

Short synthesis of polyfunctional sp³-rich threonine-derived morpholine scaffolds

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ELECTRONIC SUPPLEMENTARY INFORMATION

¹ H and ¹³ C NMR spectra for compounds 8–11 , 13 , 16 , 18–22	S2-S15
Energy minimization of compound 19 conformers	S16
NOESY-1D spectra for compound 19	S17

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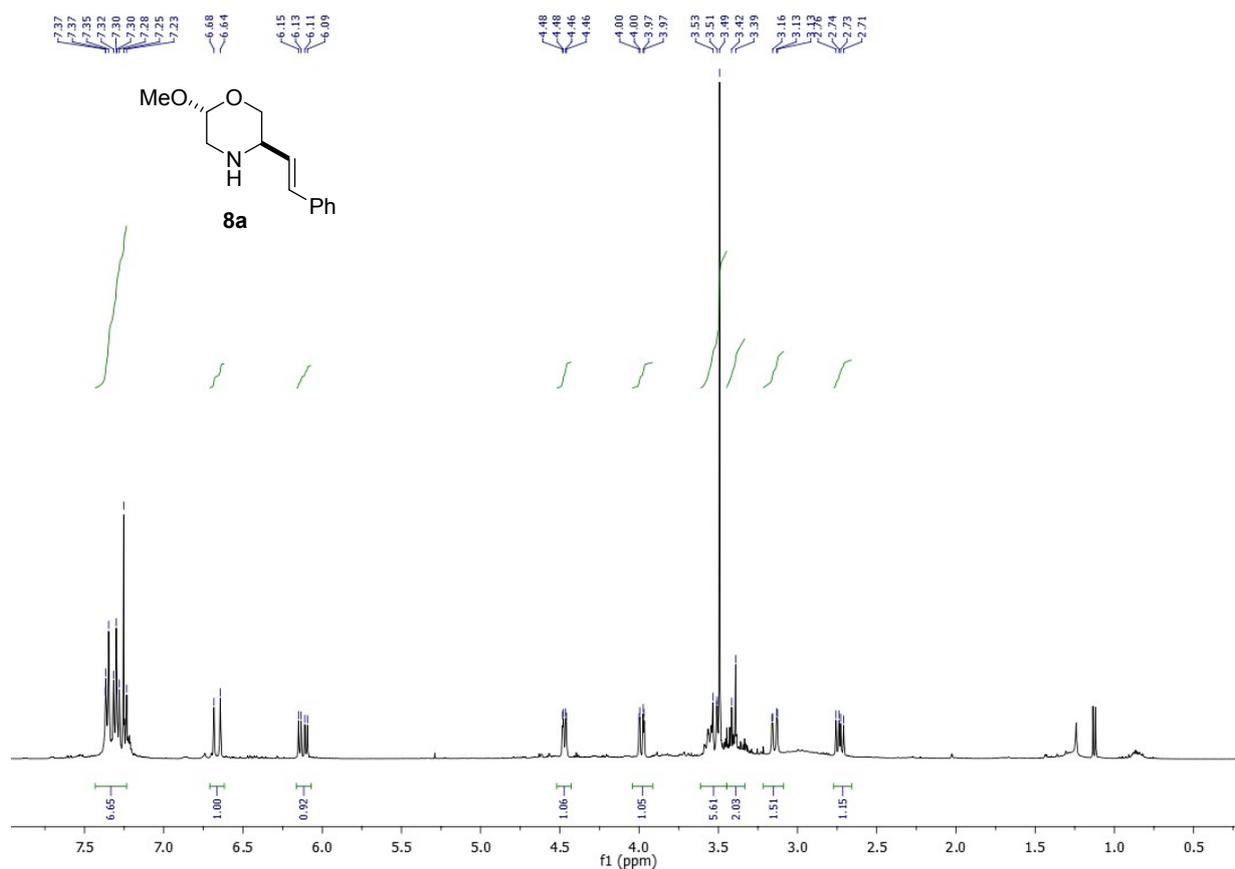


Figure S1. ¹H NMR spectrum of compound **8a** (400 MHz, CDCl₃).

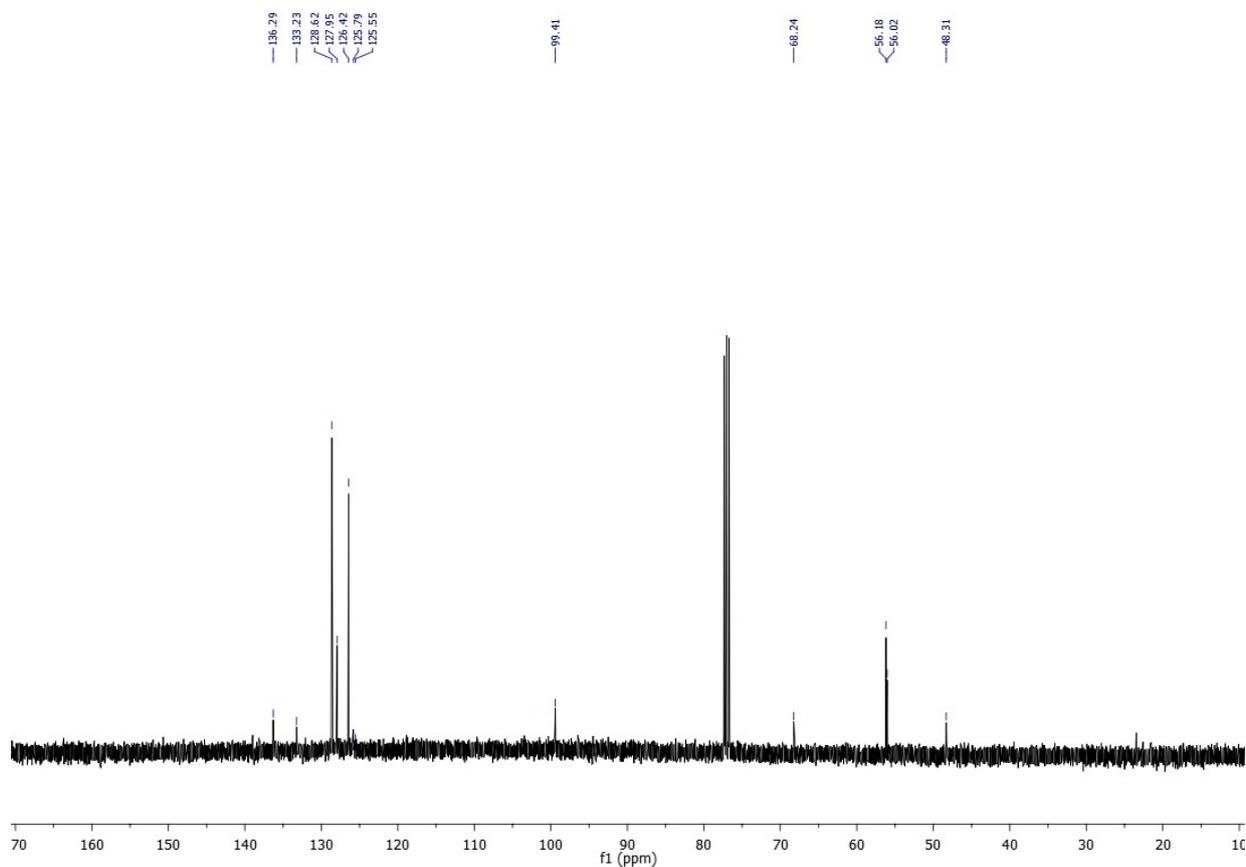


Figure S2. ¹³C NMR spectrum of compound **8a** (100 MHz, CDCl₃).

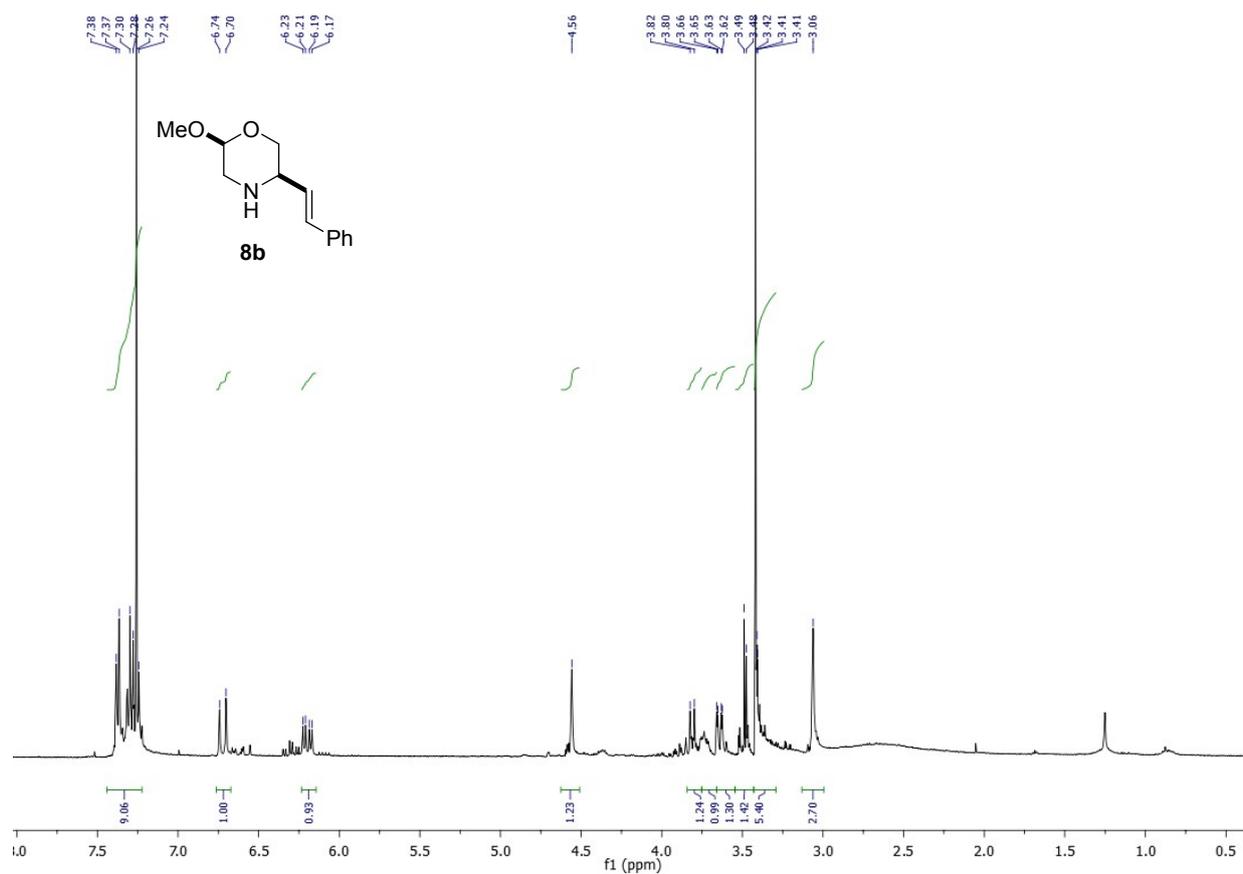


Figure S3. ¹H NMR spectrum of compound **8b** (400 MHz, CDCl₃).

