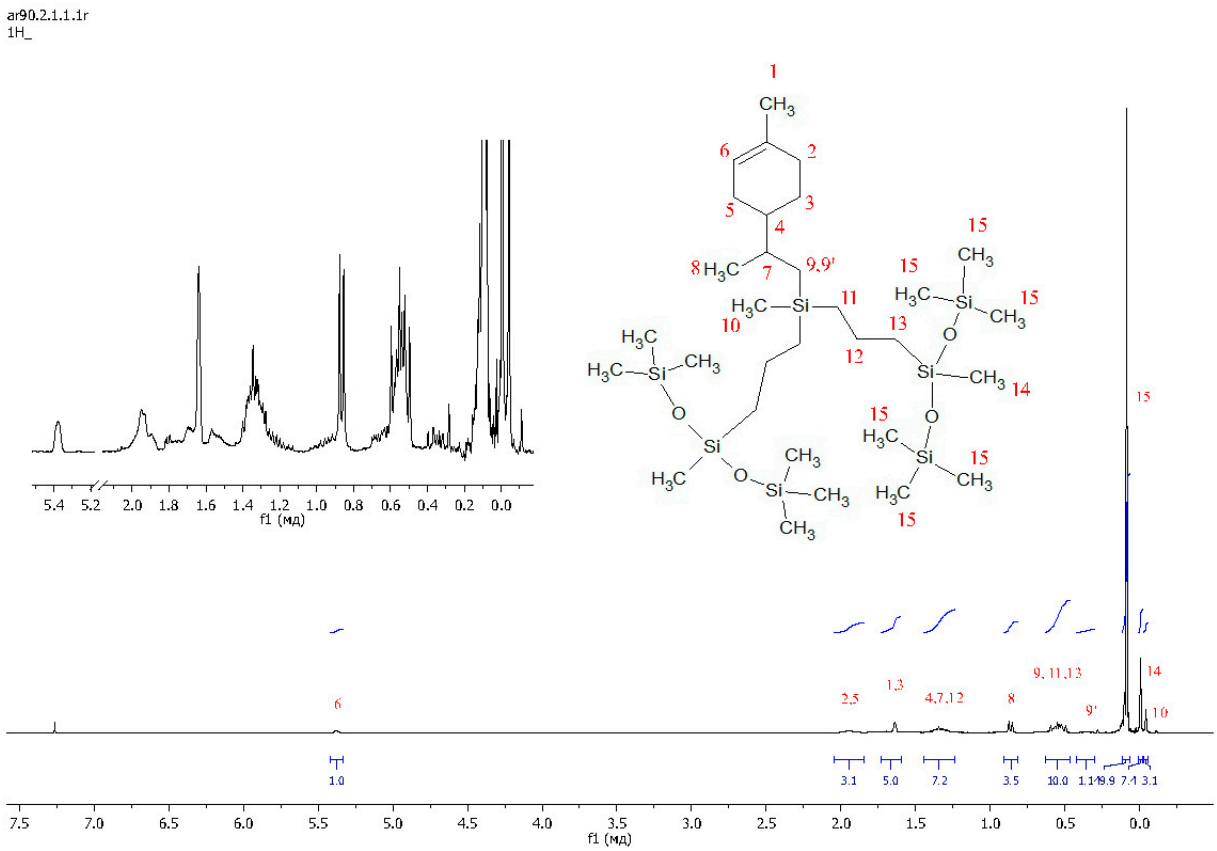


Figure S5. $^{1}$H NMR spectrum of *Lim-G1,5TMS*[4].

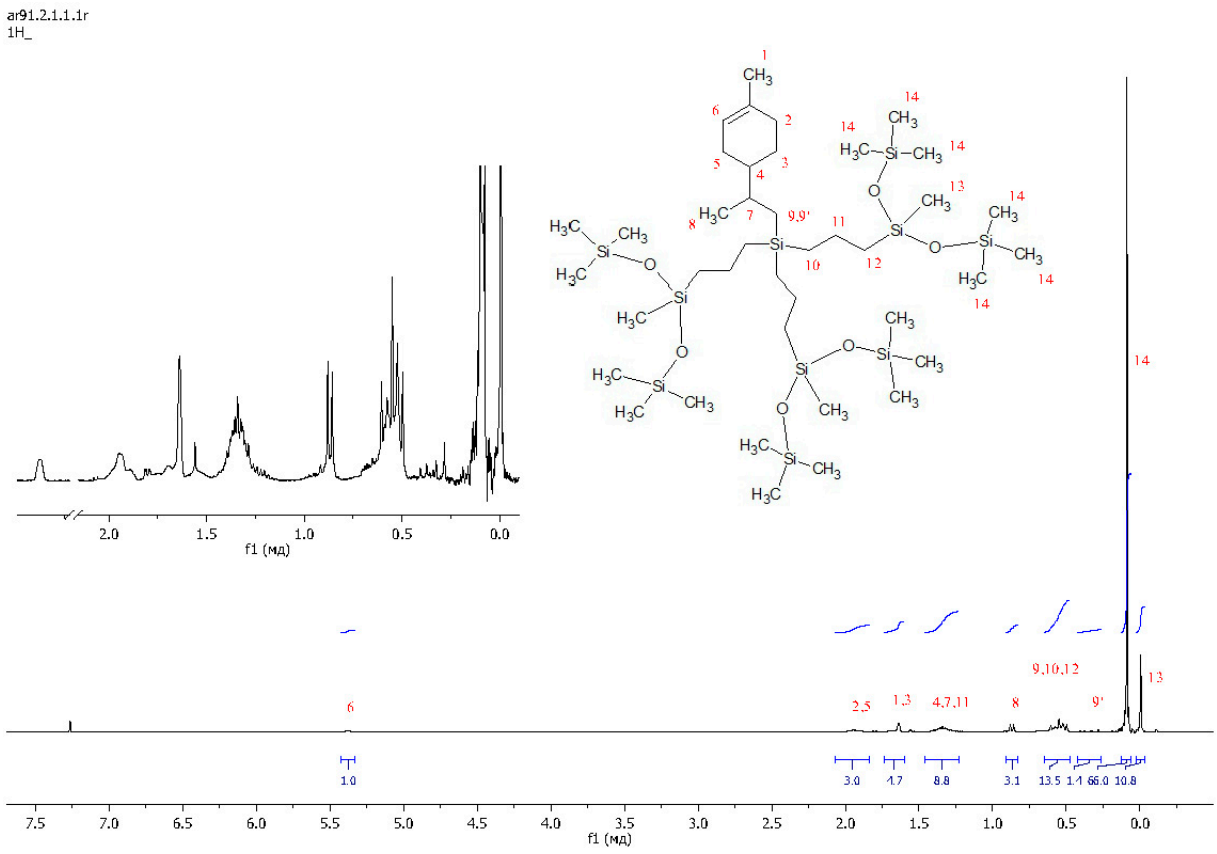


Figure S6. $^{1}$H NMR spectrum of *Lim-G1,5TMS*[6].

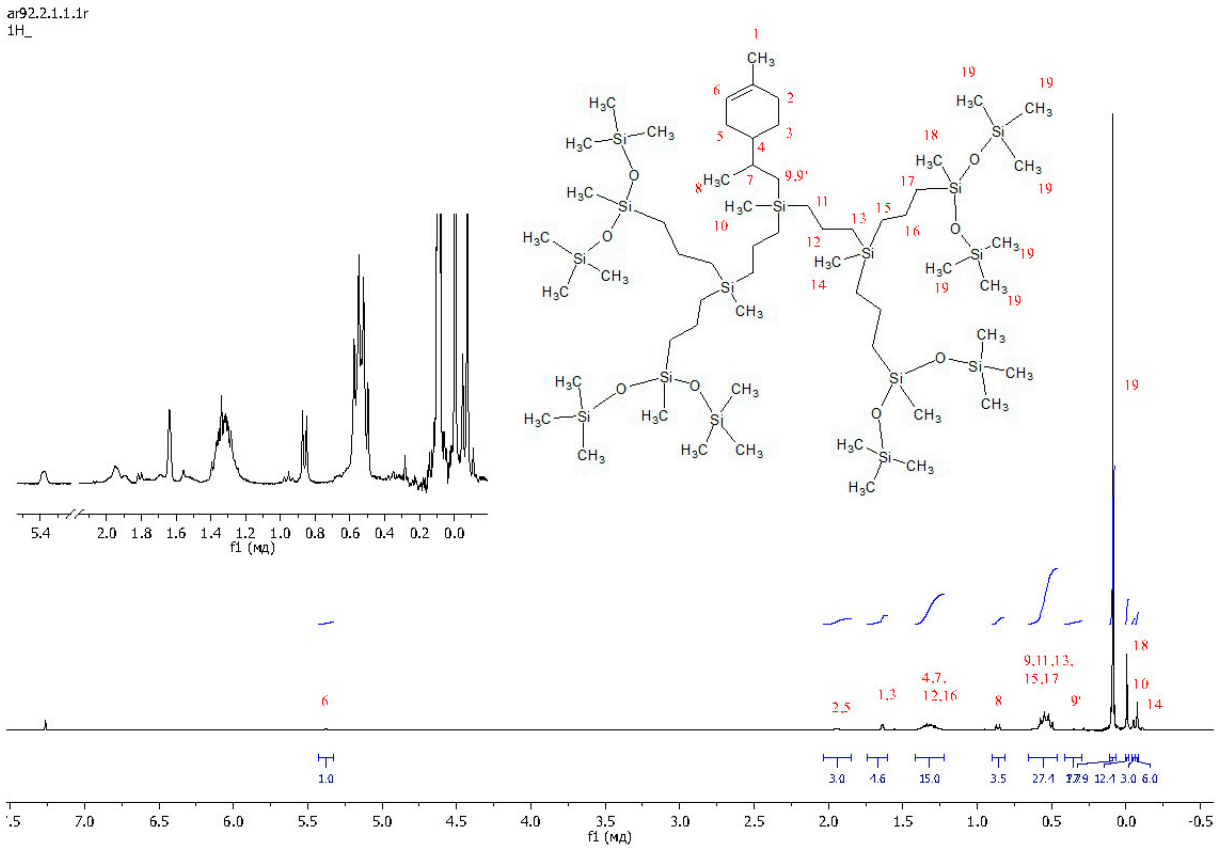


Figure S7. $^{1}$H NMR spectrum of *Lim-G*$_{2,5}$*TMS*$^{8}$.

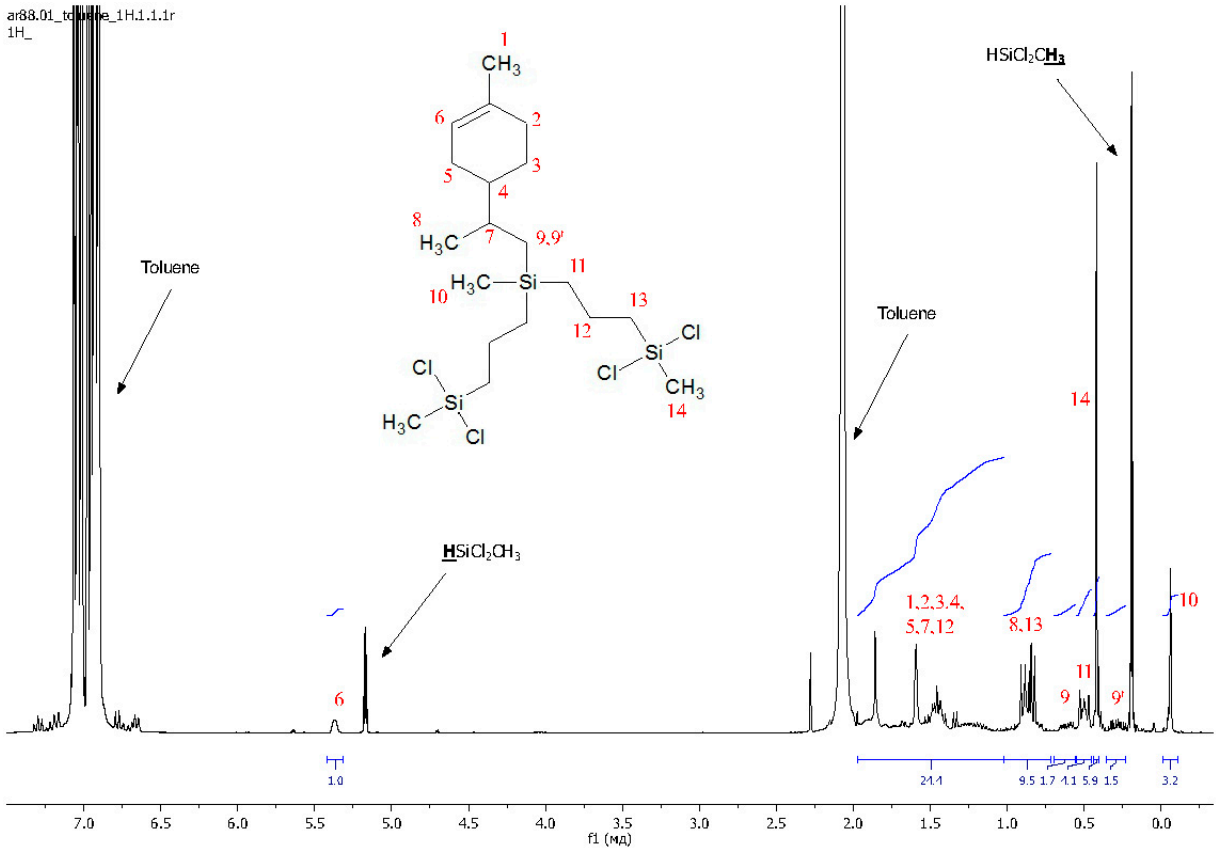


Figure S8. $^{1}$H NMR spectrum of *Lim-G*$_{1}$*Cl*$_{4}$.

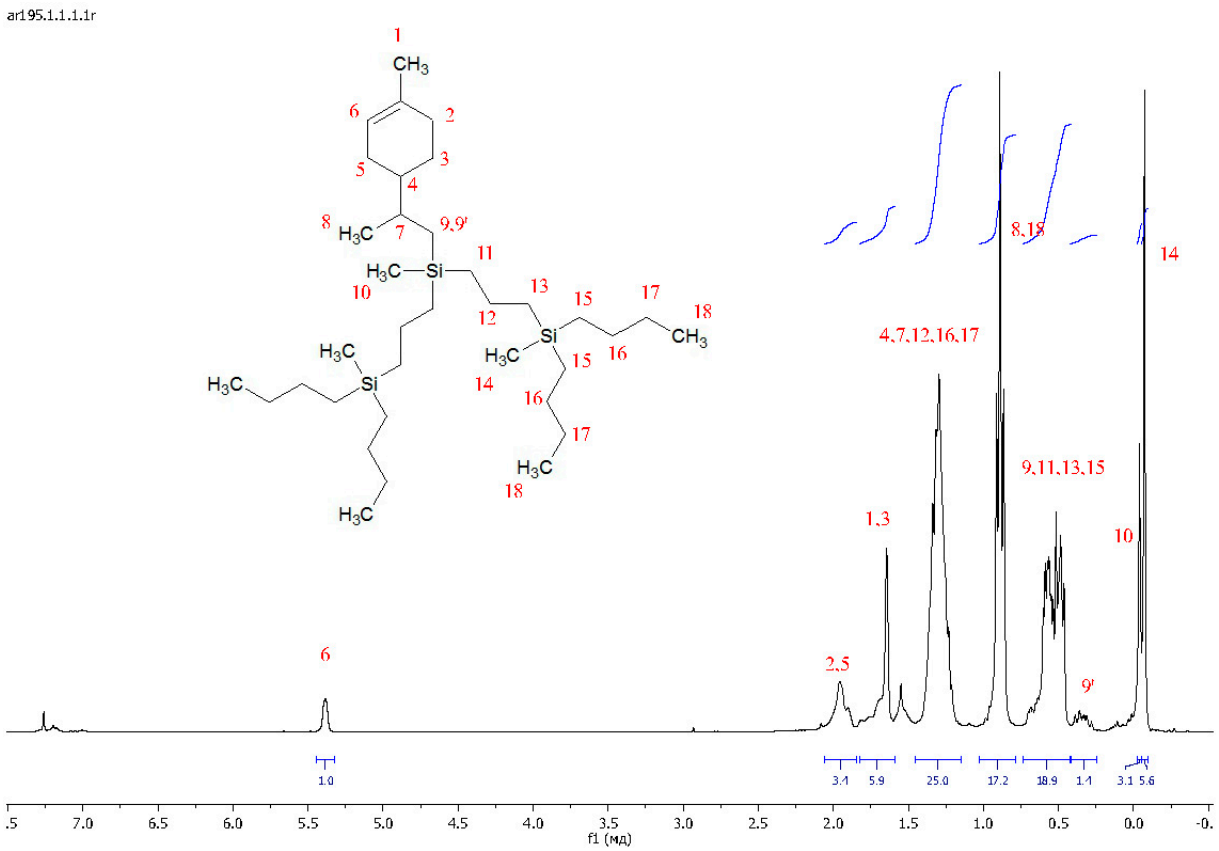


Figure S9. $^{1}$H NMR spectrum of *Lim-G1Bu4*.

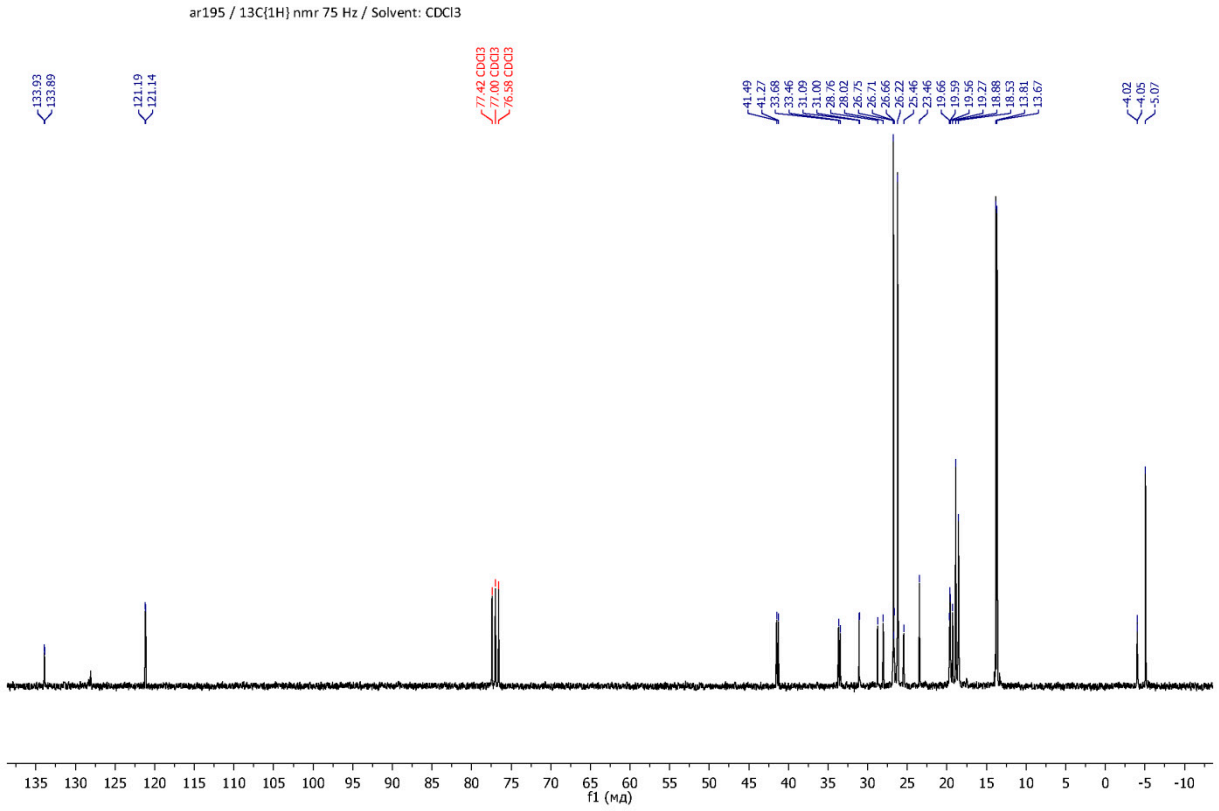


Figure S10. $^{13}$C NMR spectrum of *Lim-G1Bu4*.

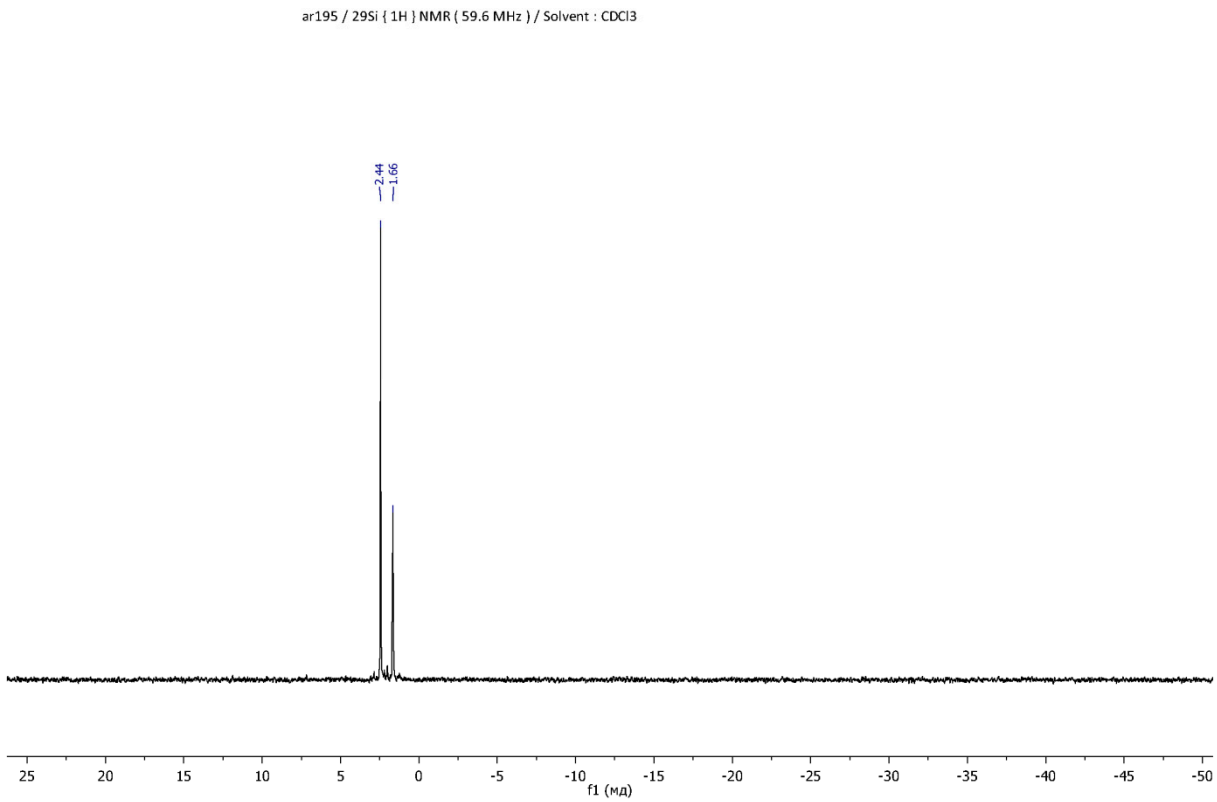


Figure S11. $^{29}$Si NMR spectrum of *Lim-G1Bu*$^{4}$.

