Supporting Information

Synthesis of novel platinum complex core as a selective Ag^+ sensor and its H-bonded tetrads self-assembled with triarylamine dendrimers for electron/energy transfers

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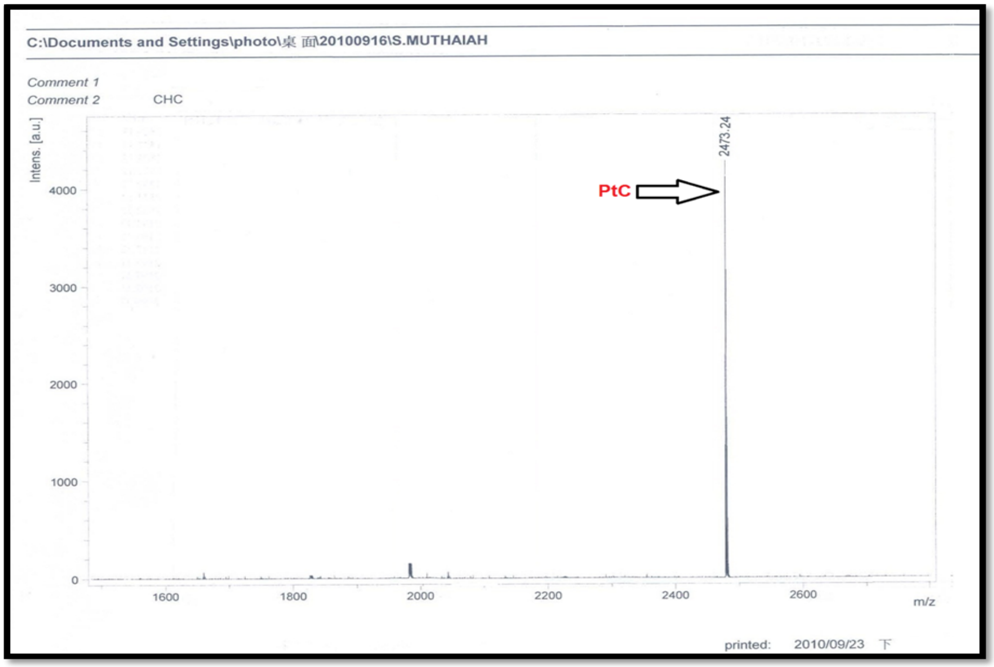

Figure S1. Maldi-tof mass of **PtC**.

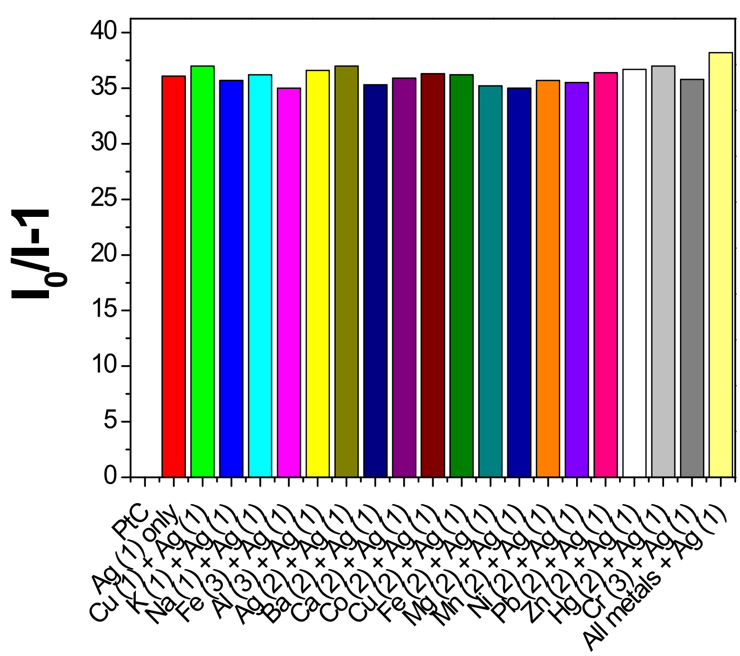

Figure S2. **PtC** sensor selectivity towards metal ions in the presence of different metal ions; where **PtC** concentration is 0.1 μM and the metal ion concentration is 1000 μM. (All tested metals are mixtures except Ag^+).