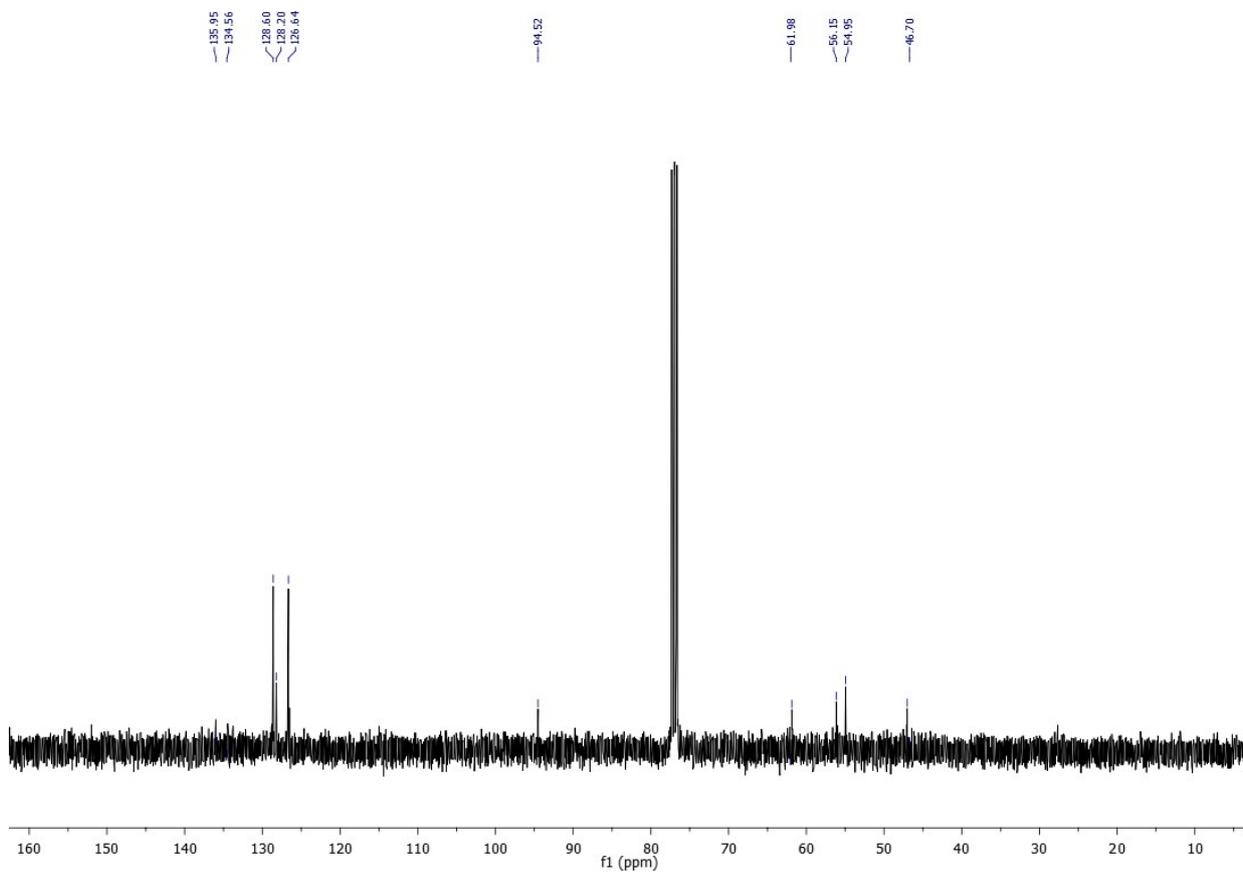


Figure S4. ¹³C NMR spectrum of compound **8b** (100 MHz, CDCl₃).

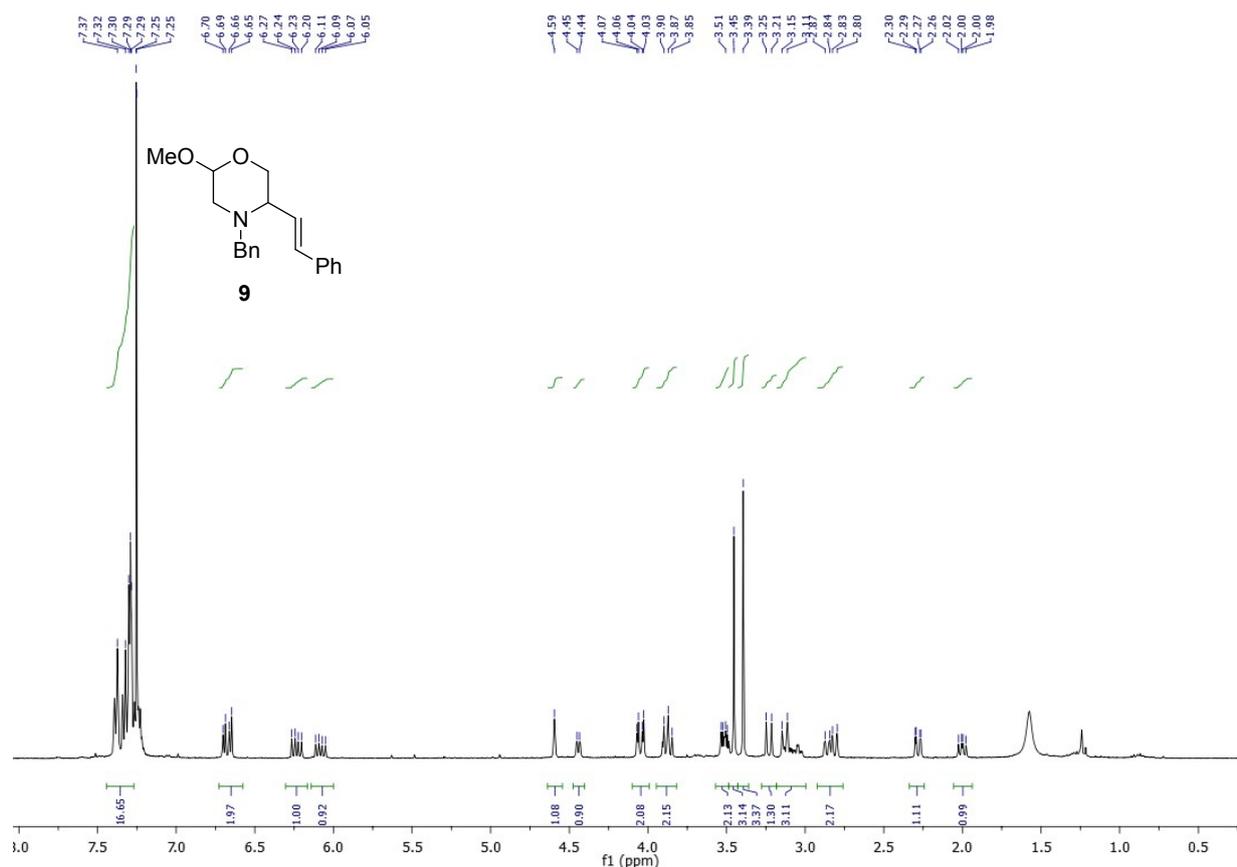


Figure S5. ¹H NMR spectrum of compound **9** (400 MHz, CDCl₃).

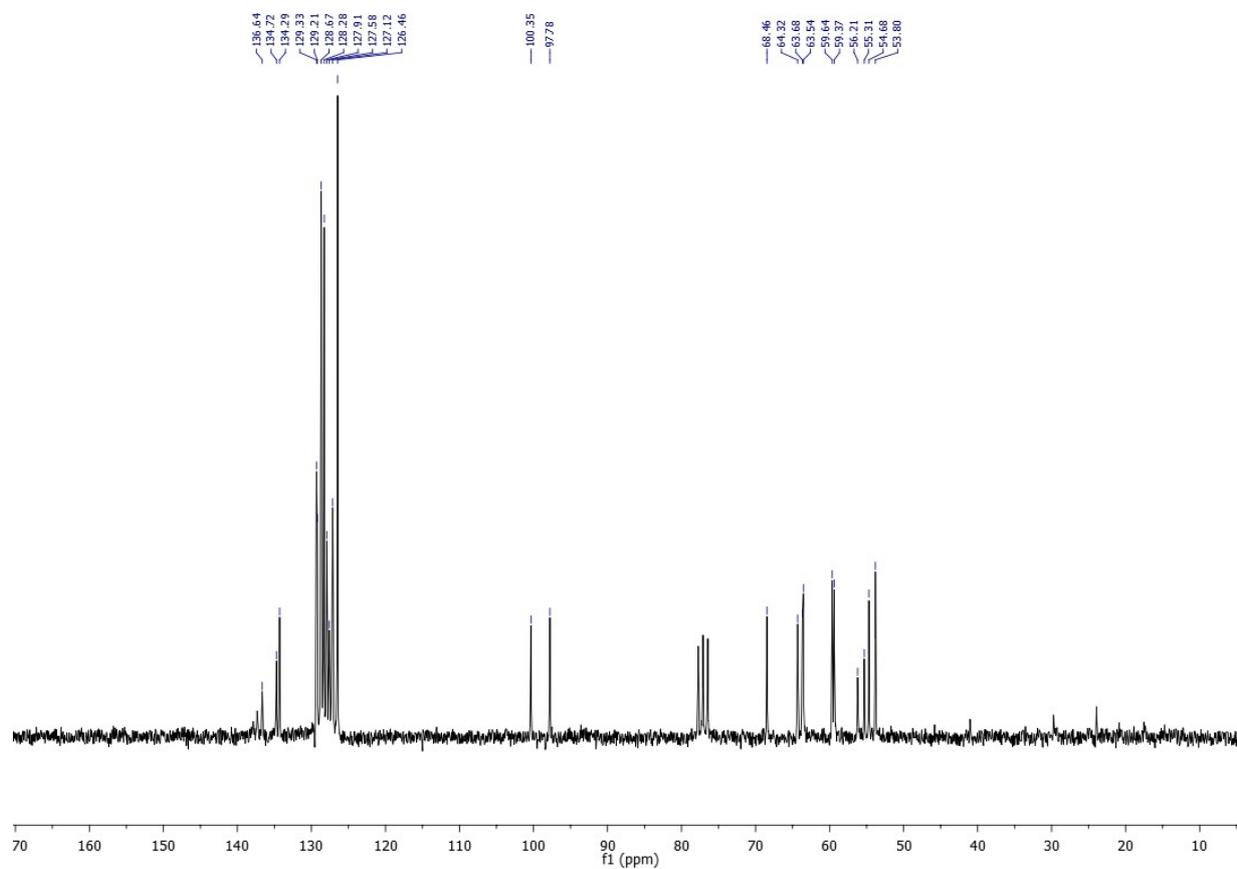


Figure S6. ¹³C NMR spectrum of compound **9** (50 MHz, CDCl₃).

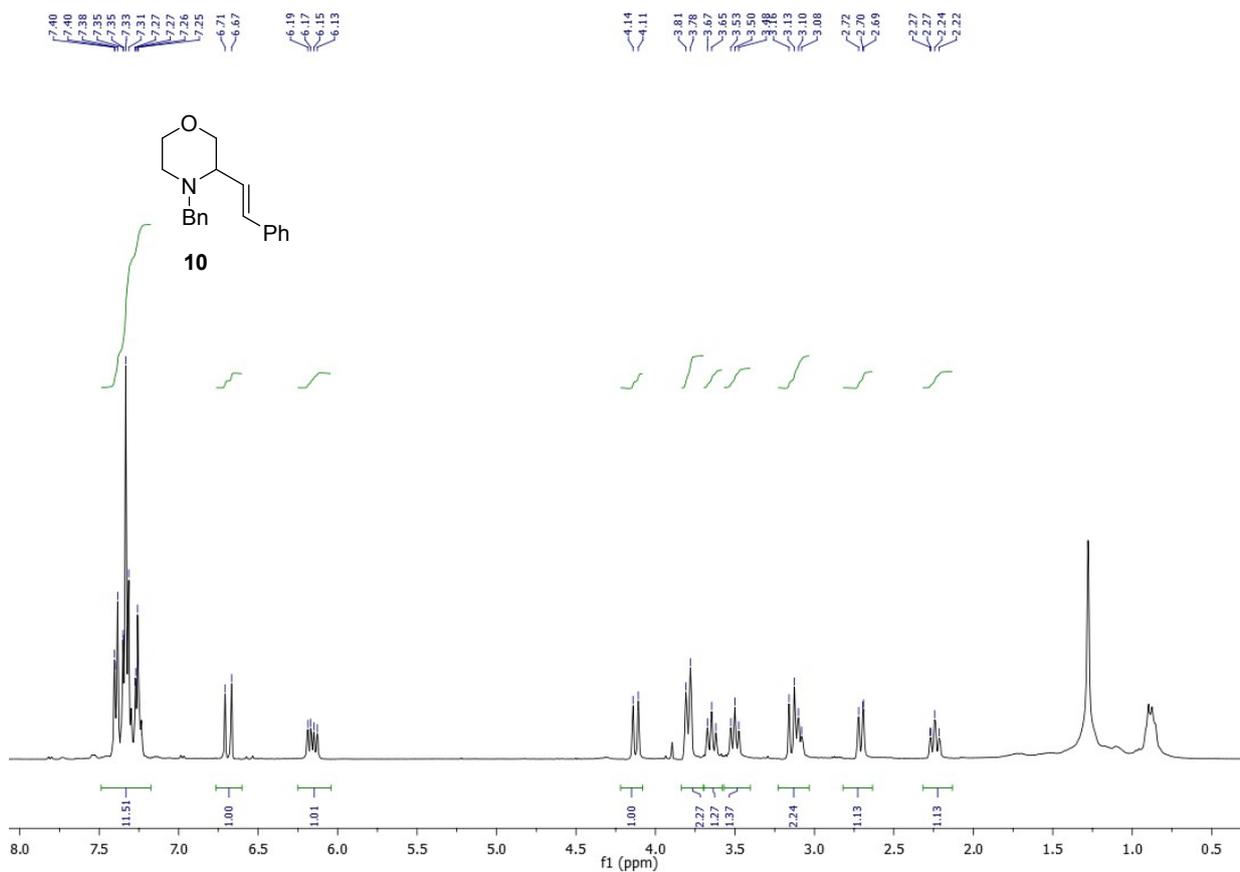


Figure S7. ¹H NMR spectrum of compound **10** (400 MHz, CDCl₃).

