

Supporting information

Directed lithiation of protected 4-chloropyrrolopyrimidine: addition to aldehydes and ketones aided by bis(2-dimethylaminoethyl)ether

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NMR spectra of the products 3a-p

Compound 3a

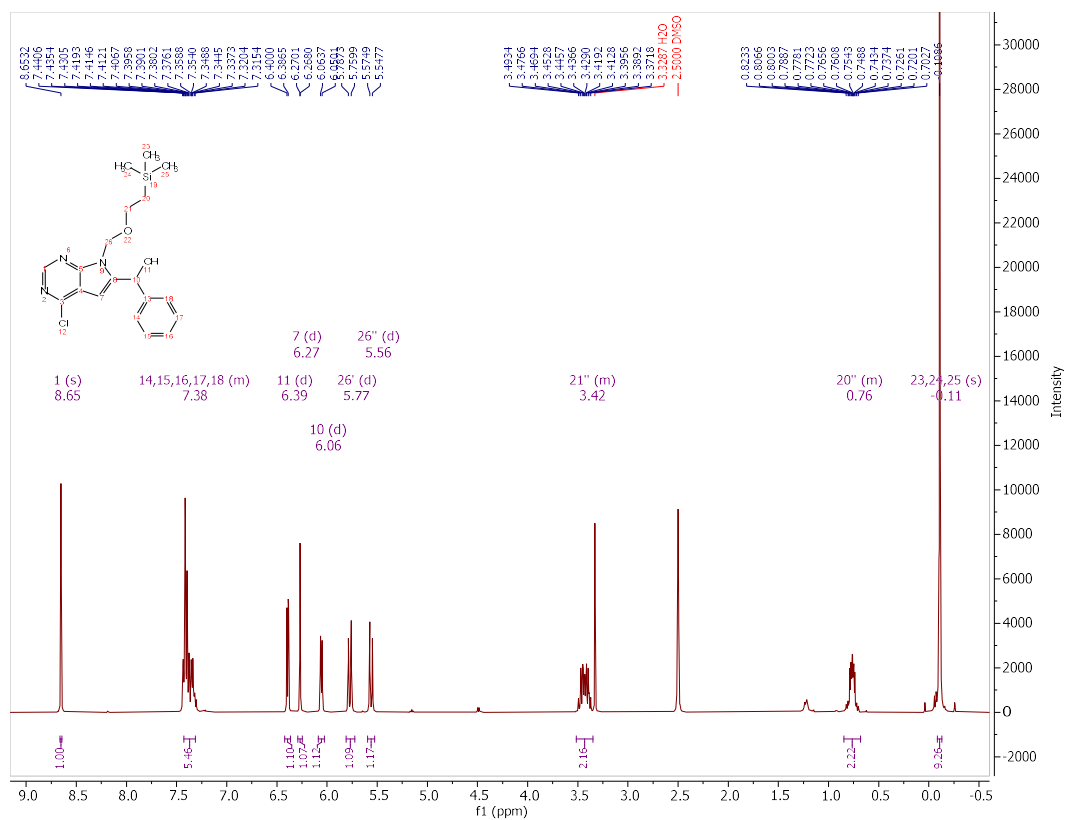


Figure S1. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 3a.

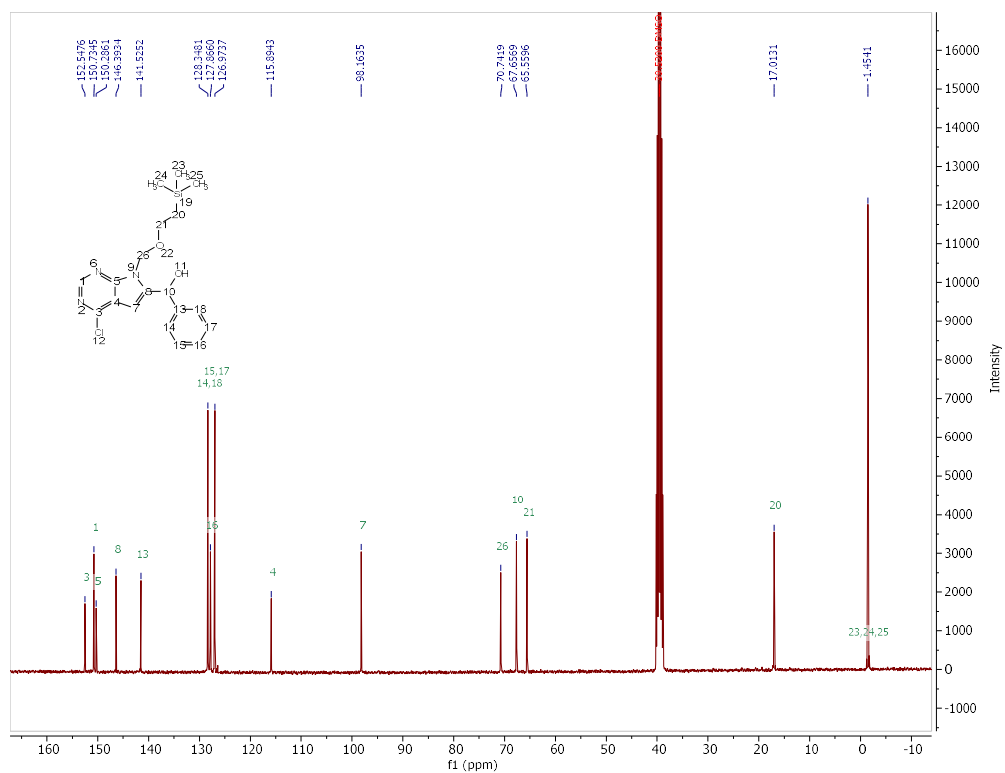


Figure S2. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3a.

Compound 3b

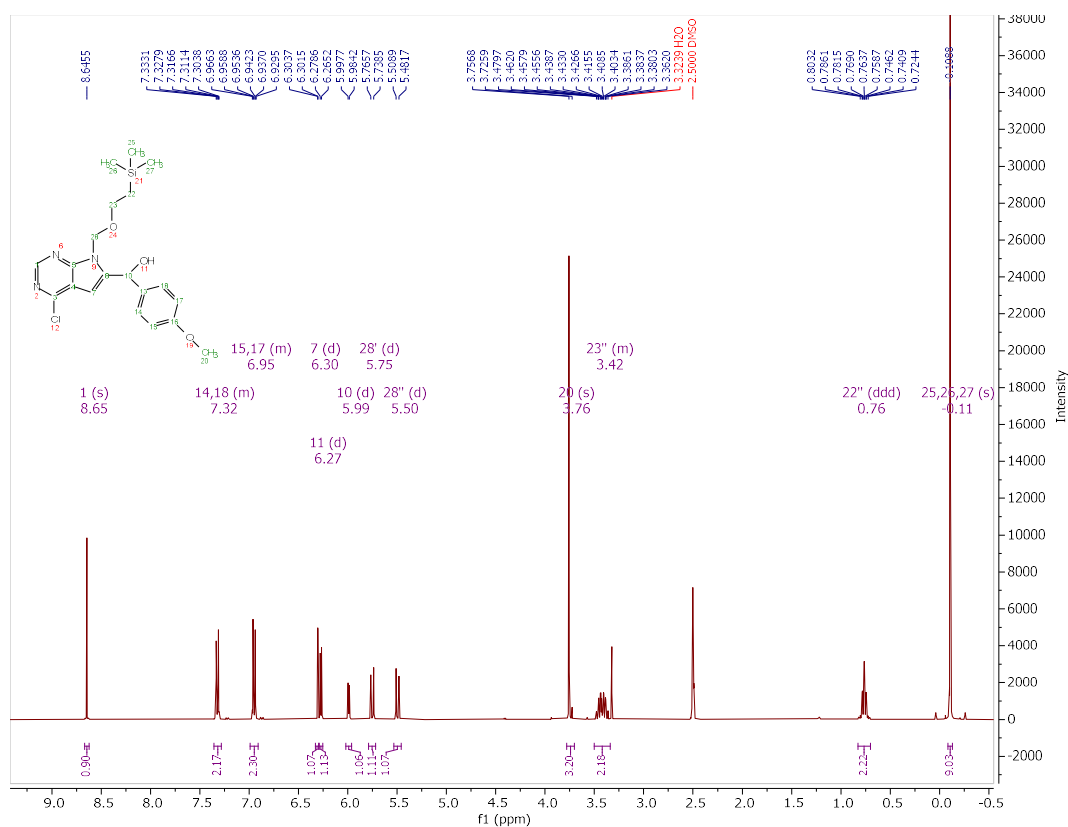


Figure S3. ¹H NMR (600 MHz, DMSO-*d*₆) spectrum of compound 3b.

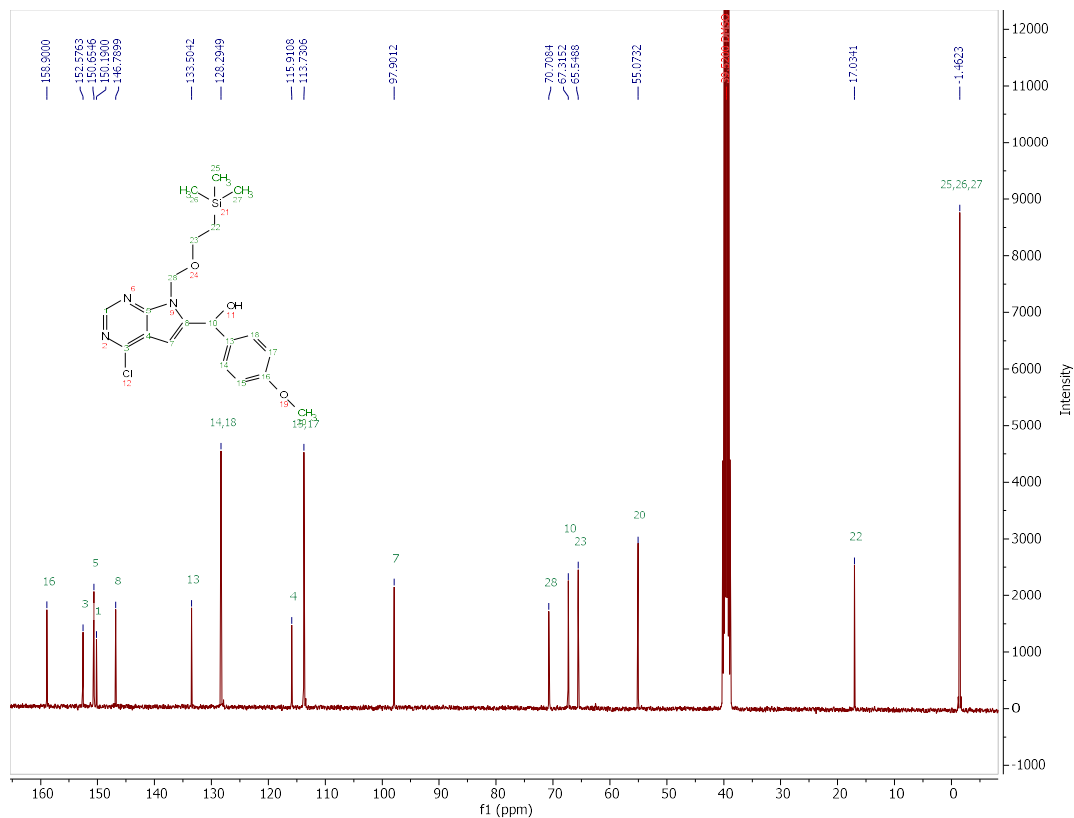


Figure S4. ¹³C NMR (150 MHz, DMSO-*d*₆) spectrum of compound 3b.

Compound 3c

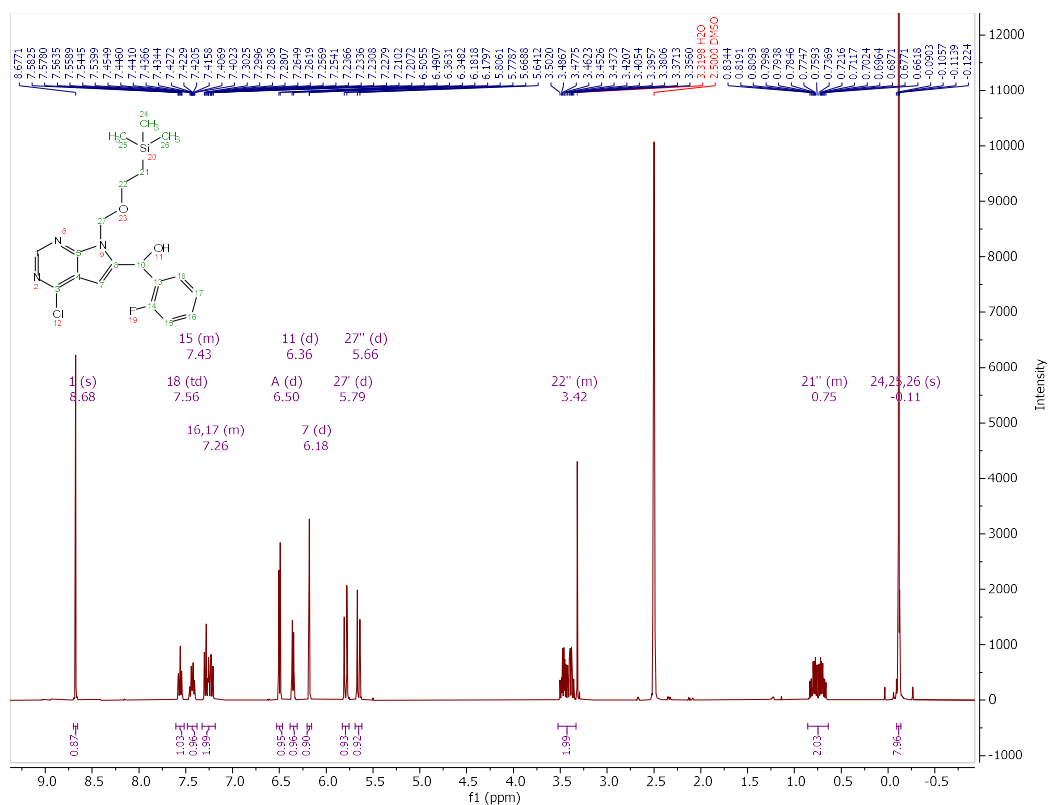


Figure S5. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 3c.