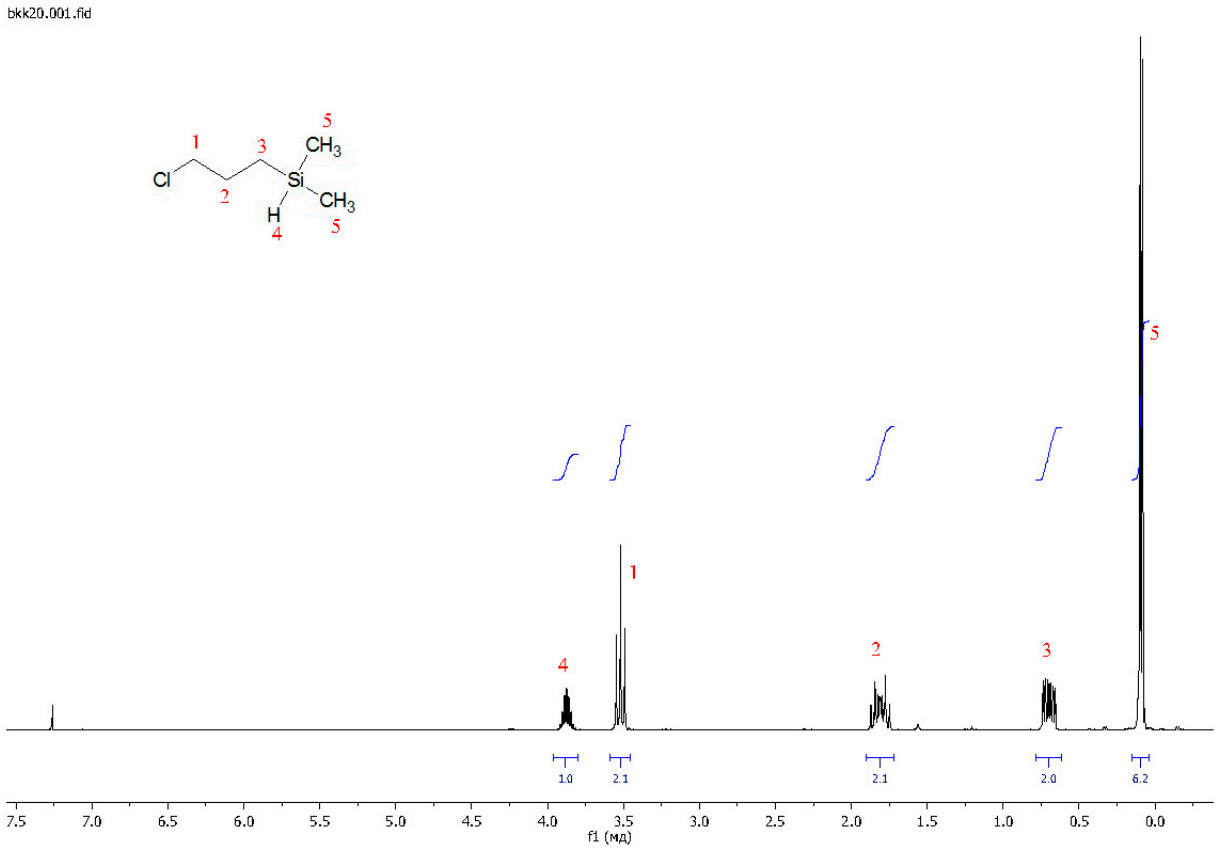


Figure S12. $^{1}$H NMR spectrum of *3-chloropropyldimethylsilane.*

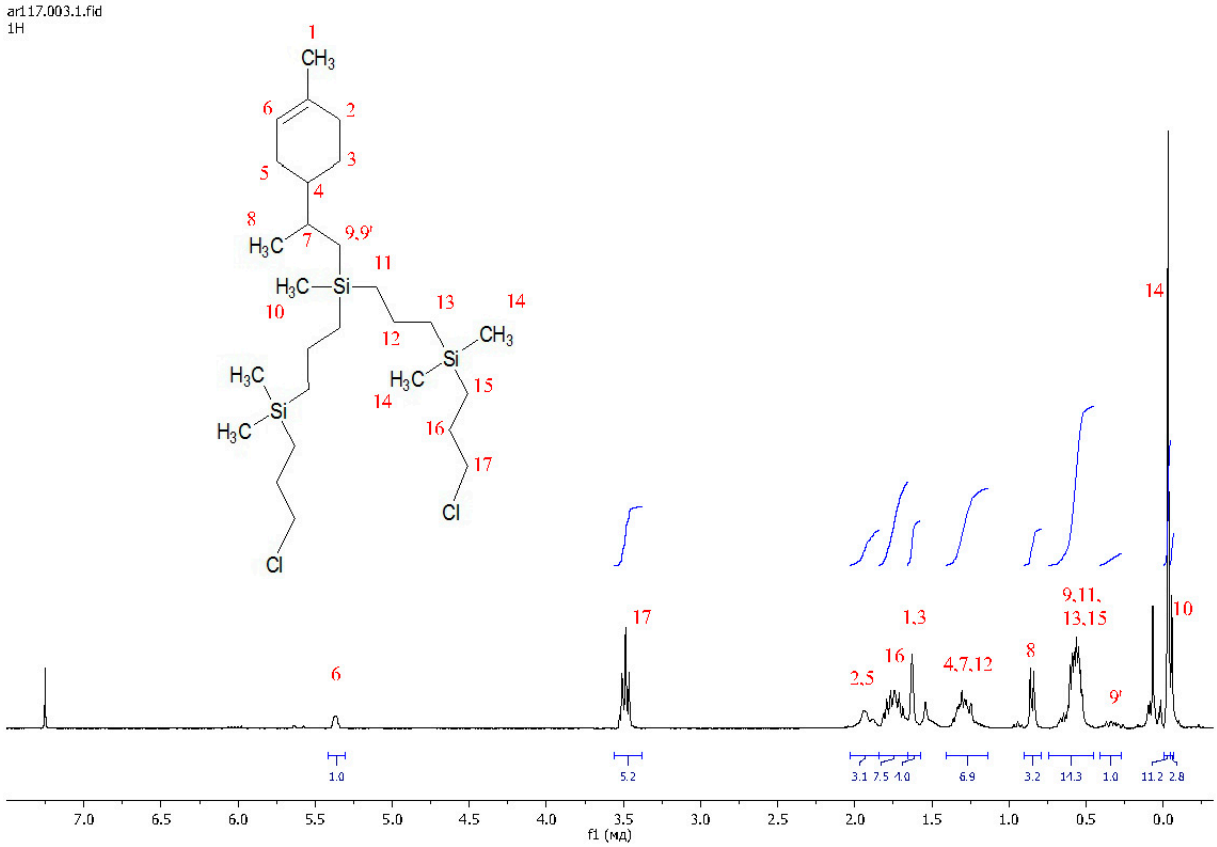


Figure S13. $^{1}$H NMR spectrum of *Lim-G0(PrCl)*$^{2}$.

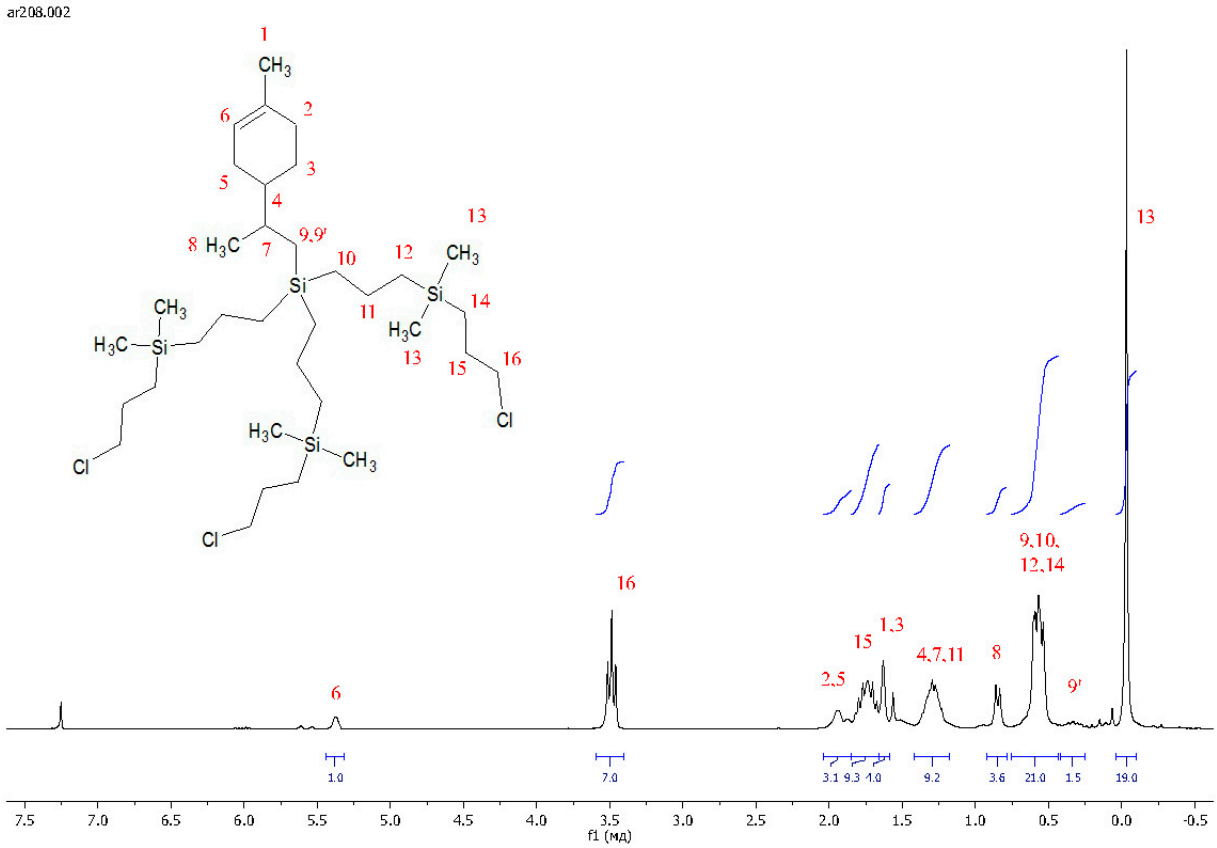


Figure S14. $^{1}$H NMR spectrum of *Lim-G1(PrCl)*$^{3}$.

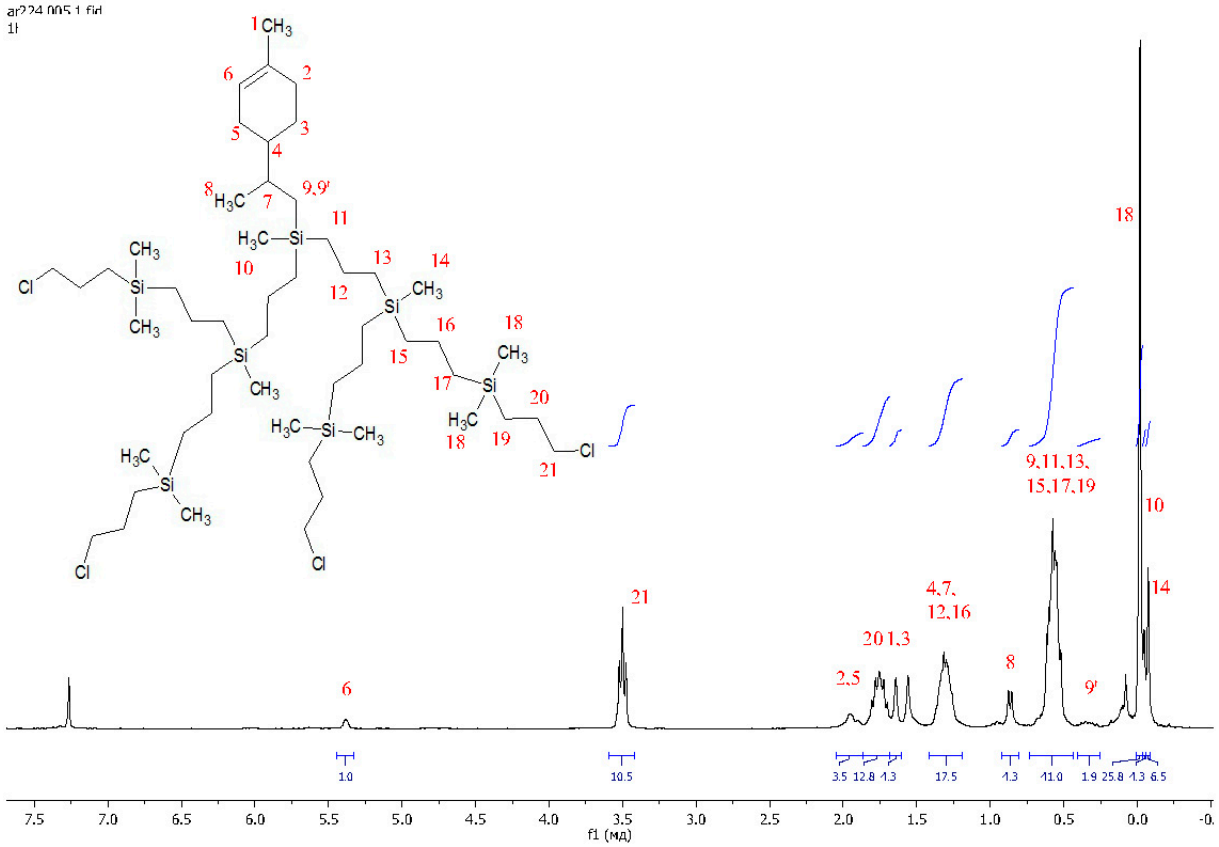


Figure S15. $^{1}$H NMR spectrum of *Lim-G₂(PrCl)⁴*.

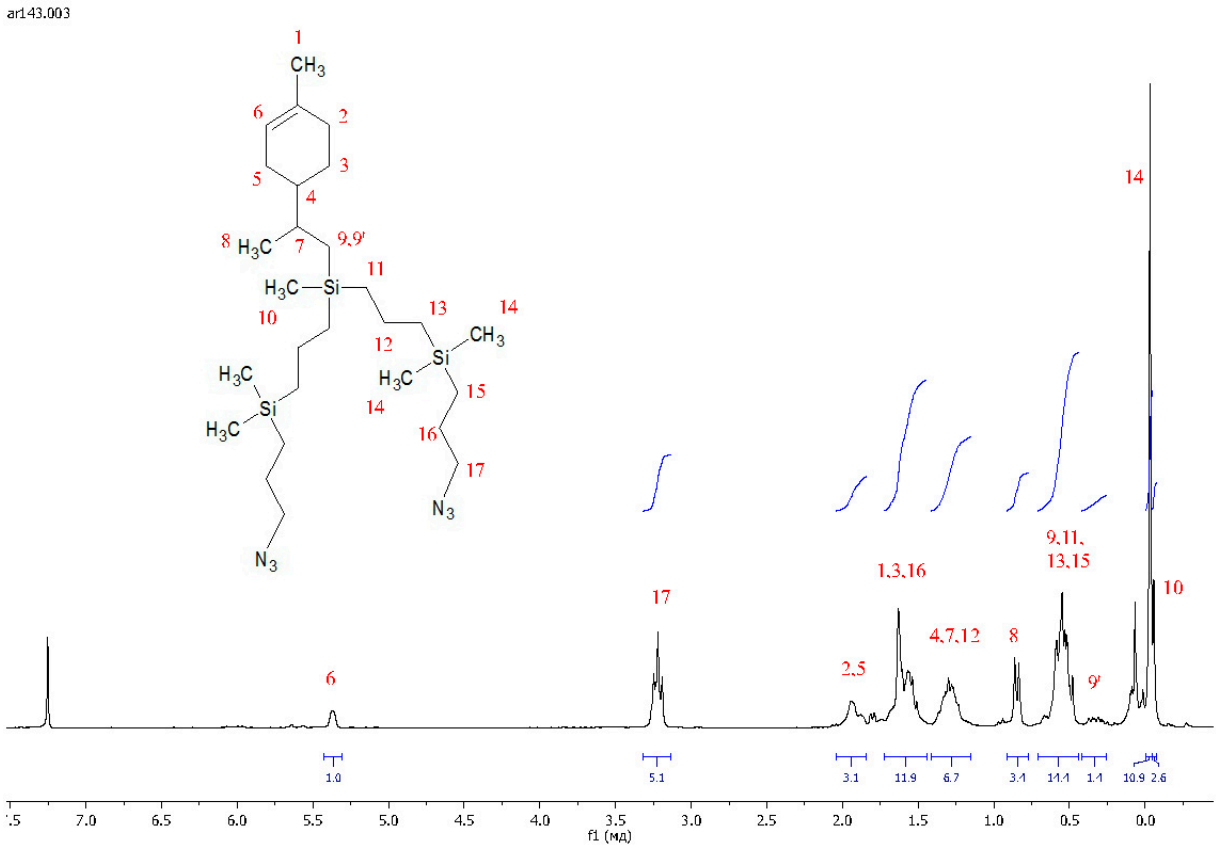


Figure S16. $^{1}$H NMR spectrum of *Lim-G₀(PrN₃)²*.

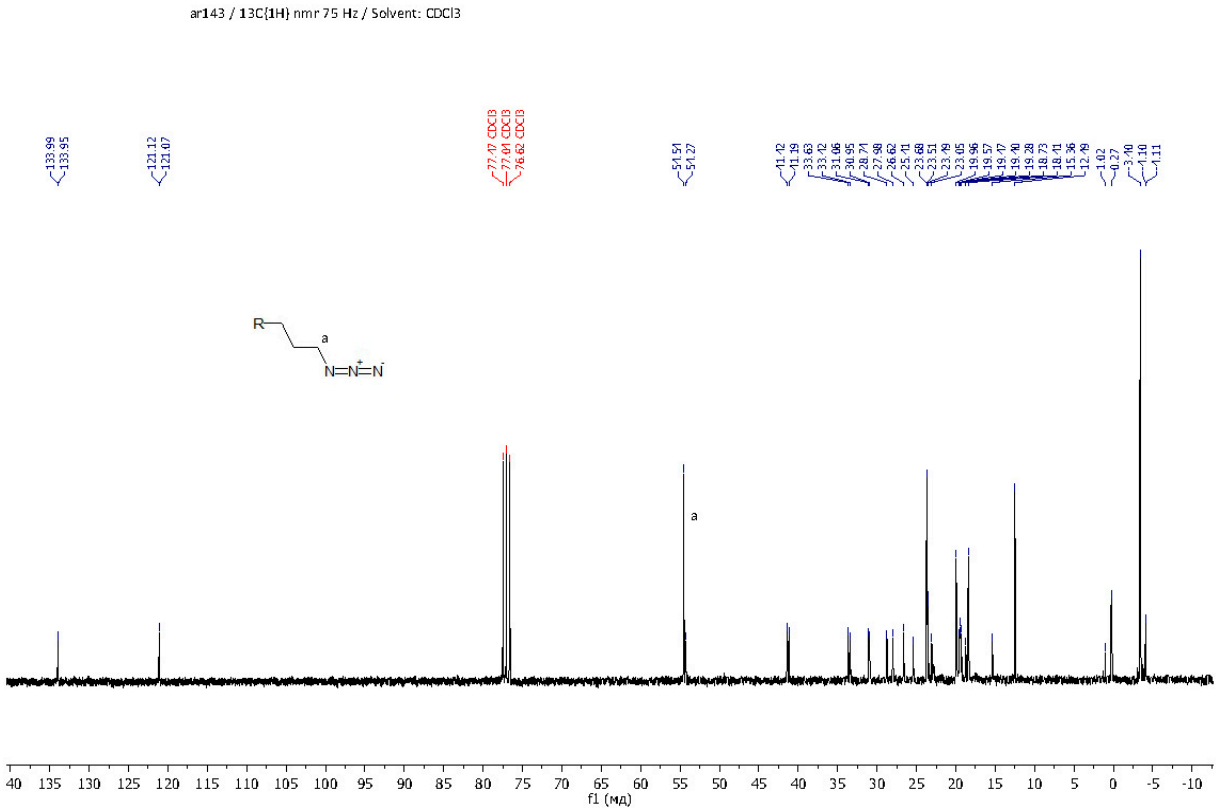


Figure S17. $^{13}C$ NMR spectrum of *Lim-G0(PrN3)2*.

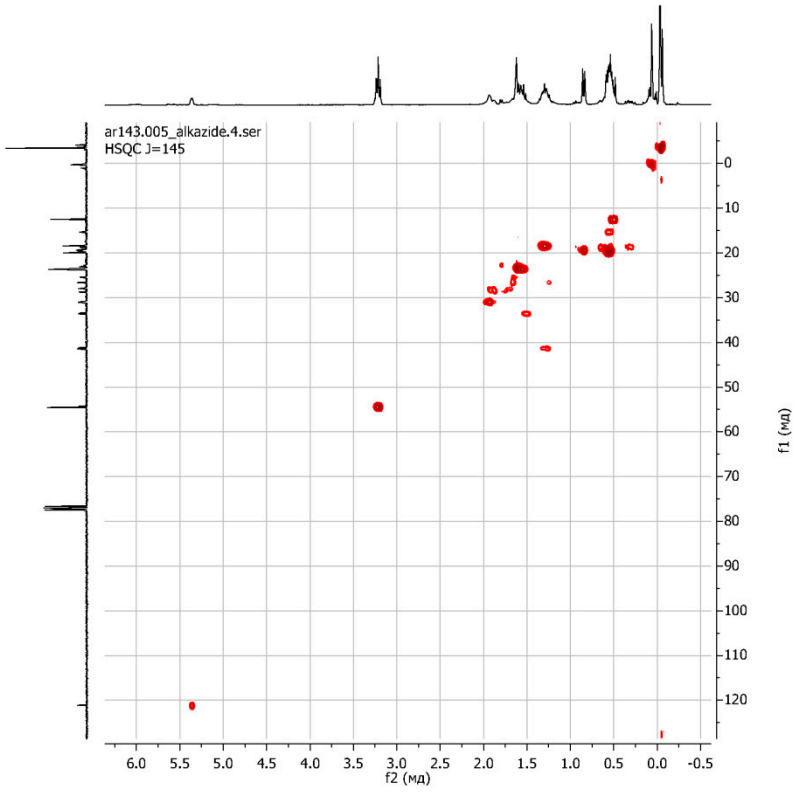


Figure S18. {$^{1}H$ $^{13}C$} HSQC NMR spectrum of *Lim-G0(PrN3)2*.

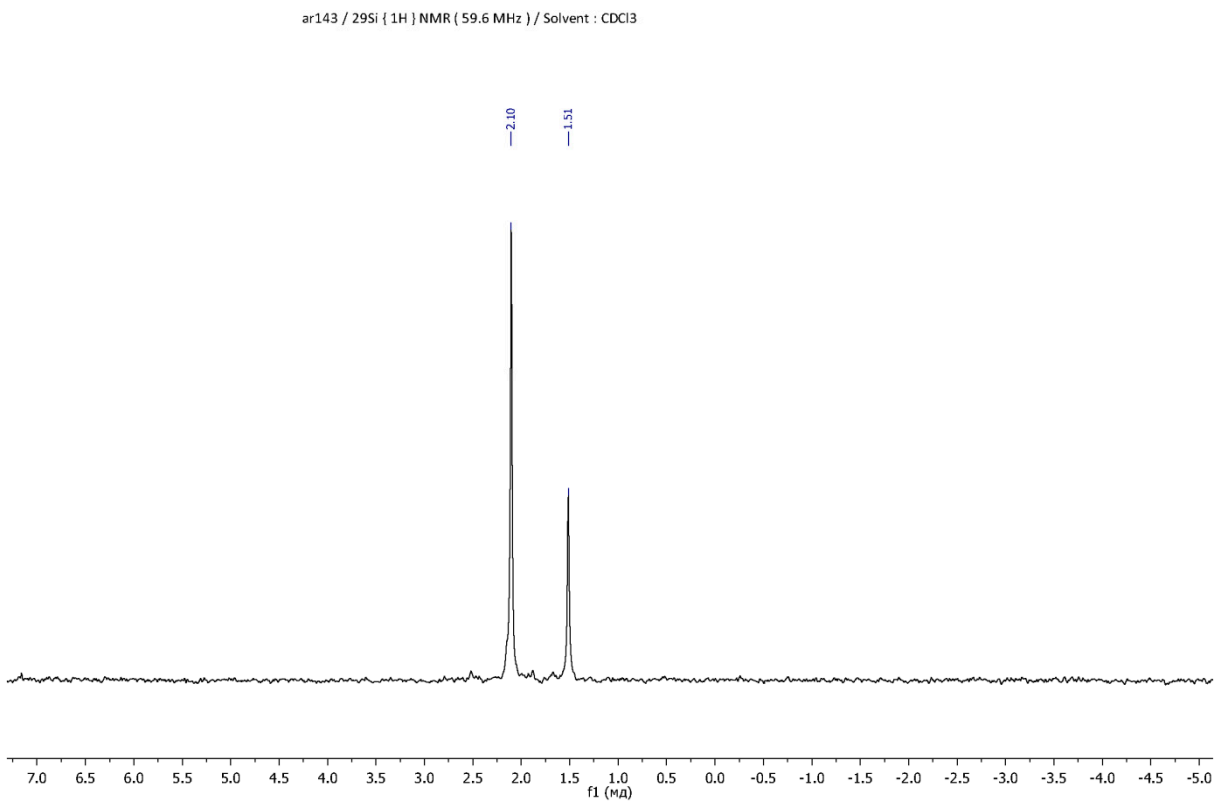


Figure S19. $^{29}$Si NMR spectrum of *Lim-G0(PrN3)2*.

