

Supplementary Information

Synthesis and photophysical properties of water soluble phosphonic acid functionalized naphthalimide dye

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Received 27 October 2023; accepted (revised) 22 February 2024

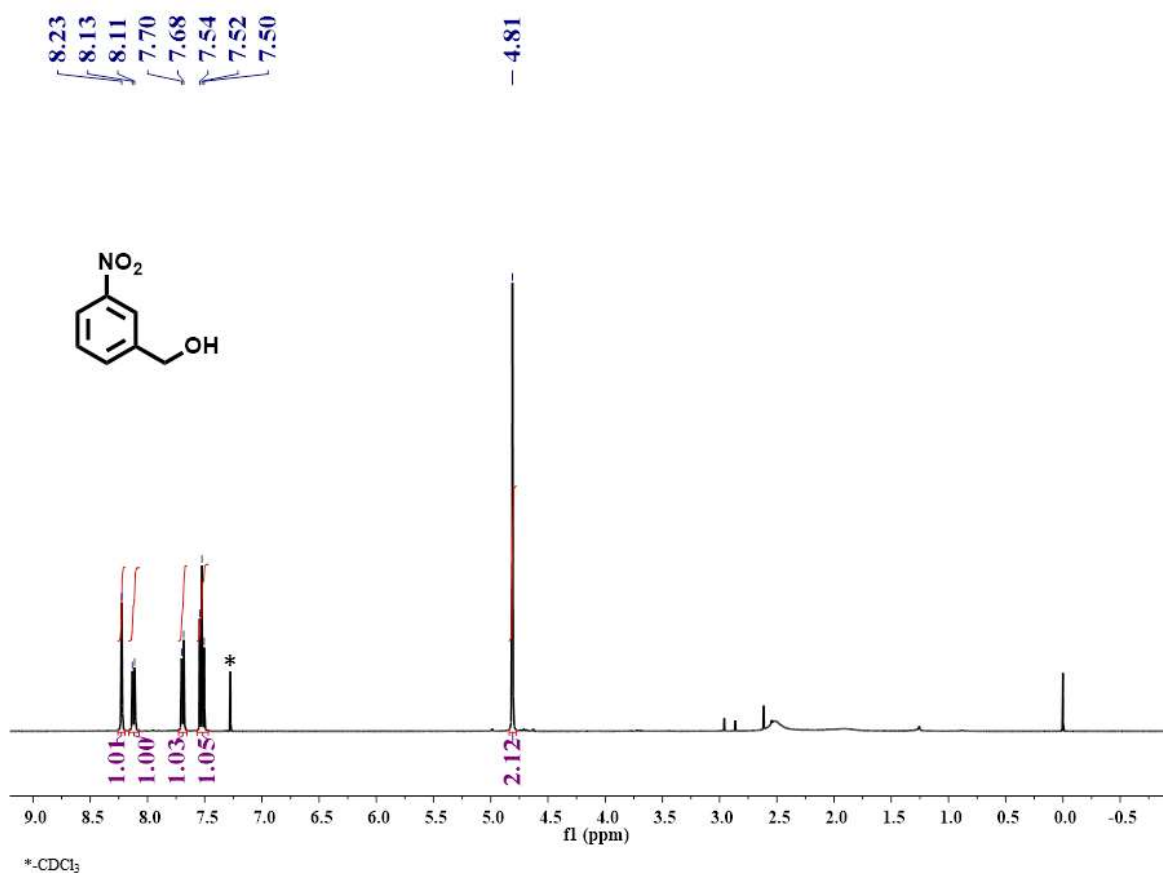


Figure S1. ¹H NMR of compound 2.

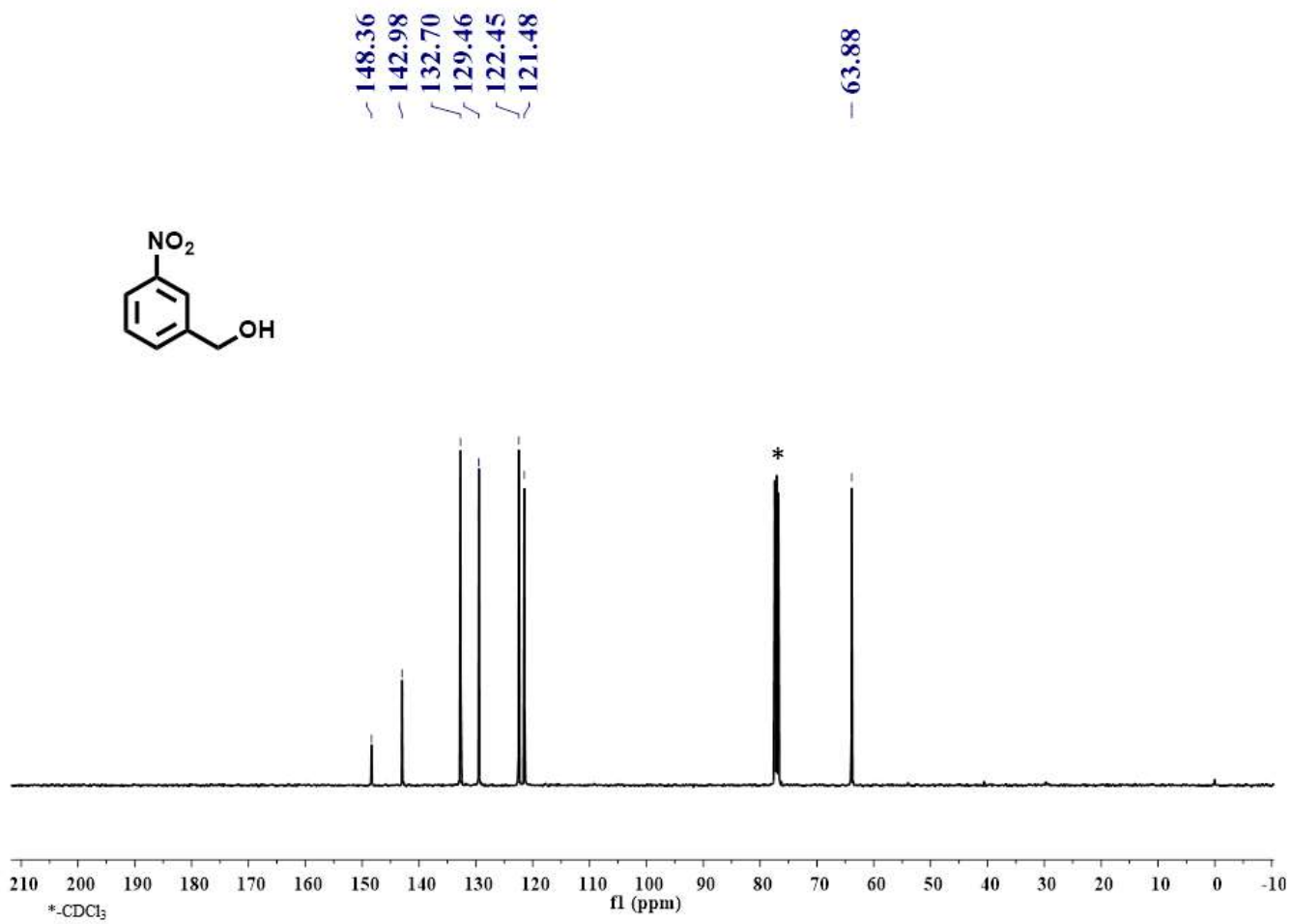


Figure S2. ^{13}C NMR of compound 2.

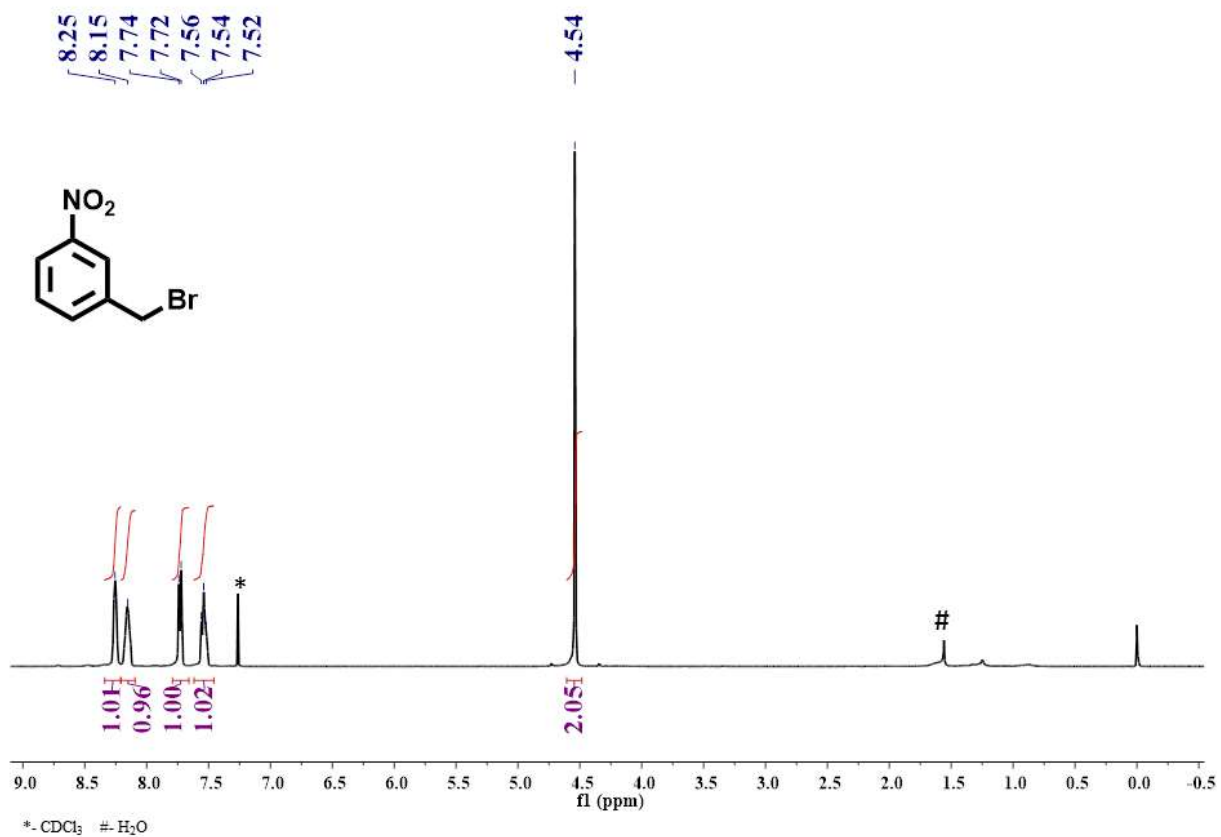


Figure S3. ¹H NMR of compound 3.