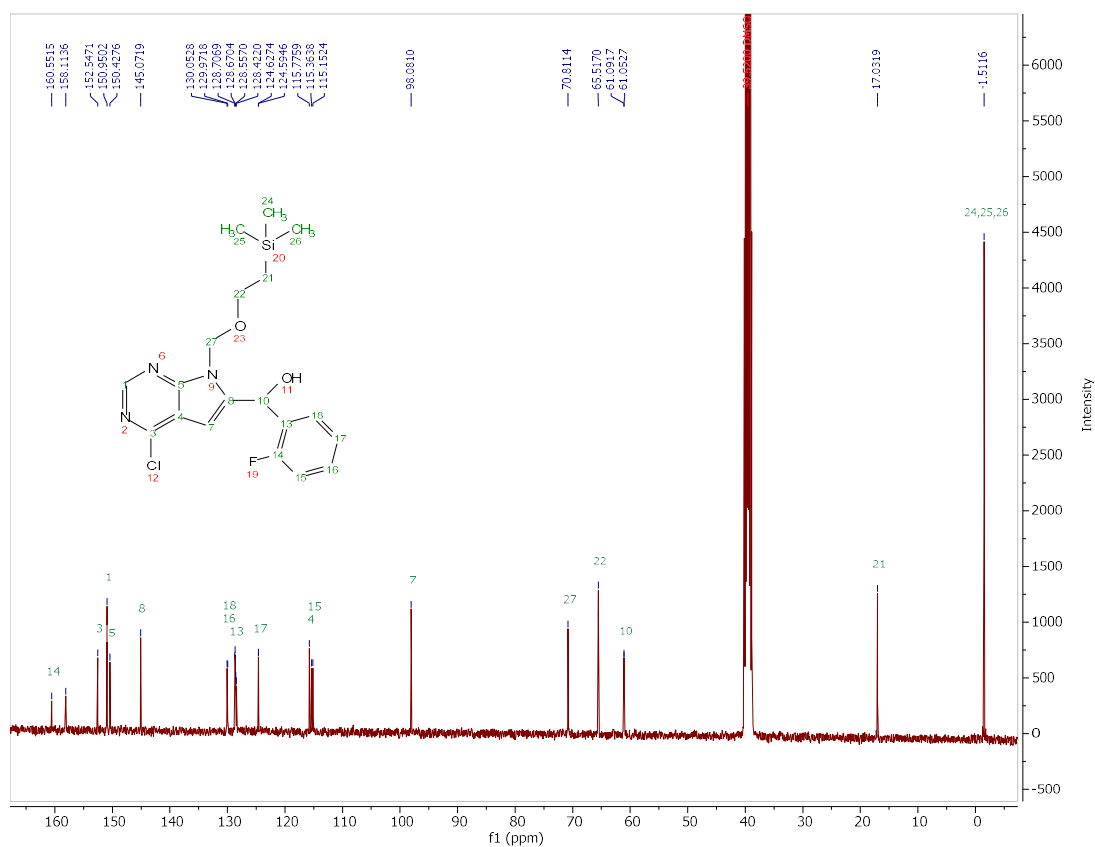


Figure S6. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3c.

Compound 3d

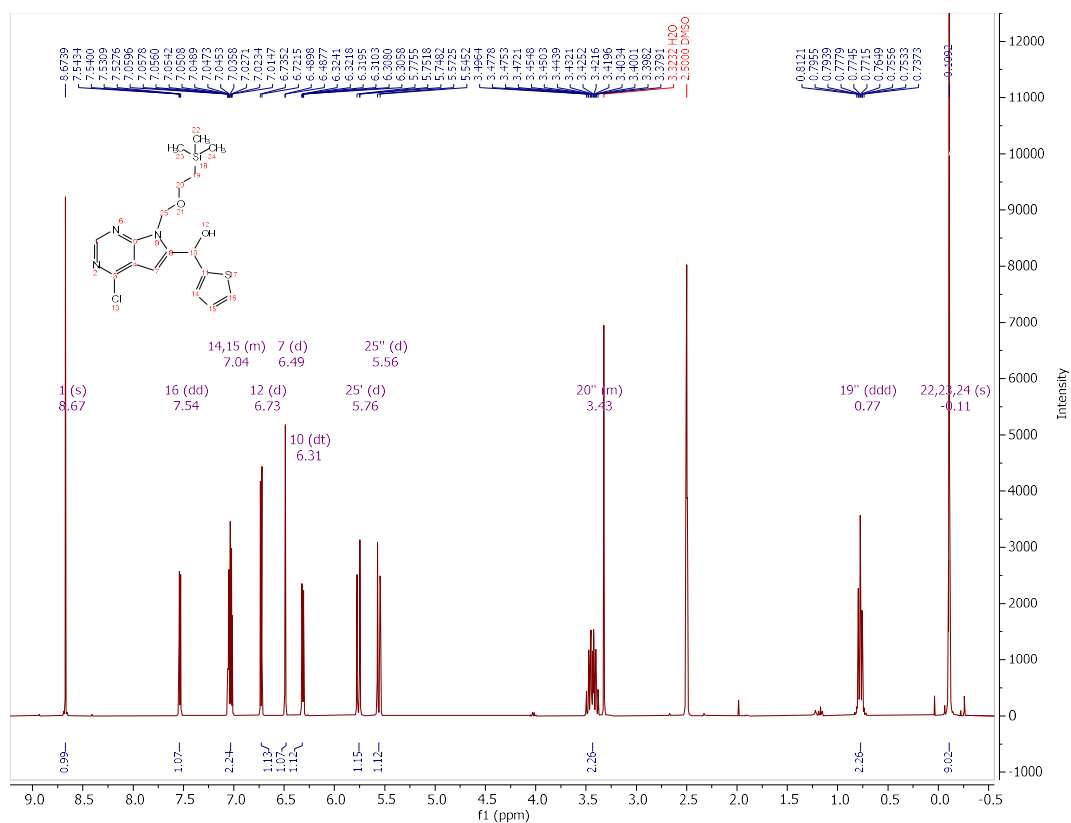


Figure S7. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 3d.

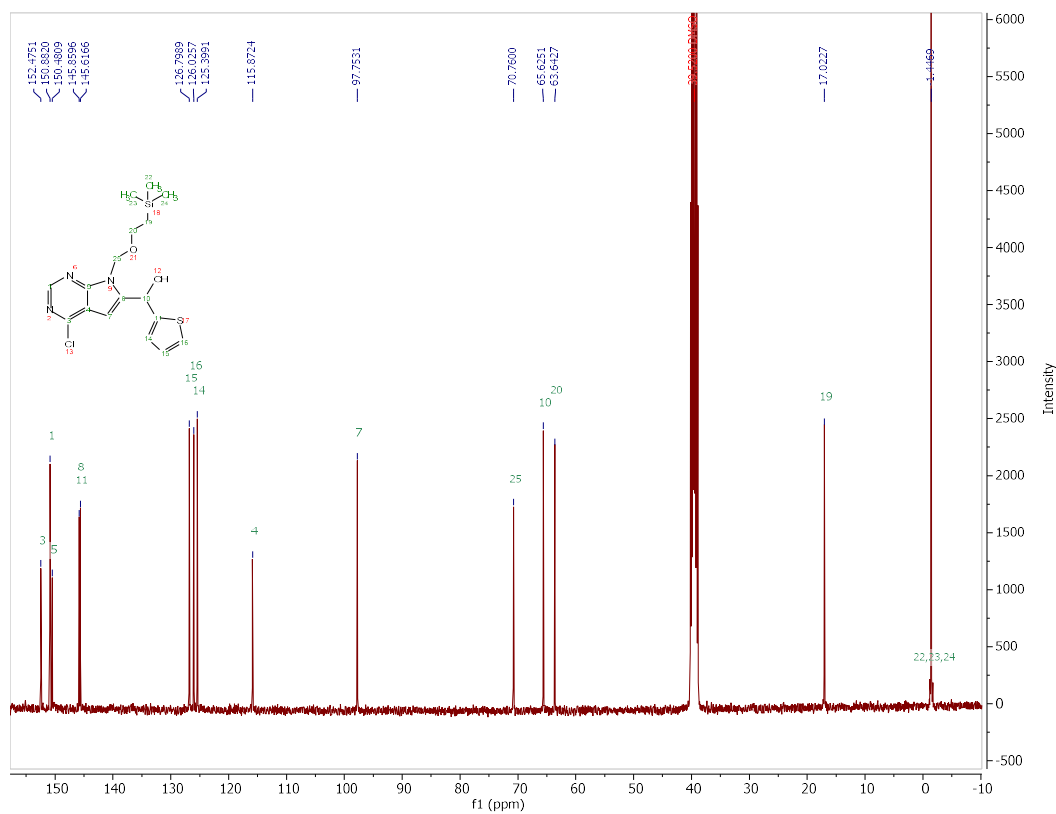


Figure S8. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3d.

Compound 3e

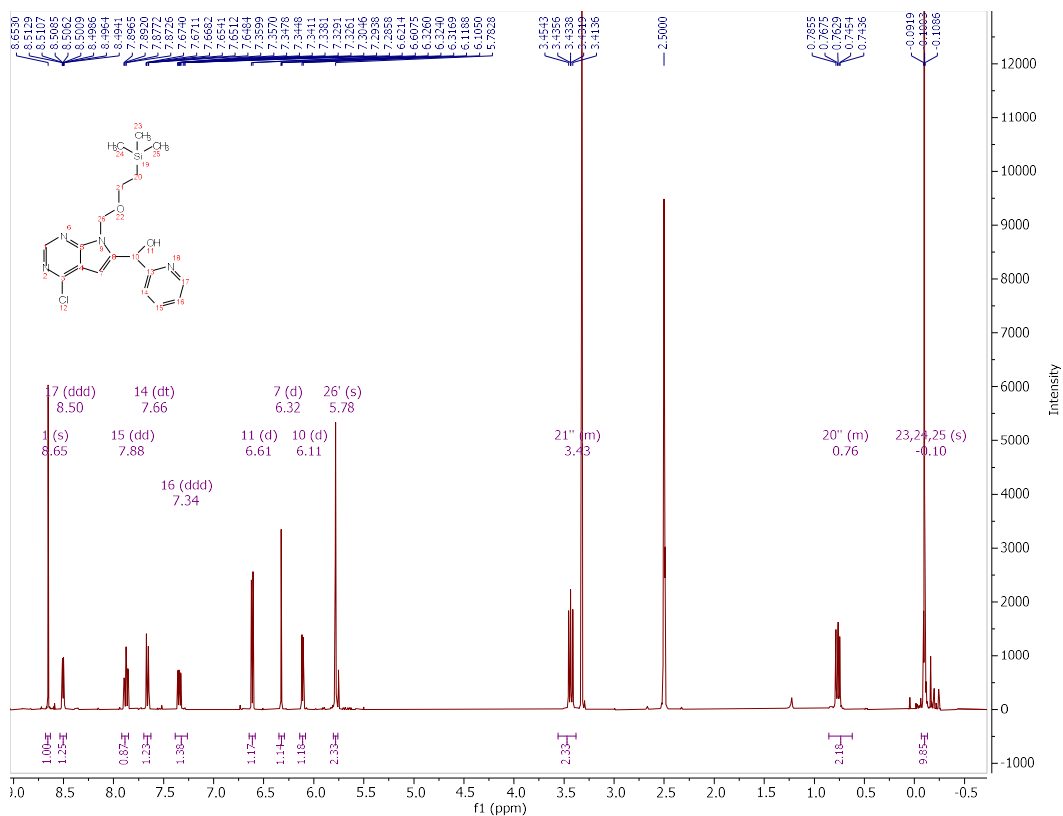


Figure S9. ¹H NMR (150 MHz, DMSO-*d*₆) spectrum of compound 3e.

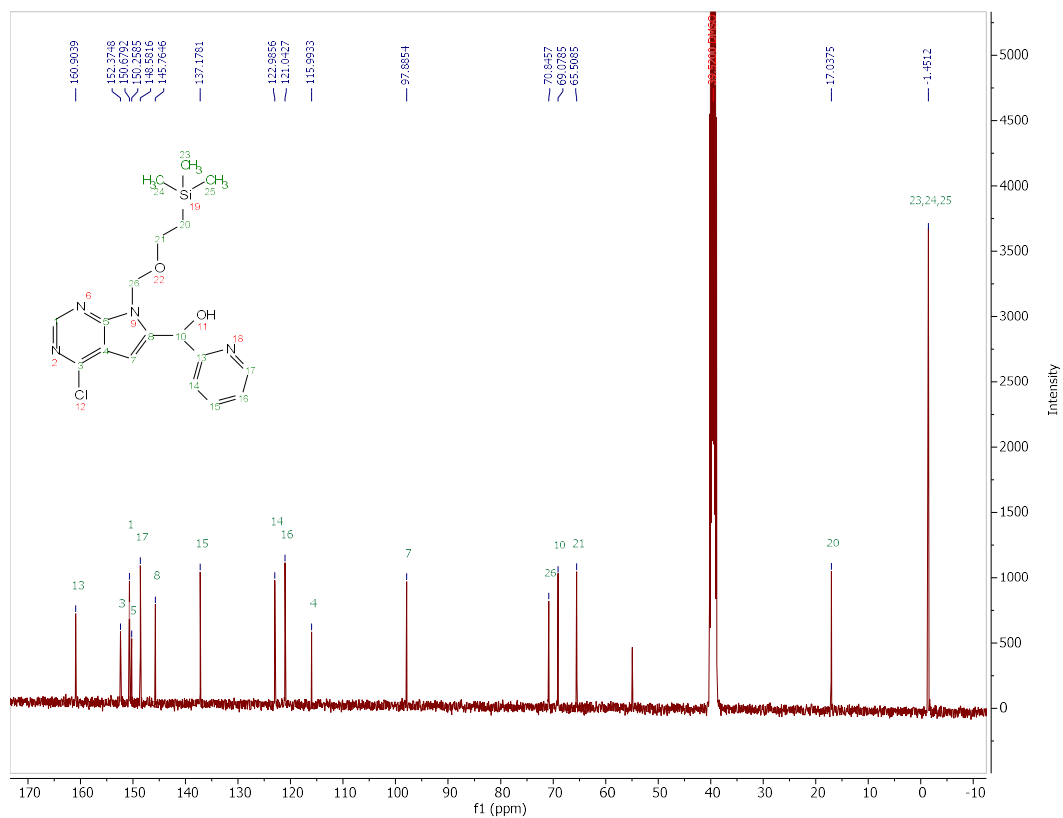


Figure S10. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3e.