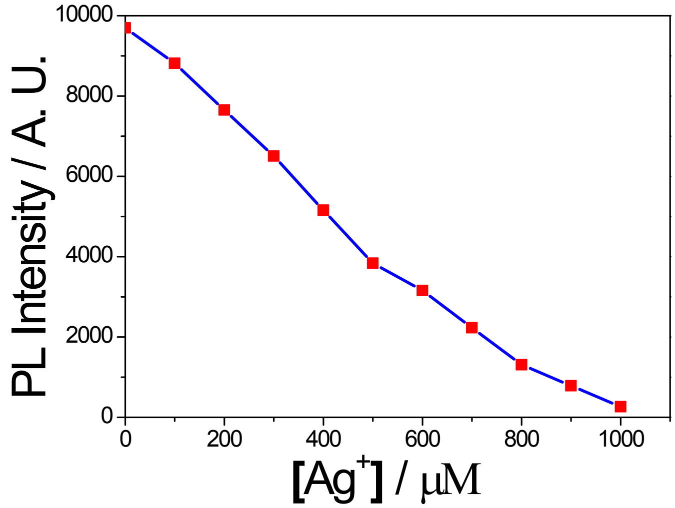

Figure S3. PL Intensity changes of **PtC** (0.1 μM) as a function of Ag^+ concentration (0-1000 μM; with an equal span of 100 μM).

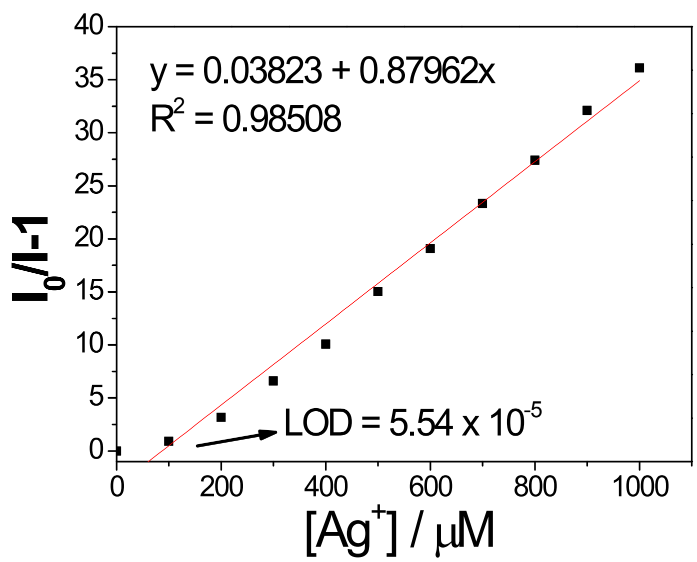

Figure S4. Detection limit of **PtC** towards Ag^+ by linear fitting calculation.

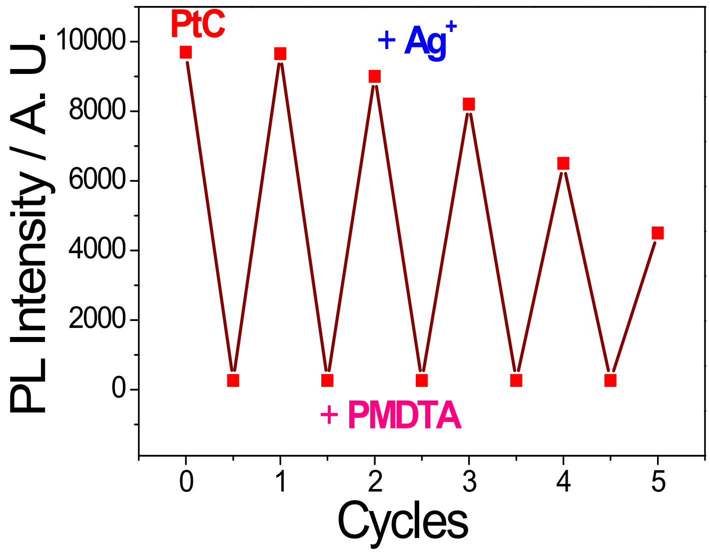

Figure S5. Reversibility tests of **PtC** towards Ag^+ and PMDTA.

