Supplementary Material

Synthetic Modifications of a Pb^{2+}-Sensor Acridono-Crown Ether for Covalent Attachment and Their Effects on Selectivity

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1. ^{1}H- and ^{13}C-NMR spectra of the new compounds

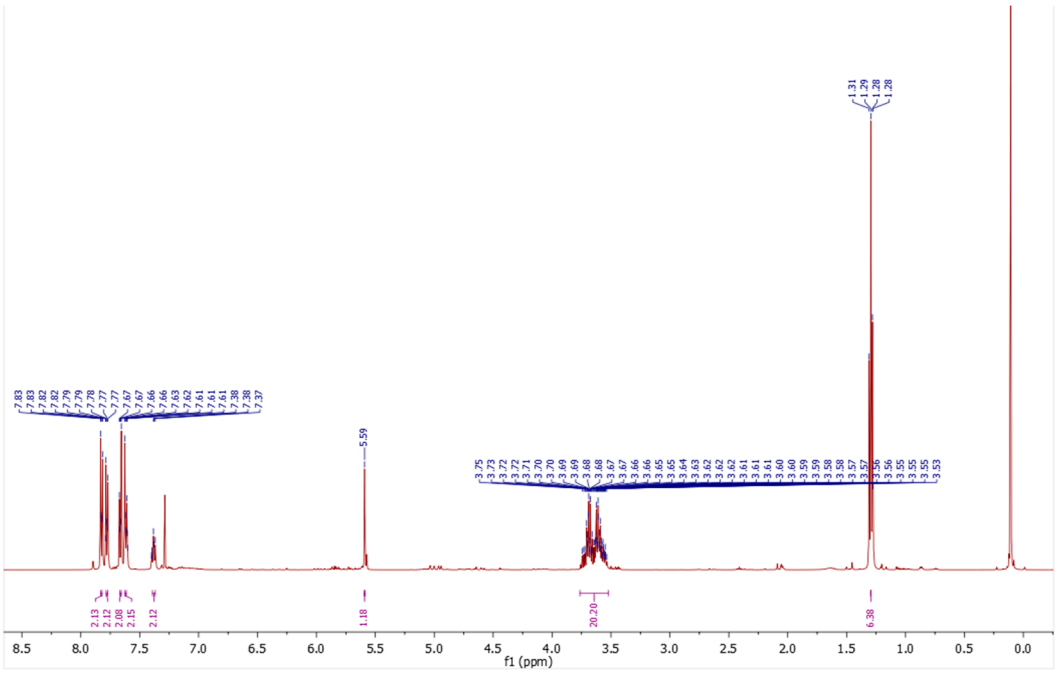


Figure S1. ^{1}H-NMR spectrum for **16** ($CDCl_3$)

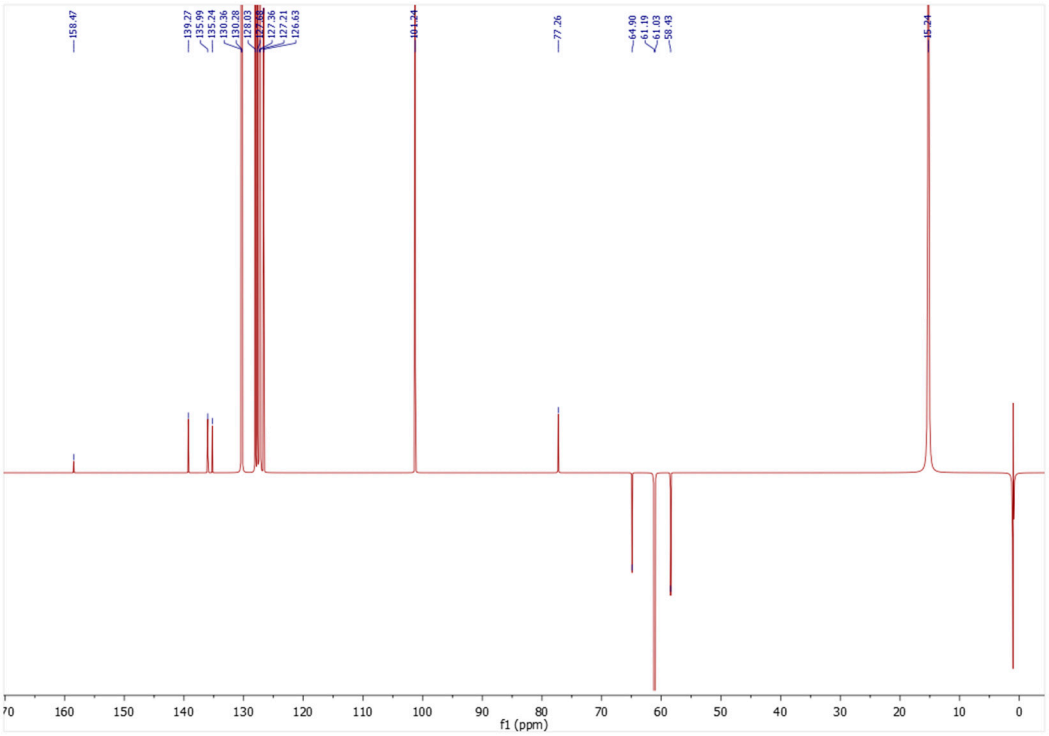


Figure S2. ^{13}C-NMR spectrum for **16** ($CDCl_3$)

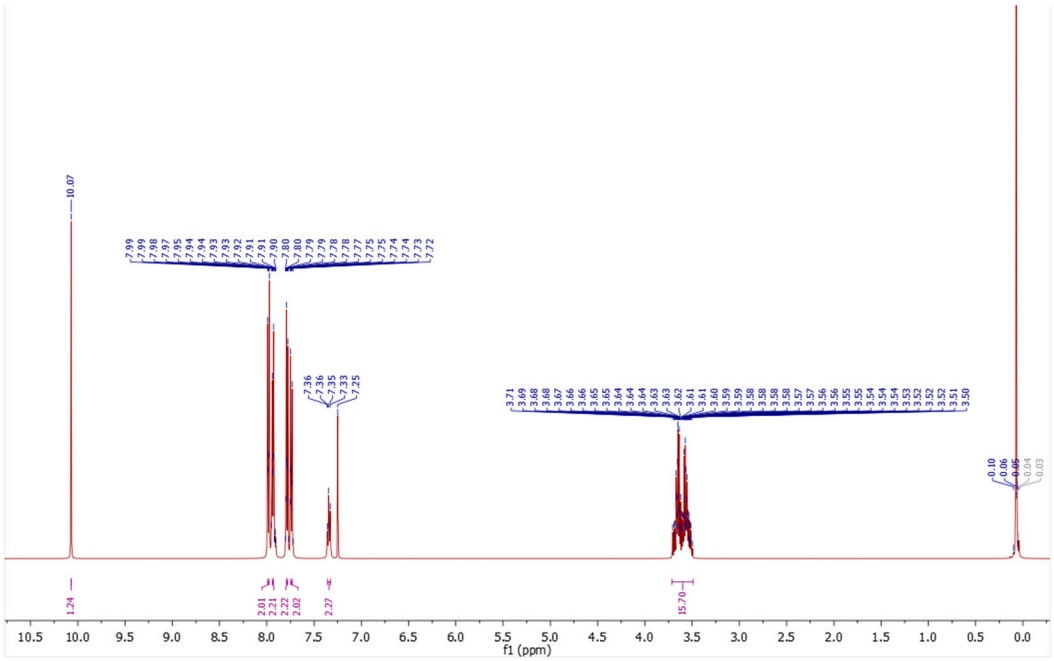


Figure S3. ^{1}H-NMR spectrum for **18** ($CDCl_3$)