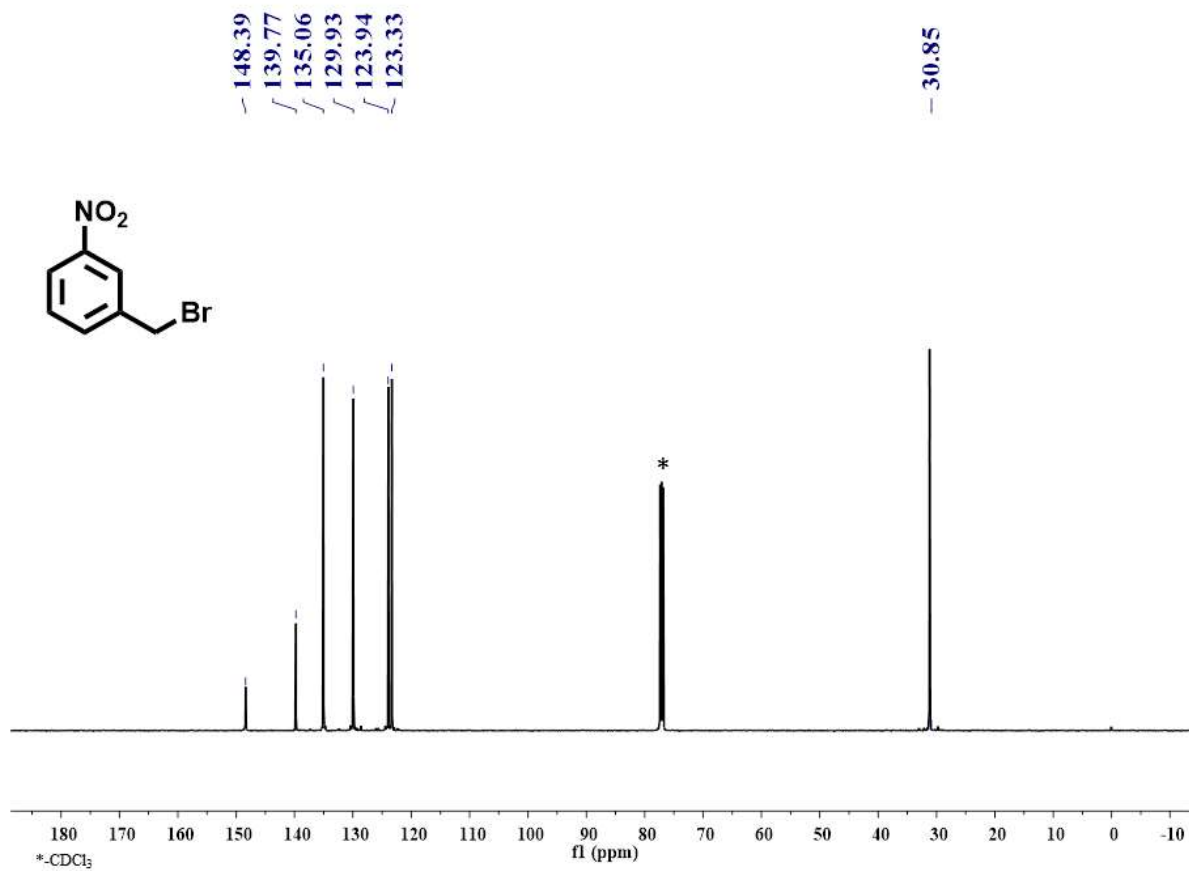


Figure S4. ¹³C NMR of compound 3.

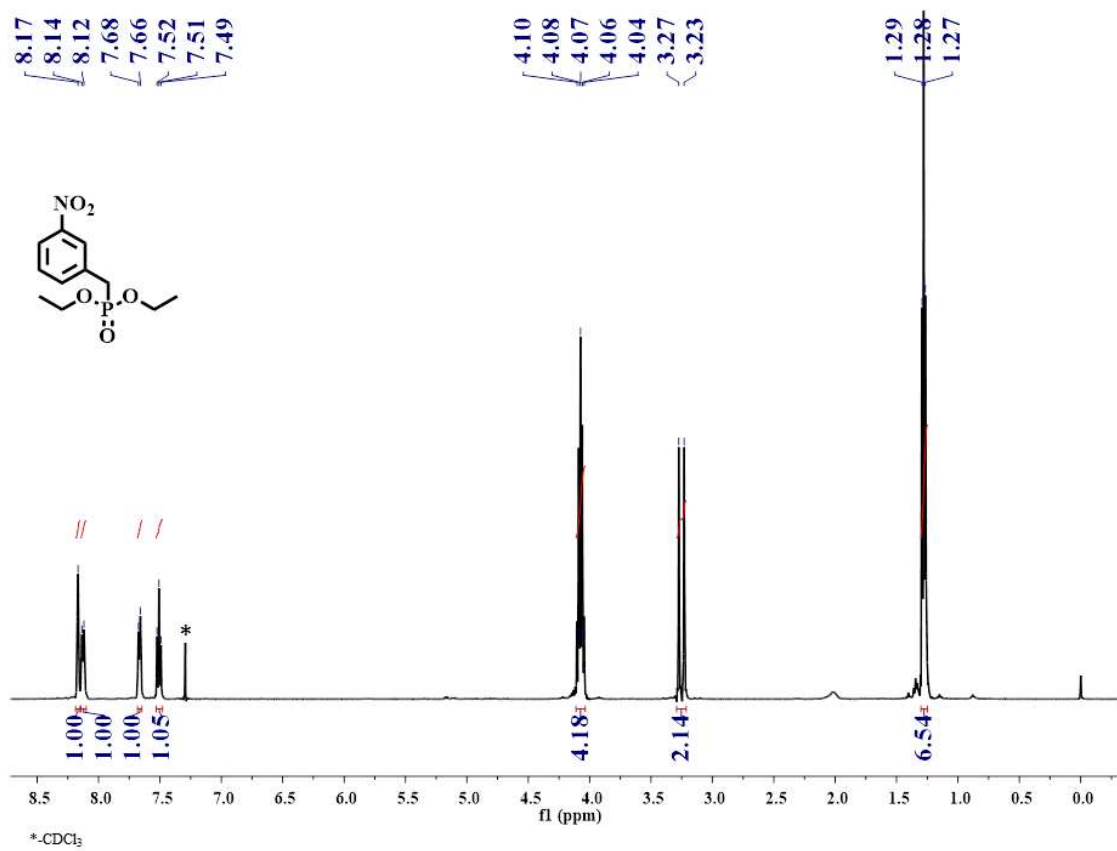


Figure S5. ¹H NMR of compound 4.

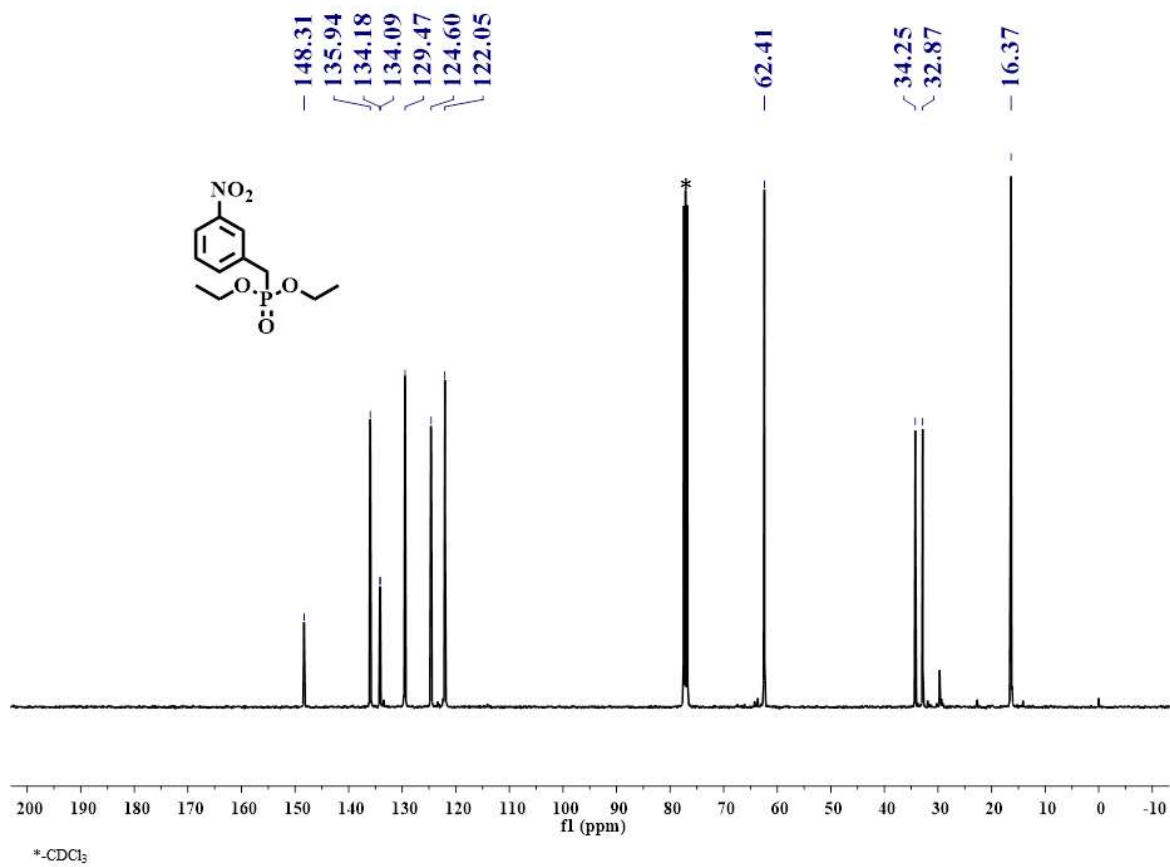


Figure S6. ^{13}C NMR of compound 4.

