

Supplementary material

Figure captions

Figure S1. ^1H NMR spectrum of compound **14a**.

Figure S2. ^1H NMR spectrum of compound **15a**.

Figure S3. ^1H NMR spectrum of compound **16a**.

Figure S4. ^1H NMR spectrum of compound **17a**.

Figure S5. ^1H NMR spectrum of compound **14b**.

Figure S6. ^1H NMR spectrum of compound **15b**.

Figure S7. ^1H NMR spectrum of compound **16b**.

Figure S8. ^1H NMR spectrum of compound **17b**.

Figure S9. ^1H NMR spectrum of compound **18a**.

Figure S10. ^1H NMR spectrum of compound **19a**.

Figure S11. ^1H NMR spectrum of compound **20a**.

Figure S12. ^1H NMR spectrum of compound **21a**.

Figure S13. ^1H NMR spectrum of compound **18b**.

Figure S14. ^1H NMR spectrum of compound **19b**.

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Figure S17. ^1H NMR spectrum of compound **1a**.

Figure S18. ^{13}C NMR spectrum of compound **1a**.

Figure S19. ^1H NMR spectrum of compound **2a**.

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Figure S21. ^1H NMR spectrum of compound **3a**.

Figure S22. ^{13}C NMR spectrum of compound **3a**.

Figure S23. ^1H NMR spectrum of compound **4a**.

Figure S24. ^{13}C NMR spectrum of compound **4a**.

Figure S25. ^1H NMR spectrum of compound **1b**.

Figure S26. ^{13}C NMR spectrum of compound **1b**.

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Figure S48. ^{13}C NMR spectrum of compound **8b**.

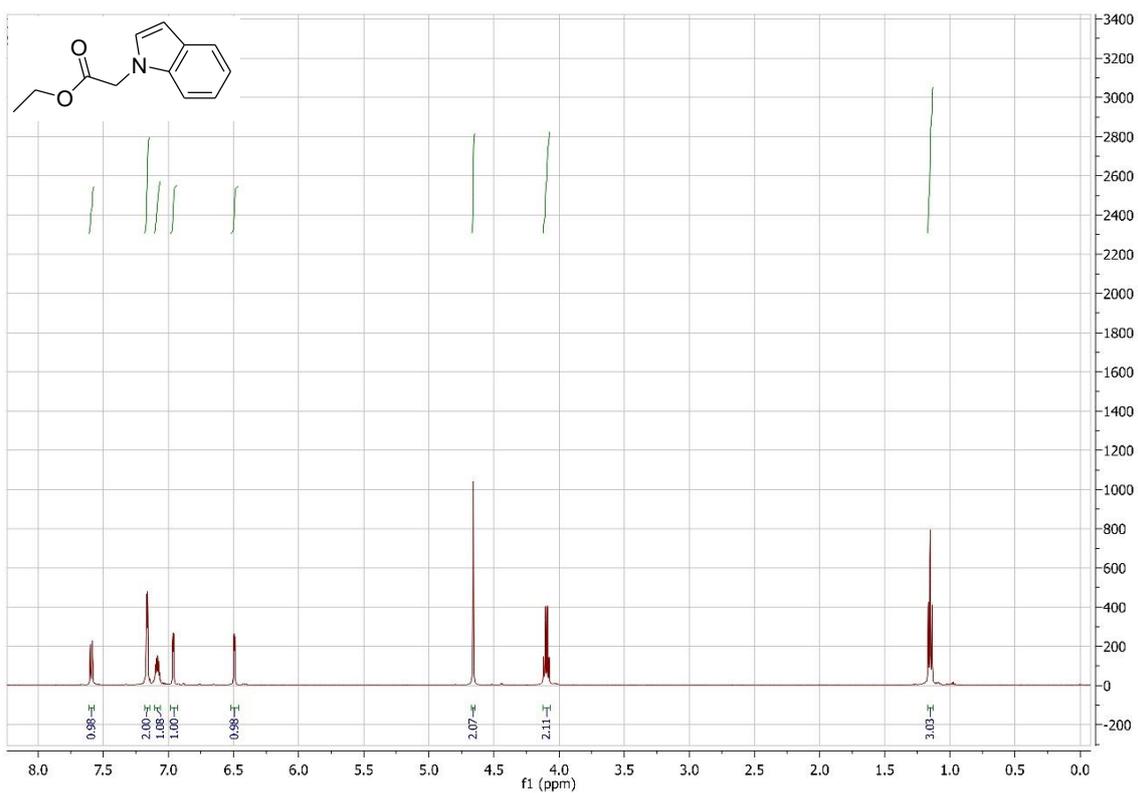


Figure S1. ¹H NMR spectrum of compound 14a.

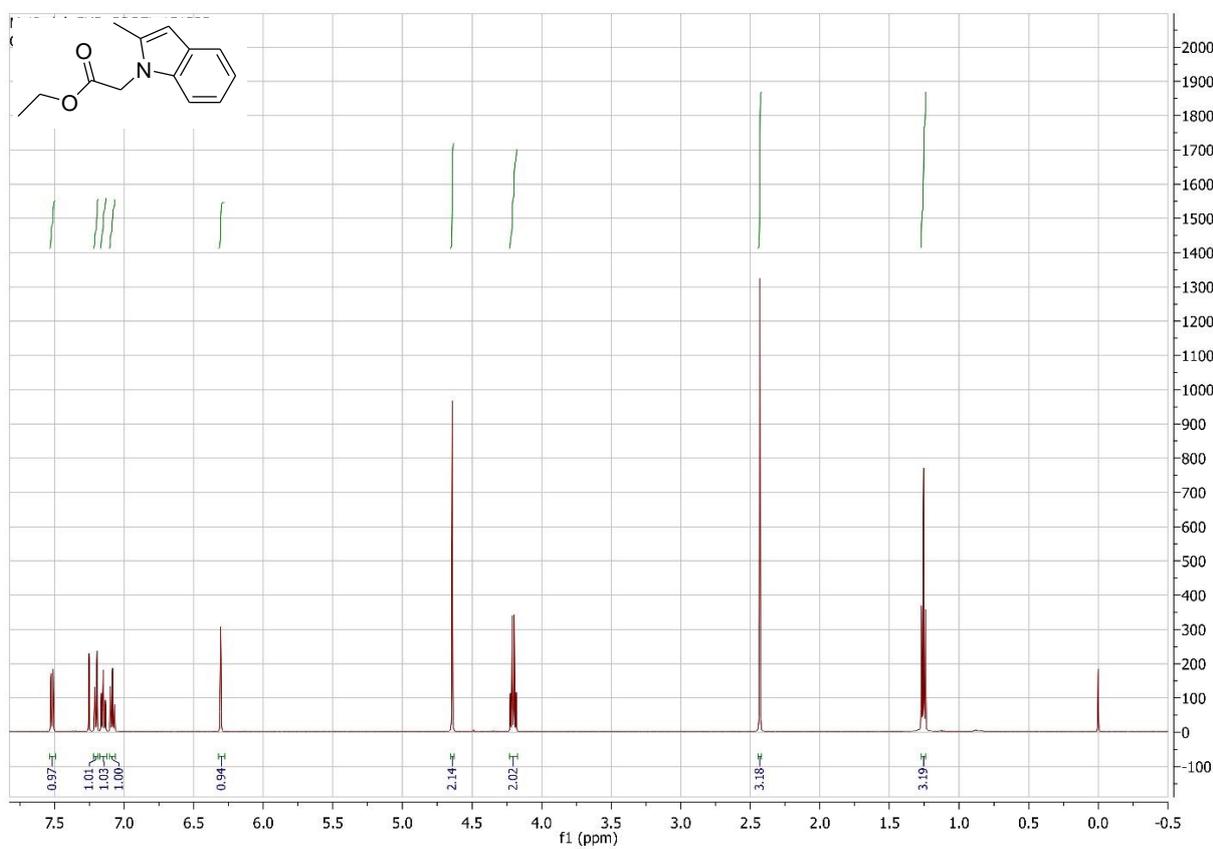


Figure S2. ¹H NMR spectrum of compound 15a.

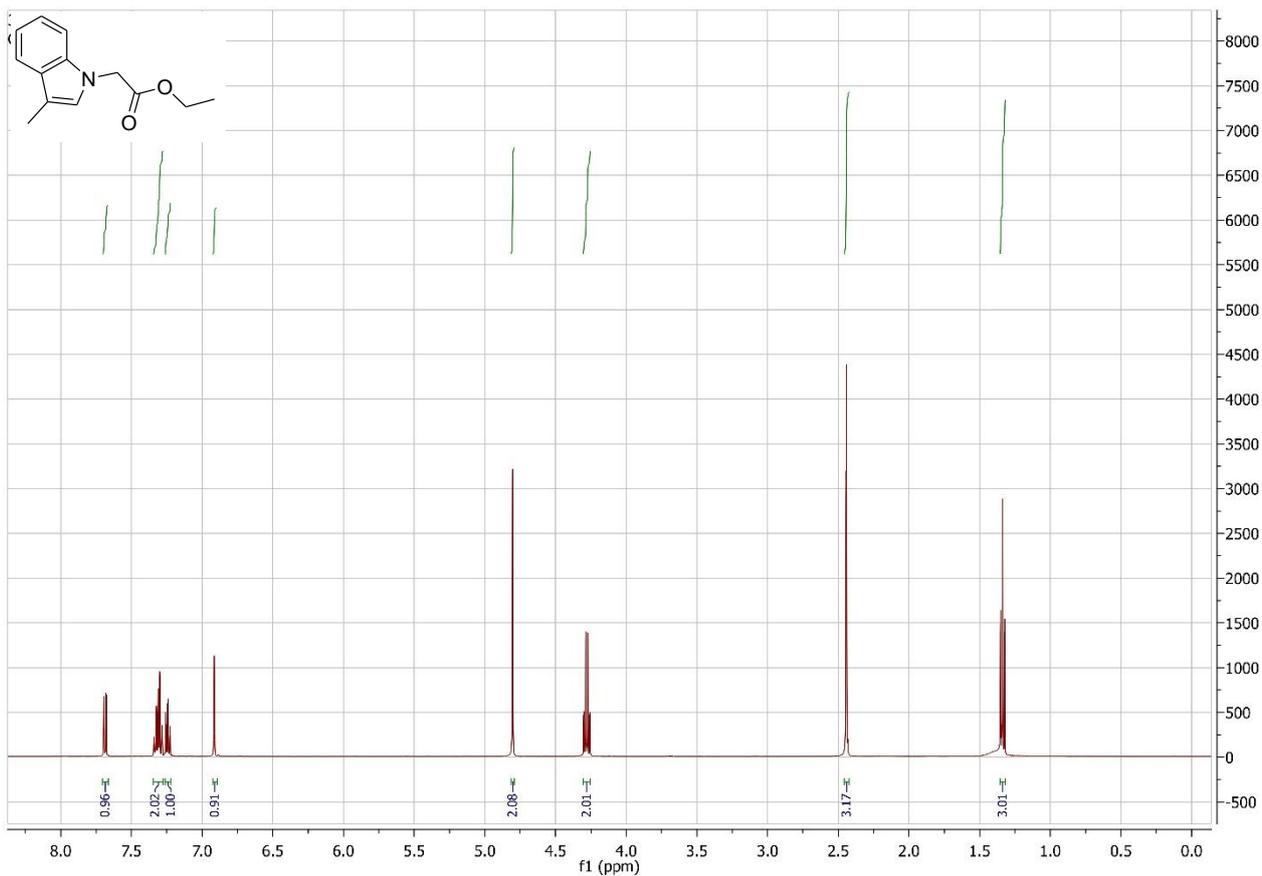


Figure S3. ^1H NMR spectrum of compound 16a.

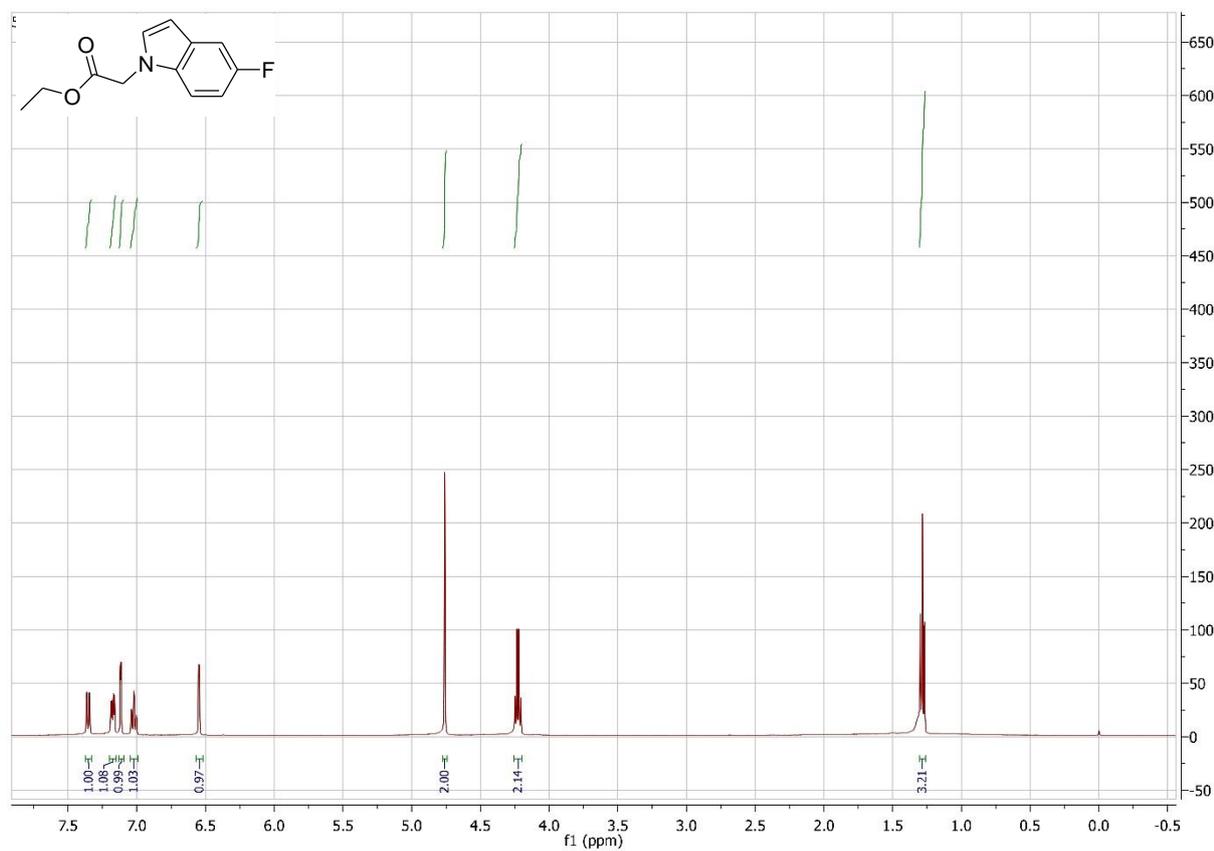


Figure S4. ^1H NMR spectrum of compound 17a.

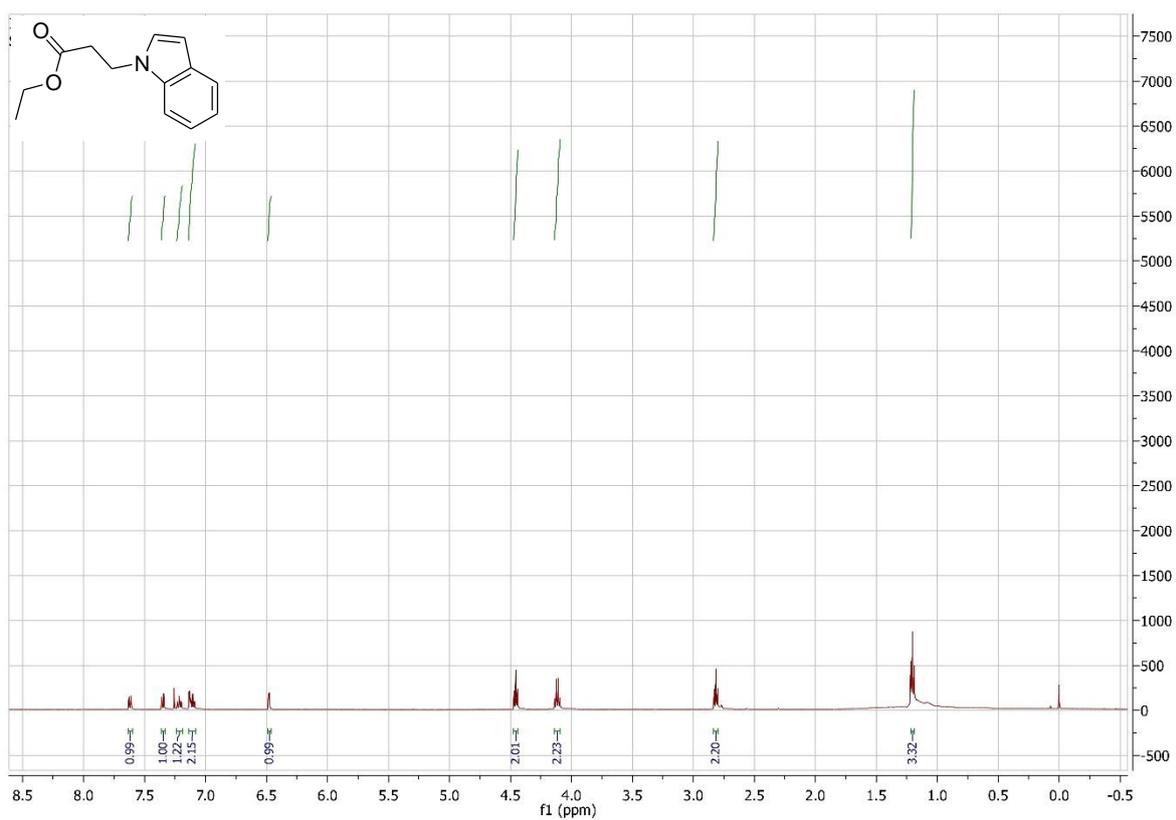


Figure S5. ^1H NMR spectrum of compound **14b**.

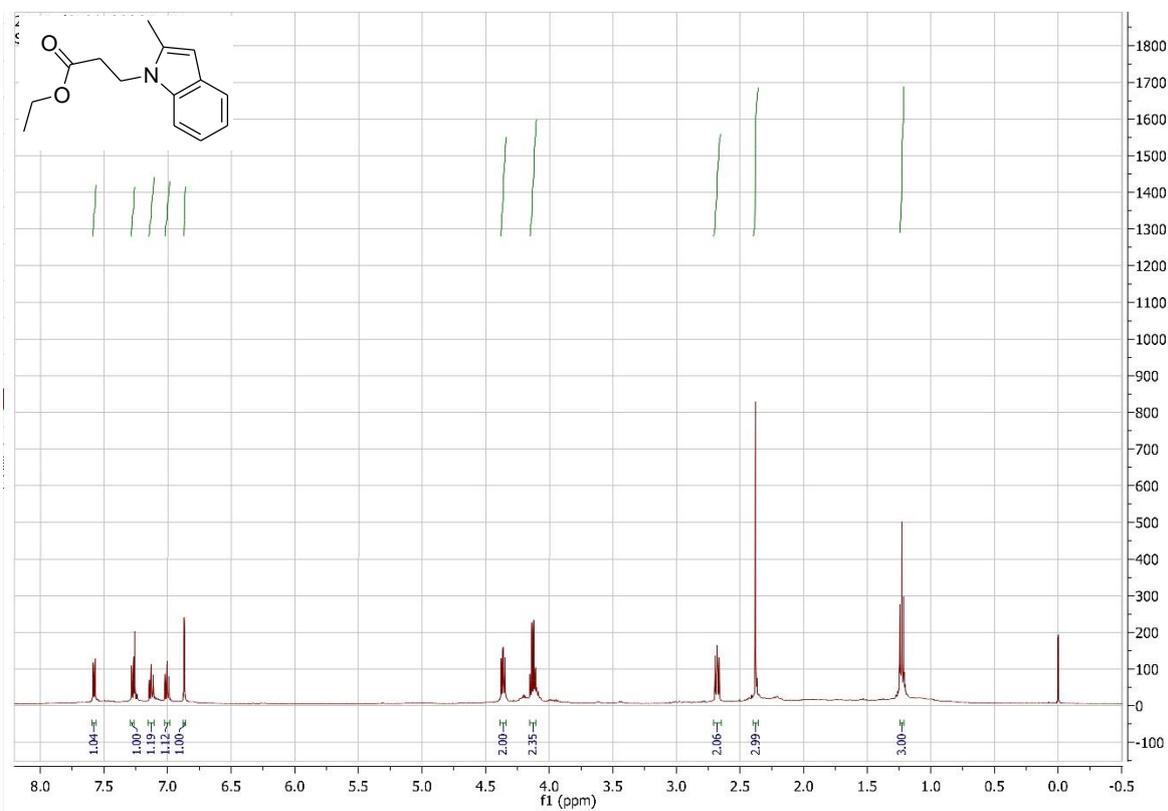


Figure S6. ^1H NMR spectrum of compound **15b**.