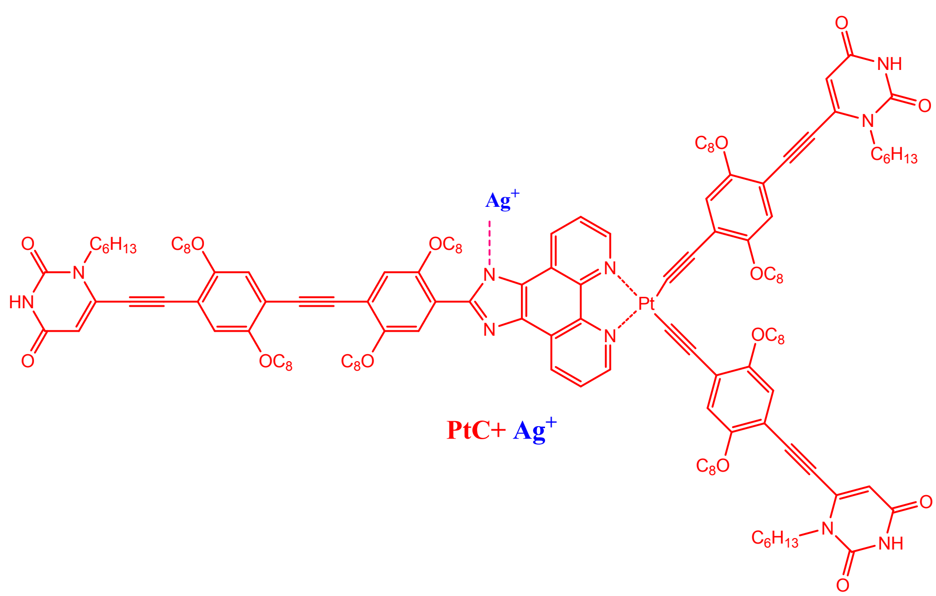

Figure S6. Possible binding mechanism of **PtC** towards Ag^+.

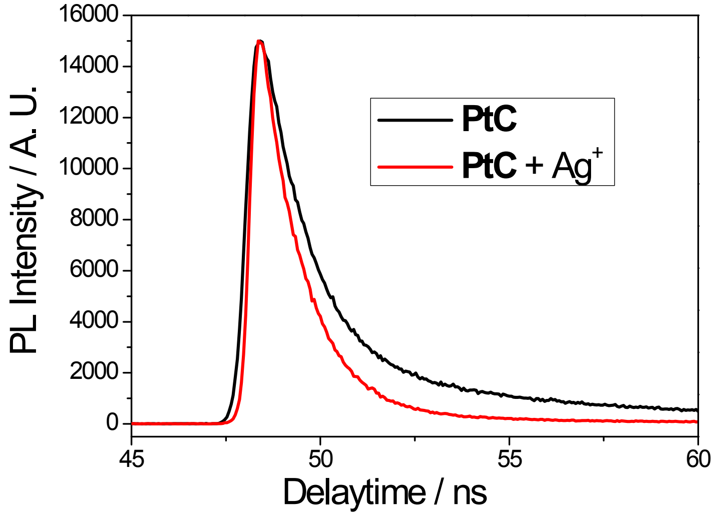

Figure S7. TRPL spectra of free **PtC** and in the absence/presence of Ag^{+}.

Table S1. Time-resolved fluorescence decay constants of **PtC**, tetrads [**PtC-(TPAD1)$_3$** and **PtC-(TPAD2)$_3$**] and **PtC**+Ag^+.

