Supplementary data for
A fluorescent 3,7-bis-(naphthalen-1-ylethynylated)-2'-deoxy-adenosine analogue reports thymidine in complementary DNA by a large emission Stokes shift

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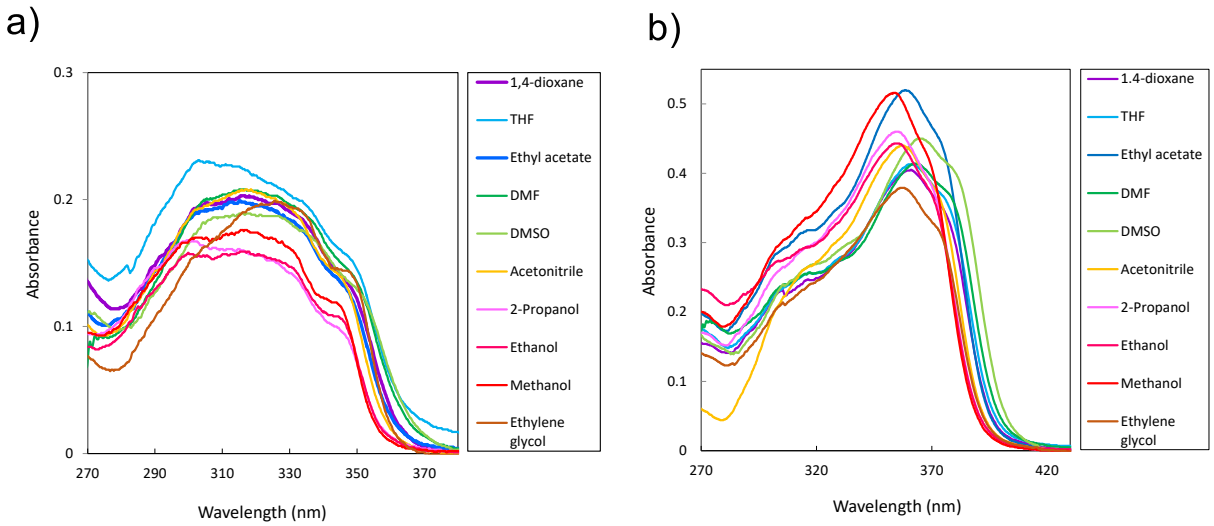

Figure S1. UV absorption spectra of (a) **^{37nz}A (2)** and (b) **^{3n7nz}A (1)** in various solvents of different polarities. All measurments were performed at a concentration of 10 μM.

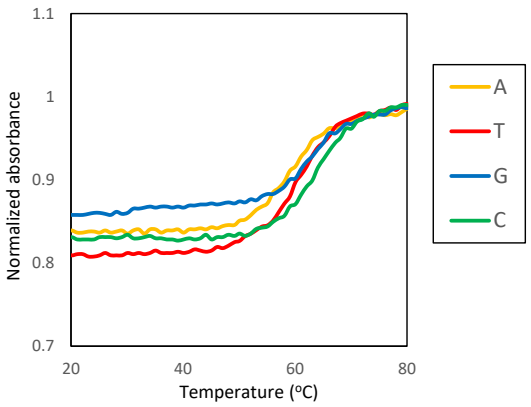

Figure S2. Thermal melting temperature (T_m) of ODN1(**^{37nz}A**) hybridized with cODN1(**N**), (N = A, T, G, or C) (2.5 μM duplex, 0.1 M sodium chloride, 50 mM sodium phosphate buffer, pH 7.0, rt).

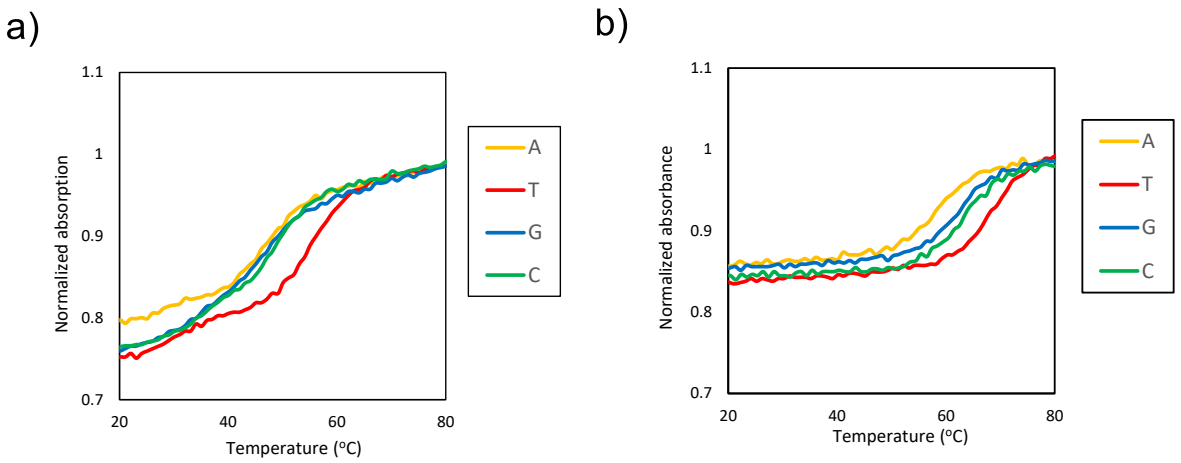

Figure S3. Thermal melting temperature (T_m) of (a) ODN1(**^{3n7nz}A**) hybridized with cODN1(**N**), (N = A, T, G, or C) and (b) ODN2(**^{3n7nz}A**) hybridized with cODN2(**N**), (N = A, T, G, or C) (2.5 μM duplex, 0.1 M sodium chloride, 50 mM sodium phosphate buffer, pH 7.0, rt).

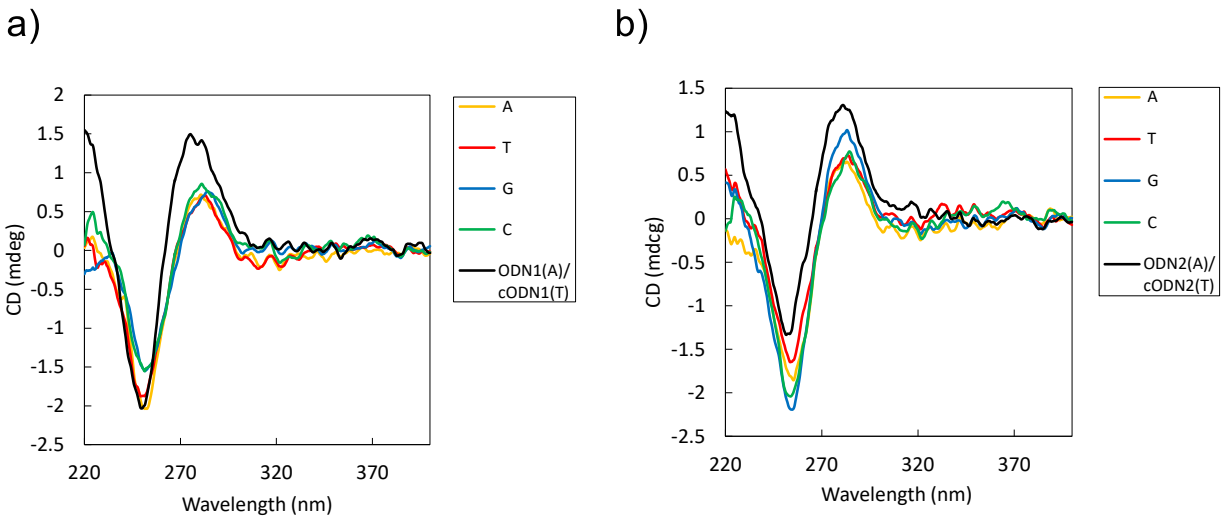

Figure S4. CD spectra of (a) ODN1(^{3n7nz}**A**) hybridized with cODN1(**N**), (N = A, T, G, or C) and (b) ODN2(^{3n7nz}**A**) hybridized with cODN2(**N**), (N = A, T, G, or C) (2.5 μM duplex, 0.1 M sodium chloride, 50 mM sodium phosphate buffer, pH 7.0, rt).

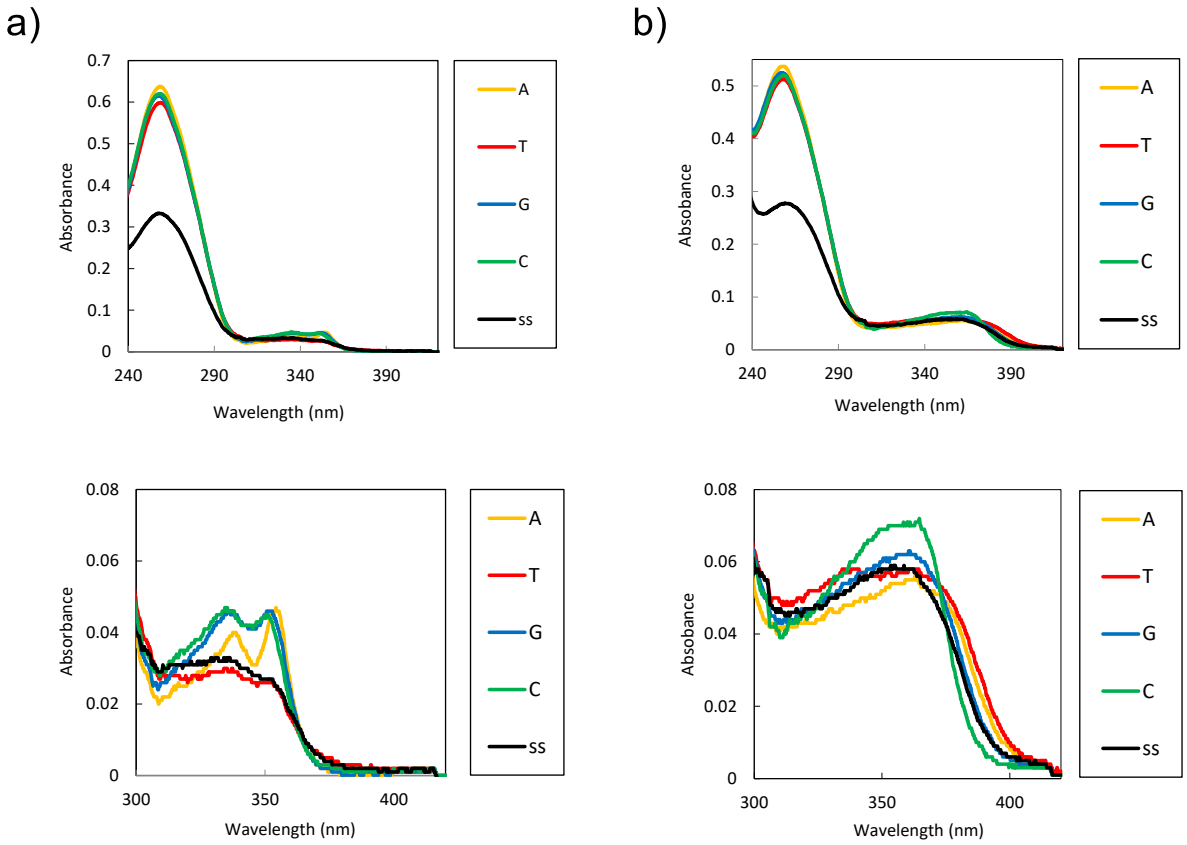

Figure S5. UV absorption spectra of (a) ODN1(^{37nz}**A**) hybridized with cODN1(**N**), (N = A, T, G, or C) and (b) ODN1(^{3n7nz}**A**) hybridized with cODN1(**N**), (N = A, T, G, or C) (2.5 μM duplex, 0.1 M sodium chloride, 50 mM sodium phosphate buffer, pH 7.0, rt).

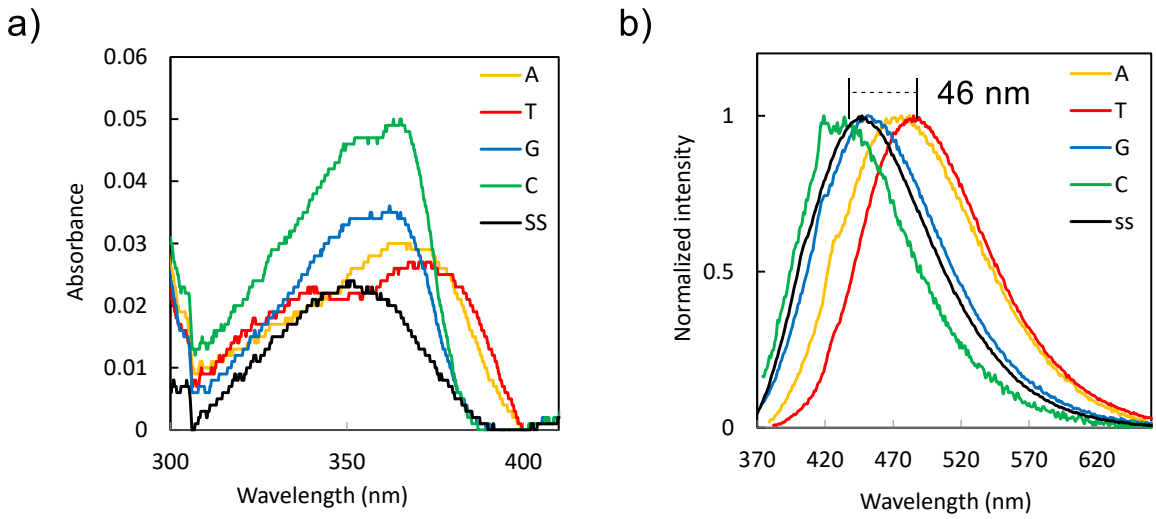

Figure S6. (a) UV absorption and (b) normalized fluorescent spectra of ODN2(^{3n7nz}**A**) hybridized with cODN2(**N**), (N = A, T, G, or C) (2.5 μM duplex, 0.1 M sodium chloride, 50 mM sodium phosphate buffer, pH 7.0, rt).

Table S1. MALDI-TOF-MS spectral data for the ODNs

ODNs	Sequences	MALDI-TOF-MS	
		calcd. $[M + H]^+$	found $[M + H]^+$
ODN1(^{37nz}**A**)	5'-d(CGCAAT ^{37nz}**A** TAACGC)-3'	4077.85	4077.55
ODN1(^{3n7nz}**A**)	5'-d(CGCAAT ^{3n7nz}**A**TAACGC)-3'	4228.03	4227.83
ODN2(^{3n7nz}**A**)	5'-d(CGCAAC^{3n7nz}**A**CAACGC)-3'	4198.01	4197.08

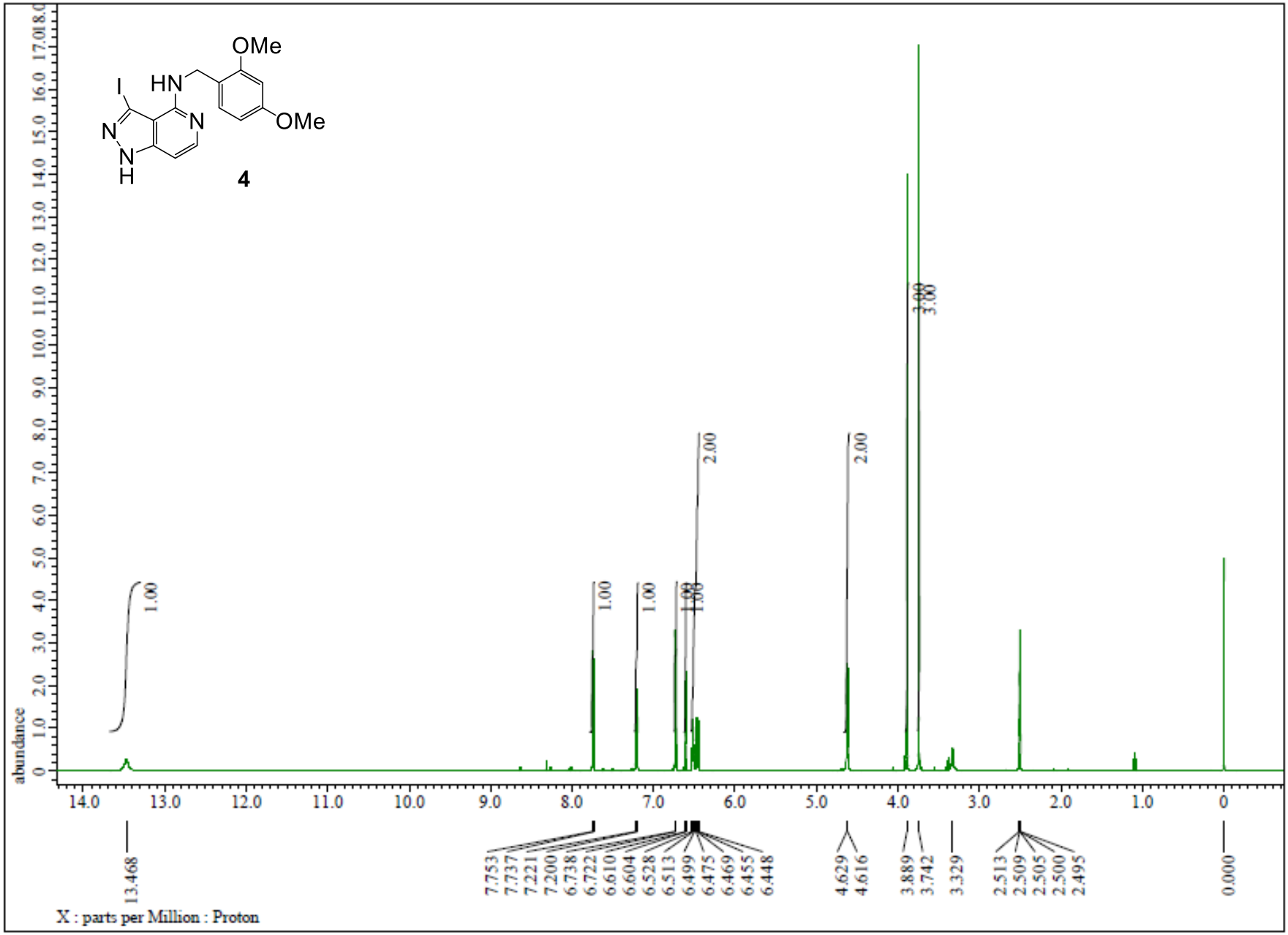

Figure S7. ^{1}H-NMR spectrum of compound **4** (DMSO-d_6)

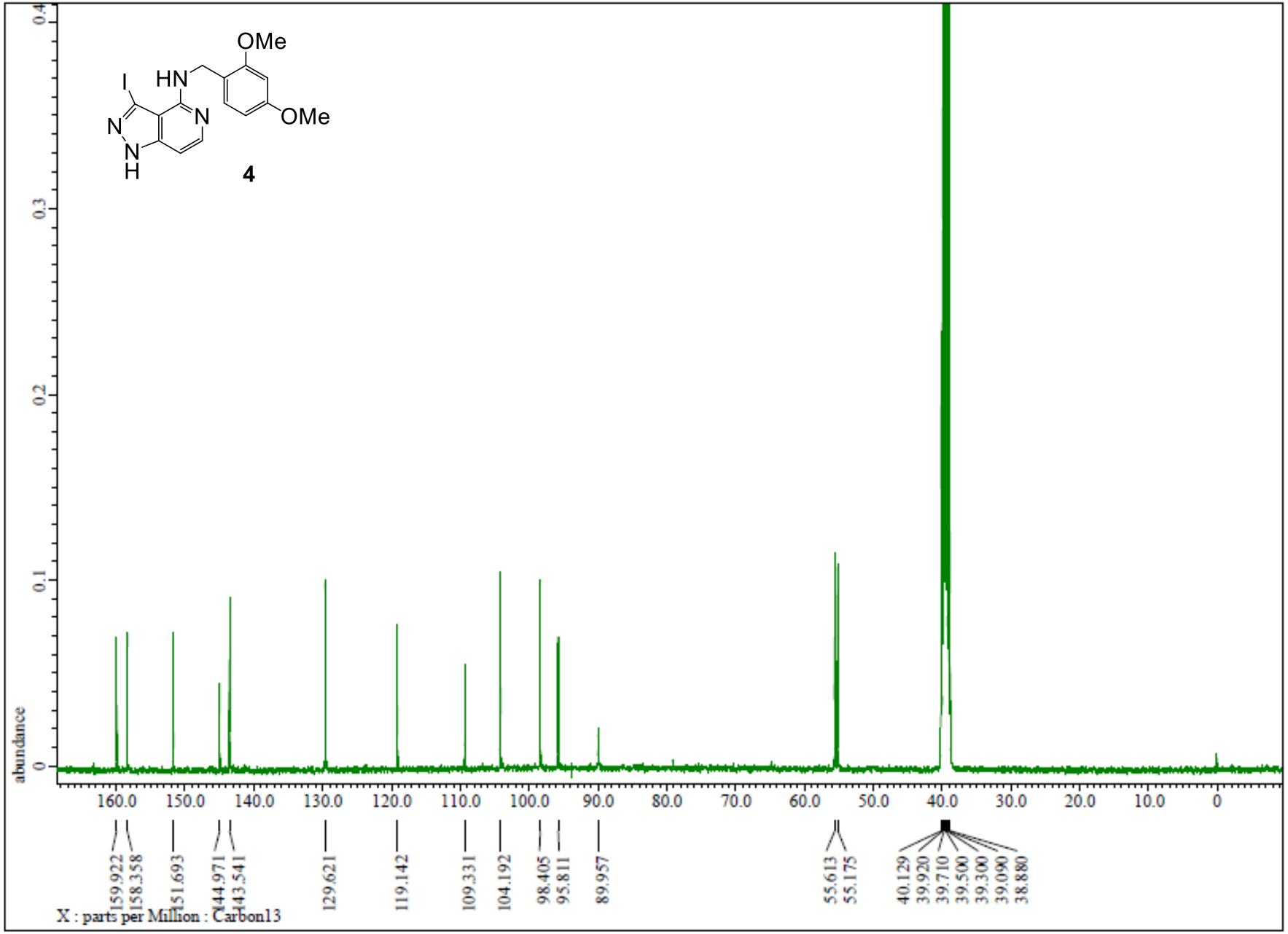

Figure S8. ^{13}C-NMR spectrum of compound **4** (DMSO-d_6)