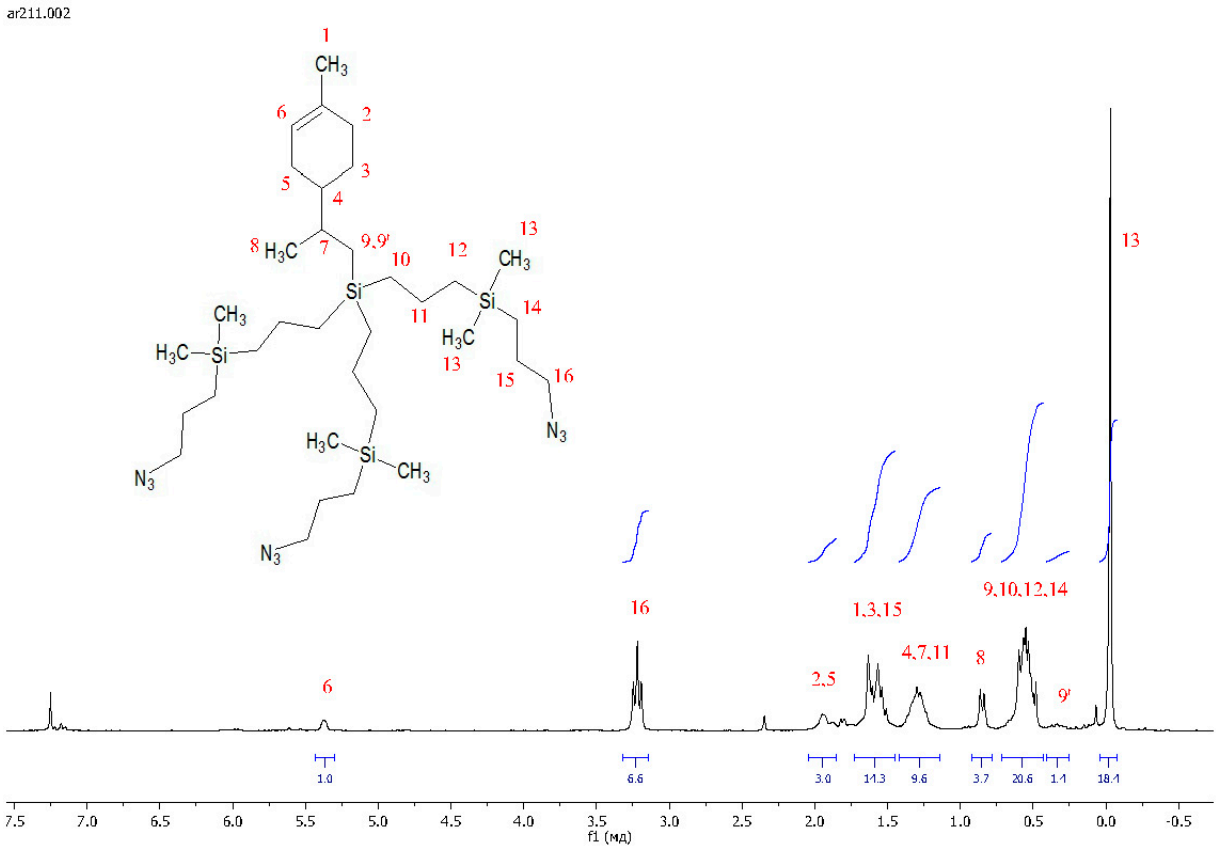


Figure S20. $^{1}$H NMR spectrum of *Lim-G1(PrN3)3*.

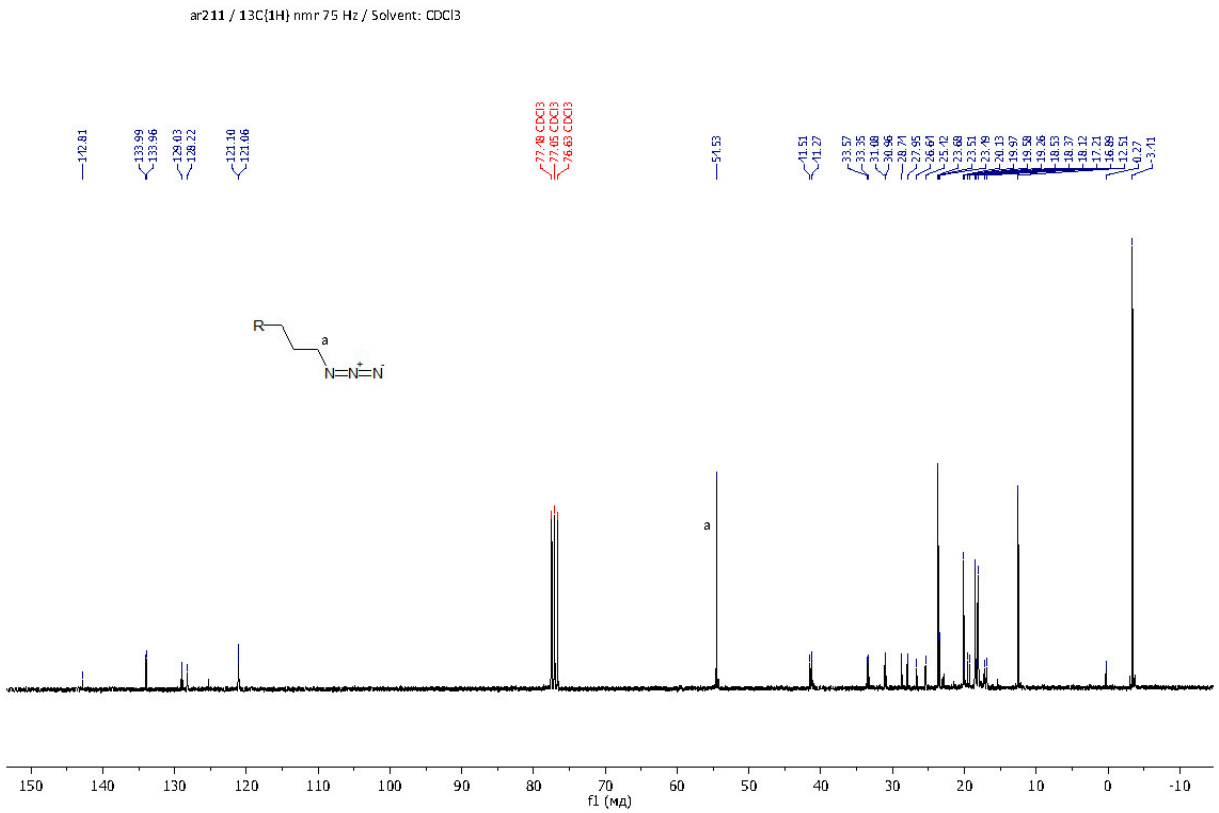


Figure S21. $^{13}$C NMR spectrum of *Lim-G1(PrN3)3*.

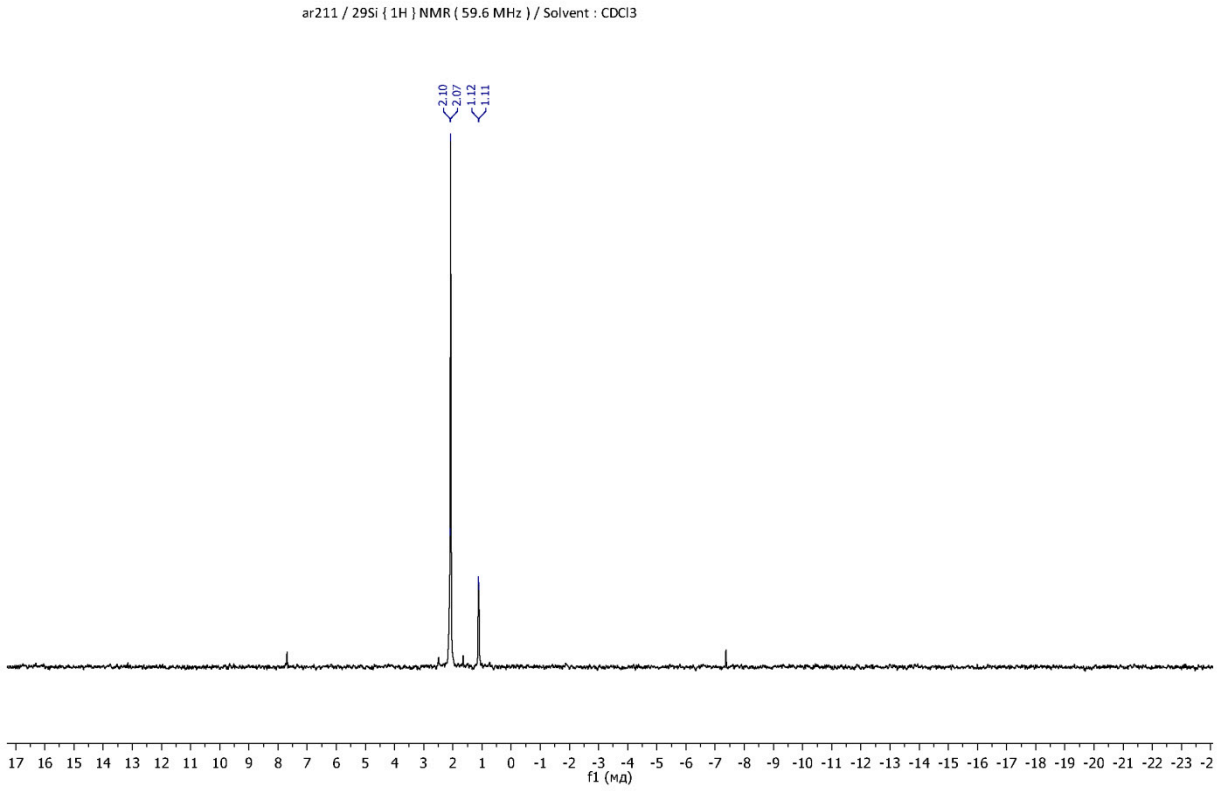


Figure S22. $^{29}$Si NMR spectrum of *Lim-G1(PrN3)3*.

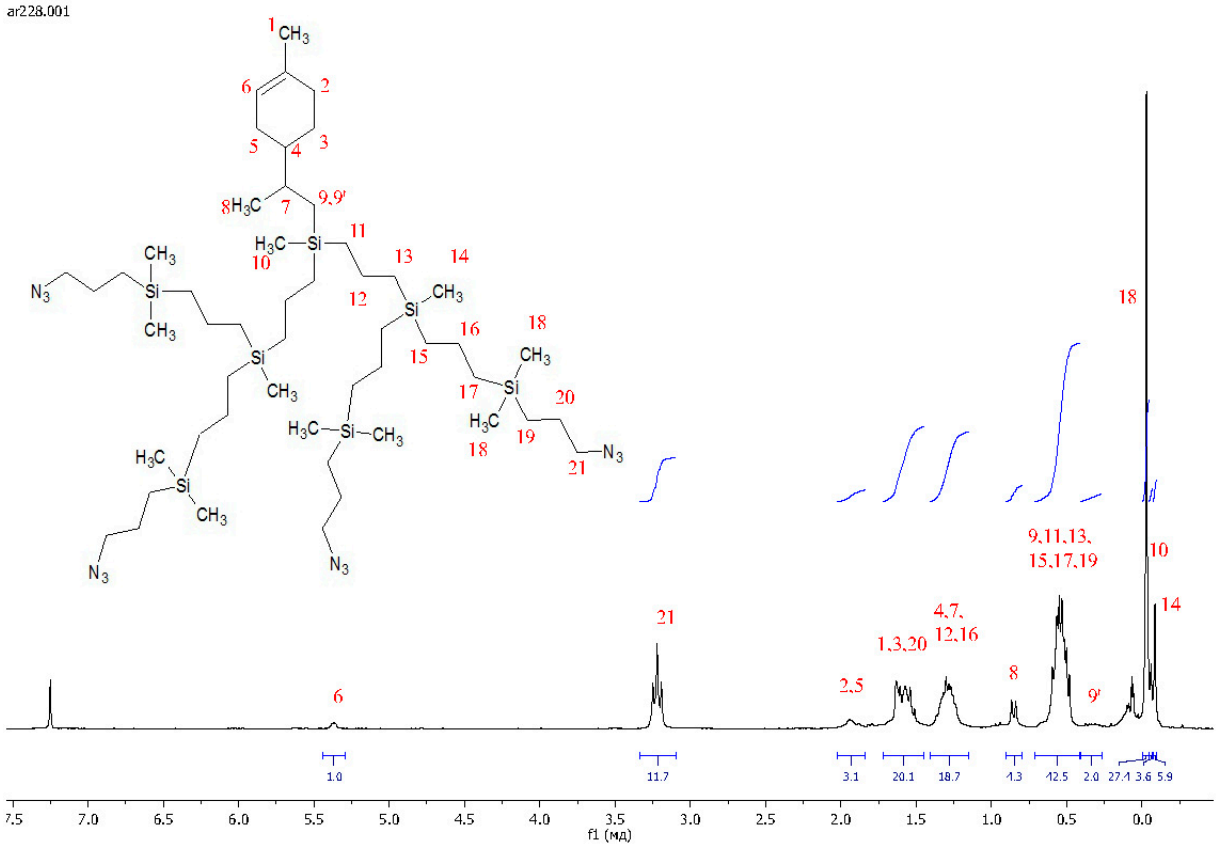


Figure S23. $^{1}$H NMR spectrum of *Lim-G2(PrN3)4*.

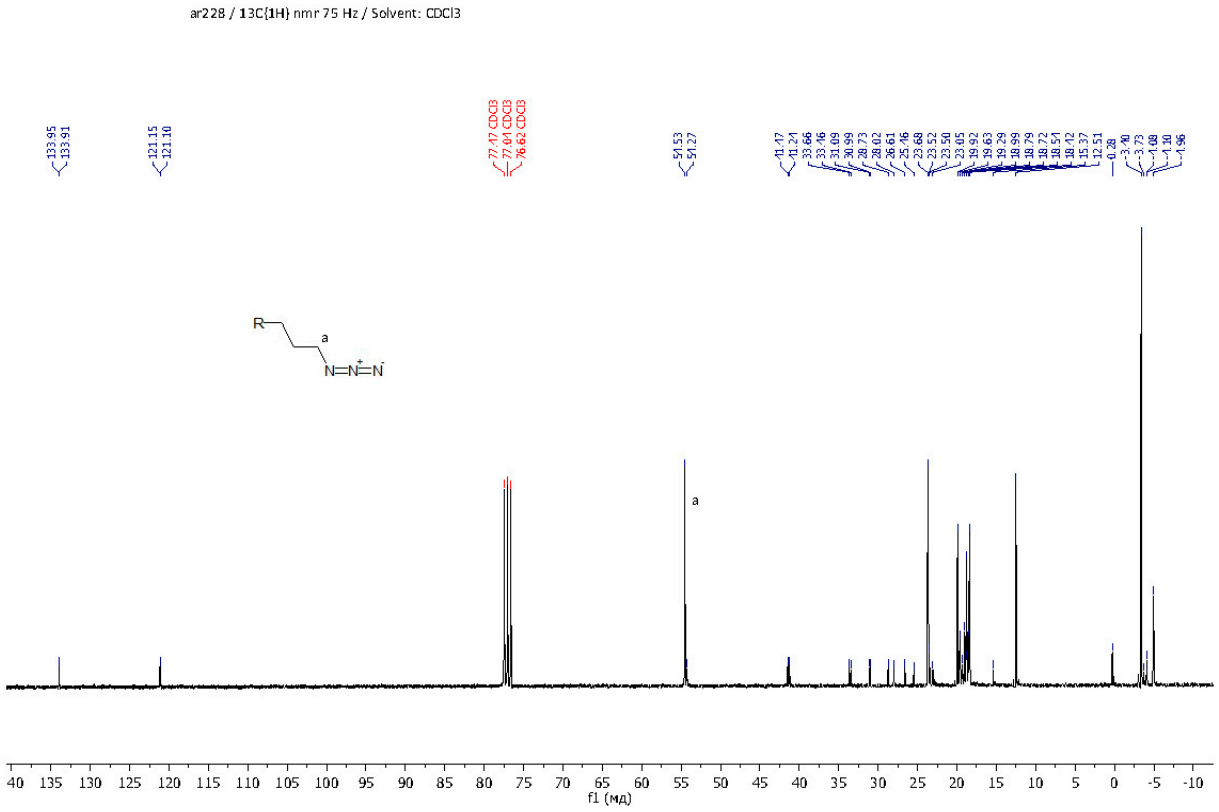


Figure S24. $^{13}$C NMR spectrum of *Lim-G2(PrN3)4*.

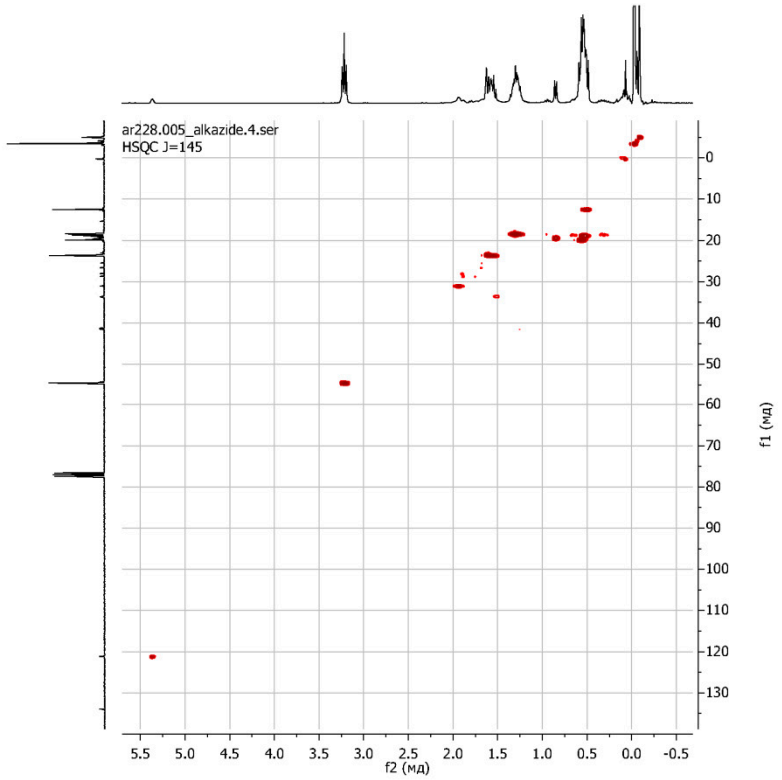


Figure S25. {$^{1}$H $^{13}$C} HSQC NMR spectrum of *Lim-G2(PrN3)4*.

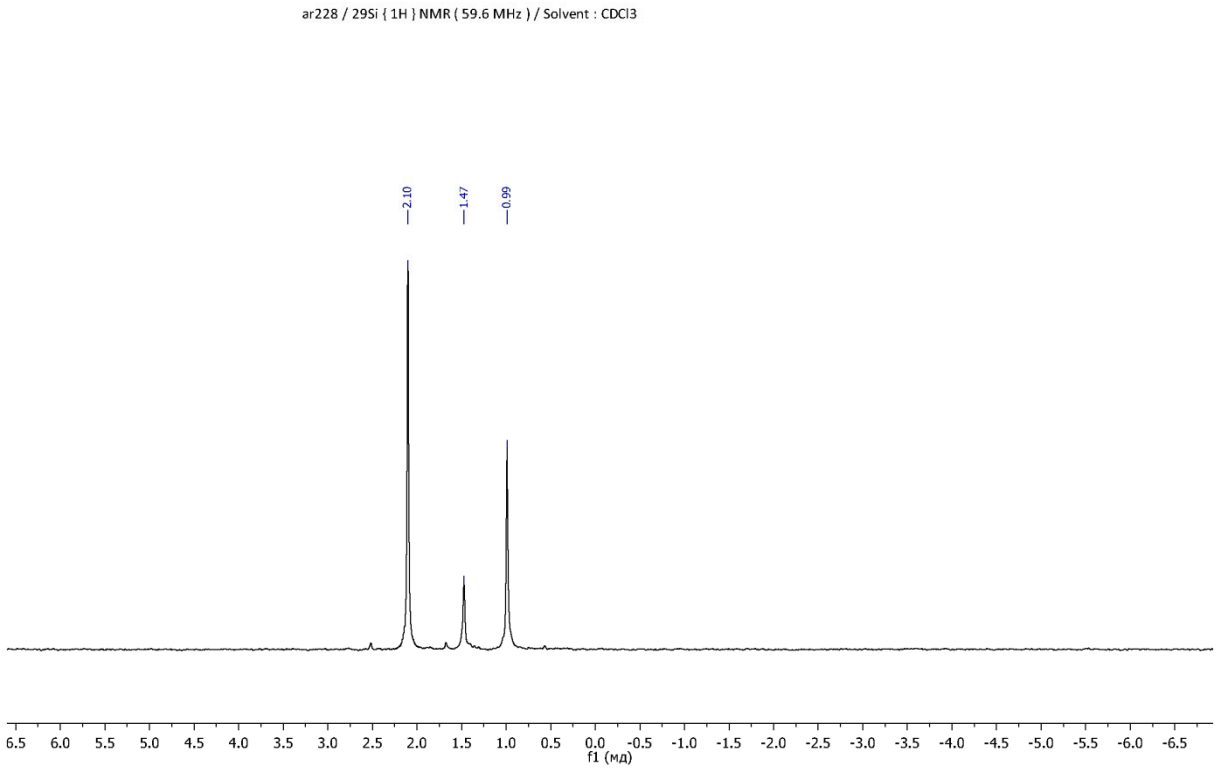


Figure S26. $^{29}$Si NMR spectrum of *Lim-G2(PrN3)4*.

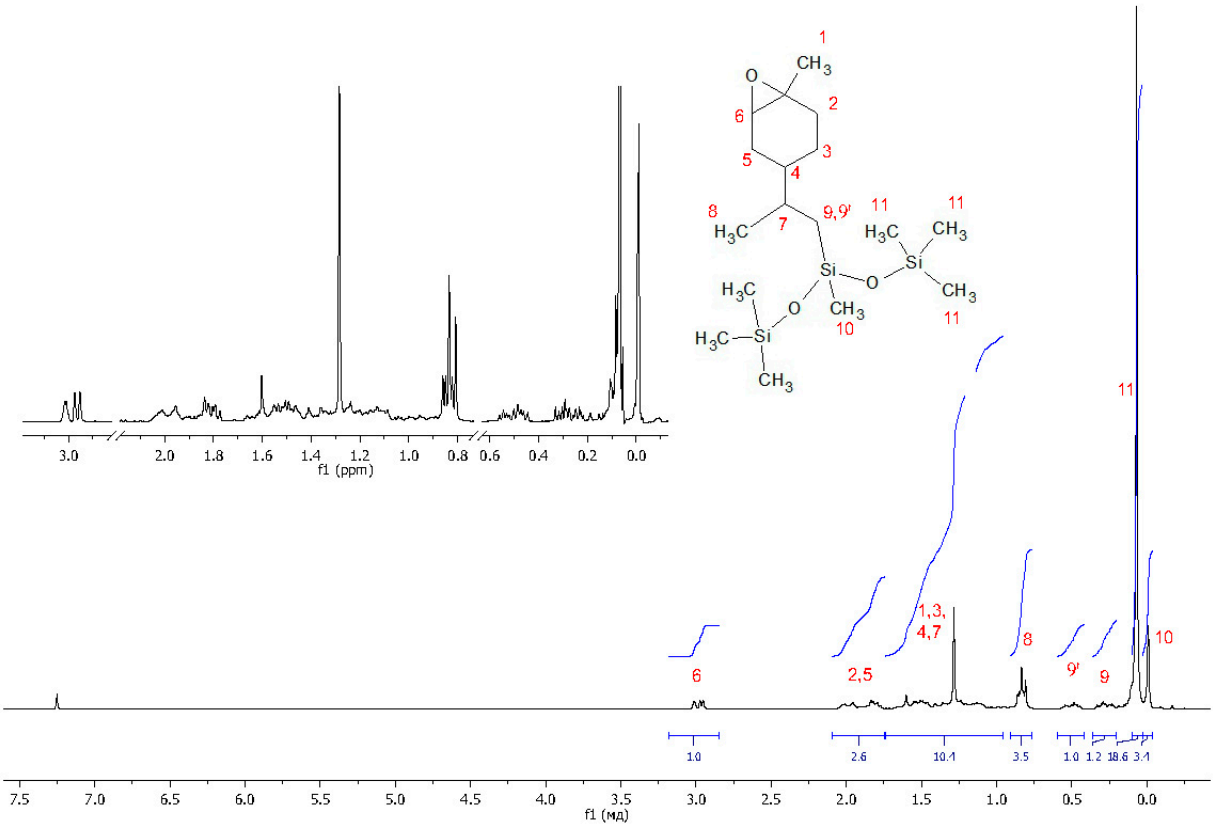


Figure S27. $^{1}$H NMR spectrum of *LimOx-G$_{0,5}$TMS$^{2}$*.