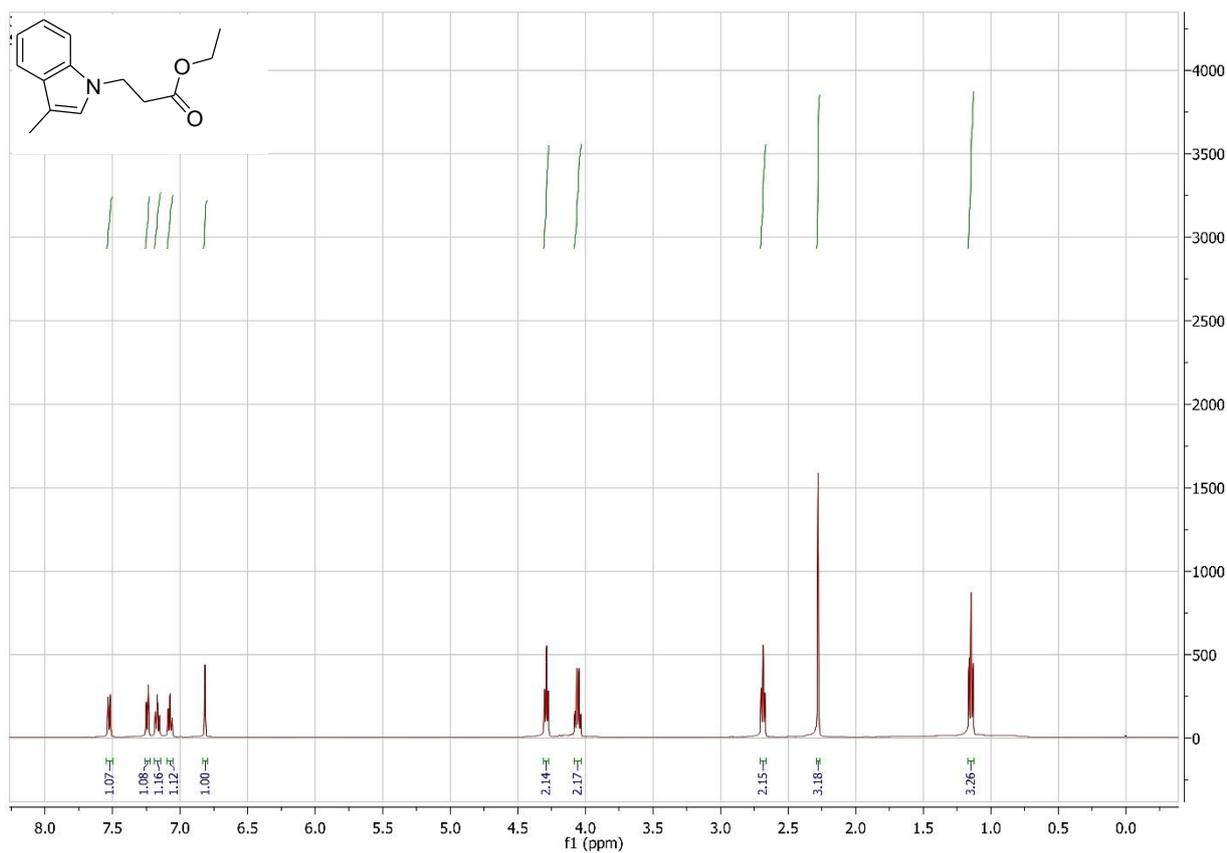


Figure S7. ^1H NMR spectrum of compound 16b.

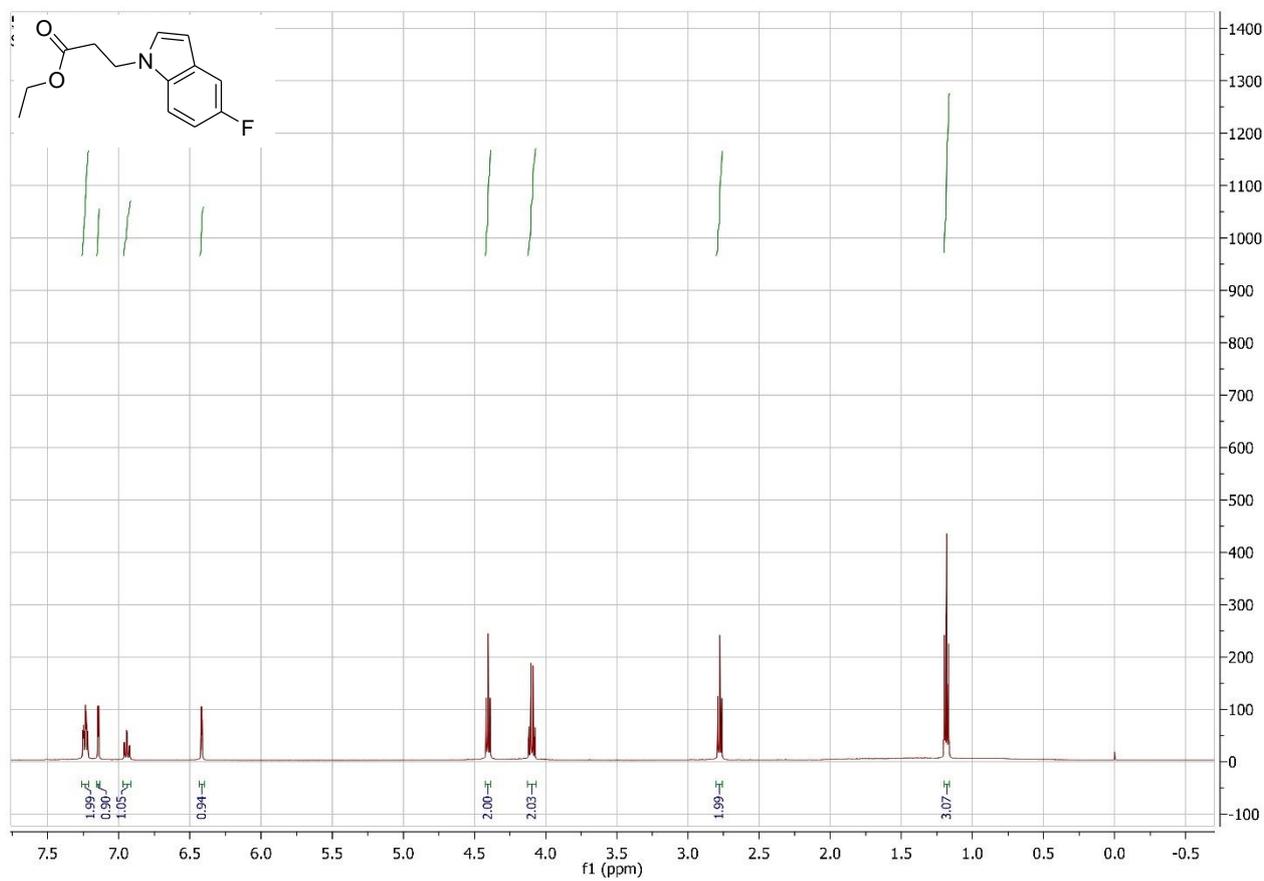


Figure S8. ^1H NMR spectrum of compound 17b.

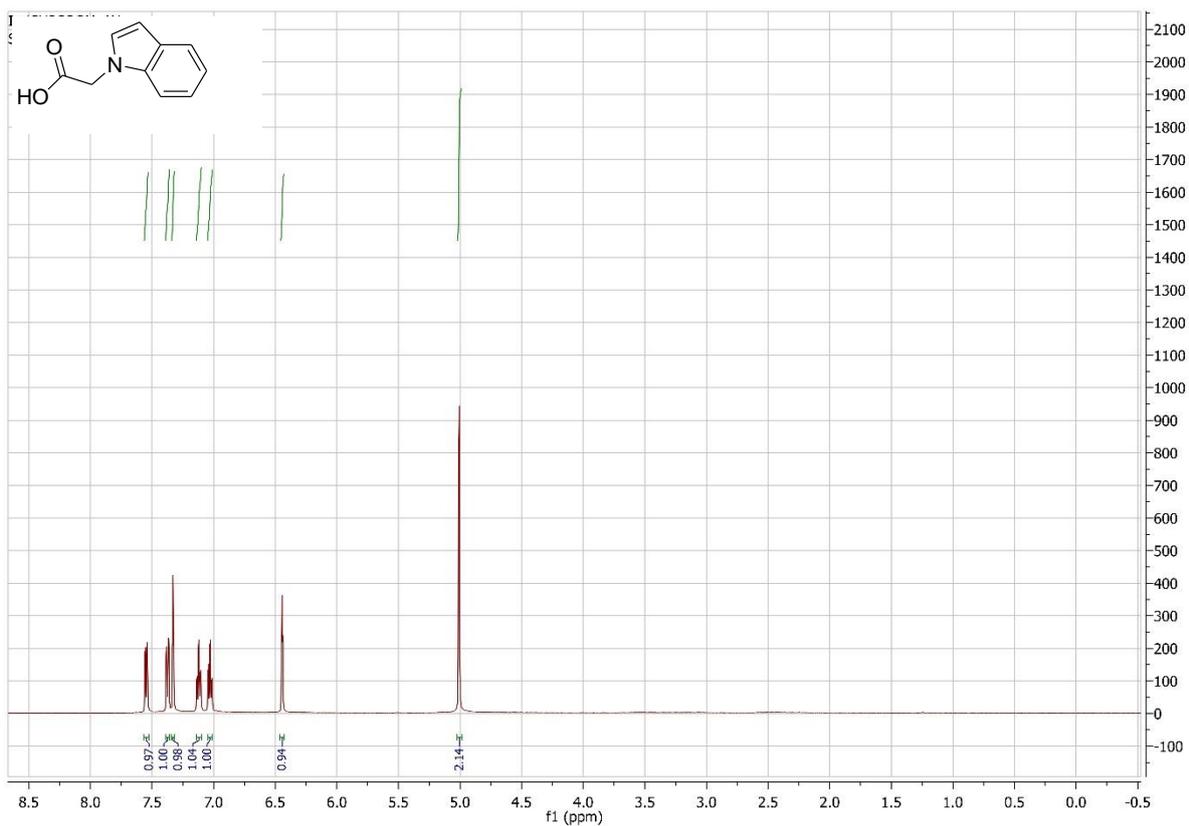


Figure S9. ¹H NMR spectrum of compound 18a.

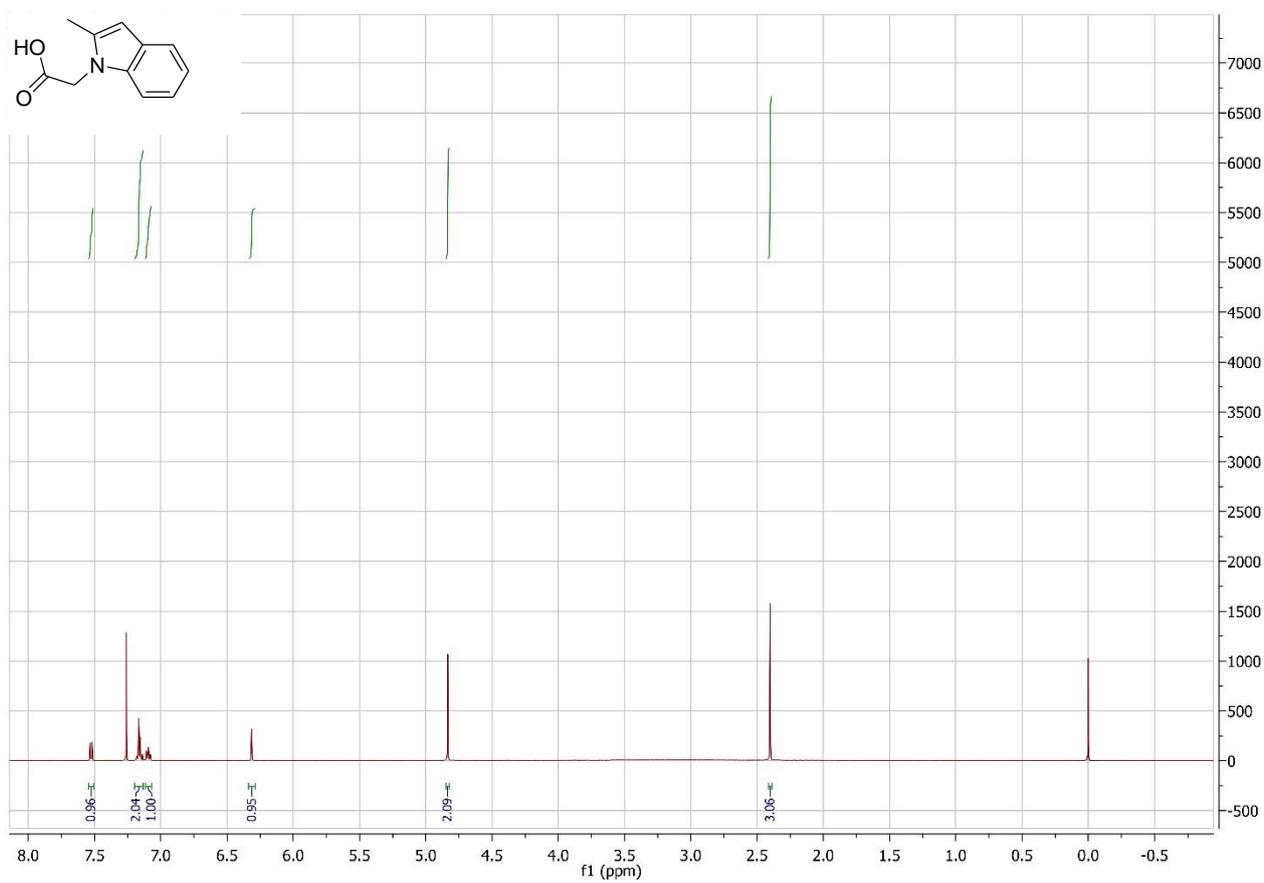


Figure S10. ¹H NMR spectrum of compound 19a.

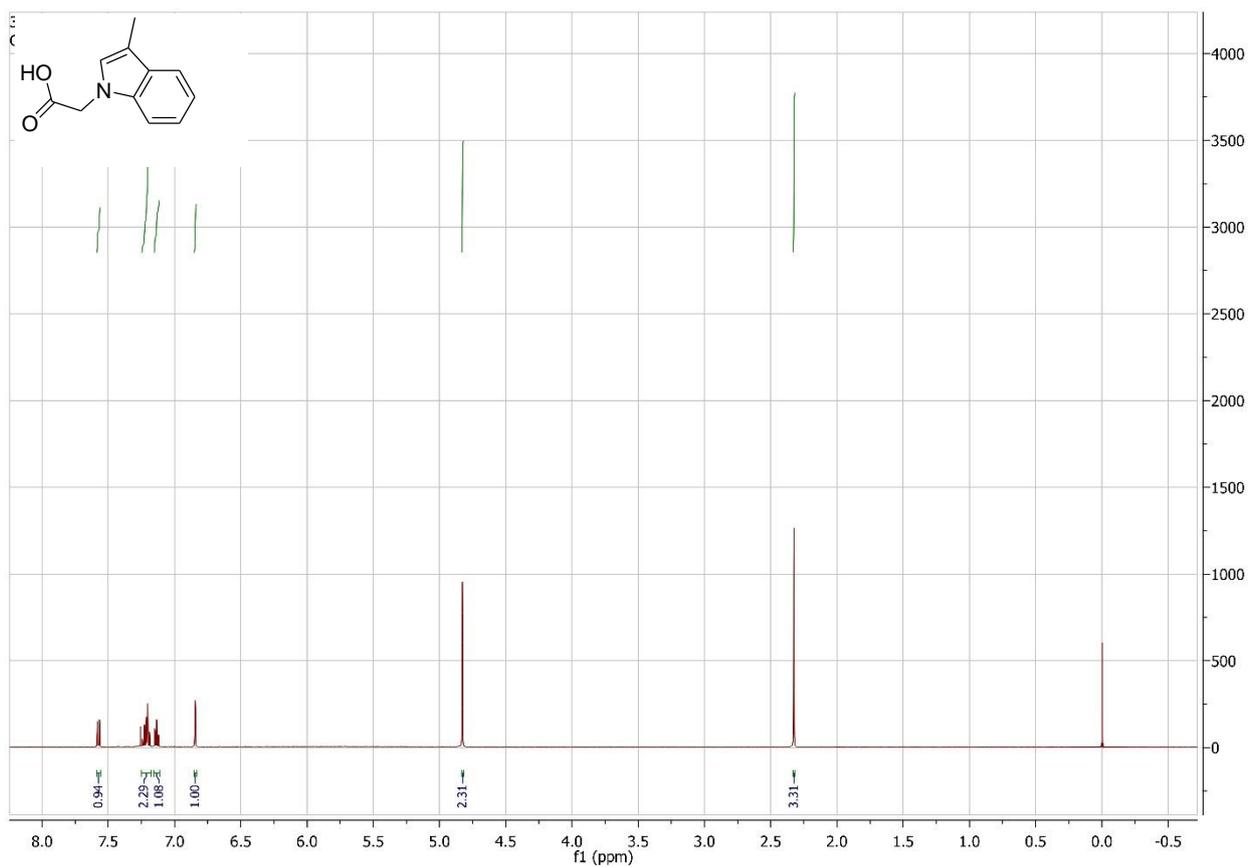


Figure S11. ¹H NMR spectrum of compound 20a.

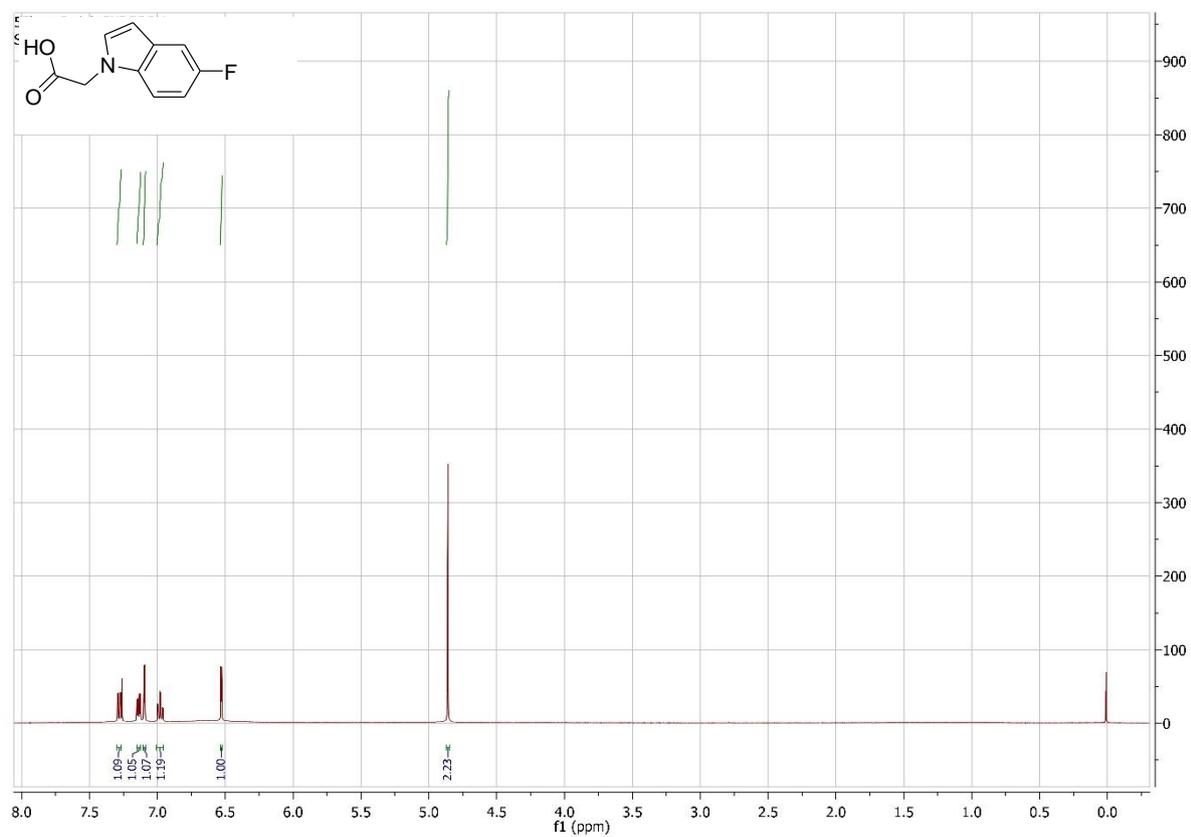


Figure S12. ¹H NMR spectrum of compound 21a.