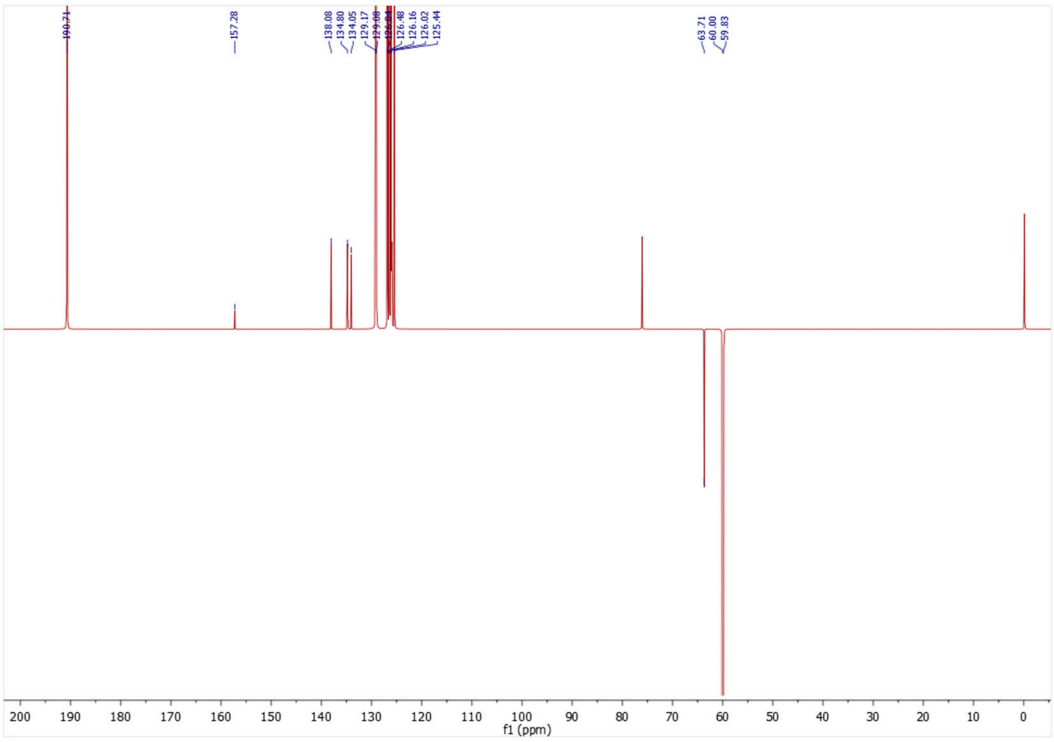


Figure S4. ^{13}C-NMR spectrum for **18** ($CDCl_3$)

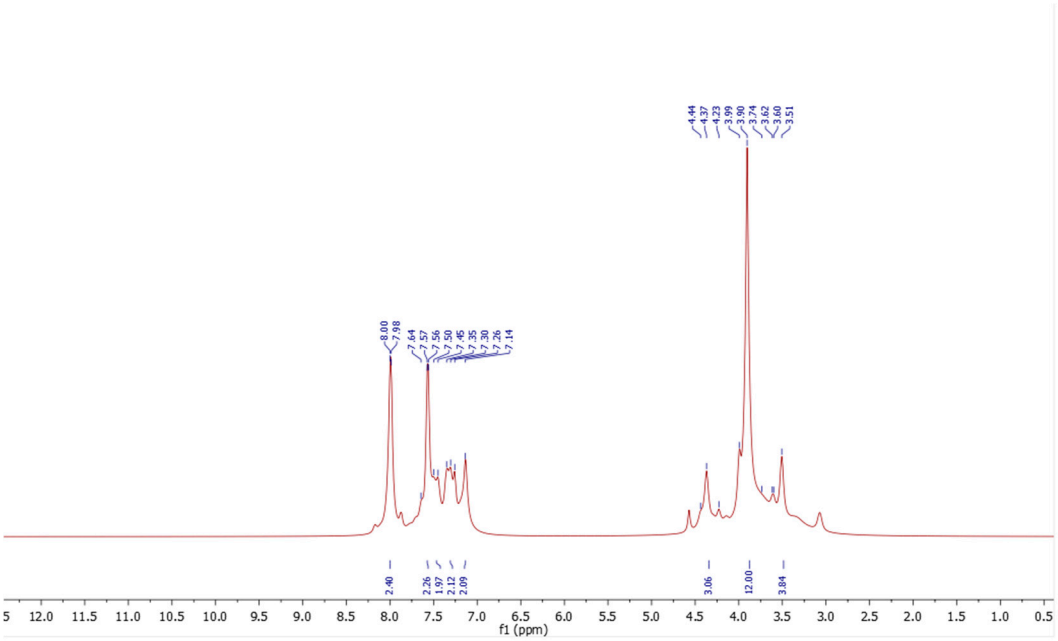


Figure S5. ^{1}H-NMR spectrum for **21** ($CDCl_3$)