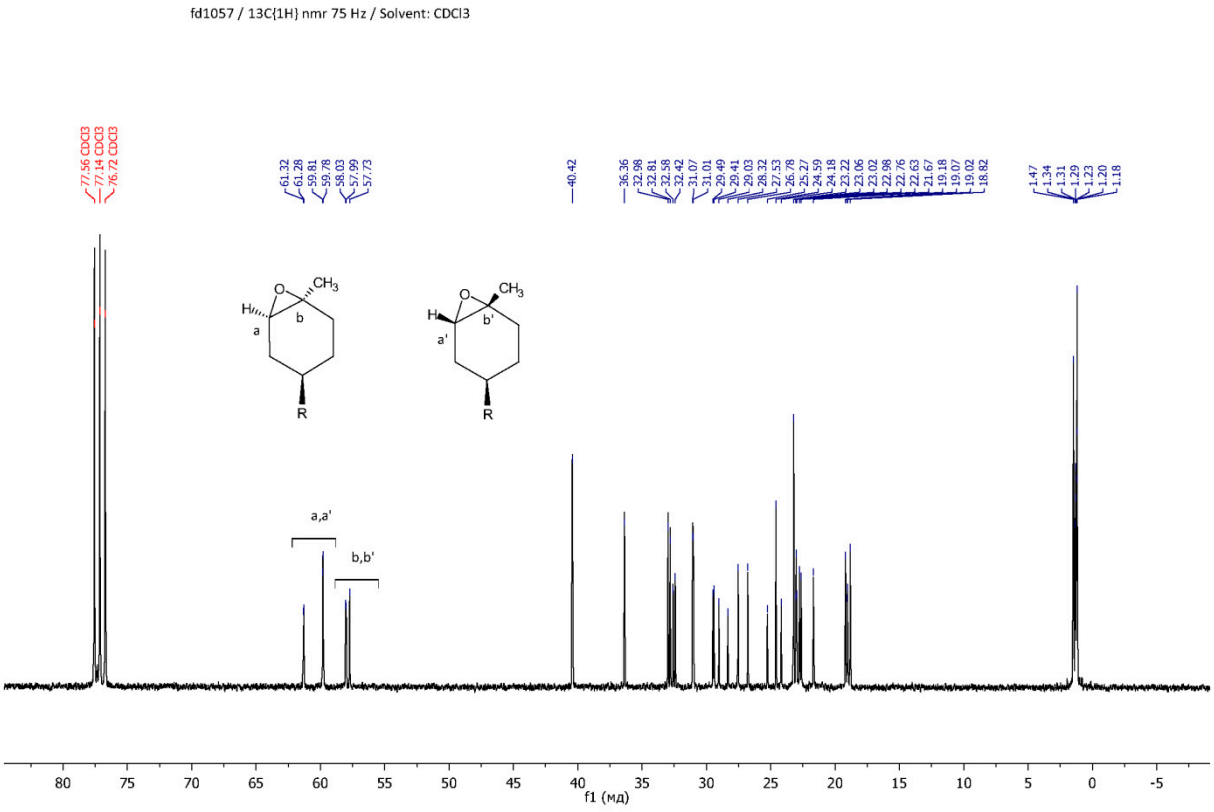


Figure S28. $^{13}$C NMR spectrum of *LimOx-G$_{0,5}$TMS$^{2}$*.

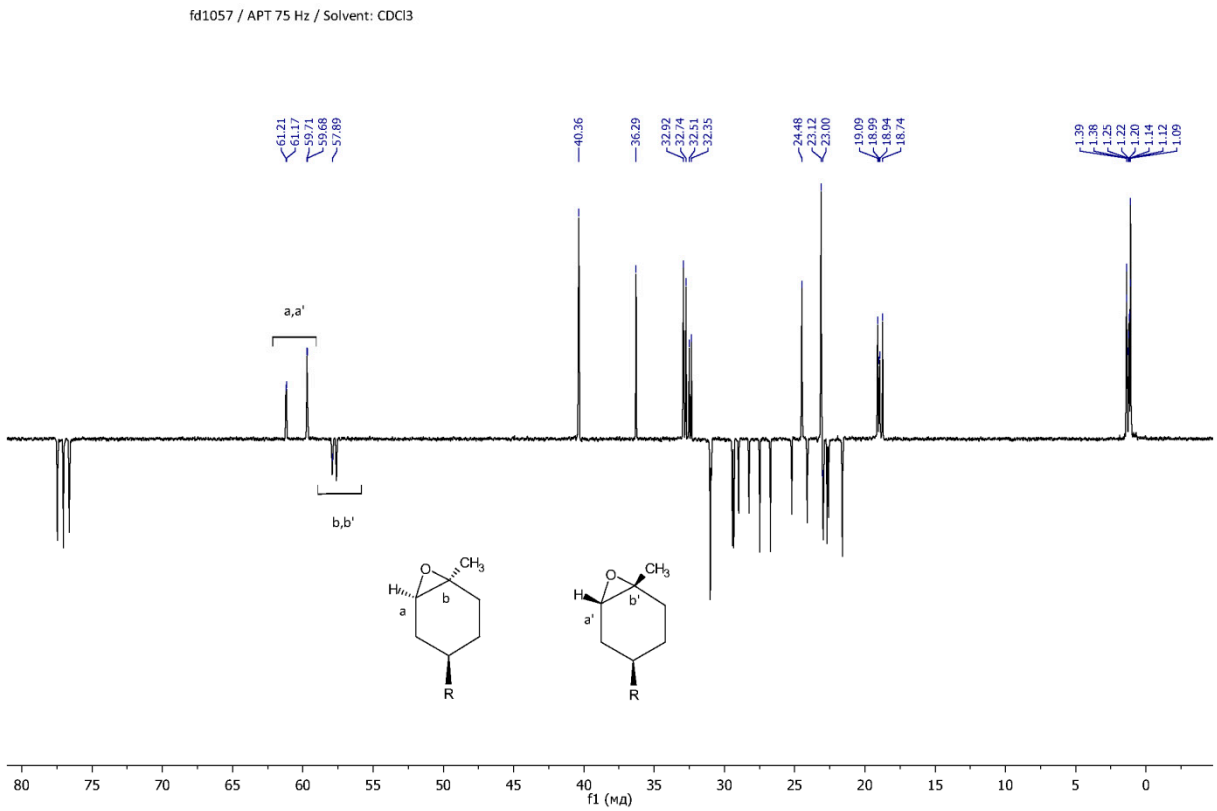


Figure S29. APT NMR spectrum of *LimOx-G0,5TMS*[2].

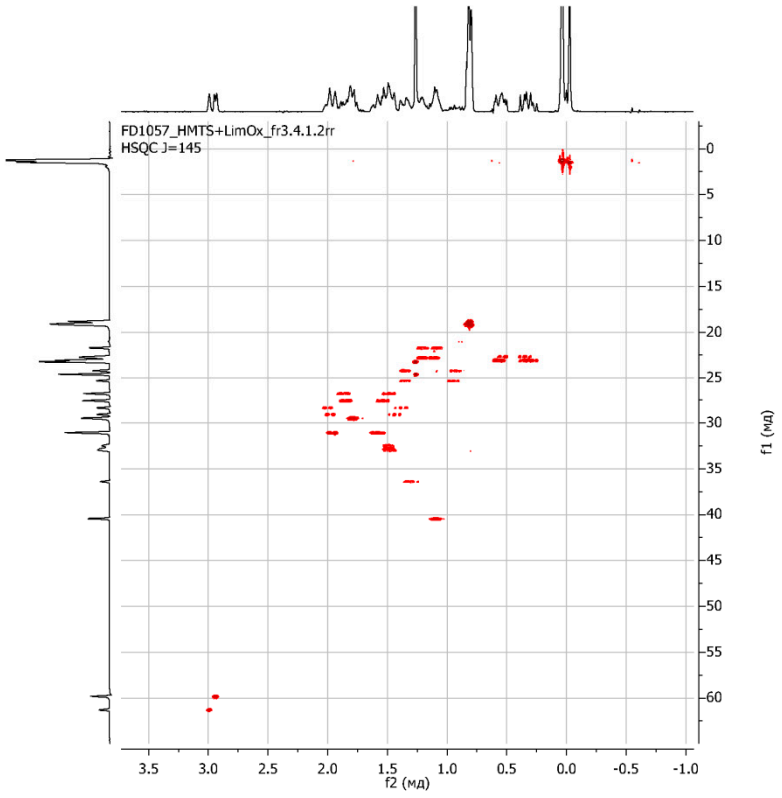


Figure S30. {$^{1}$H $^{13}$C} HSQC NMR spectrum of *LimOx-G0,5TMS*[2].

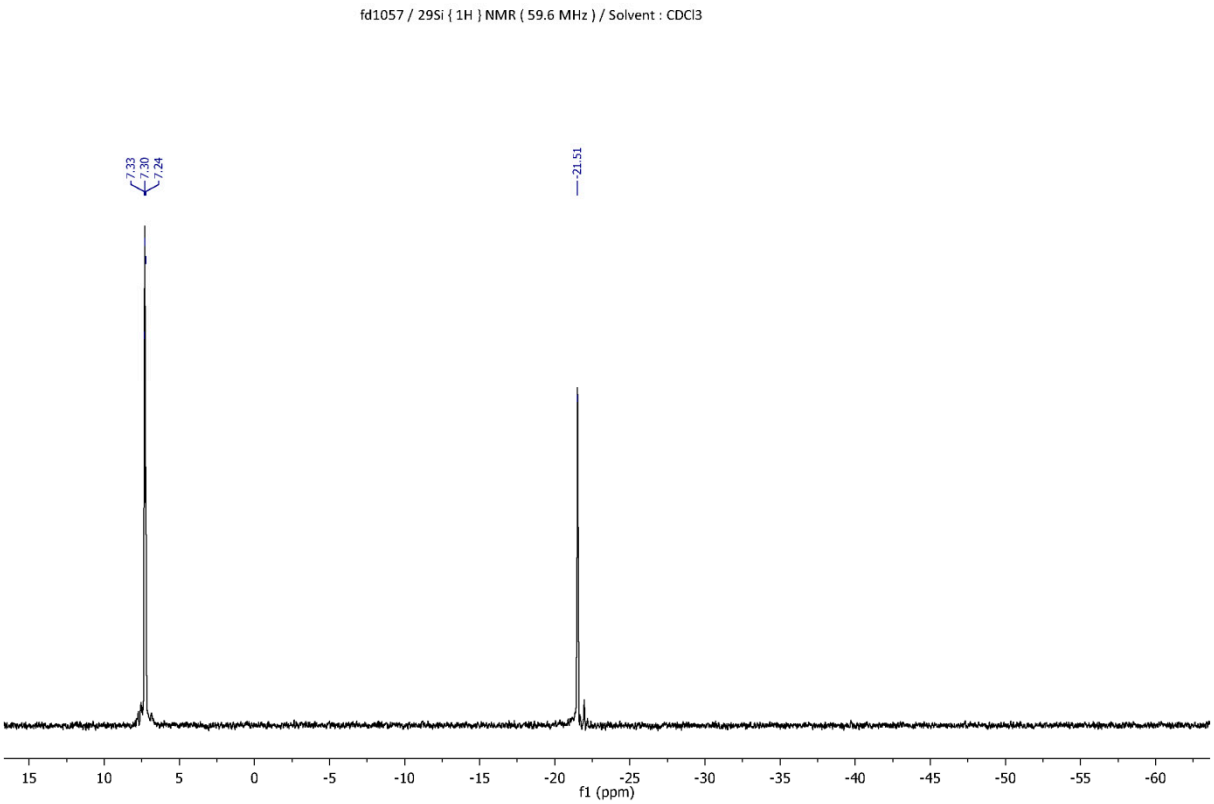


Figure S31. $^{29}$Si NMR spectrum of *LimOx-G$_{0,5}$TMS$^2$*.

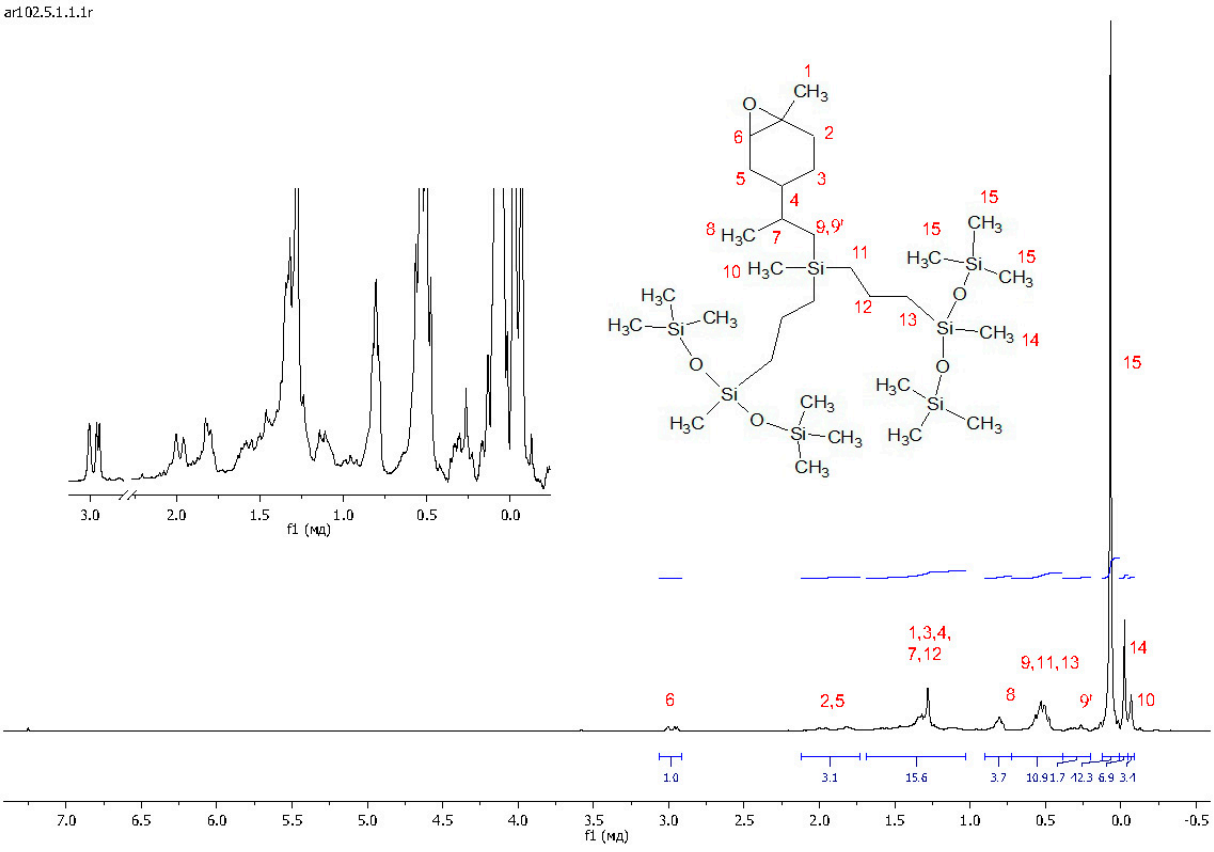


Figure S32. $^{1}$H NMR spectrum of *LimOx-G$_{1,5}$TMS$^4$*.

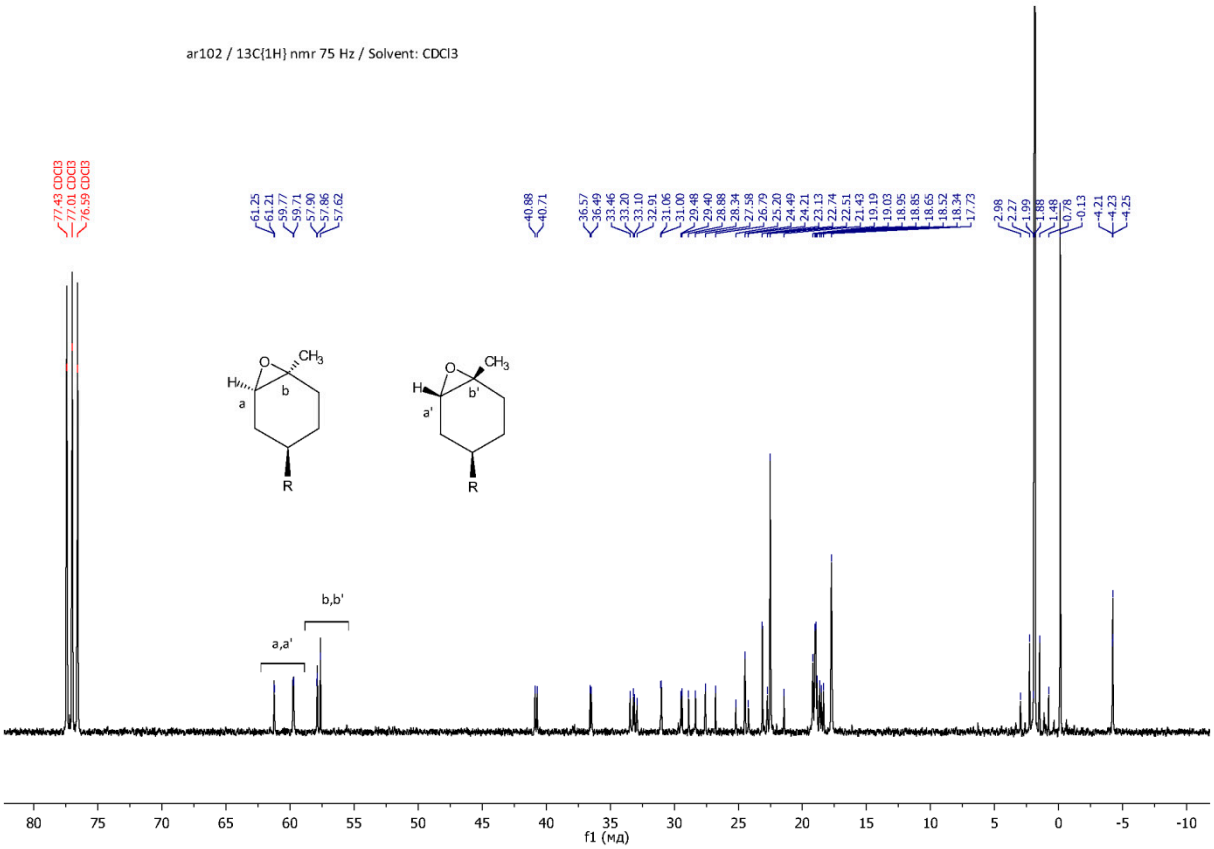


Figure S33. $^{13}$C NMR spectrum of *LimOx-G$_{1,5}$TMS$^4$*.

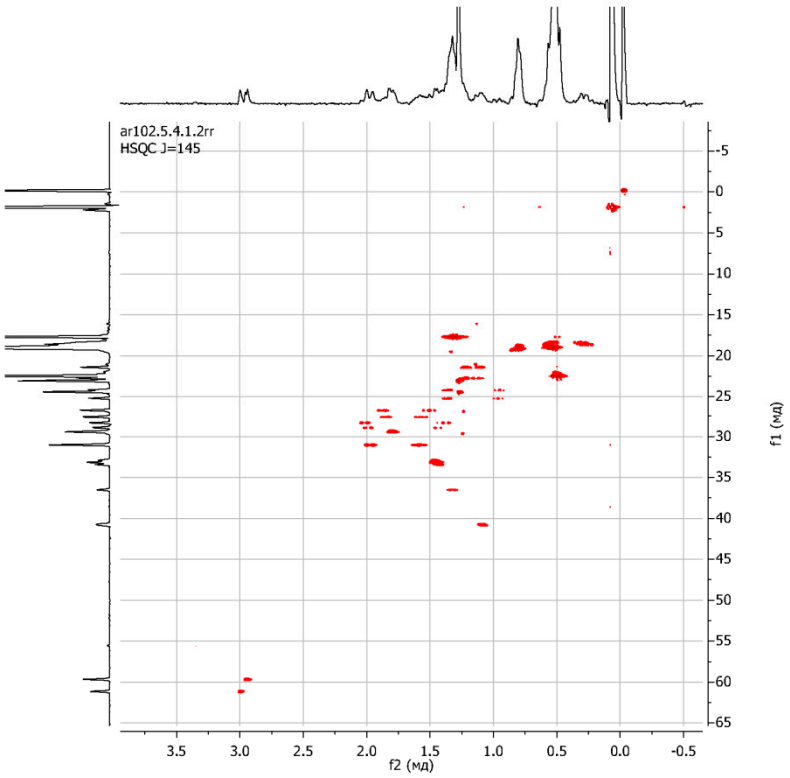


Figure S34. {$^1$H $^{13}$C} HSQC NMR spectrum of *LimOx-G$_{1,5}$TMS$^4$*.

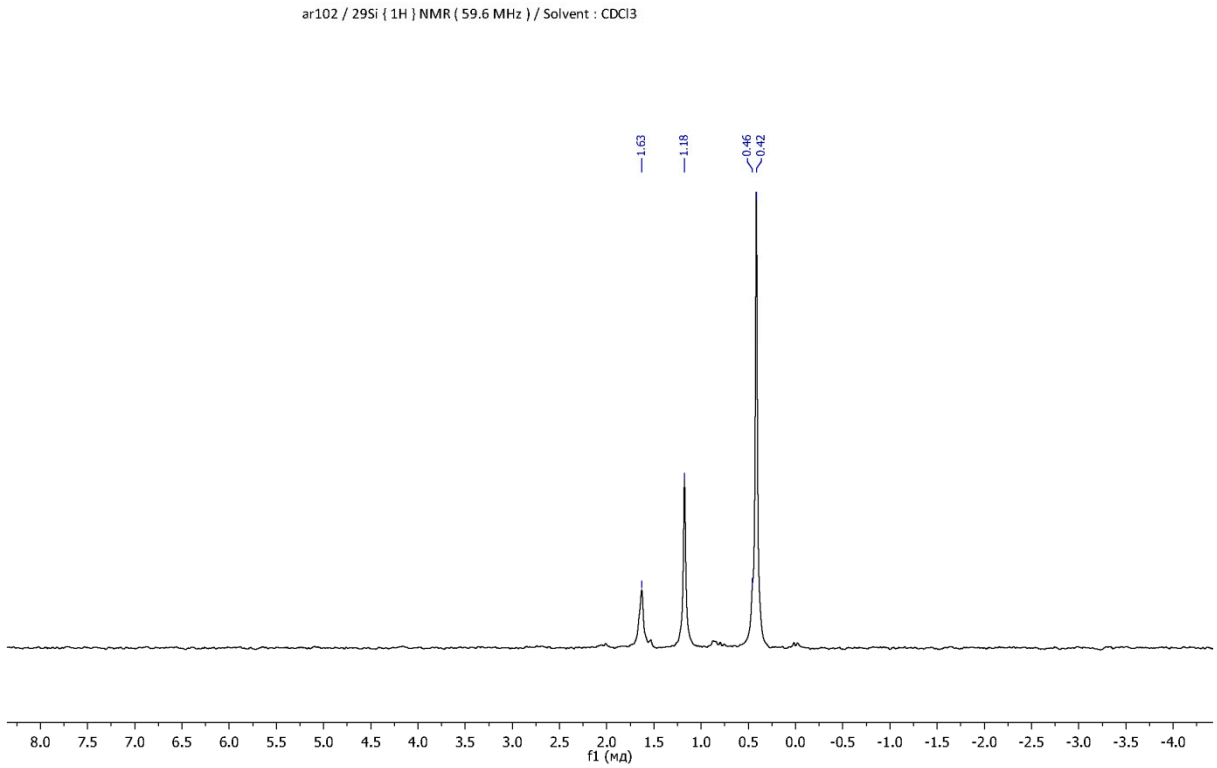


Figure S35. $^{29}$Si NMR spectrum of *LimOx-G1,5TMS*[4].

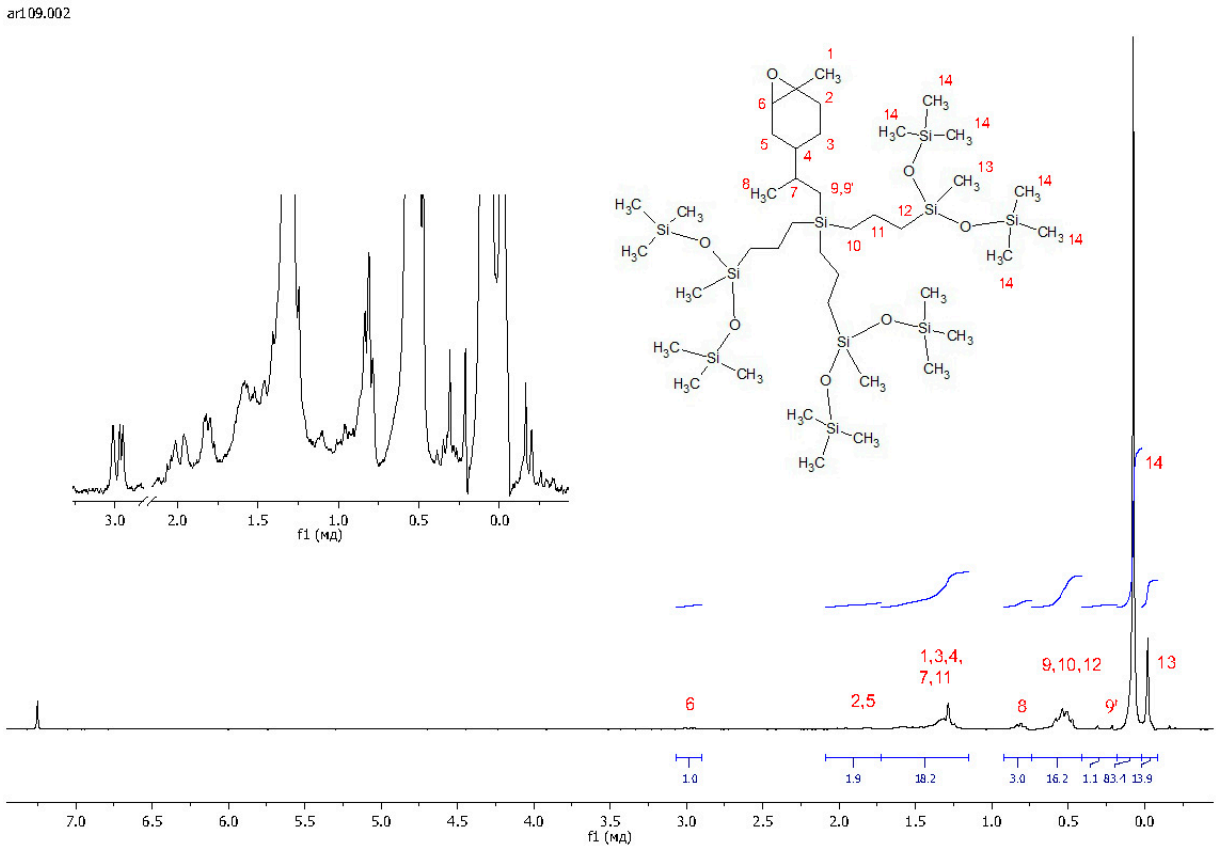


Figure S36. $^{1}$H NMR spectrum of *LimOx-G1,5TMS*[6].