Compound	τ_1(ns)	τ_2(ns)	A_1(%)	A_2(%)	τ_{Avg}(ns)
PtC	1.55	5.96	28.3	71.7	3.71
PtC-TPAD1	3.13	6.71	35.4	64.6	4.83
PtC-(TPAD1)$_2$	3.45	7.15	38.1	61.9	5.65
PtC-(TPAD1)$_3$	3.76	9.12	45.2	54.8	6.43
PtC-TPAD2	3.25	6.95	39.4	60.6	5.12
PtC-(TPAD2)$_2$	4.51	8.56	43.2	56.8	6.55
PtC-(TPAD2)$_3$	5.73	9.85	47.1	52.9	8.11
PtC + Ag^+	1.67	6.72	76.2	23.8	2.95

Table S2. Stern-Volmer constants (K_{SV}) of different metal ions

S. No	[a]Metal Ions	[b]K_{SV} (M^{-1}) (λ_{abs} = 408 nm; λ_{em} = 461 nm)
1	Ag^{+}	3.61 x 10^4
2	Cu^{+}	2.67 x 10^2
3	K^{+}	5.47 x 10^2
4	Na^{+}	5.95 x 10^2
5	Fe^{3+}	4.99 x 10^2
6	Al^{3+}	8.05 x 10^2
7	Ag^{2+}	8.10 x 10^2
8	Ba^{2+}	7.01 x 10^2
9	Ca^{2+}	7.96 x 10^2
10	Co^{2+}	6.03 x 10^2
11	Cu^{2+}	8.98 x 10^2
12	Fe^{2+}	6.04 x 10^2
13	Mg^{2+}	3.95 x 10^2
14	Mn^{2+}	4.99 x 10^2
15	Ni^{2+}	3.02 x 10^2
16	Pb^{2+}	6.93 x 10^2
17	Zn^{2+}	1.21 x 10^2
18	Hg^{2+}	8.95 x 10^2
19	Cr^{3+}	5.01 x 10^2
20	[c]All metals	8.30 x 10^2

[a]Metal ion concentration is 1000 μM in H_2O from their respective aqueous solution and **PtC** concentration is 0.1 μM in THF. [b]K_{SV} = $[(I_0/I-1)]/[Q]$; [Q] = quencher concentration (1000 μM for all metal ions). [c]All metals is a mixture of metal ions except Ag^{+}.