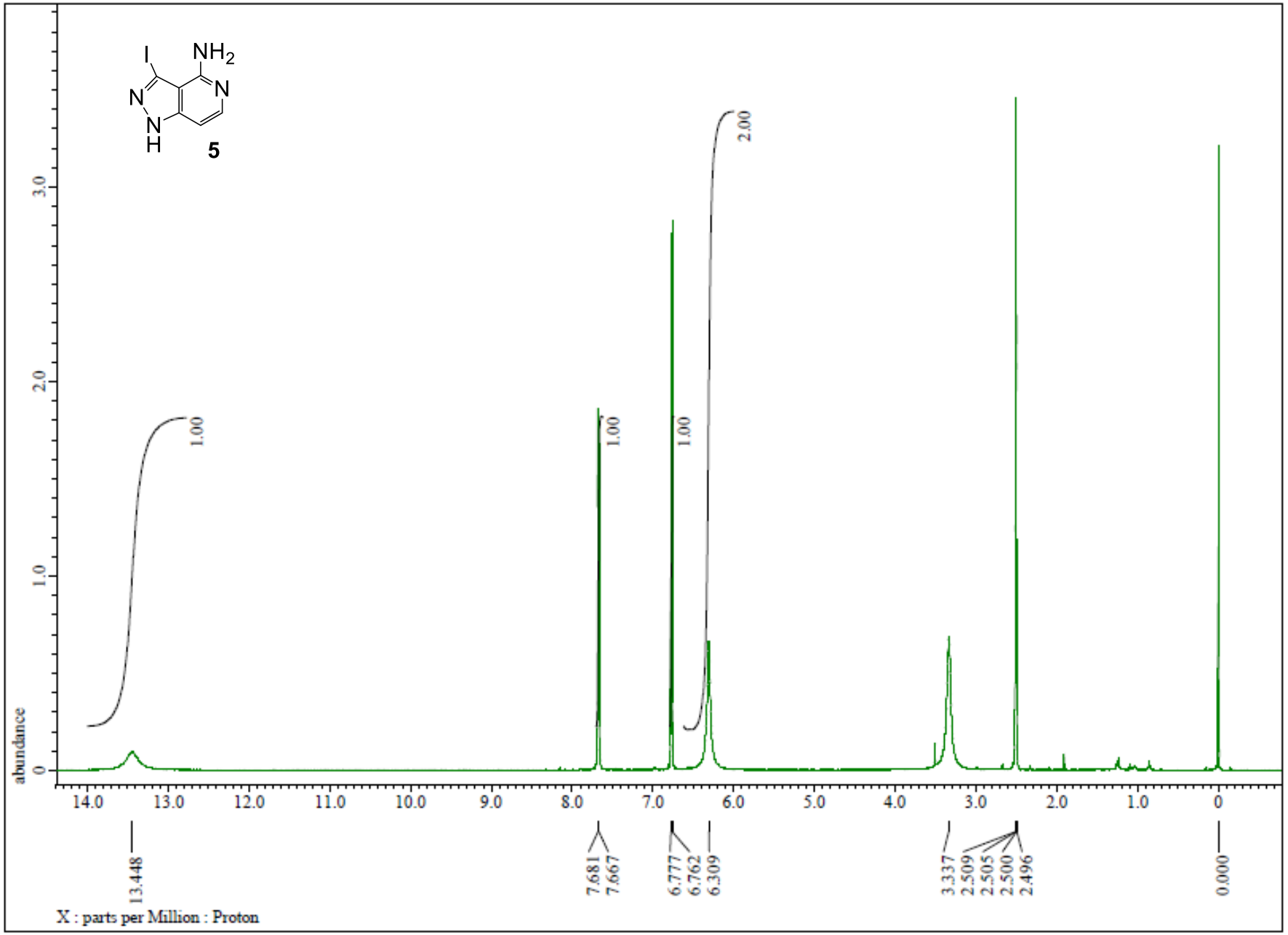

Figure S9. ^{1}H-NMR spectrum of compound **5** (DMSO-d_6)

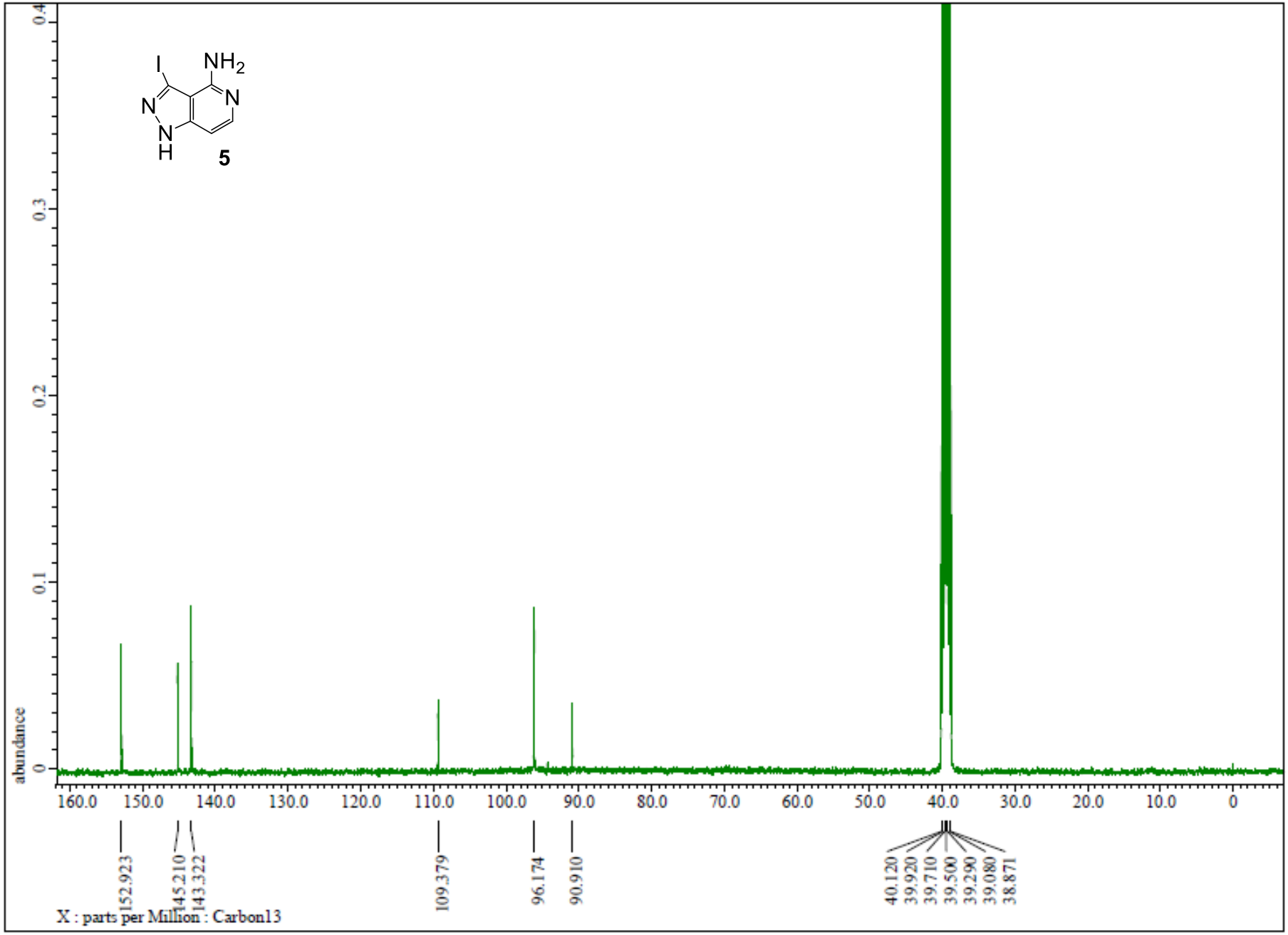

Figure S10. ^{13}C-NMR spectrum of compound **5** (DMSO-d_6)

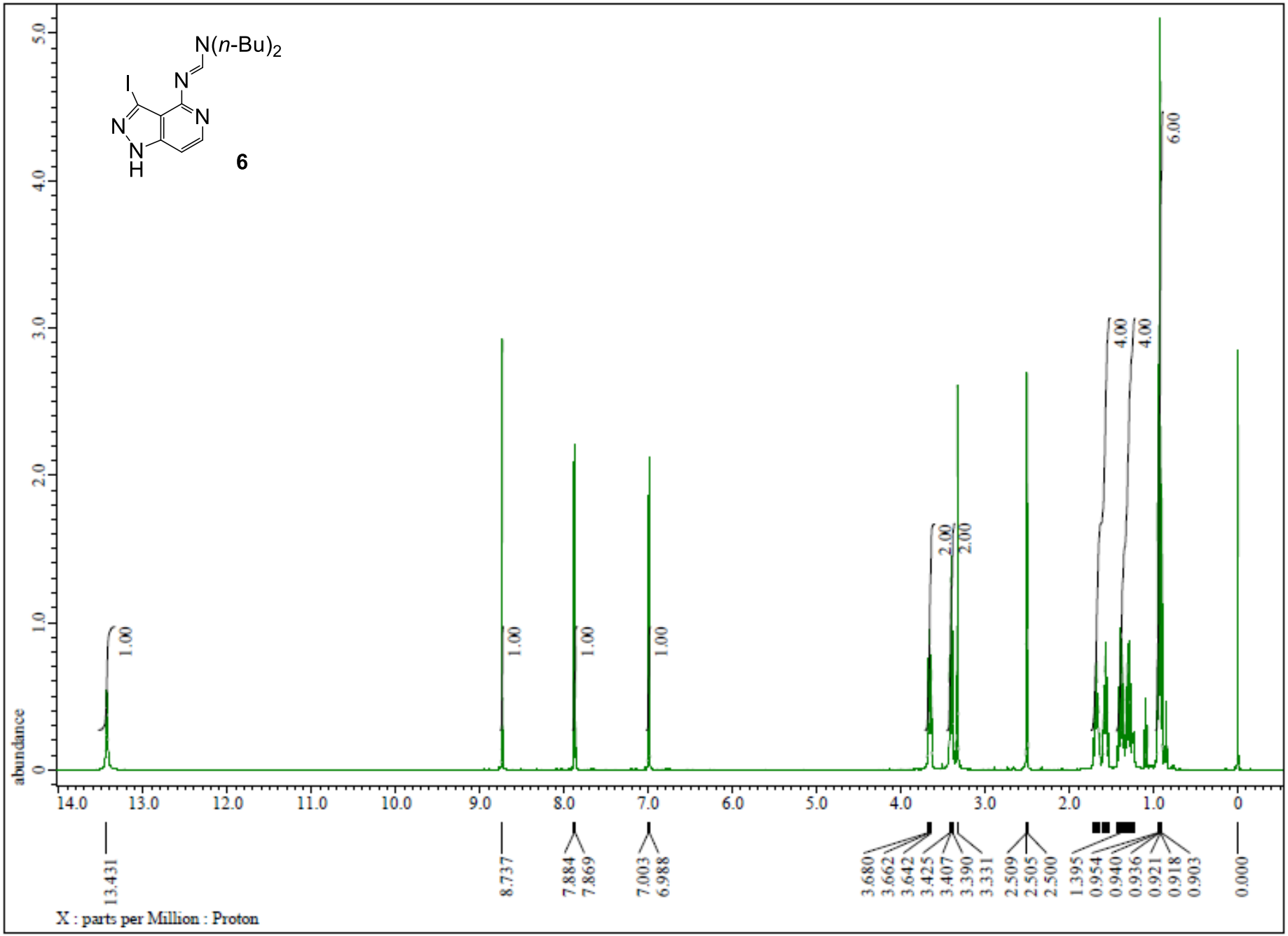

Figure S11. ^{1}H-NMR spectrum of compound **5** (DMSO-d_6)

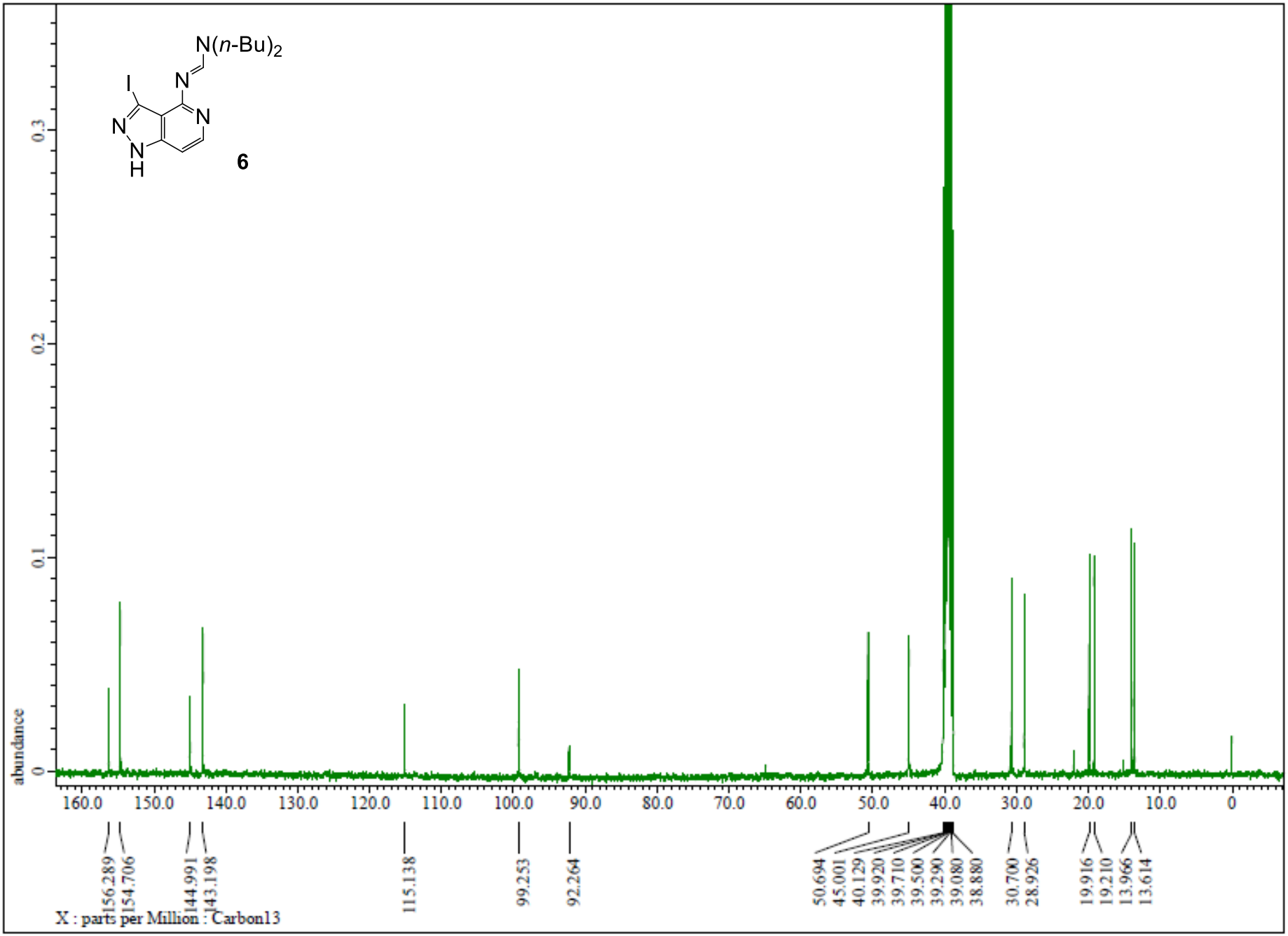

Figure S12. ^{13}C-NMR spectrum of compound **5** (DMSO-d_6)

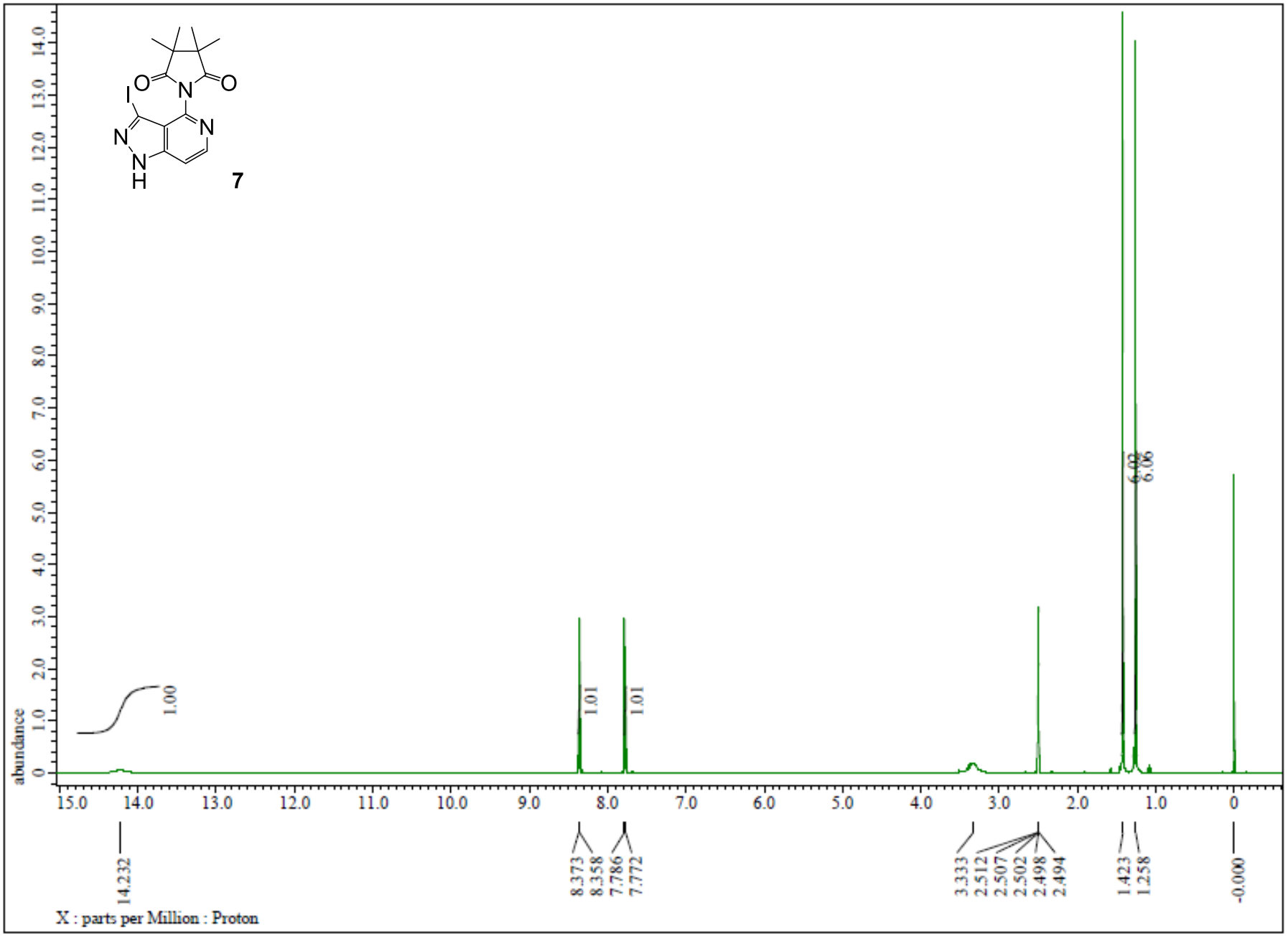

Figure S13. ^{1}H-NMR spectrum of compound **7** (DMSO-d_6)

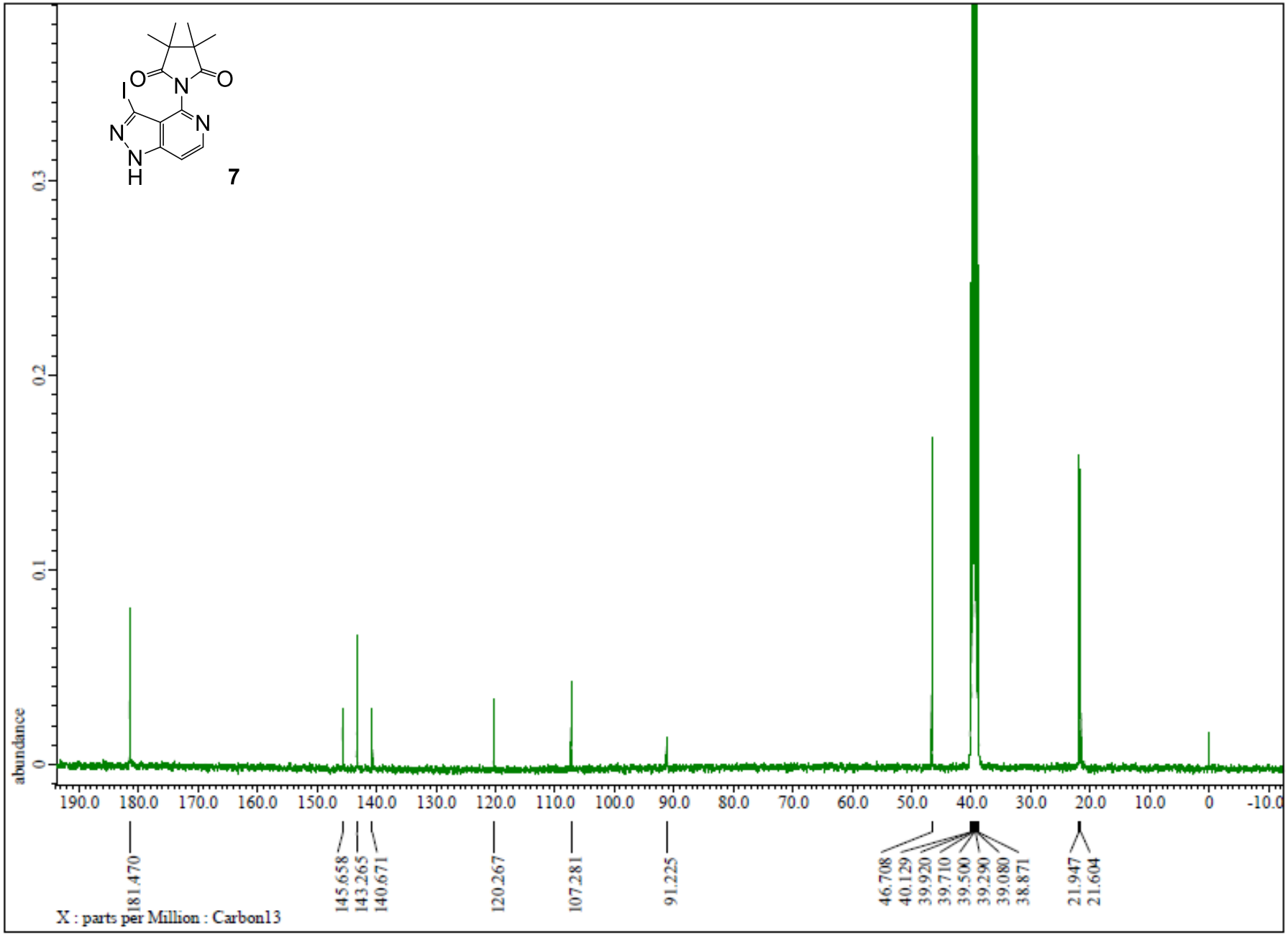

Figure S14. ^{13}C-NMR spectrum of compound **7** (DMSO-d_6)