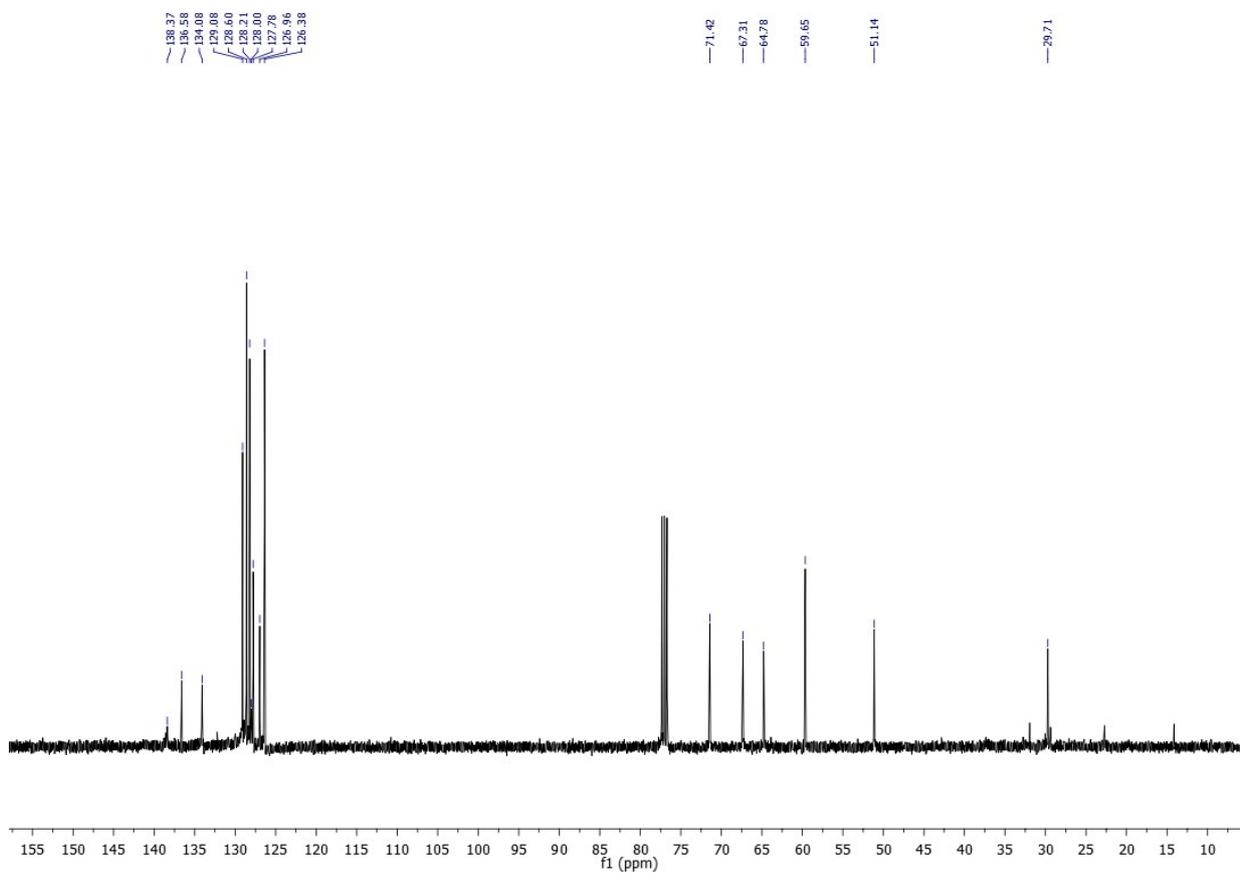


Figure S8. ¹³C NMR spectrum of compound **10** (100 MHz, CDCl₃).

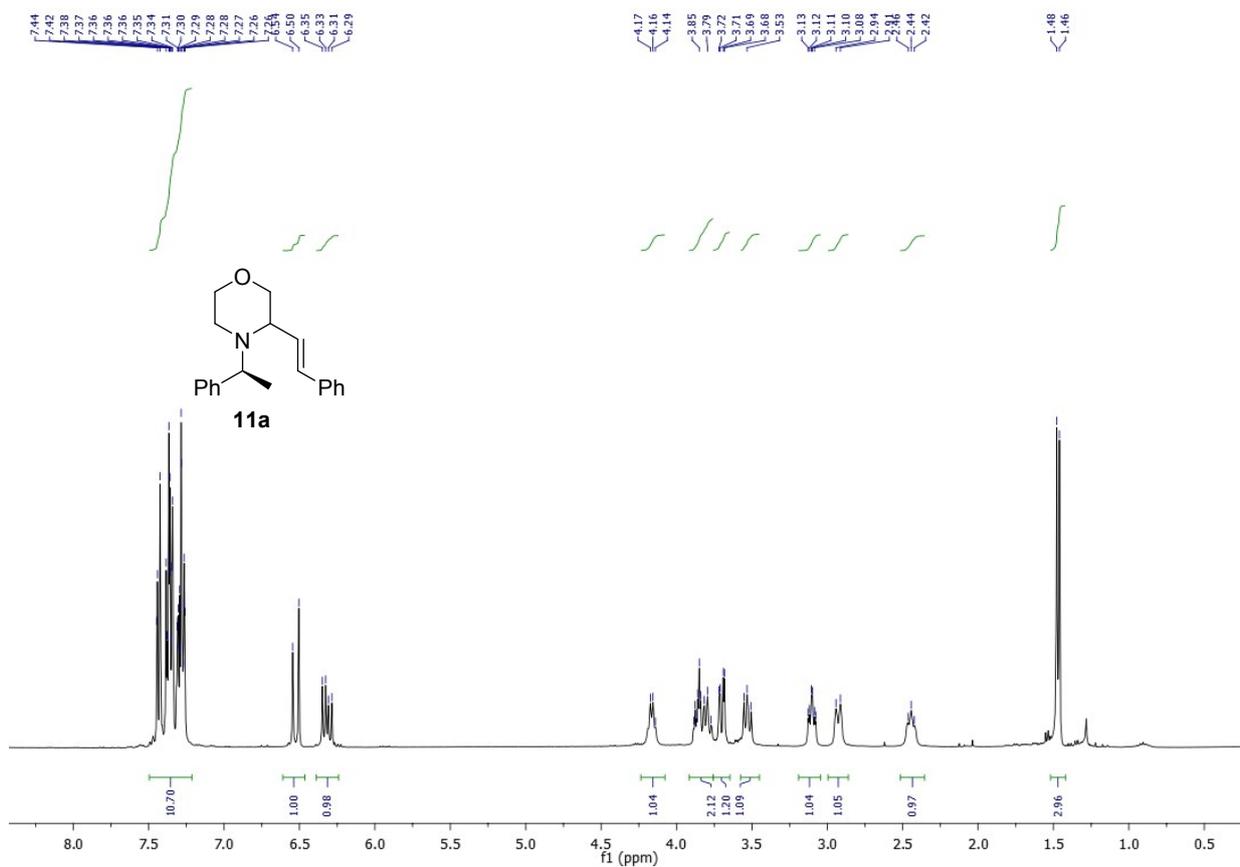


Figure S9. ¹H NMR spectrum of compound **11a** (400 MHz, CDCl₃).

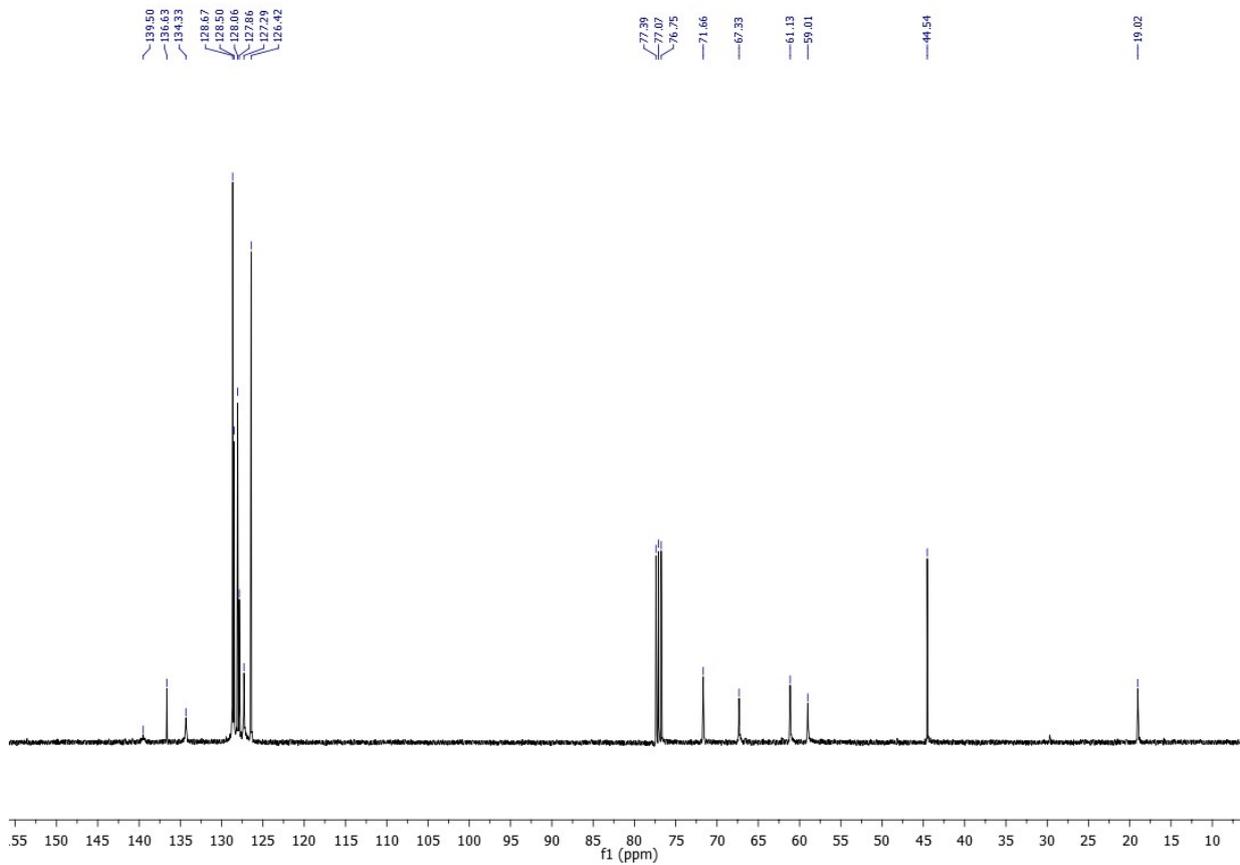


Figure S10. ¹³C NMR spectrum of compound **11a** (100 MHz, CDCl₃).