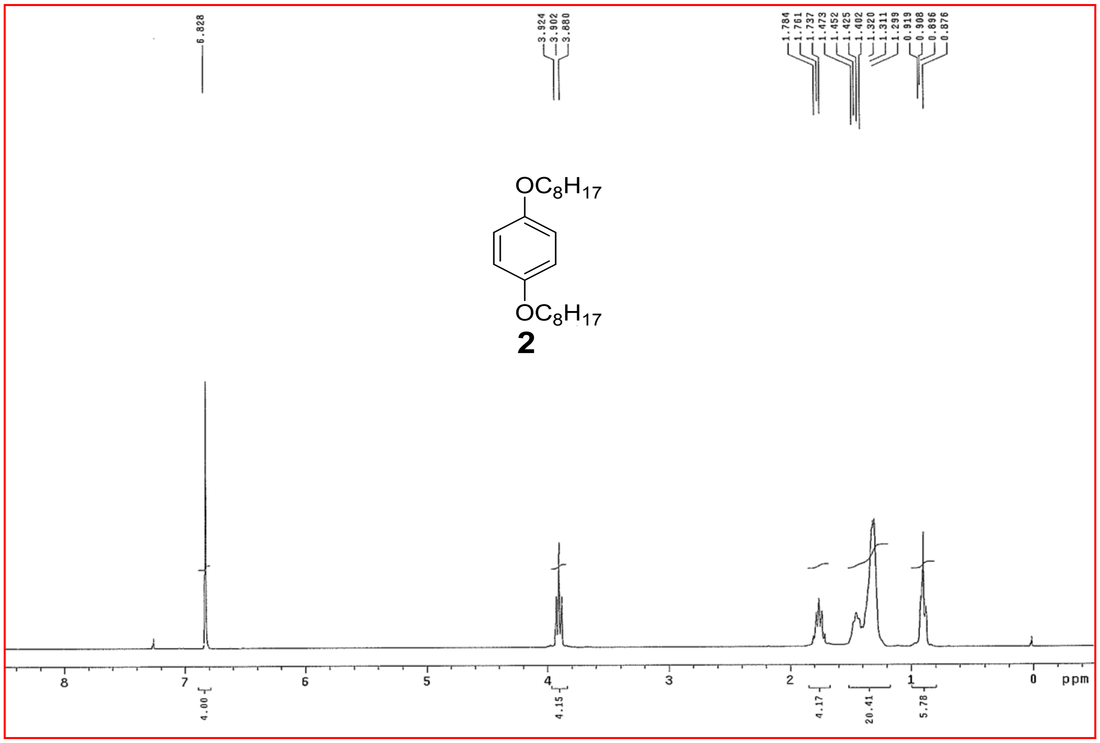

Figure S8. [1]H NMR spectrum of compound **2**.

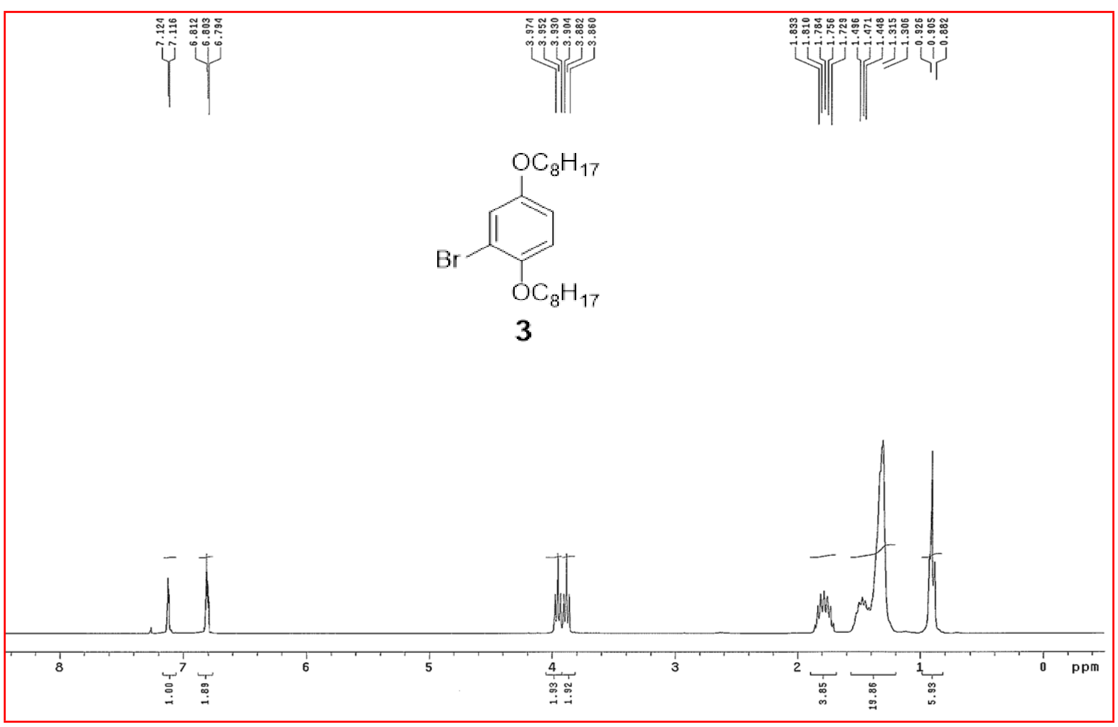

Figure S9. [1]H NMR spectrum of compound **3**.