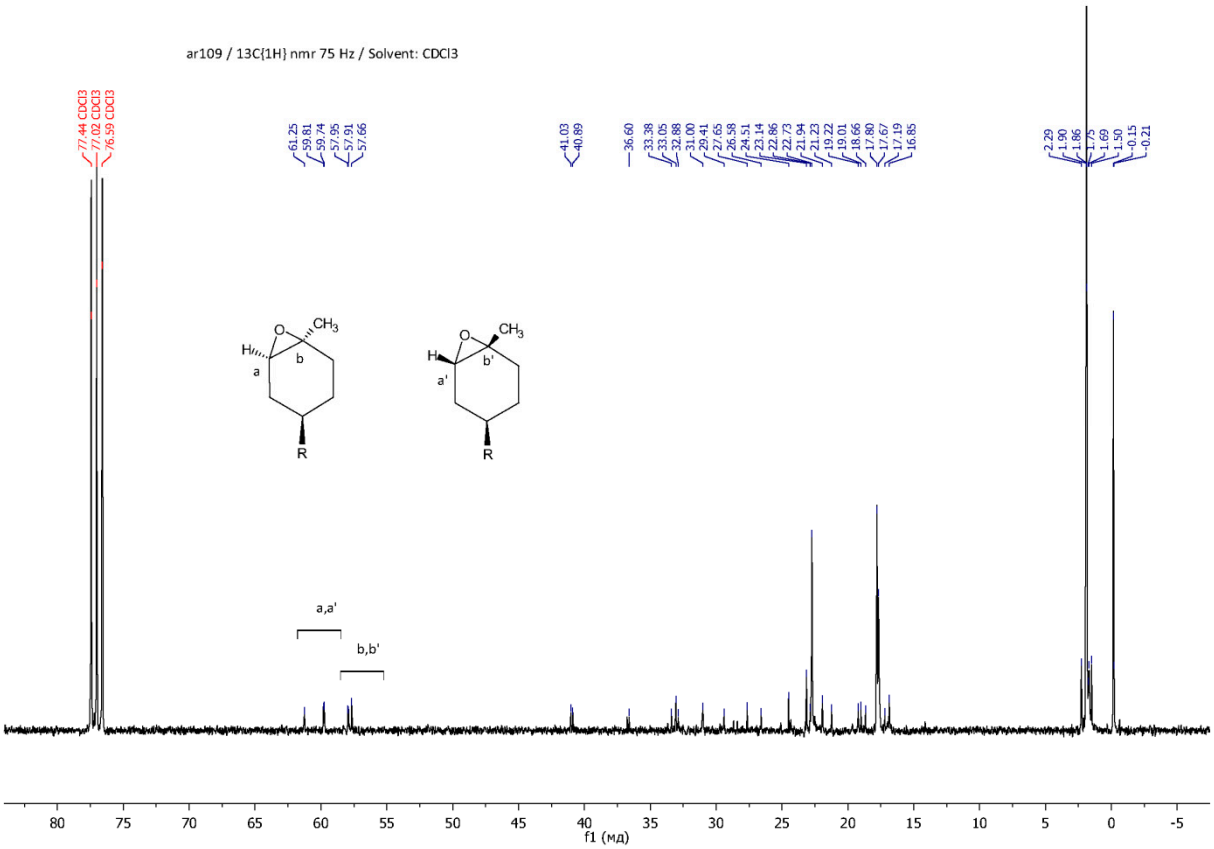


Figure S37. $^{13}$C NMR spectrum of *LimOx-G$_{1,5}$TMS*[6].

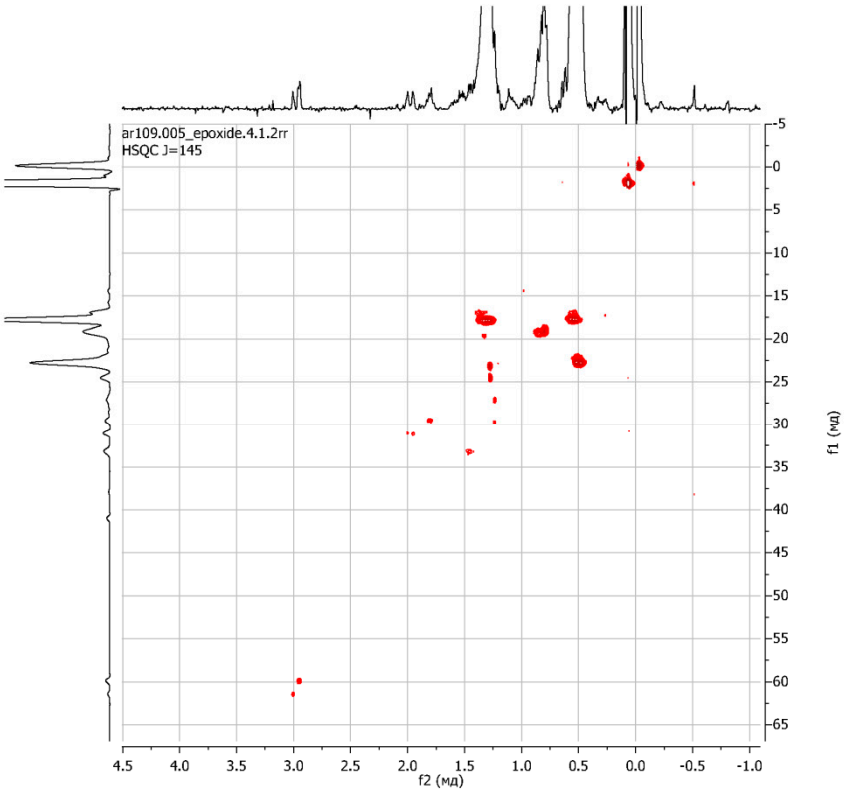


Figure S38. {$^{1}$H $^{13}$C} HSQC NMR spectrum of *LimOx-G$_{1,5}$TMS*[6].

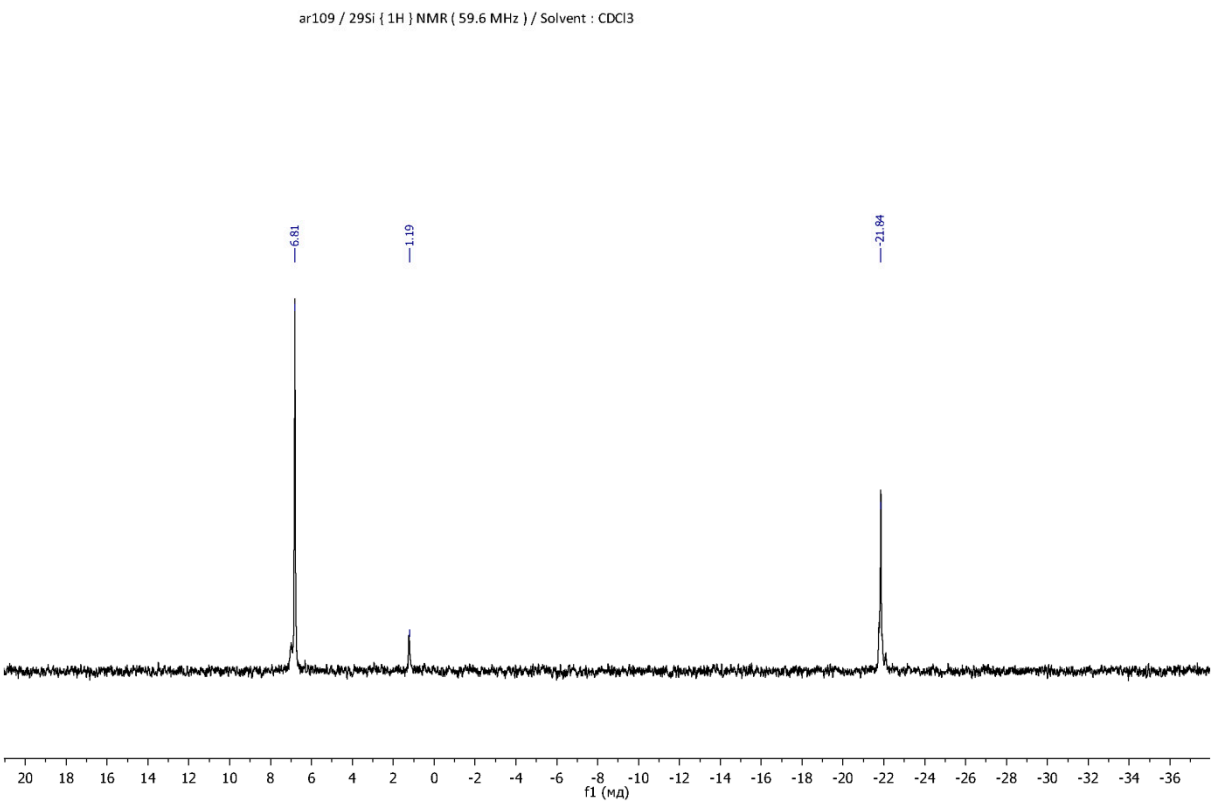


Figure S39. $^{29}$Si NMR spectrum of *LimOx-G1,5TMS*[6].

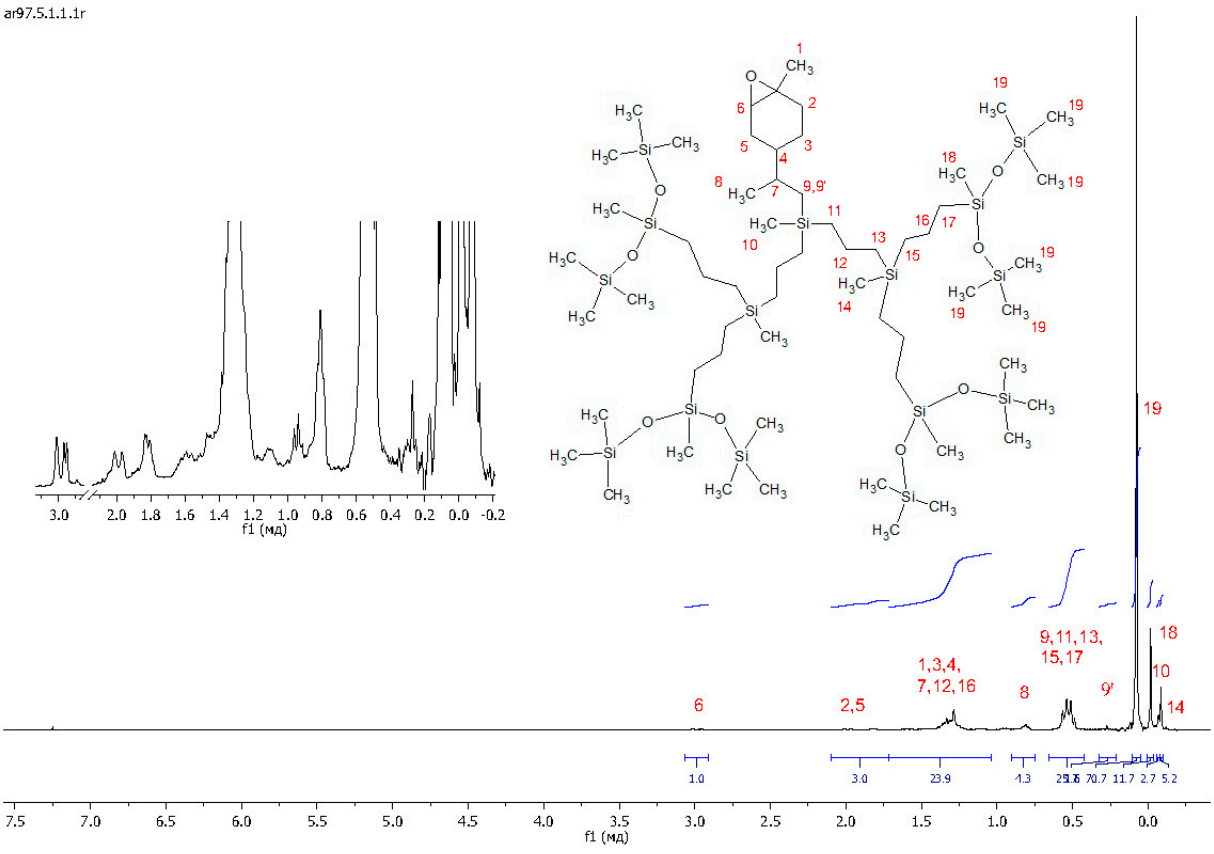


Figure S40. $^{1}$H NMR spectrum of *LimOx-G2,5TMS*[8].

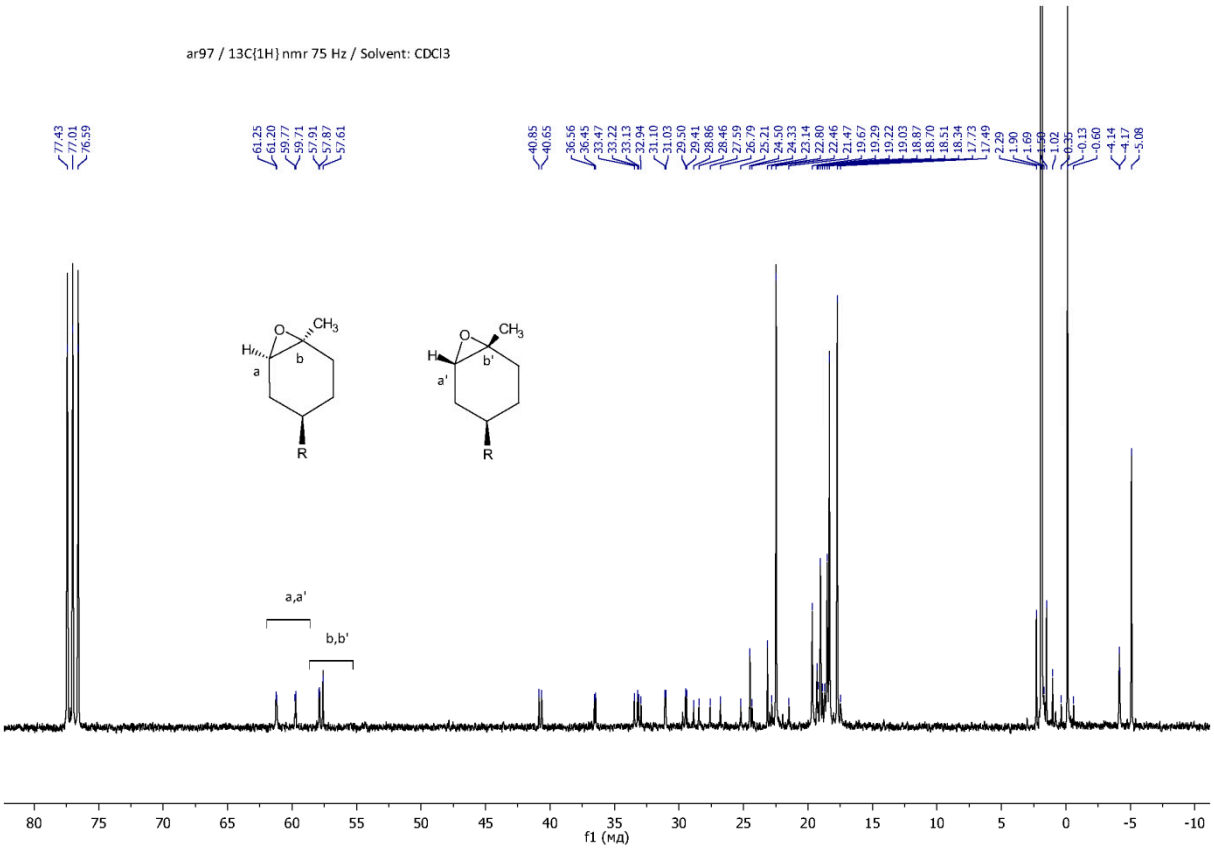


Figure S41. $^{13}$C NMR spectrum of *LimOx-G$_{2,5}$TMS*[8].

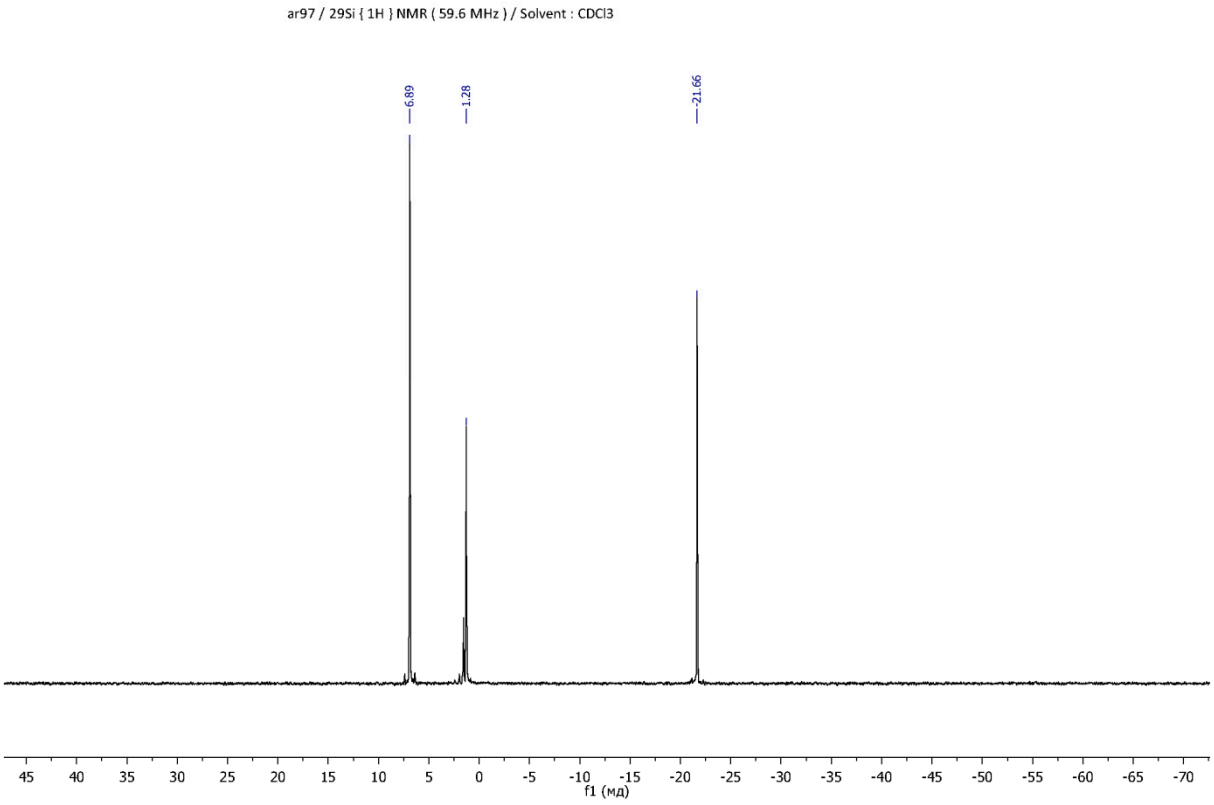


Figure S42. $^{29}$Si NMR spectrum of *LimOx-G$_{2,5}$TMS*[8].

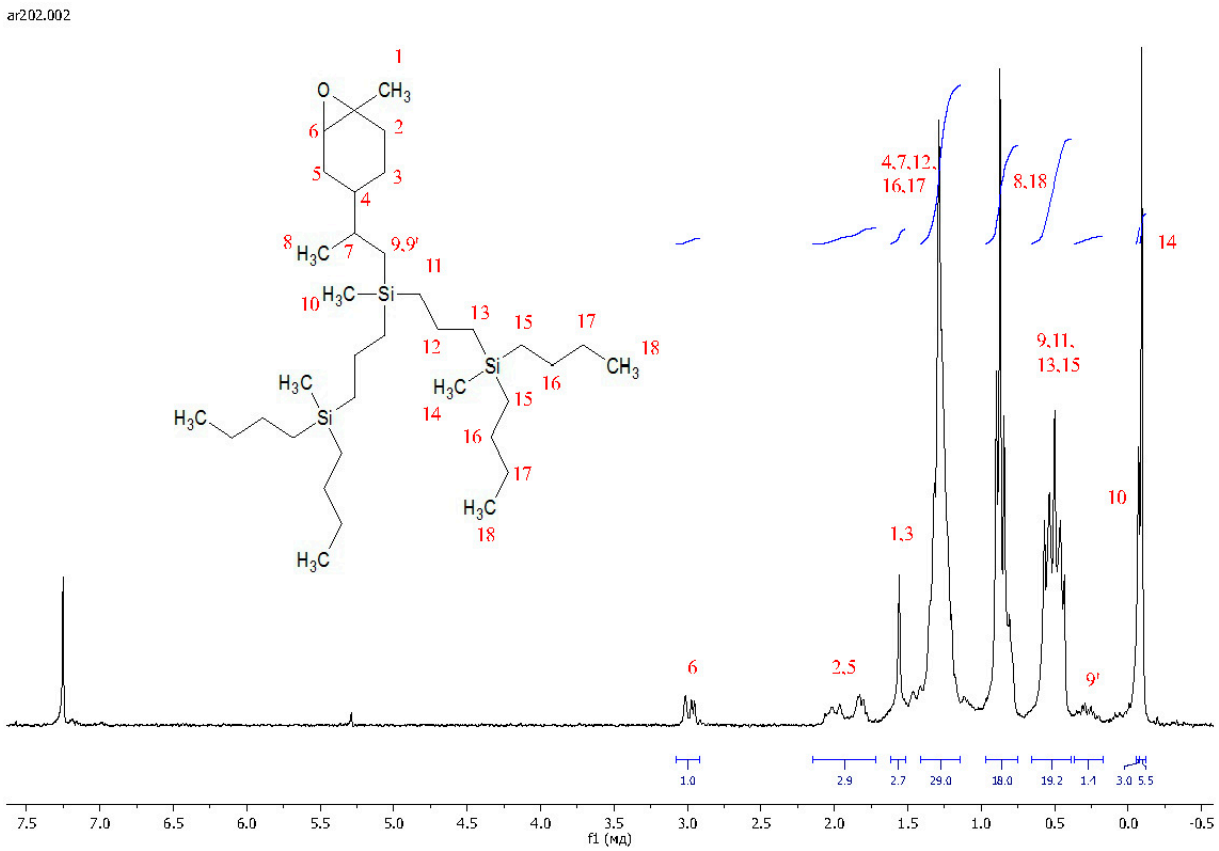


Figure S43. $^{1}$H NMR spectrum of *LimOx-G1Bu4*.