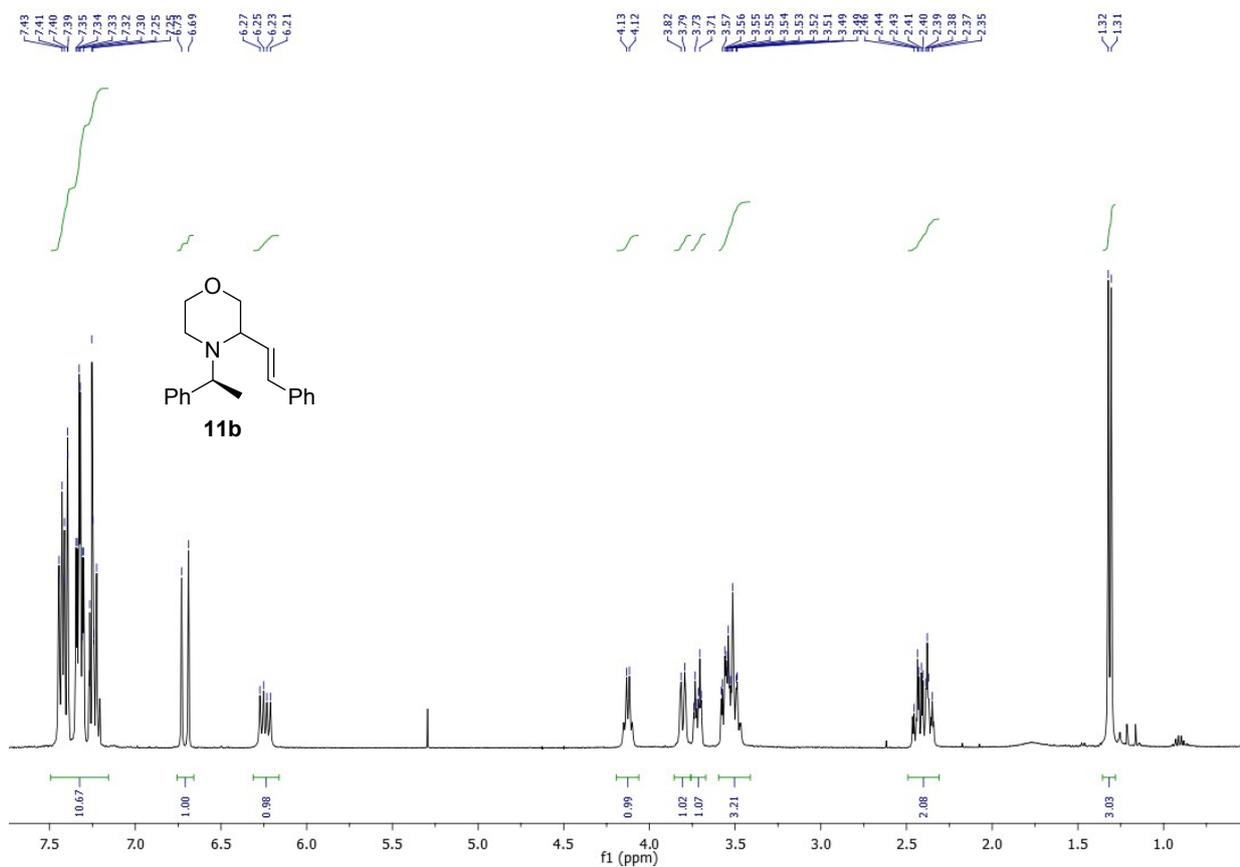


Figure S11. ¹H NMR spectrum of compound **11b** (400 MHz, CDCl₃).

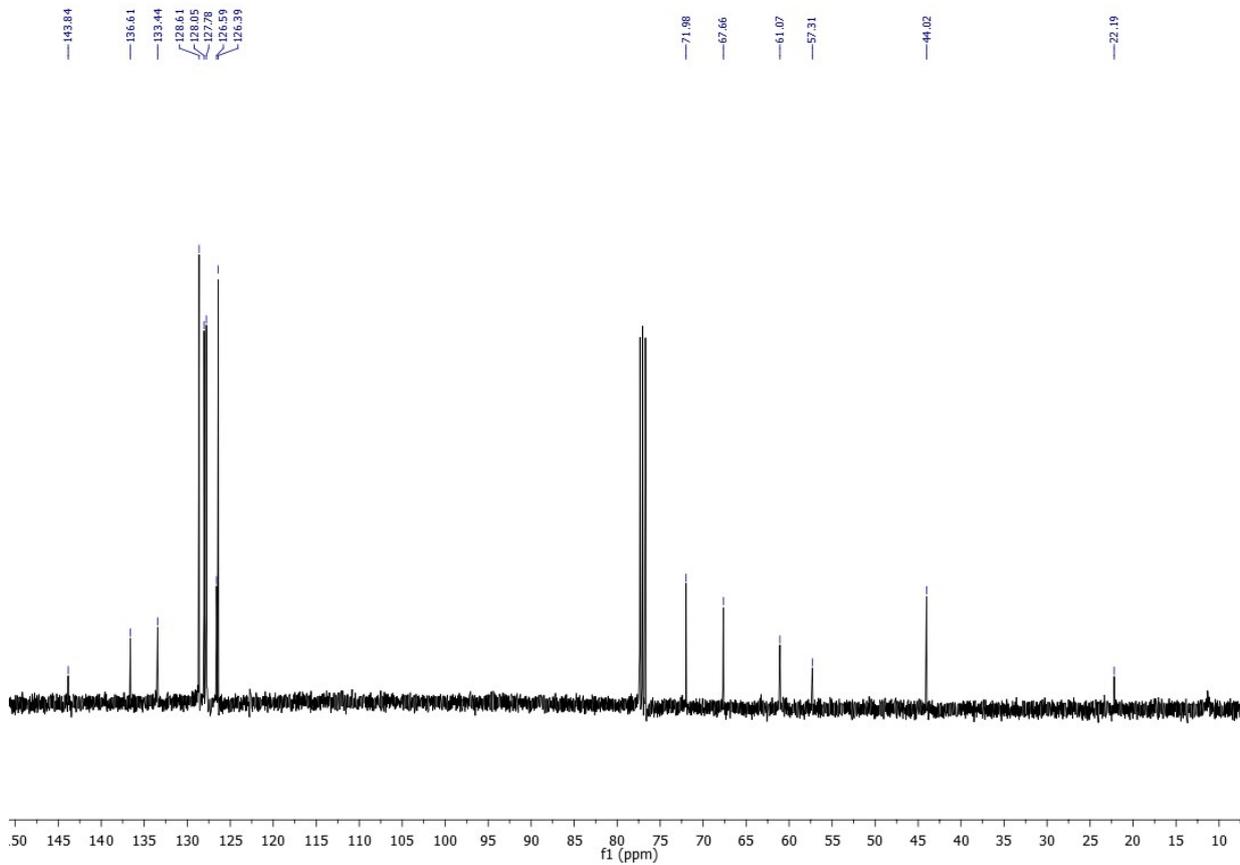


Figure S12. ¹³C NMR spectrum of compound **11b** (100 MHz, CDCl₃).

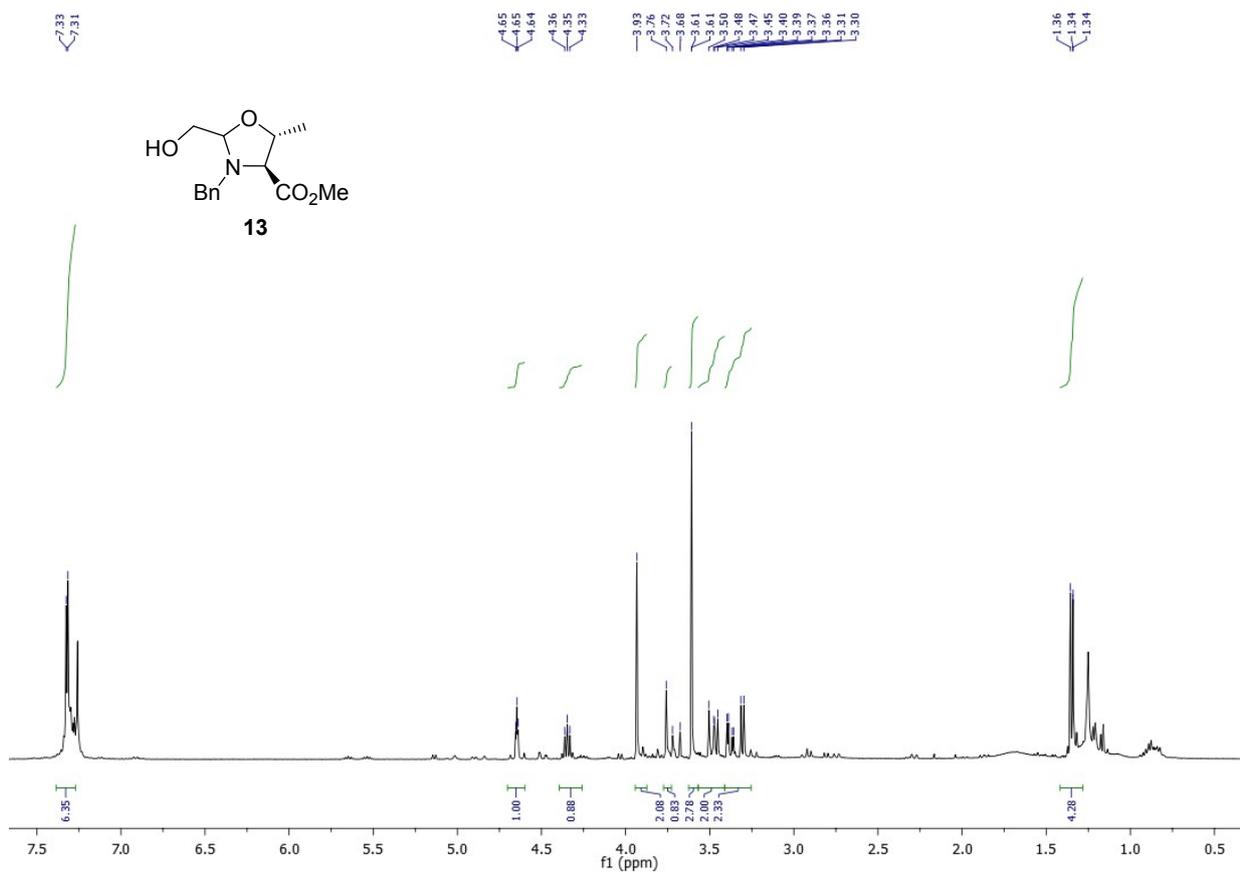


Figure S13. ¹H NMR spectrum of compound **13** (400 MHz, CDCl₃).

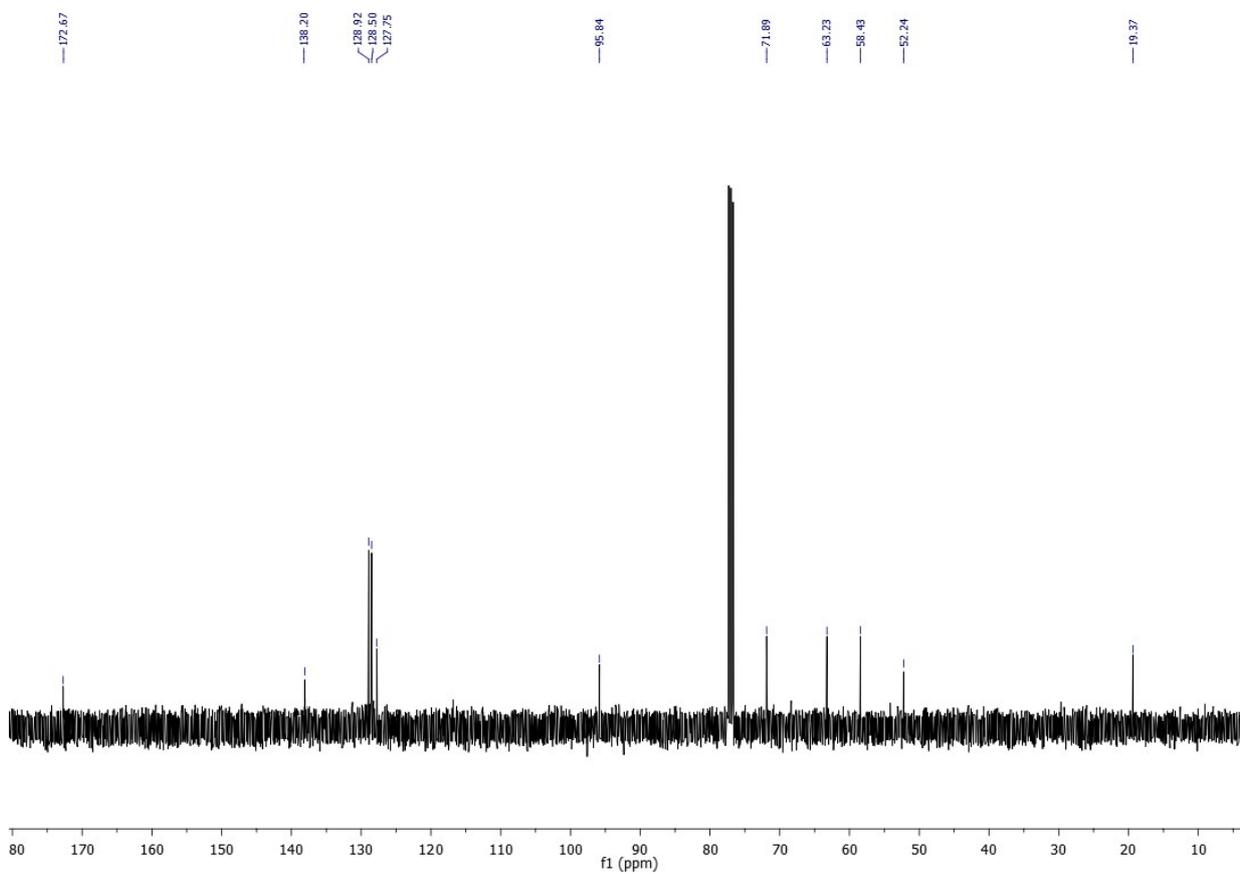


Figure S14. ¹³C NMR spectrum of compound **13** (100 MHz, CDCl₃).