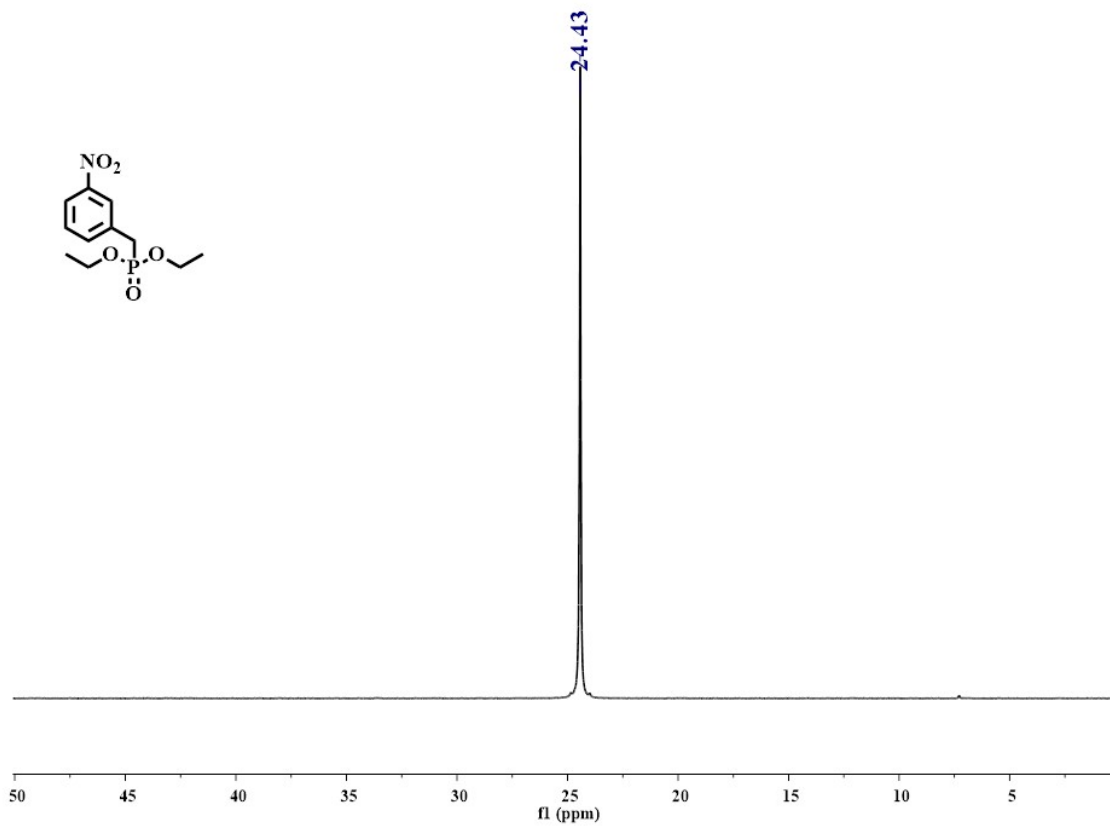


Figure S7. ^{31}P NMR of compound 4.

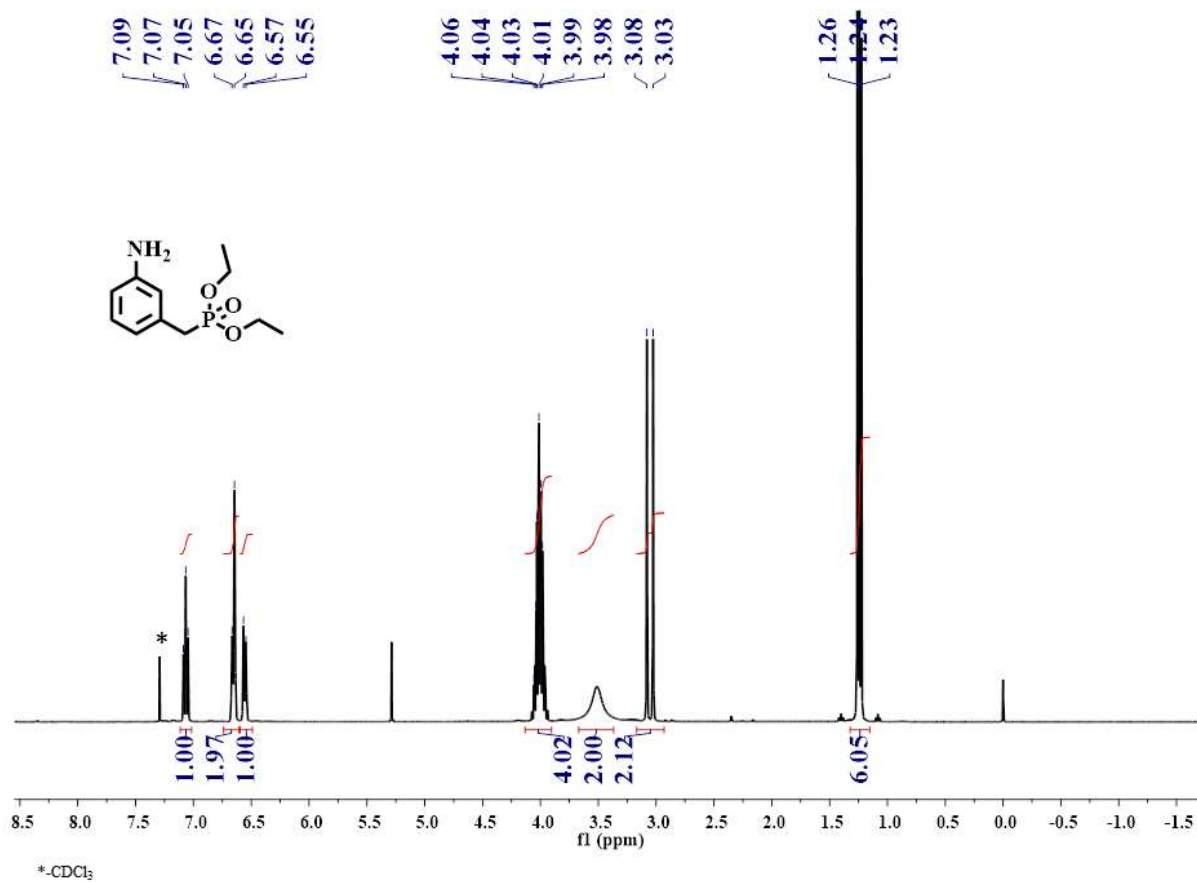


Figure S8. ¹H NMR of compound 5.

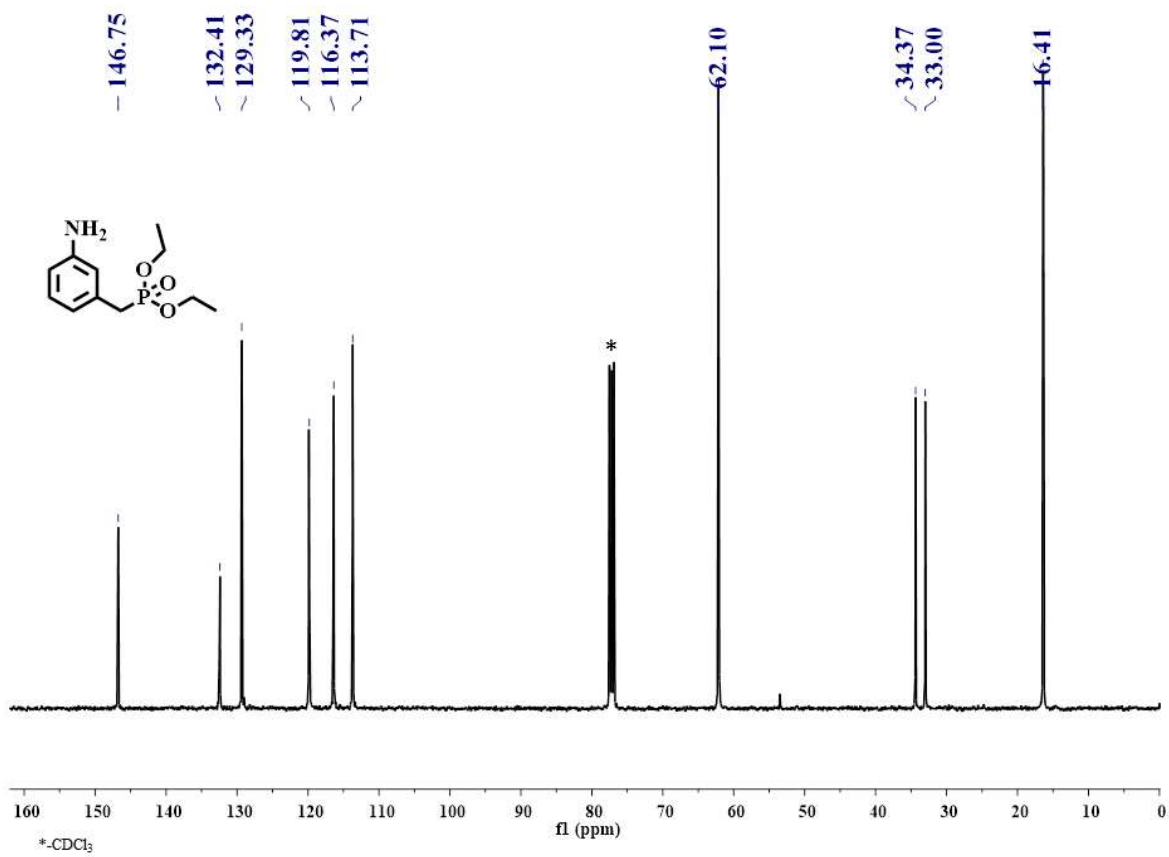


Figure S9. ^{13}C NMR of compound 5.