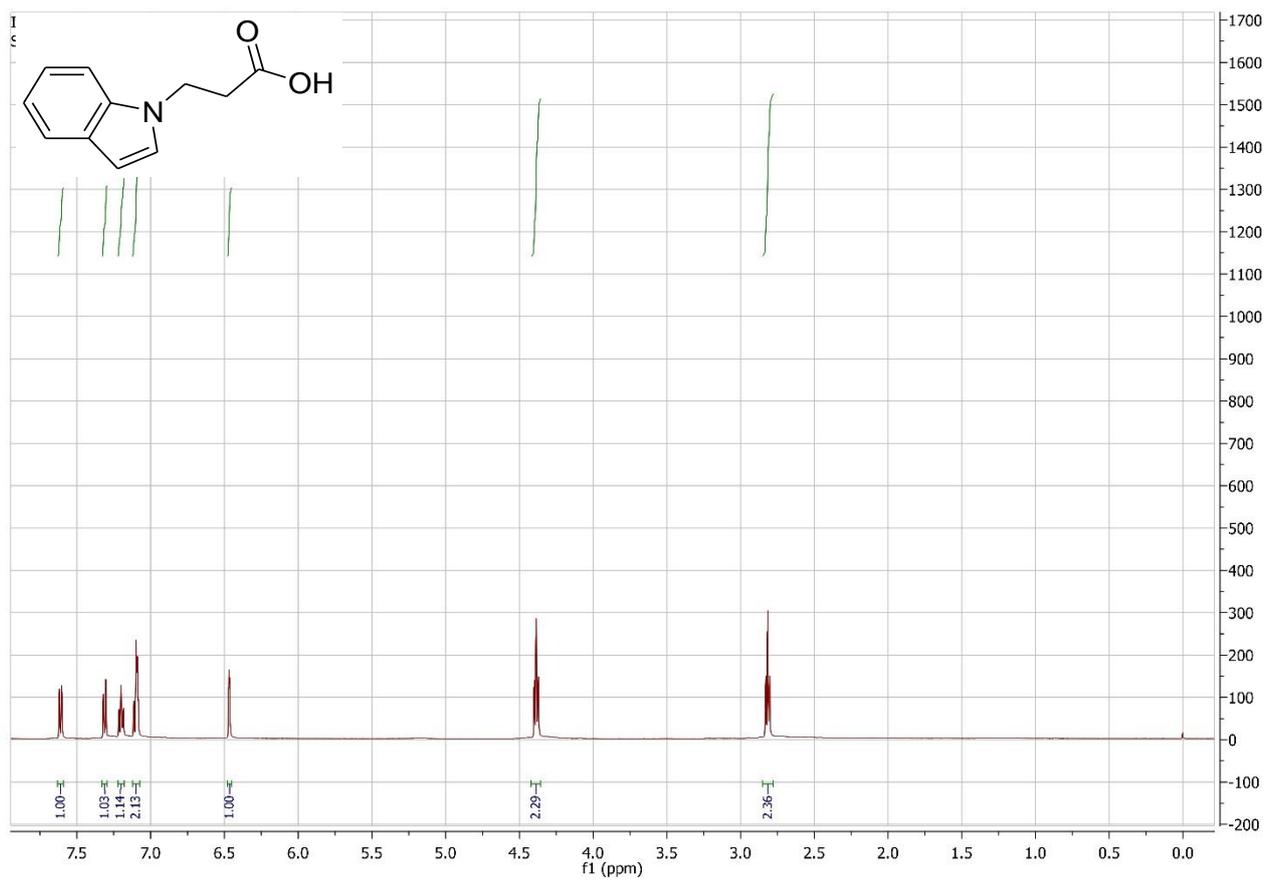


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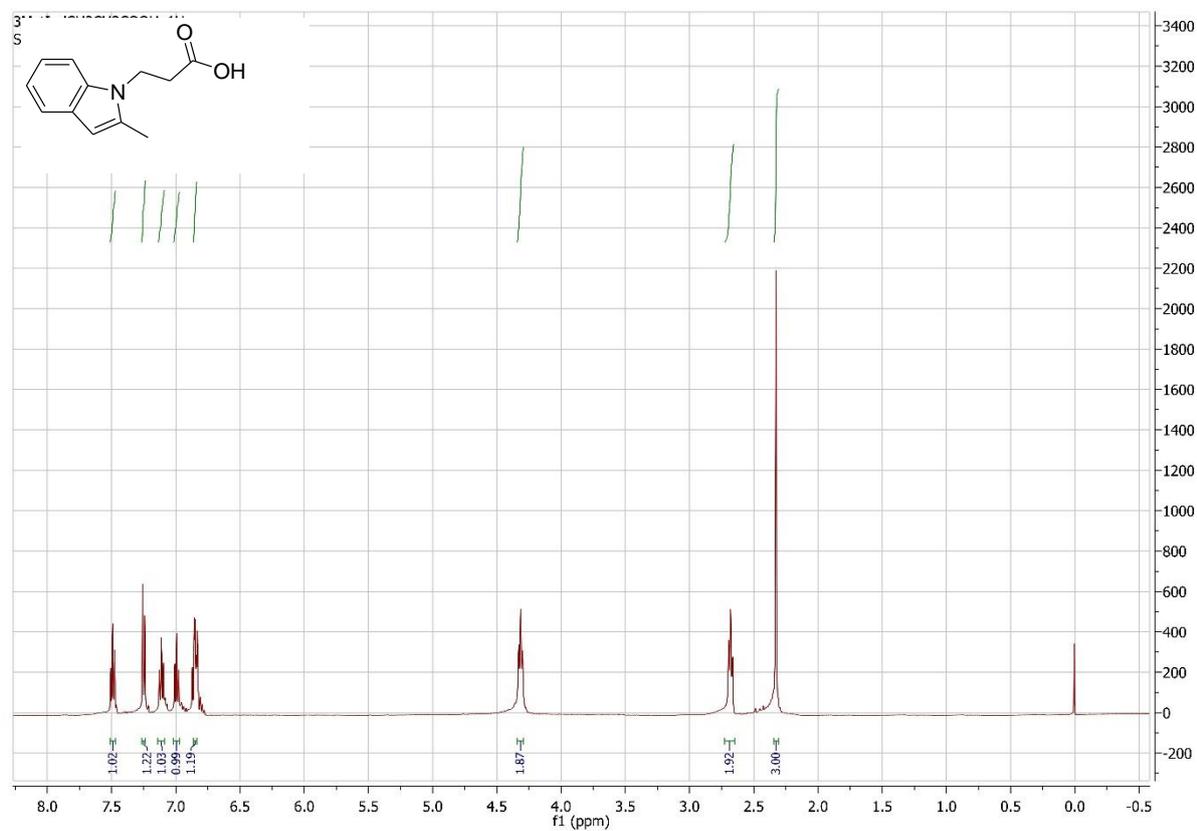


Figure S14. ¹H NMR spectrum of compound 19b.

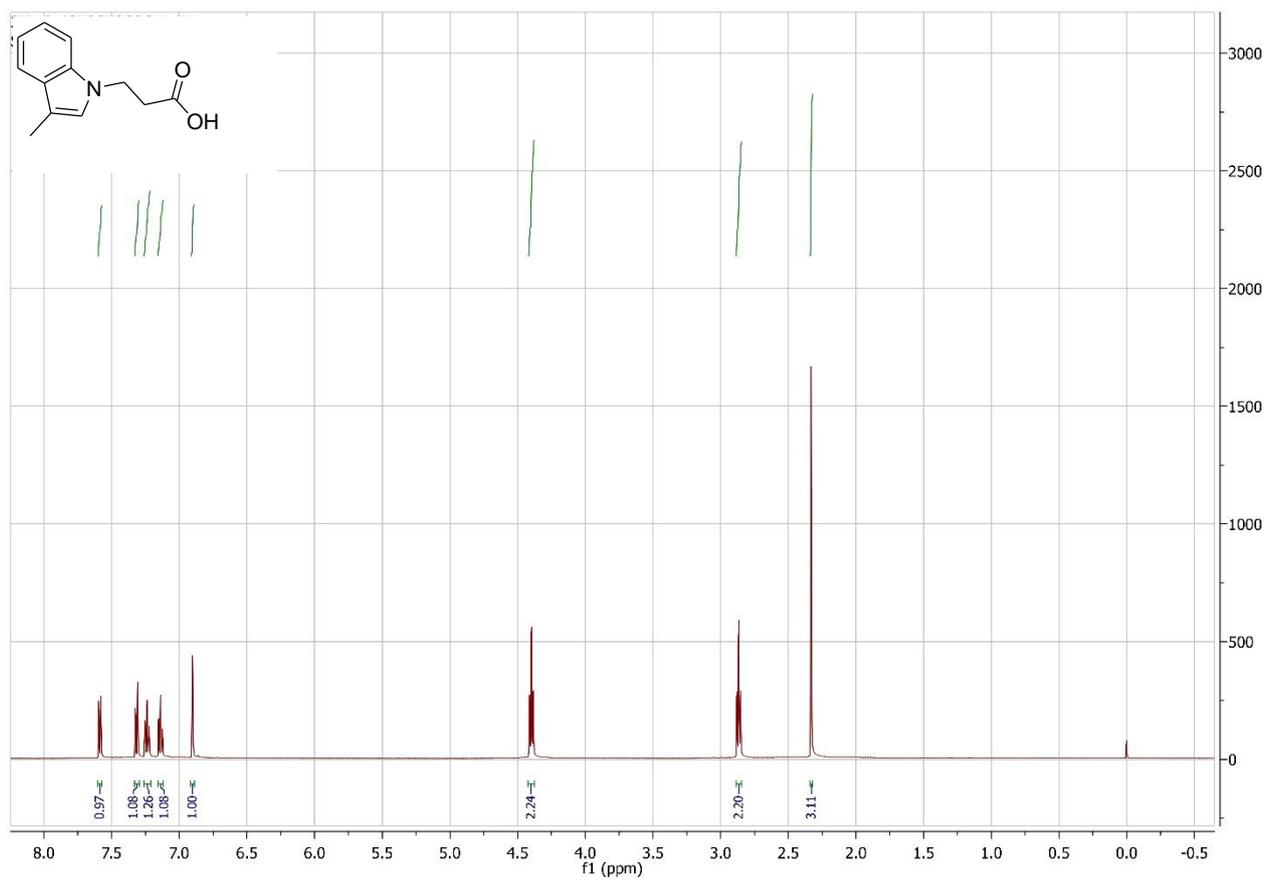


Figure S15. ¹H NMR spectrum of compound 20b.

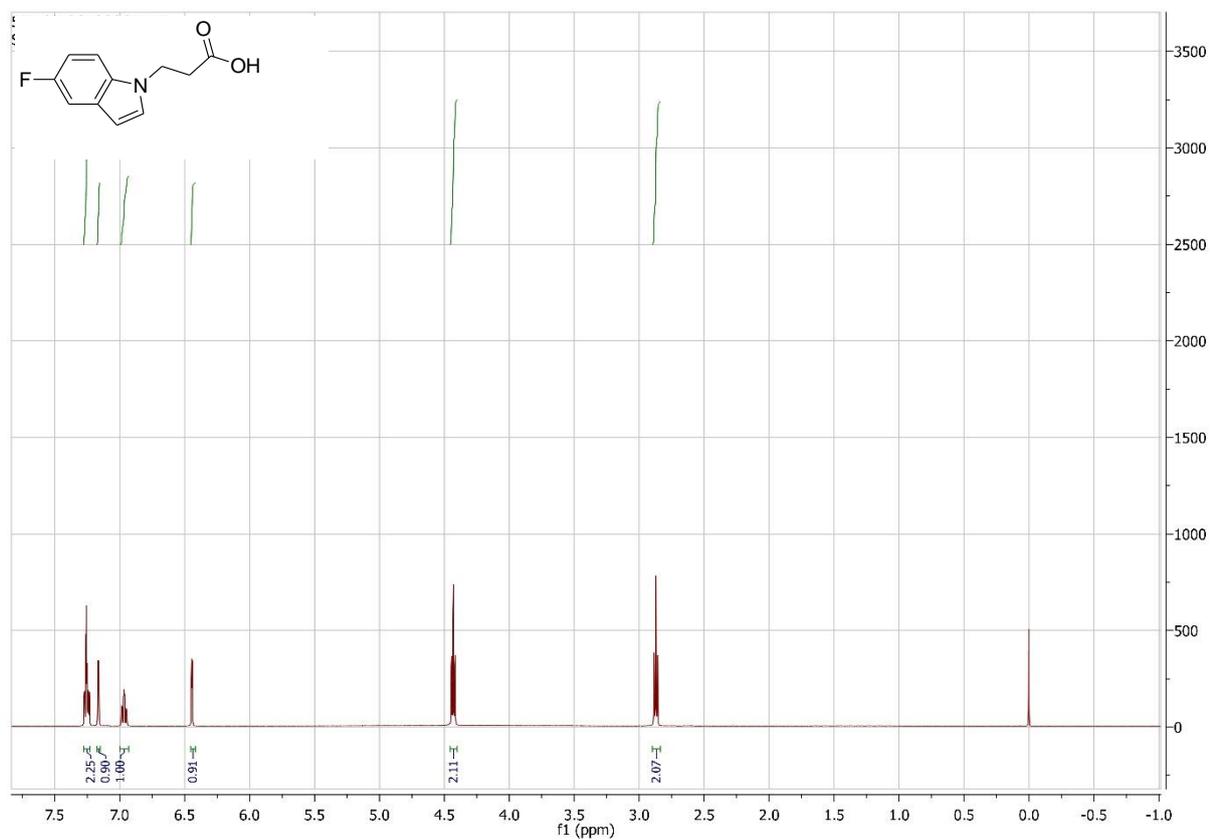


Figure S16. ¹H NMR spectrum of compound 21b.

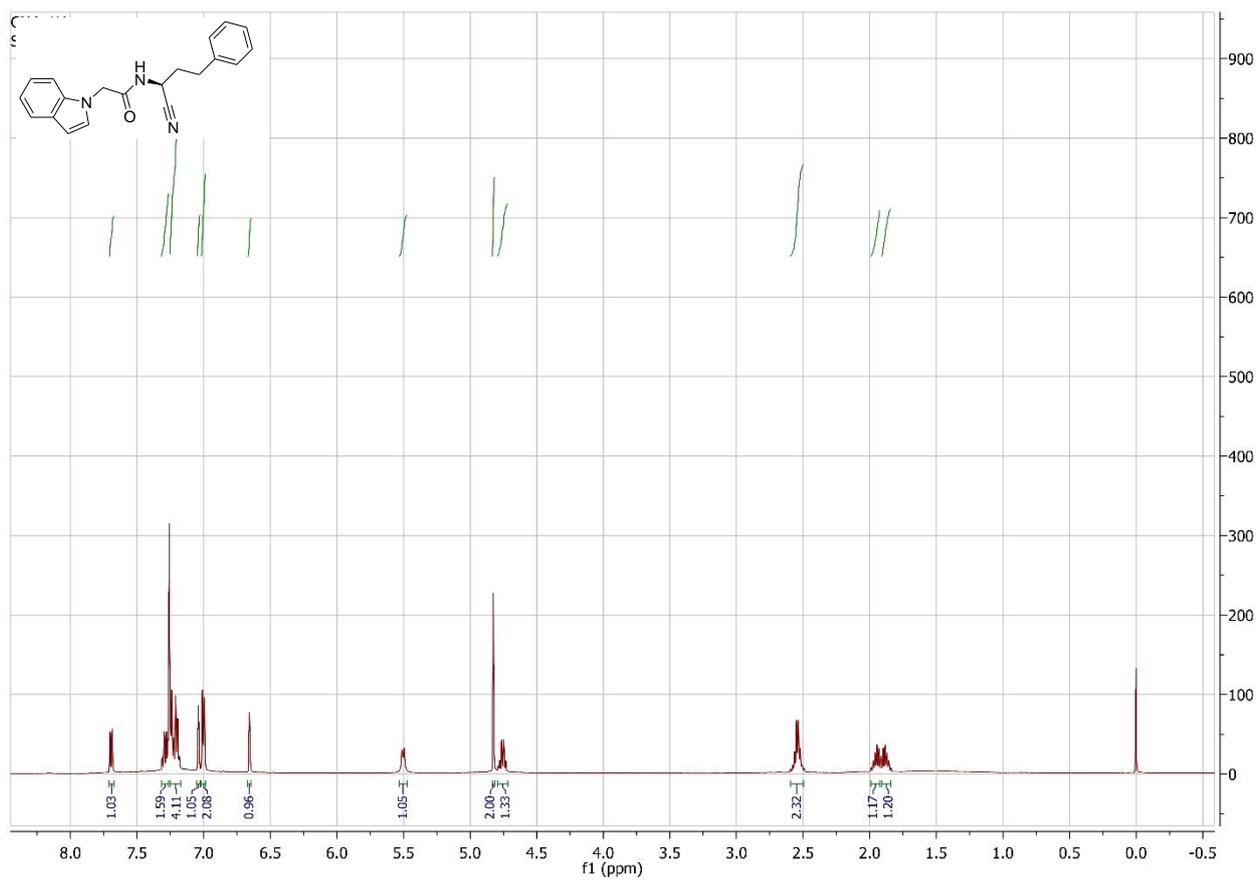


Figure S17. ^1H NMR spectrum of compound 1a.

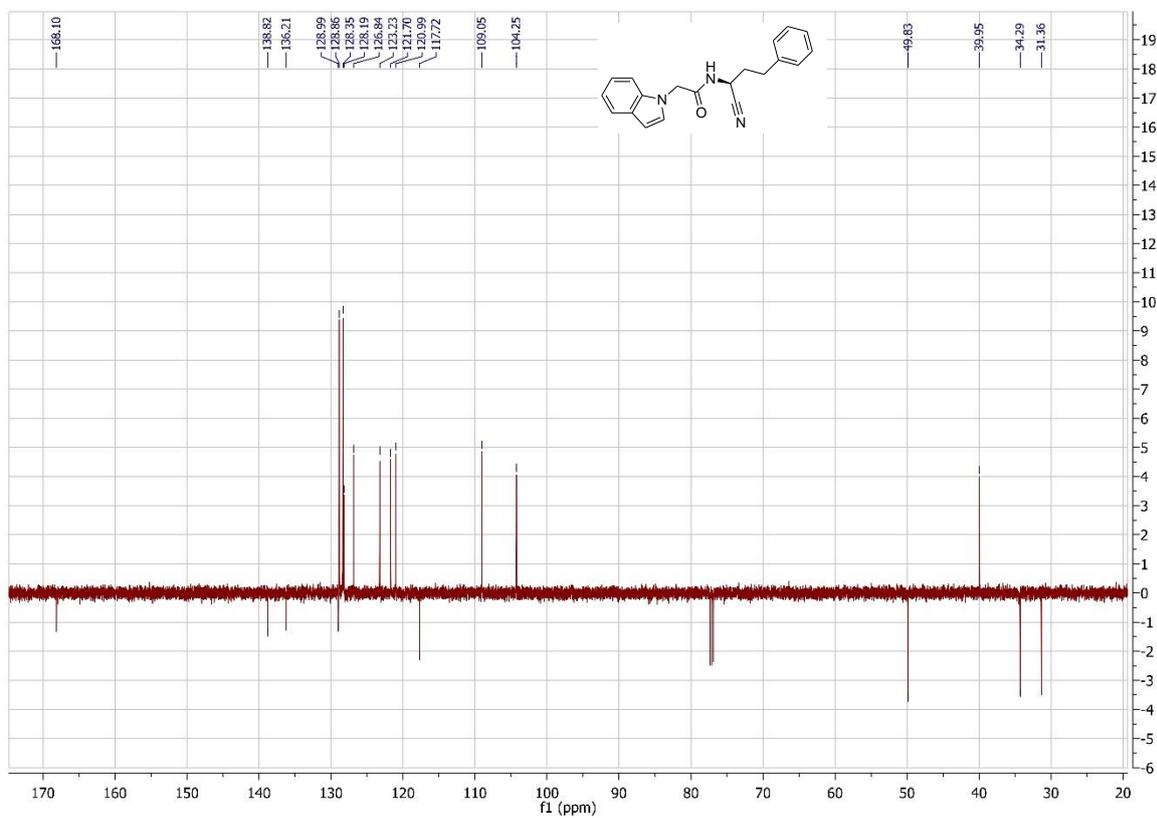


Figure S18. ^{13}C NMR spectrum of compound 1a.