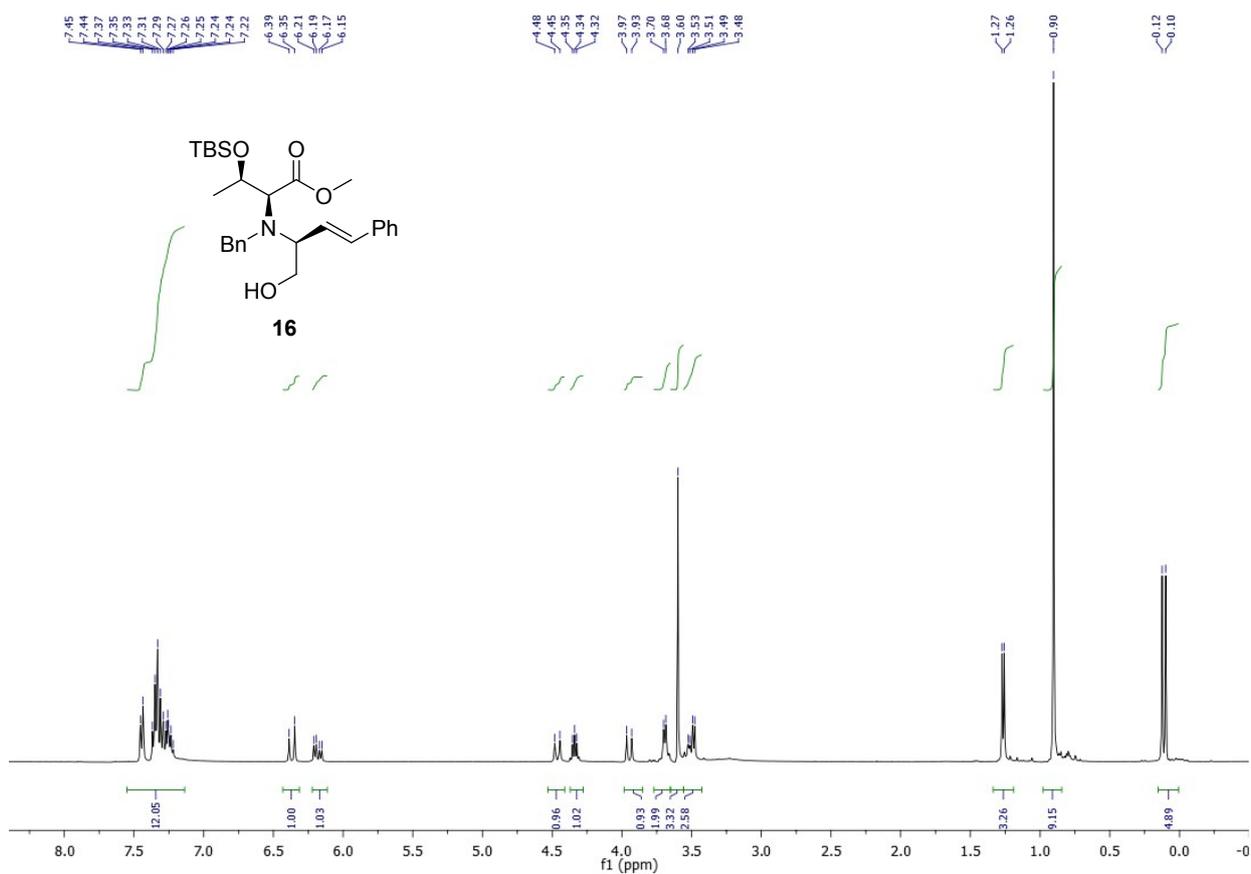


Figure S15. ¹H NMR spectrum of compound **16** (400 MHz, CDCl₃).

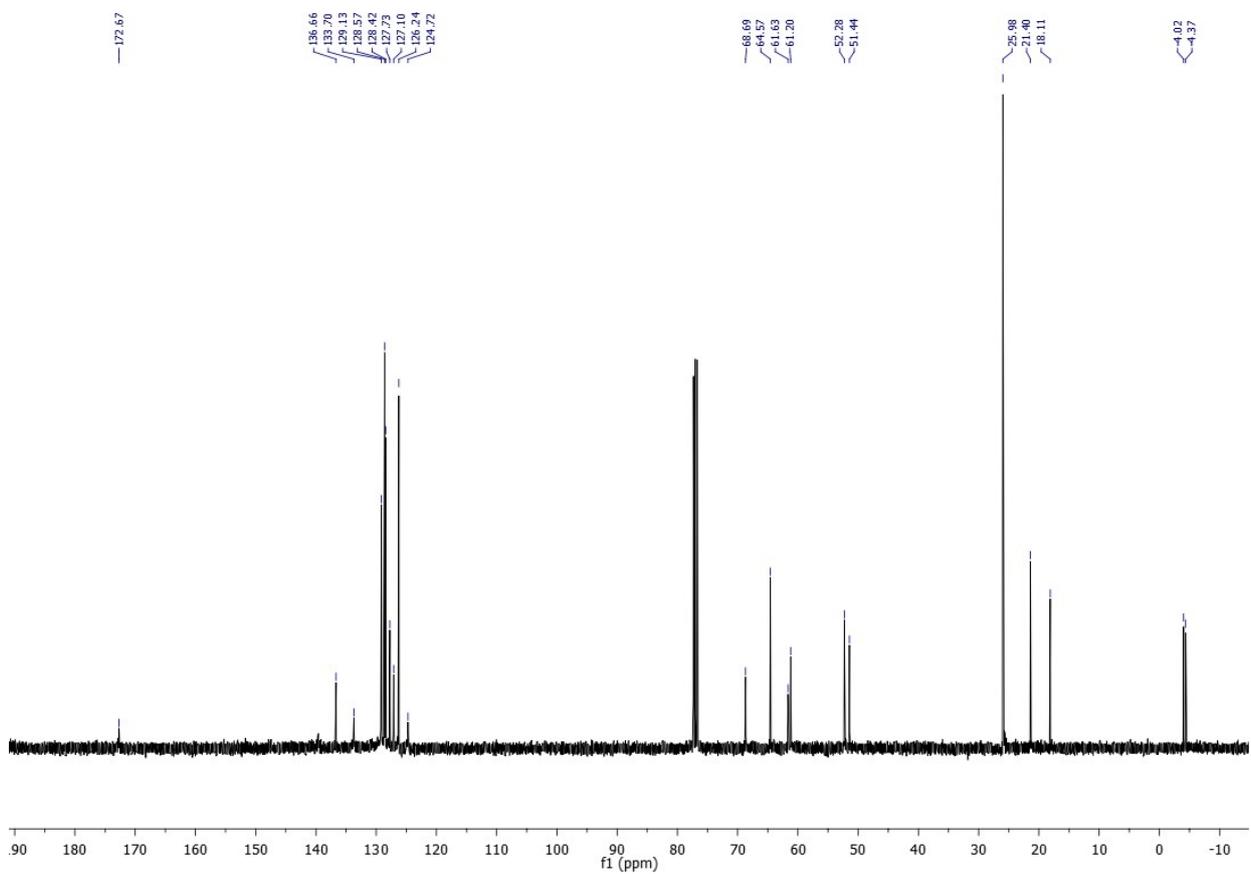


Figure S16. ¹³C NMR spectrum of compound **16** (100 MHz, CDCl₃).

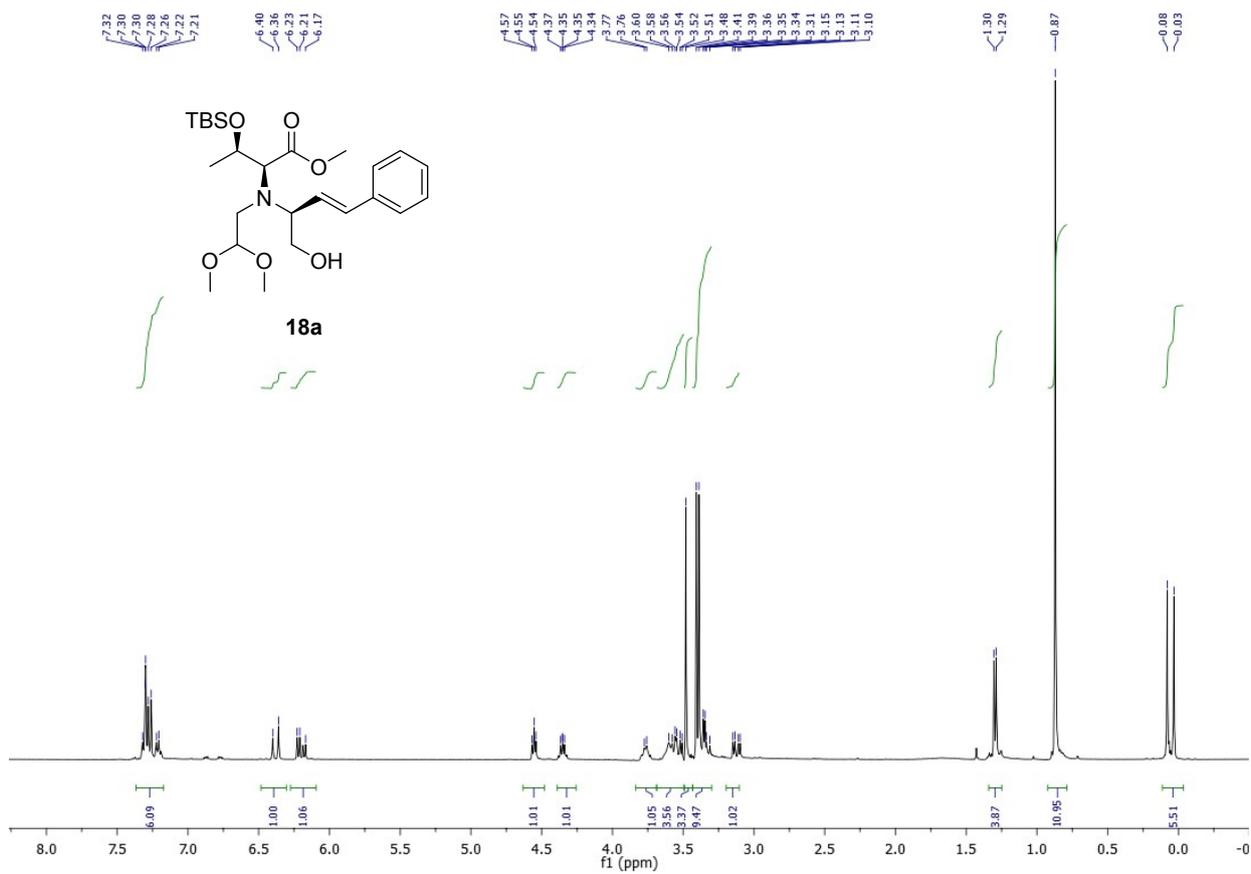


Figure S17. ^1H NMR spectrum of compound **18a** (400 MHz, CDCl_3).