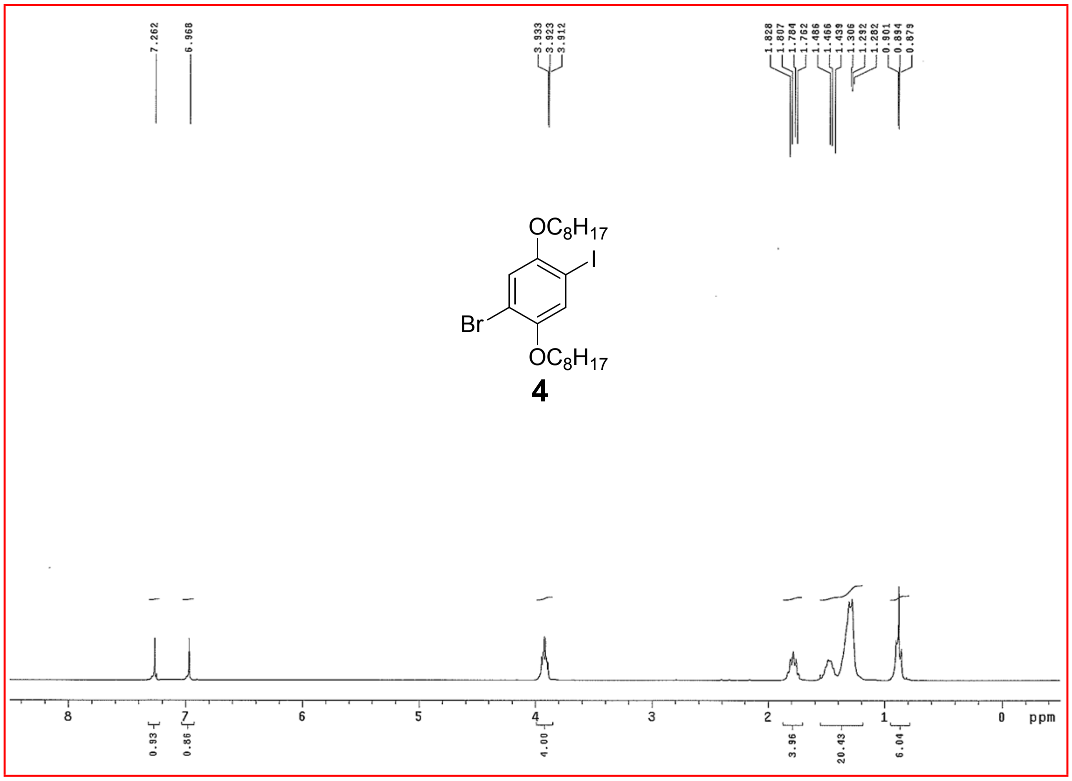

Figure S10. ^{1}H NMR spectrum of compound **4**.