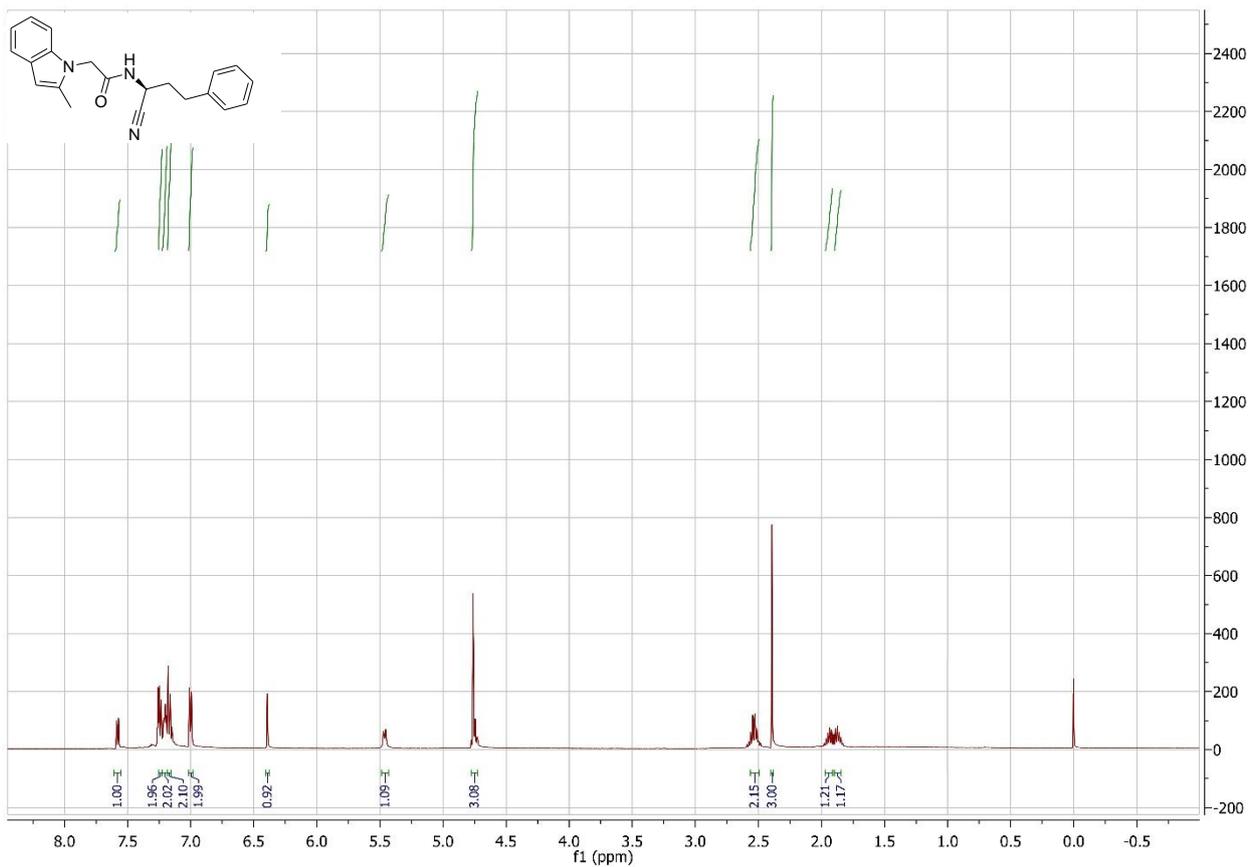


Figure S19. ¹H NMR spectrum of compound 2a.

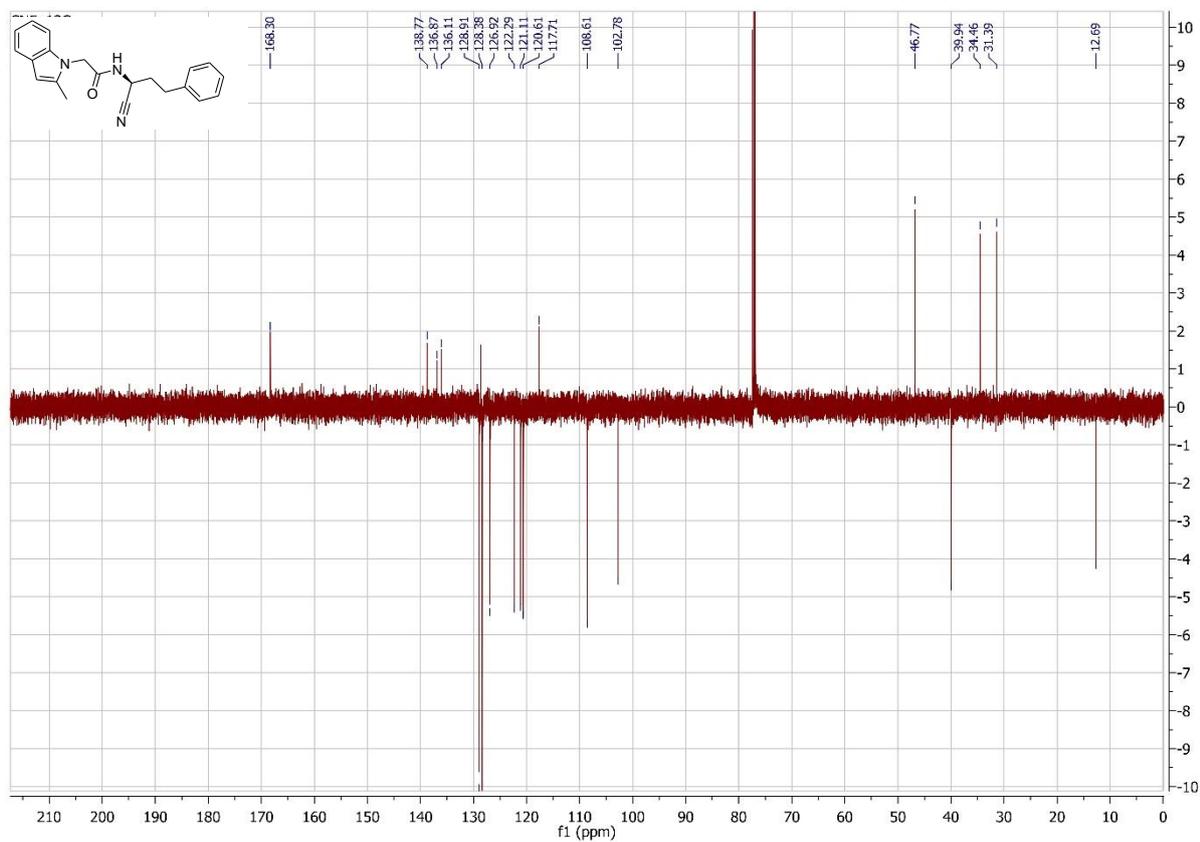


Figure S20. ¹³C NMR spectrum of compound 2a.

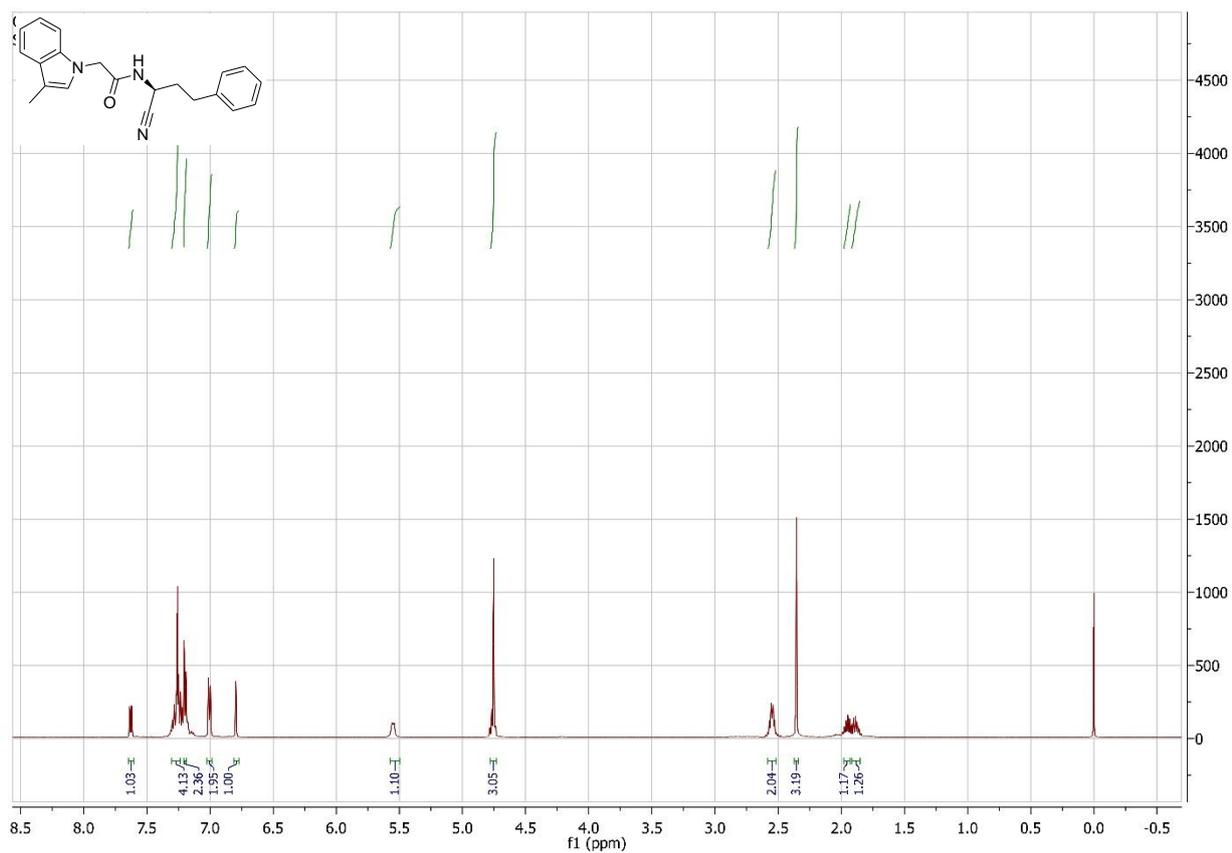


Figure S21. ¹H NMR spectrum of compound 3a.

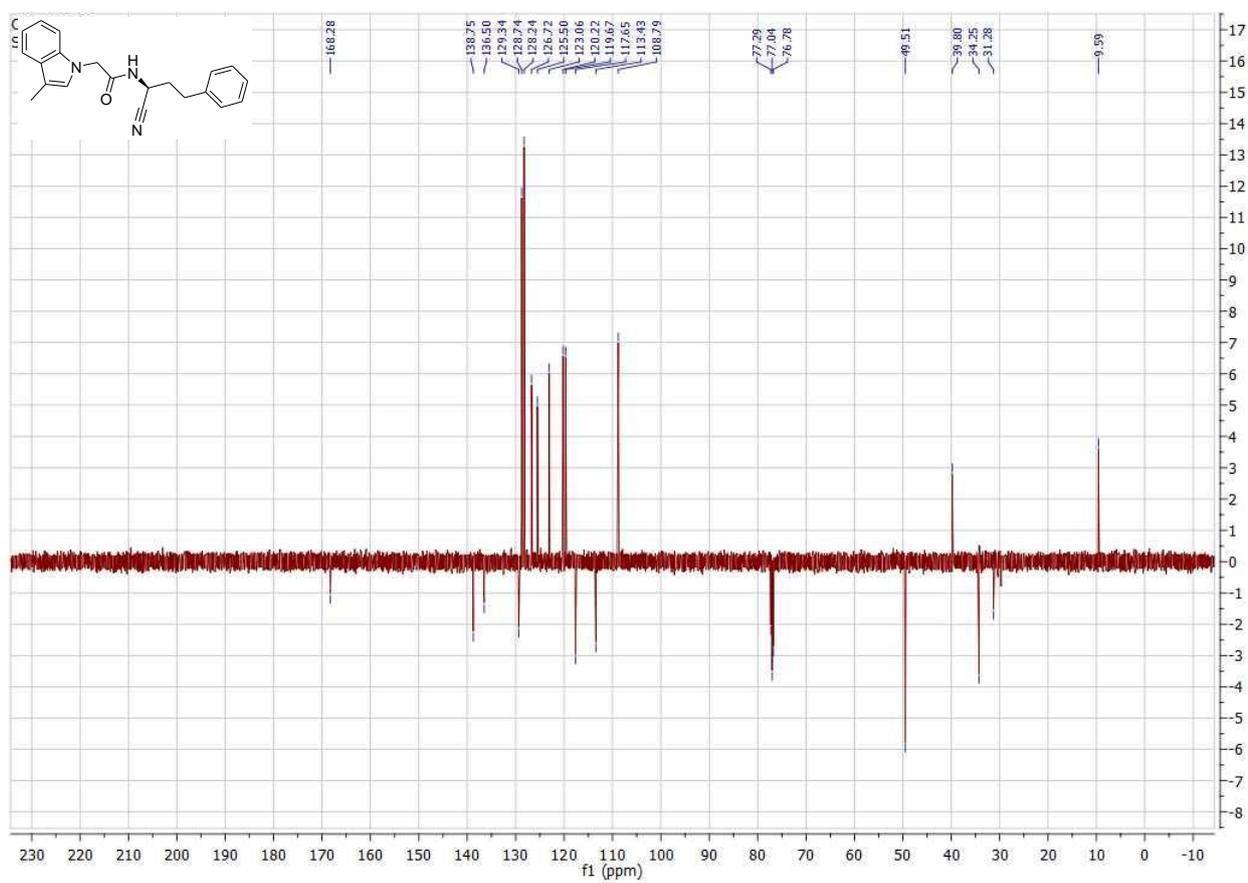


Figure S22. ¹³C NMR spectrum of compound 3a.

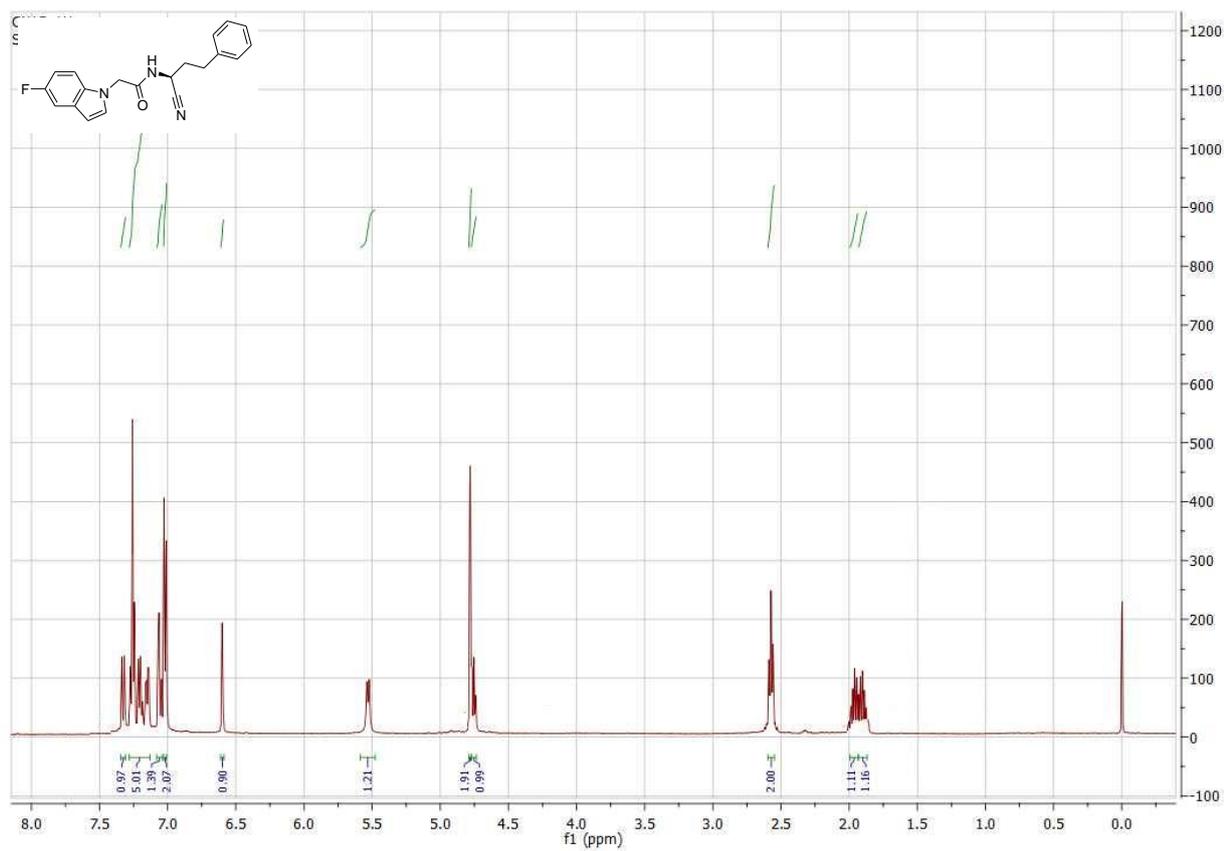


Figure S23. ¹H NMR spectrum of compound 4a.

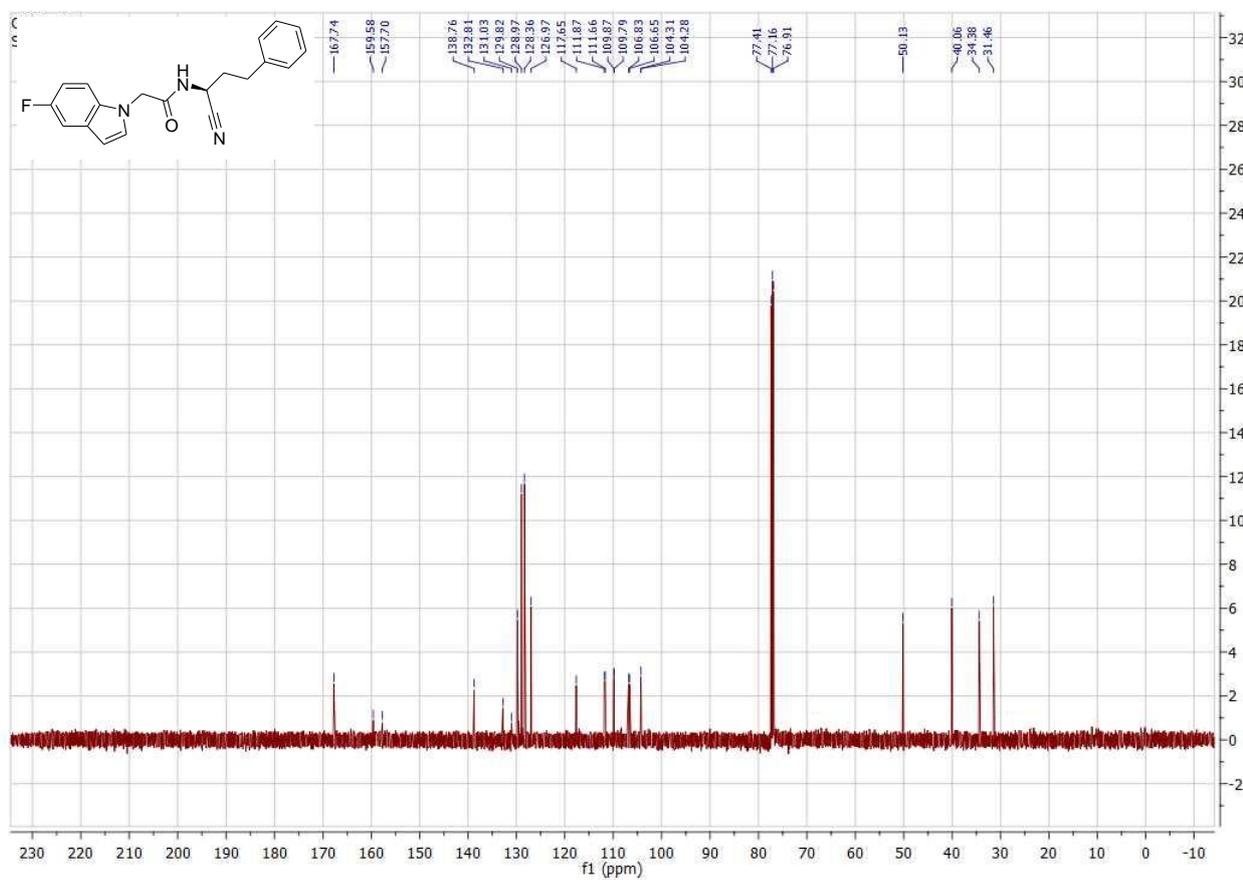


Figure S24. ¹³C NMR spectrum of compound 4a.