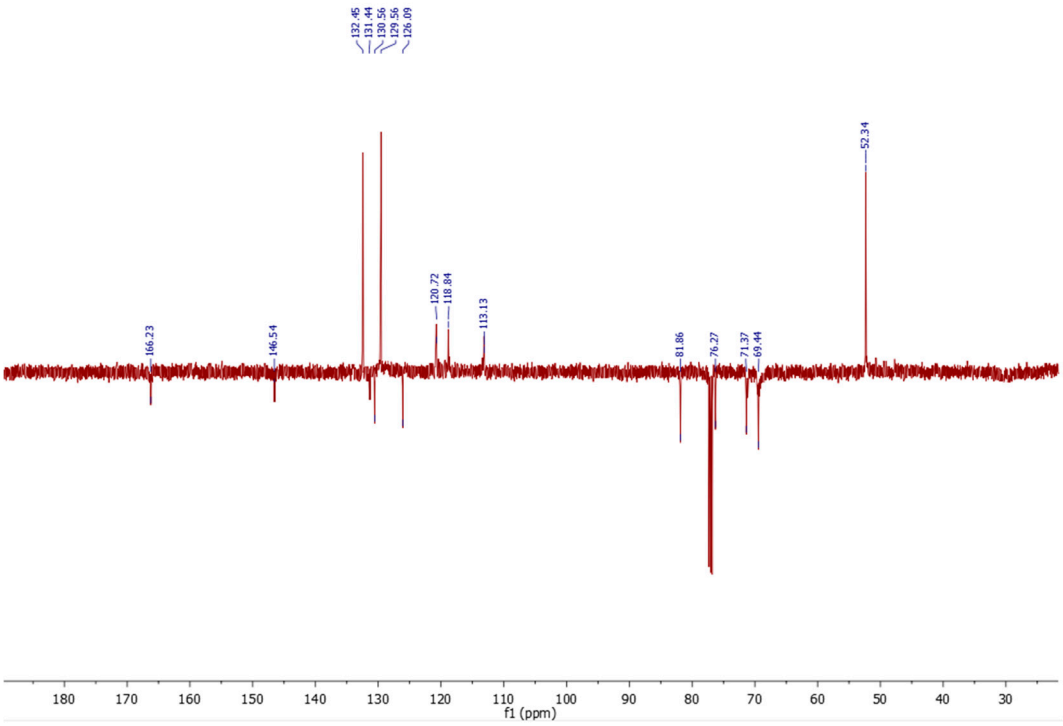


Figure S6. ^{13}C-NMR spectrum for **21** ($CDCl_3$)

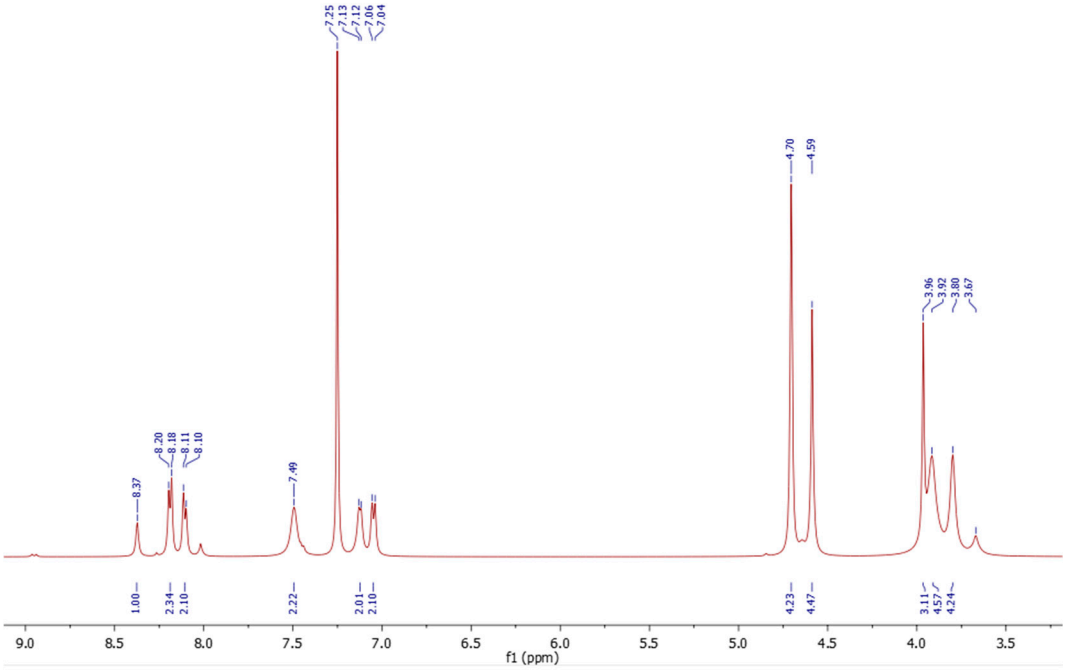


Figure S7. ^{1}H-NMR spectrum for **23** ($CDCl_3$)

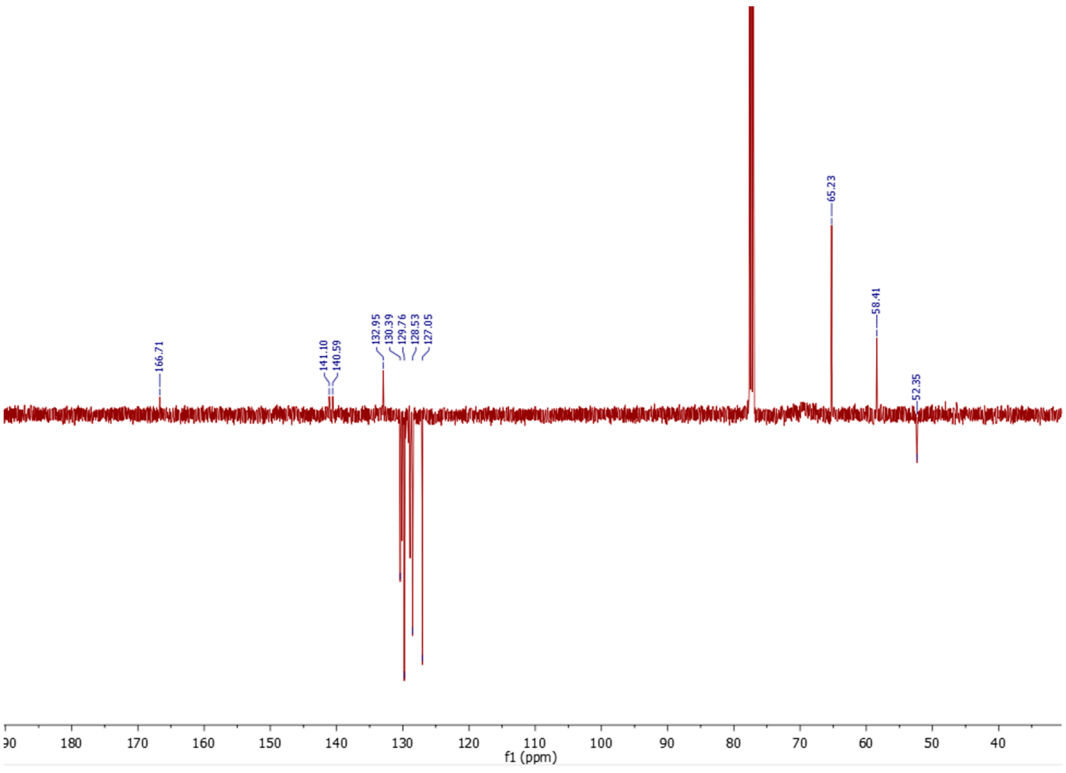


Figure S8. ^{13}C-NMR spectrum for **23** ($CDCl_3$)