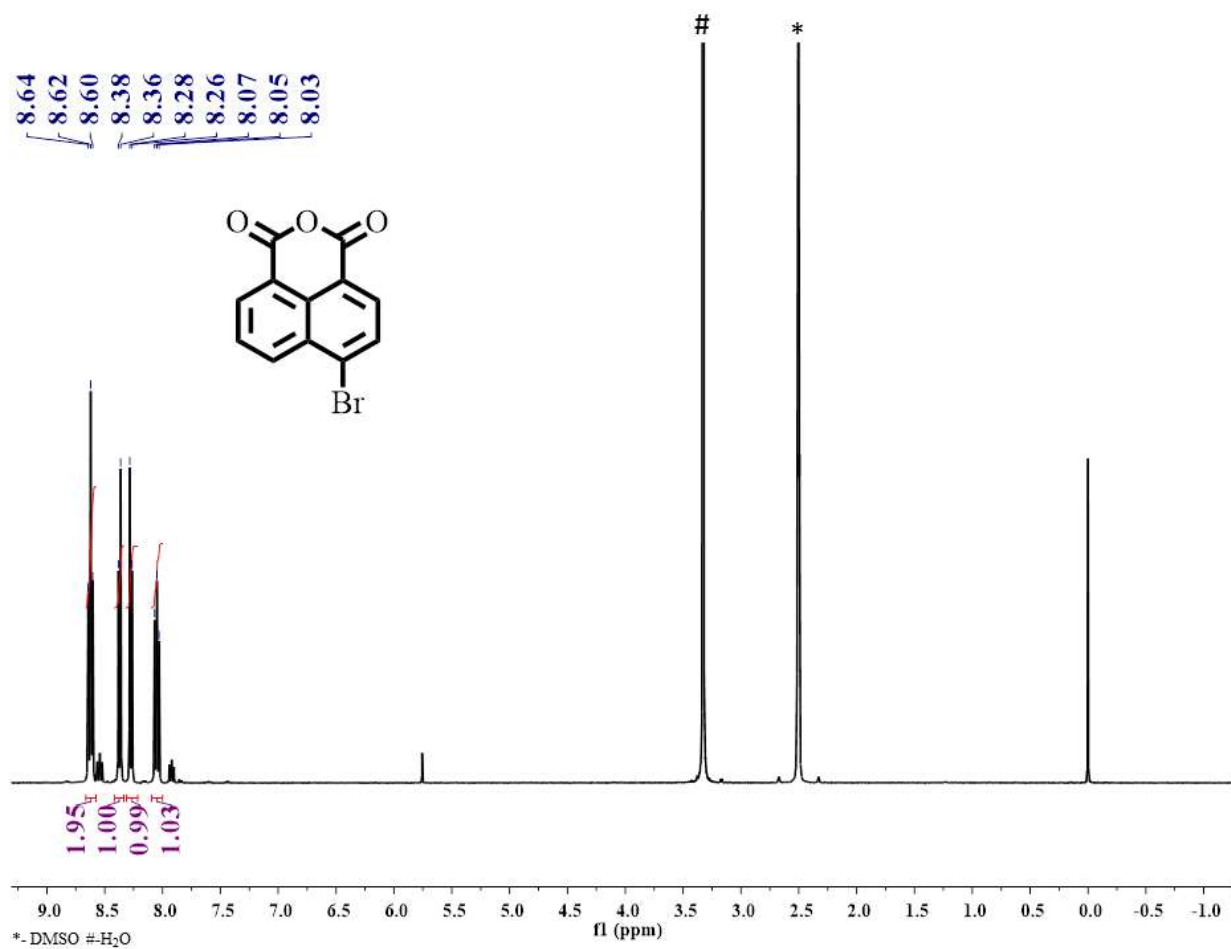


Figure S10. ^1H NMR of compound 6.

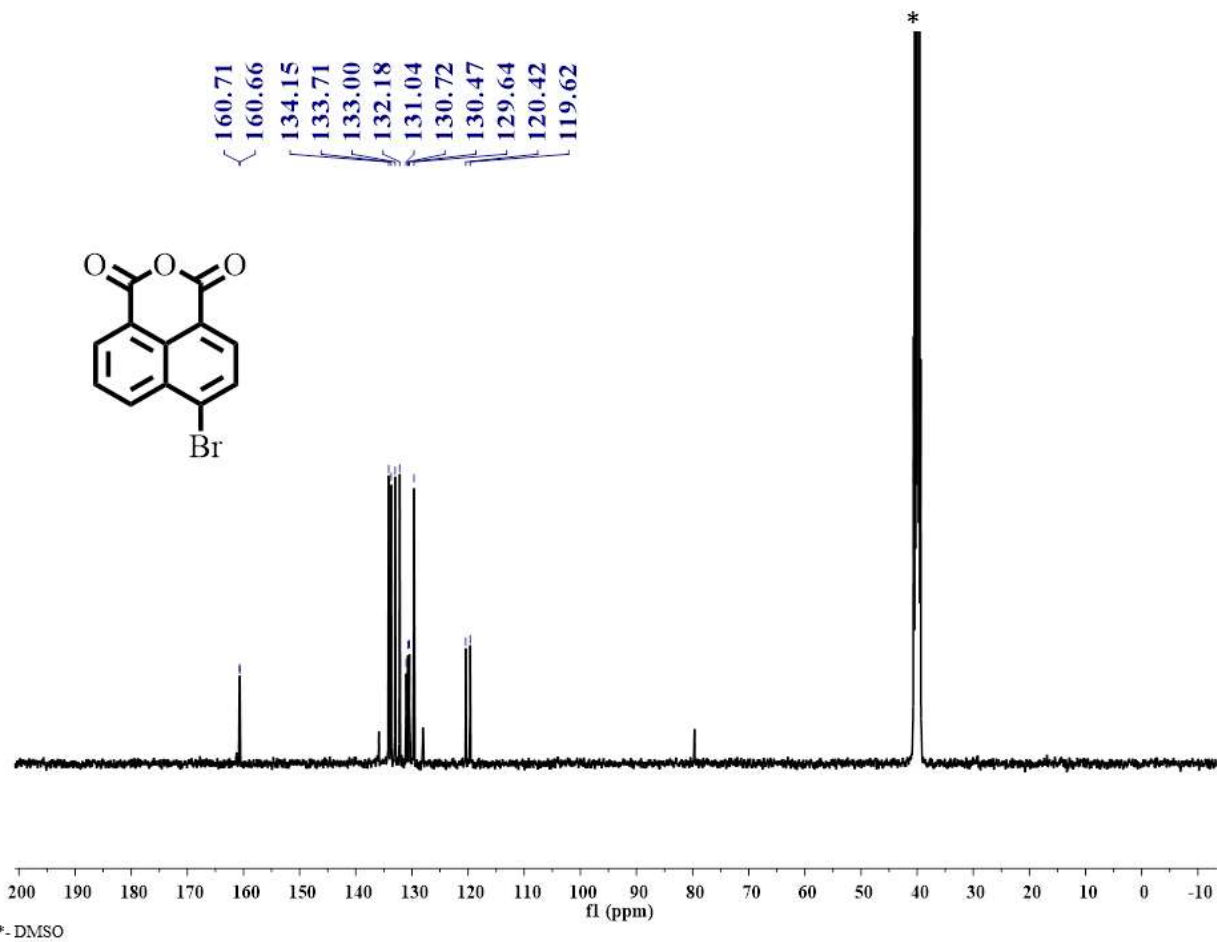


Figure S11. ^{13}C NMR of compound 6.