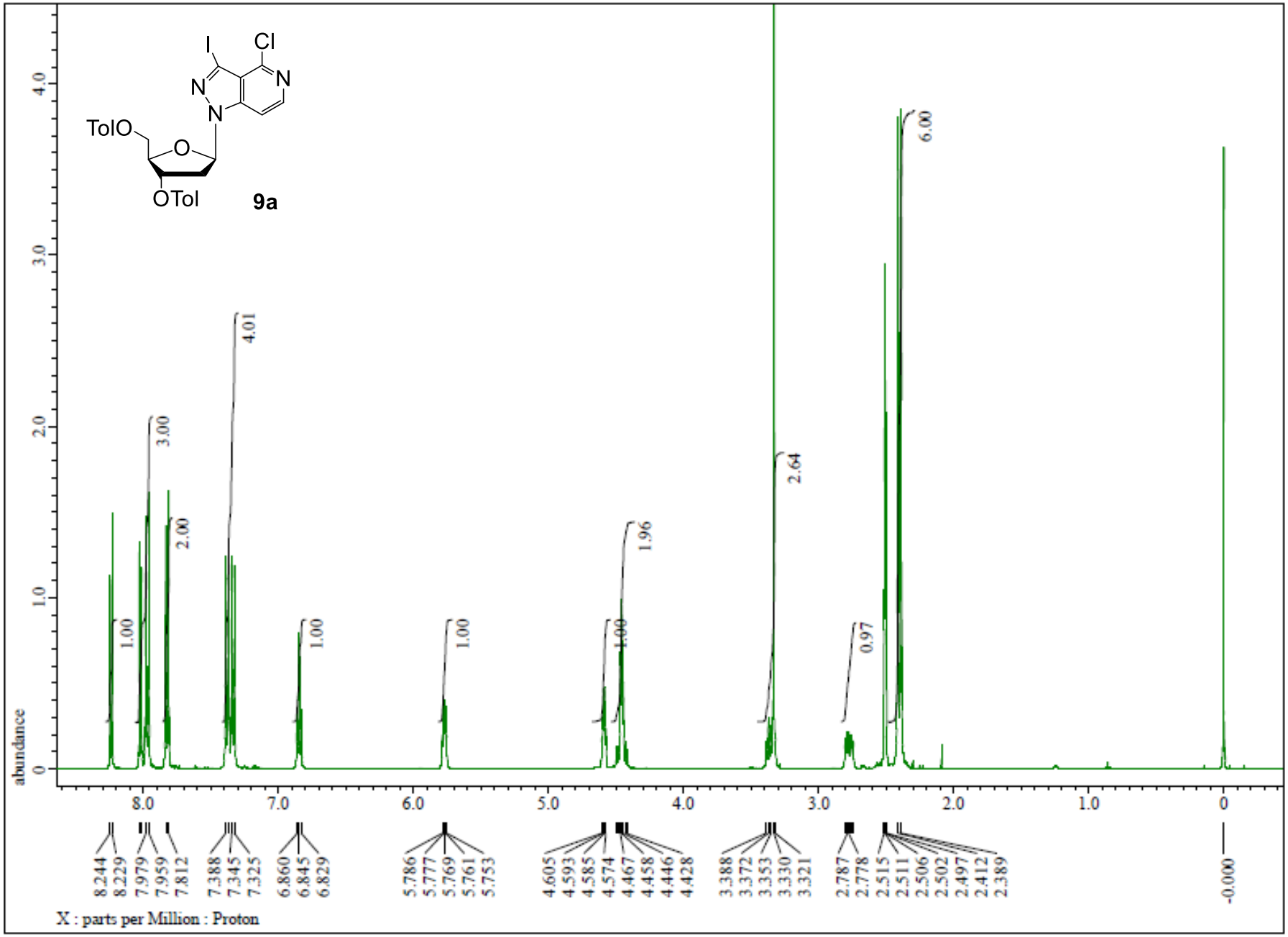

Figure S15. ^{1}H-NMR spectrum of compound **9a** (DMSO-d_6)

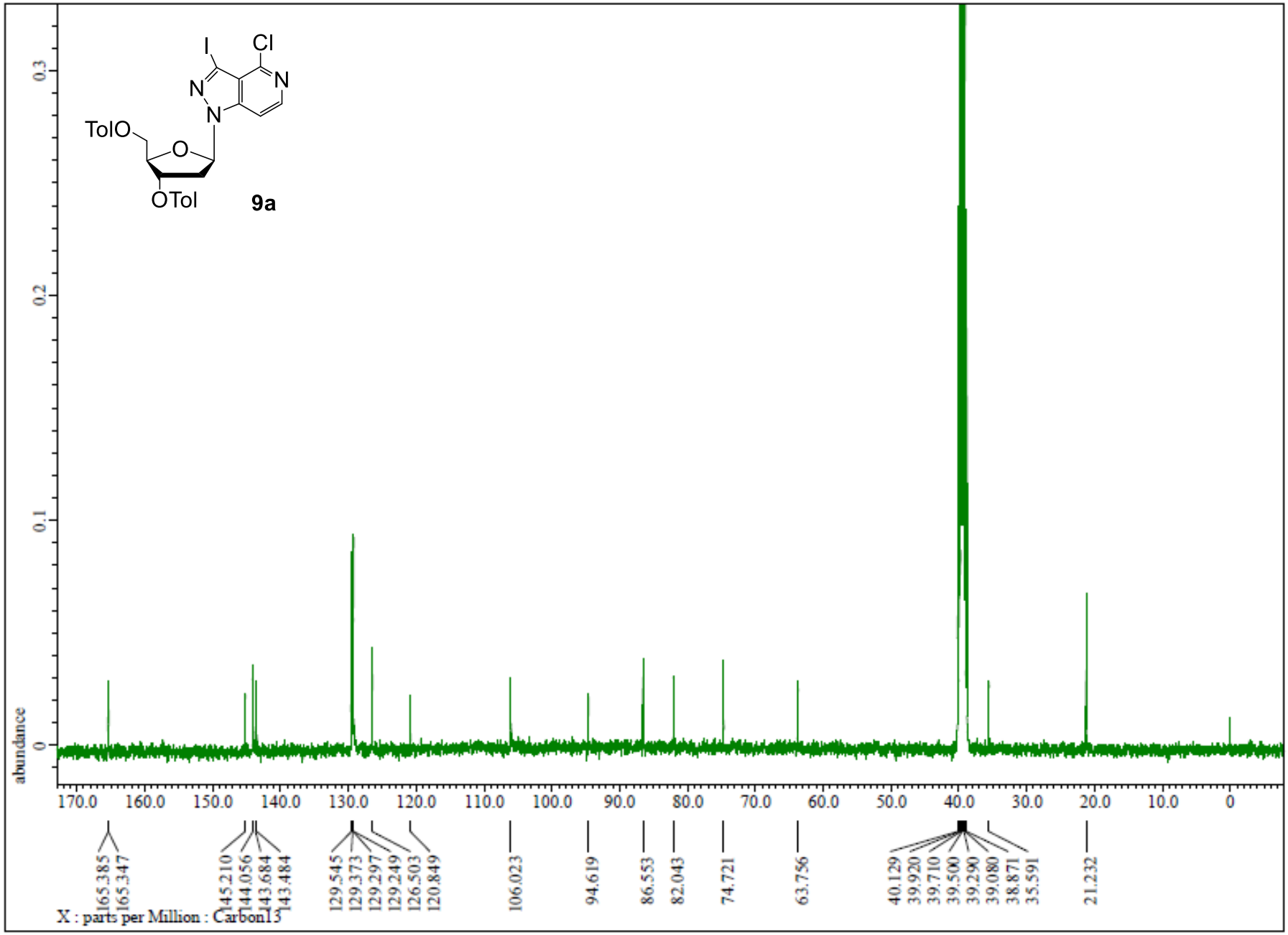

Figure S16. ^{13}C-NMR spectrum of compound **9a** (DMSO-d_6)

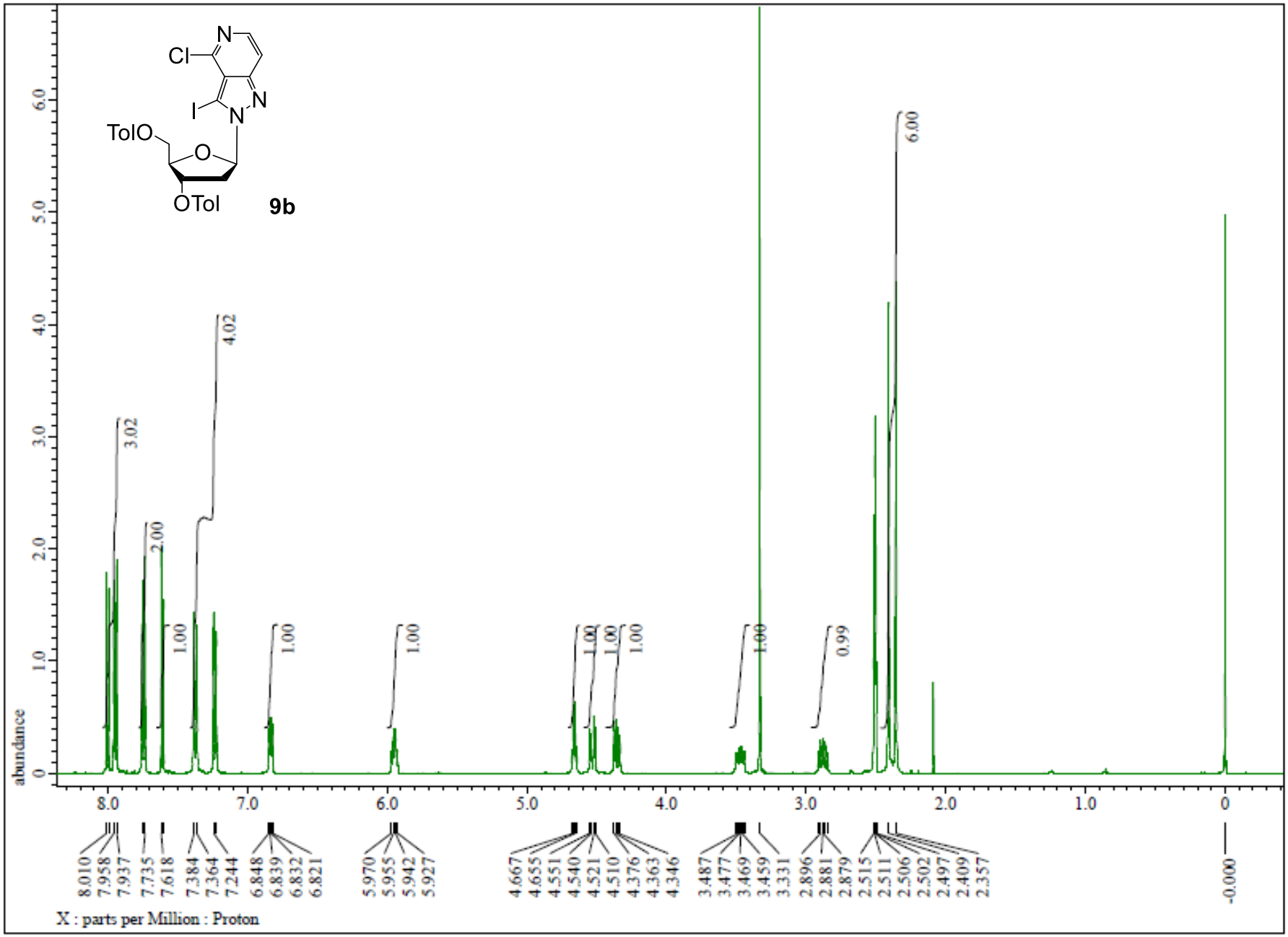

Figure S17. ^{1}H-NMR spectrum of compound **9b** (DMSO-d_6)

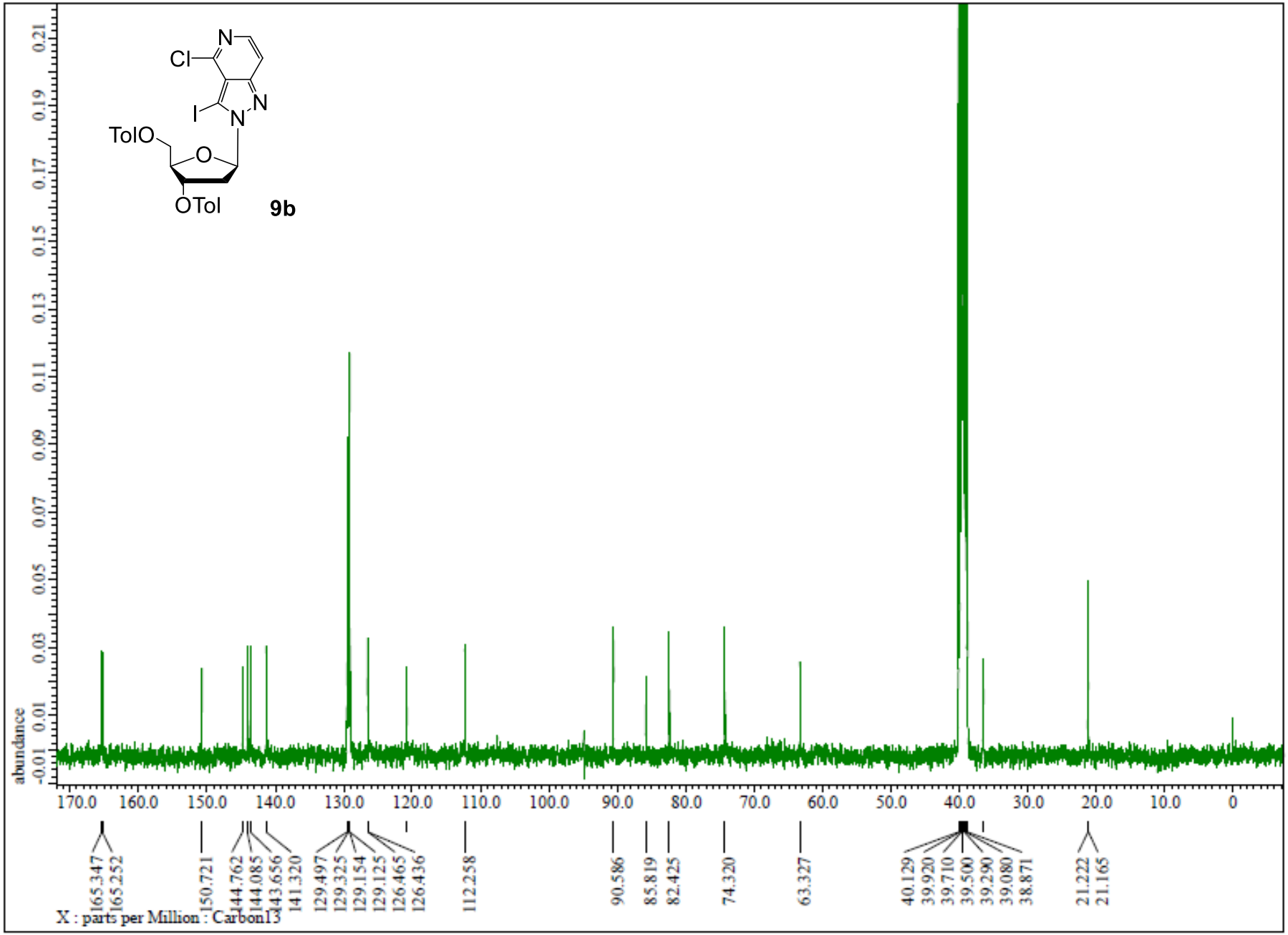

Figure S18. ^{13}C-NMR spectrum of compound **9b** (DMSO-d_6)

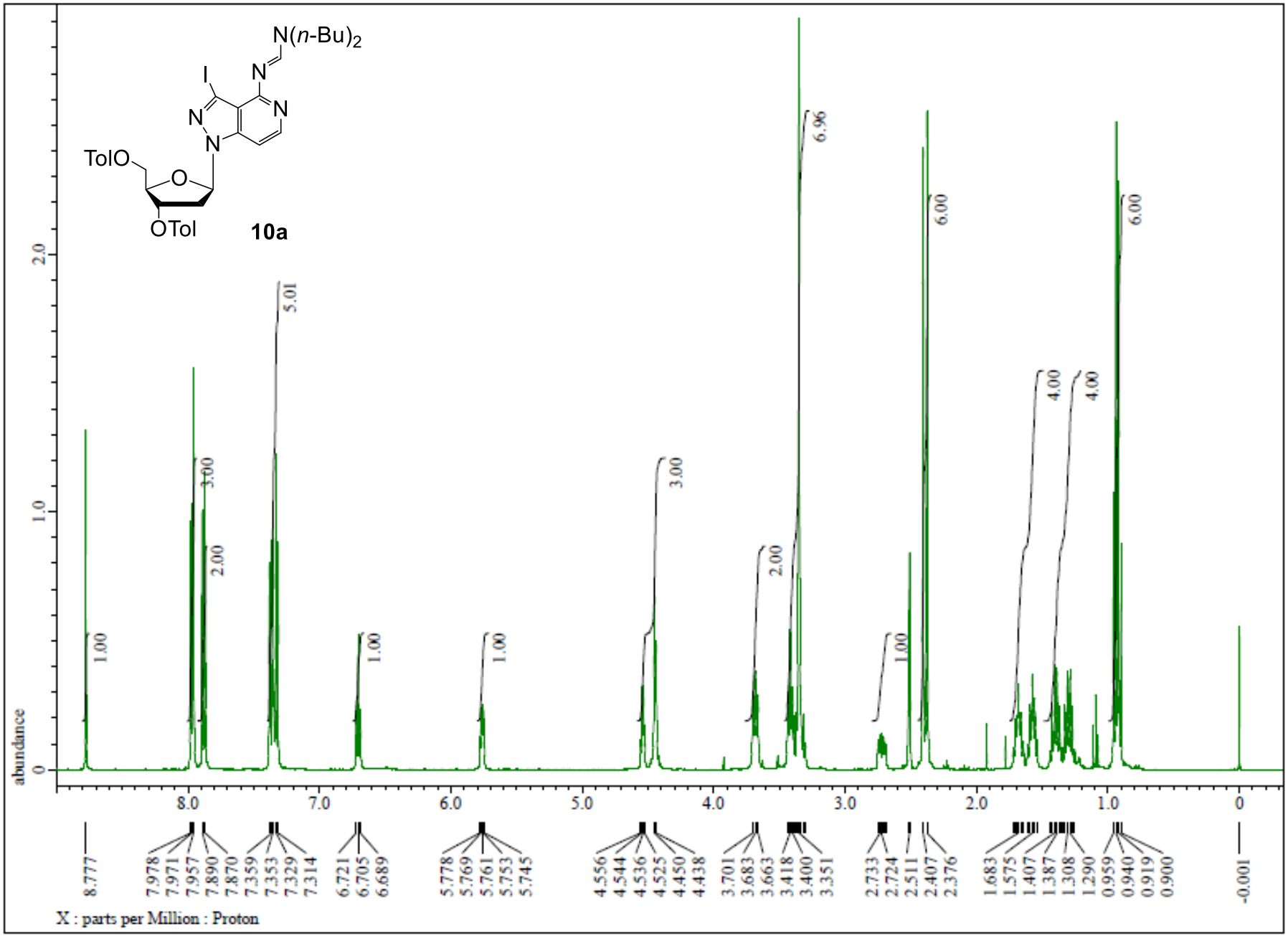

Figure S19. ^{1}H-NMR spectrum of compound **10a** (DMSO-d_6)