Compound 3f

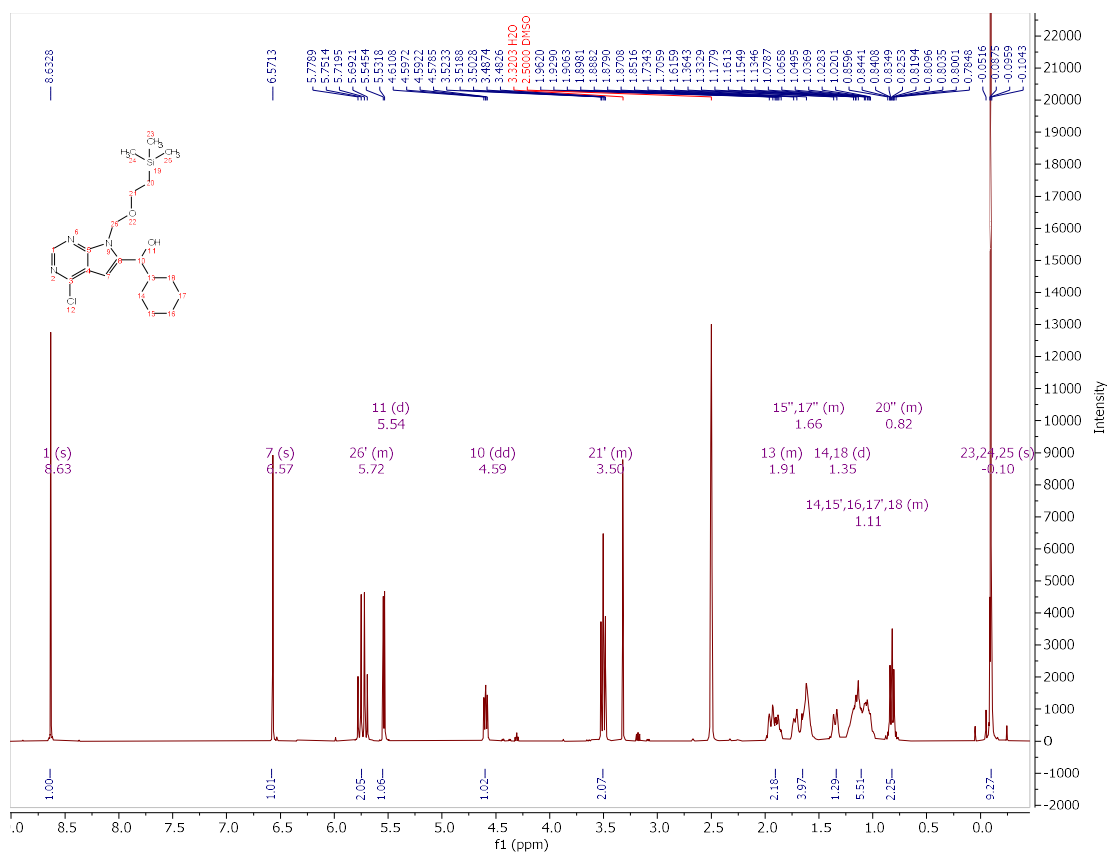


Figure S11. ¹H NMR (600 MHz, DMSO-*d*₆) spectrum of compound 3f.

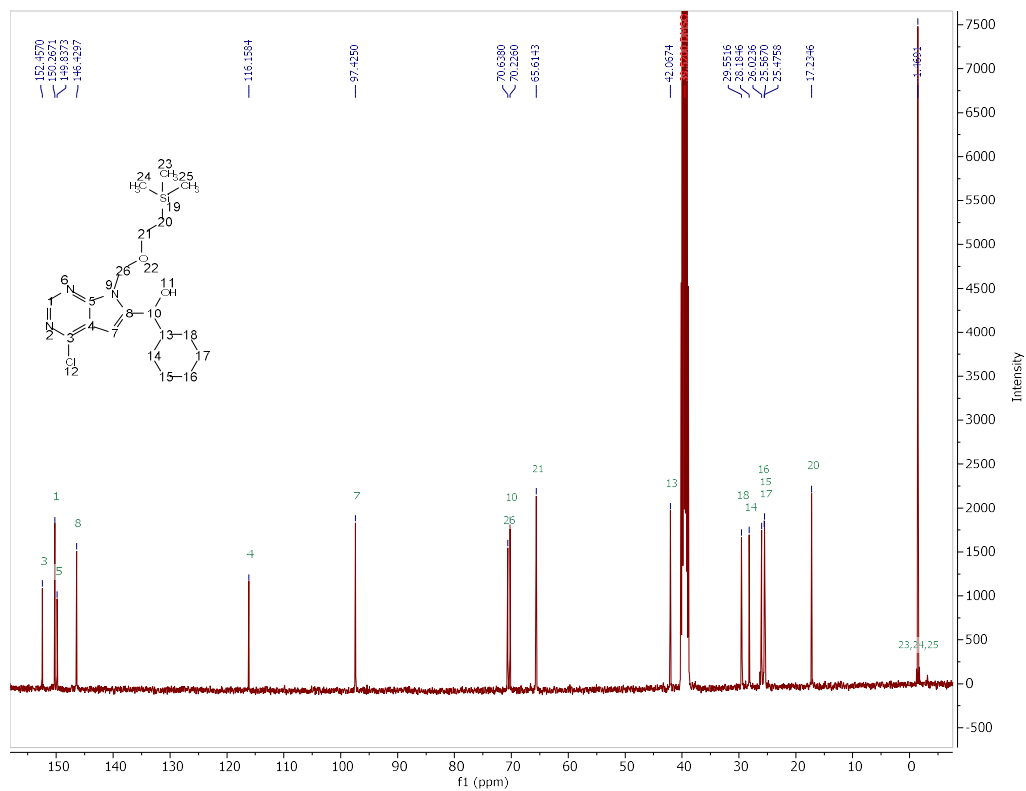


Figure S12. ¹³C NMR (150 MHz, DMSO-*d*₆) spectrum of compound 3f.

Compound 3g

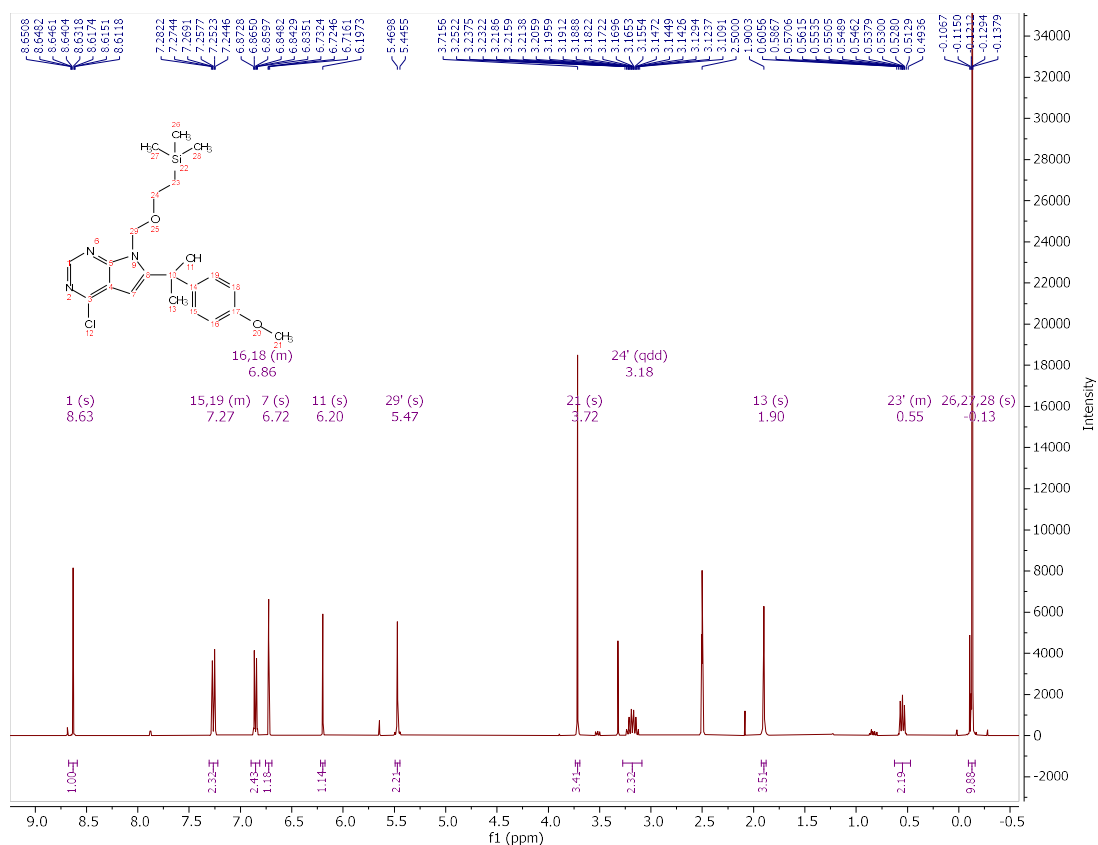


Figure S13. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 3g.

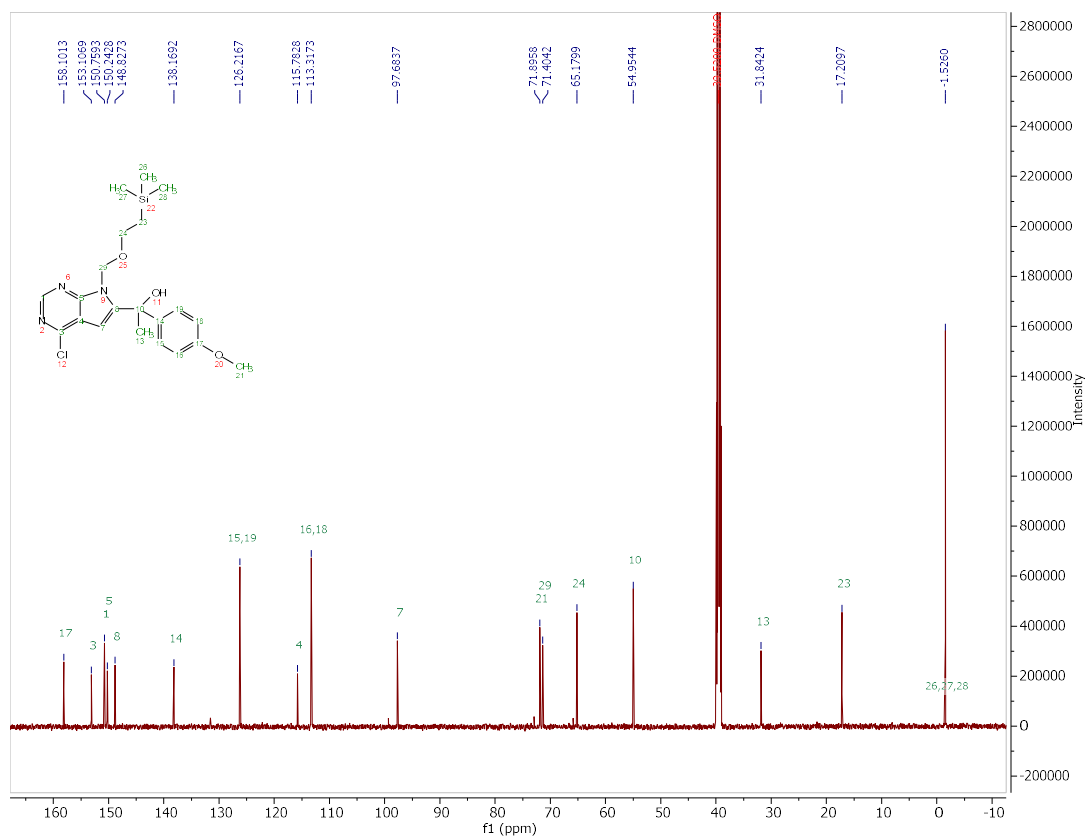


Figure S14. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3g.

Compound 3h

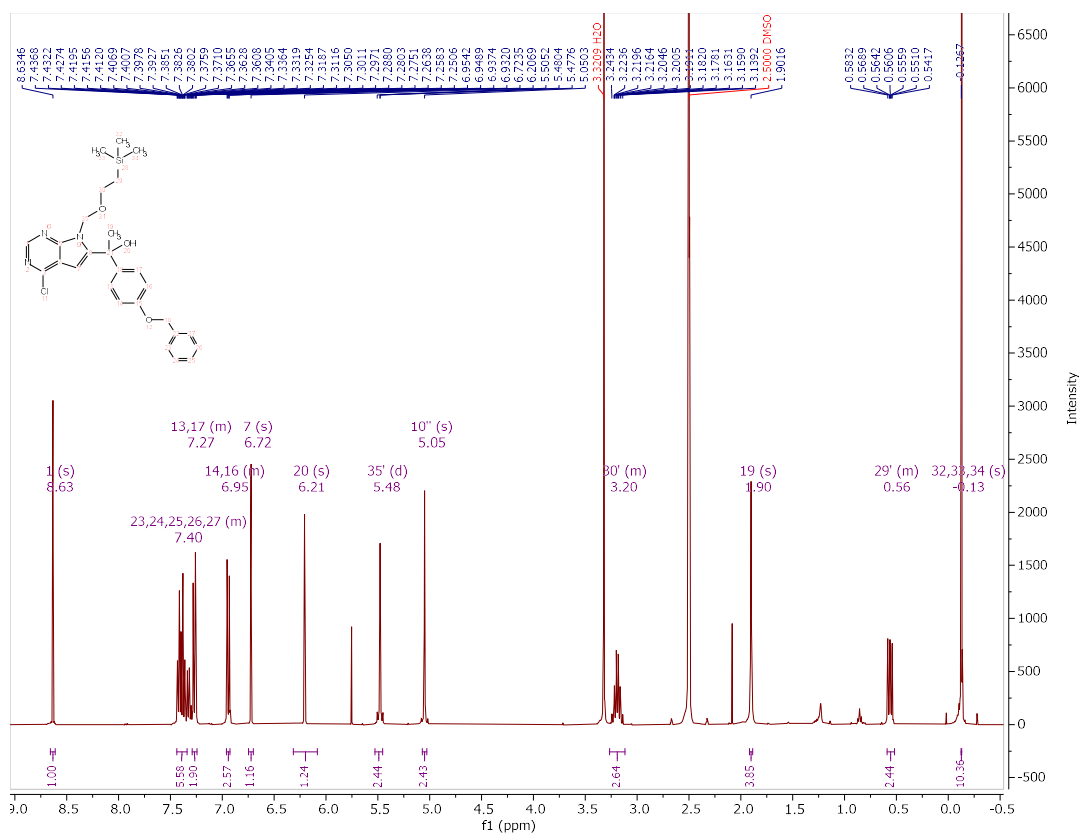


Figure S15. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 3h.

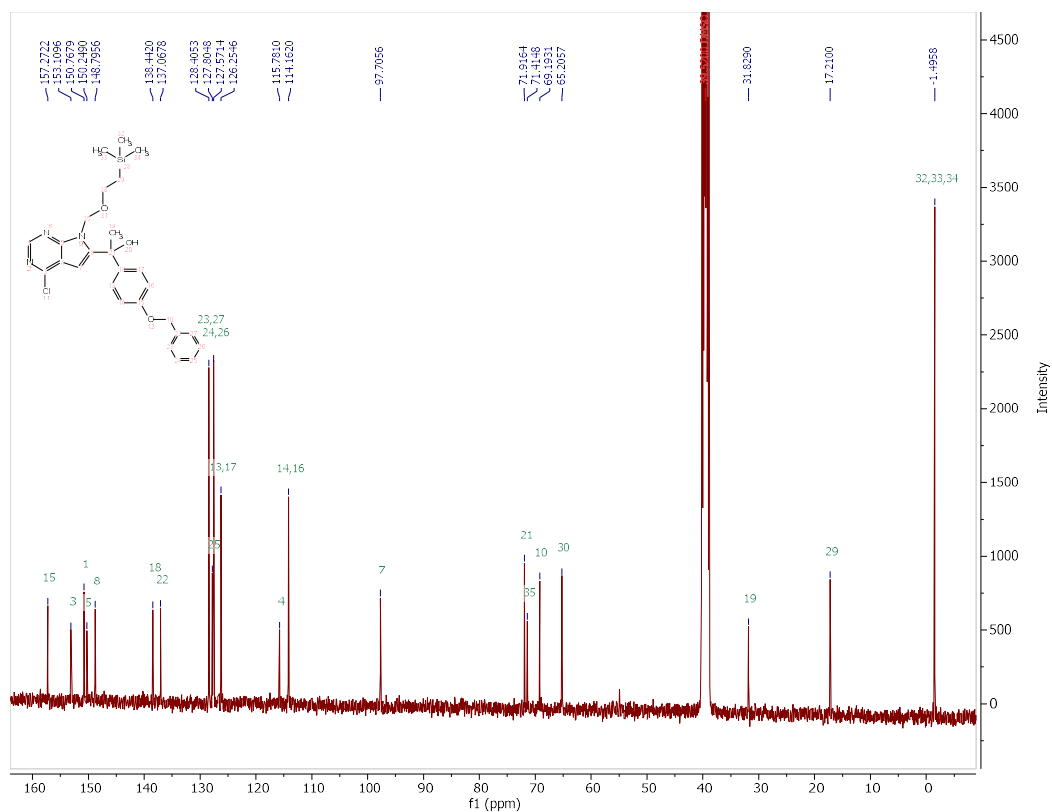


Figure S16. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3h.