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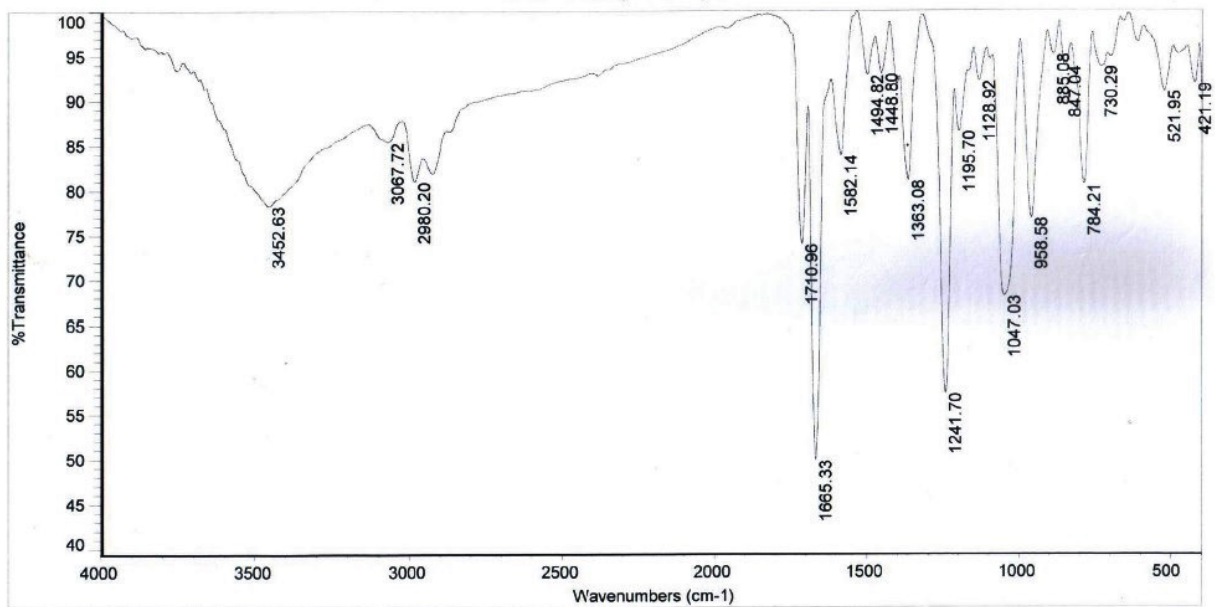


Figure S12. FT-IR of NPI-Br.

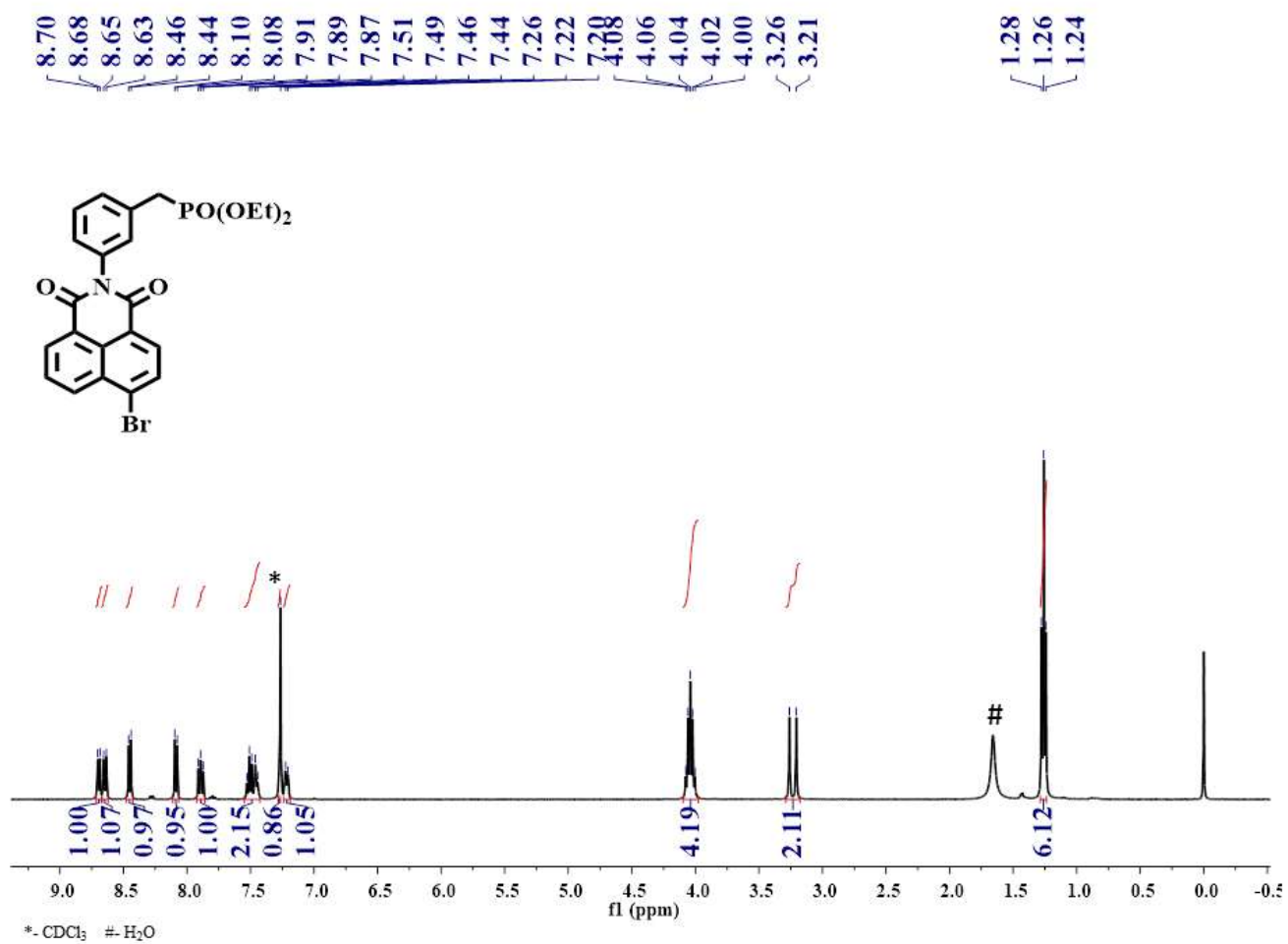


Figure S13. ¹H NMR of NPI-Br.

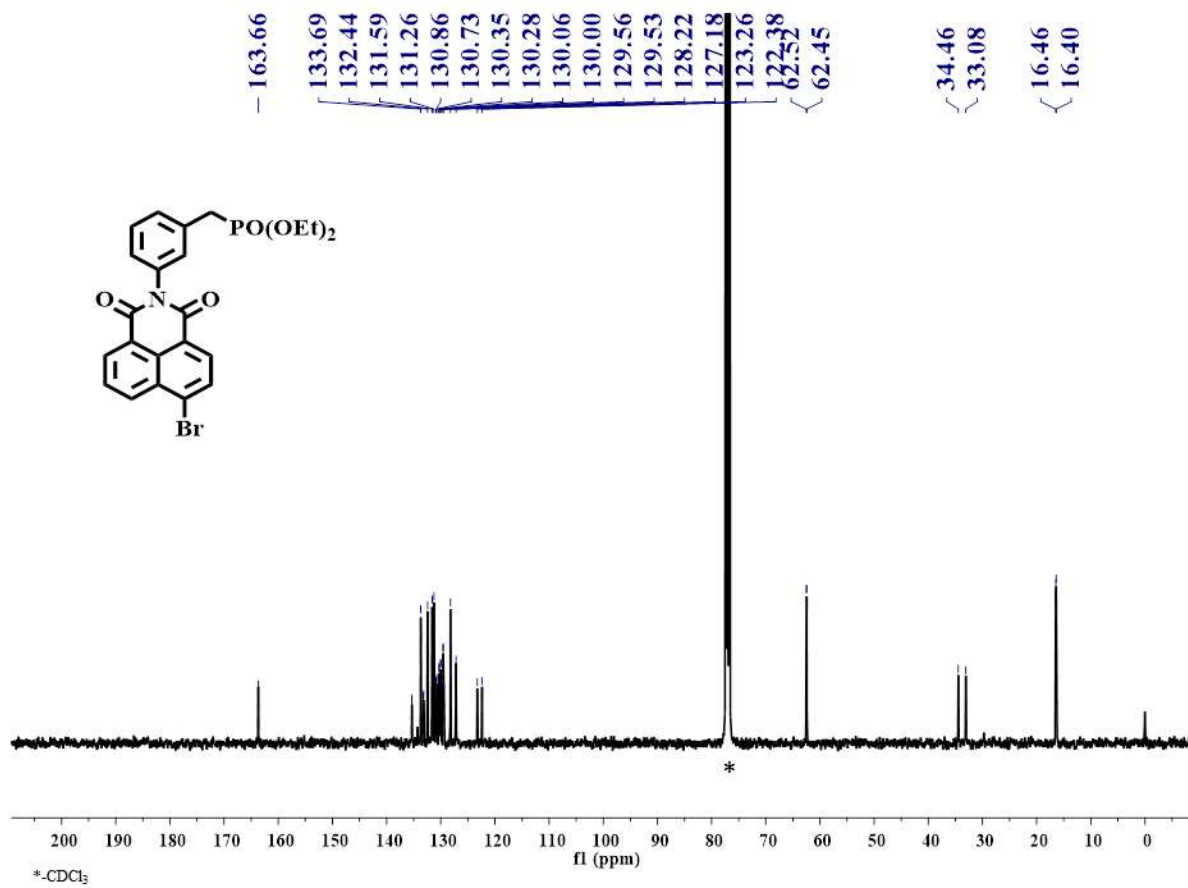
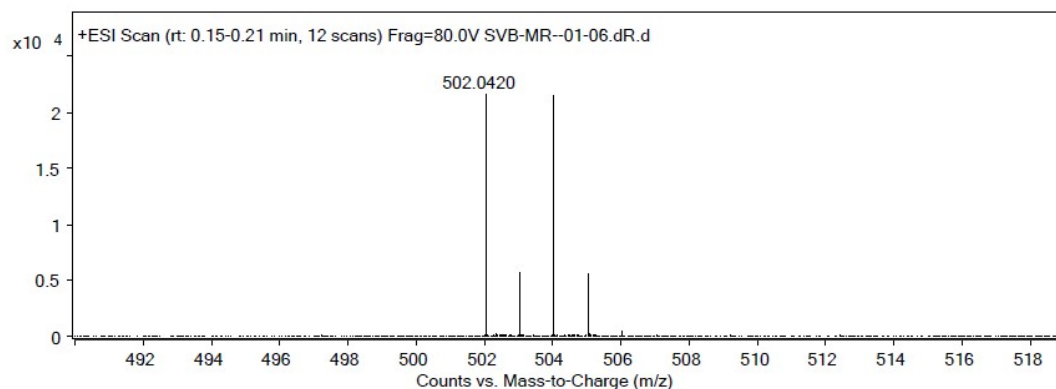


Figure S14. ^{13}C NMR of NPI-Br.