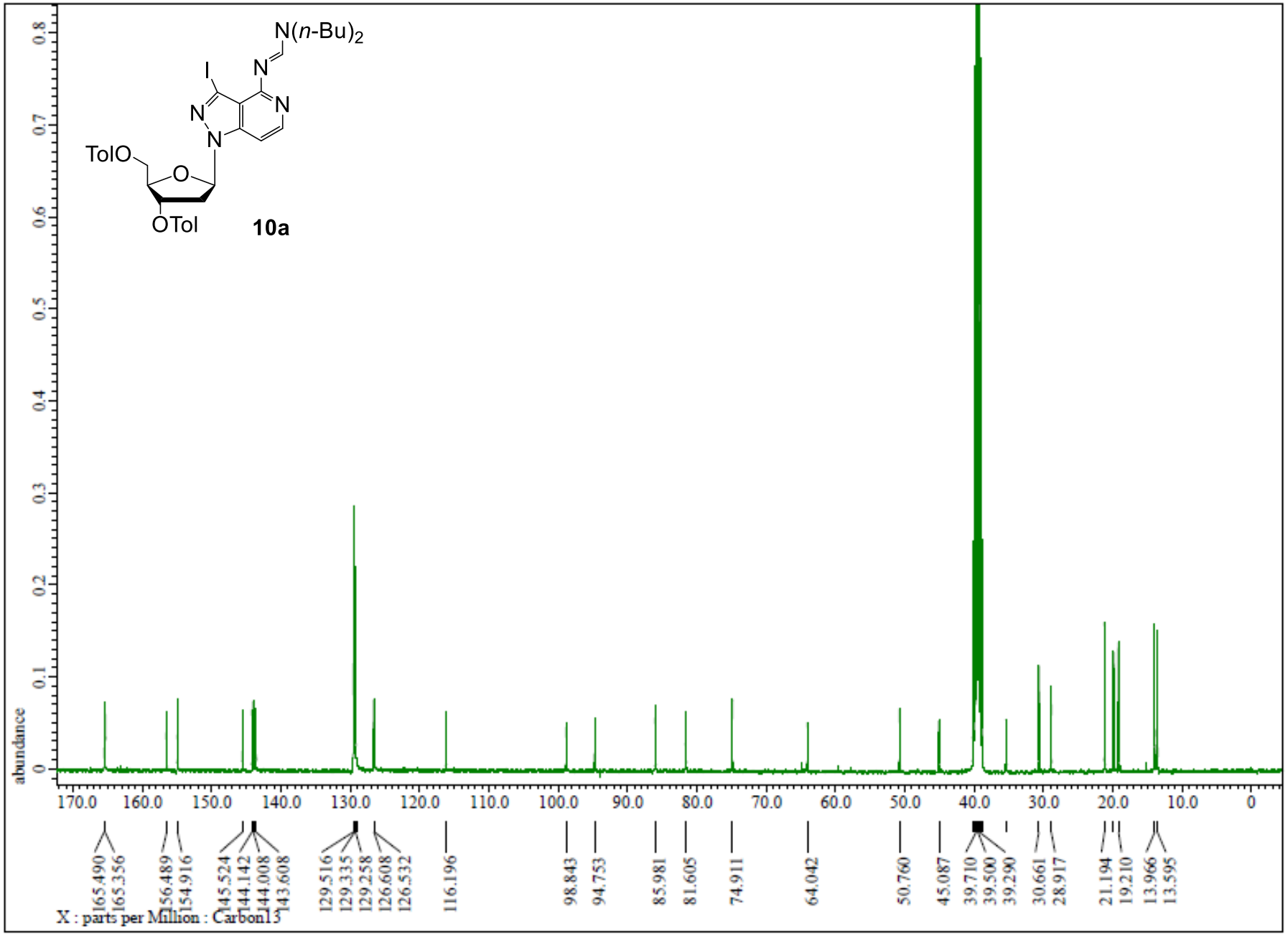

Figure S20. ^{13}C-NMR spectrum of compound **10a** (DMSO-d_6)

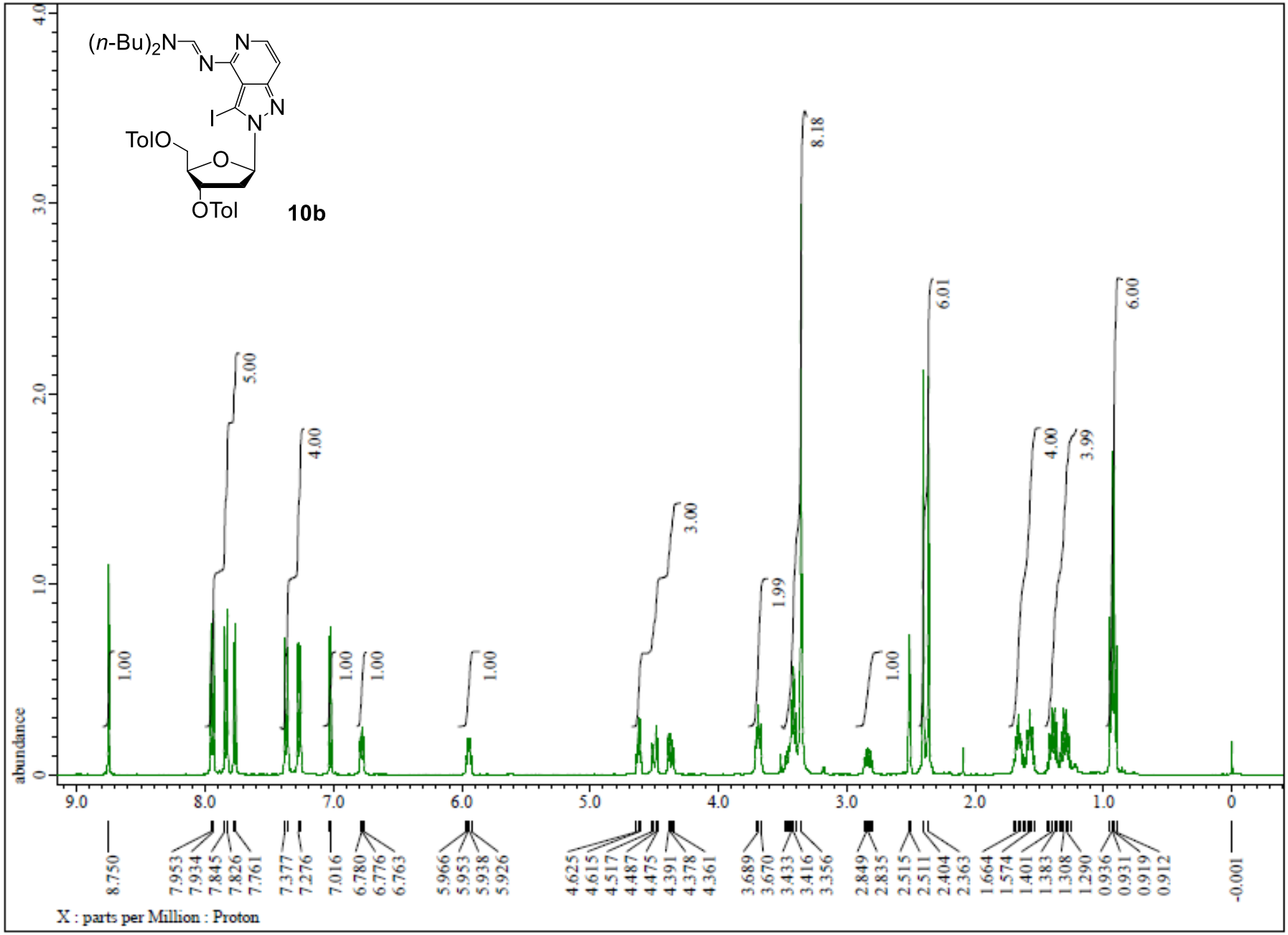

Figure S21. ^{1}H-NMR spectrum of compound **10b** (DMSO-d_6)

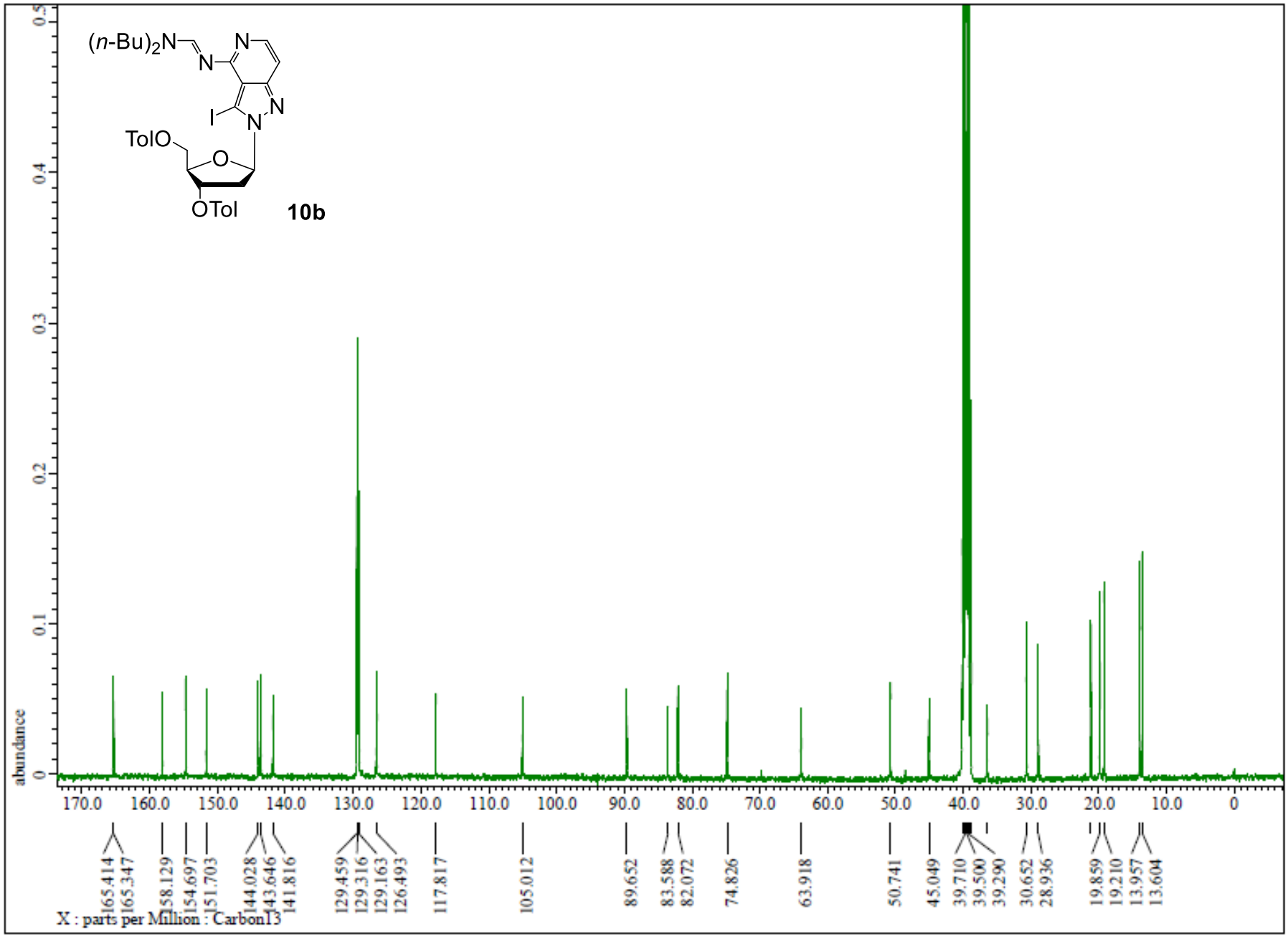

Figure S22. ^{13}C-NMR spectrum of compound **10b** (DMSO-d_6)

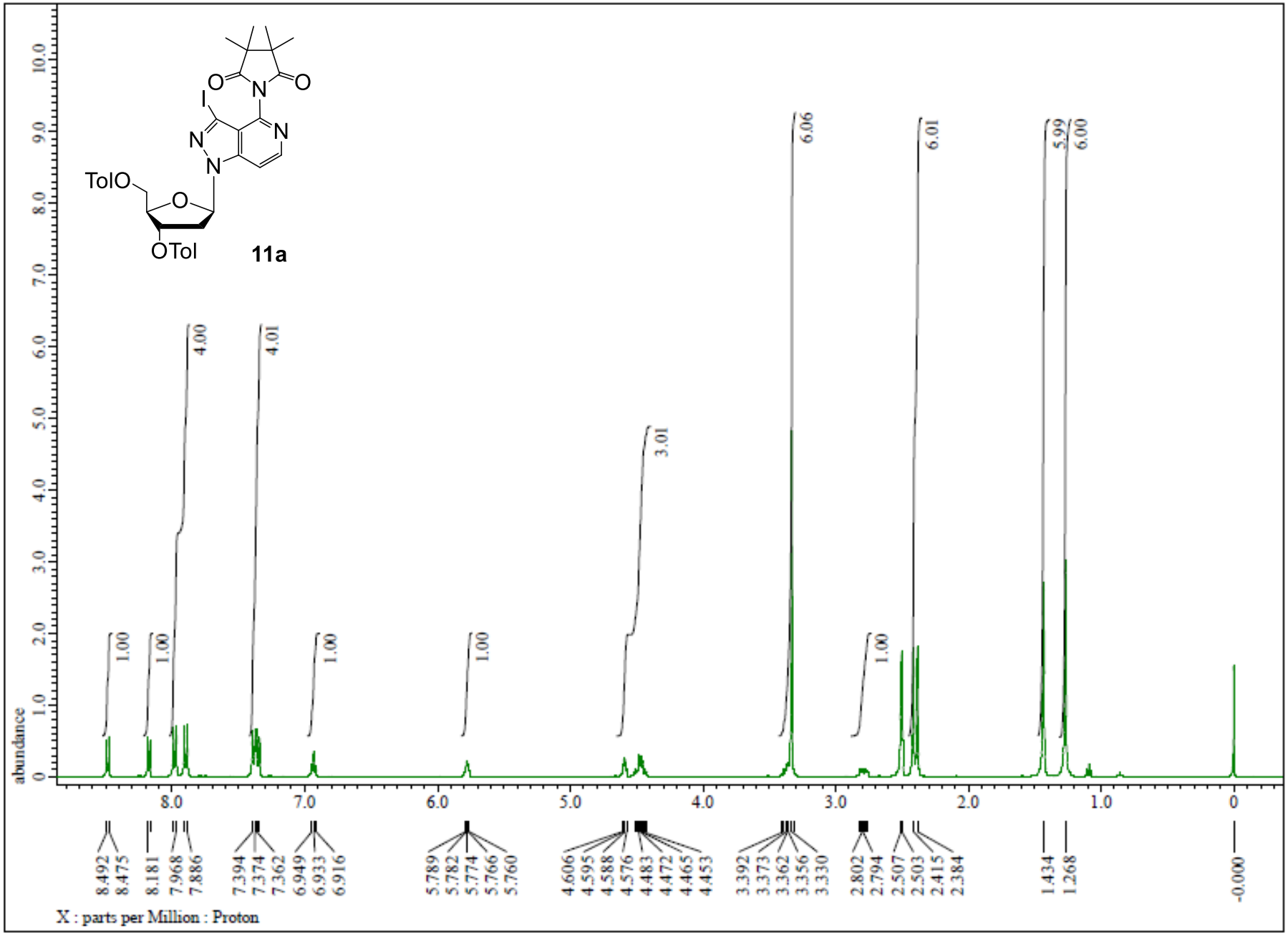

Figure S23. ^{1}H-NMR spectrum of compound **11a** (DMSO-d_6)

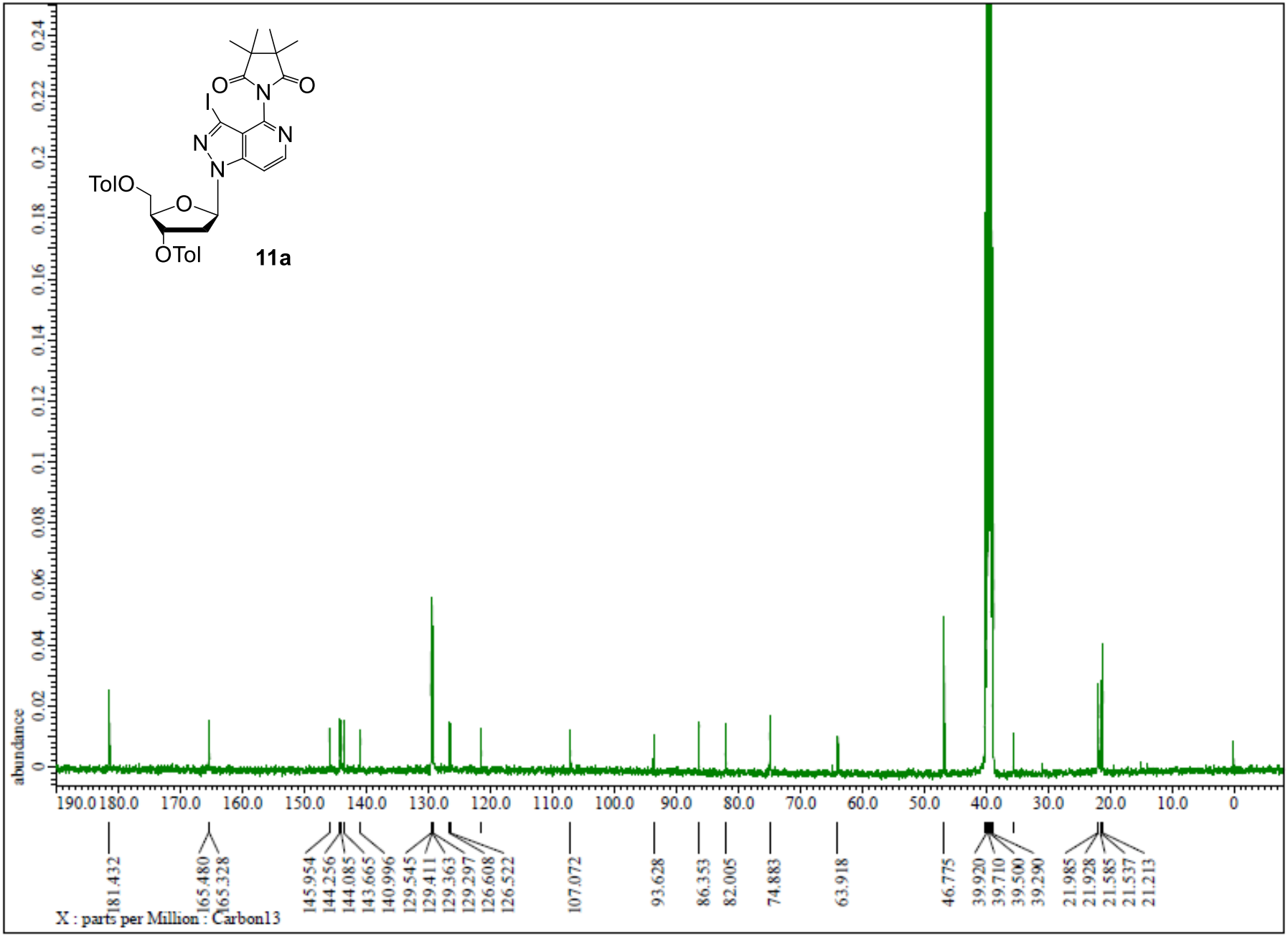

Figure S24. ^{13}C-NMR spectrum of compound **11a** (DMSO-d_6)

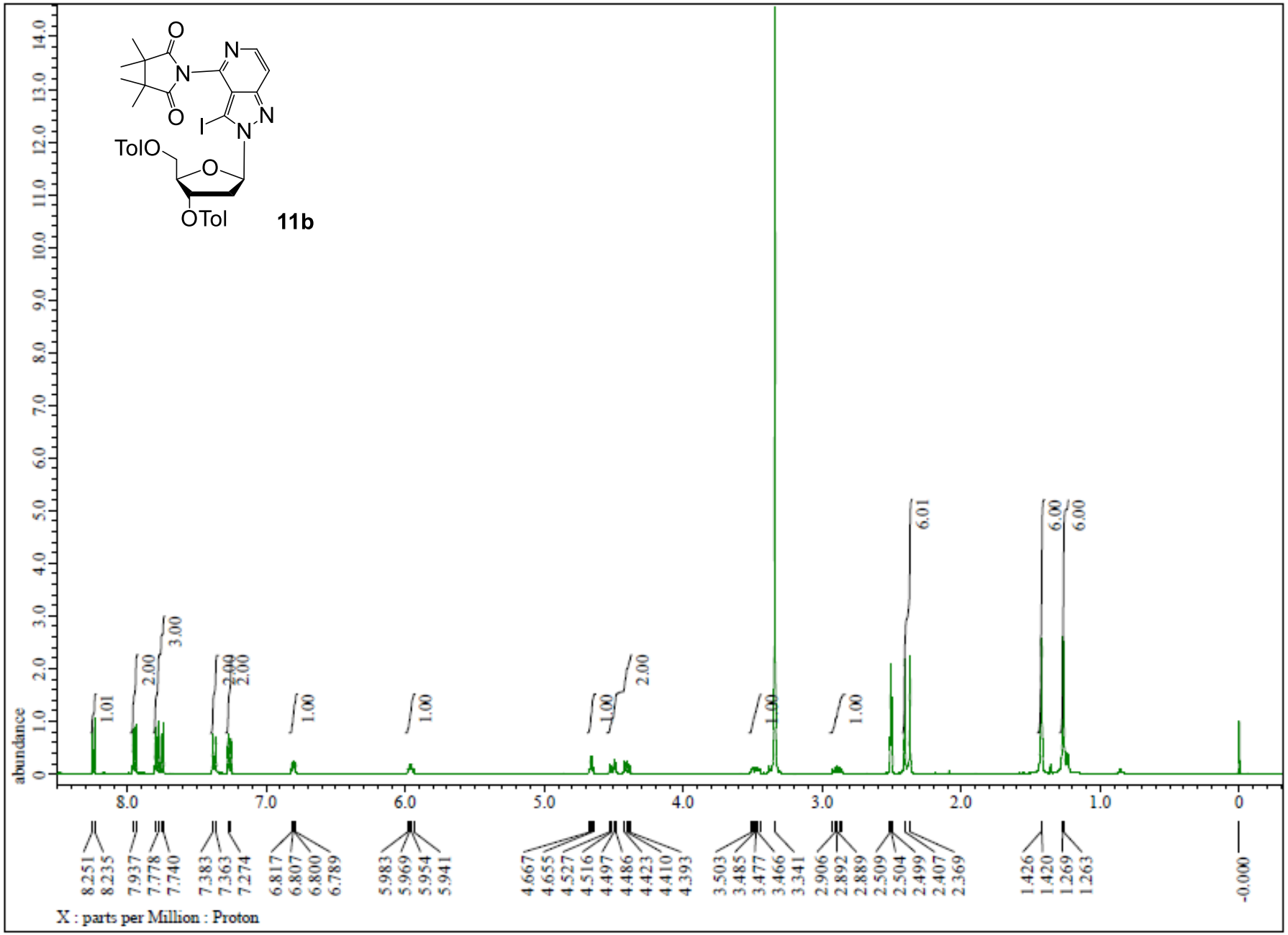

Figure S25. ^{1}H-NMR spectrum of compound **11b** (DMSO-d_6)