Compound 3i

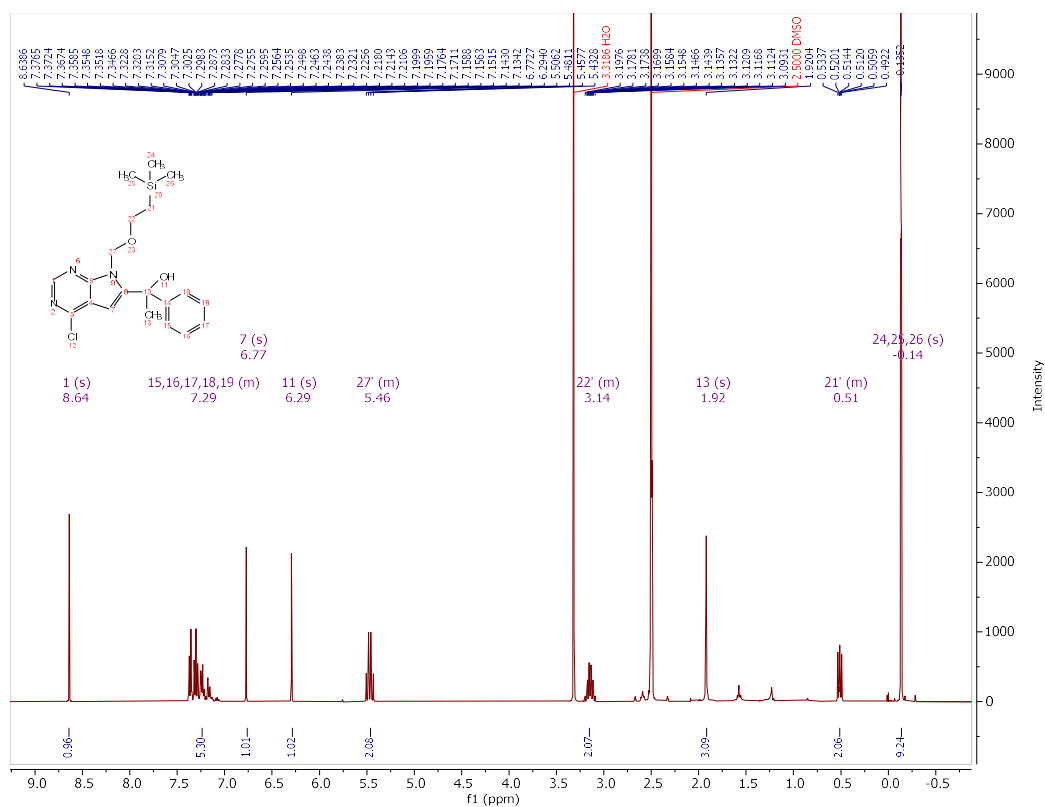


Figure S17. ^1H NMR (400 MHz, $\text{DMSO-}d_6$) spectrum of compound **3i**.

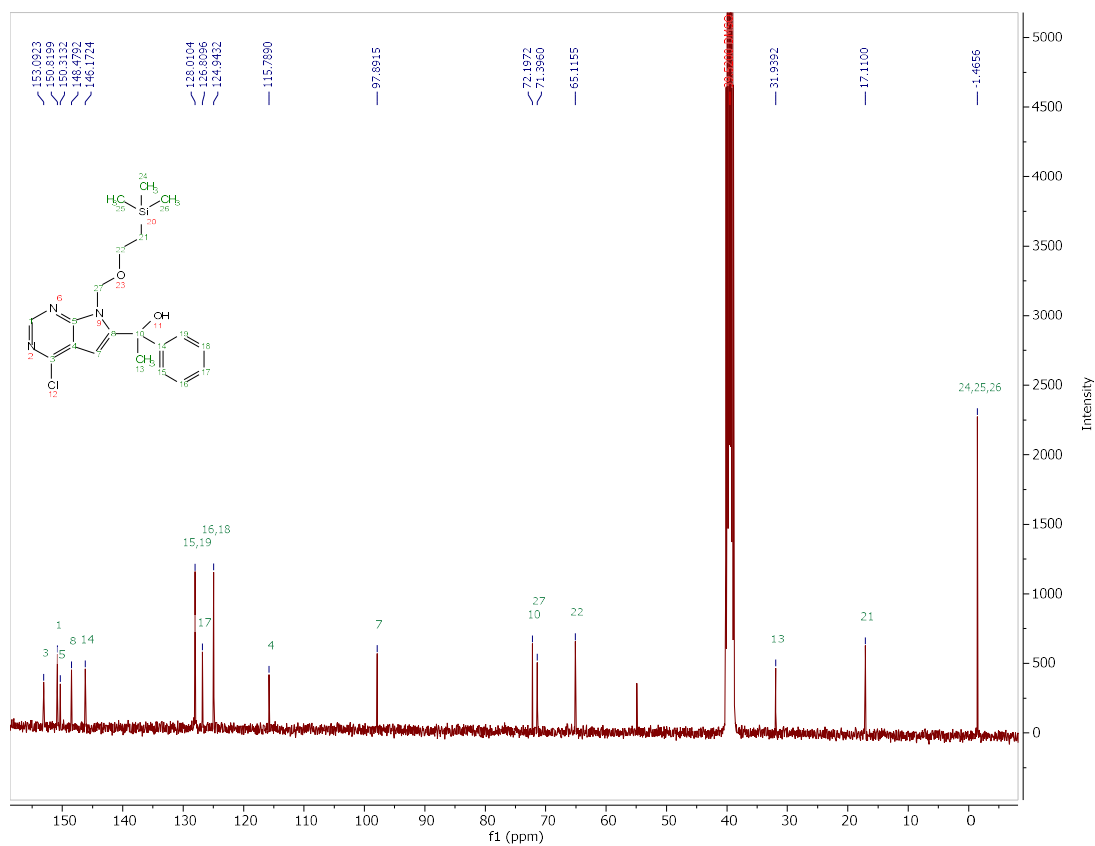


Figure S18. ^{13}C NMR (100 MHz, $\text{DMSO-}d_6$) spectrum of compound **3i**.

Compound 3j

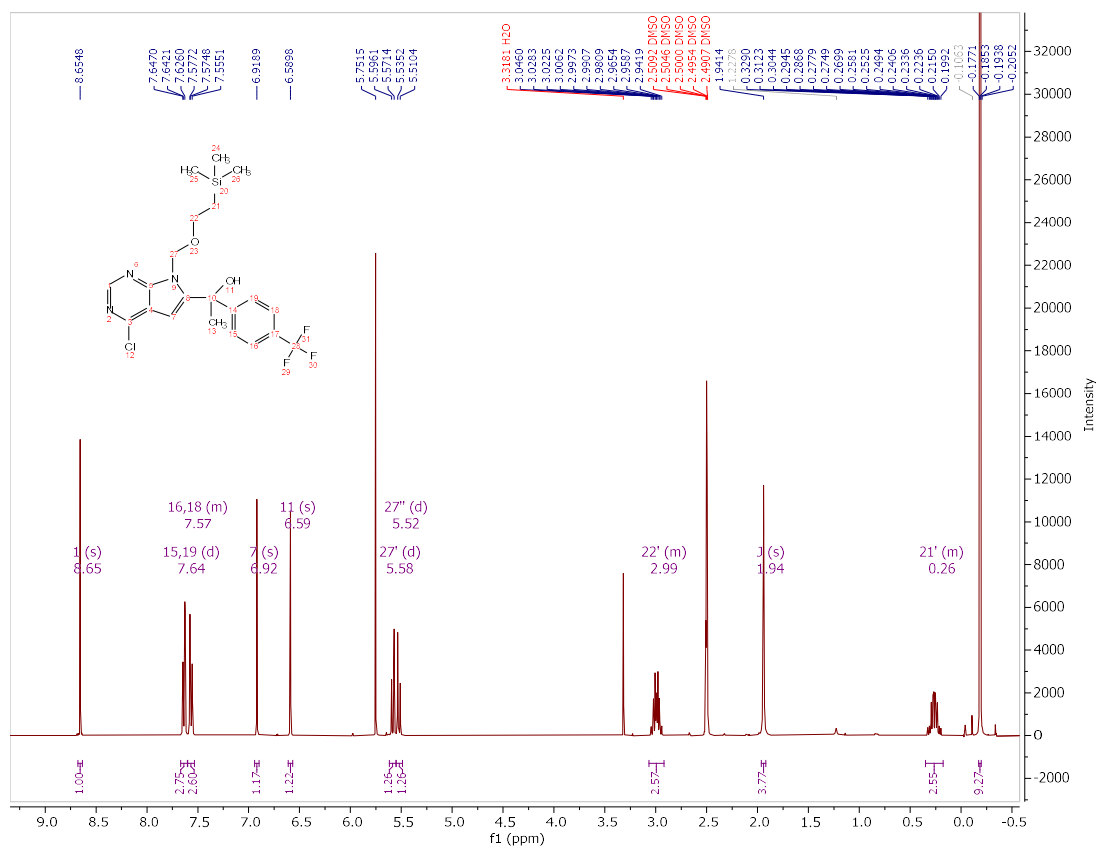


Figure S19. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 3j.

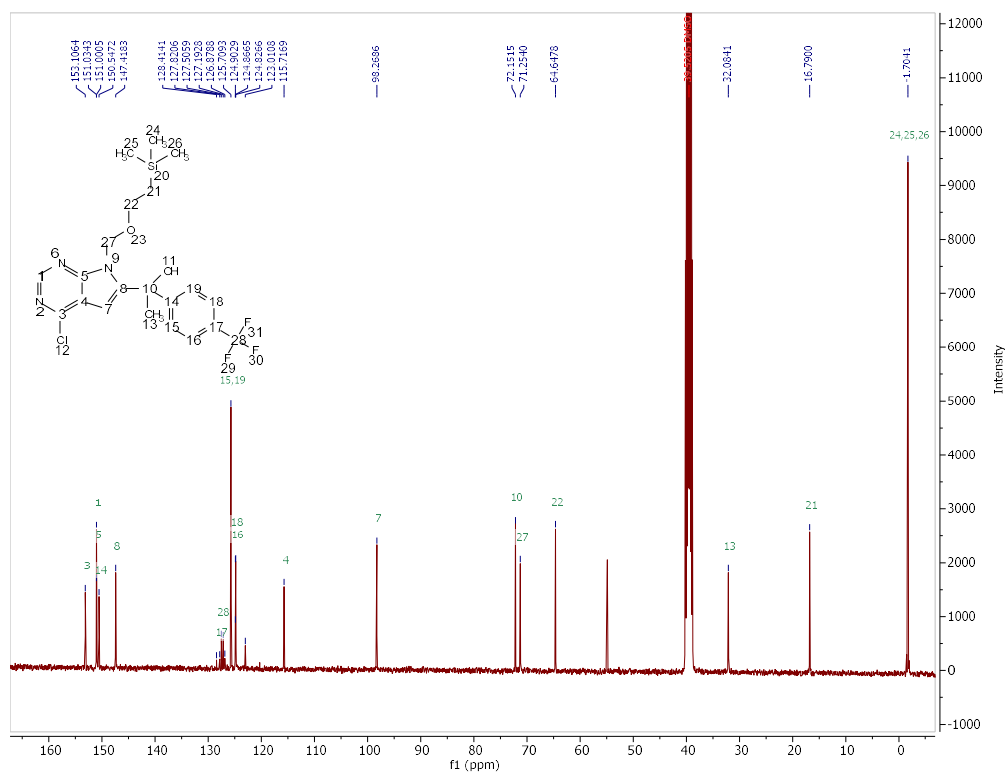


Figure S20. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3j.

Compound 3k

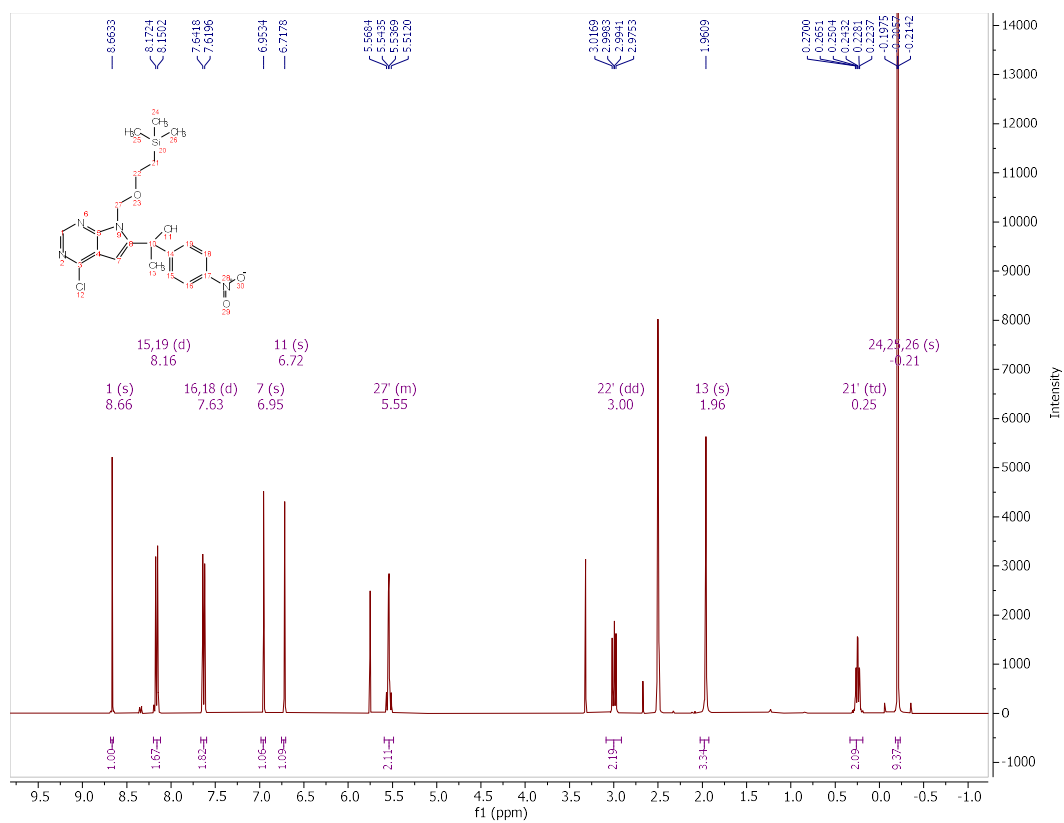


Figure S21. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 3k.