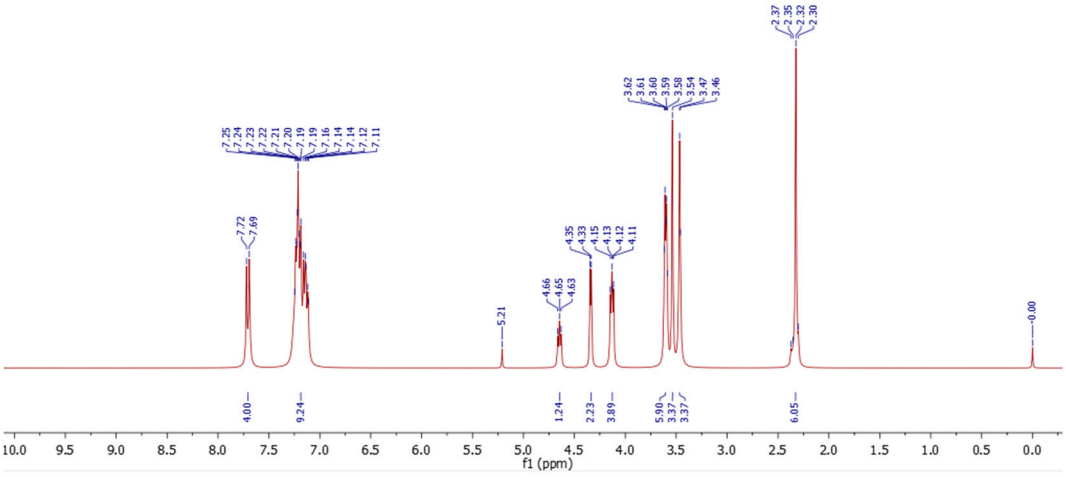


Figure S9. ^{1}H-NMR spectrum for **27** ($CDCl_3$)

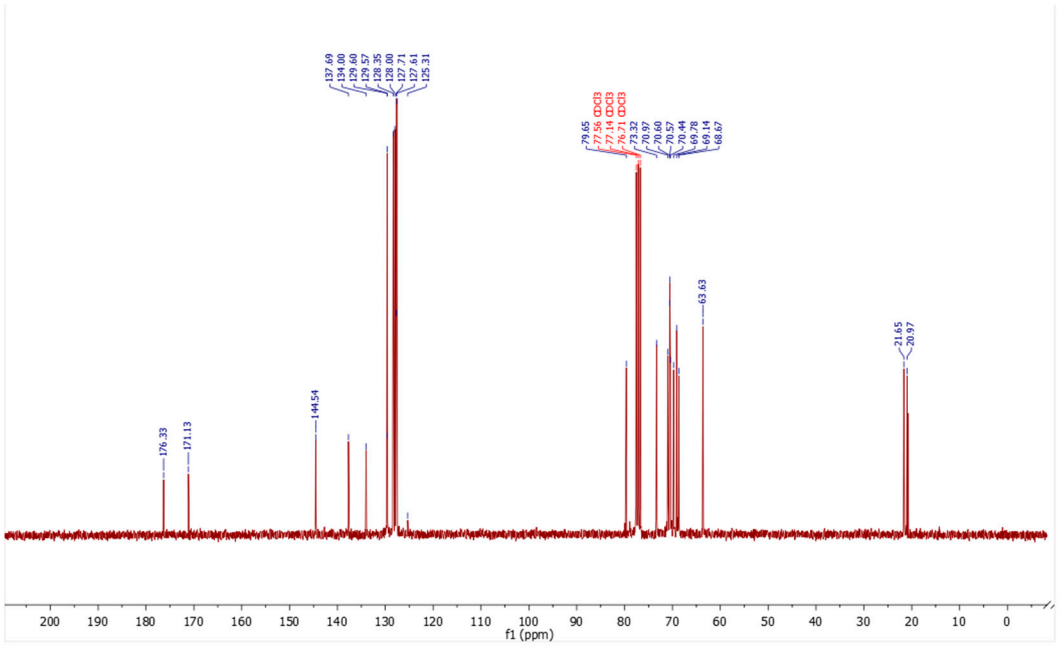


Figure S10. ^{13}C-NMR spectrum for **27** ($CDCl_3$)

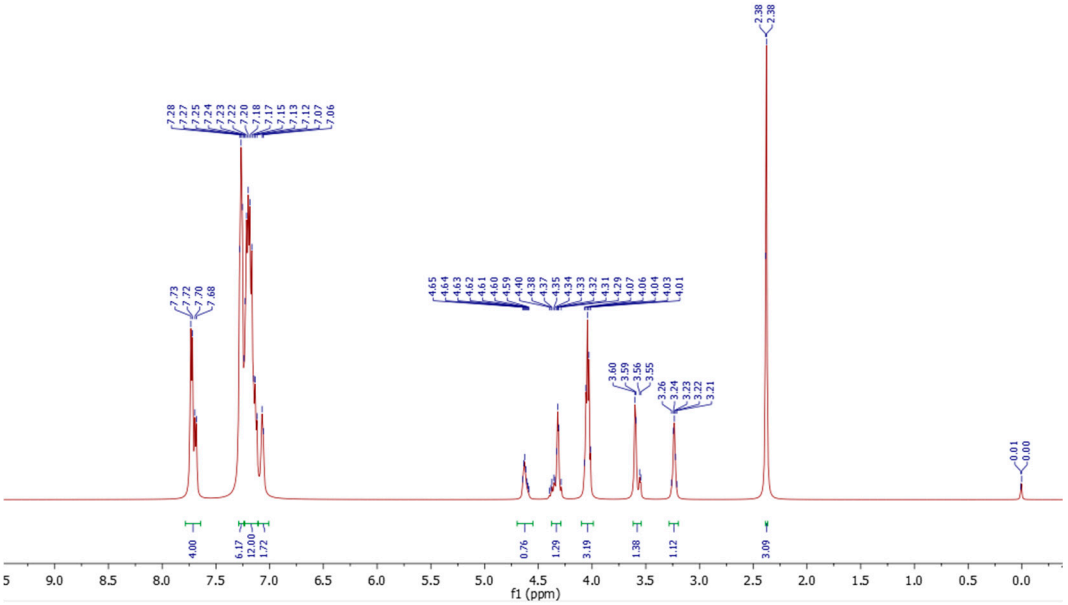


Figure S11. ^{1}H-NMR spectrum for **35** ($CDCl_3$)