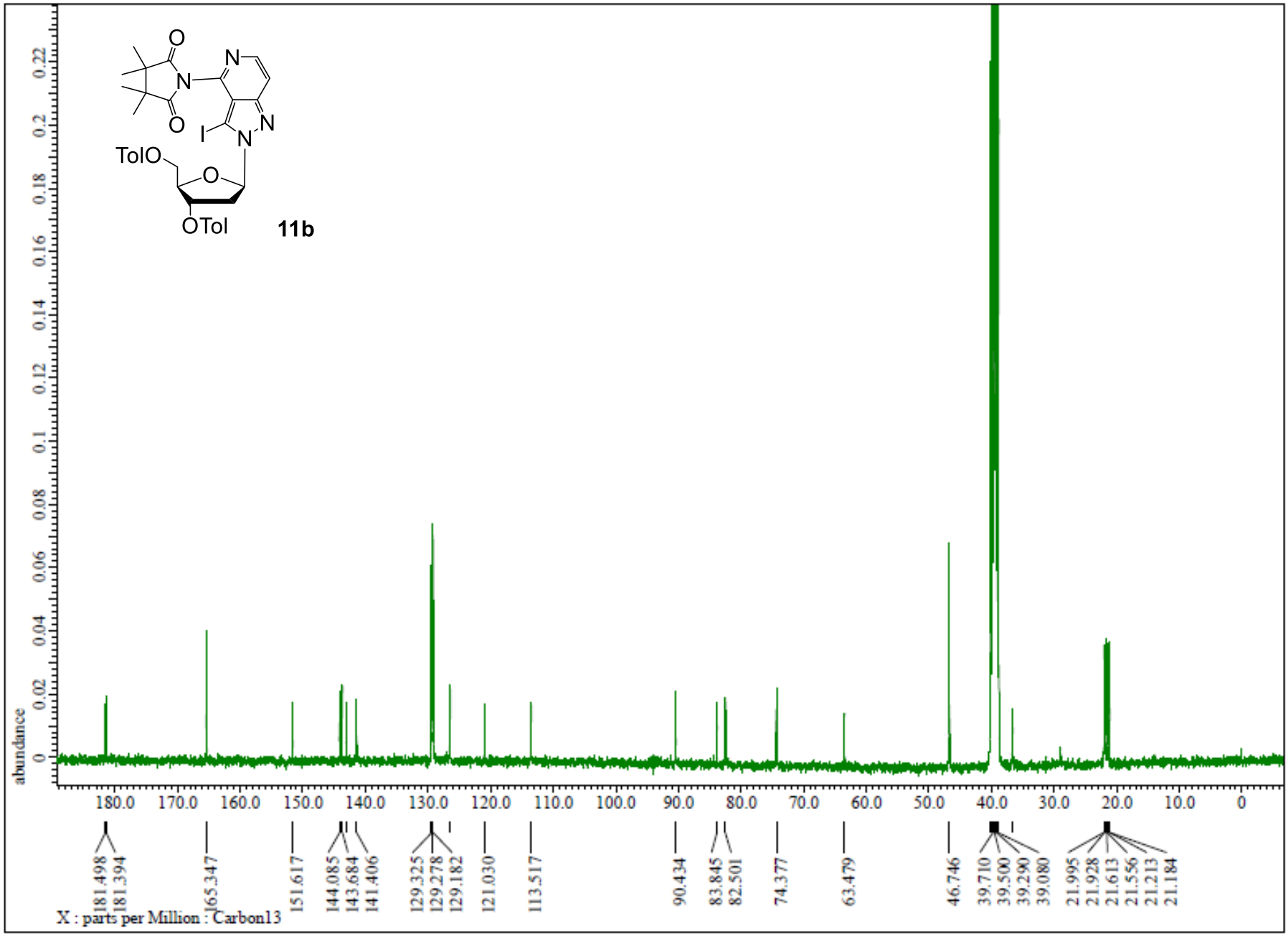

Figure S26. ^{13}C-NMR spectrum of compound **11b** (DMSO-d_6)

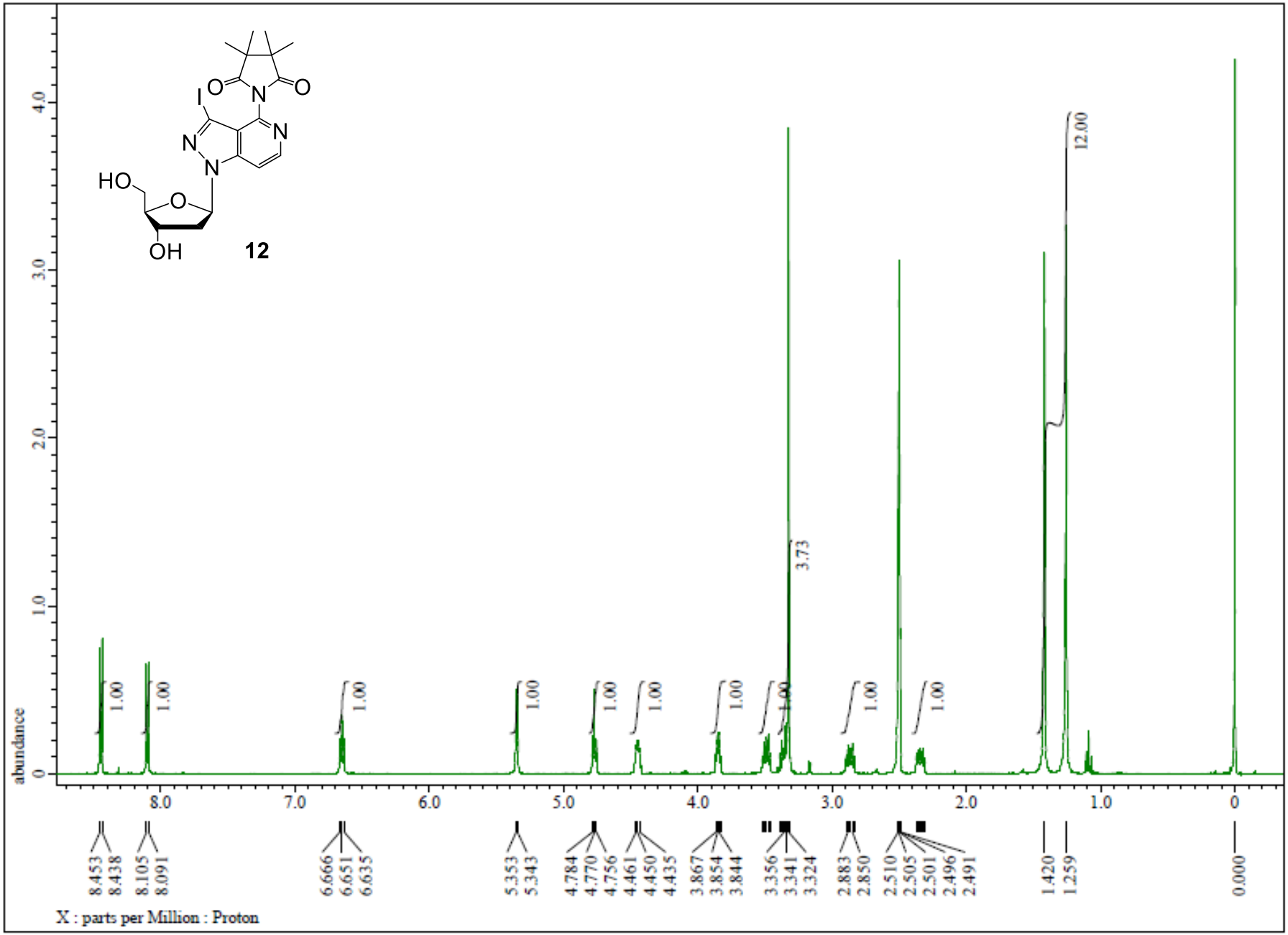

Figure S27. ^{1}H-NMR spectrum of compound **12** (DMSO-d_6)

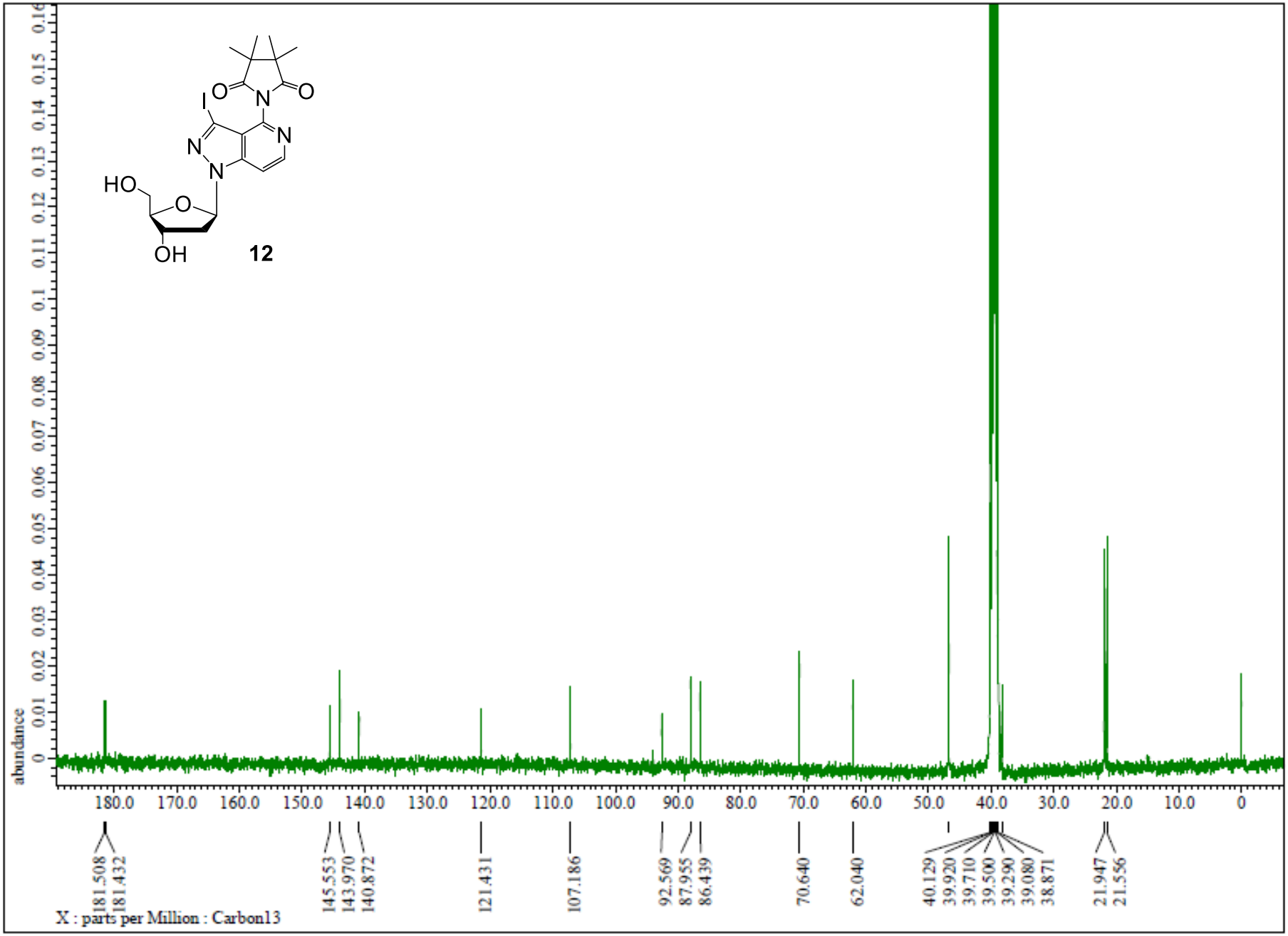

Figure S28. ^{13}C-NMR spectrum of compound **12** (DMSO-d_6)

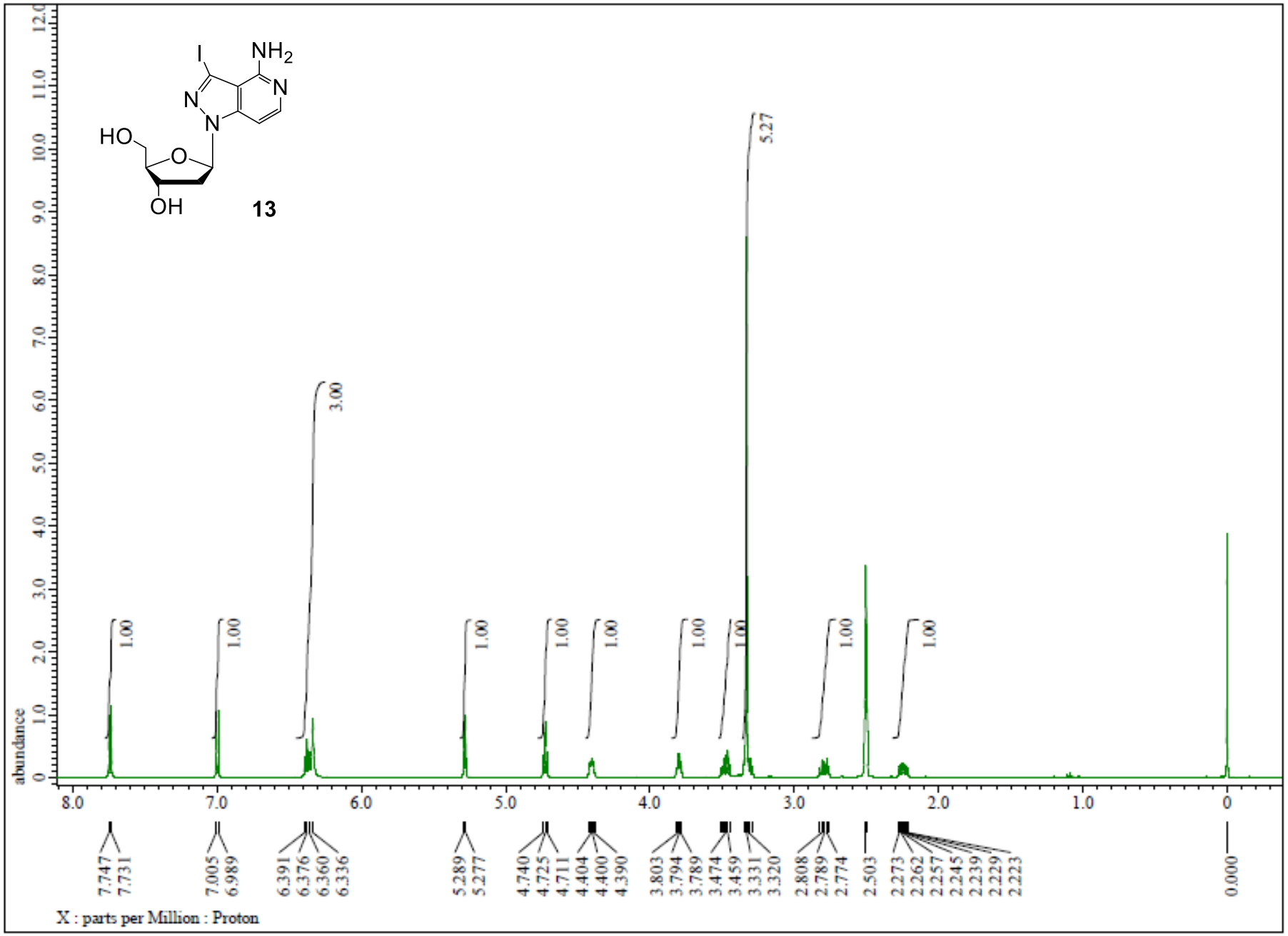

Figure S29. ^{1}H-NMR spectrum of compound **13** (DMSO-d_6)

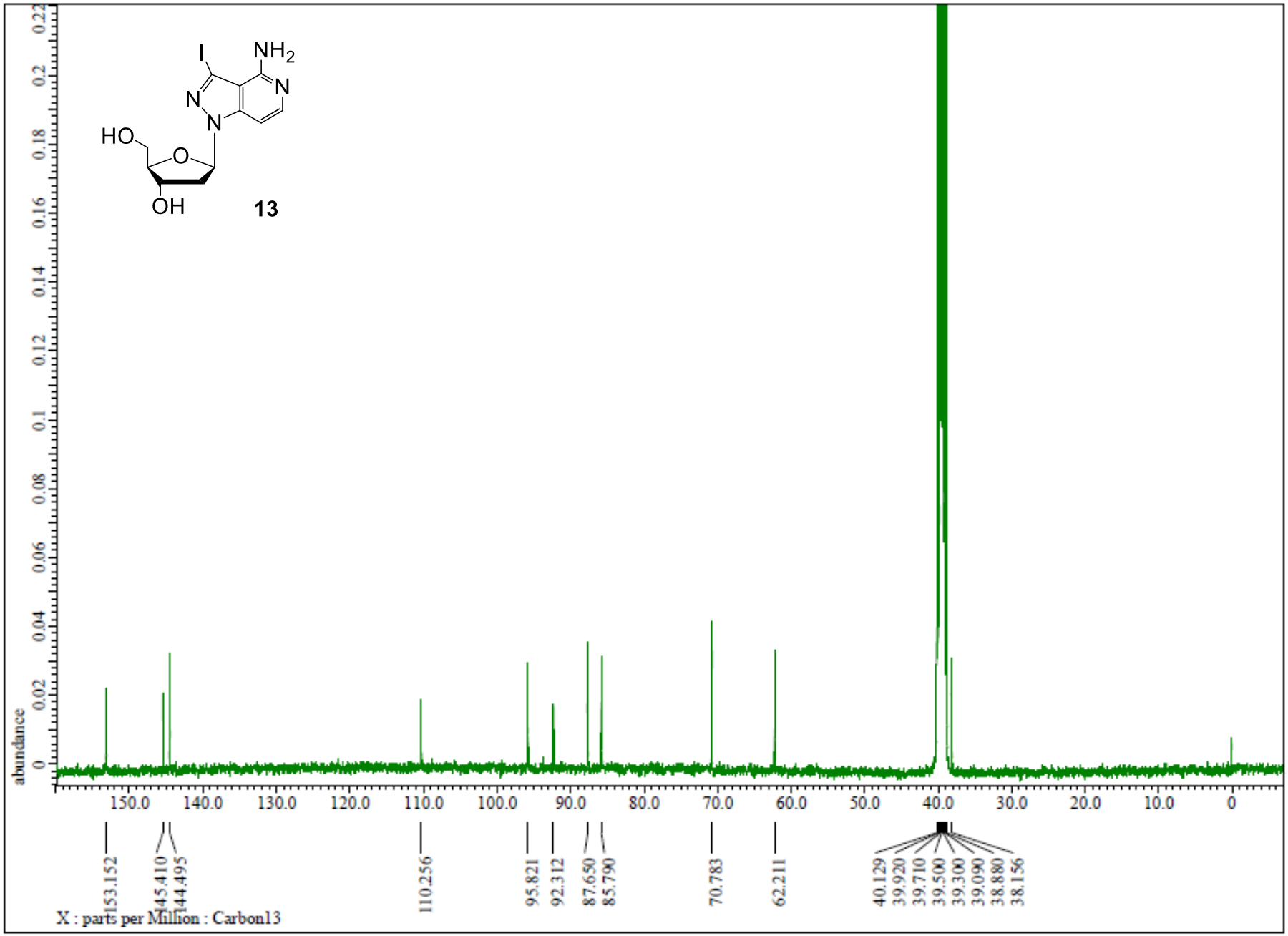

Figure S30. ^{13}C-NMR spectrum of compound **13** (DMSO-d_6)

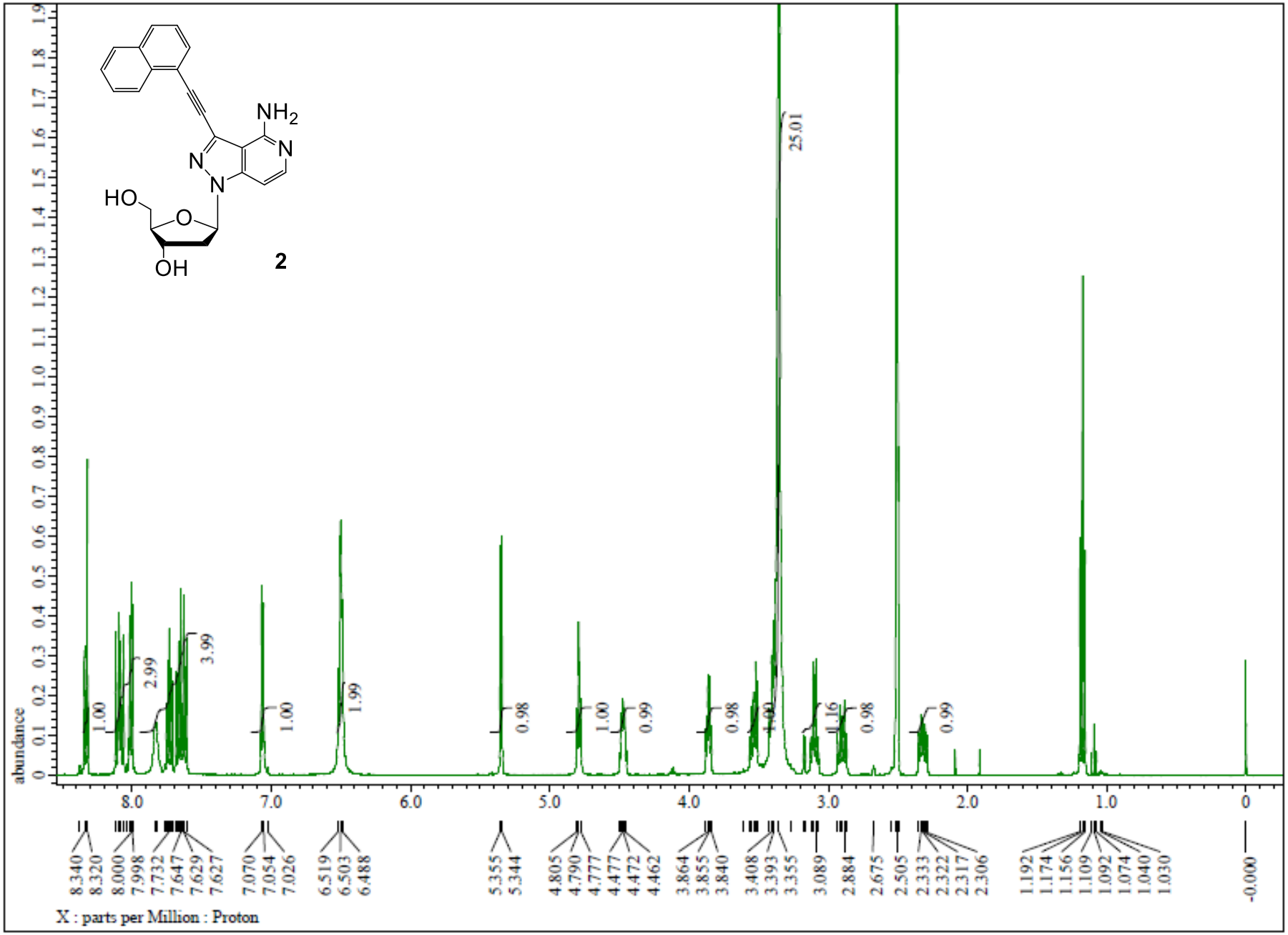

Figure S31. ^{1}H-NMR spectrum of compound **2** (DMSO-d_6)