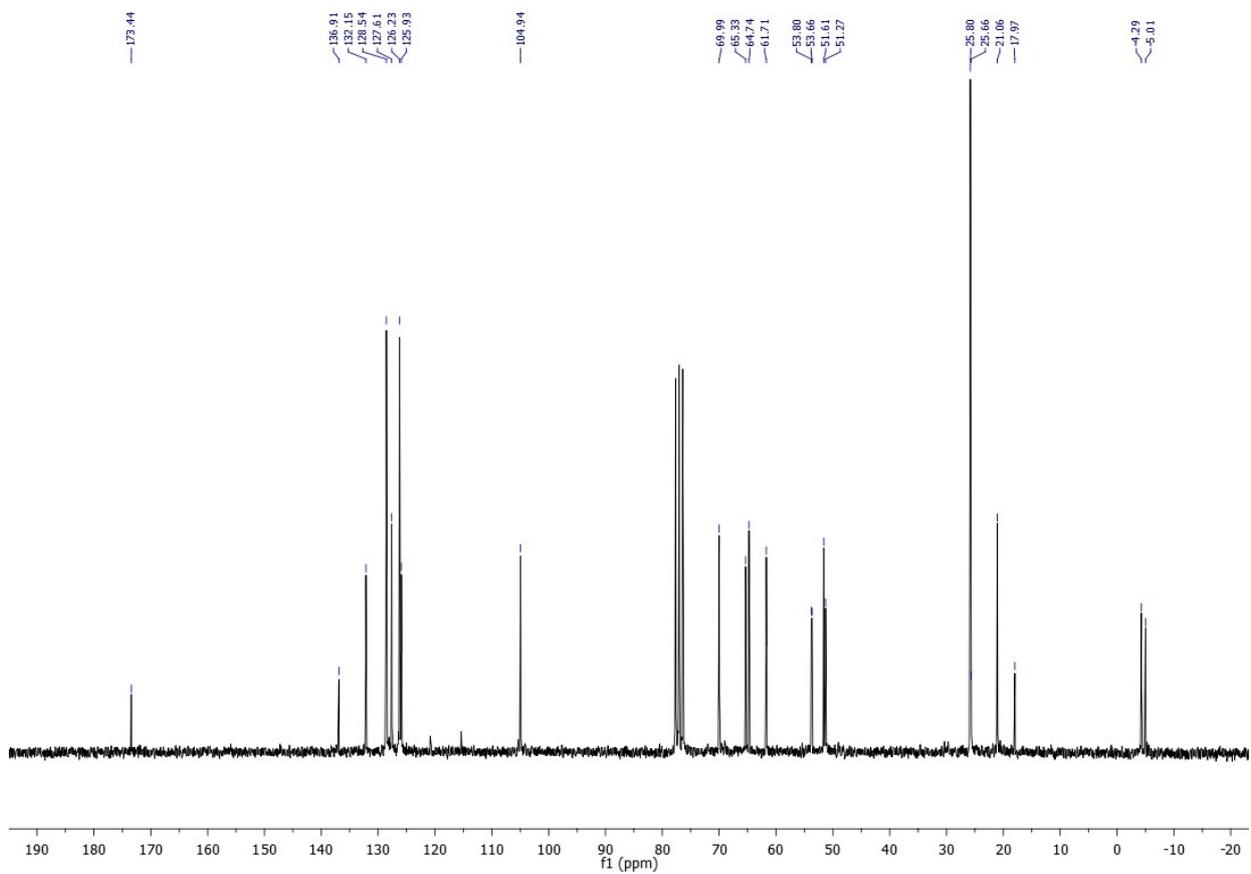


Figure S18. ^{13}C NMR spectrum of compound **18a** (100 MHz, CDCl_3).

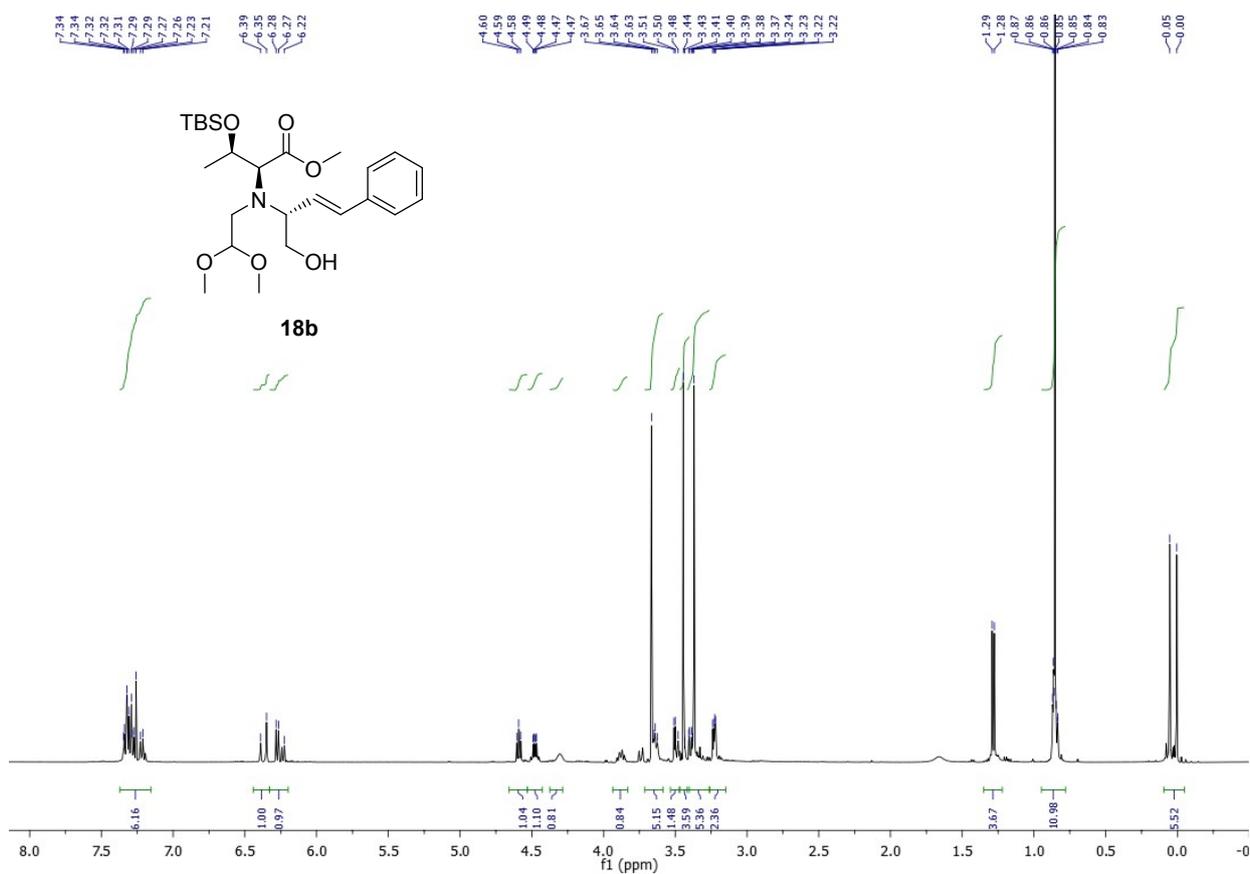


Figure S19. ¹H NMR spectrum of compound **18b** (400 MHz, CDCl₃).

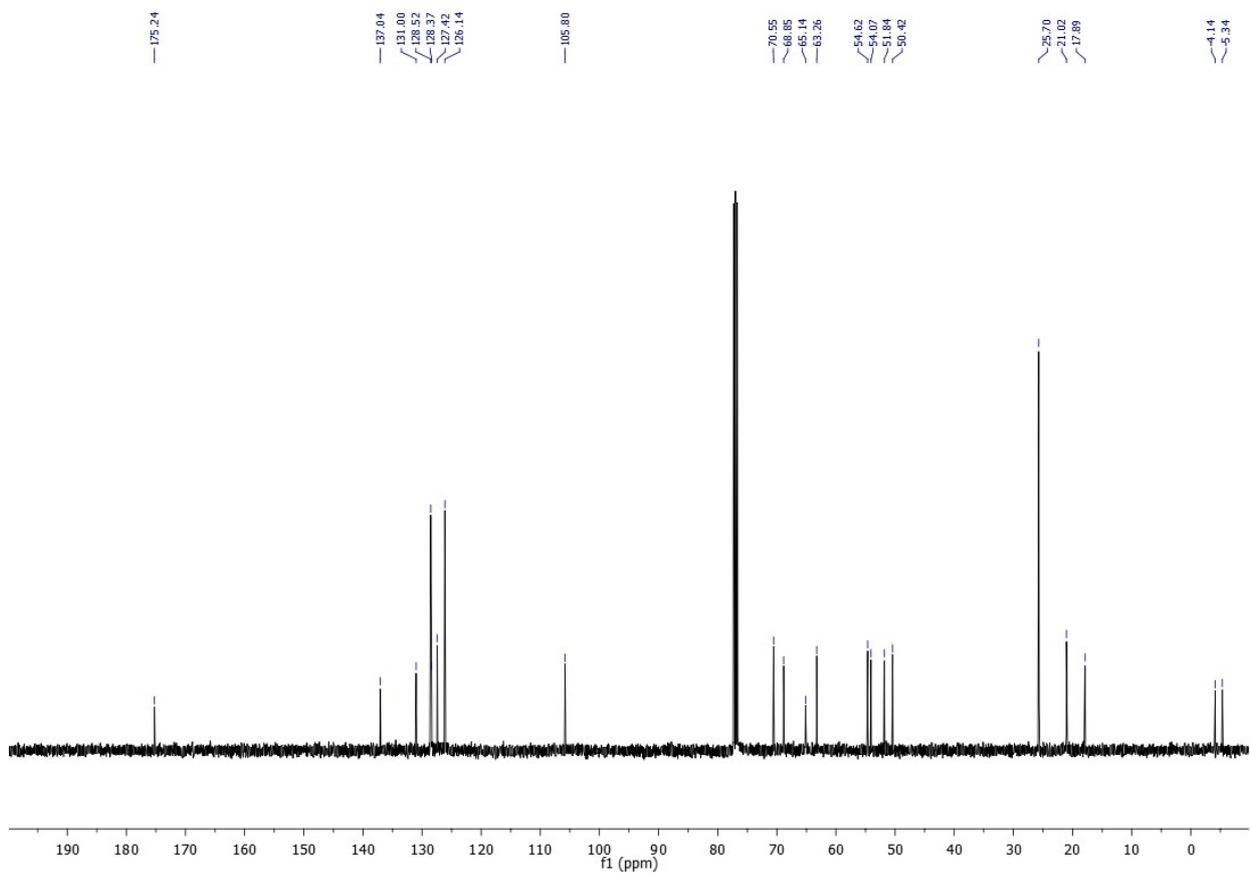


Figure S20. ¹³C NMR spectrum of compound **18b** (100 MHz, CDCl₃).

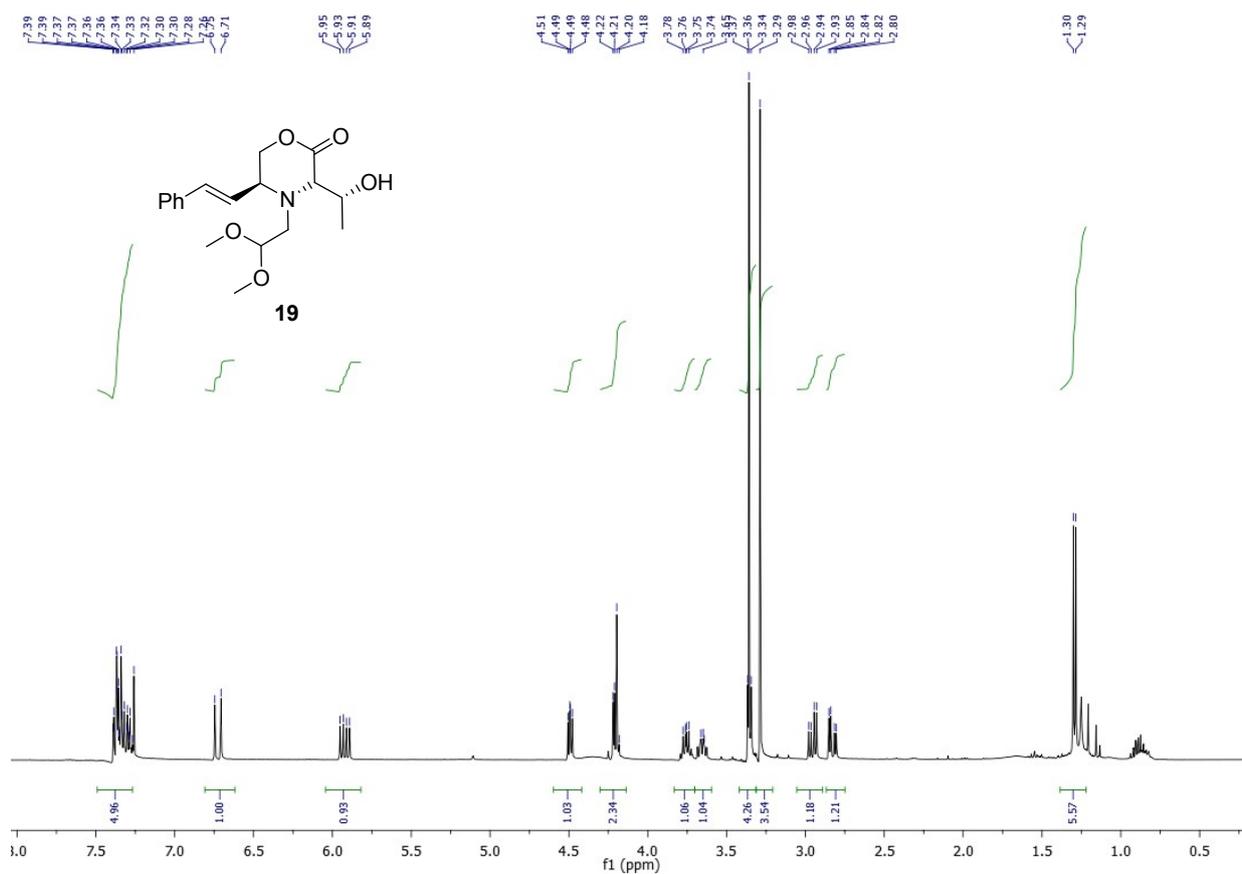


Figure S21. ¹H NMR spectrum of compound **19** (400 MHz, CDCl₃).