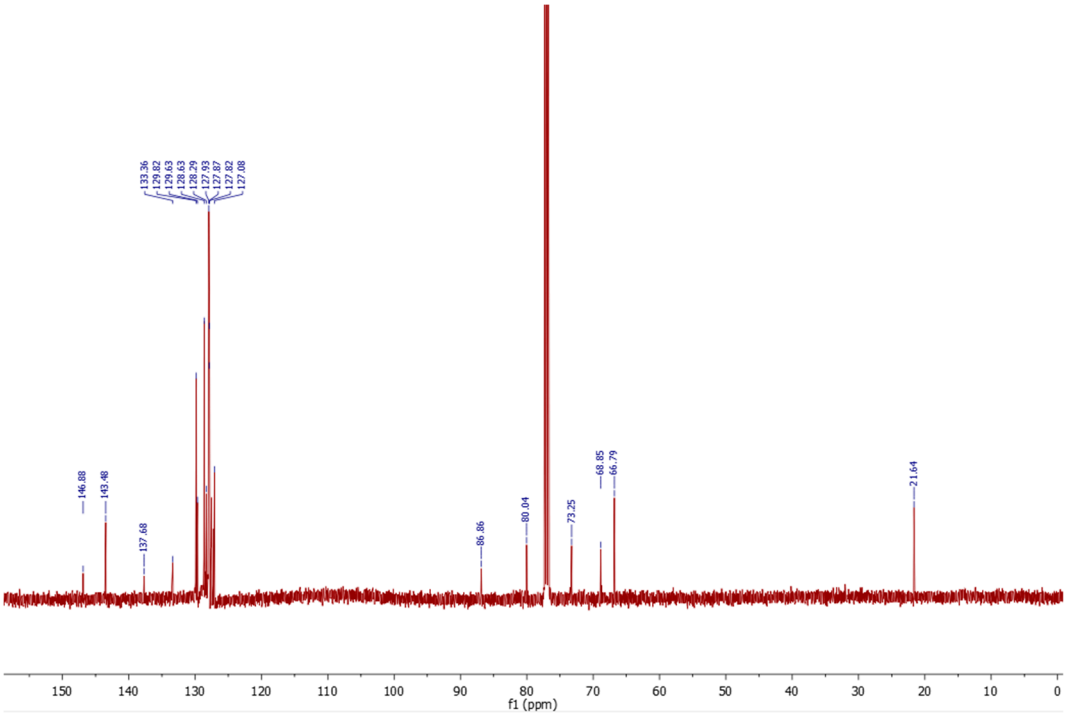


Figure S12. ^{13}C-NMR spectrum for **35** ($CDCl_3$)

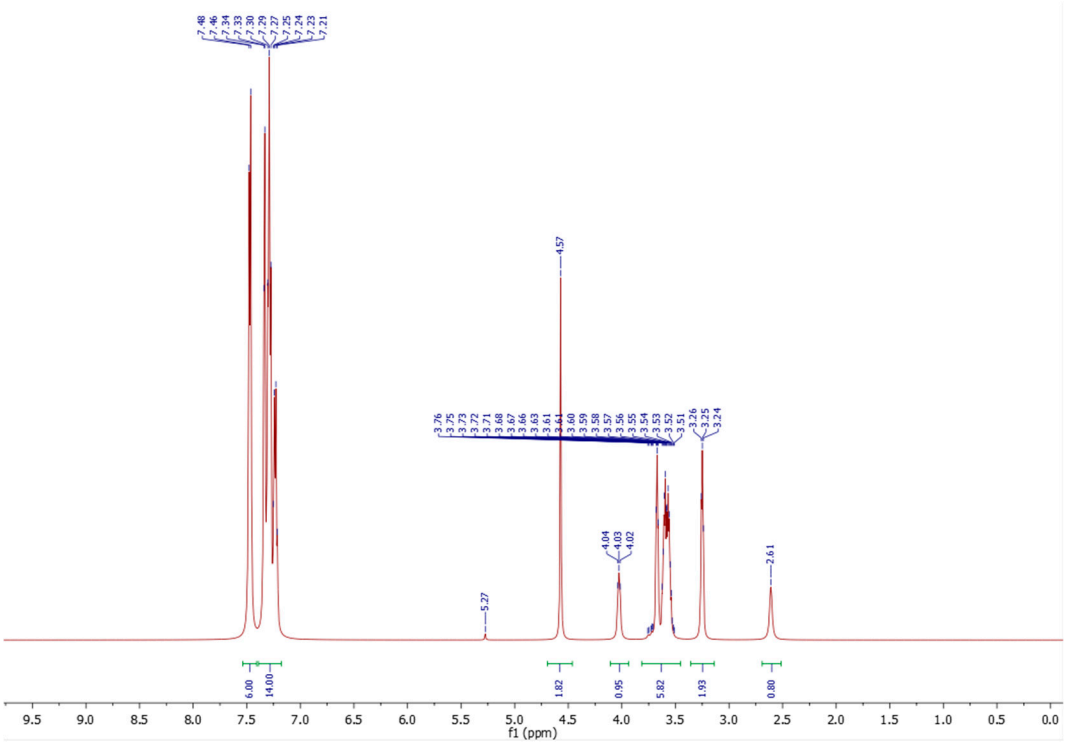


Figure S13. ^{1}H-NMR spectrum for **38** ($CDCl_3$)

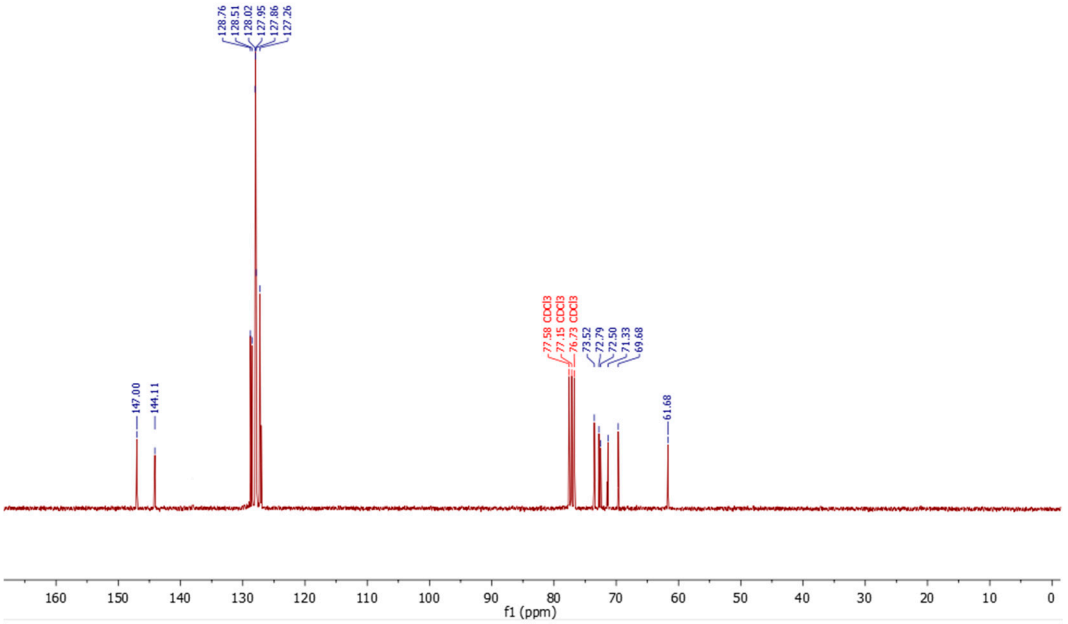


Figure S14. ^{13}C-NMR spectrum for **38** ($CDCl_3$)