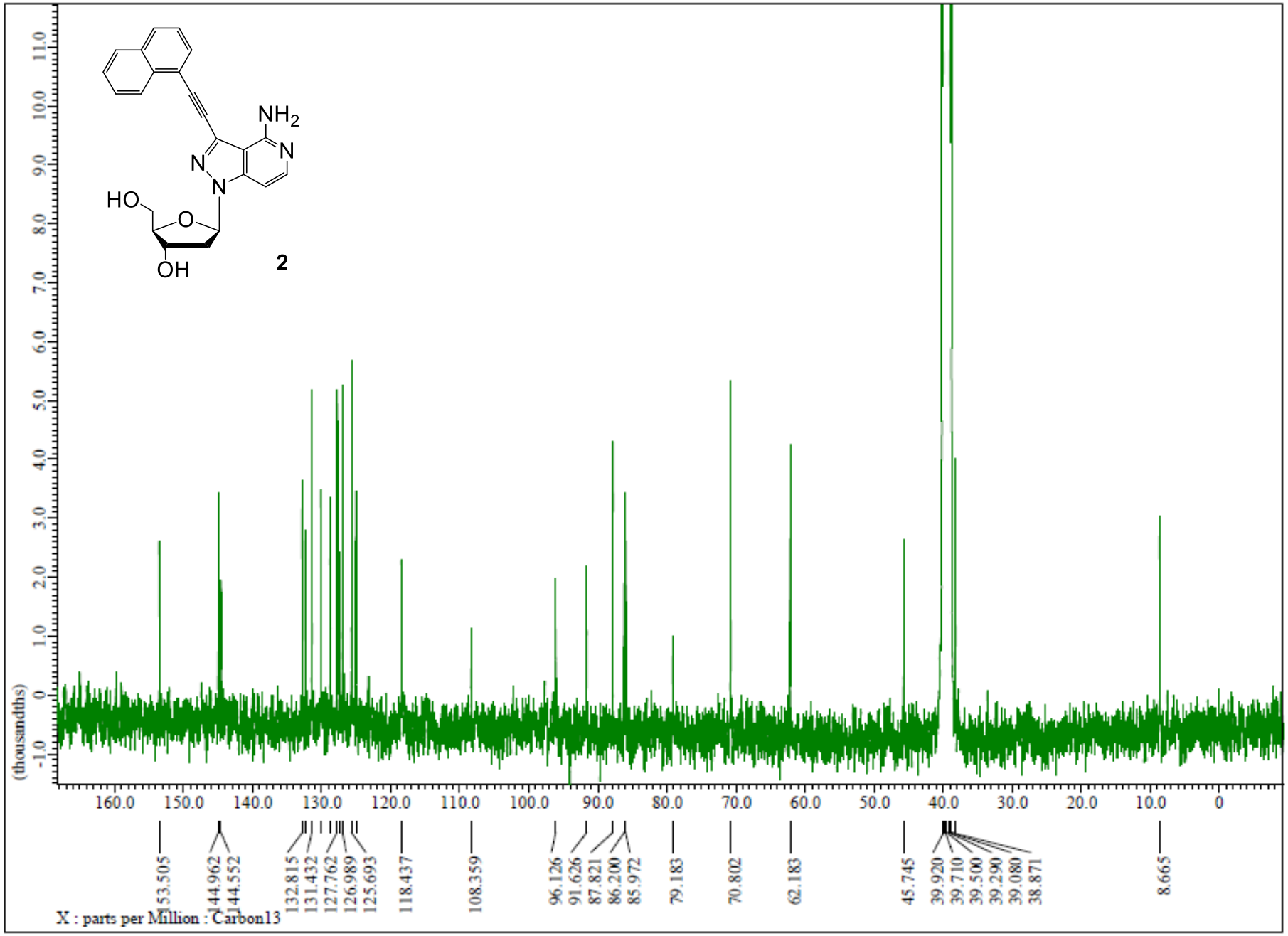

Figure S32. ^{13}C-NMR spectrum of compound **2** (DMSO-d_6)

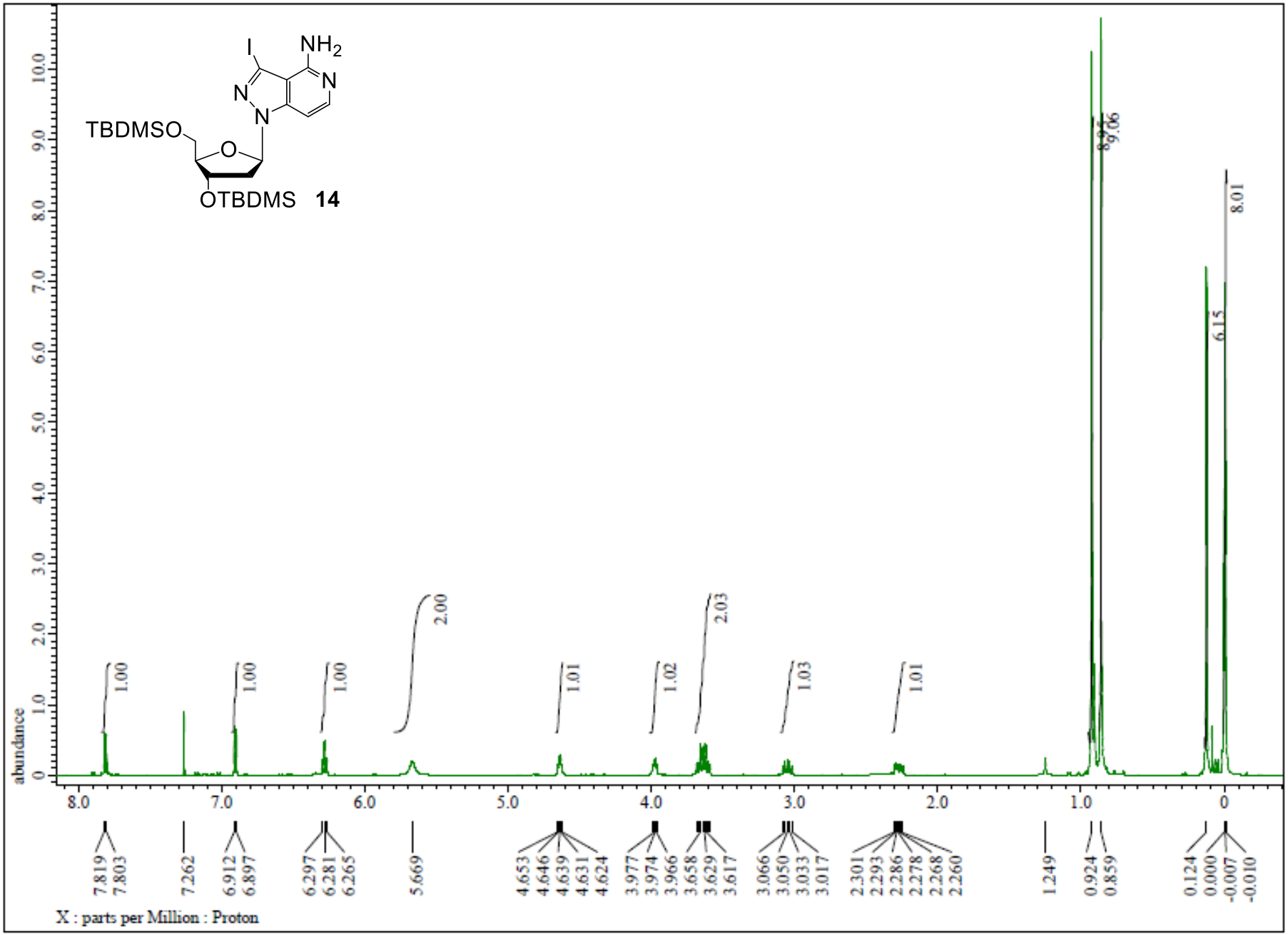

Figure S33. ^{1}H-NMR spectrum of compound **14** ($CDCl_3$)

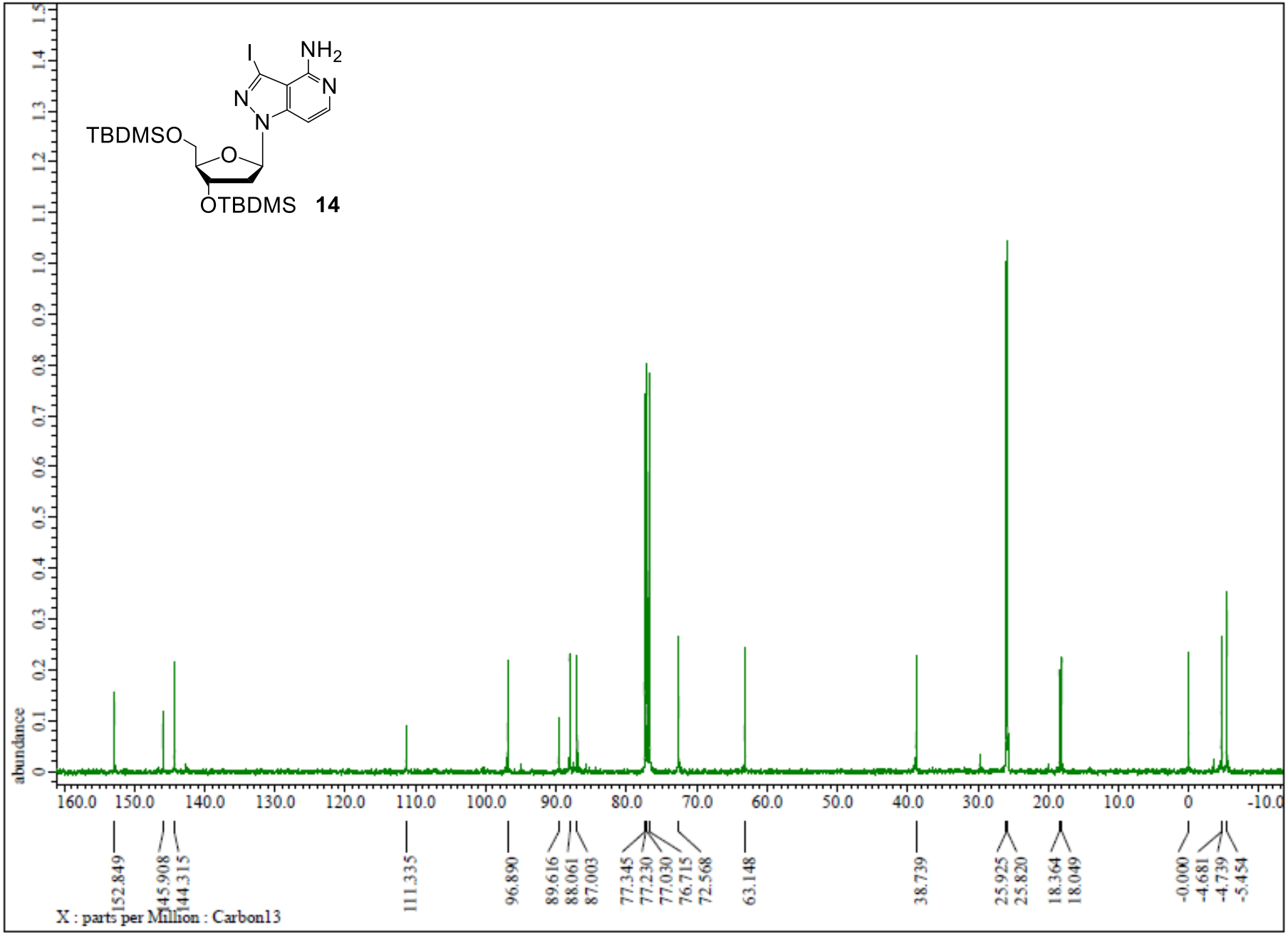

Figure S34. ^{13}C-NMR spectrum of compound **14** ($CDCl_3$)

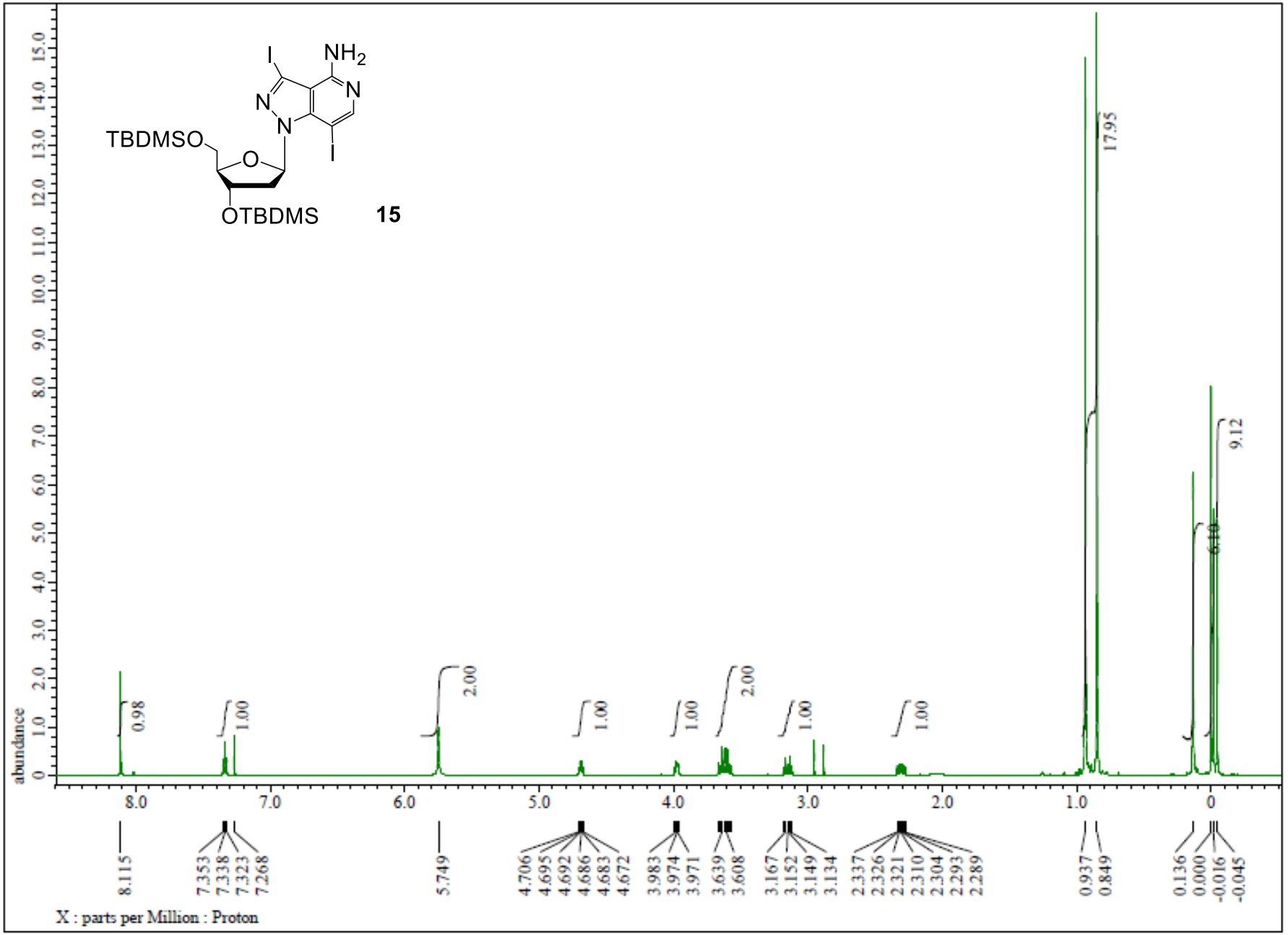

Figure S35. ^{1}H-NMR spectrum of compound **15** ($CDCl_3$)

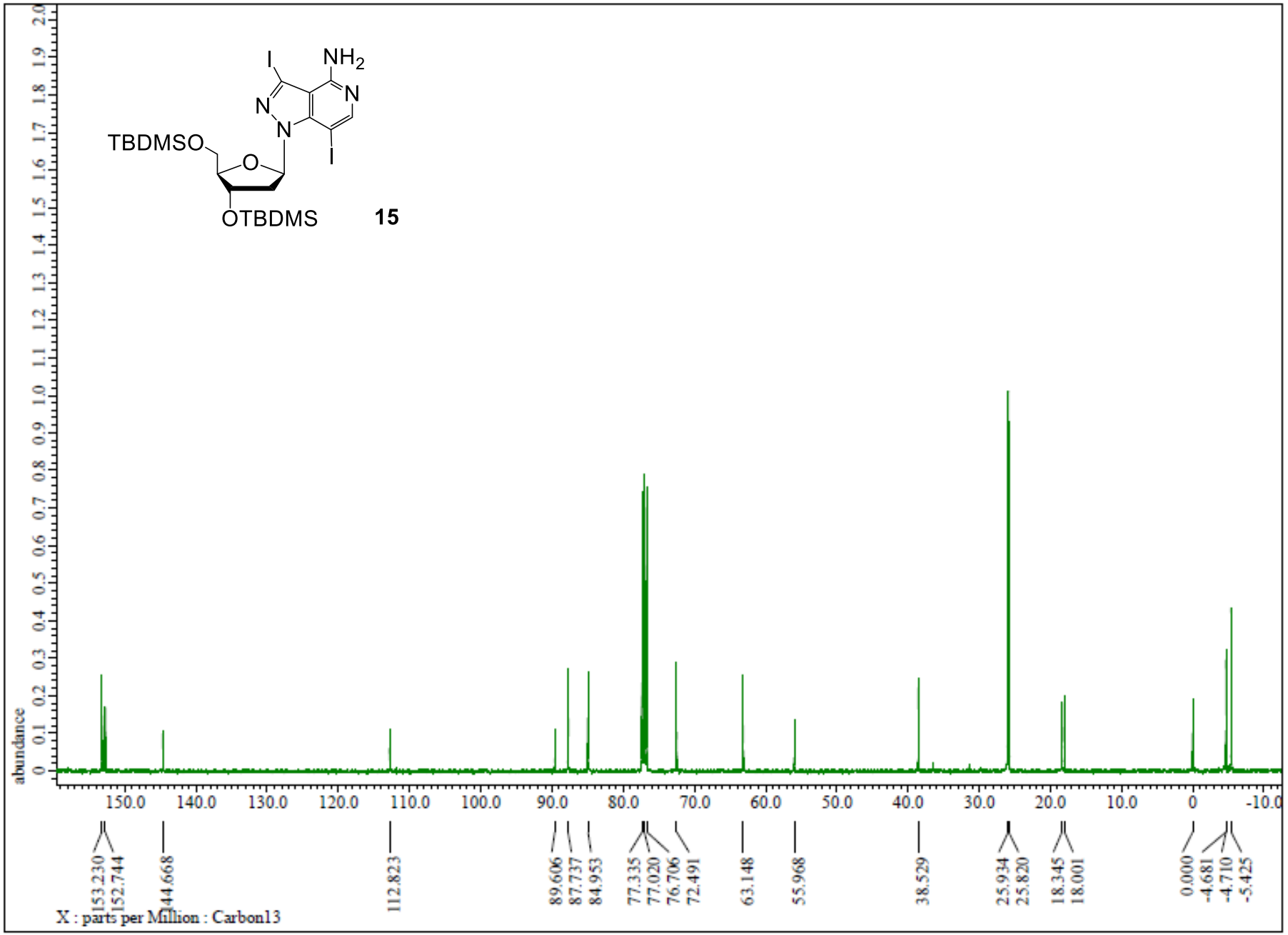

Figure S36. ^{13}C-NMR spectrum of compound **15** ($CDCl_3$)

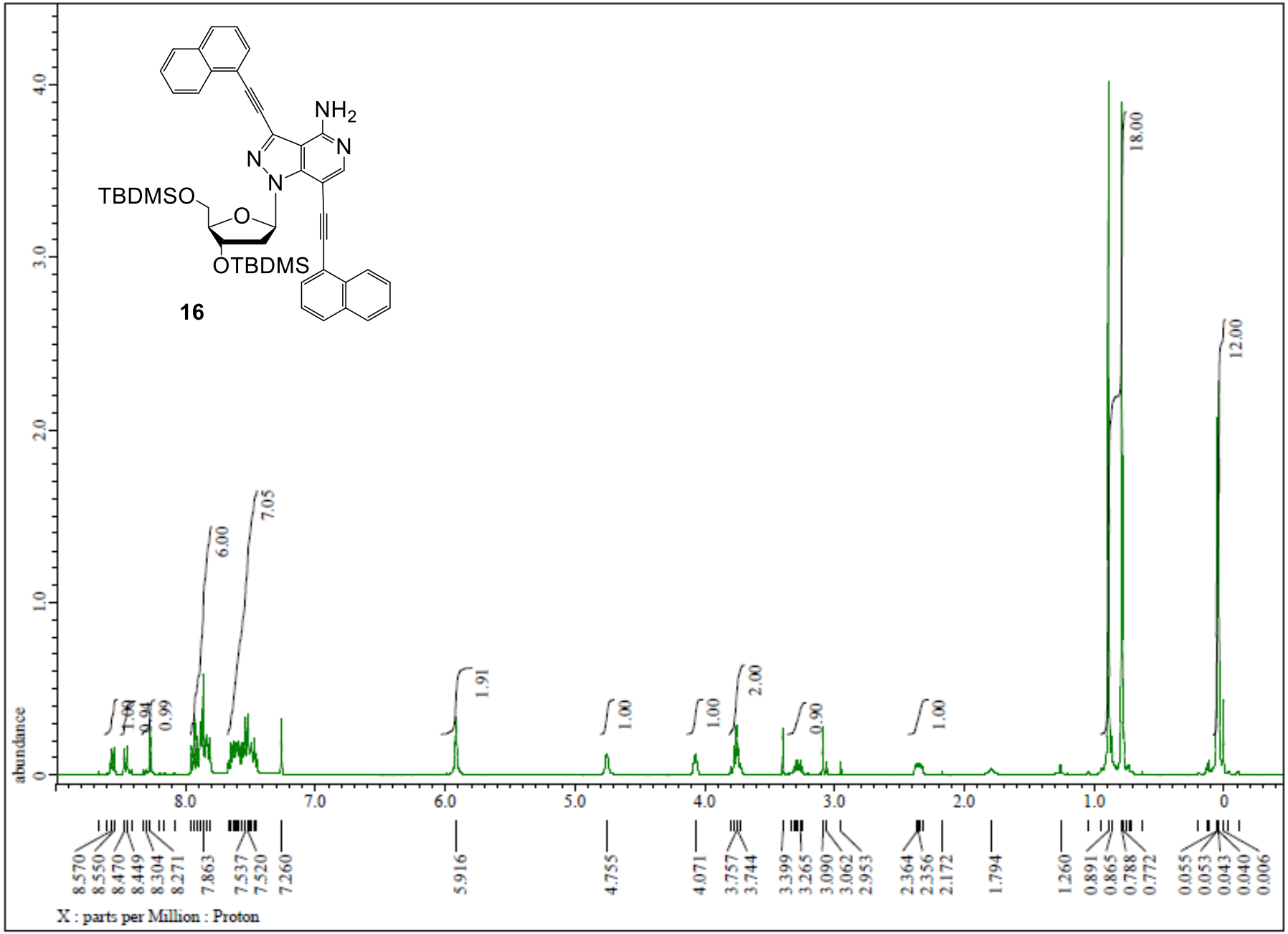

Figure S37. ^{1}H-NMR spectrum of compound **16** ($CDCl_3$)