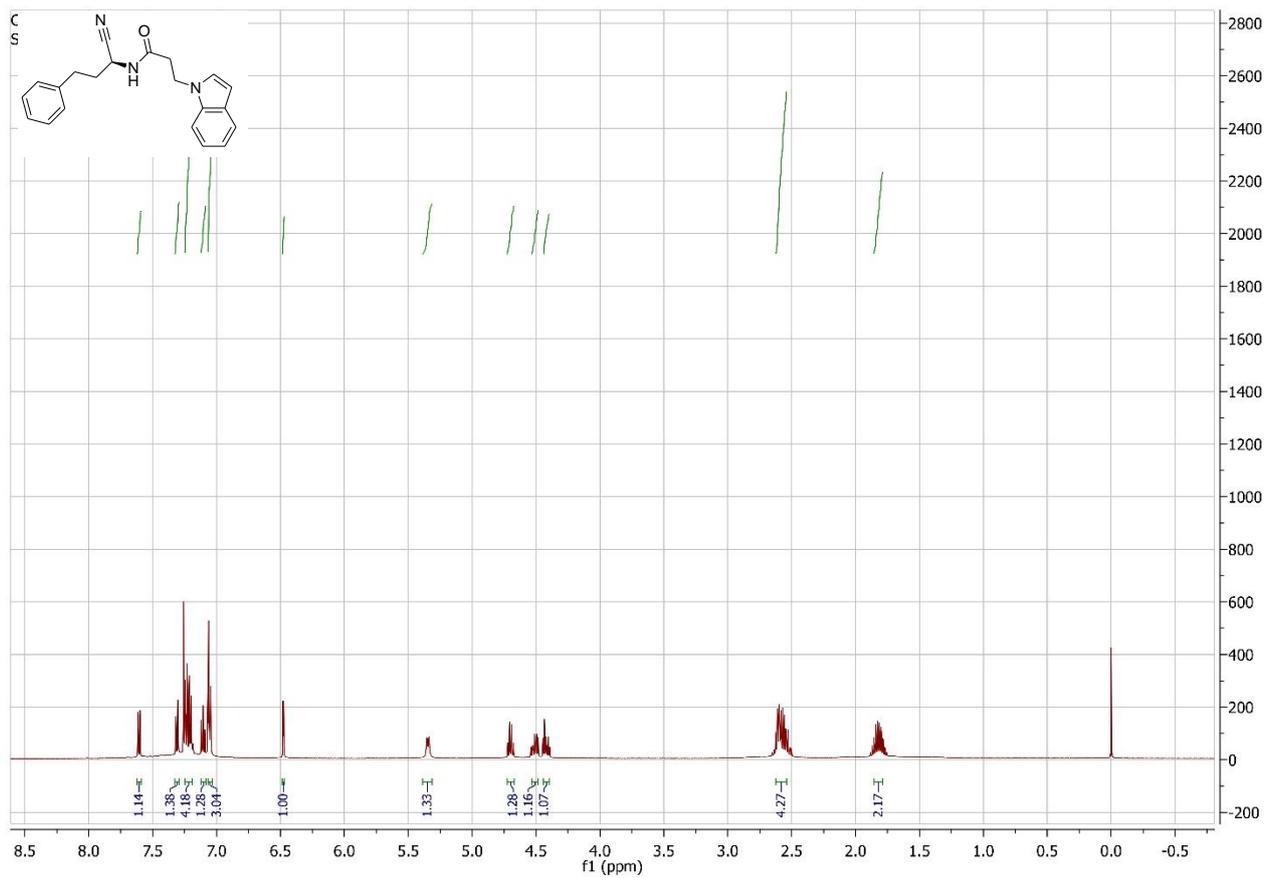


Figure S25. ¹H NMR spectrum of compound 1b.

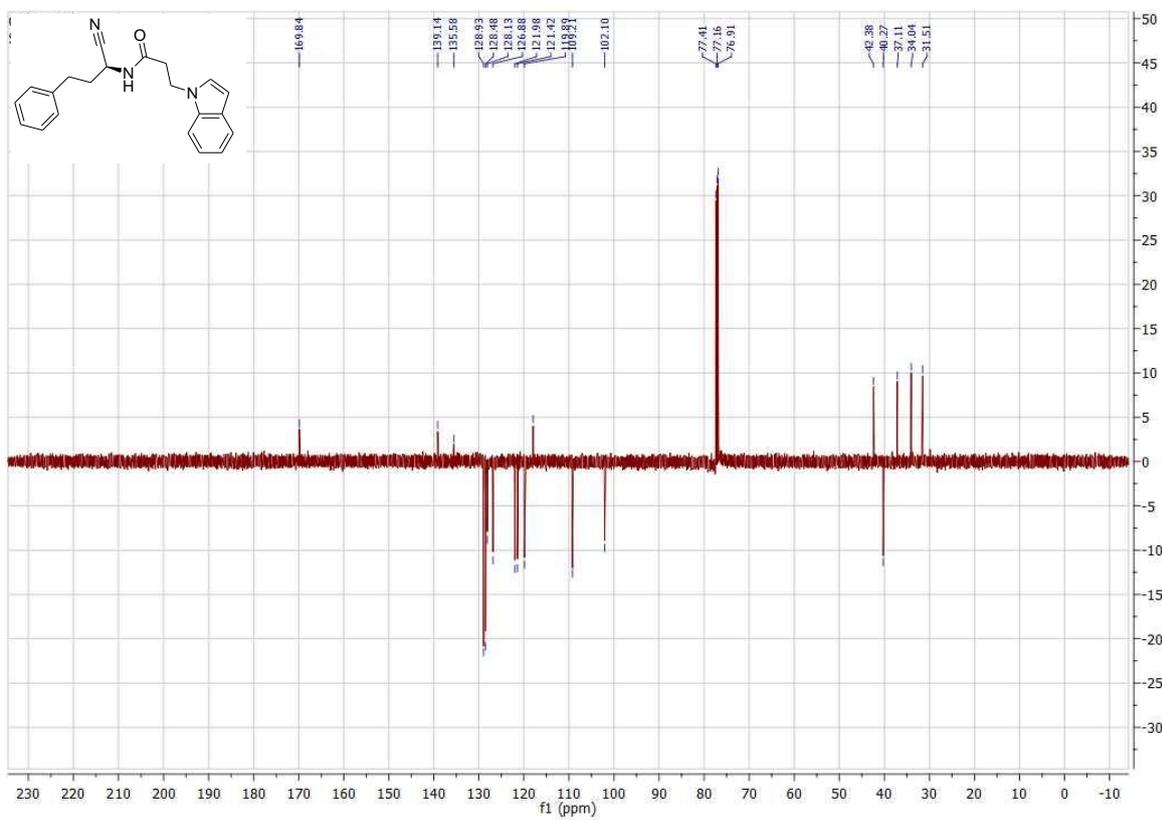


Figure S26. ¹³C NMR spectrum of compound 1b.

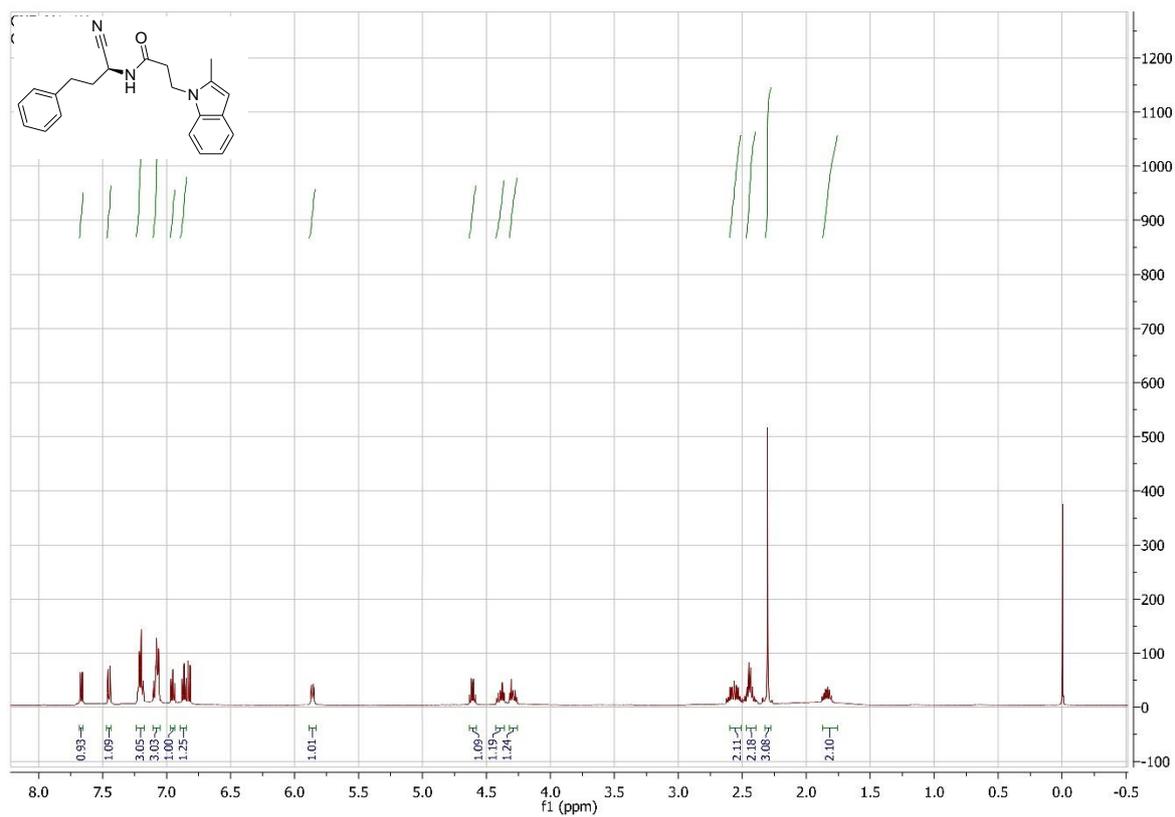


Figure S27. ¹H NMR spectrum of compound 2b.

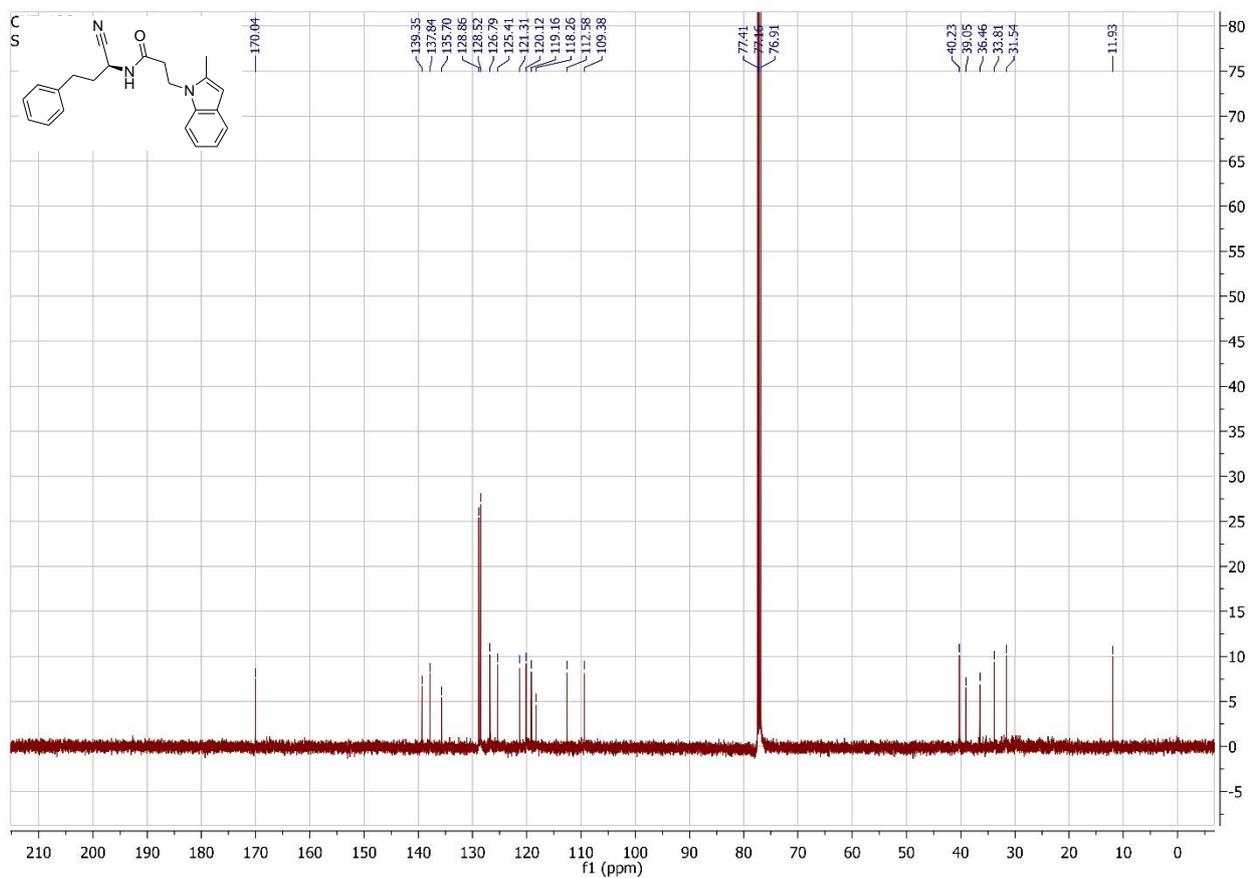


Figure S28. ¹³C NMR spectrum of compound 2b.

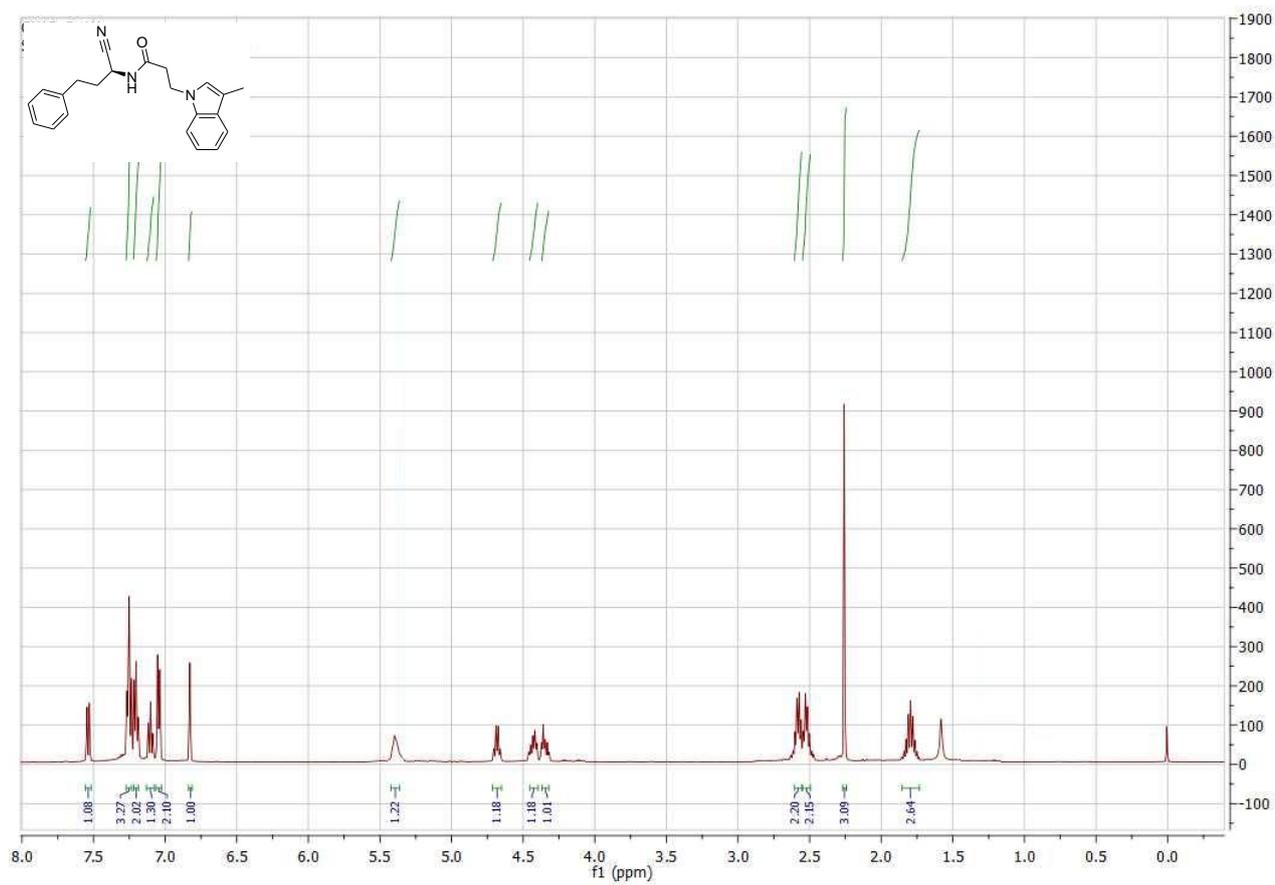


Figure S29. ¹H NMR spectrum of compound 3b.