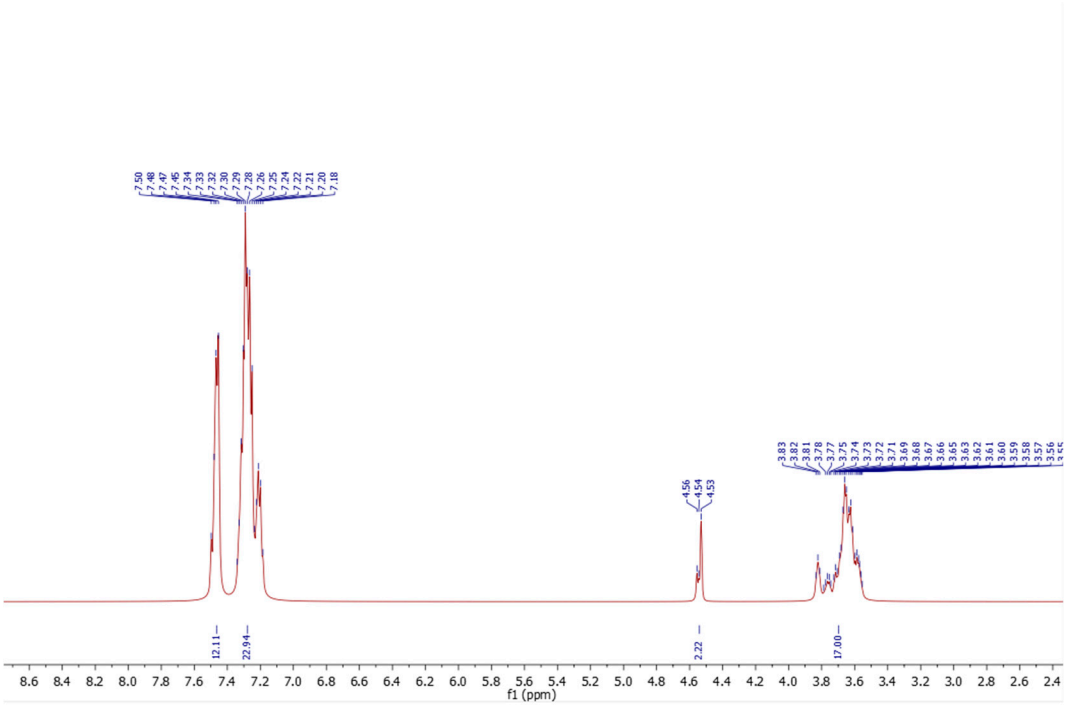


Figure S15. ^{1}H-NMR spectrum for **40** ($CDCl_3$)

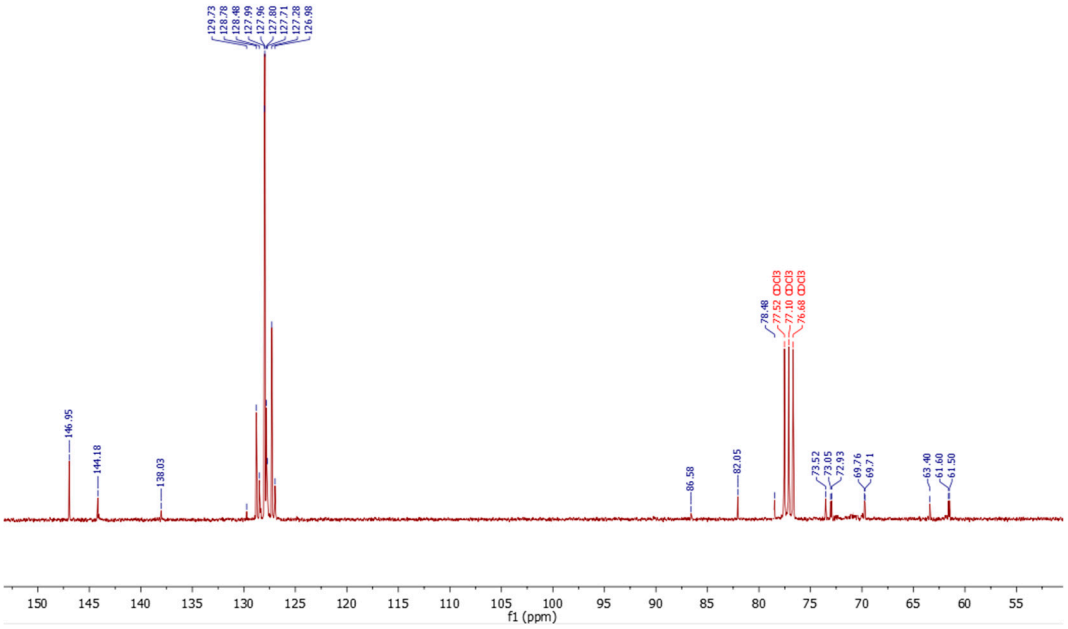


Figure S16. ^{13}C-NMR spectrum for **40** ($CDCl_3$)

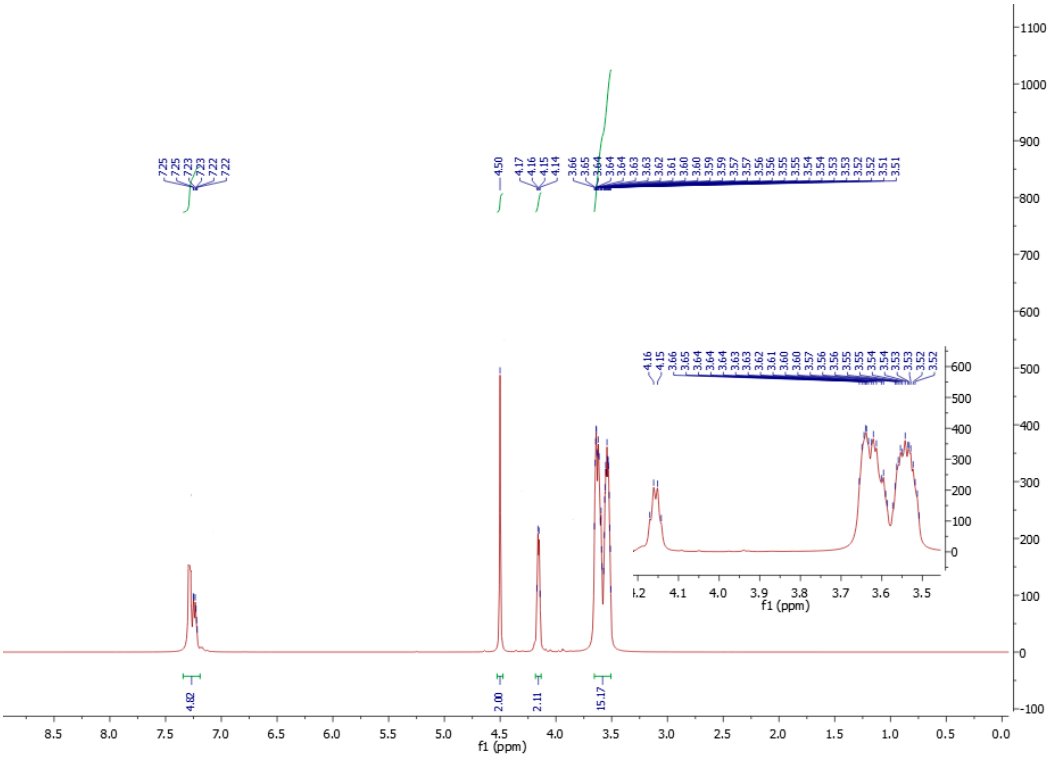


Figure S17. ^{1}H-NMR spectrum for **41** ($CDCl_3$ + D_2O)