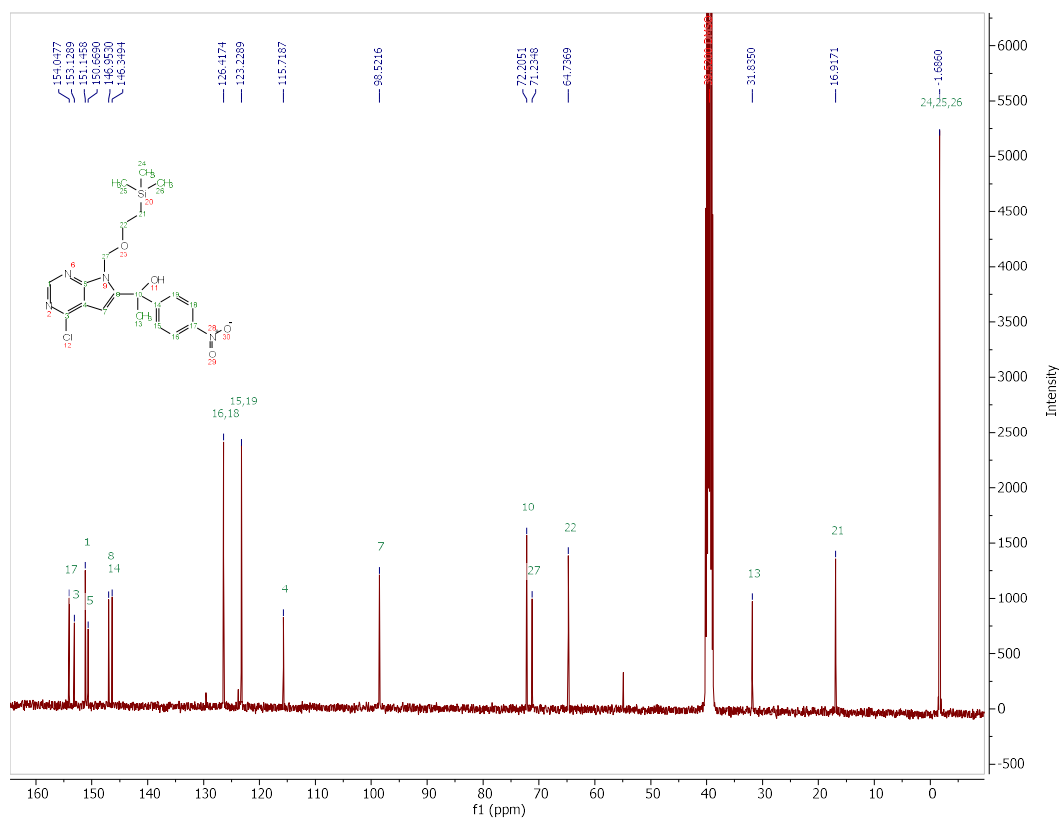


Figure S22. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3k.

Compound 3I

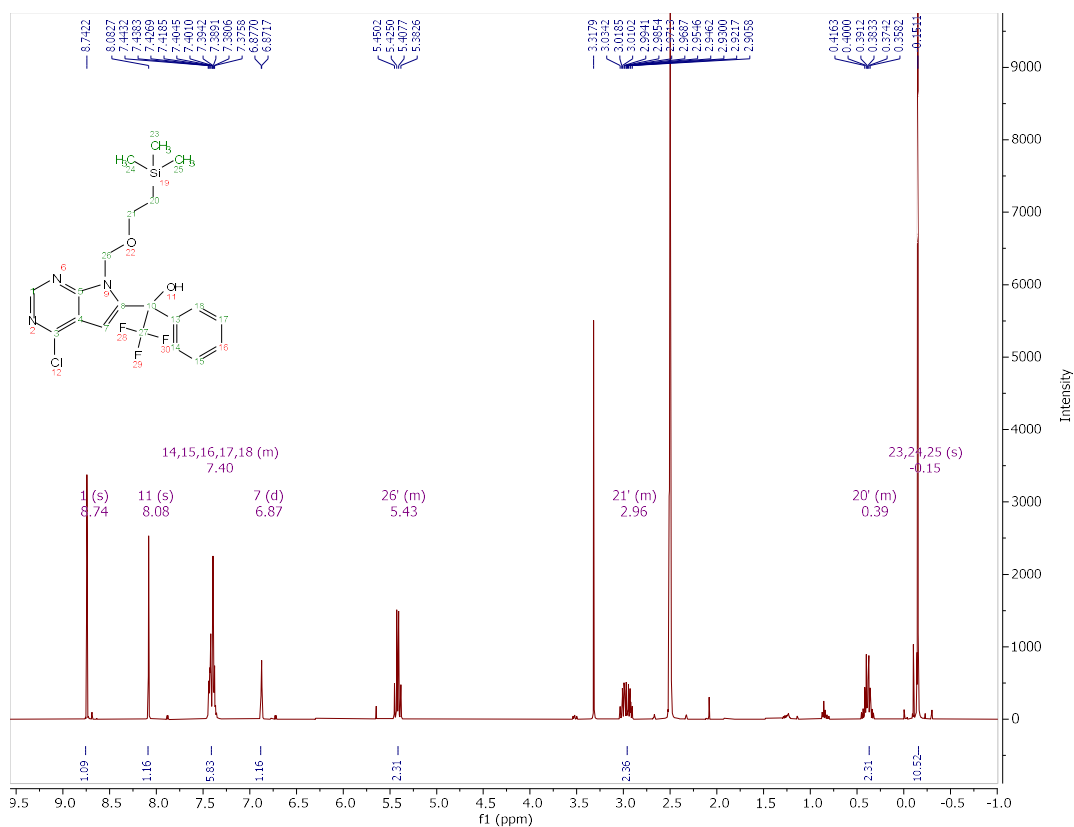


Figure S23. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 3I.

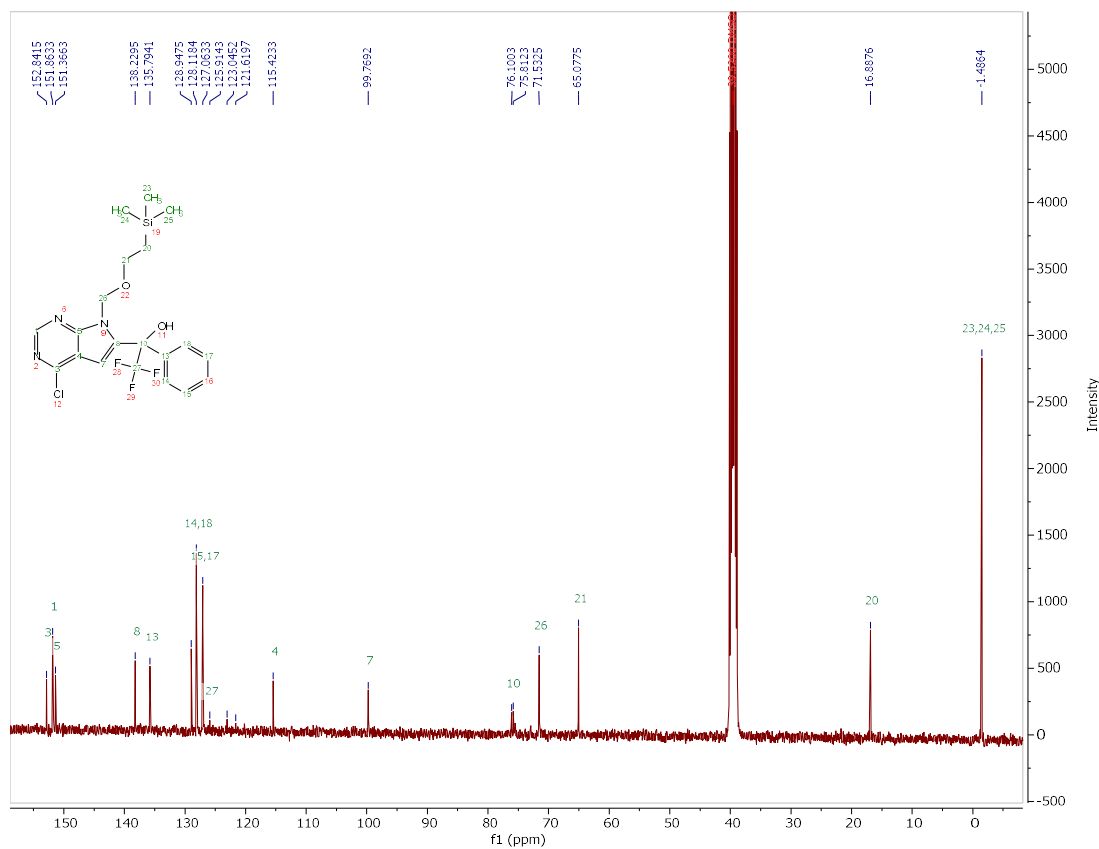


Figure S24. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3I.

Compound 3m

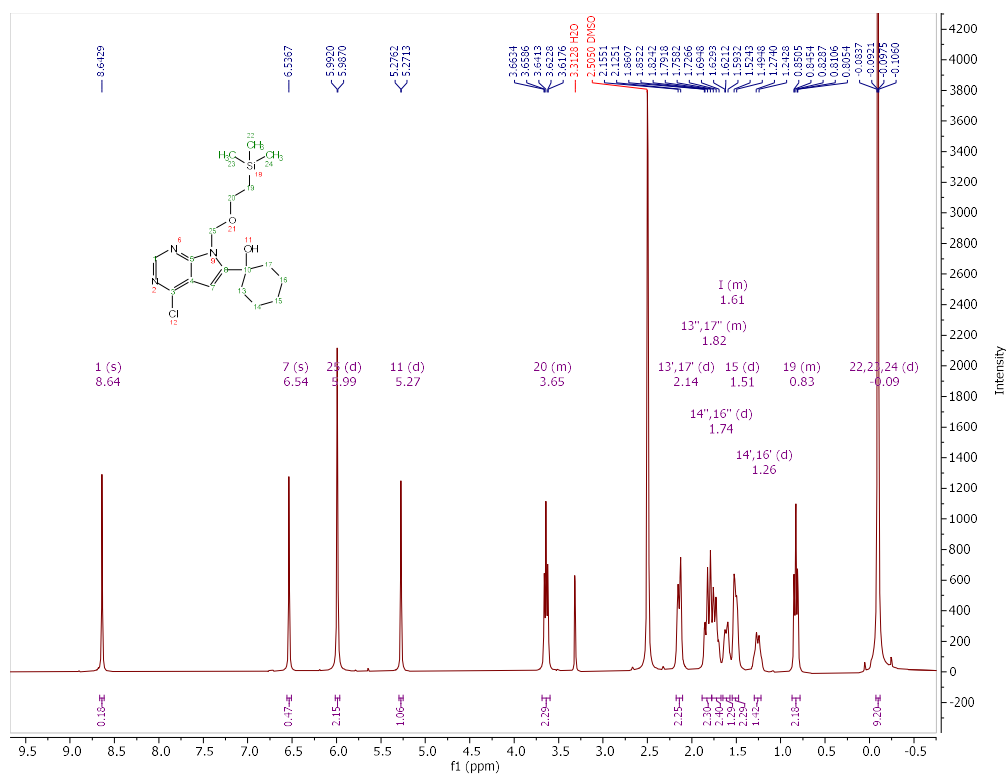


Figure S25. ¹H NMR (600 MHz, DMSO-*d*₆) spectrum of compound 3m.

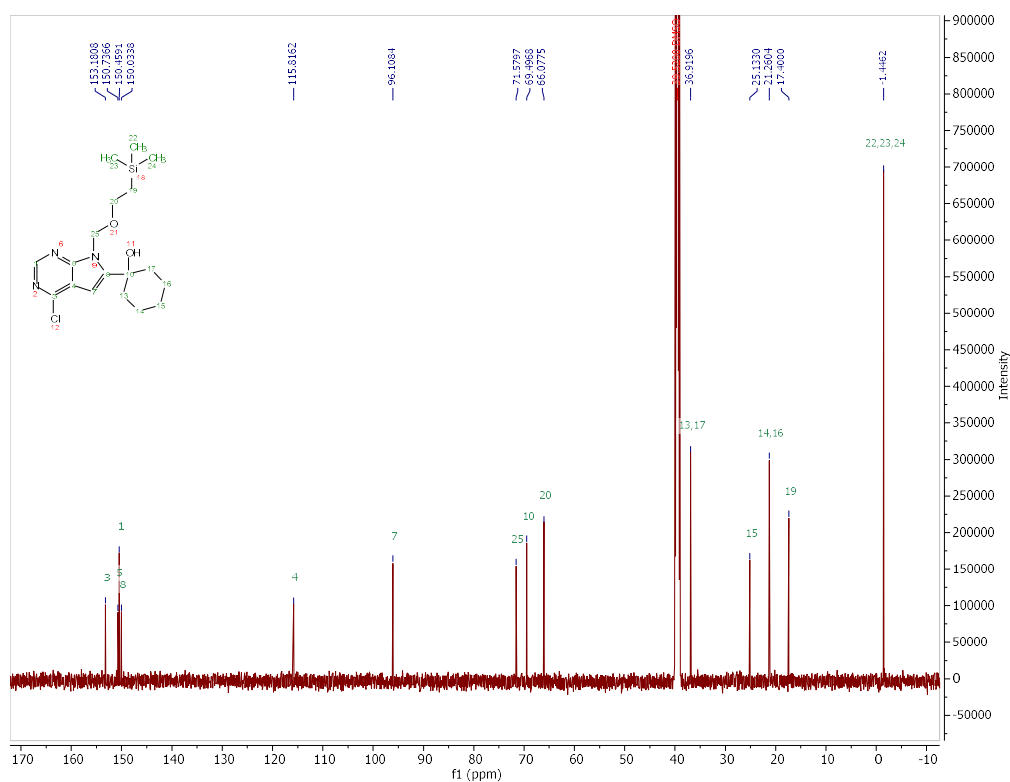


Figure S26. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3m.