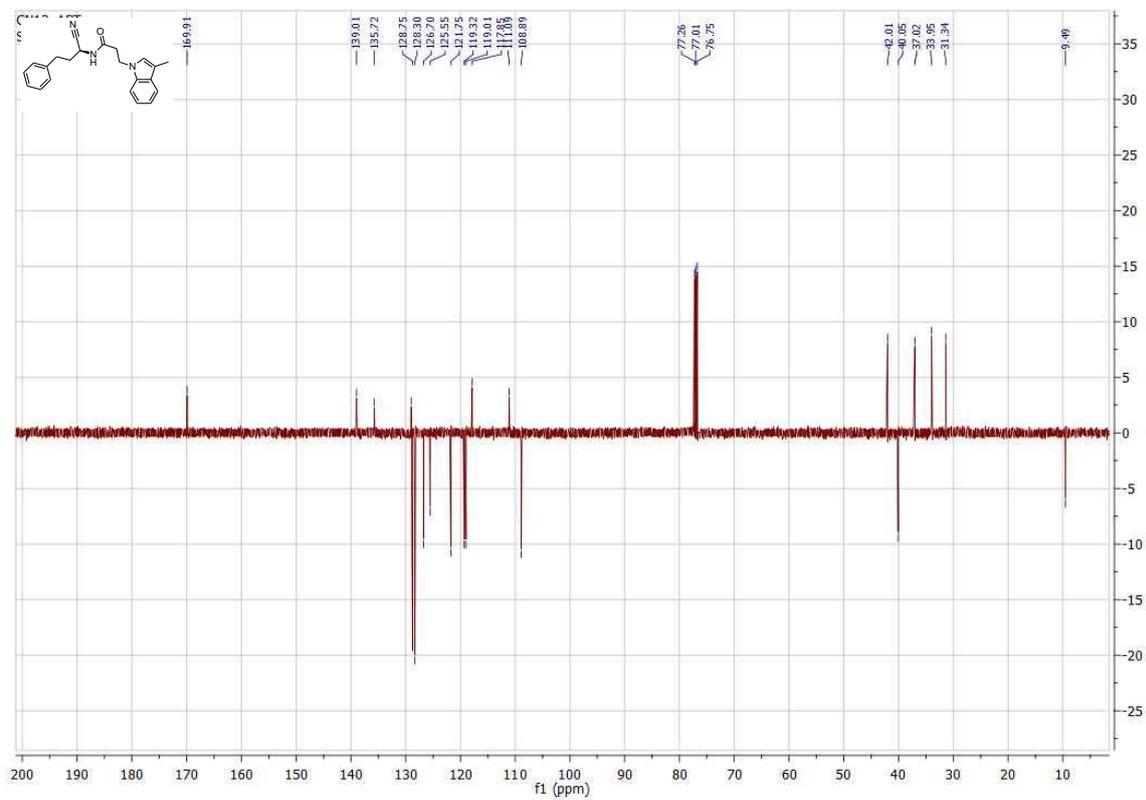


Figure S30. ¹³C NMR spectrum of compound 3b.

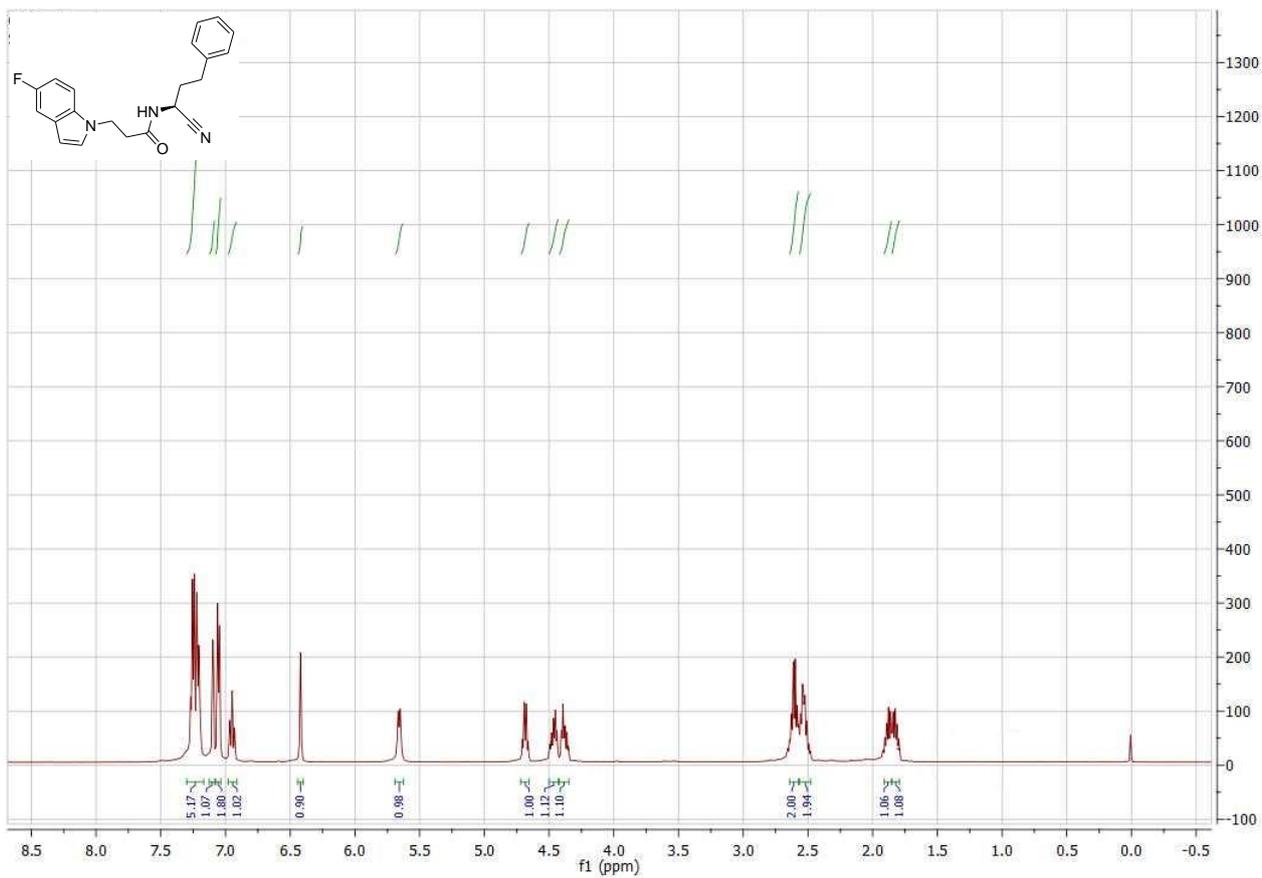


Figure S31. ¹H NMR spectrum of compound 4b.

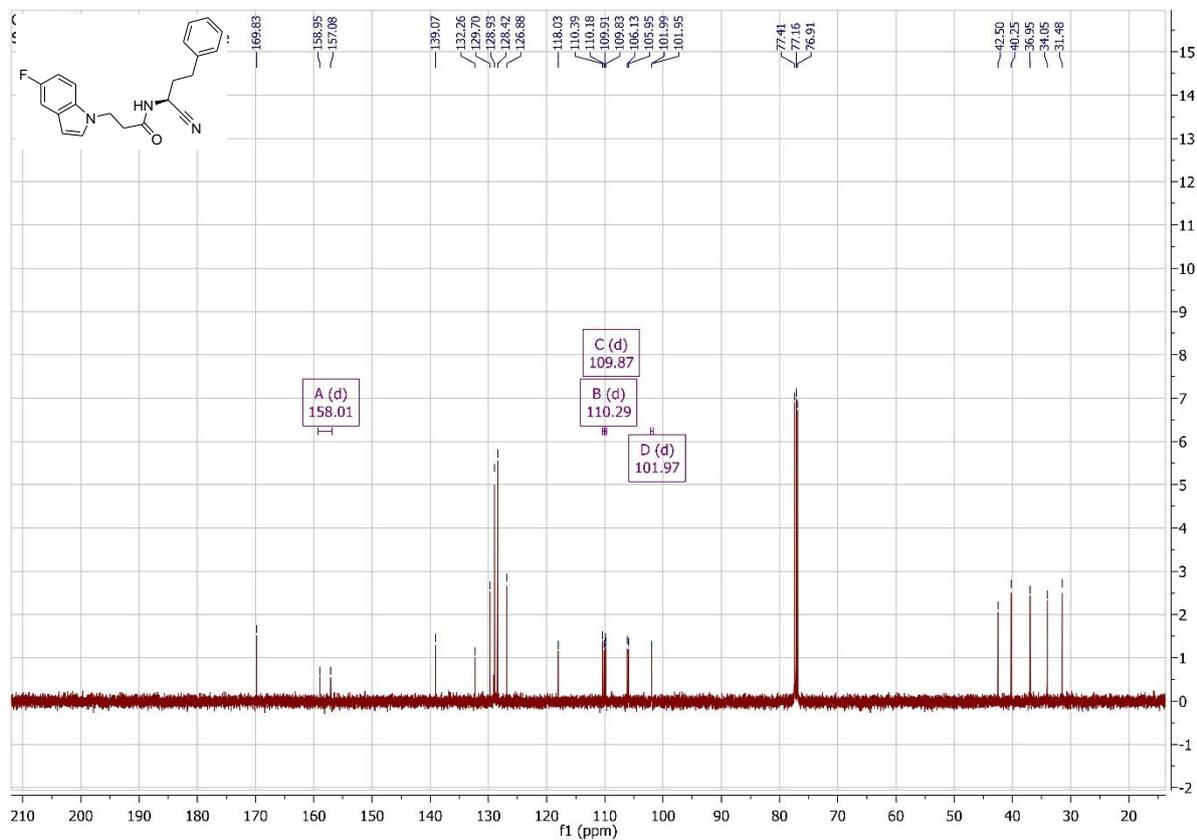


Figure S32. ¹³C NMR spectrum of compound 4b.

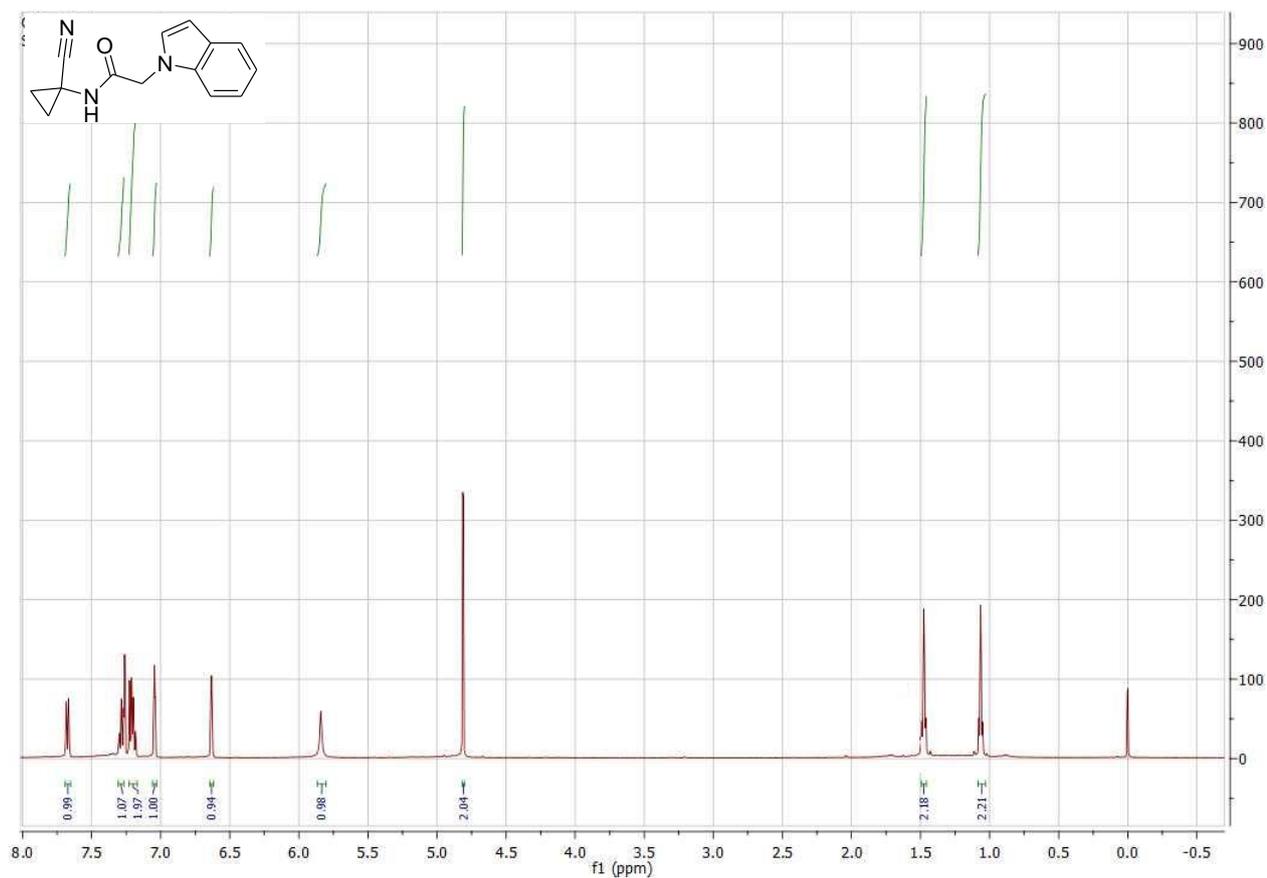
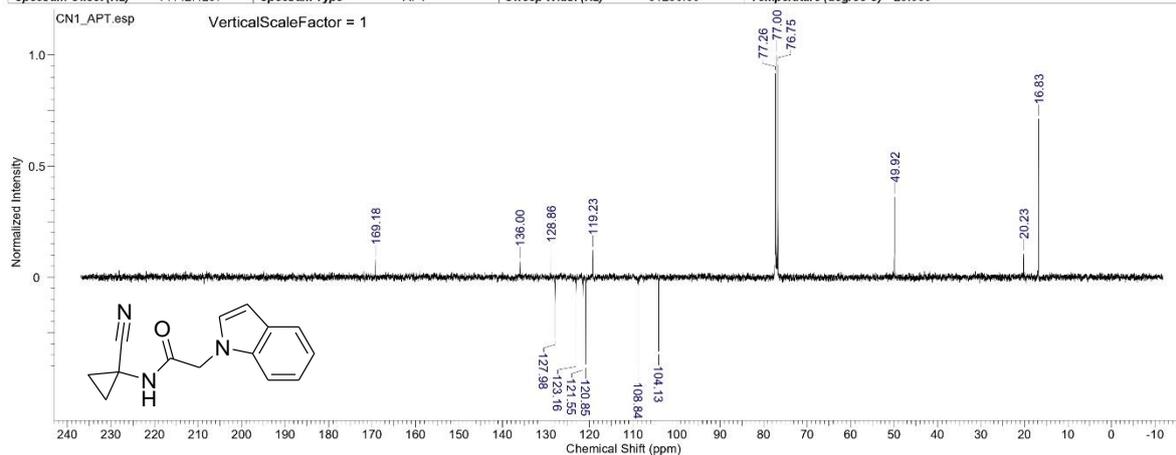


Figure S33. ¹H NMR spectrum of compound 5a.

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08/04/2024 14:51:28

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3	49.92	6273.9	0.3618	7	104.13	13086.2	-0.3339	11	121.55	15275.9	-0.3890	15	136.00	17091.8	0.0712
4	76.75	9645.2	0.9572	8	108.84	13678.5	-0.4070	12	123.16	15478.1	-0.3733	16	169.18	21261.4	0.0795

Figure S34. ¹³C NMR spectrum of compound 5a.

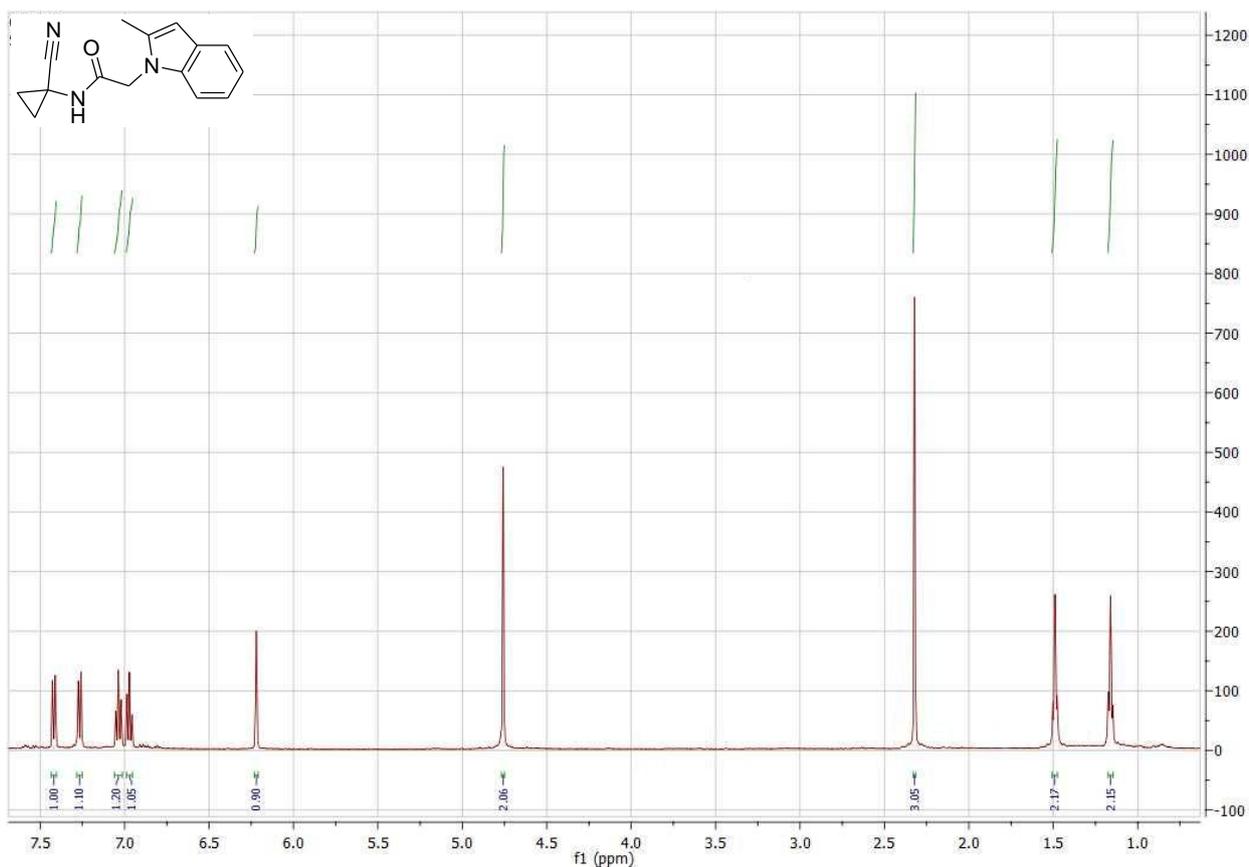
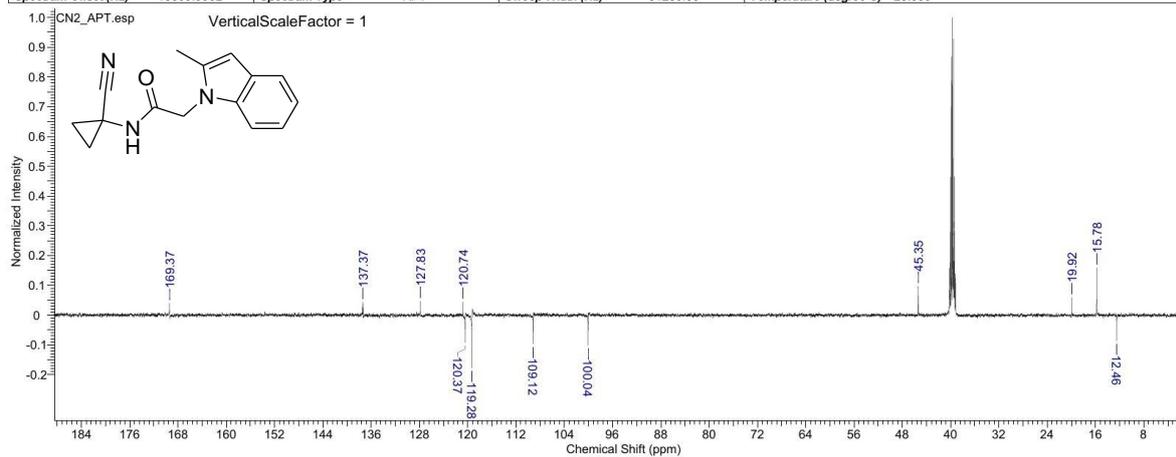


Figure S35. ^1H NMR spectrum of compound **6a**.

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08/04/2024 14:33:42

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2	15.78	1983.1	0.1582	5	100.04	12572.0	-0.1030	8	120.37	15127.0	-0.0933	11	137.32	17257.6	0.0259
3	19.92	2503.8	0.0588	6	109.12	13713.6	-0.0975	9	120.74	15173.7	0.0437	12	137.37	17263.3	0.0430
												13	169.37	21285.1	0.0393

Figure S36. ^{13}C NMR spectrum of compound **6a**.