Peak List

m/z	z	Abund
1022.1022	1	95232.55
1024.1018	1	51713.22

Formula Calculator Element Limits

Element	Min	Max
C	0	23
H	0	40
O	0	6
N	0	2
P	0	1
Br	0	1

Formula Calculator Results

Formula	Best	Mass	Tgt Mass	Diff (ppm)	Ion Species	Score
C23 H22 Br N O5 P	True	502.0426	502.0419	-1.38	C23 H22 Br N O5 P	98.38

Figure S15. HRMS of NPI-Br.

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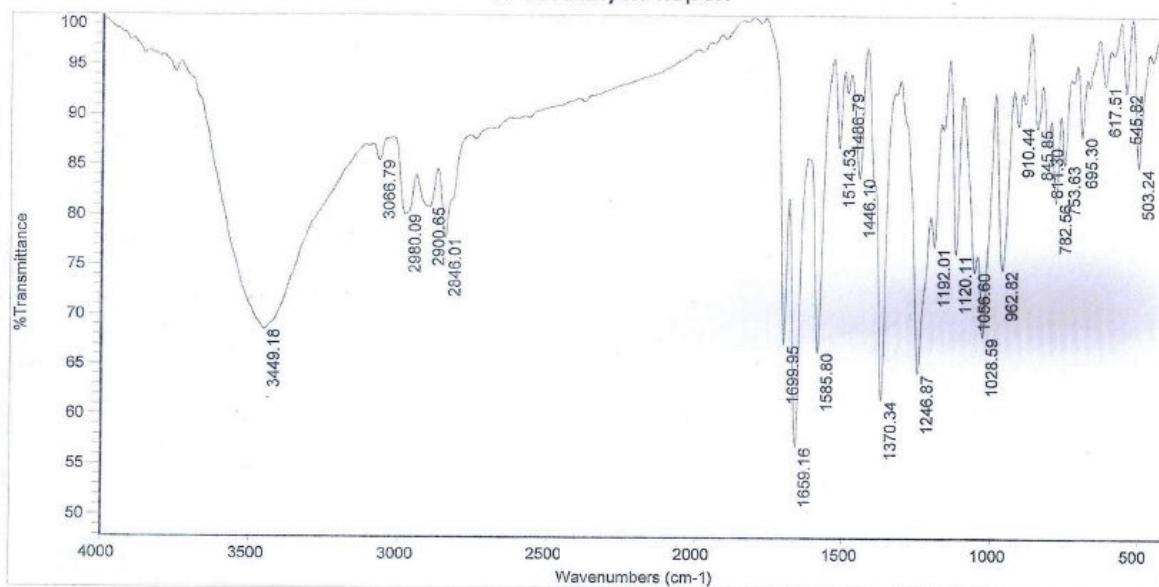


Figure S16. FT-IR of NPI-M-P1.

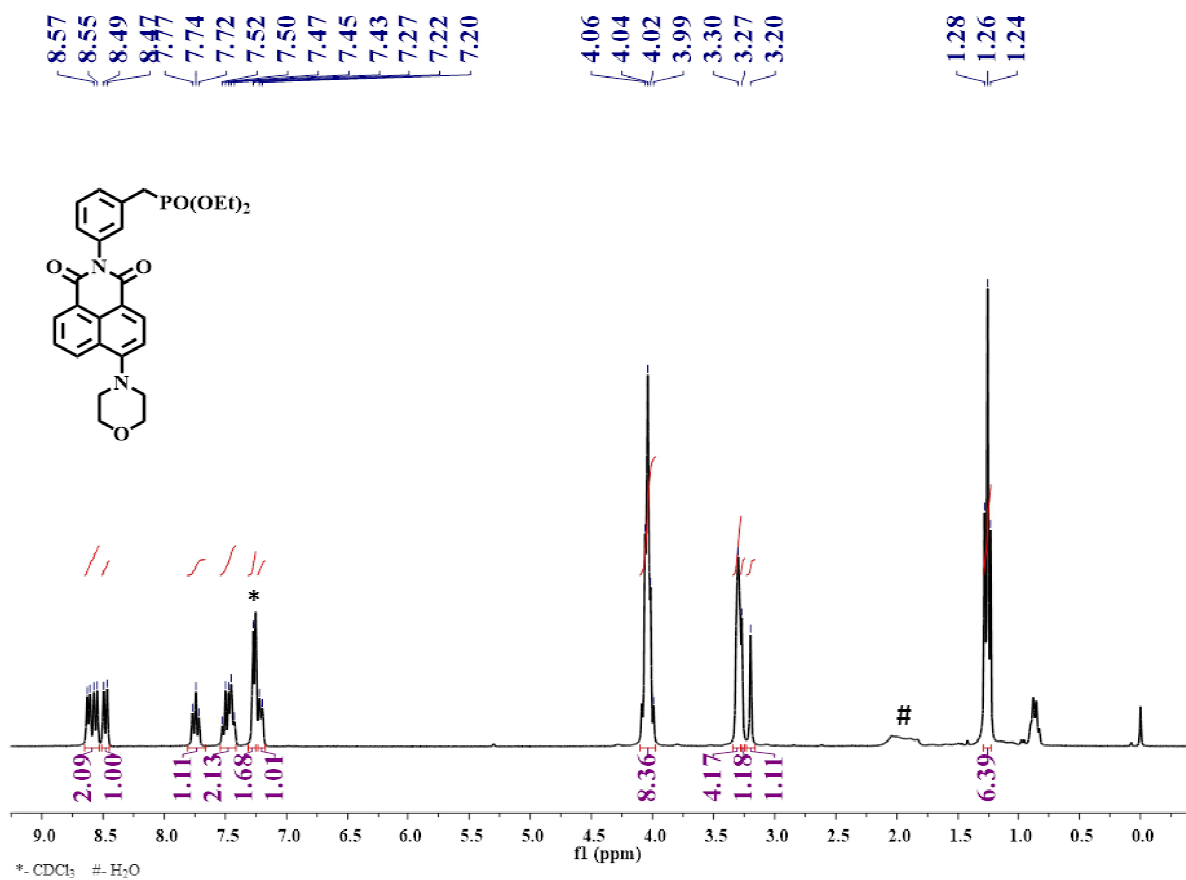


Figure S17. ¹H NMR of NPI-M-P1.

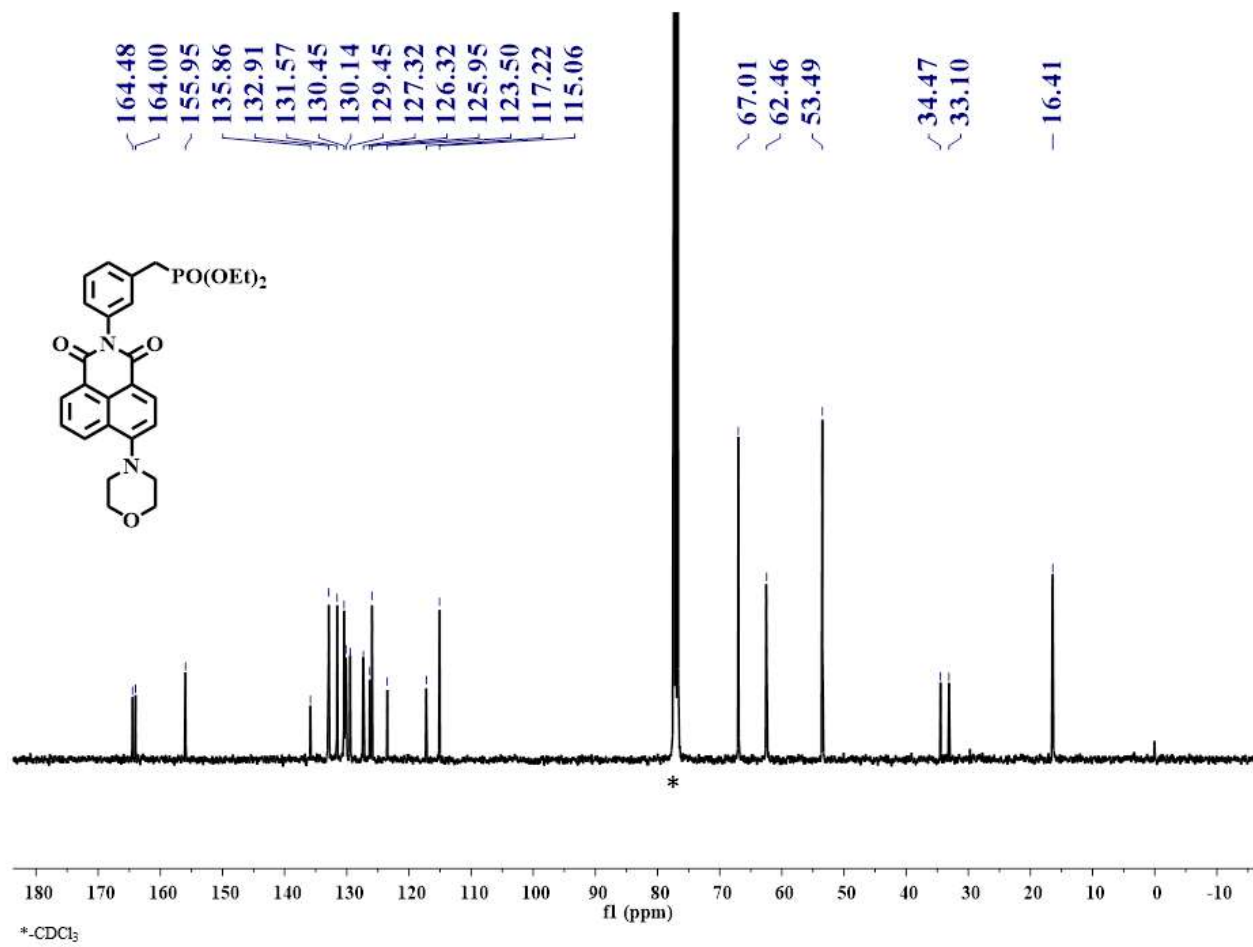
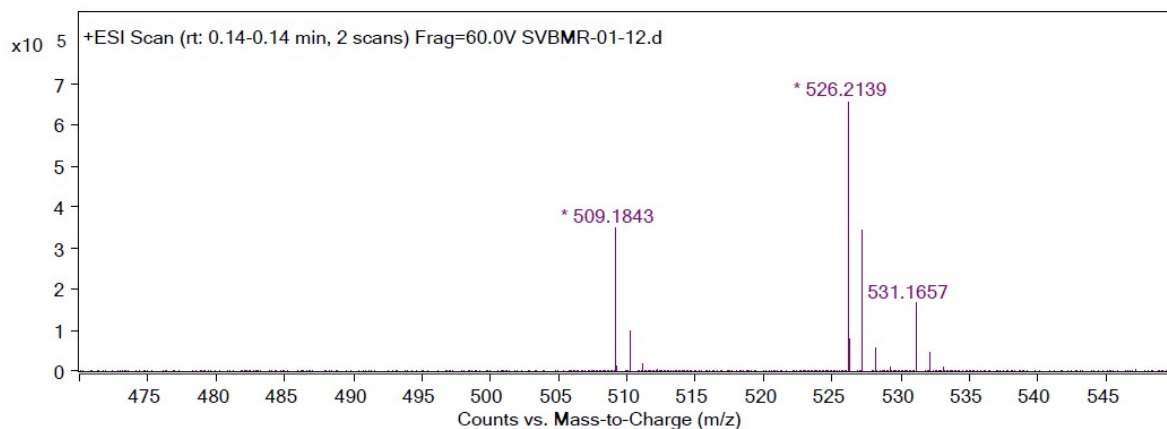