Compound 3n

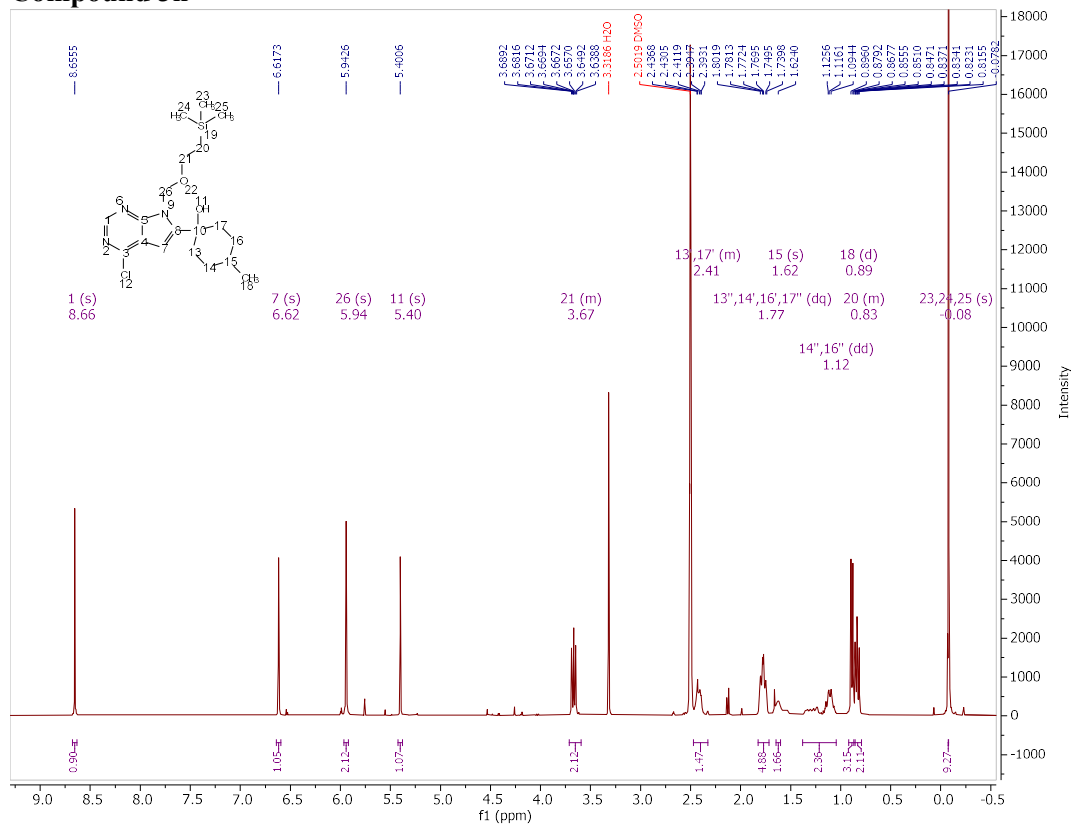


Figure S27. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 3n.

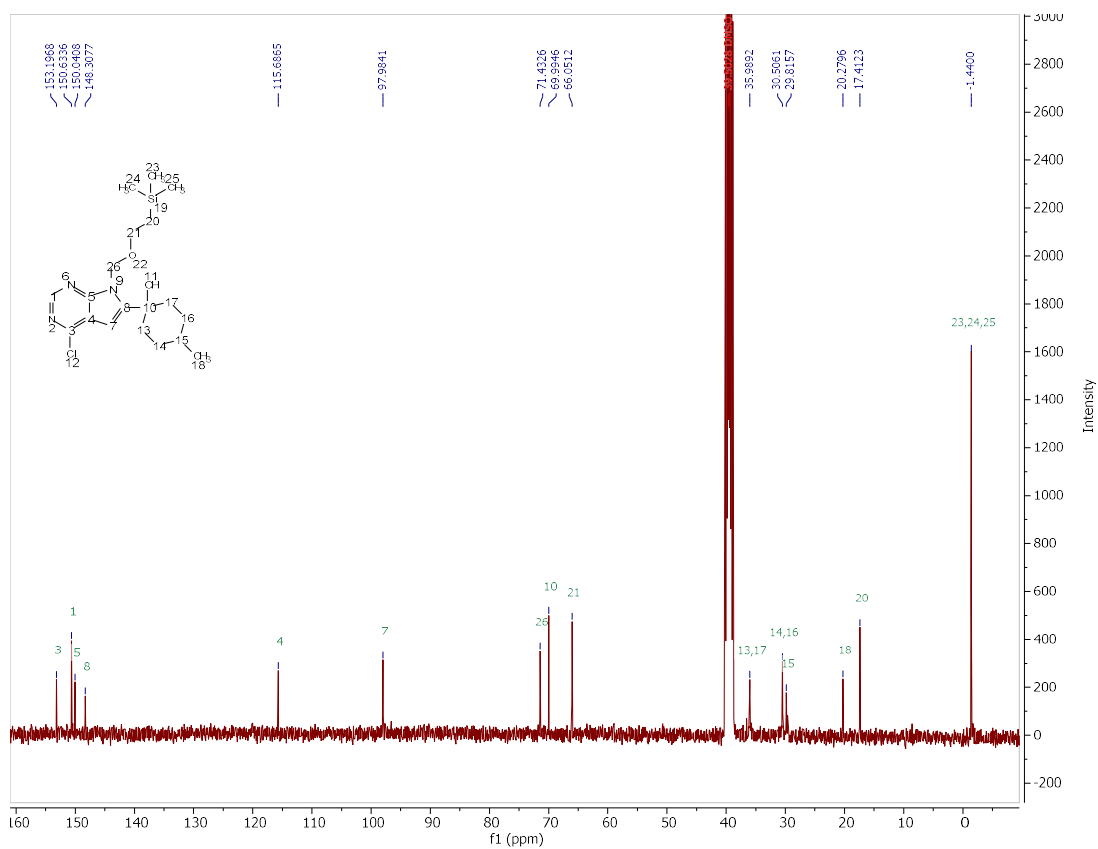


Figure S28. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3n.

Compound 3o

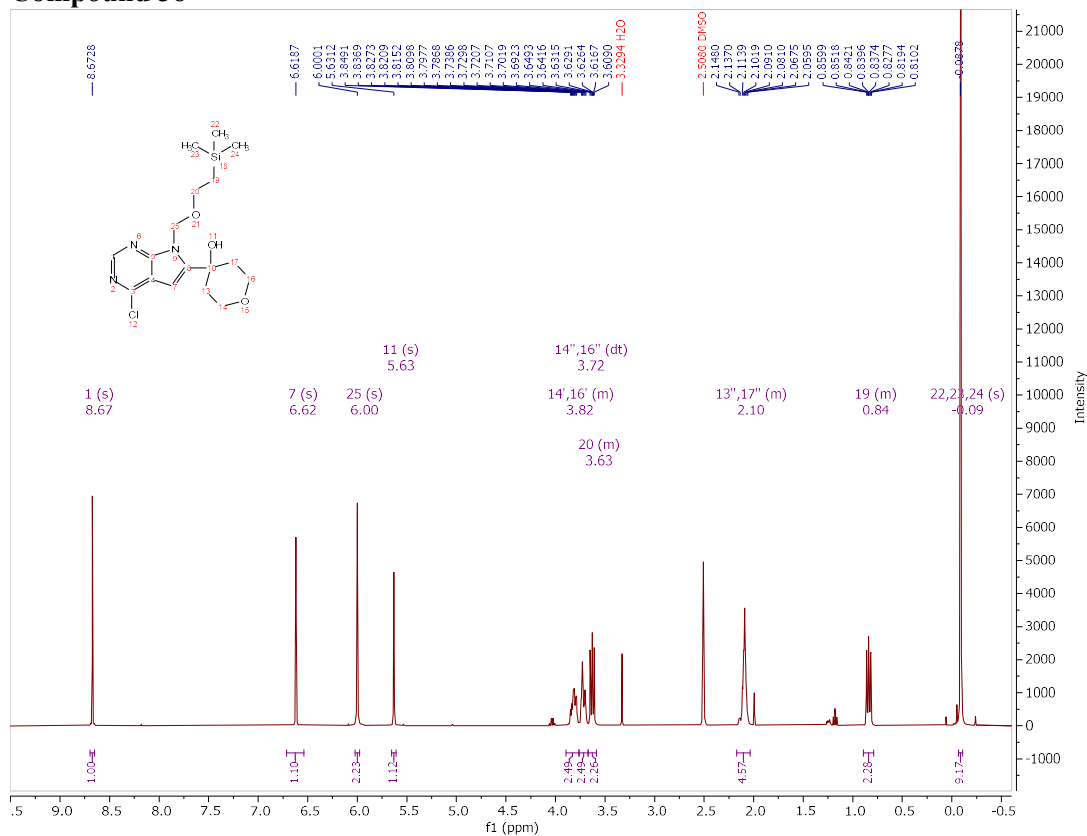


Figure S29. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 3o.

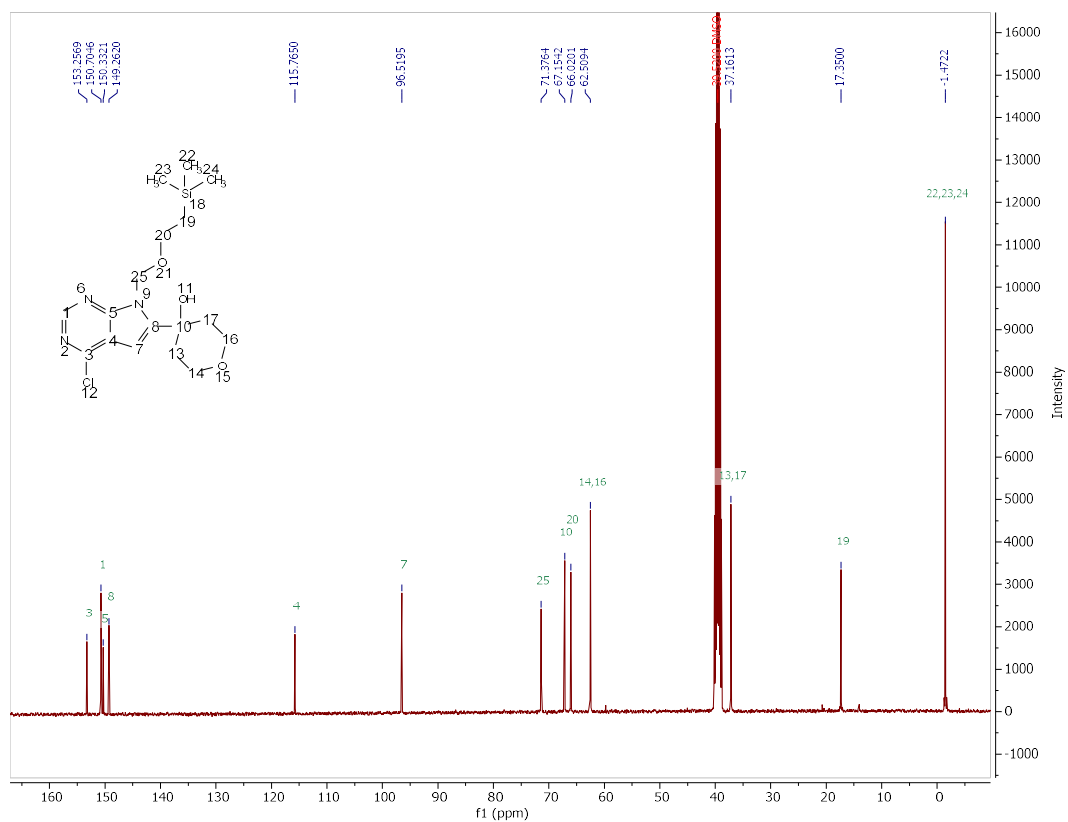


Figure S30. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 3o.

Compound 3p

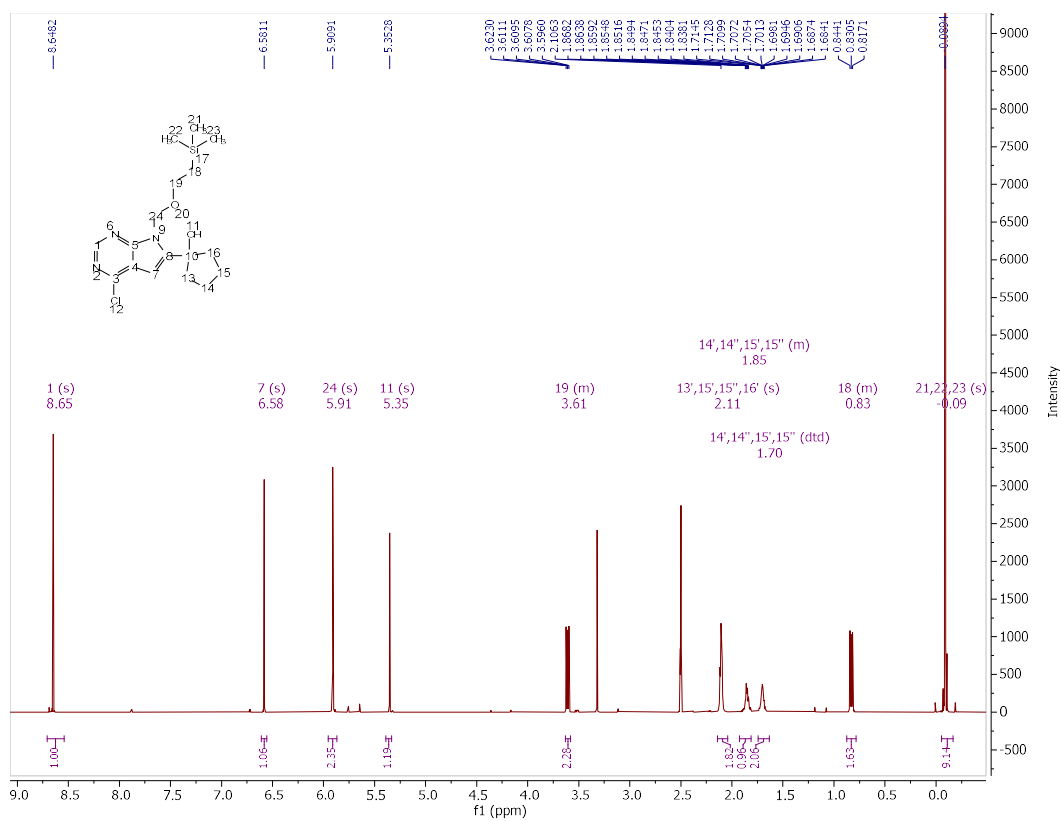


Figure S31. ¹H NMR (600 MHz, DMSO-*d*₆) spectrum of compound 3p.