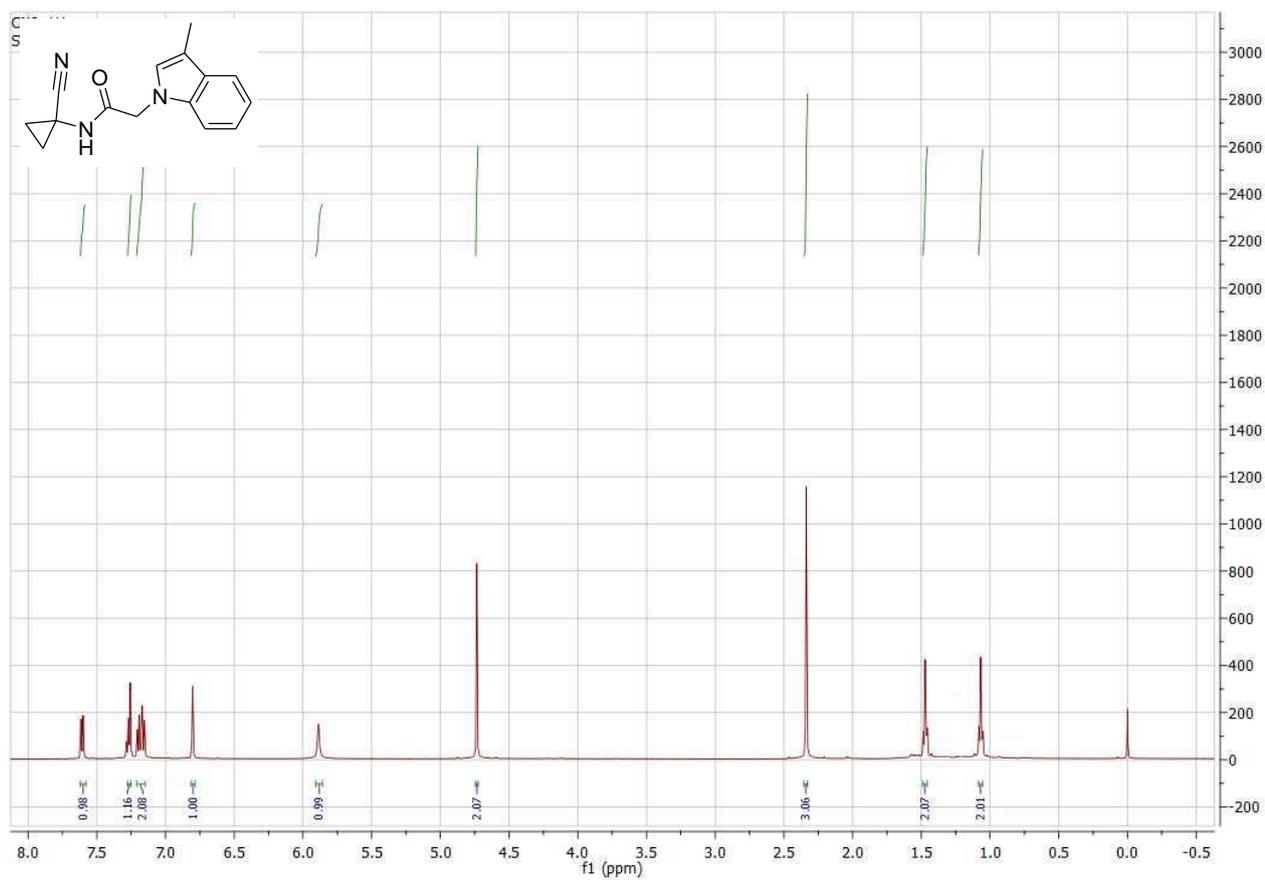


Figure S37. ¹H NMR spectrum of compound 7a.

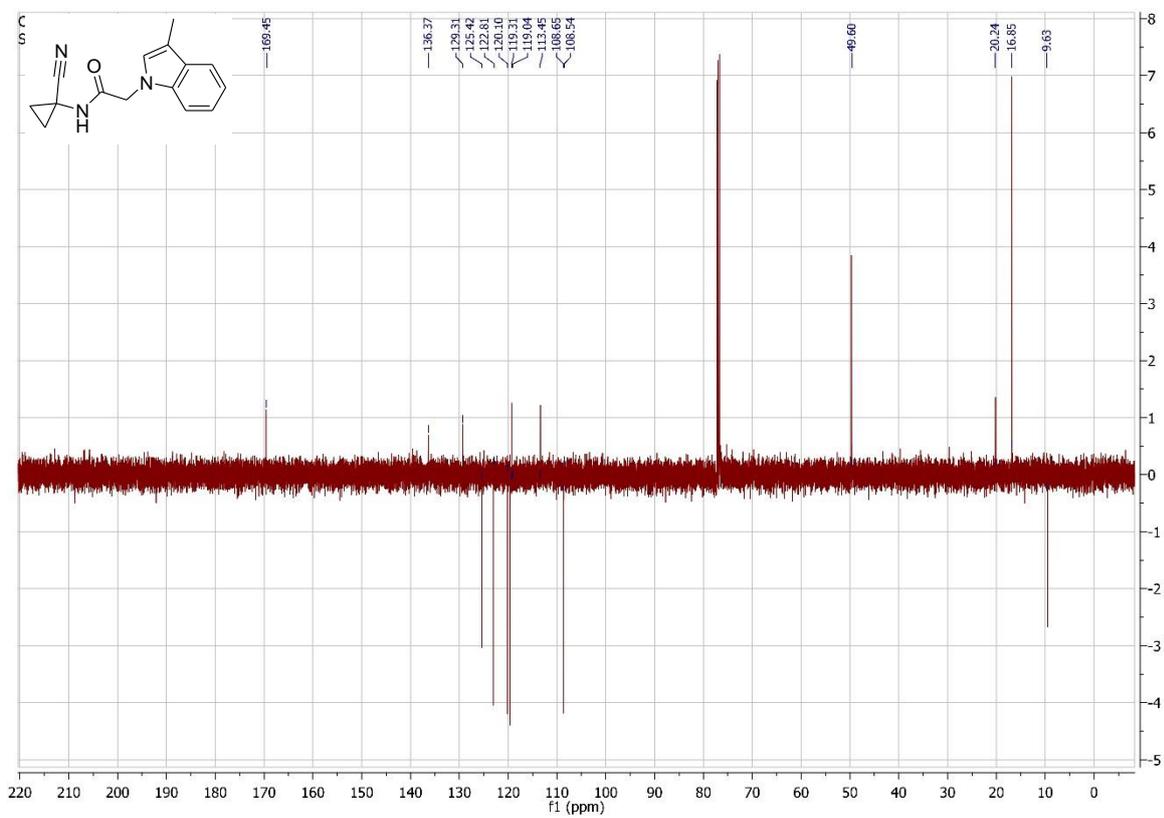


Figure S38. ¹³C NMR spectrum of compound 7a.

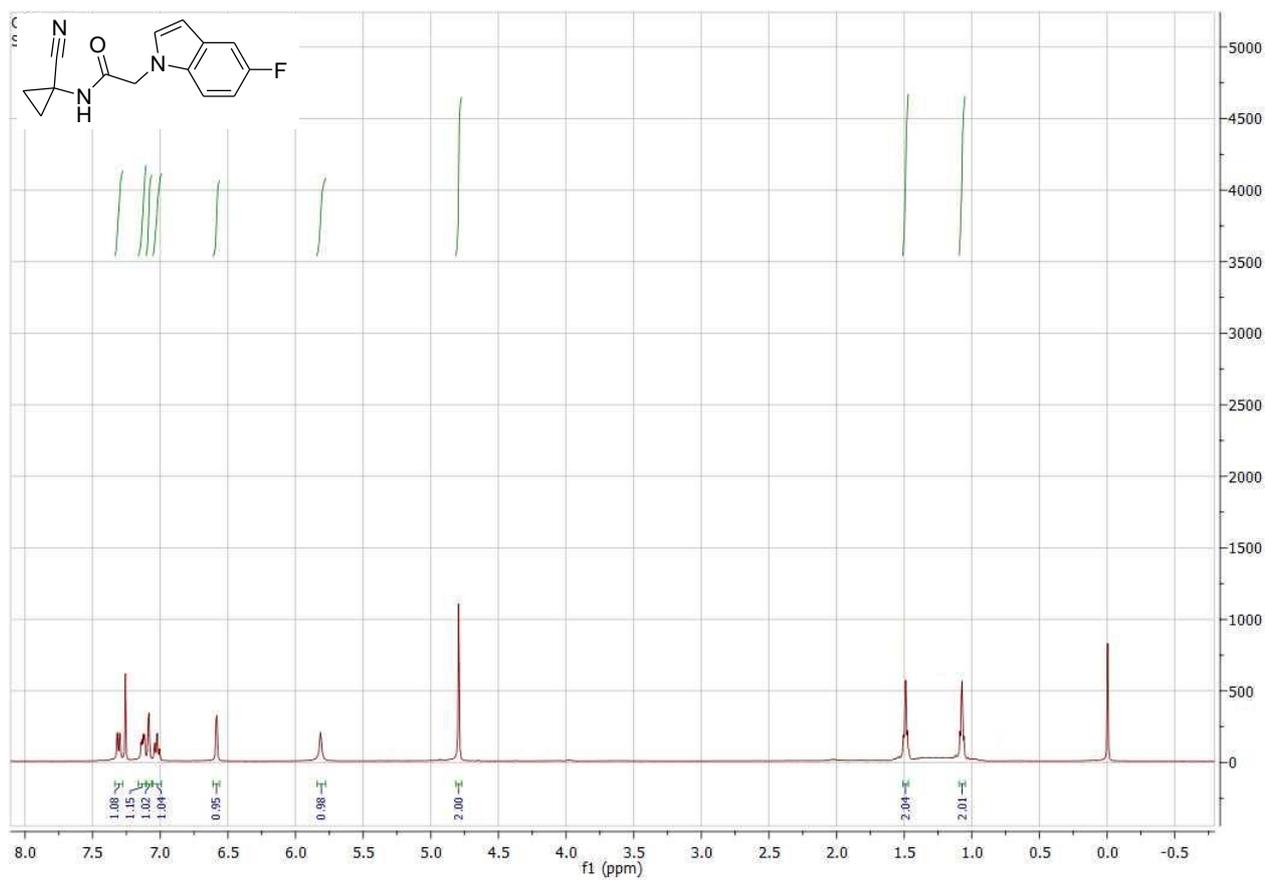


Figure S39. ¹H NMR spectrum of compound 8a.

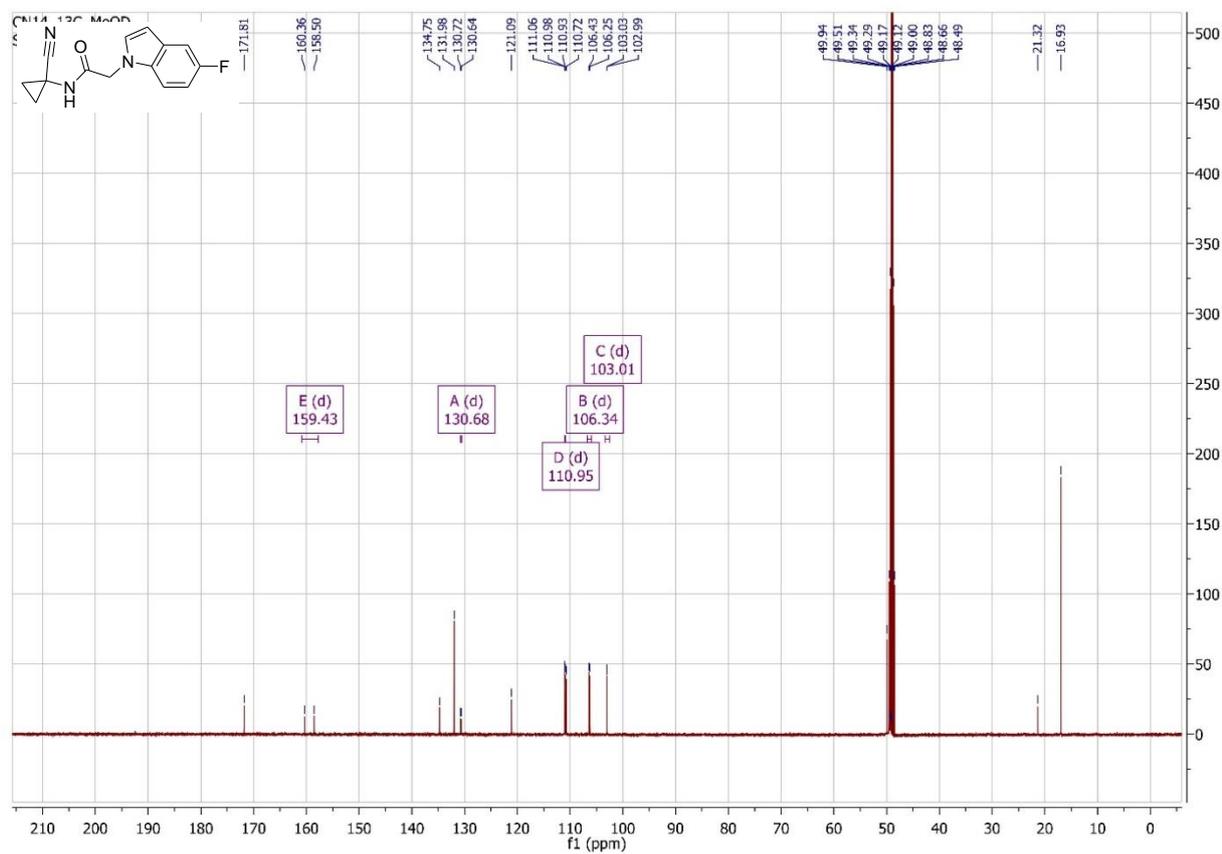


Figure S40. ¹³C NMR spectrum of compound 8a.

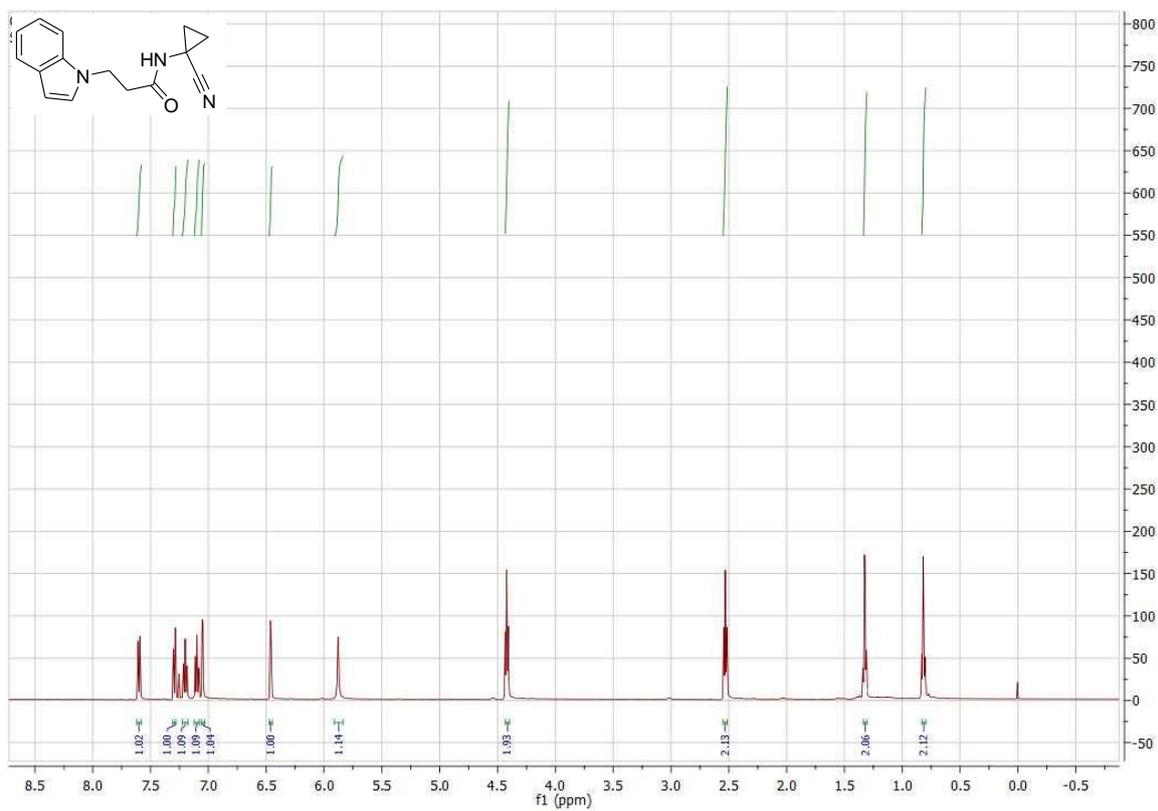


Figure S41. ¹H NMR spectrum of compound 5b.

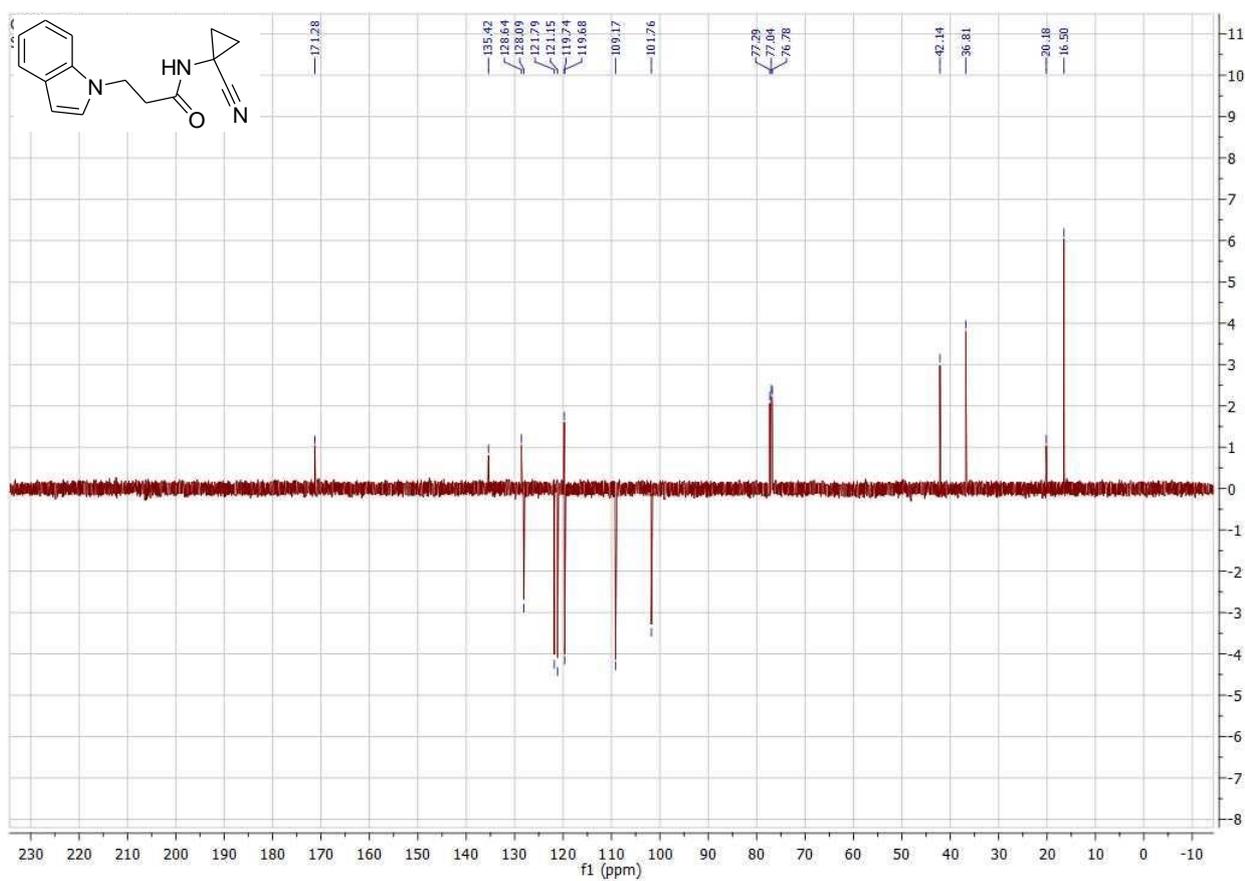


Figure S42. ¹³C NMR spectrum of compound 5b.