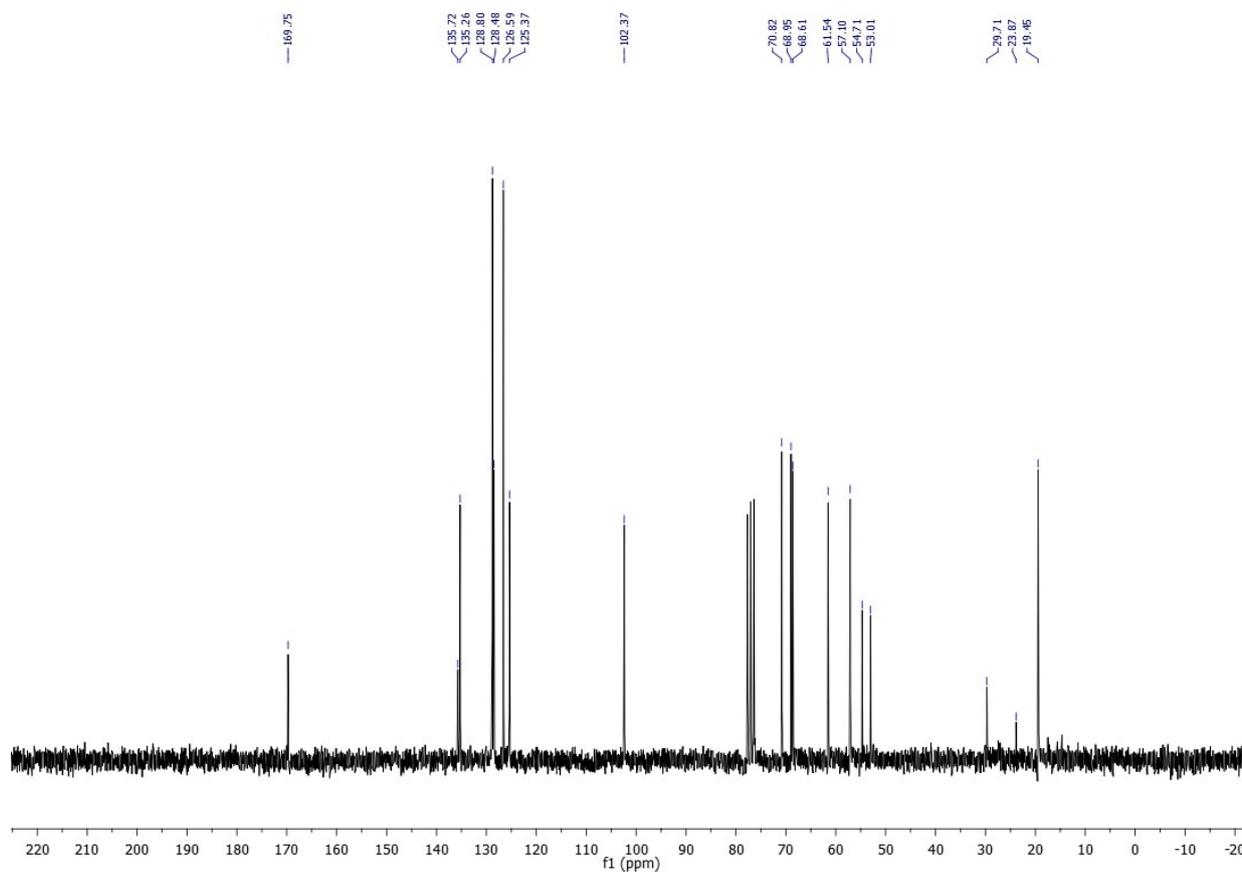


Figure S22. ¹³C NMR spectrum of compound **19** (100 MHz, CDCl₃).

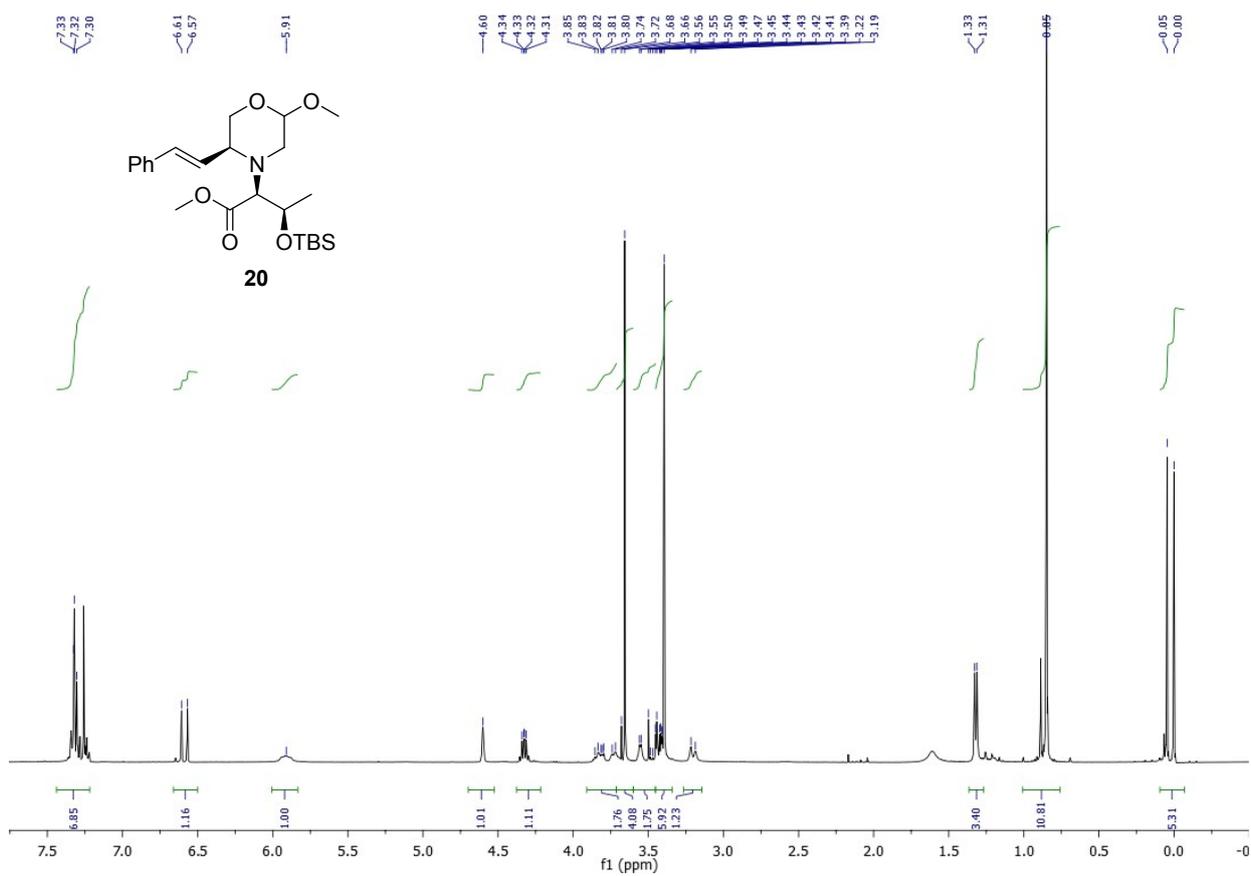


Figure S25. ¹H NMR spectrum of compound **20** (400 MHz, CDCl₃).

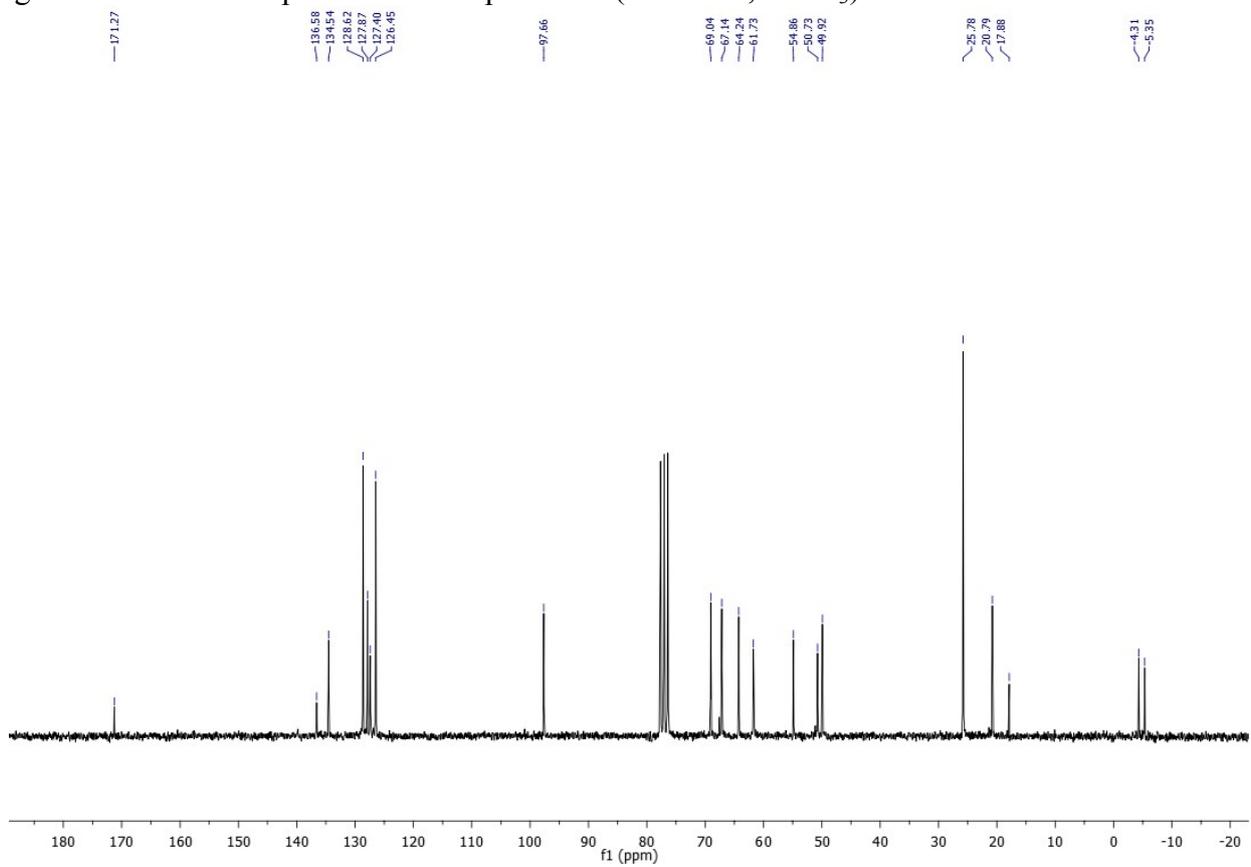


Figure S26. ¹³C NMR spectrum of compound **20** (100 MHz, CDCl₃).