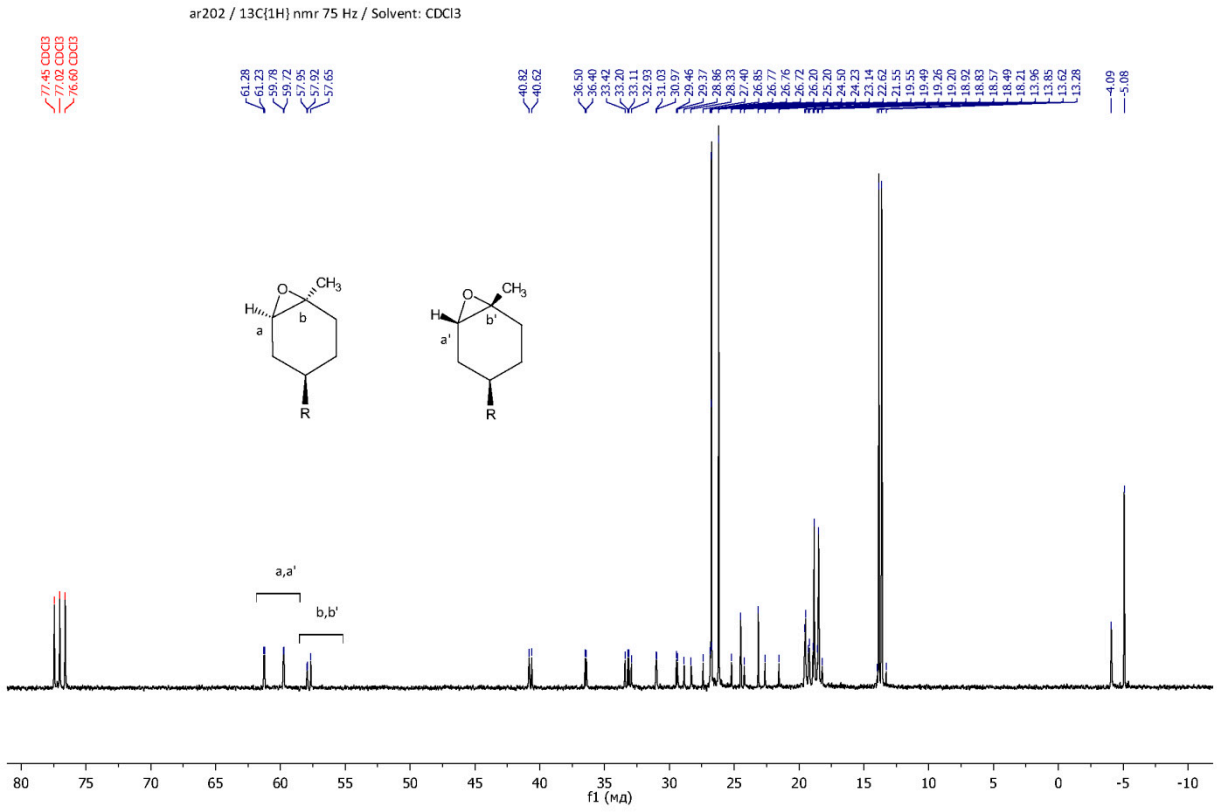


Figure S44. $^{13}$C NMR spectrum of *LimOx-G1Bu4*.

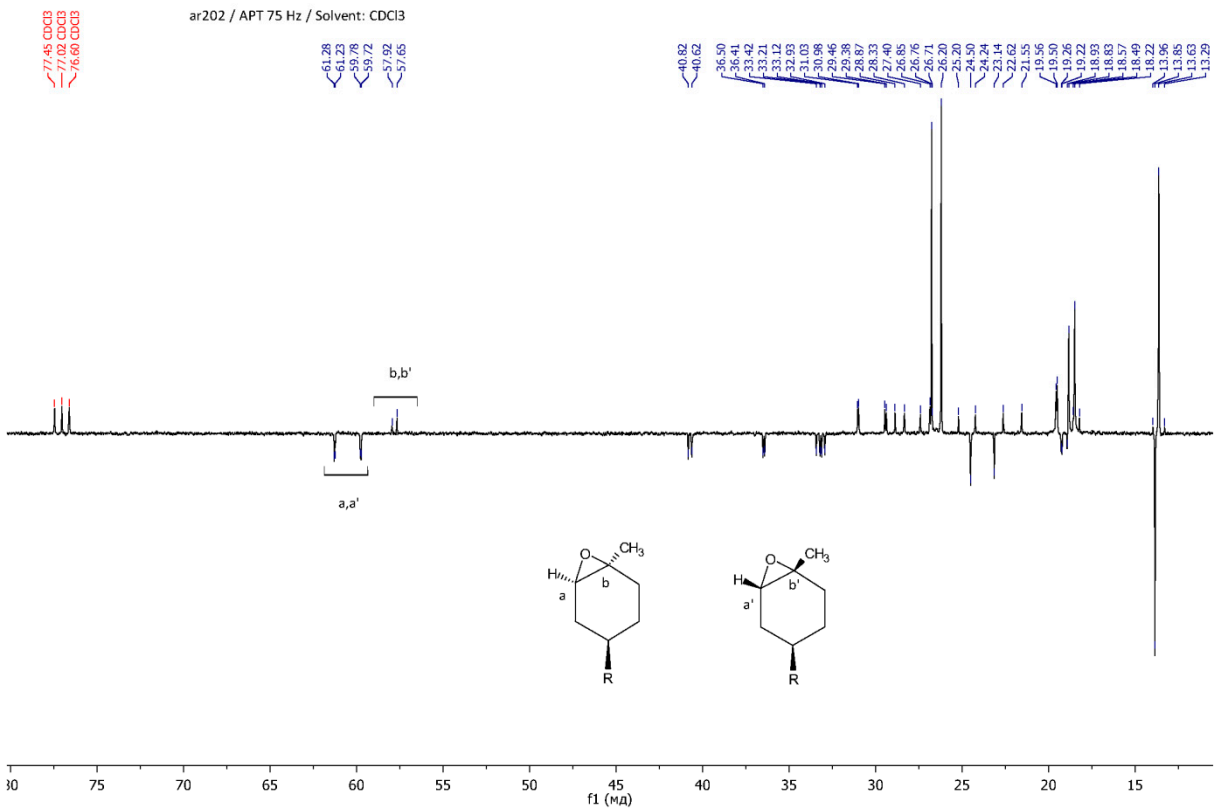


Figure S45. APT NMR spectrum of *LimOx-G1Bu4*.

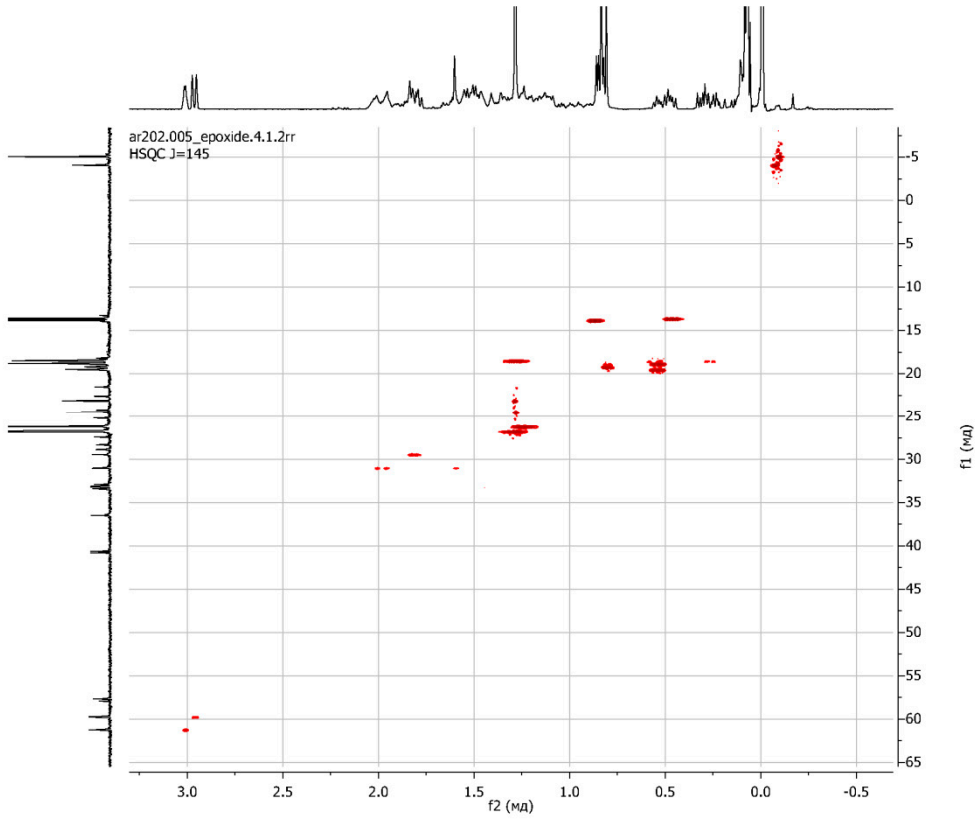


Figure S46. {$^{1}$H $^{13}$C} HSQC NMR spectrum of *LimOx-G1Bu4*.

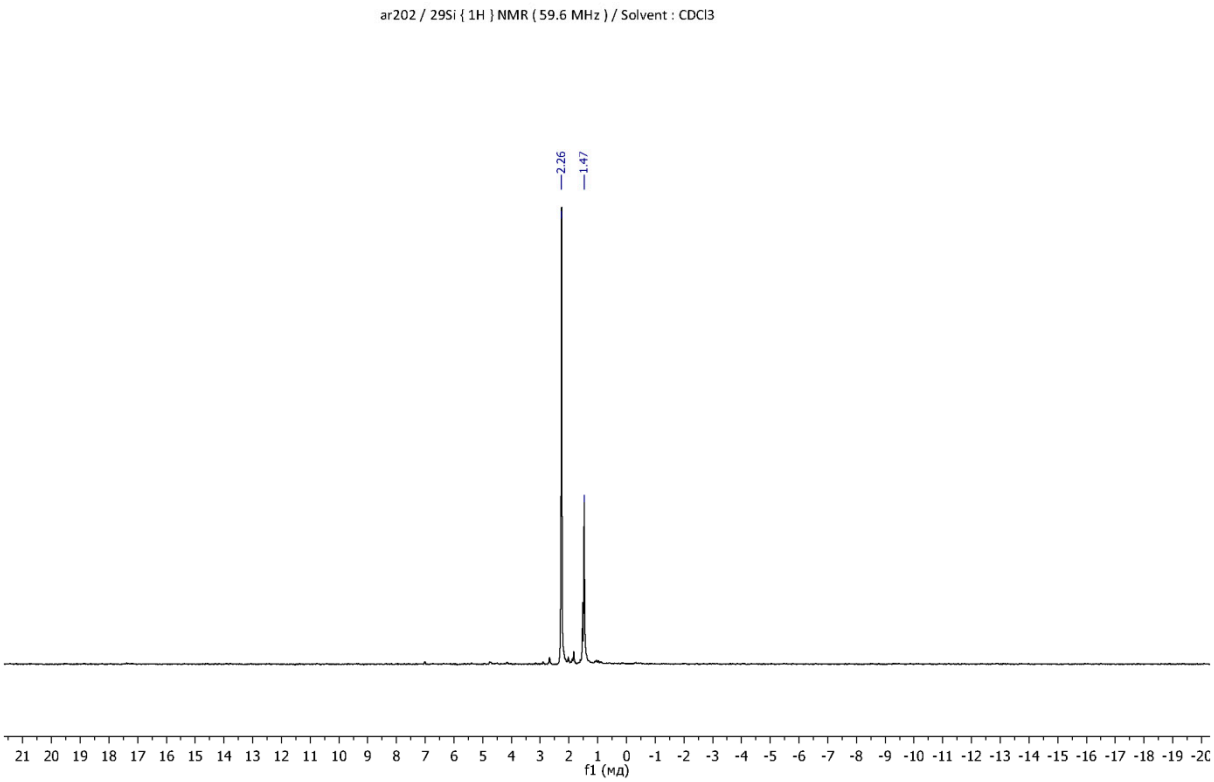


Figure S47. $^{29}$Si NMR spectrum of *LimOx-G1Bu*$^{4}$.

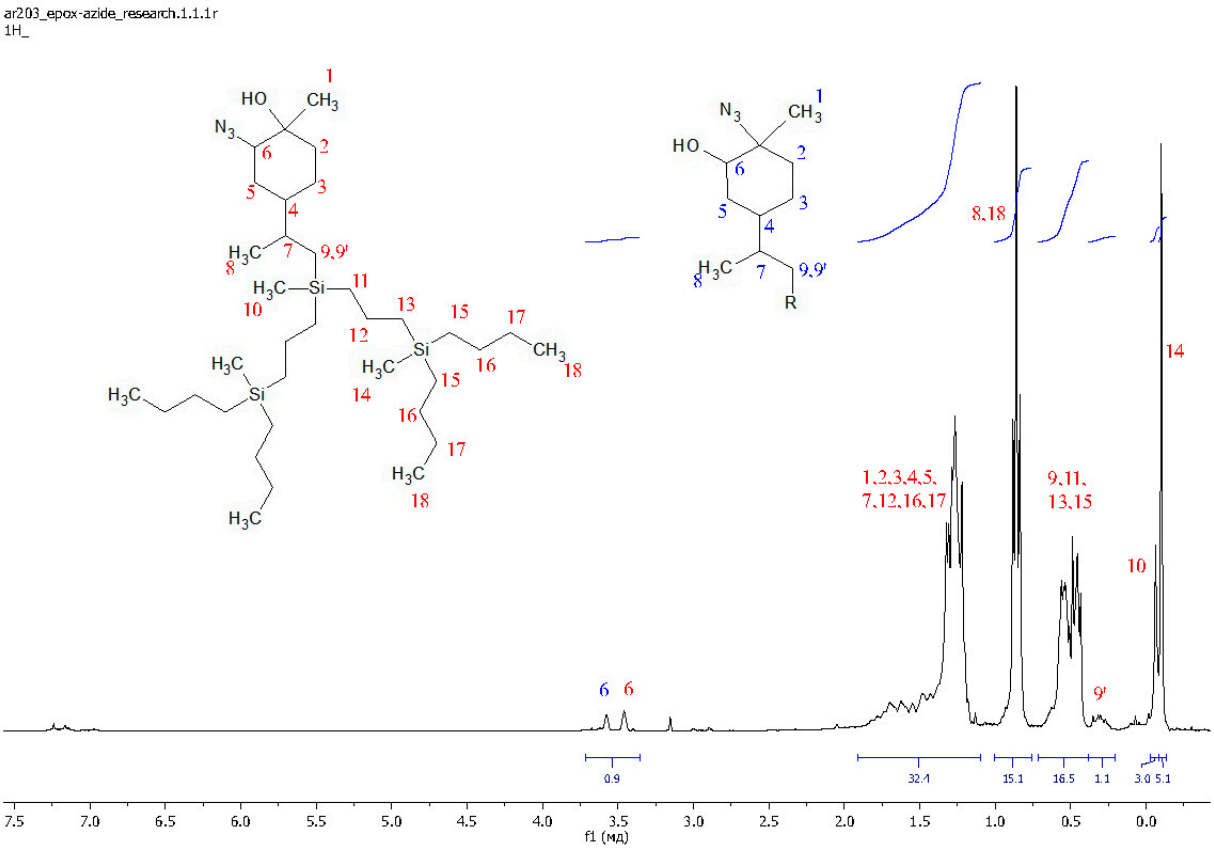


Figure S48. $^{1}$H NMR spectrum of *LimN3-G1Bu*$^{4}$.

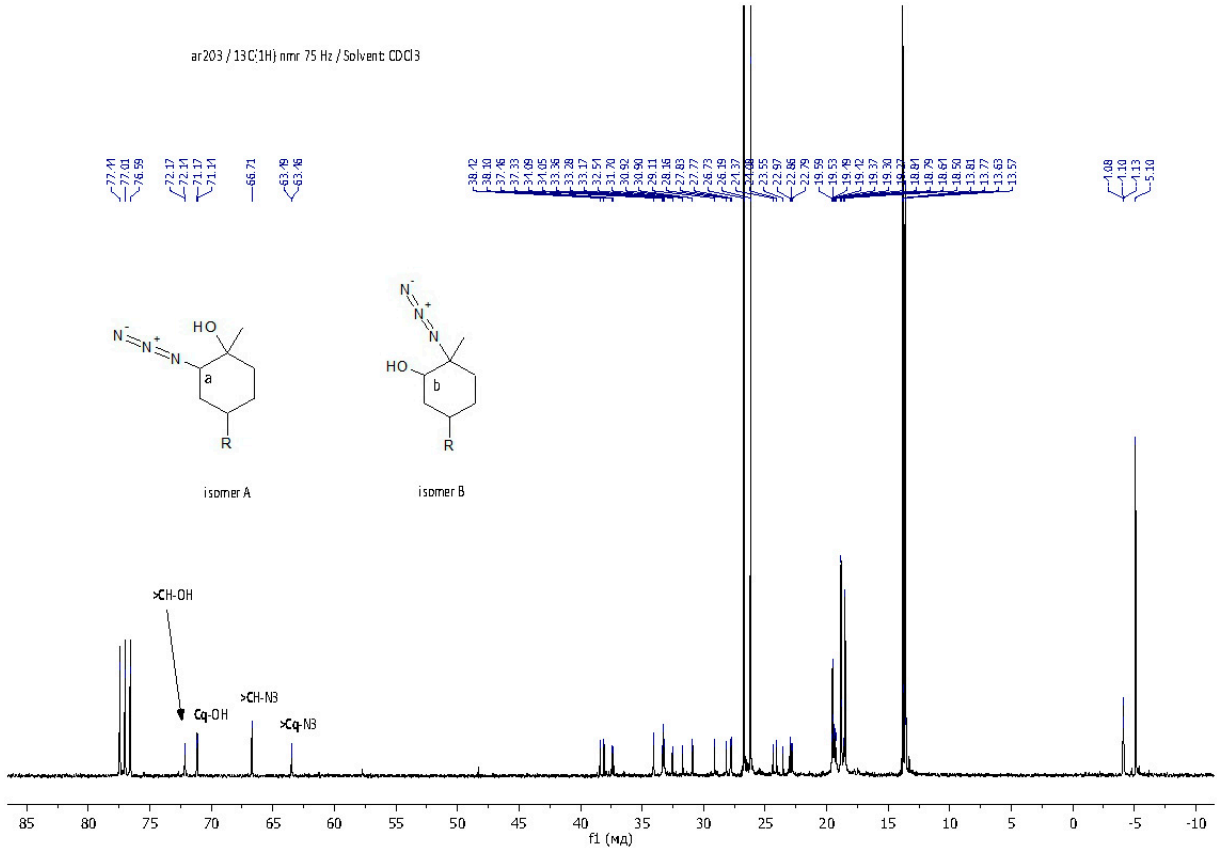


Figure S49. $^{13}$C NMR spectrum of *LimN$_3$-G$_1$Bu$^4$*.

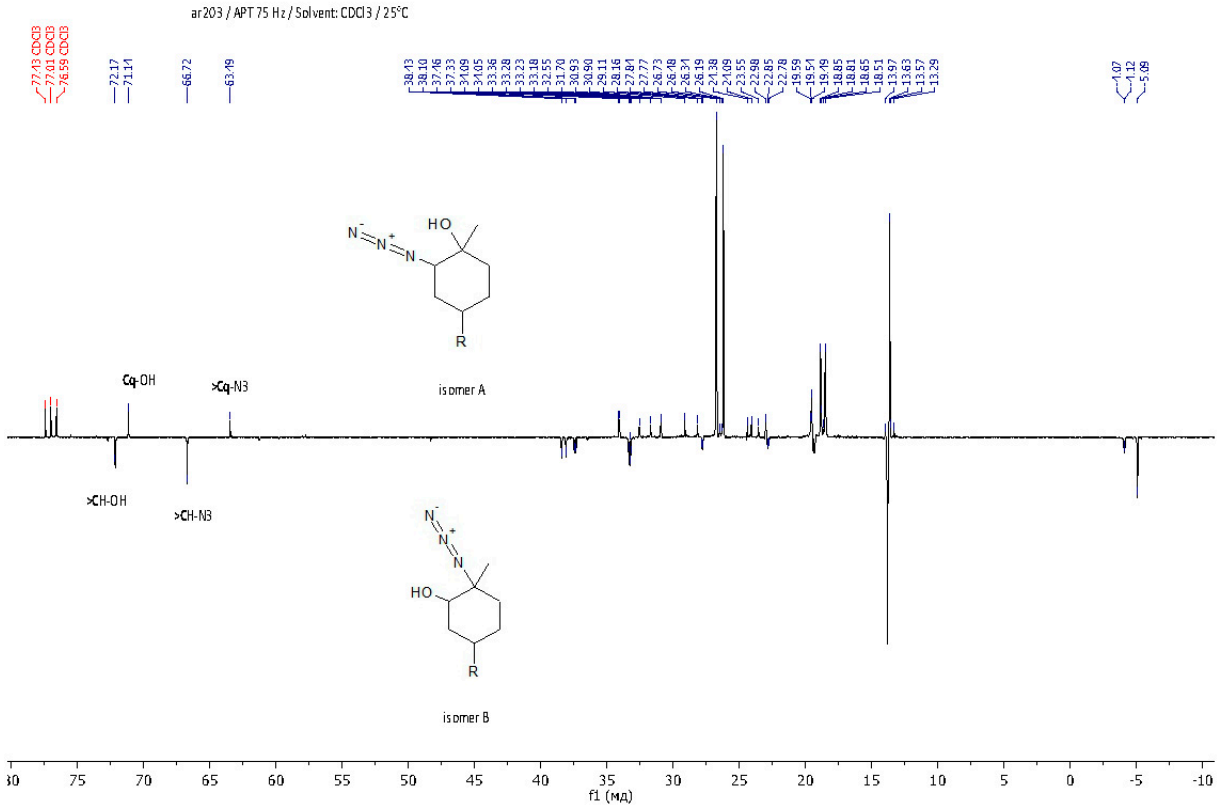


Figure S50. APT NMR spectrum of *LimN$_3$-G$_1$Bu$^4$*.

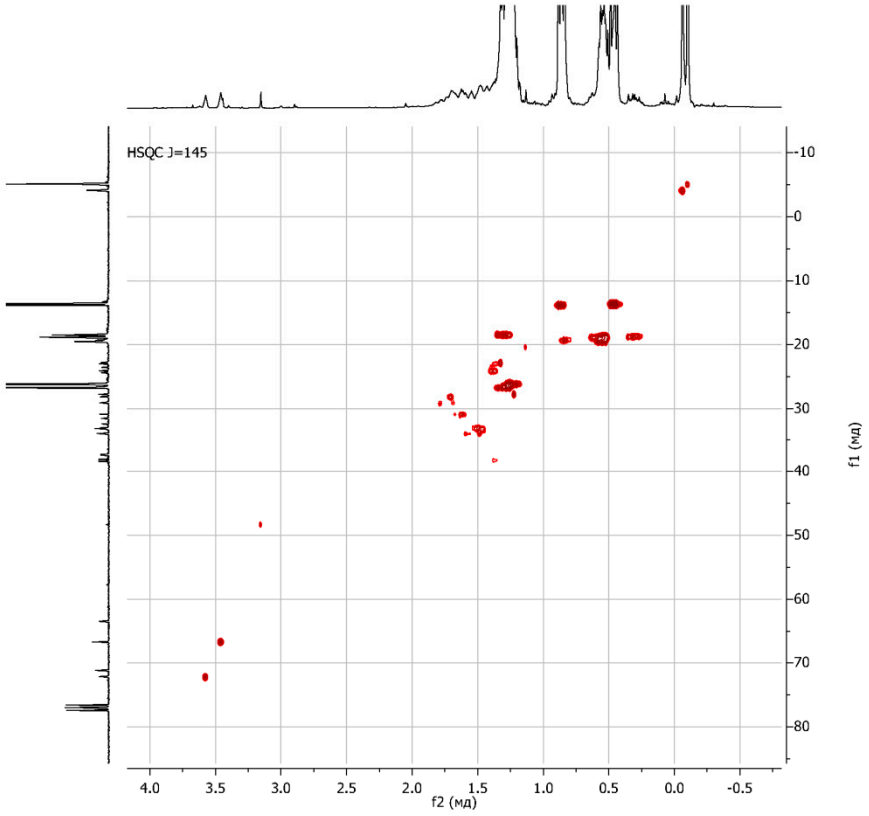


Figure S51. {$^{1}$H $^{13}$C} HSQC NMR spectrum of *LimN$_3$-G$_1$Bu$^4$*.

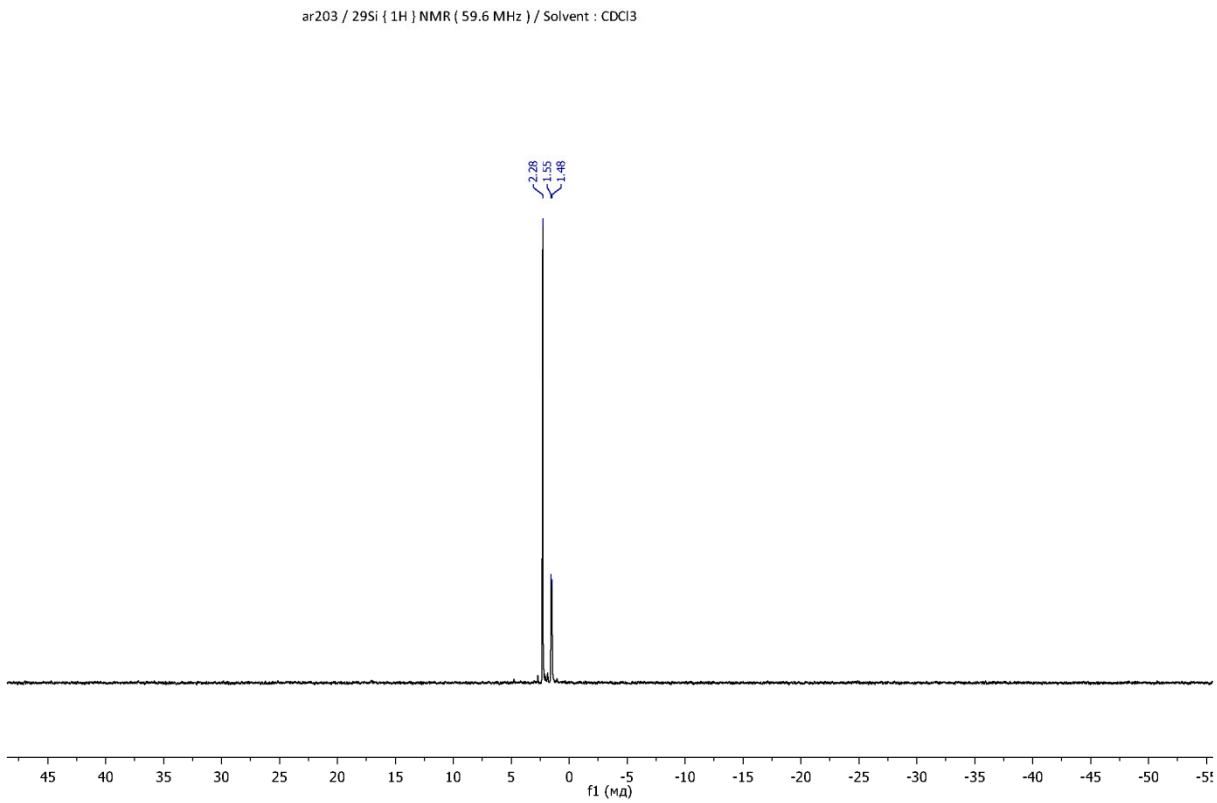


Figure S52. $^{29}$Si NMR spectrum of *LimN$_3$-G$_1$Bu$^4$*.