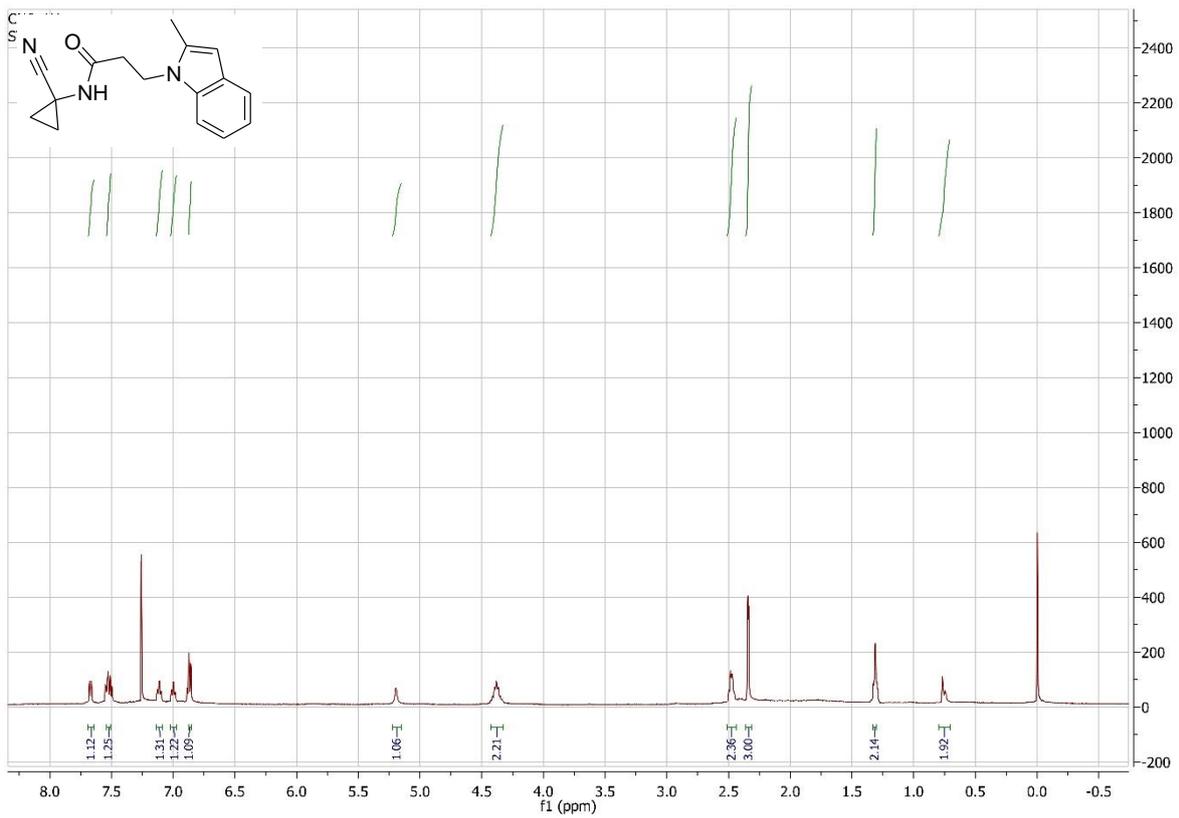


Figure S43. ¹H NMR spectrum of compound 6b.

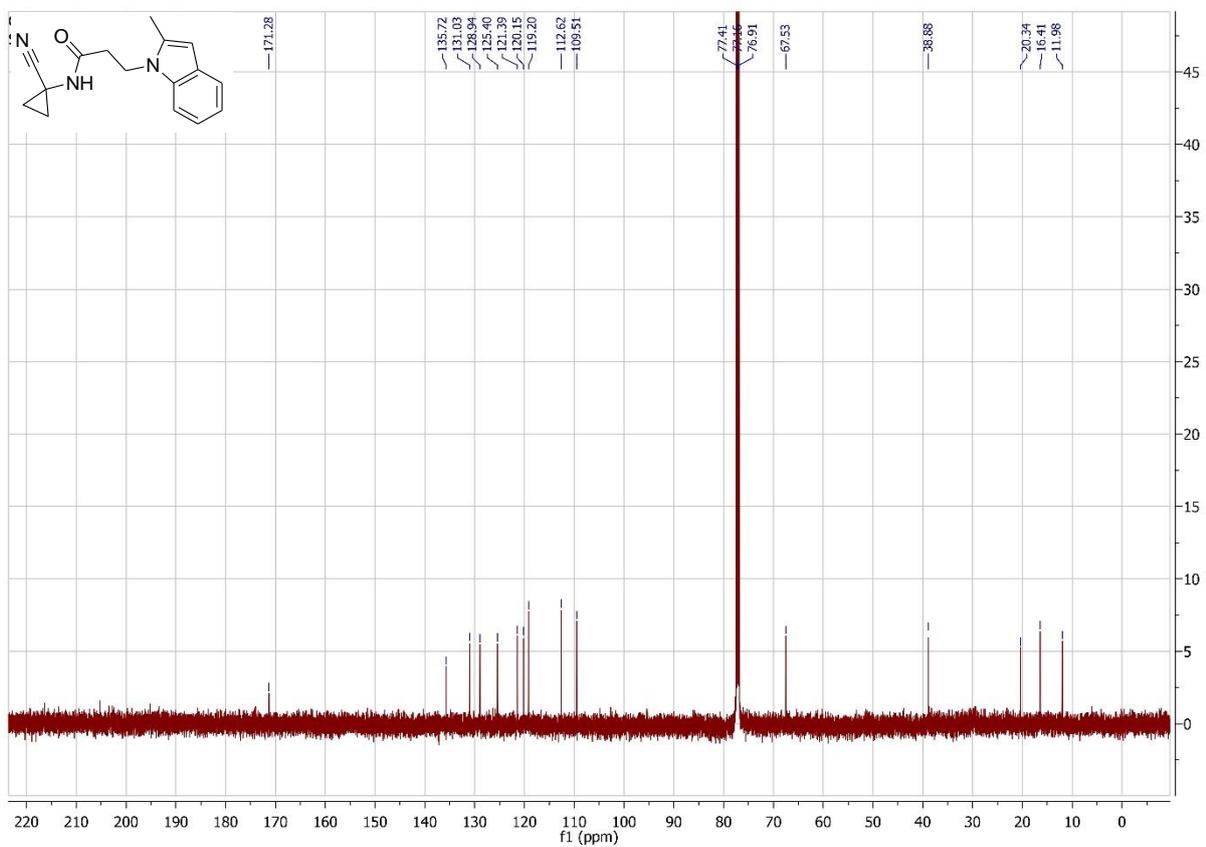


Figure S44. ¹³C NMR spectrum of compound 6b.

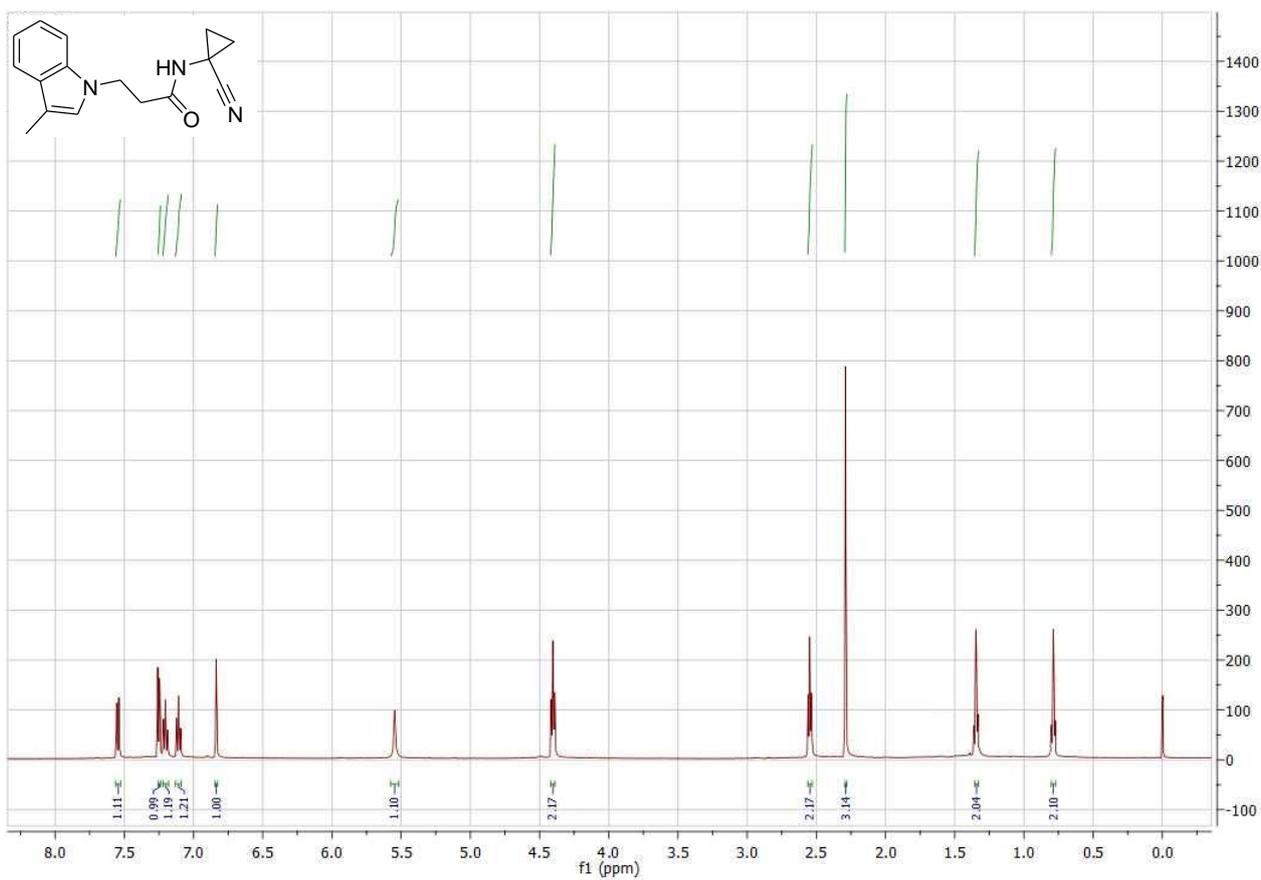


Figure S45. ¹H NMR spectrum of compound 7b.

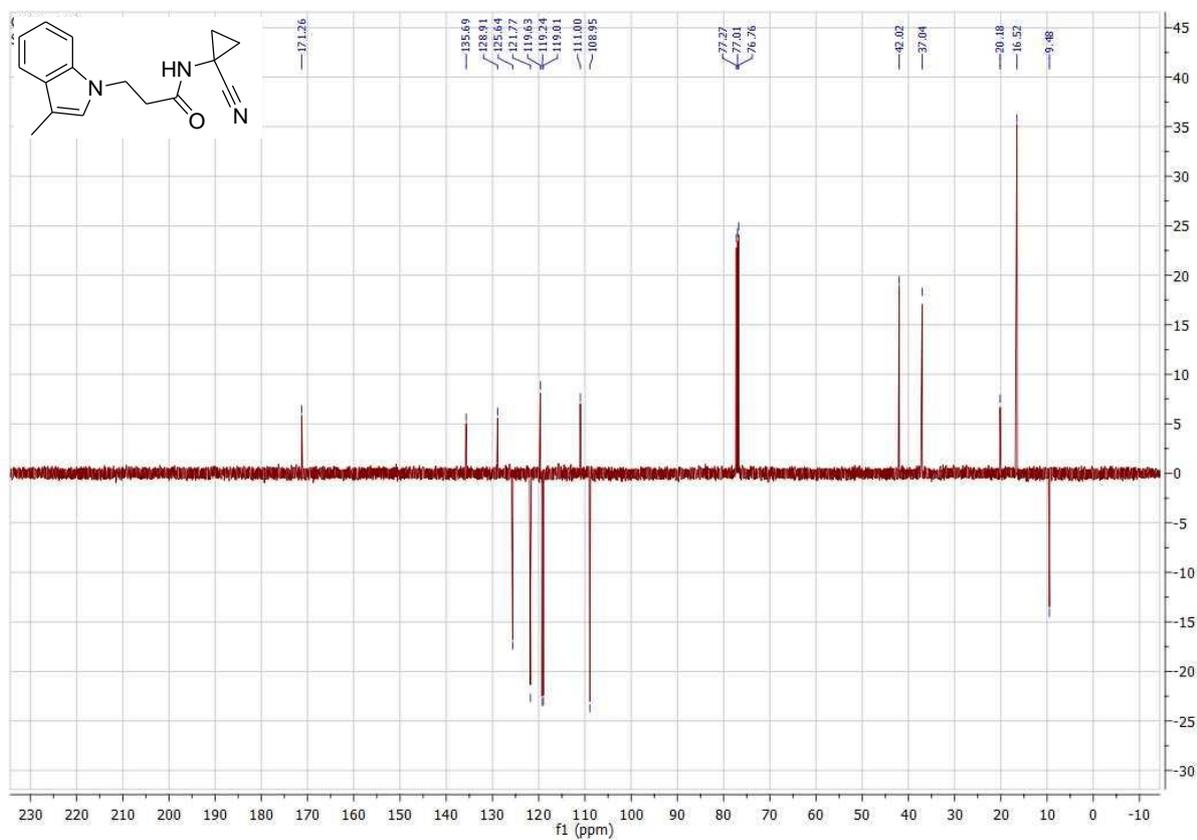


Figure S46. ¹³C NMR spectrum of compound 7b.

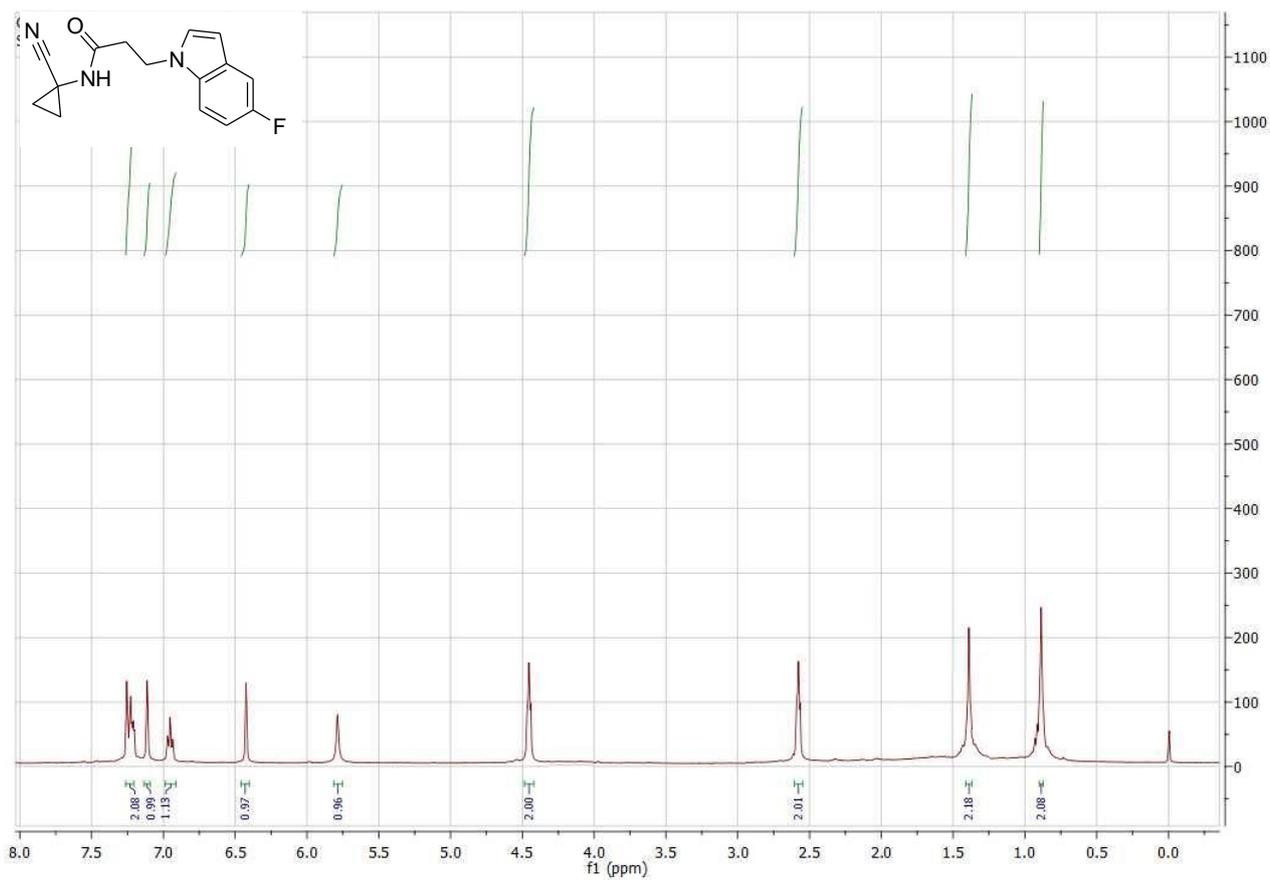


Figure S47. ¹H NMR spectrum of compound 8b.

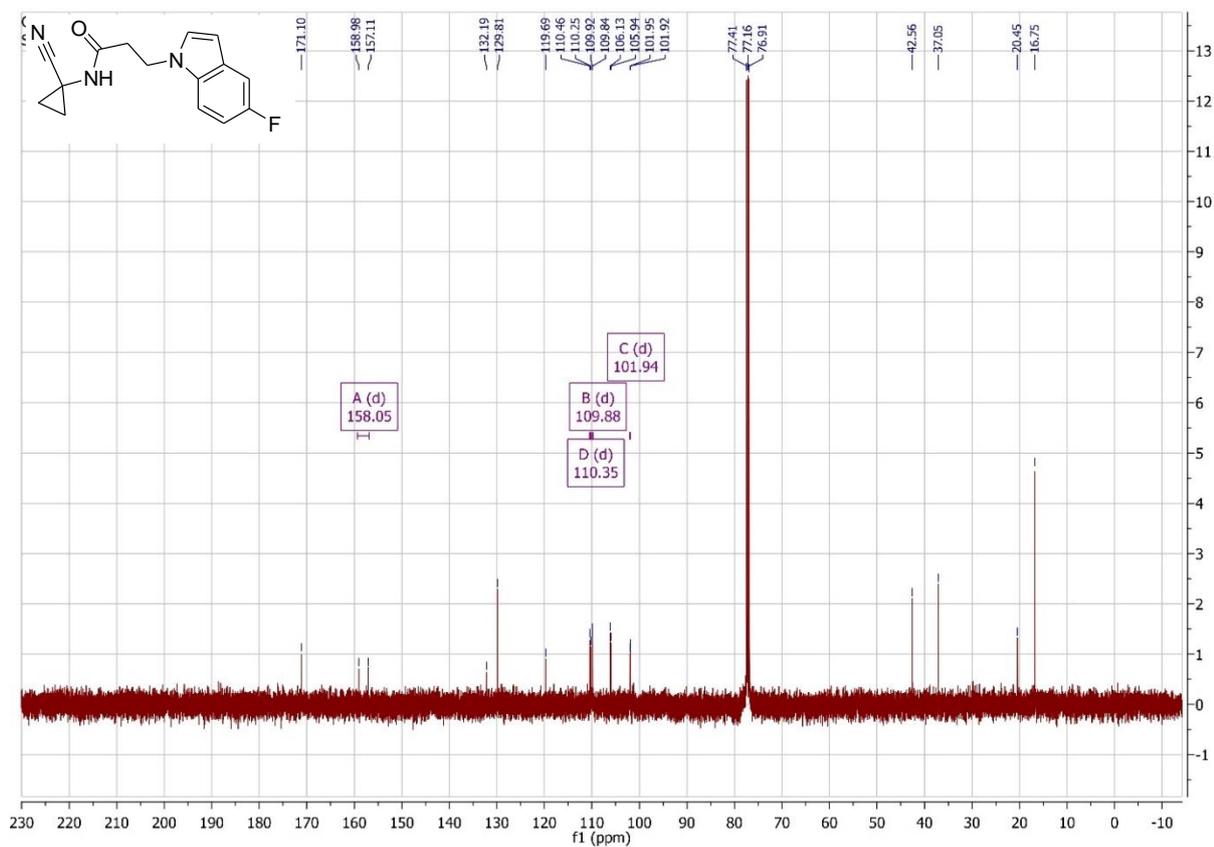


Figure S48. ¹³C NMR spectrum of compound 8b.