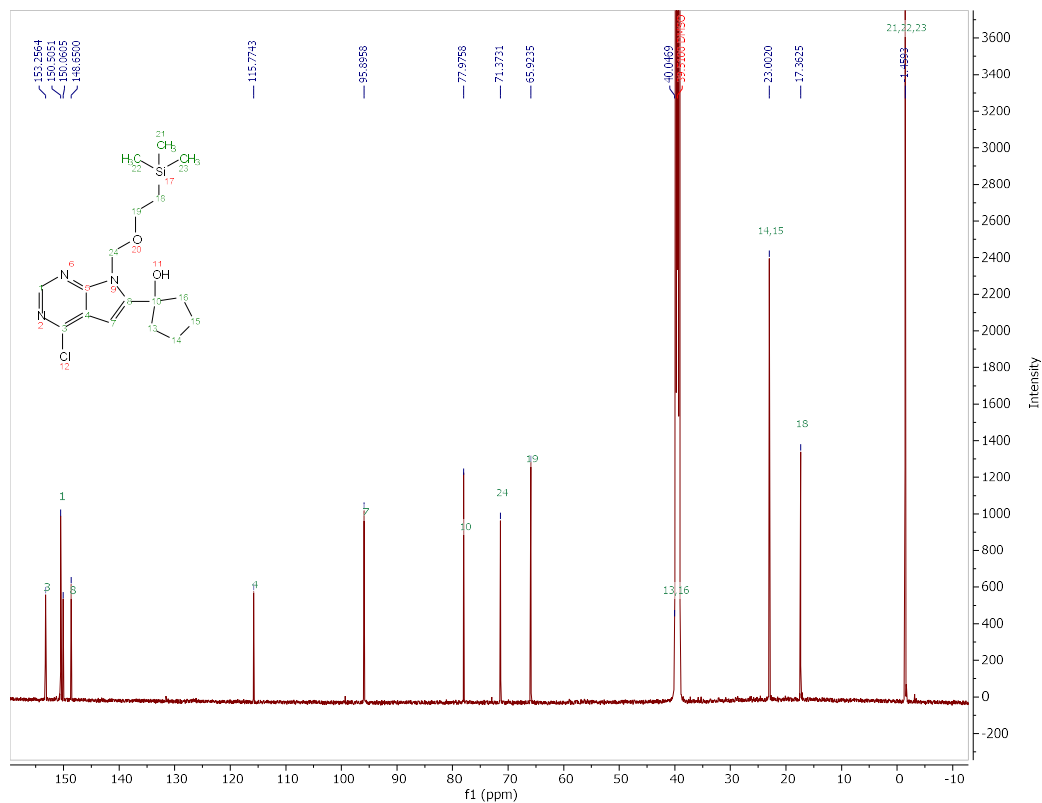


Figure S32. ¹³C NMR (150 MHz, DMSO-*d*₆) spectrum of compound 3p.

NMR spectra of compounds 1 and 4-8

Compound 1

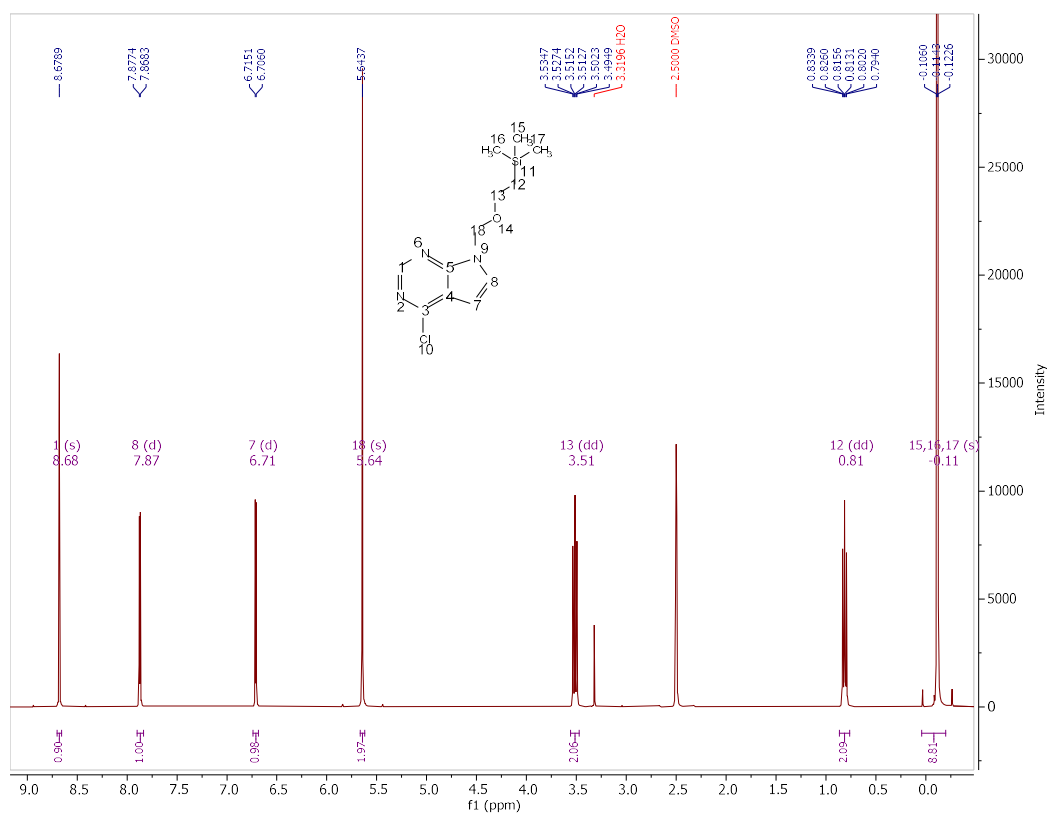


Figure S33. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 1.

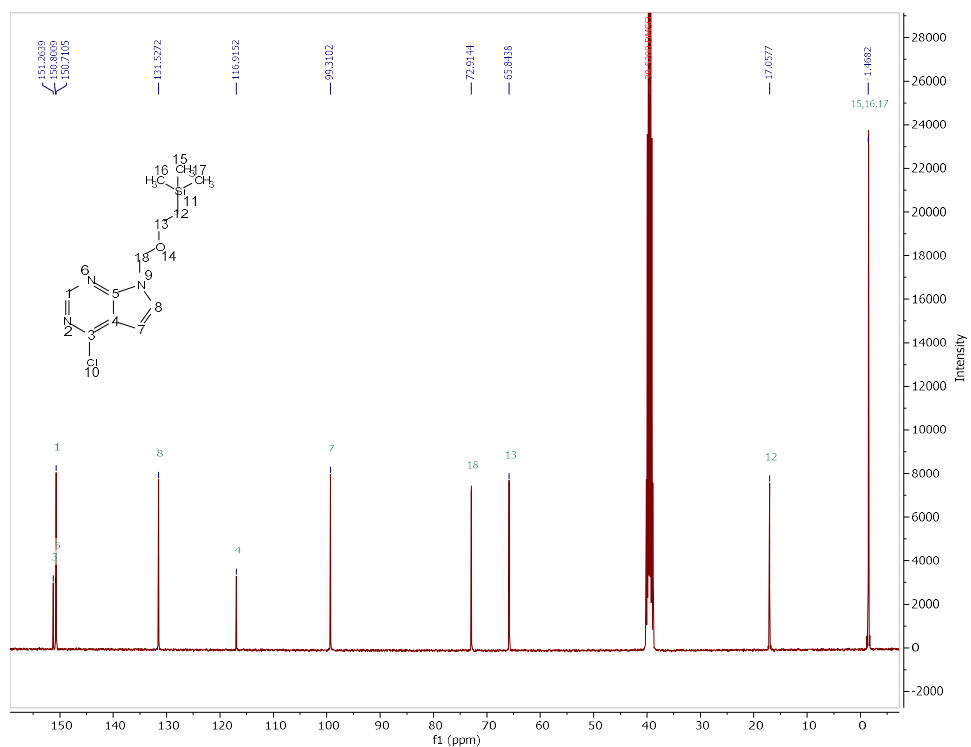


Figure S34. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 1.

Compound 4

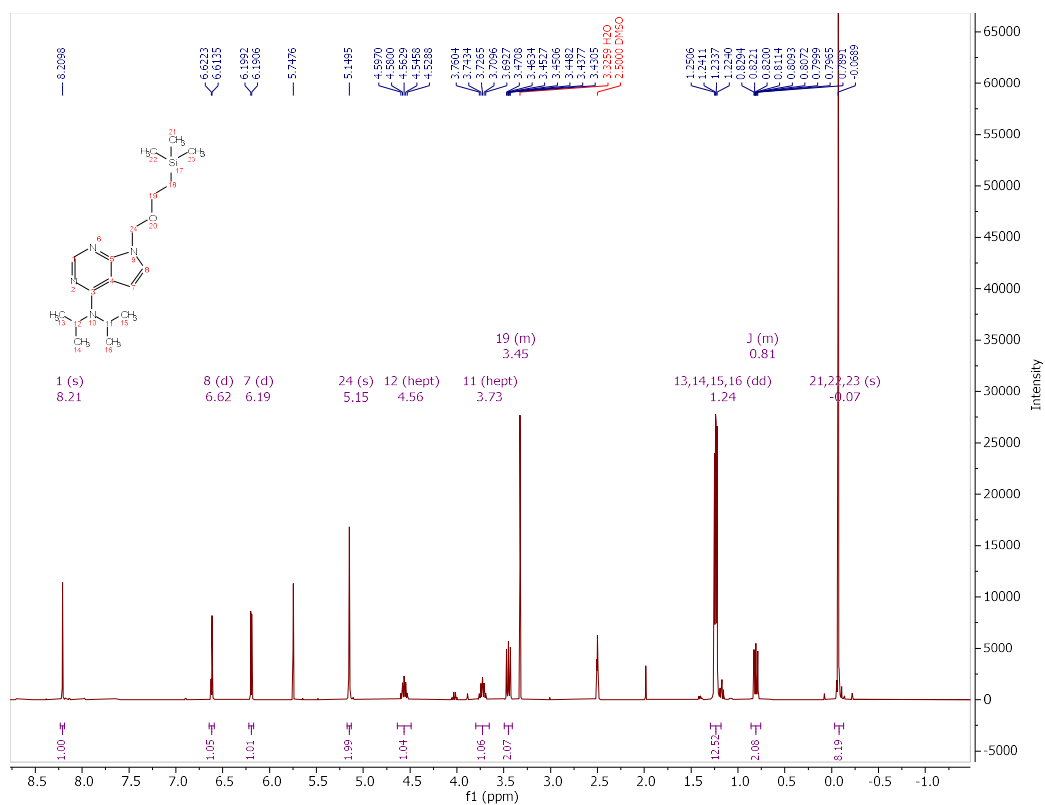


Figure S35. ¹H NMR (600 MHz, DMSO-*d*₆) spectrum of compound 4.

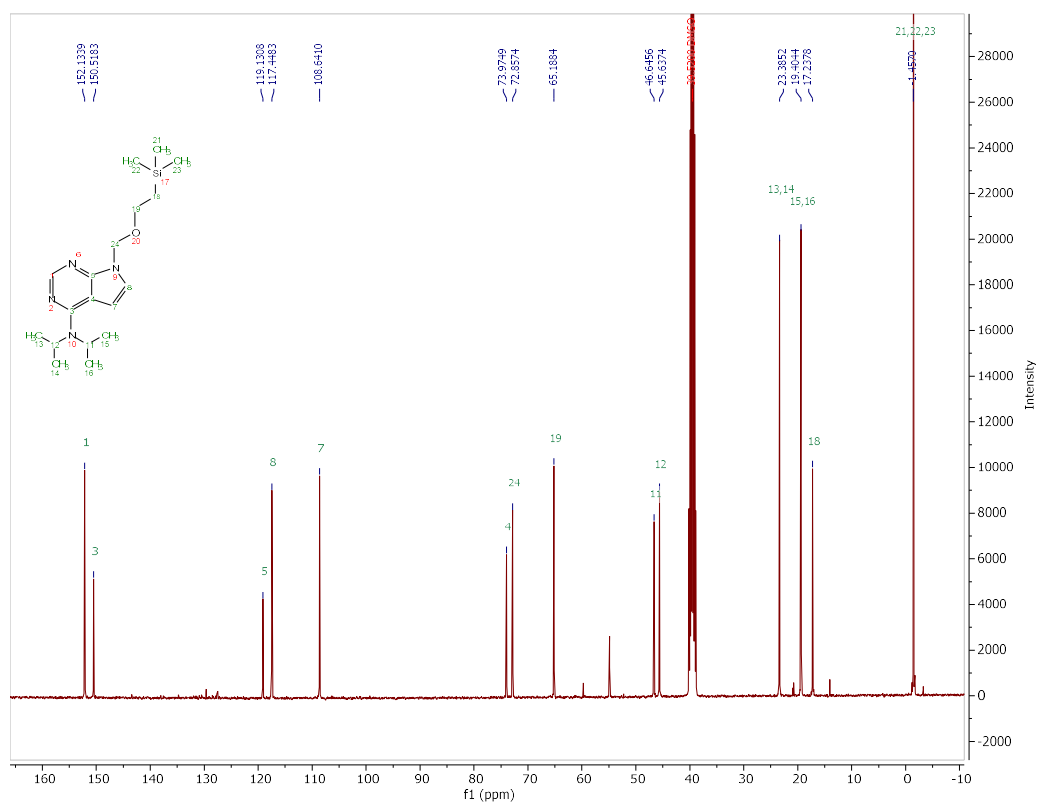


Figure S36. ¹³C NMR (150 MHz, DMSO-*d*₆) spectrum of compound 4.

Compound 5

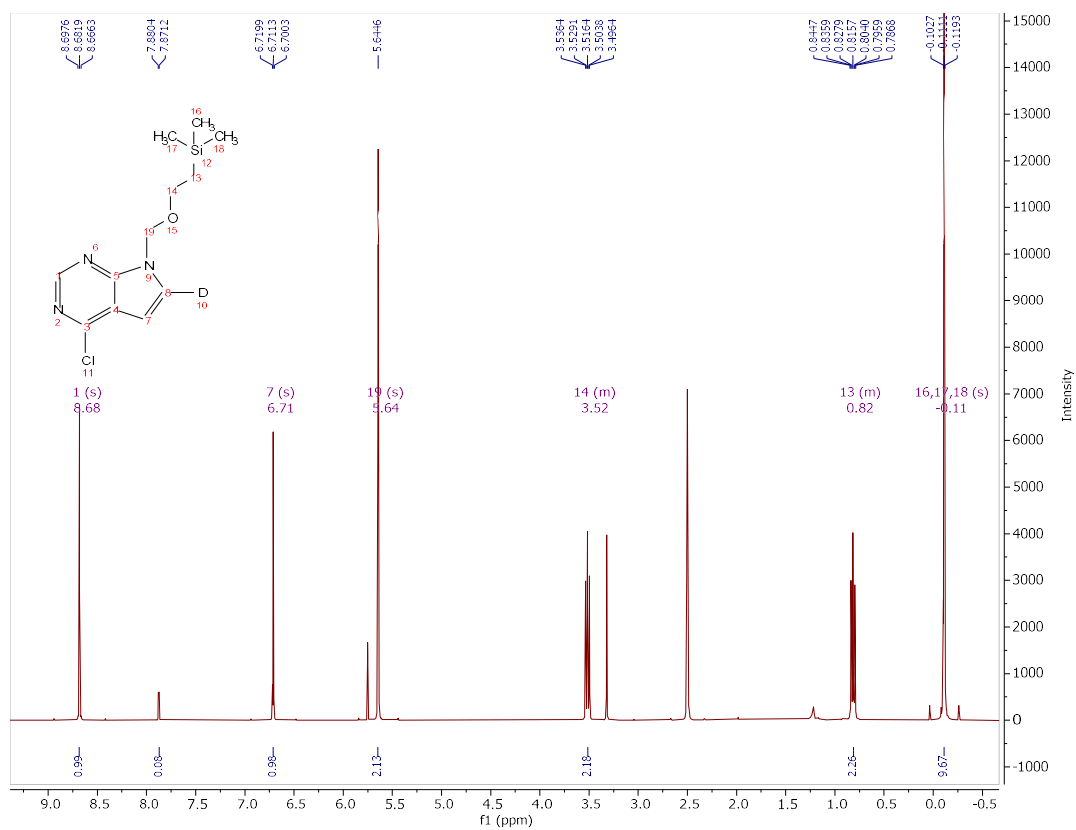


Figure S37. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 5.