Figure S18. ^{13}C NMR of NPI-M-P1.



Peak List

m/z	z	Abund
526.2139	1	657168.25
1034.3916	1	655755.31

Formula Calculator Element Limits

Element	Min	Max
C	0	28
H	0	40
O	0	6
N	0	2
P	0	1
Cl	0	0

Formula Calculator Results

Formula	Best	Mass	Tgt Mass	Diff (ppm)	Ion Species	Score
C ₂₇ H ₃₀ N ₂ O ₆ P	True	509.1847	509.1841	-1.11	C ₂₇ H ₃₀ N ₂ O ₆ P	98.56

Figure S19. HRMS of NPI-M-P1.

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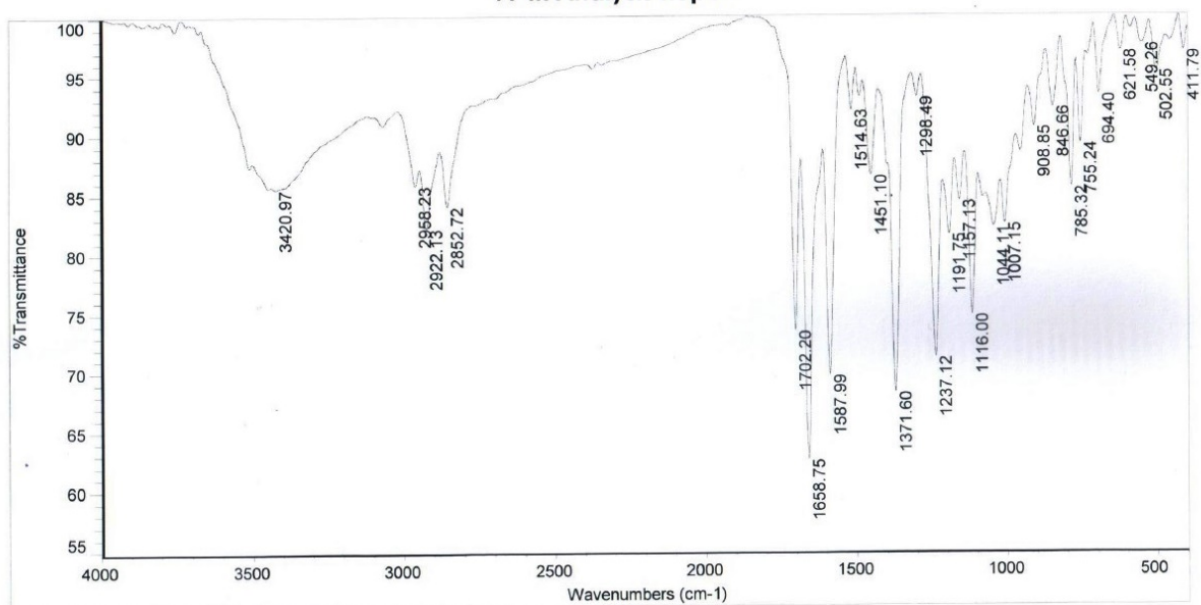


Figure S20. FT-IR of NPI-M-P2.

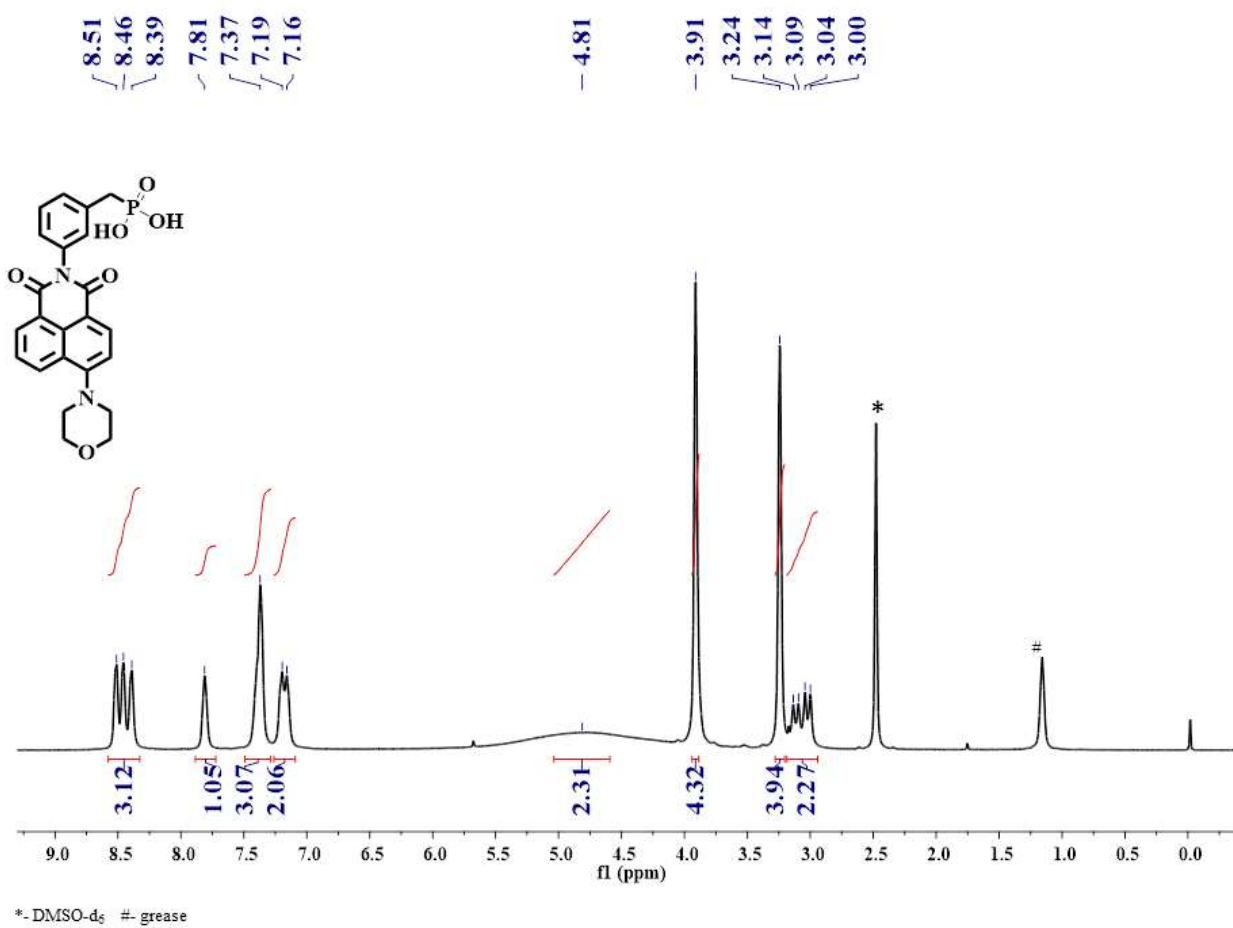


Figure S21. ¹H NMR of NPI-M-P2.