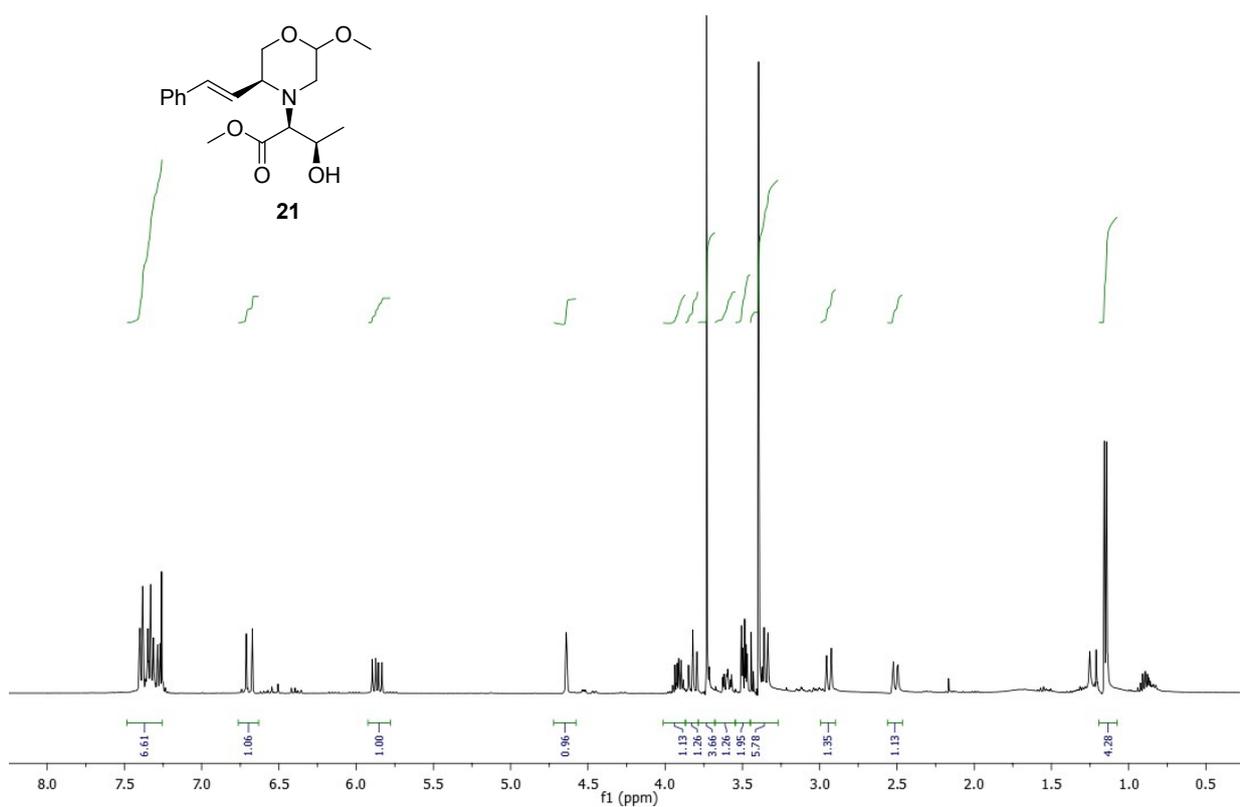


Figure S27. ^1H NMR spectrum of compound **21** (400 MHz, CDCl_3).

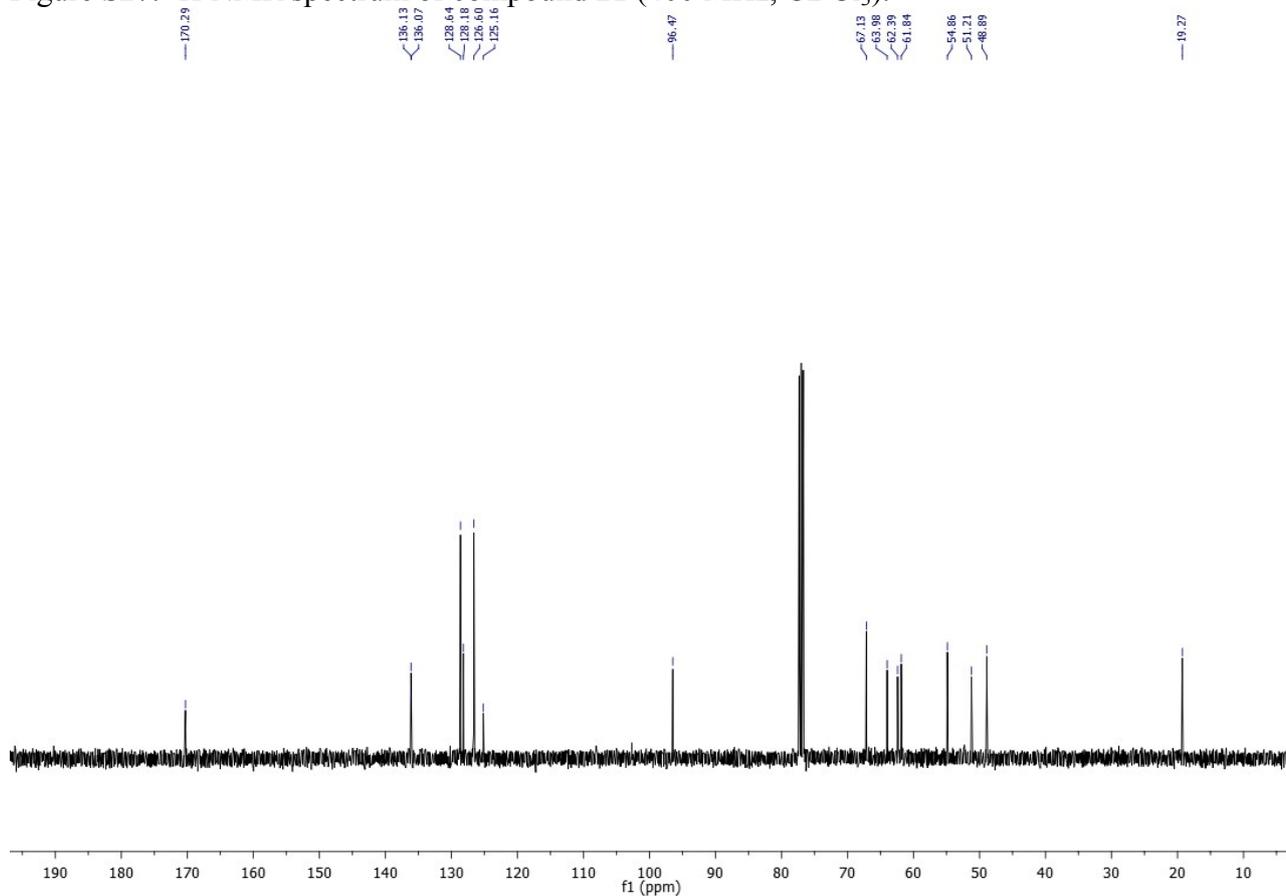


Figure S28. ^{13}C NMR spectrum of compound **21** (100 MHz, CDCl_3).

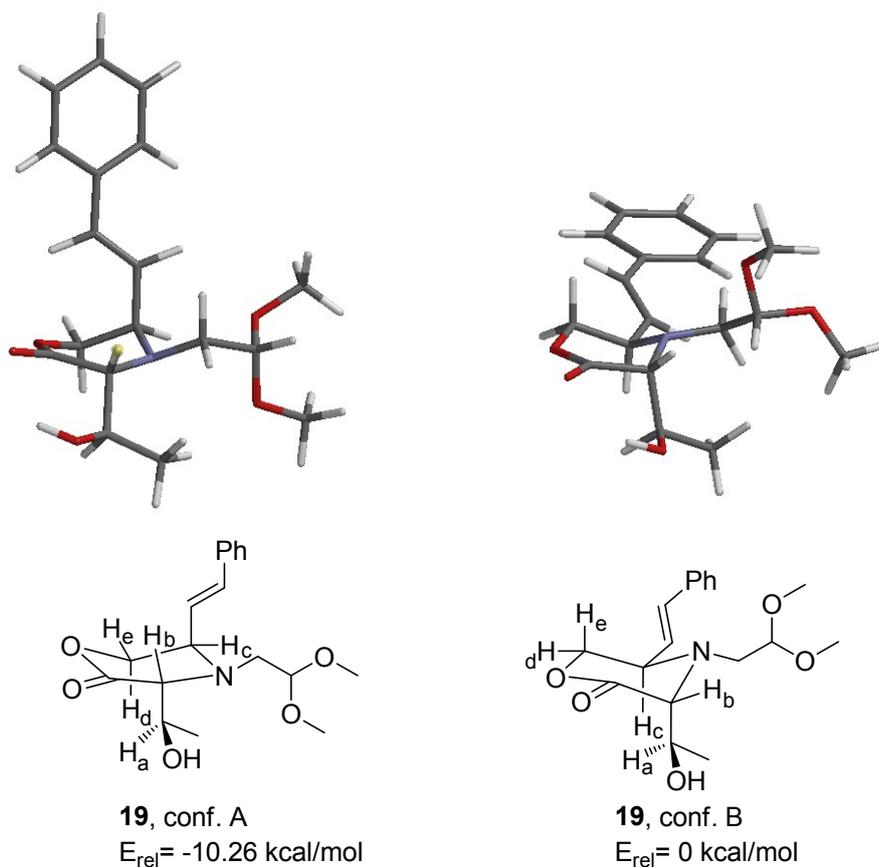


Figure S31. Minimum energy conformations of **19** resulting from geometry optimization using the AM1 semiempirical method and ab initio single point calculation of the electronic properties at the 3-21G*/HF level of quantum chemical theory (SPARTAN software, v. 5.147).

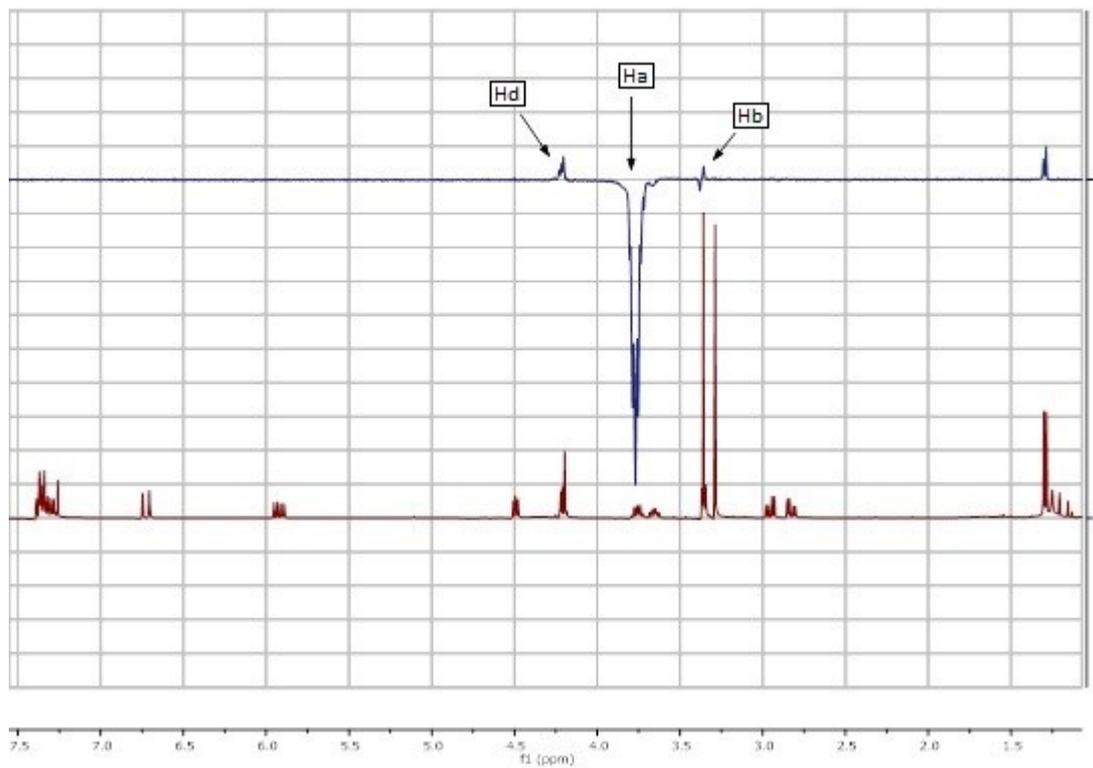
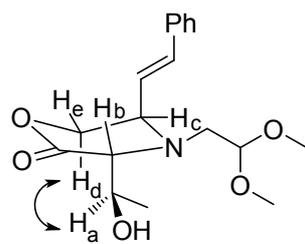


Figure S32. 1D-NOESY spectrum of compound **19** (400 MHz, $CDCl_3$), using 500 ms as mixing time.