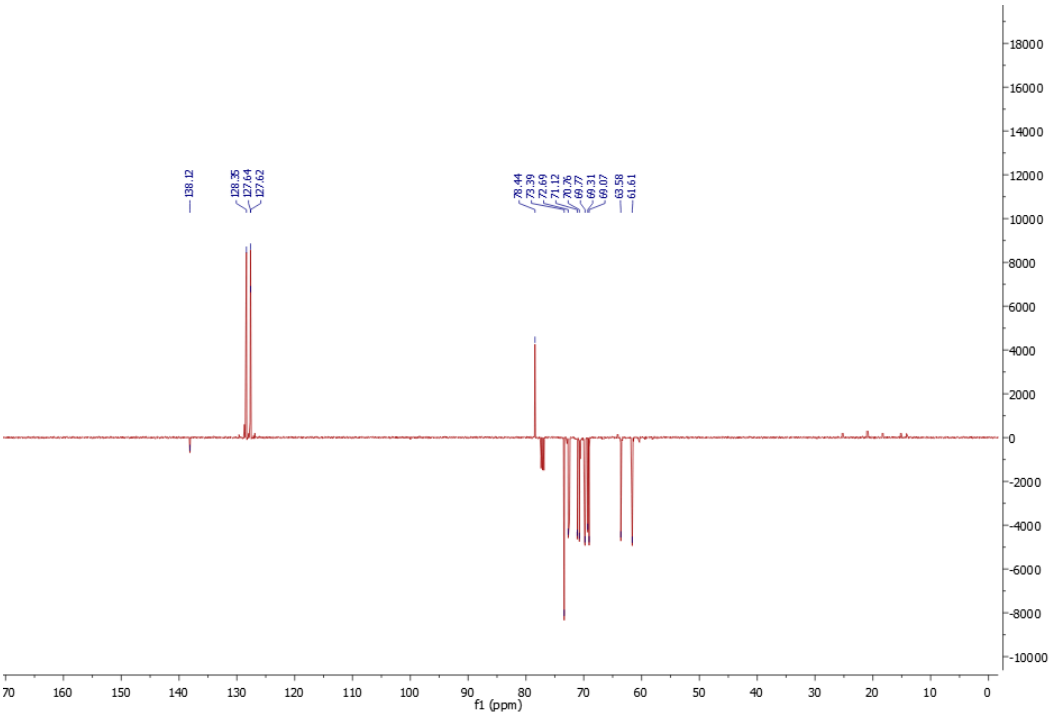


Figure S18. ^{13}C-NMR spectrum for **41** ($CDCl_3$)

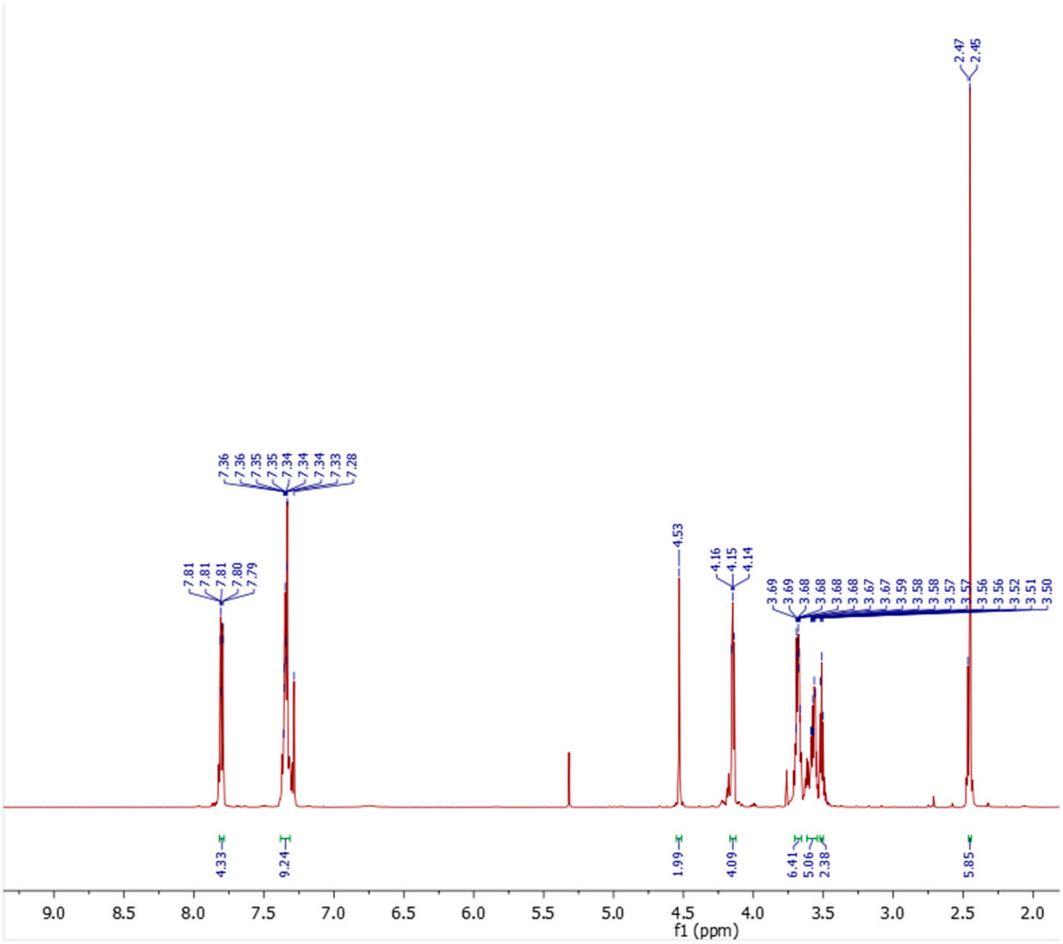


Figure S19. ^{1}H-NMR spectrum for **42** ($CDCl_3$)

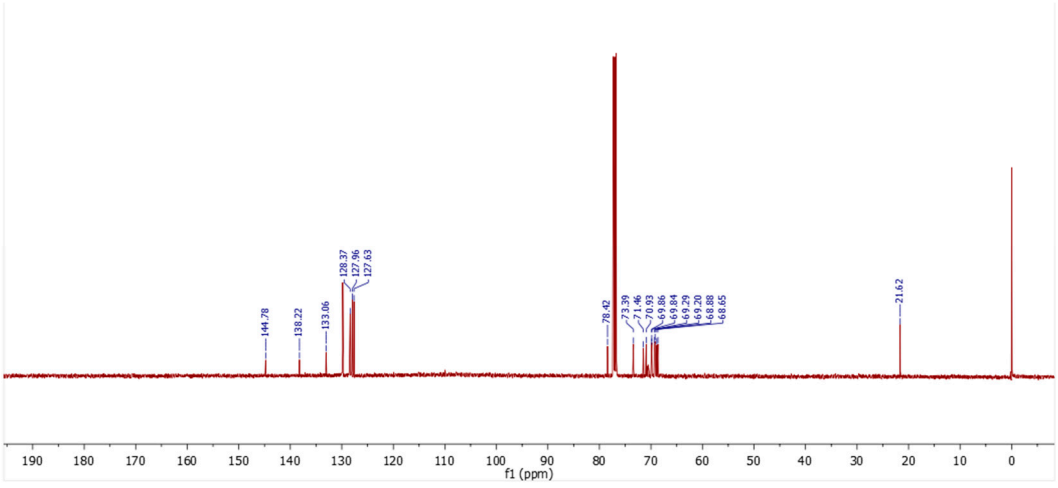


Figure S20. ^{13}C-NMR spectrum for **42** ($CDCl_3$)