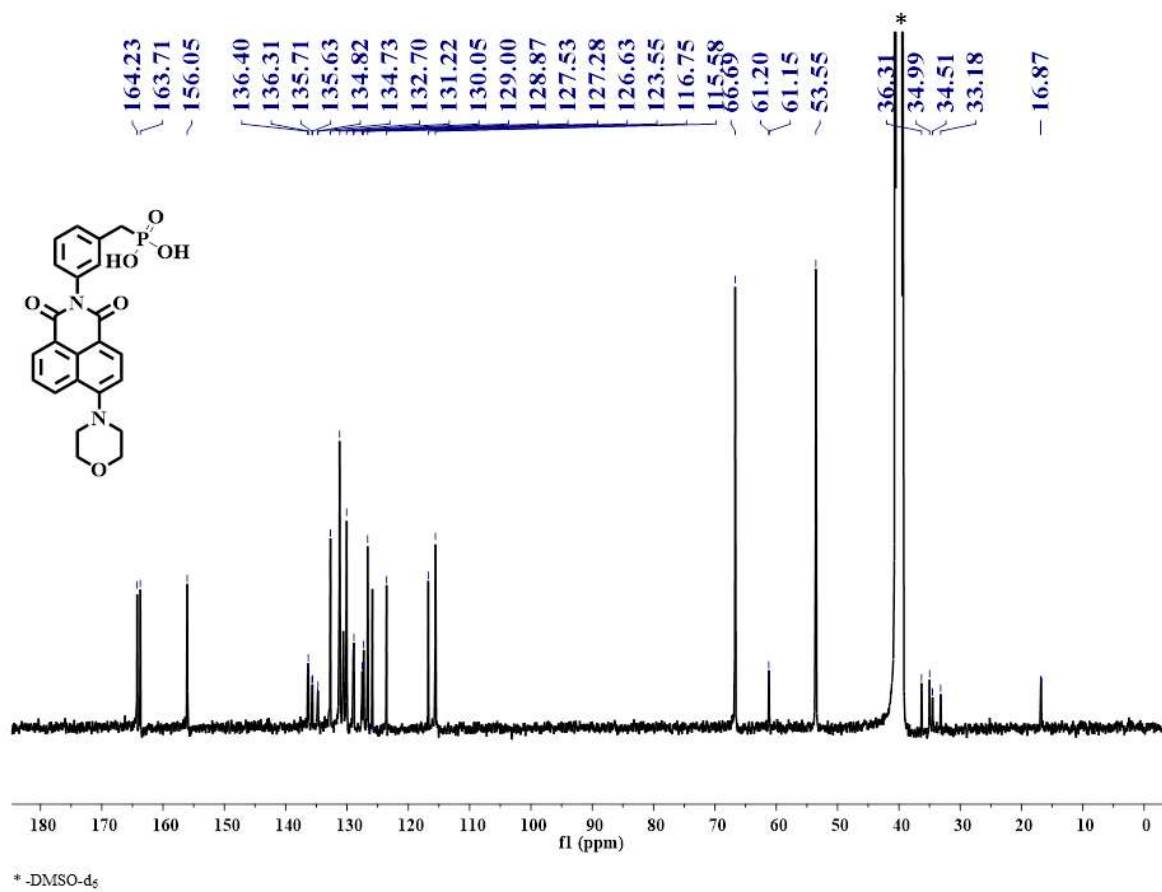


Figure S22. ¹³C NMR of NPI-M-P2.

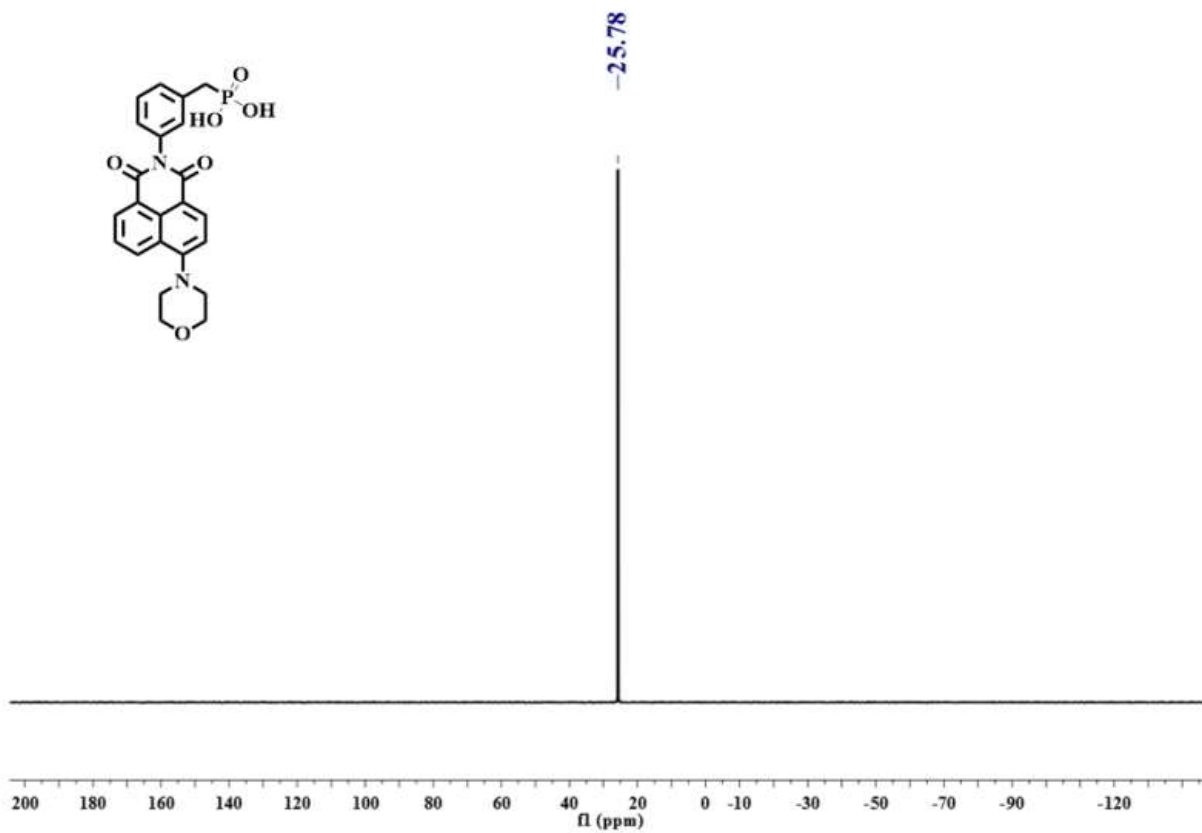


Figure S23. ^{13}P NMR of NPI-M-P2.

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T: FTMS (1,1) + p ESI Full ms [100.00-2000.00]

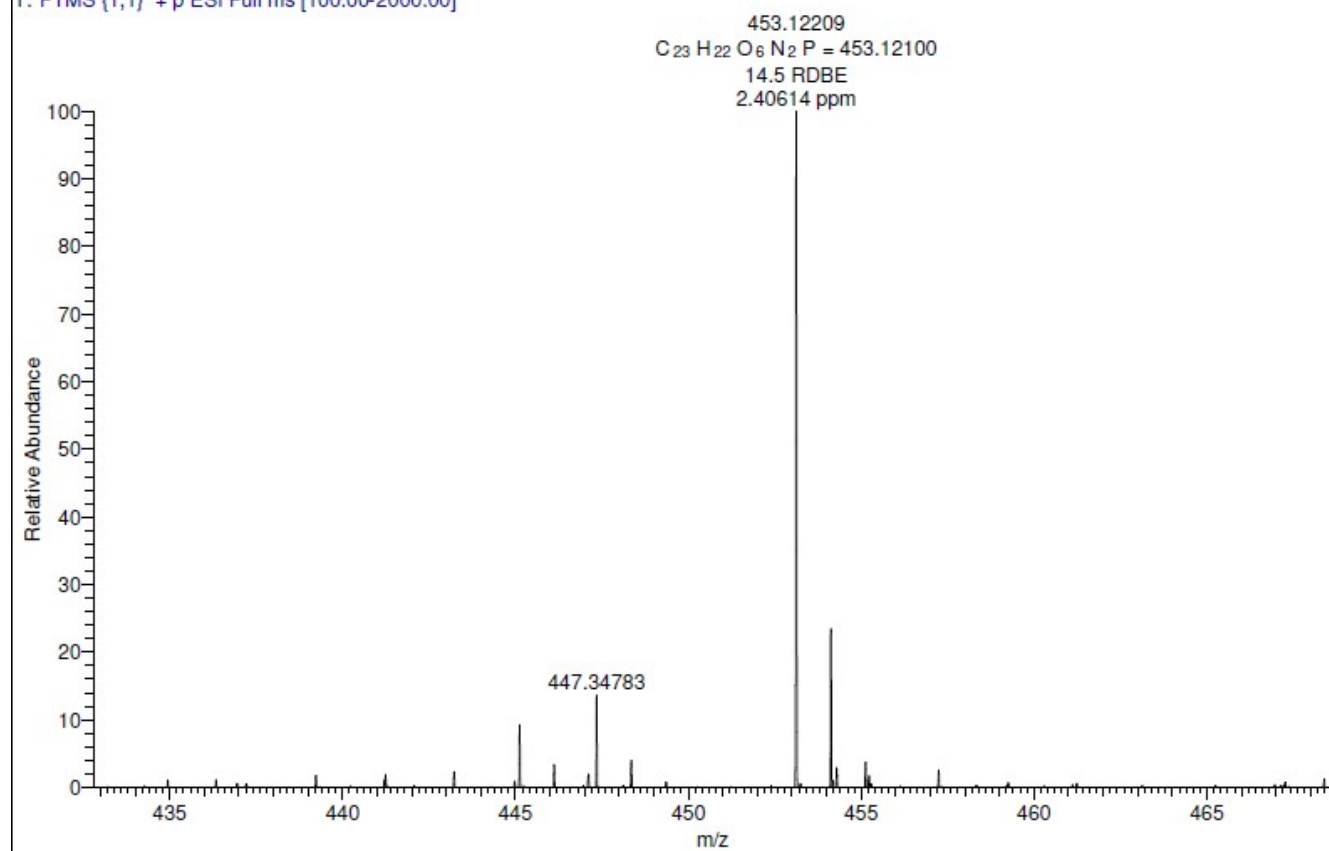


Figure S24. HRMS of NPI-M-P2.