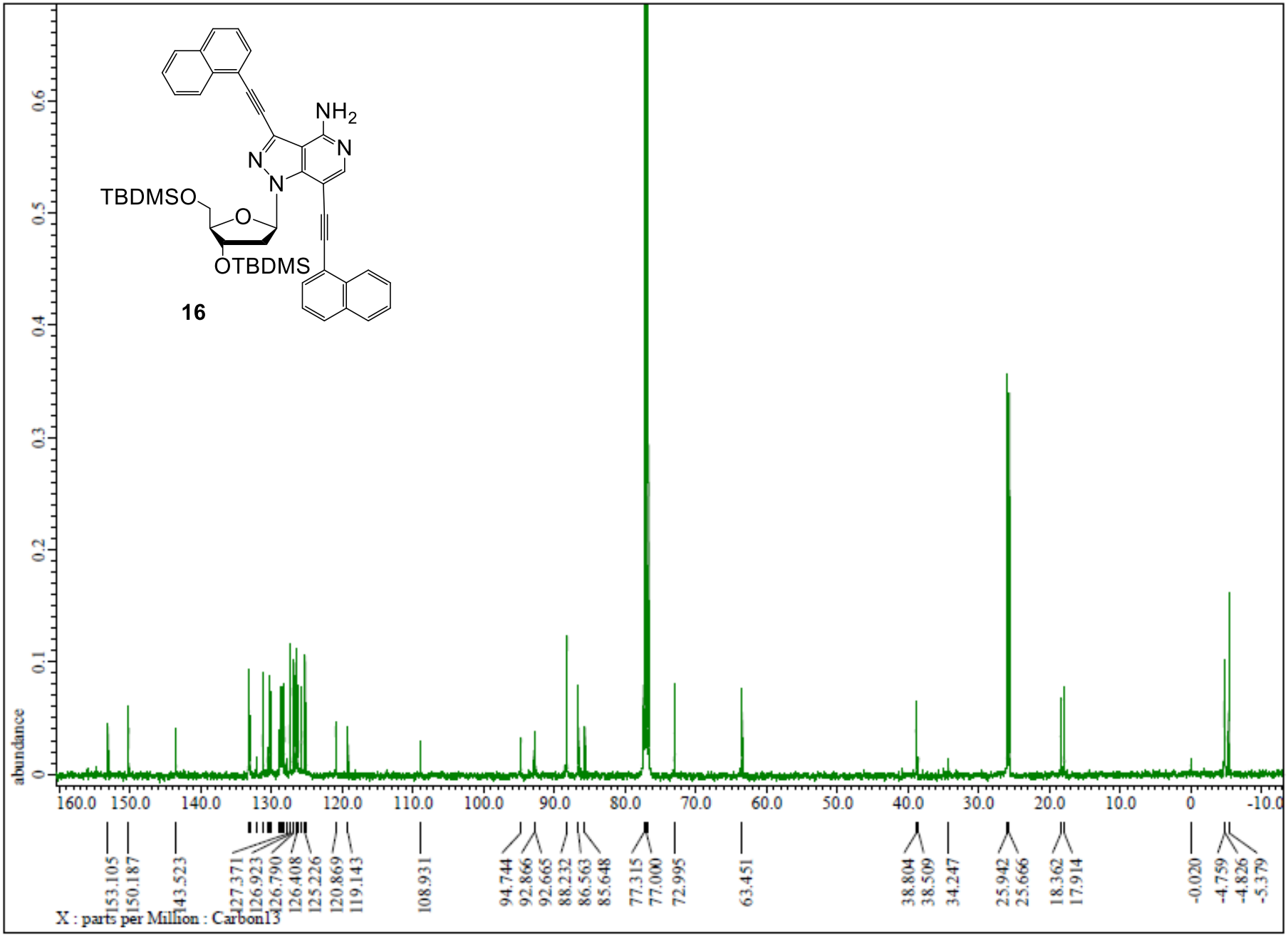

Figure S38. ^{13}C-NMR spectrum of compound **16** ($CDCl_3$)

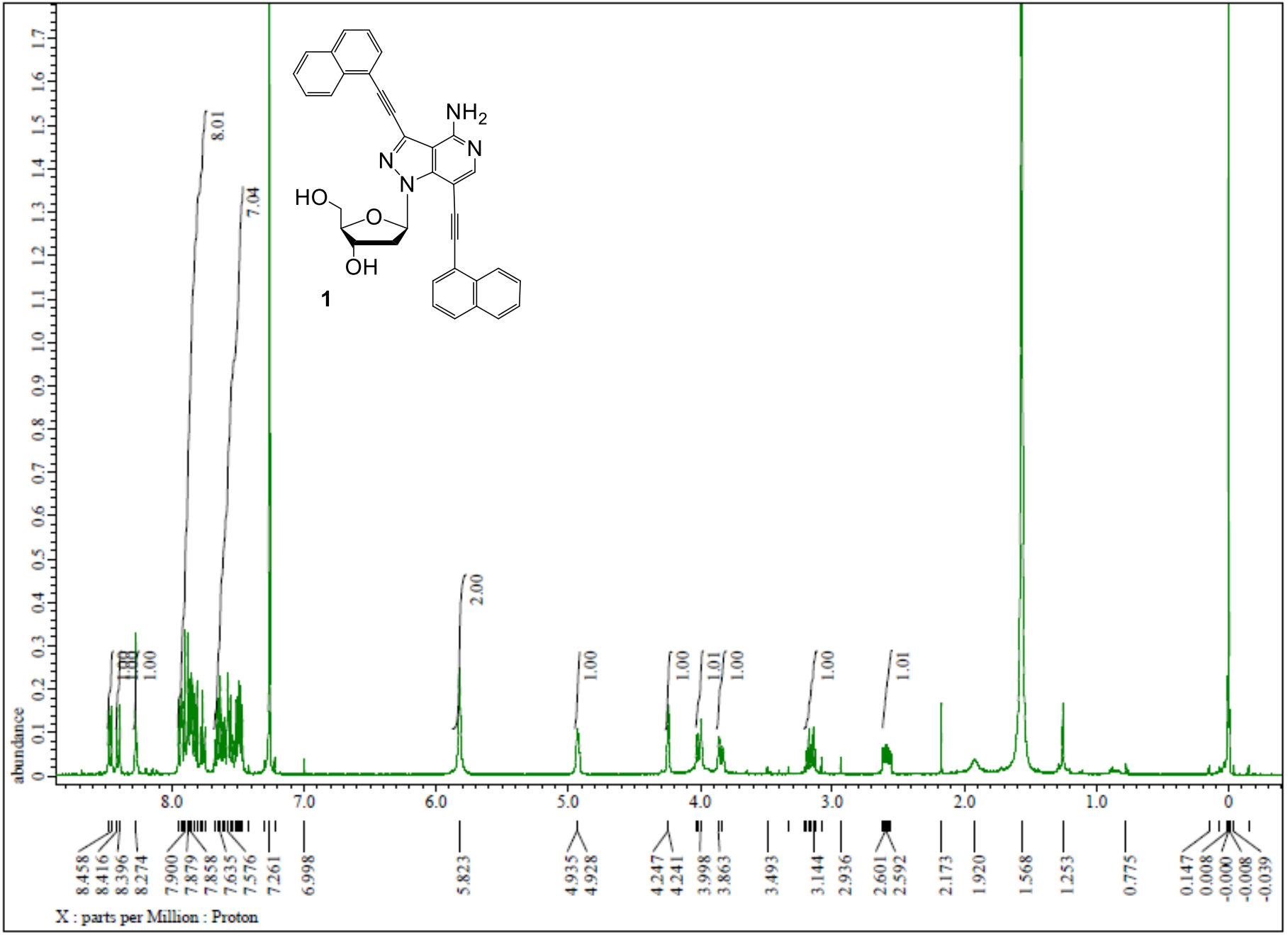

Figure S39. ^{1}H-NMR spectrum of compound **1** ($CDCl_3$)

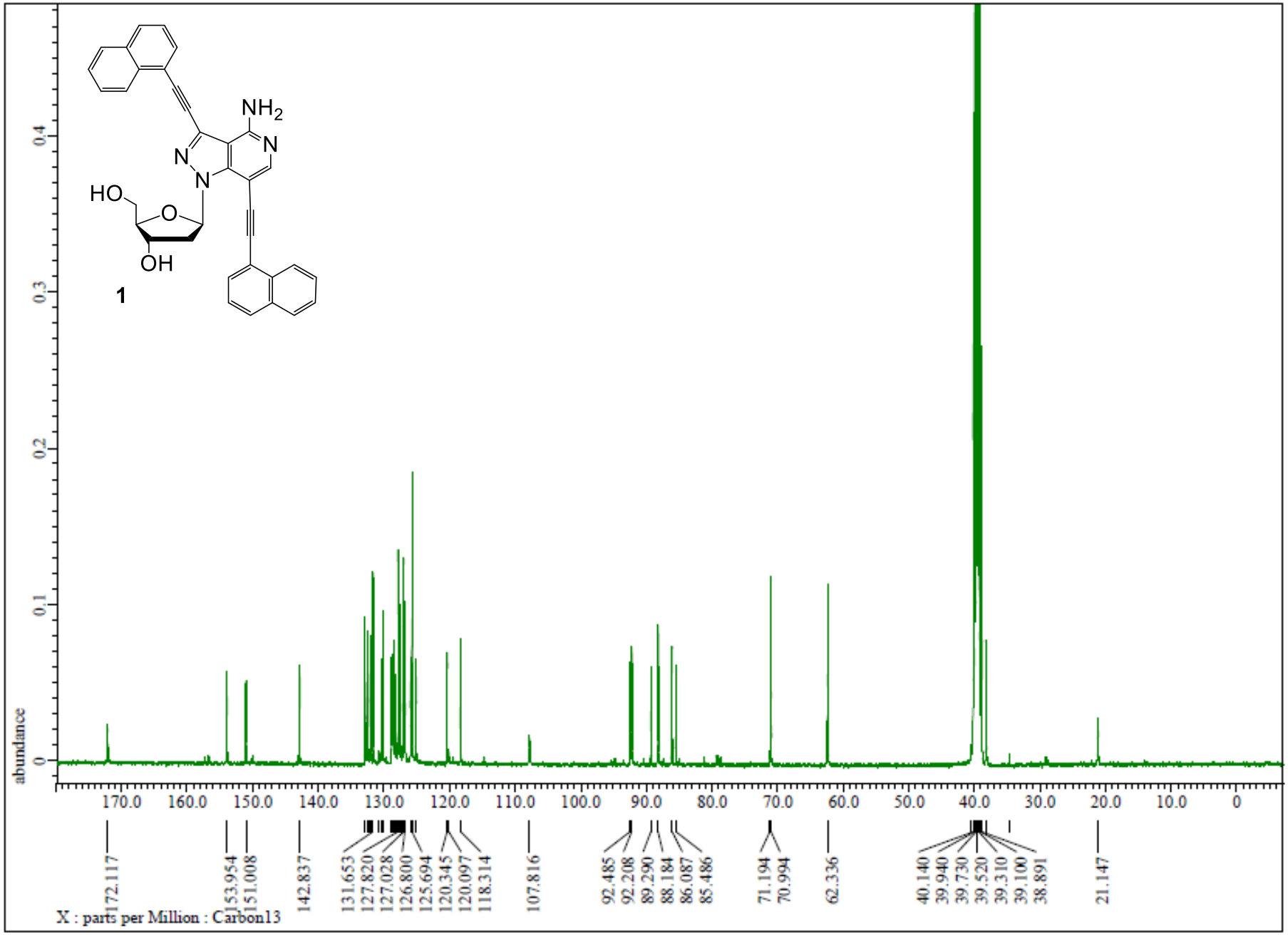

Figure S40. ^{13}C-NMR spectrum of compound **1** (DMSO-d_6)

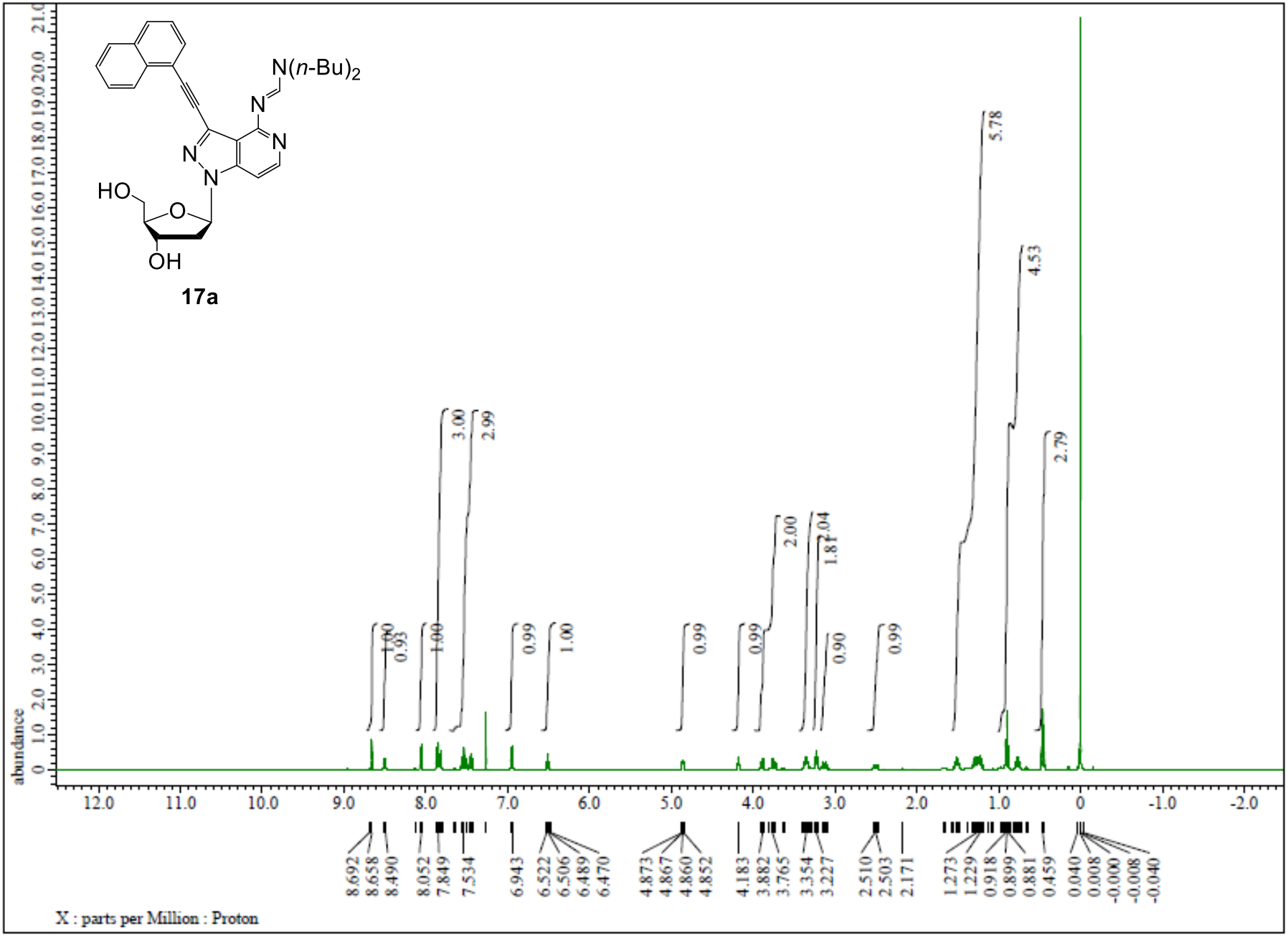

Figure S41. ^{1}H-NMR spectrum of compound **17a** ($CDCl_3$)

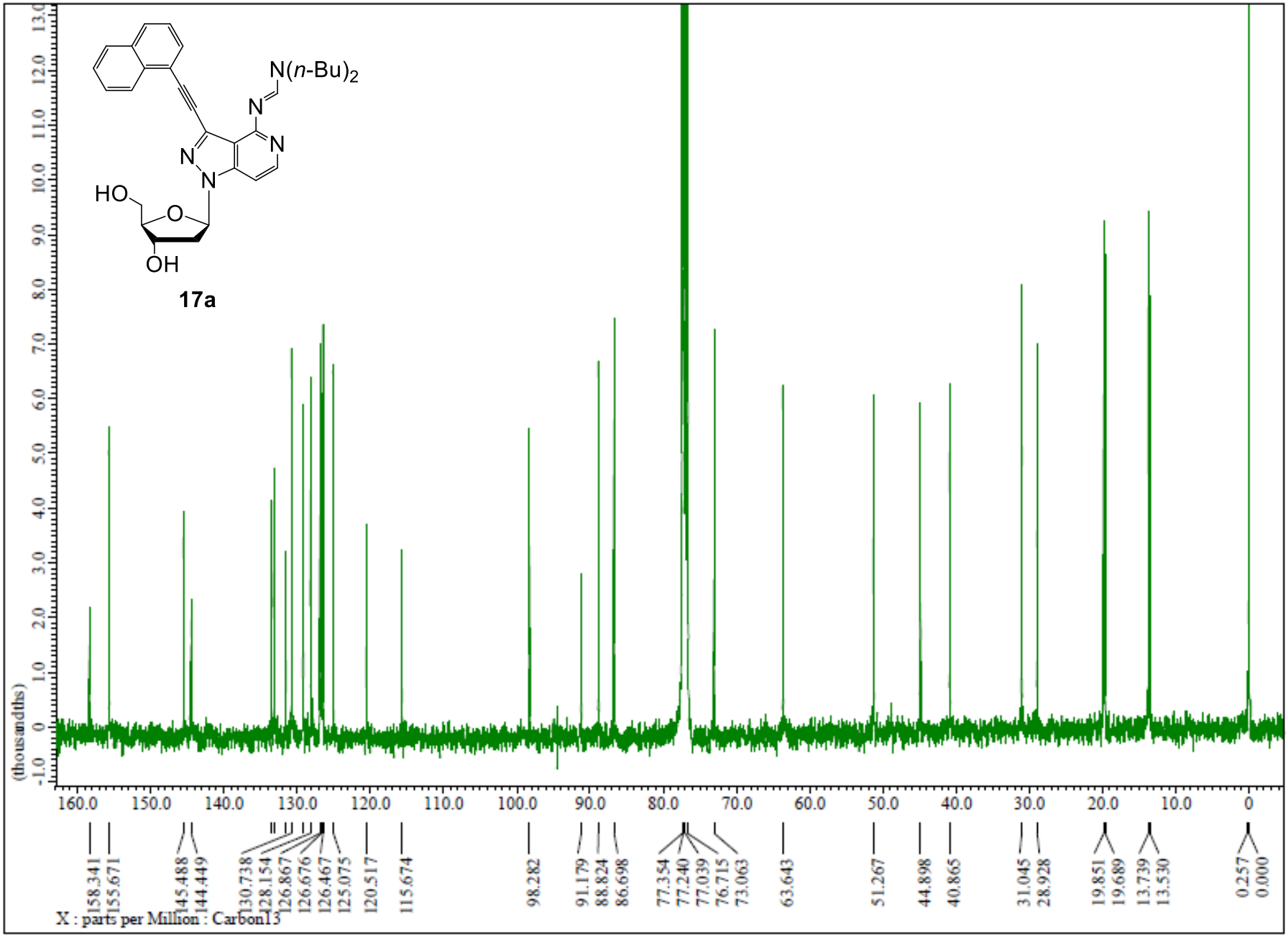

Figure S42. ^{13}C-NMR spectrum of compound **17a** ($CDCl_3$)