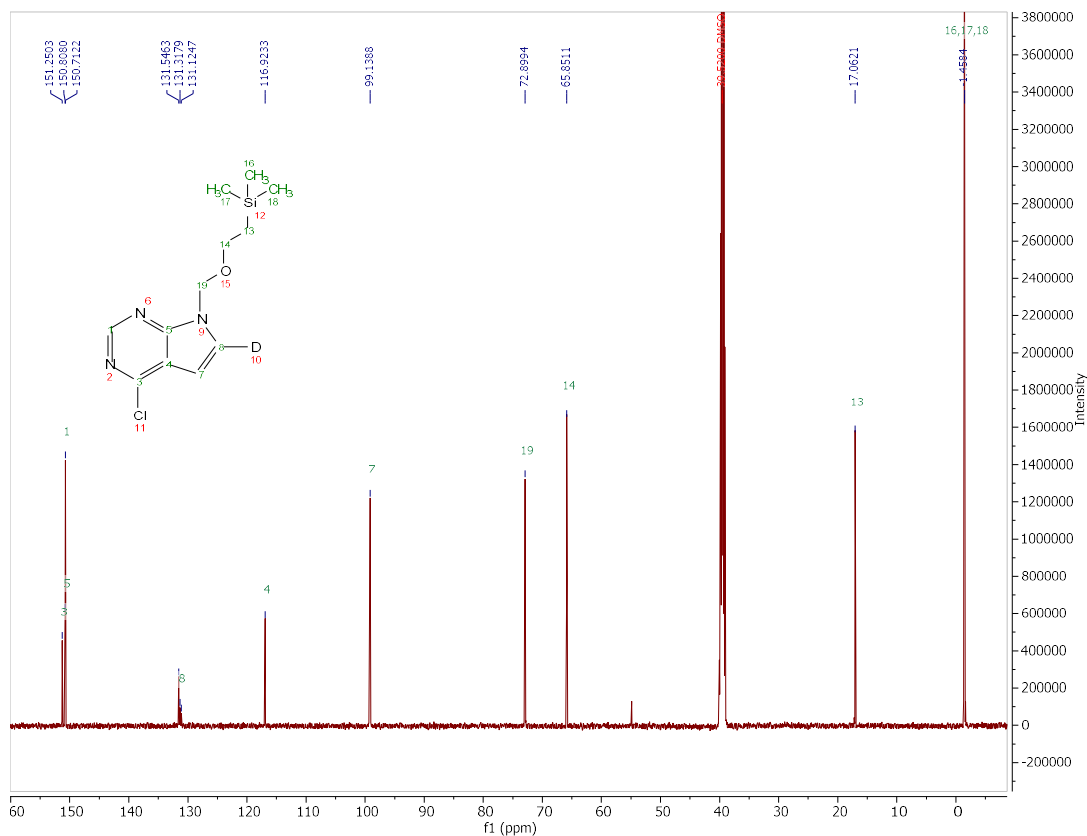


Figure S38. ¹³C NMR (100 MHz, DMSO-*d*₆) spectrum of compound 5.

Compound 6

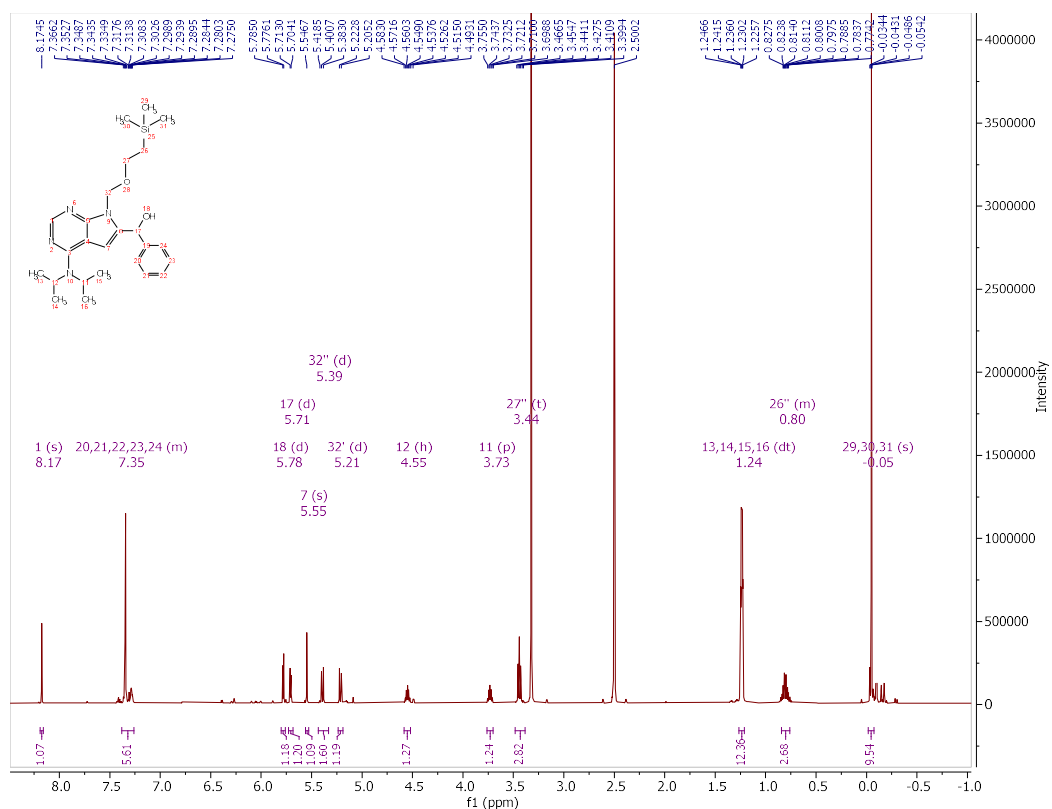


Figure S39. ¹H NMR (600 MHz, DMSO-*d*₆) spectrum of compound 6.

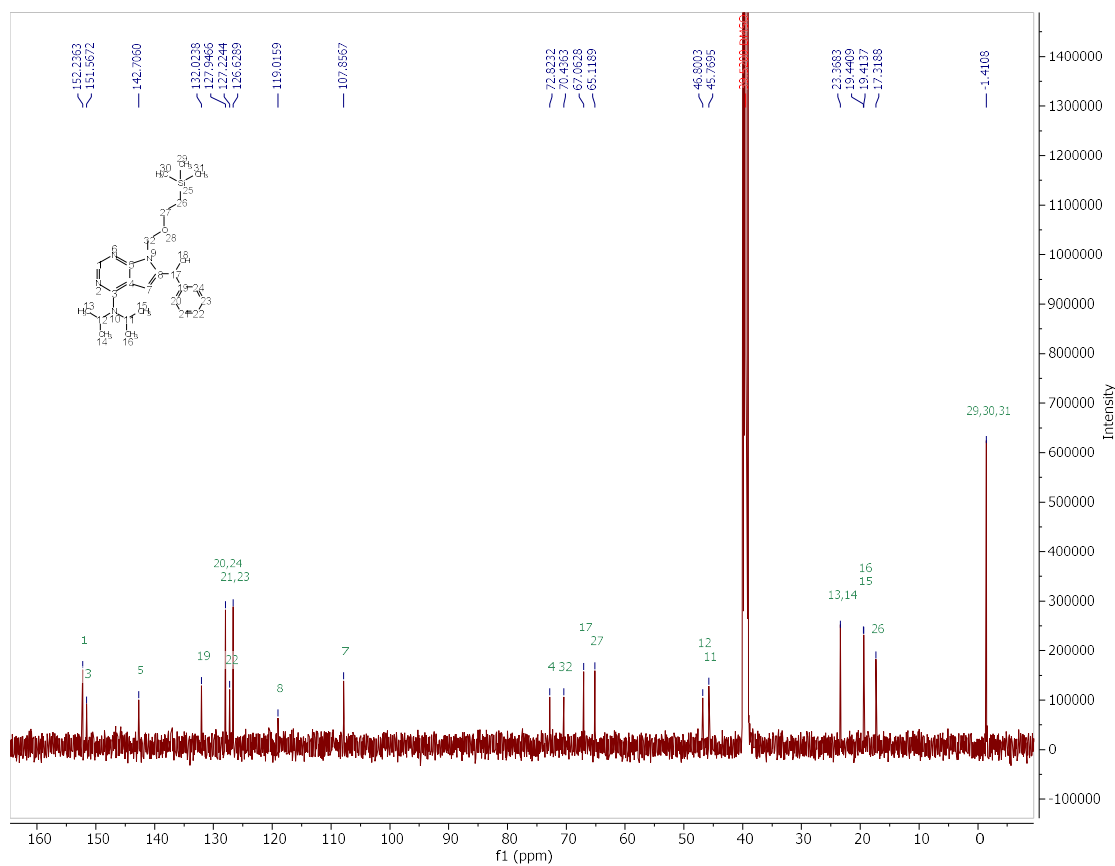


Figure S40. ¹³C NMR (150 MHz, DMSO-*d*₆) spectrum of compound 6.

Compound 8

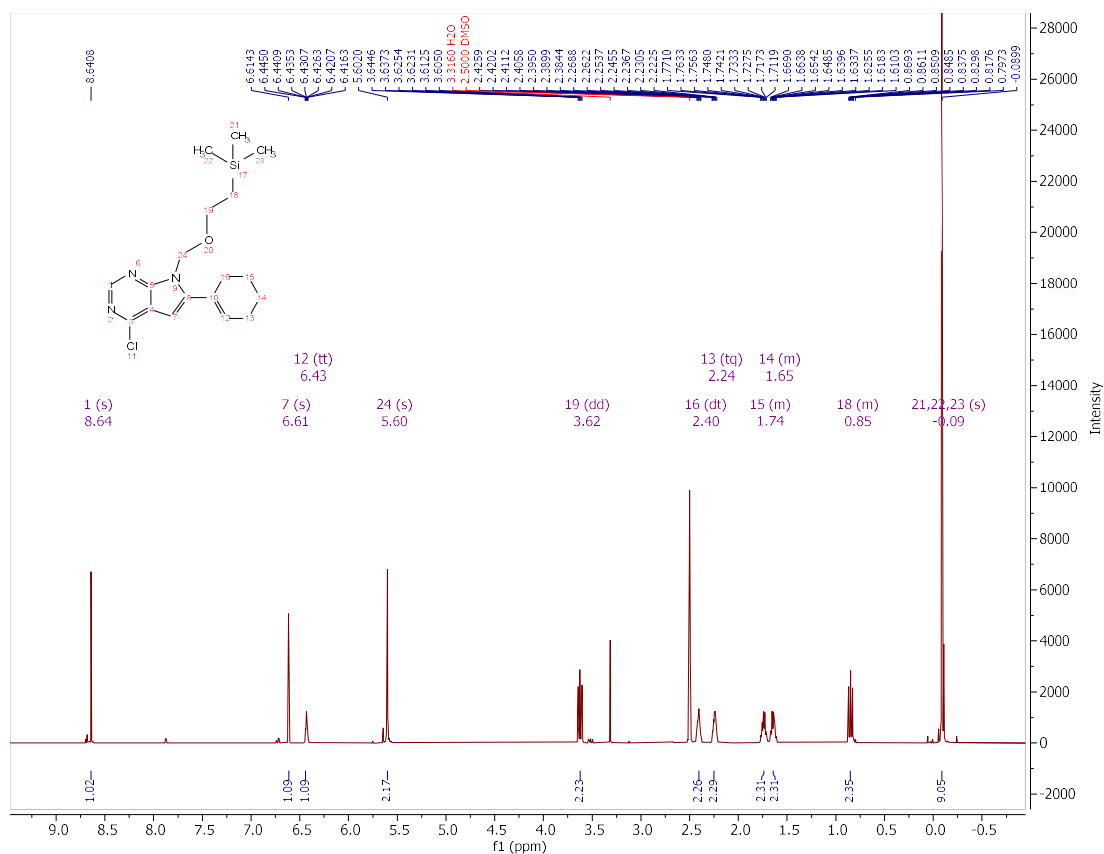


Figure S41. ¹H NMR (400 MHz, DMSO-*d*₆) spectrum of compound 8.

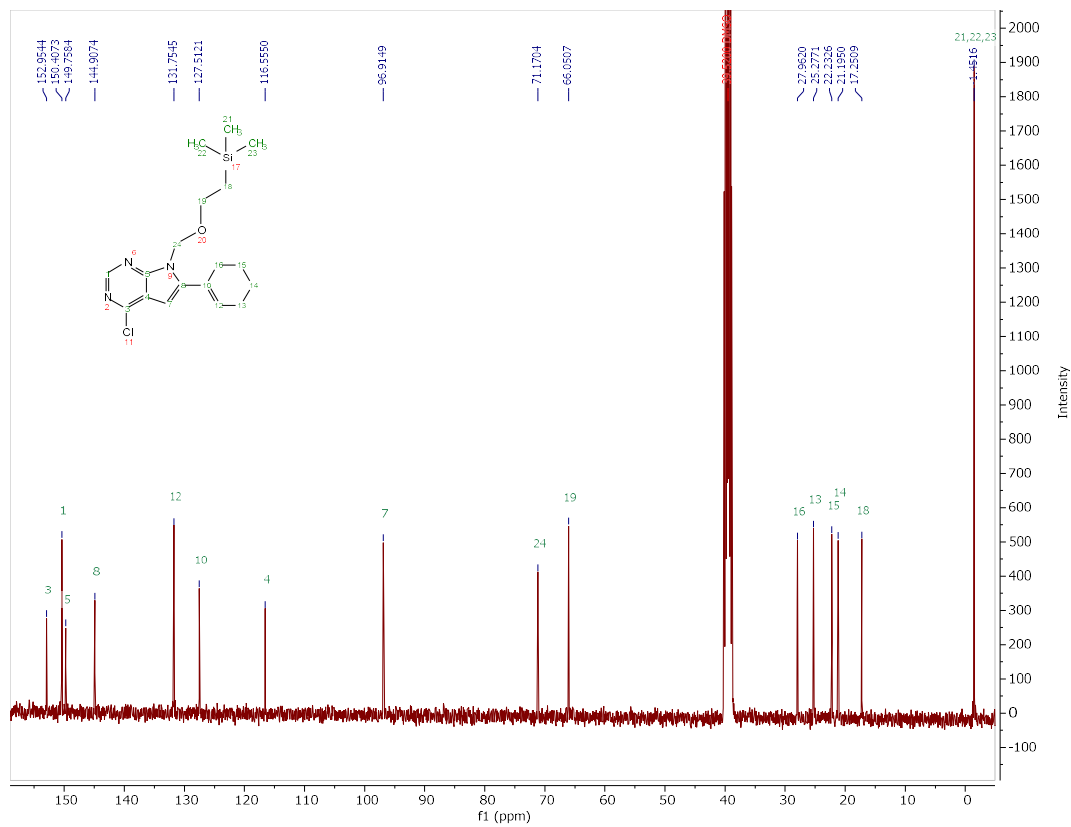


Figure S42. ¹³C NMR (150 MHz, DMSO-*d*₆) spectrum of compound 8.