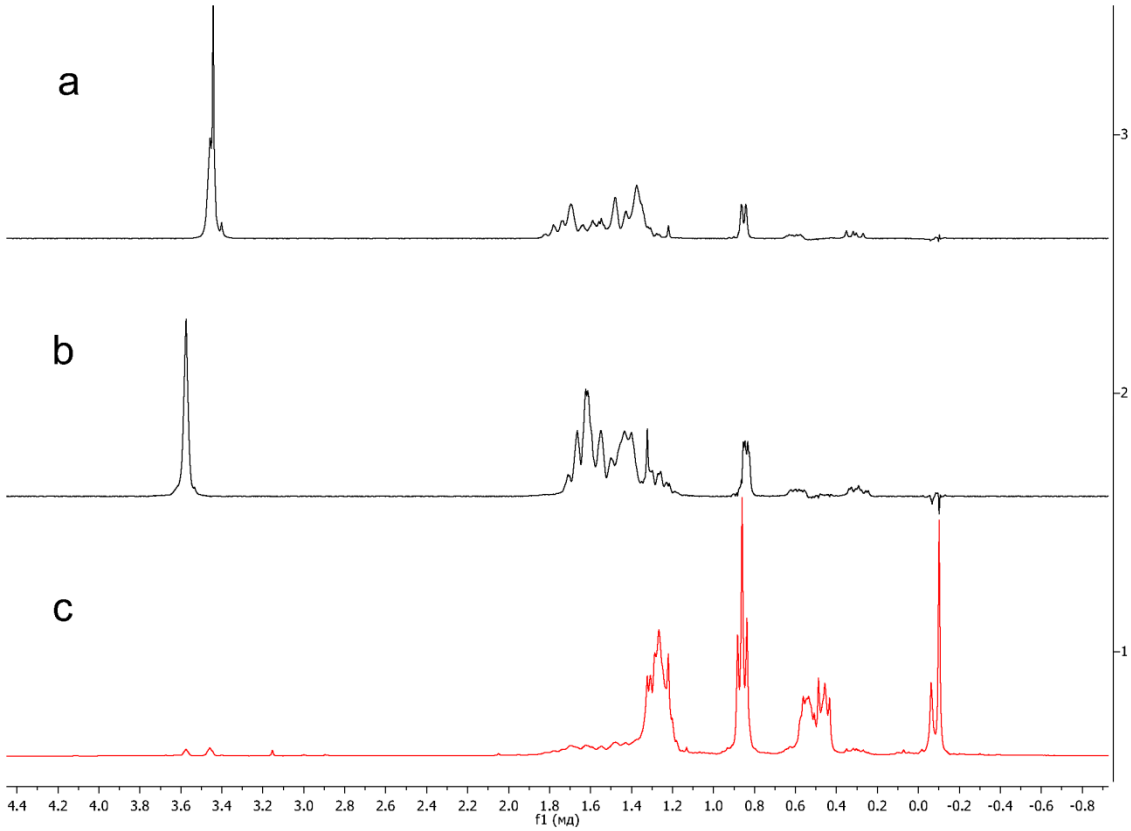


Figure S53. a,b - {$^{1}$H-$^{1}$H} TOCSY NMR spectrum of *LimN$_3$-G$_1$Bu$^4$*; c - $^{1}$H NMR spectrum of *LimN$_3$-G$_1$Bu$^4$*.

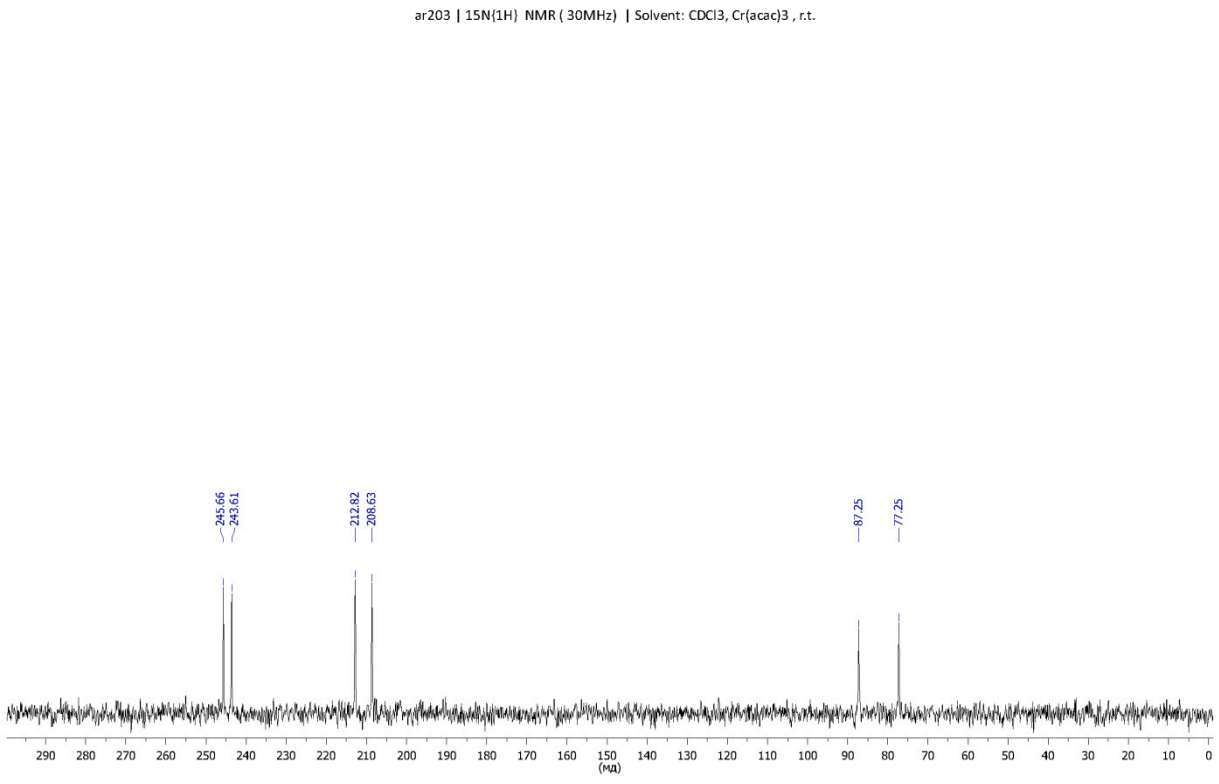


Figure S54. $^{15}$N NMR spectrum of *LimN$_3$-G$_1$Bu$^4$*.

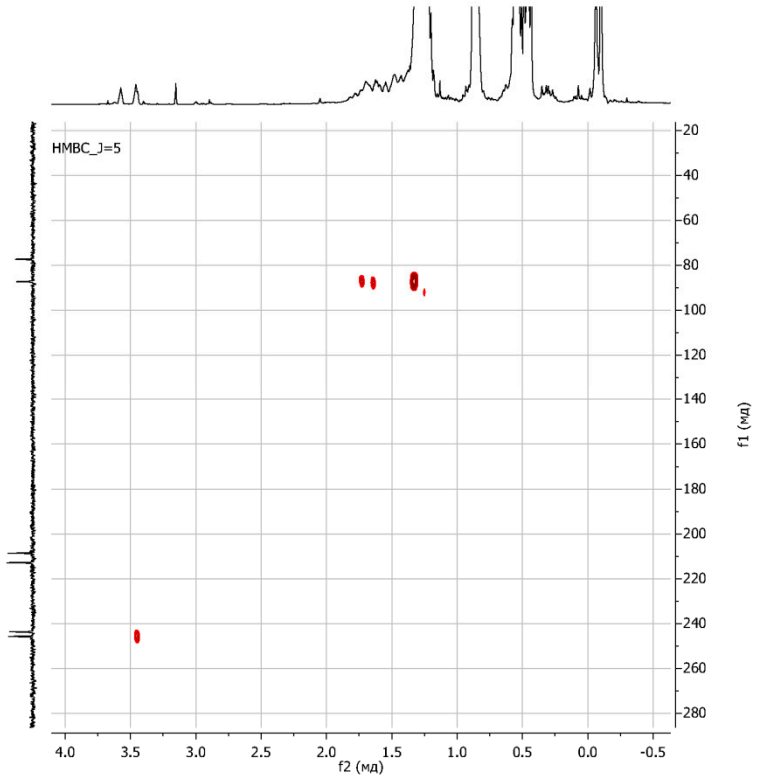


Figure S55. {$^{1}$H $^{15}$N} HMBC NMR spectrum of *LimN$_3$-G$_1$Bu$^4$*.

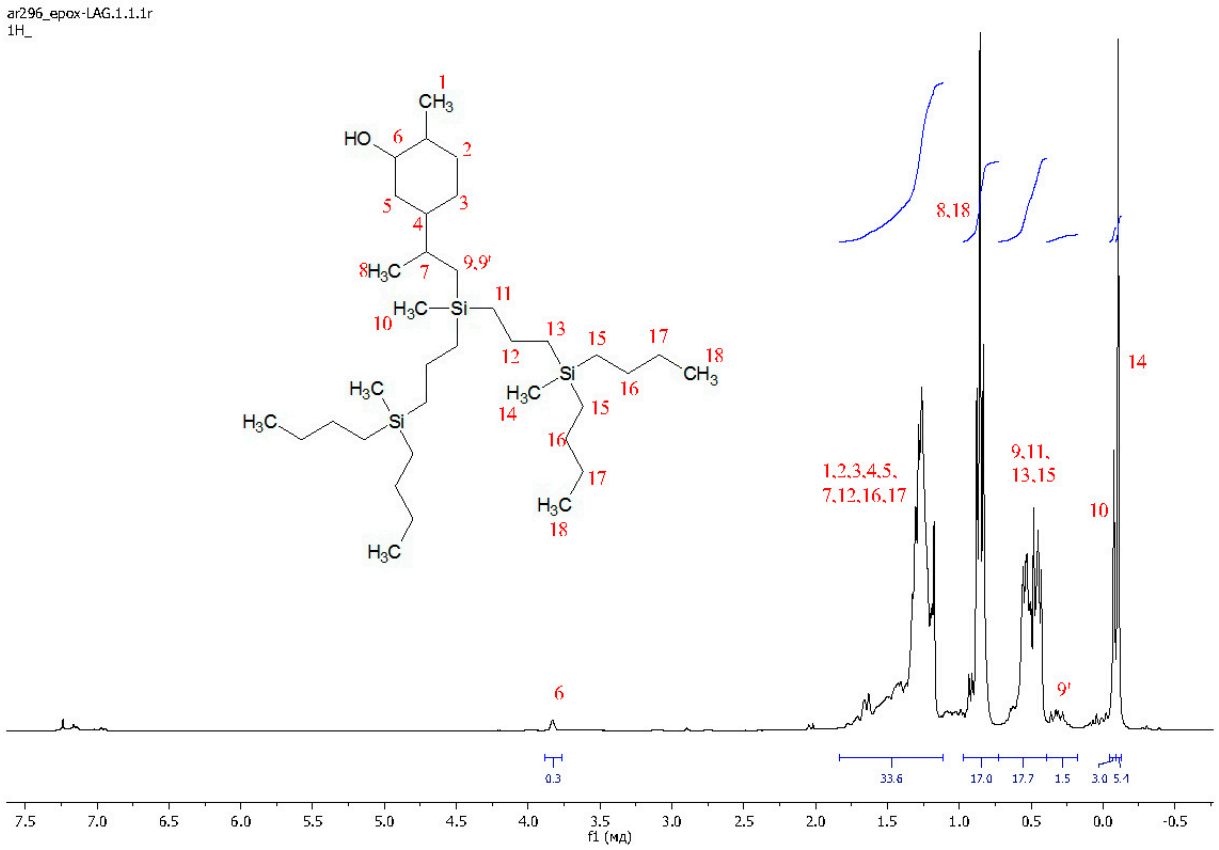


Figure S56. $^{1}$H NMR spectrum of *LimOH-G$_1$Bu$^4$*.

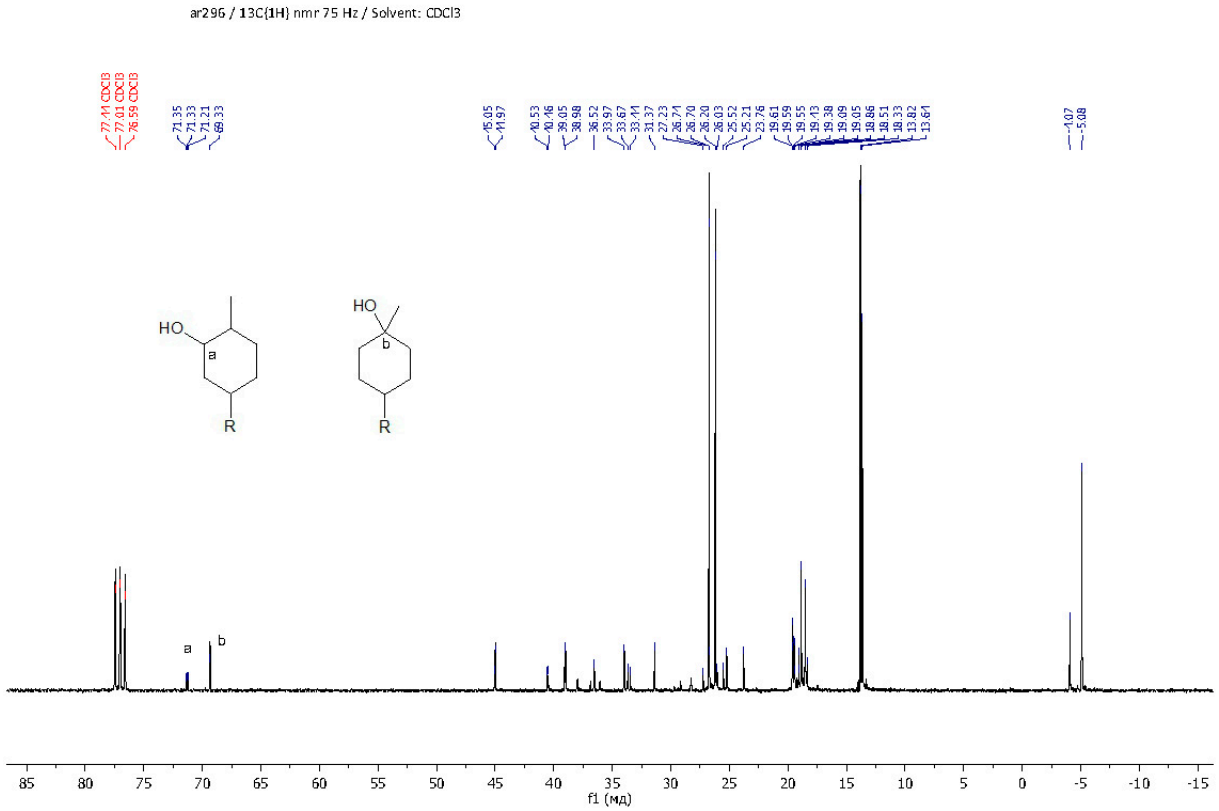


Figure S57. $^{13}$C NMR spectrum of *LimOH-G$_1$Bu$^4$*.

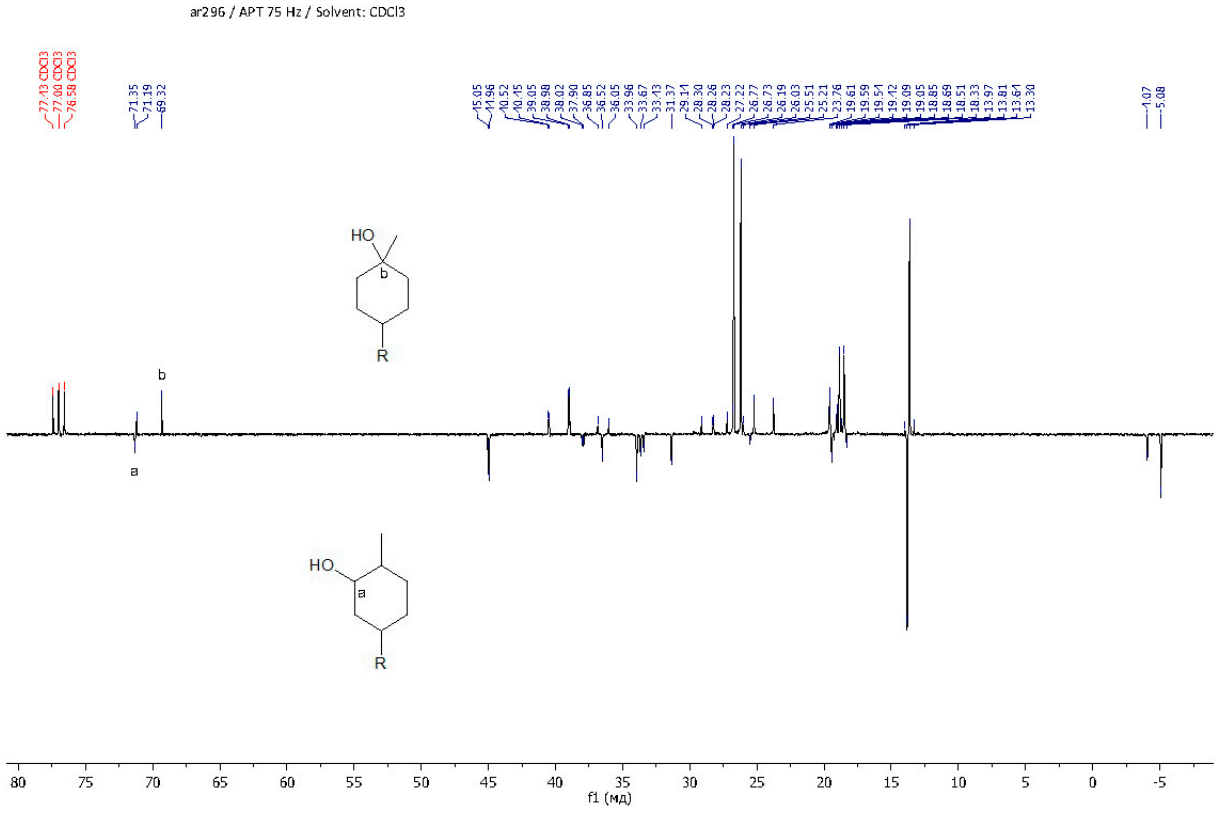


Figure S58. APT NMR spectrum of *LimOH-G$_1$Bu$^4$*.

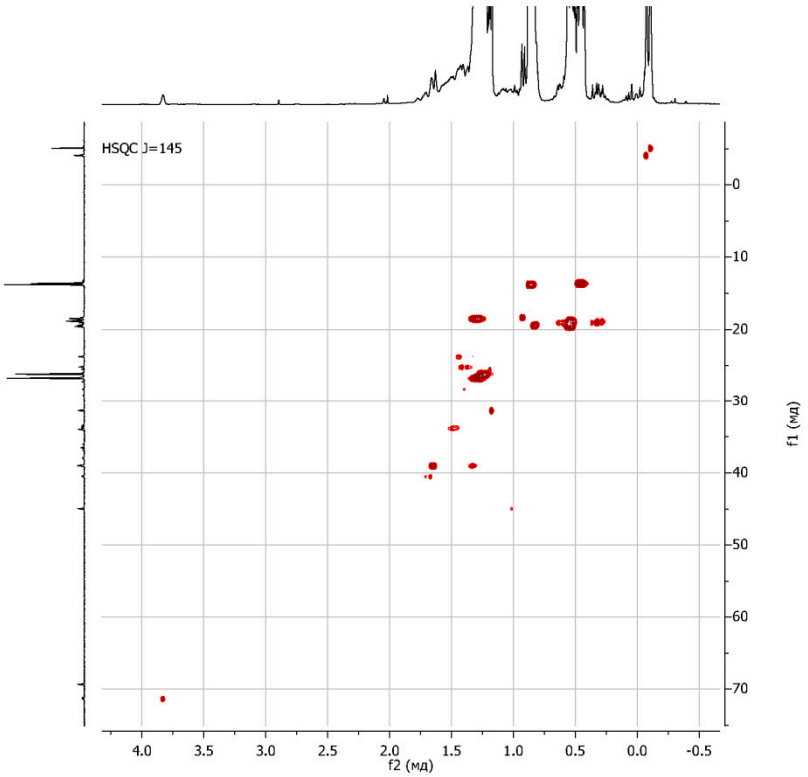


Figure S59. {$^{1}$H $^{13}$C} HSQC NMR spectrum of *LimOH-G1Bu*$^{4}$.

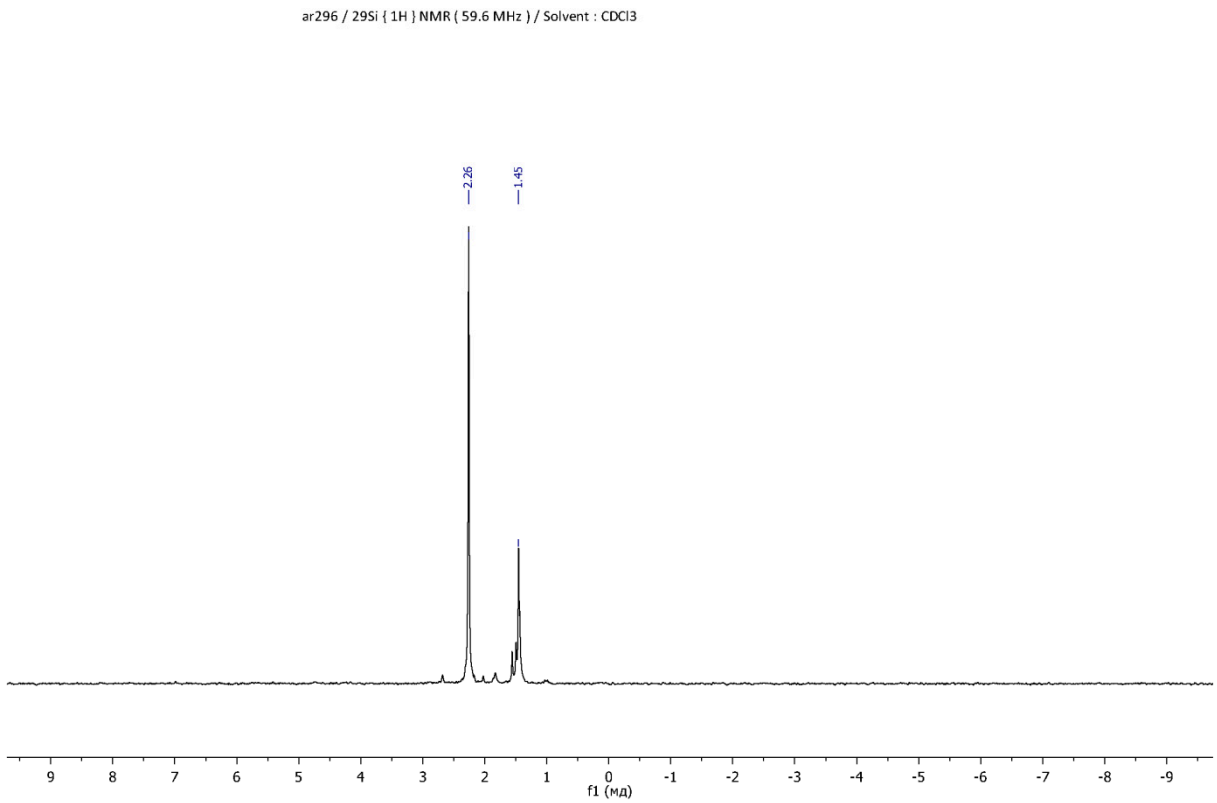


Figure S60. $^{29}$Si NMR spectrum of *LimOH-G1Bu*$^{4}$.