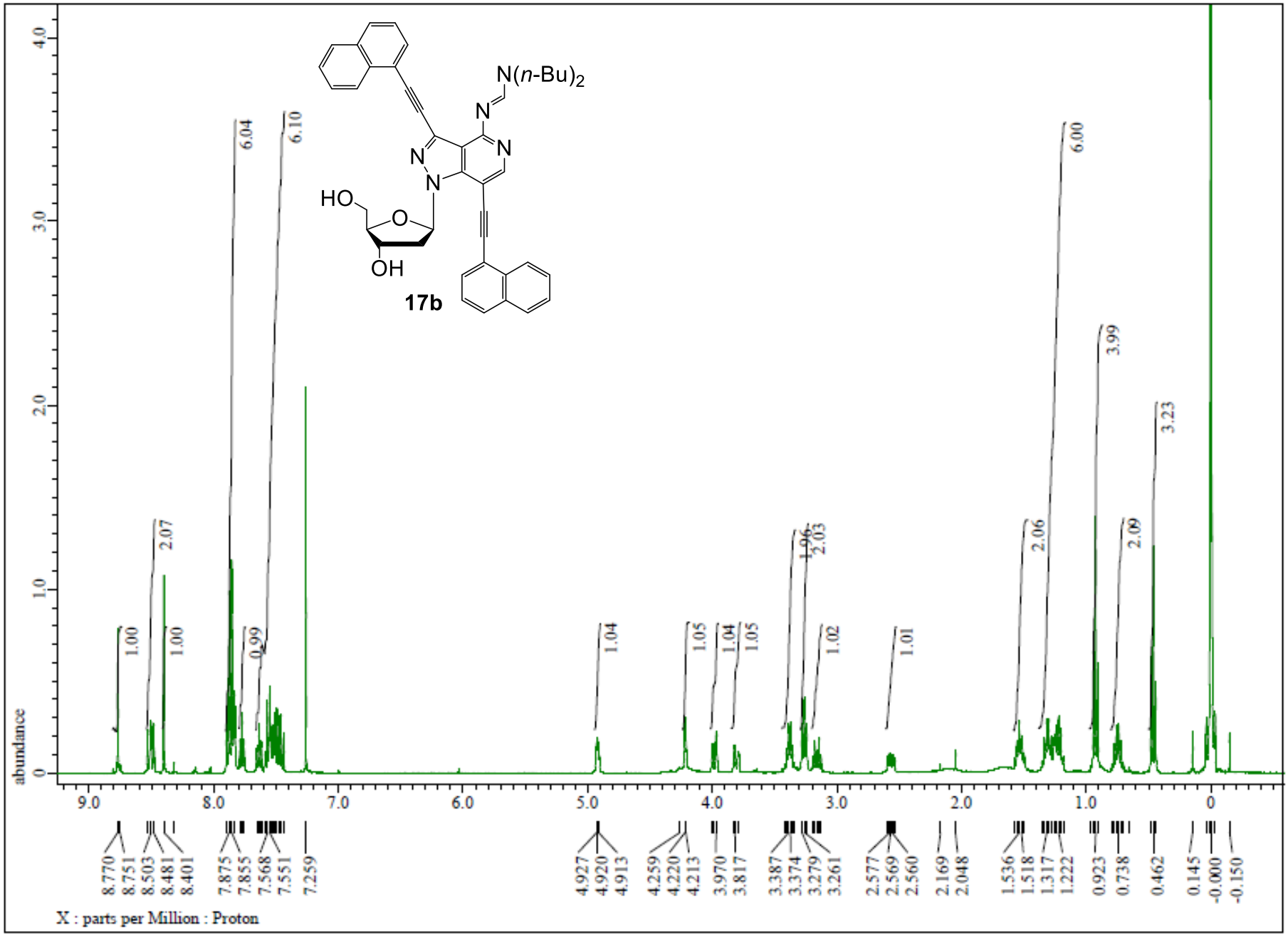

Figure S43. ^{1}H-NMR spectrum of compound **17b** ($CDCl_3$)

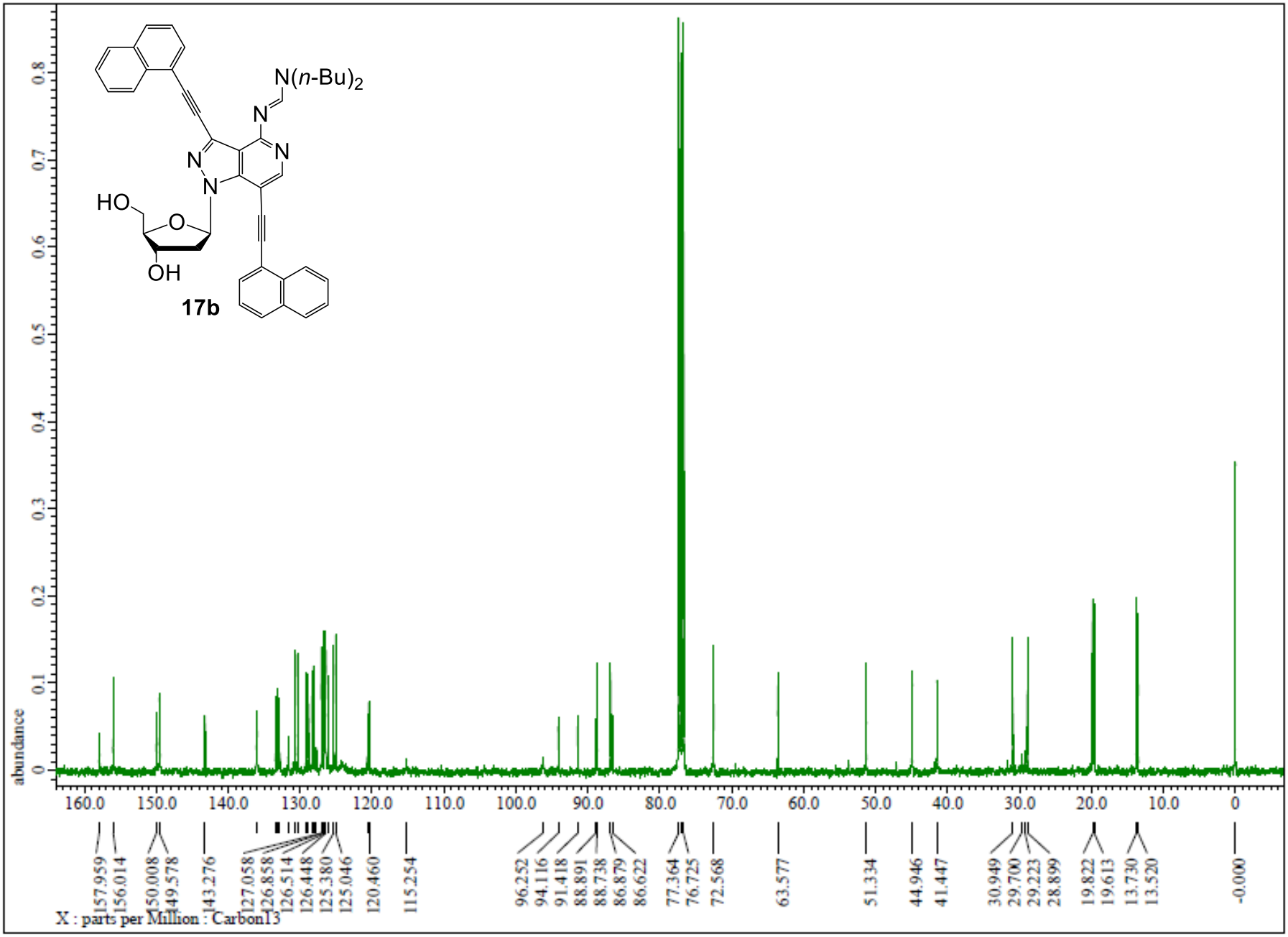

Figure S44. ^{13}C-NMR spectrum of compound **17b** ($CDCl_3$)

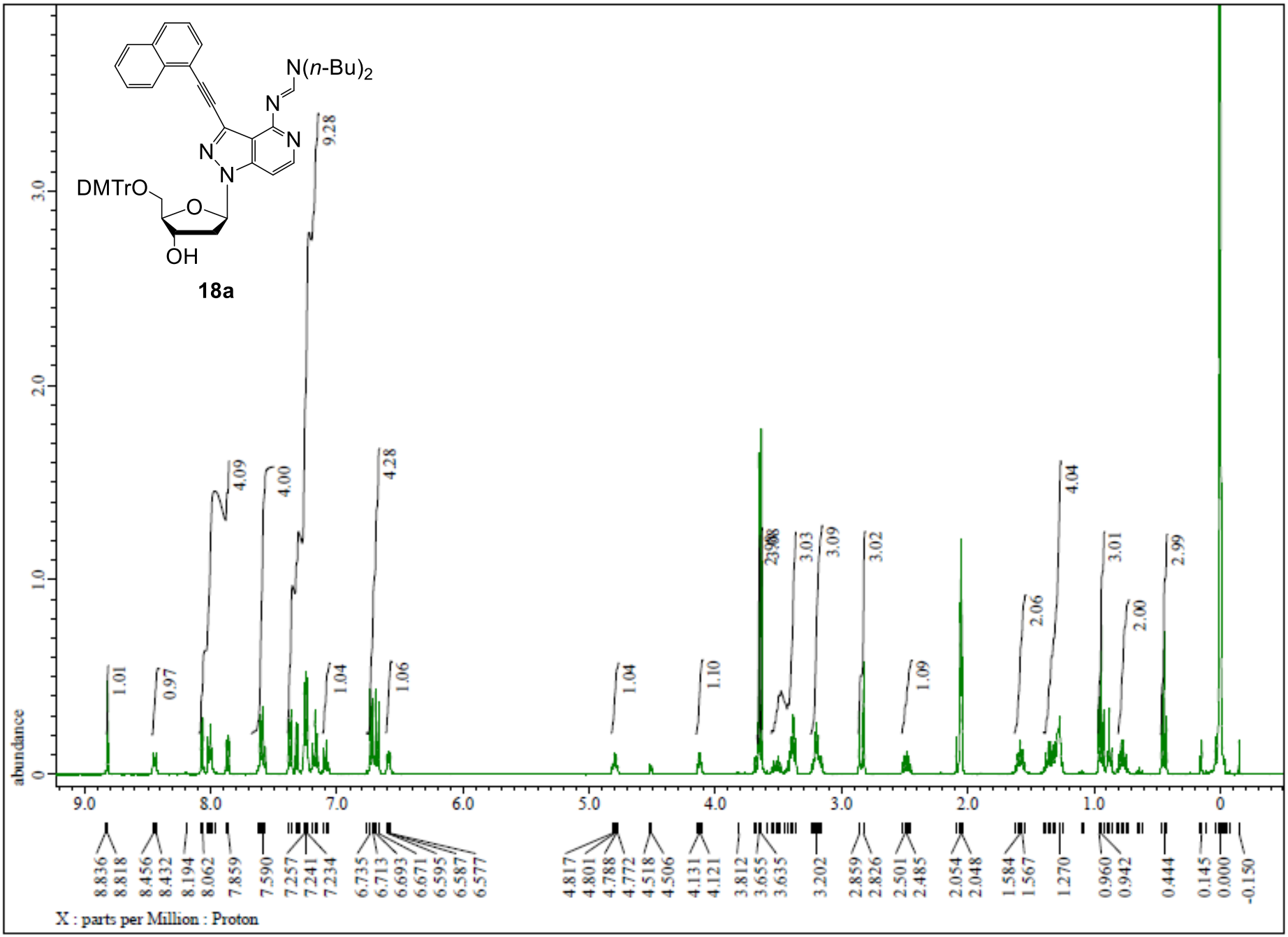

Figure S45. ^{1}H-NMR spectrum of compound **18a** (acetone-d_6)

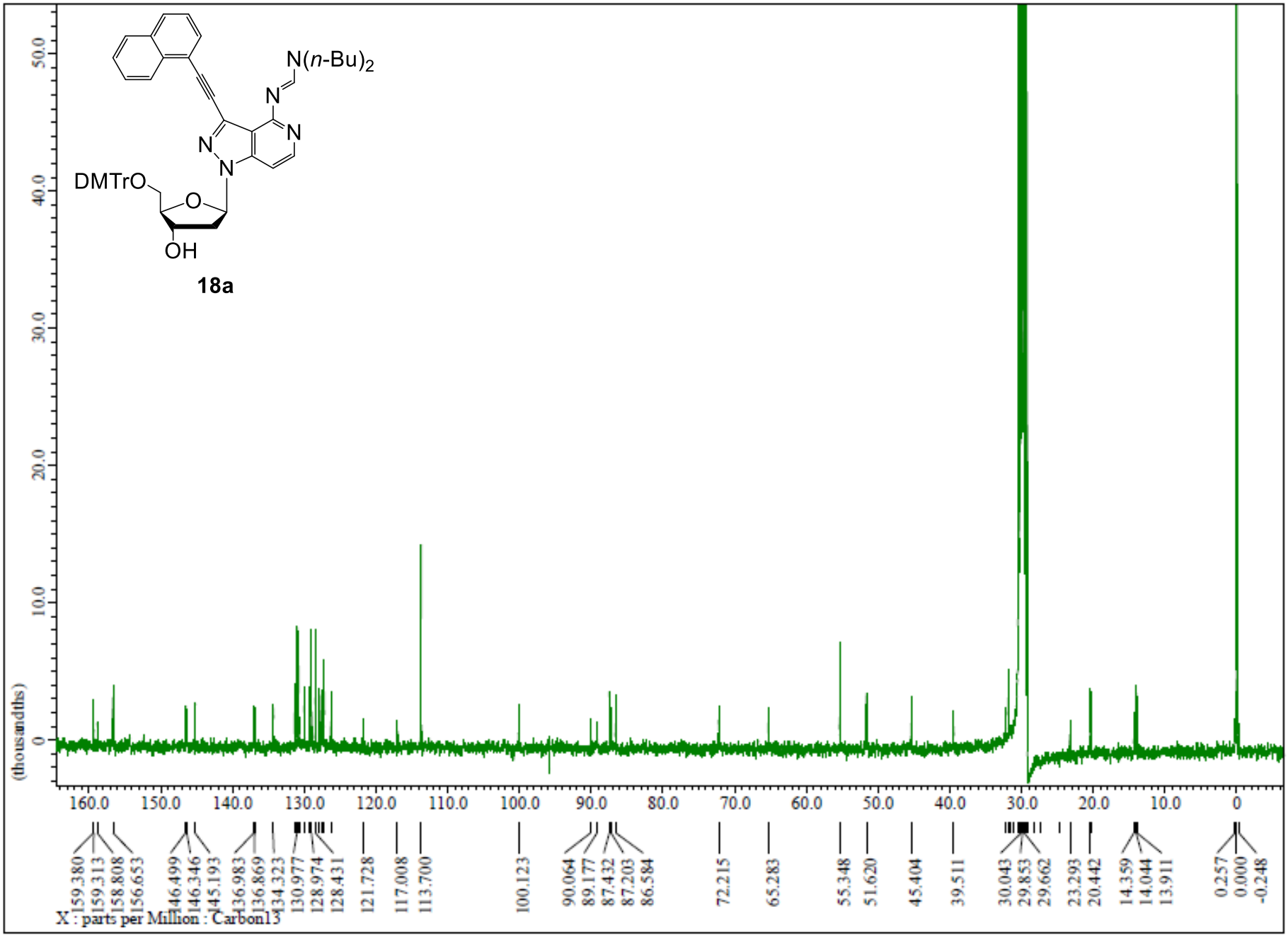

Figure S46. ^{13}C-NMR spectrum of compound **18a** (acetone-d_6)

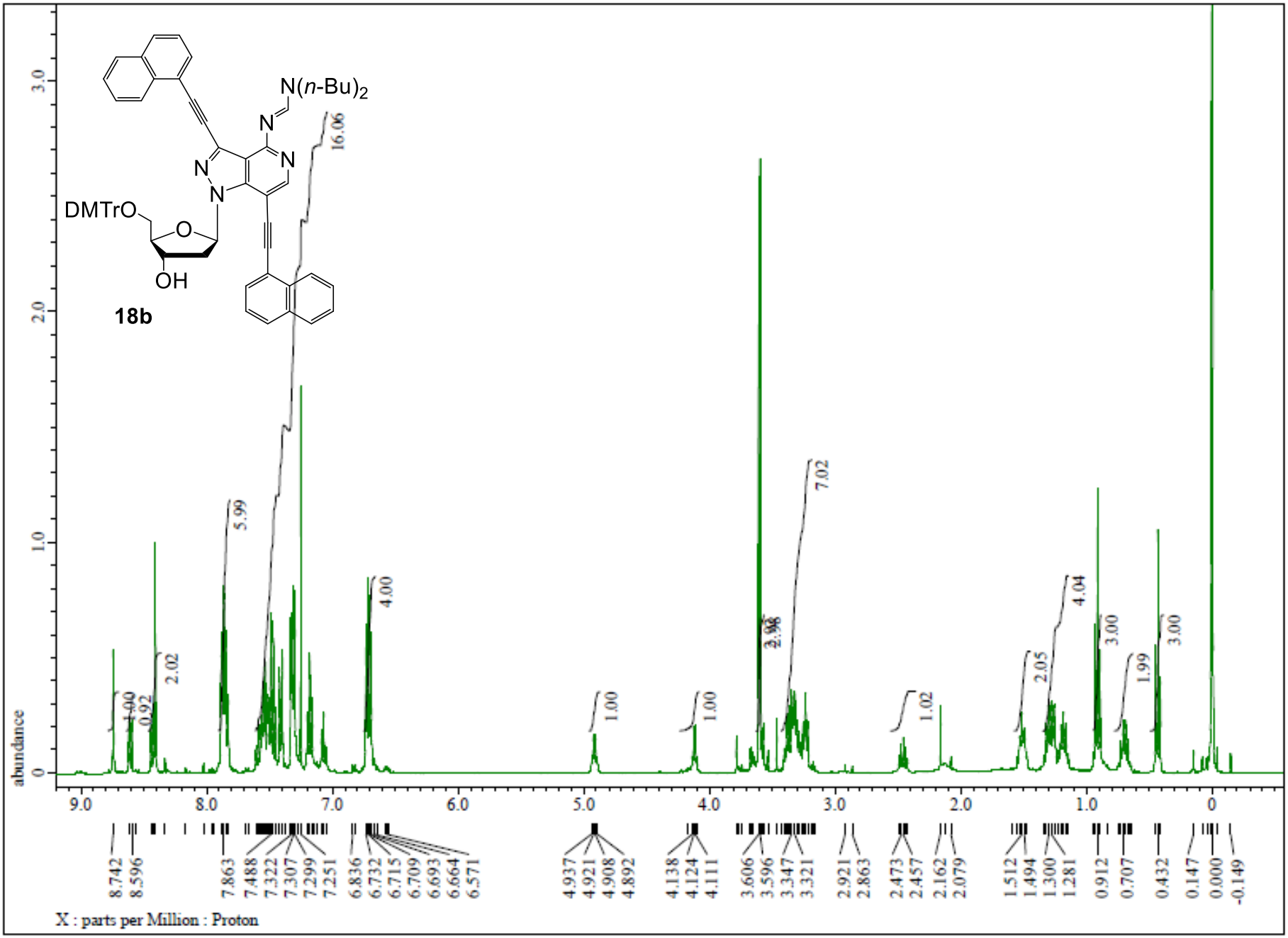

Figure S47. ^{1}H-NMR spectrum of compound **18b** ($CDCl_3$)

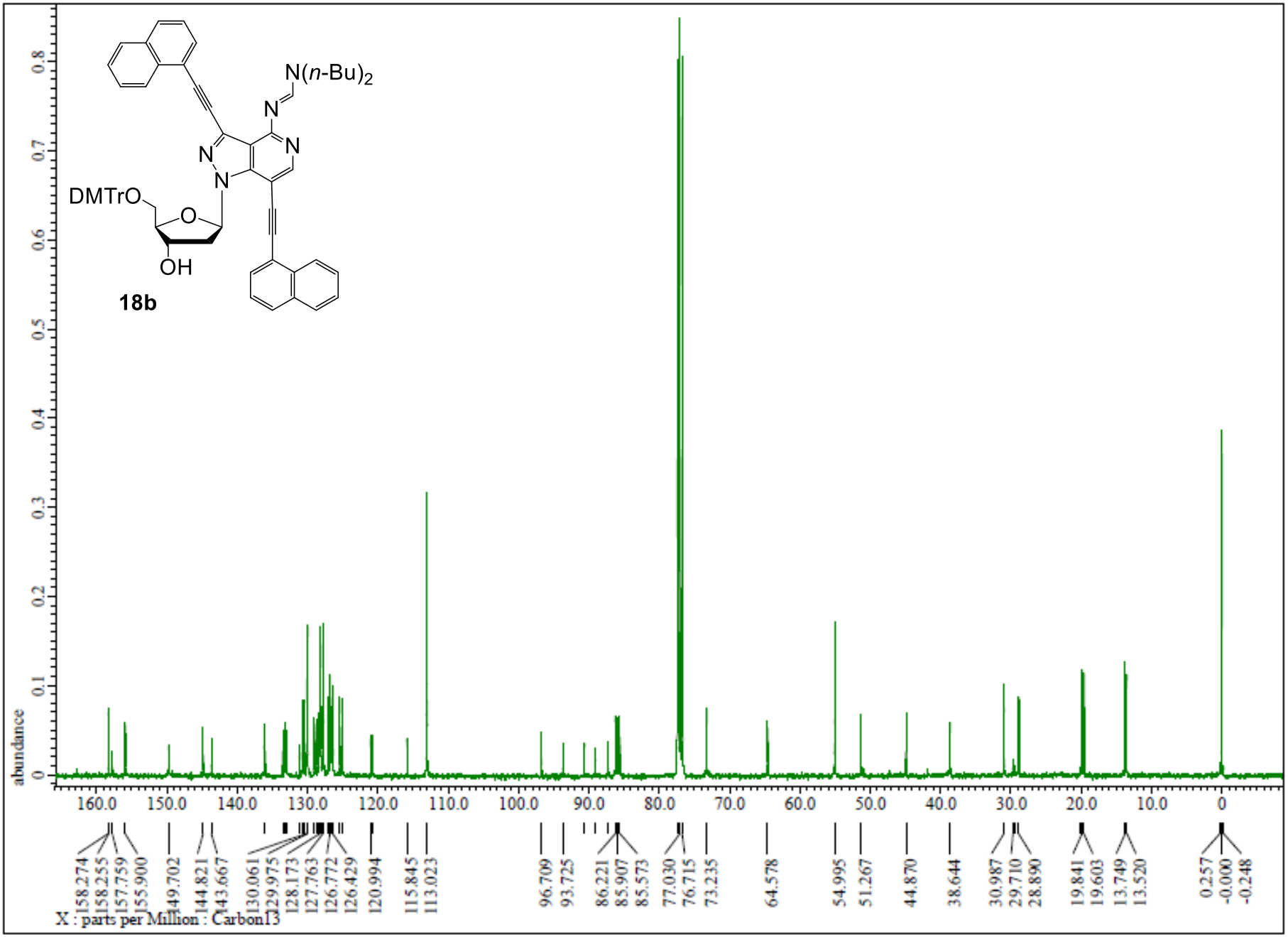

Figure S48. ^{13}C-NMR spectrum of compound **18b** ($CDCl_3$)