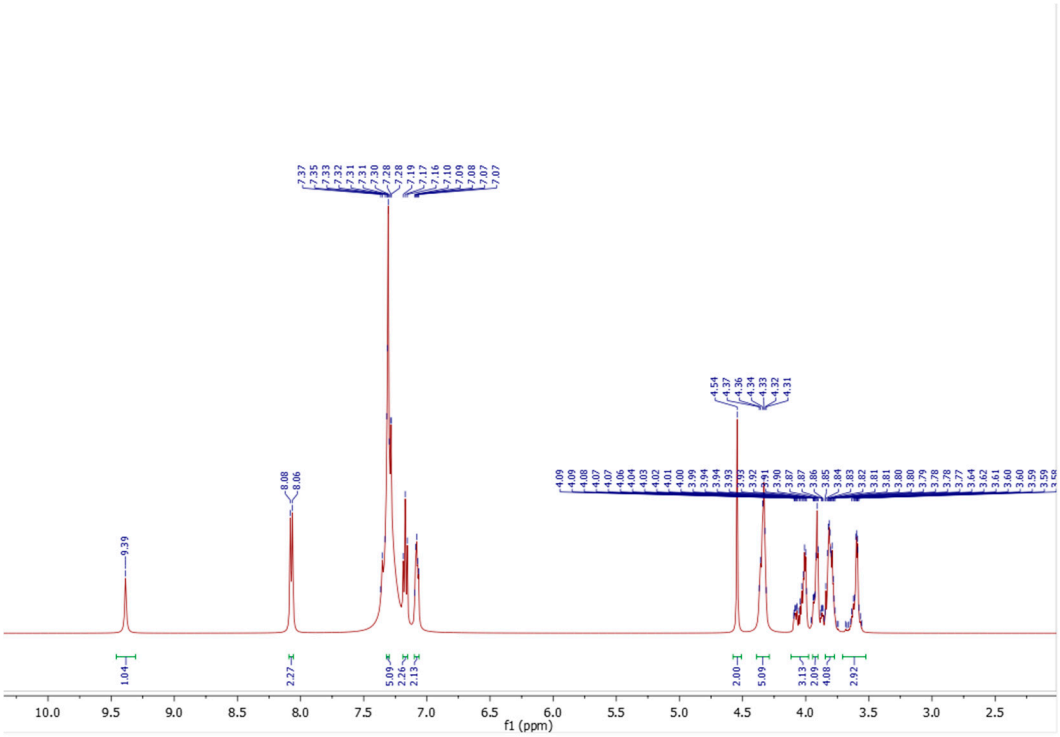


Figure S21. ^{1}H-NMR spectrum for **43** ($CDCl_3$)

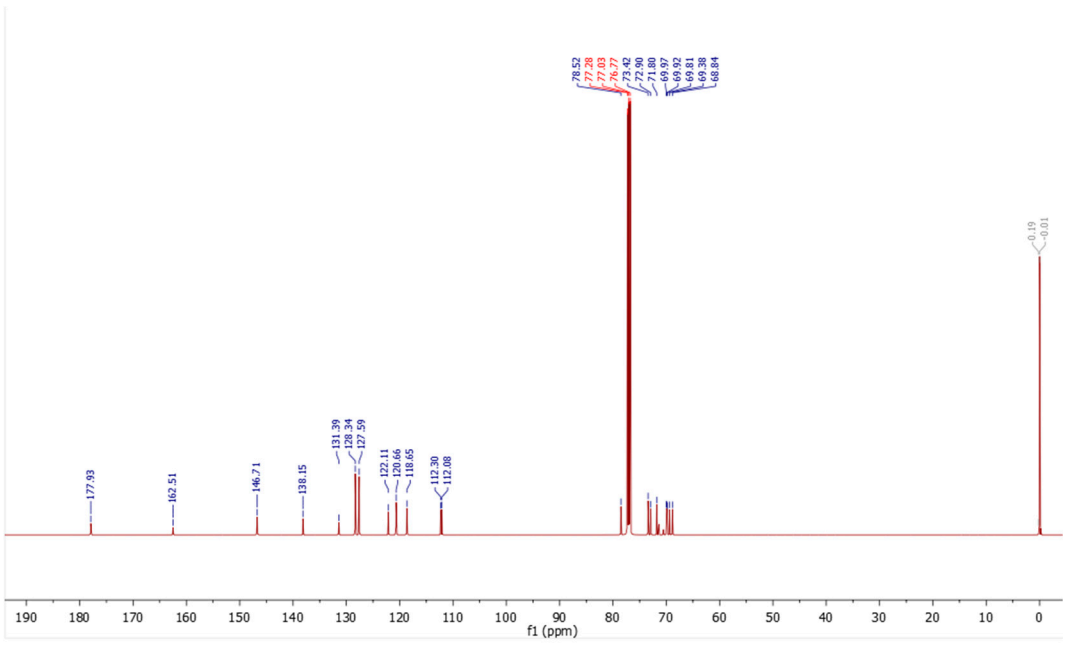


Figure S22. ^{13}C-NMR spectrum for **43** ($CDCl_3$)

2. Investigated ions in selectivity studies

The synthesized new crown ethers were studied by UV-Vis spectroscopy to investigate their complexation properties toward 24 different metal ions (Pb^{2+}, Li^{+}, Na^{+}, K^{+}, Rb^{+}, Ag^{+}, Cs^{+}, Mg^{2+}, Ca^{2+}, Mn^{2+}, Fe^{2+}, Fe^{3+}, Co^{2+}, Ni^{2+}, Cu^{2+}, Zn^{2+}, Sr^{2+}, Pd^{2+}, Cd^{2+}, Ba^{2+}, Hg^{2+}, Al^{3+}, Bi^{3+}, Cr^{3+}) compared to the Pb^{2+}-selective parent compound.

For appropriate water solubility, various counterions were present:

- carbonate counterion: Rb^{2+}, Li^{+}, Cs^{+}
- sulfate counterion: Mn^{2+}, Fe^{2+}
- hydroxide counterion: Ba^{2+}
- chloride counterion: Sr^{2+}, Al^{3+}, Hg^{2+}, Bi^{3+}, Fe^{3+}
- iodide counterion: Cd^{2+}
- acetate counterion: K^{+}, Ni^{2+}, Co^{2+}, Na^{+}, Cu^{2+}, Ag^{+}, Ca^{2+}, Zn^{2+}, Mg^{2+}
- nitrate counterion: Pb^{2+}, Cr^{3+}, Pd^{2+}.

The coordination of these counterions did not take place.