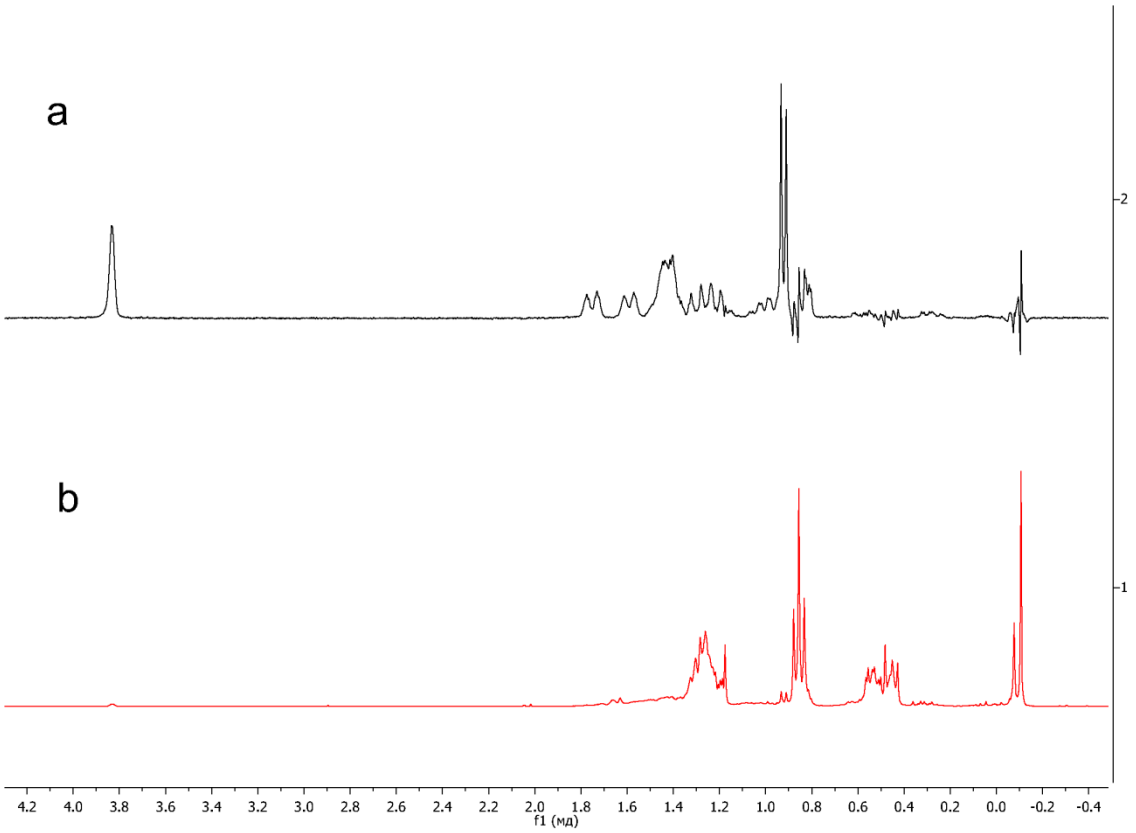


Figure S61. a - {$^{1}$H-$^{1}$H} TOCSY NMR spectrum of *LimOH-G1Bu4*; b - $^{1}$H NMR spectrum of *LimOH-G1Bu4*.

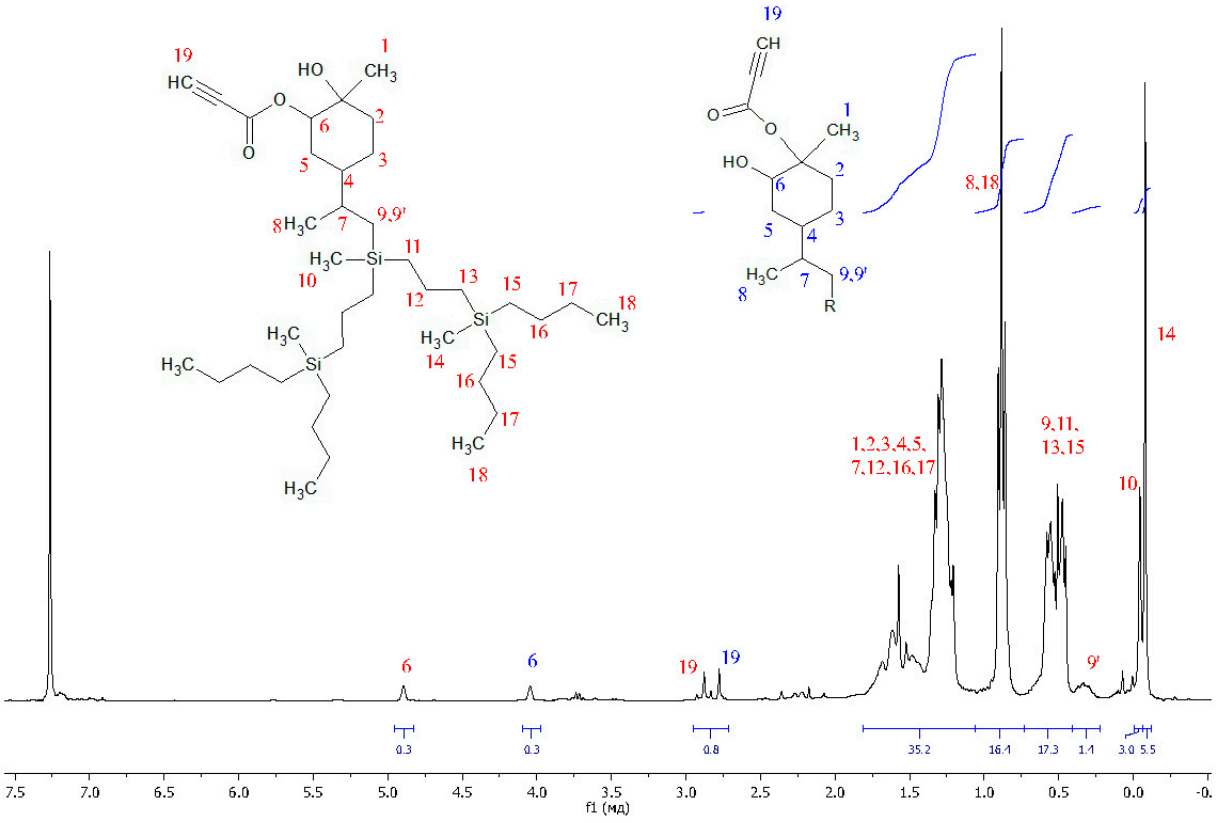


Figure S62. $^{1}$H NMR spectrum of *LimC≡C-G1Bu4*.

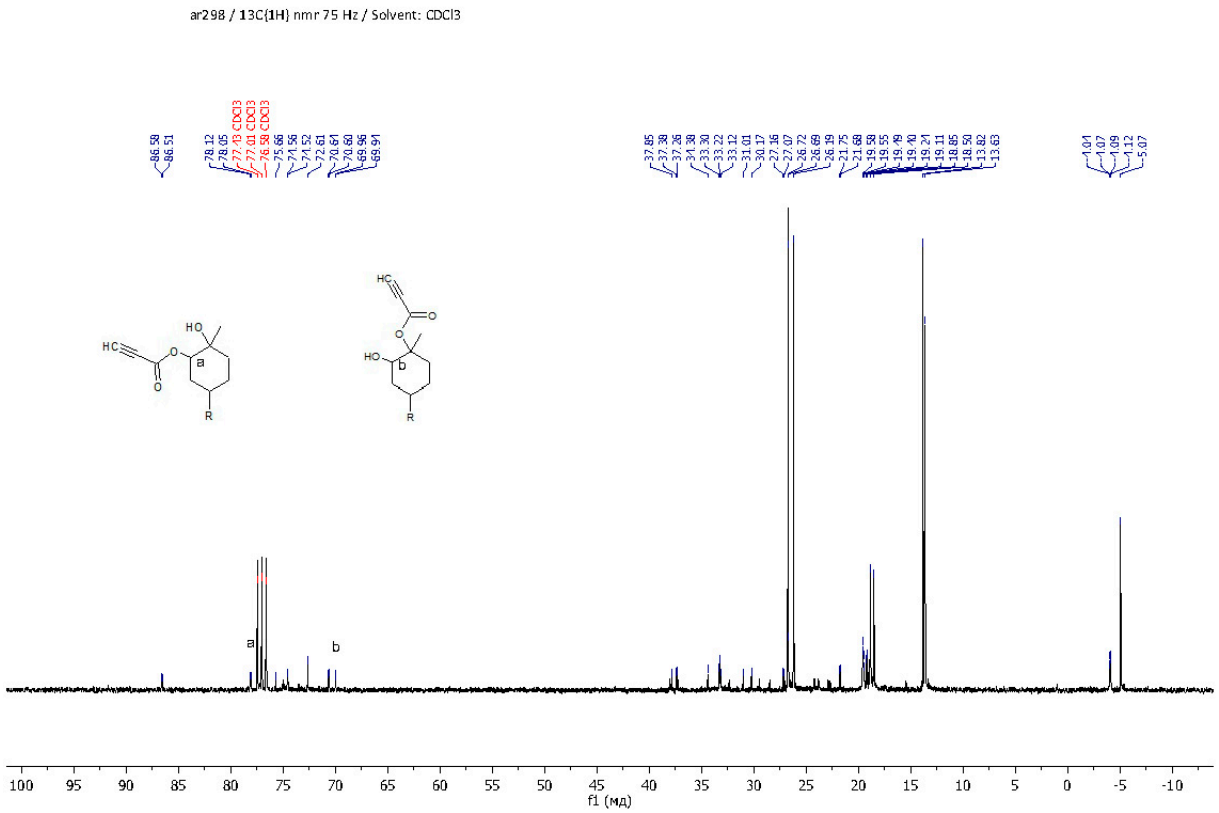


Figure S63. $^{13}$C NMR spectrum of *LimC≡C-G$_1$Bu$^4$*.

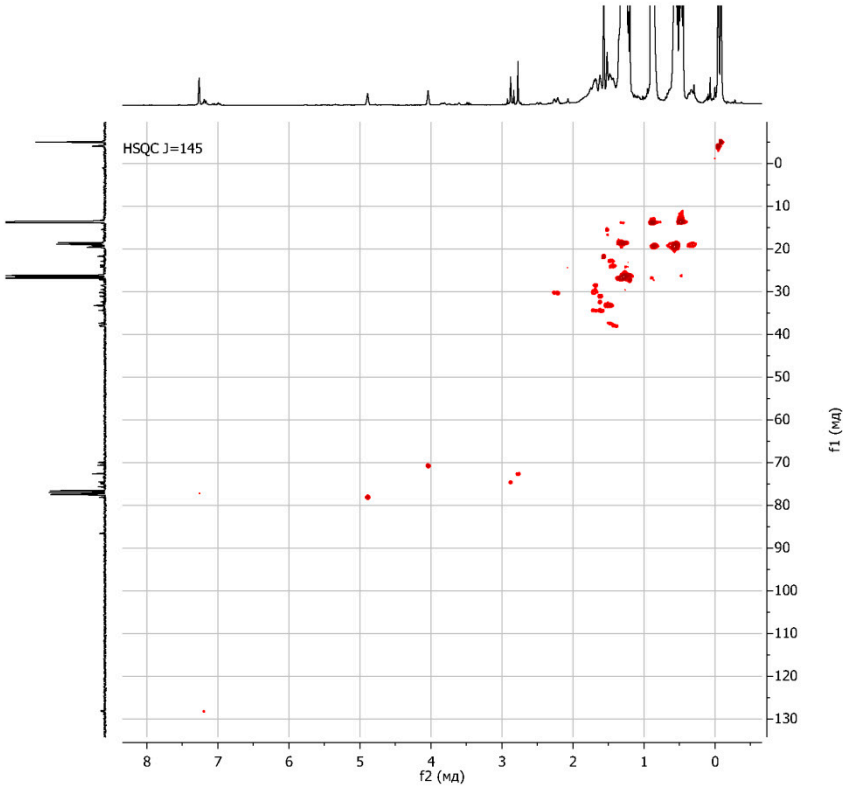


Figure S64. {$^1$H $^{13}$C} HSQC NMR spectrum of *LimC≡C-G$_1$Bu$^4$*.

SI2. GPC curves

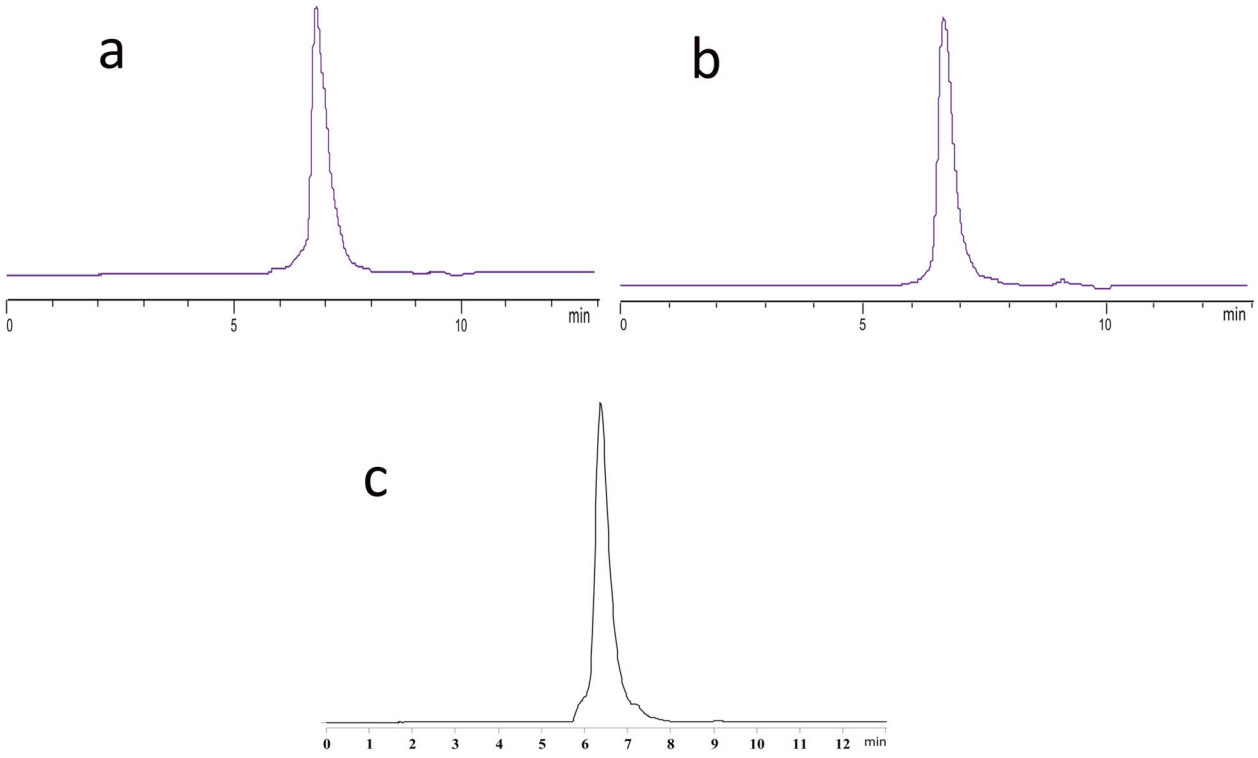


Figure S65. GPC chromatograms of dendrons based on limonene with azide functionality on the periphery («a» - *Lim-G0(PrN3)2*, «b» - *Lim-G1(PrN3)3*, «c» - *Lim-G2(PrN3)4*).

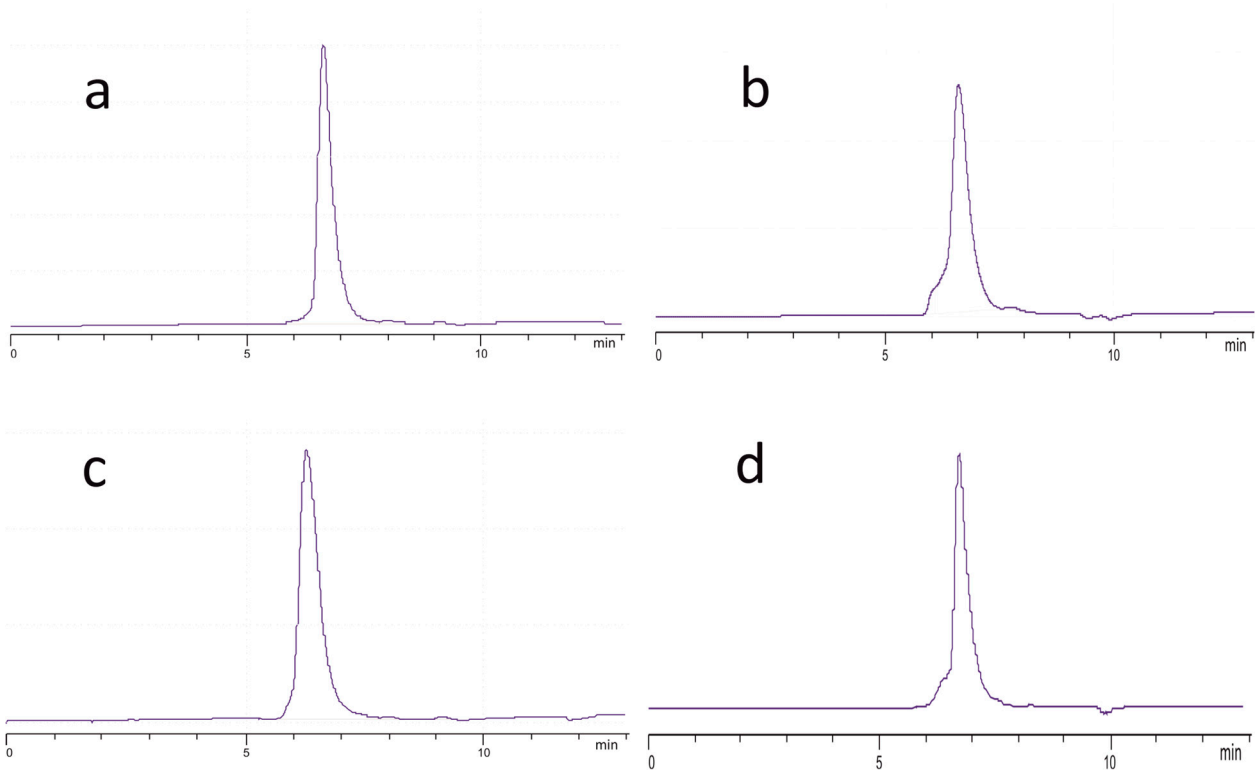


Figure S66. GPC chromatograms of dendrons based on limonene with epoxy functionality at the focal point («a» - *LimOx-G1,5TMS4*, «b» - *LimOx-G1,5TMS6*, «c» - *LimOx-G2,5TMS8,* «d» - *LimOx-G1Bu4* ).

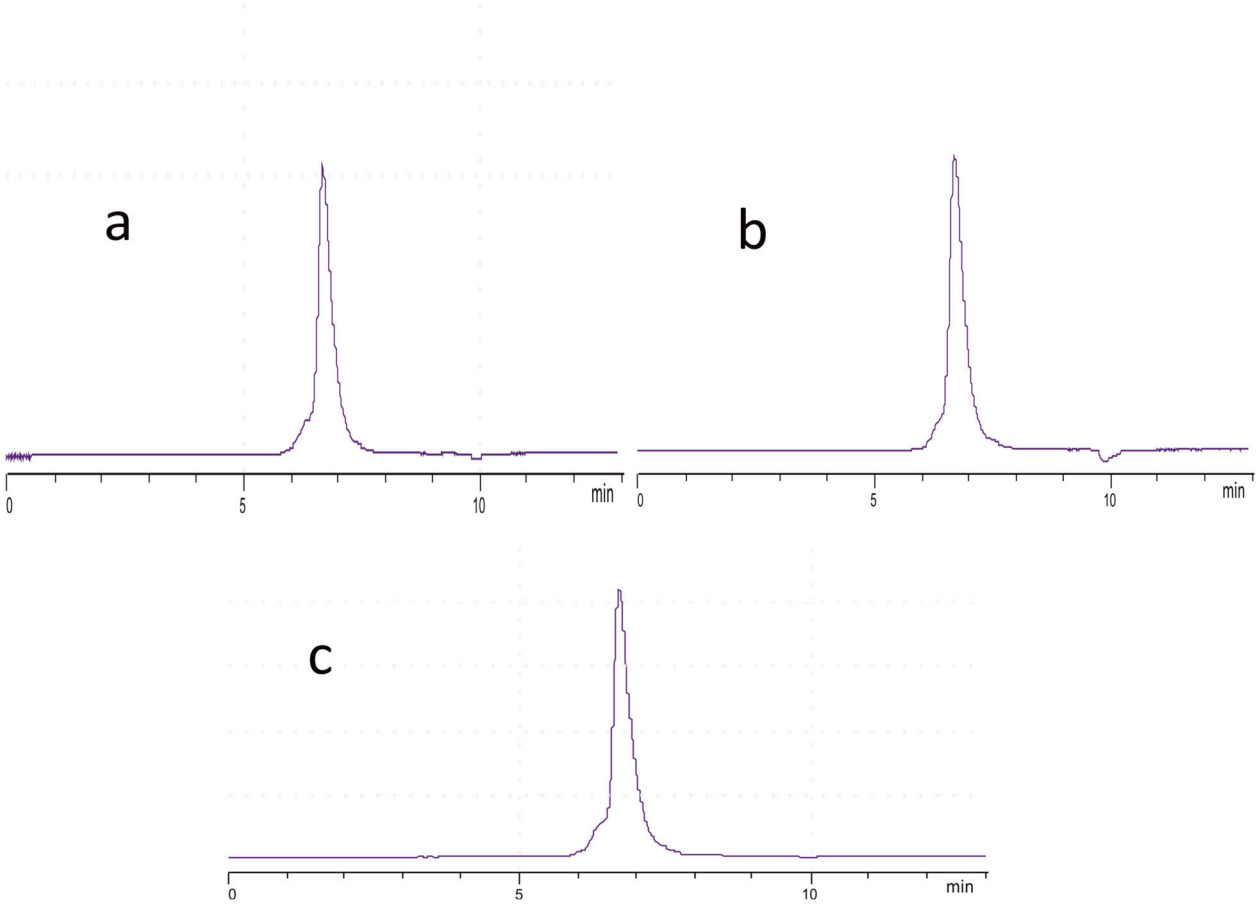


Figure S67. GPC chromatograms of carbosilane dendrons based on limonene with different functionality at the focal point («a» - *LimOH-G1Bu4*, «b» - *LimN3-G1Bu4*, «c» - *LimC≡C-G1Bu4*).

SI3. GC curves

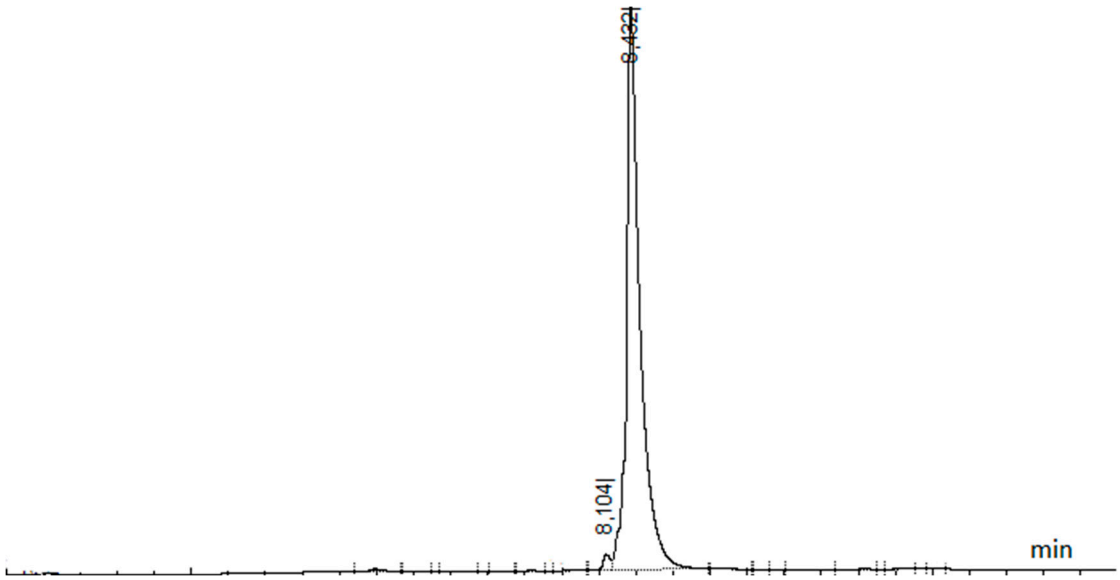


Figure S68. GC chromatogram of *LimOx-G0,5TMS2*.