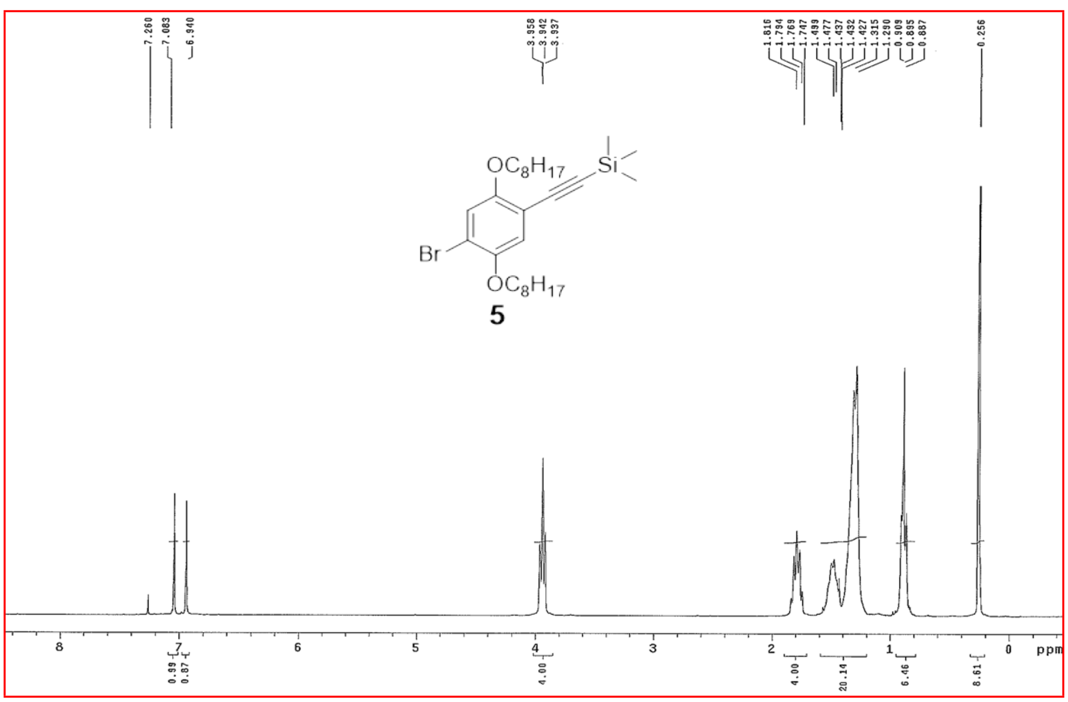

Figure S11. ^{1}H NMR spectrum of compound **5**.

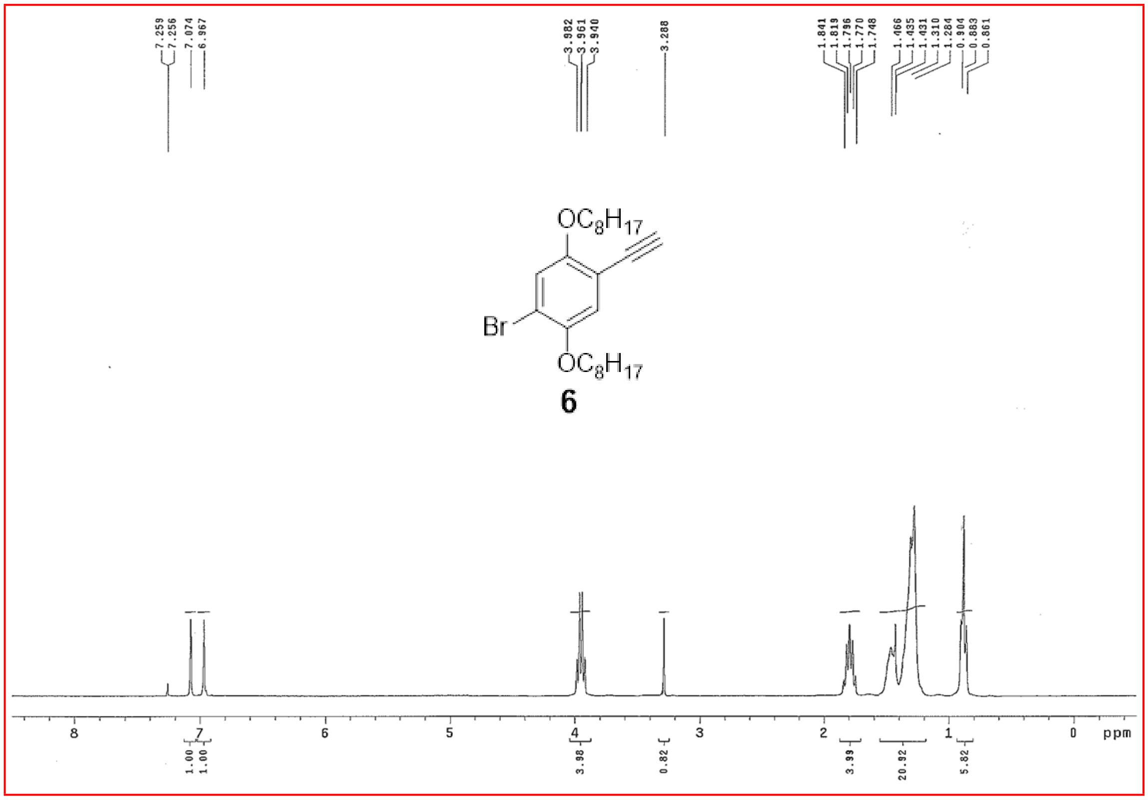

Figure S12. [1]H NMR spectrum of compound **6**.

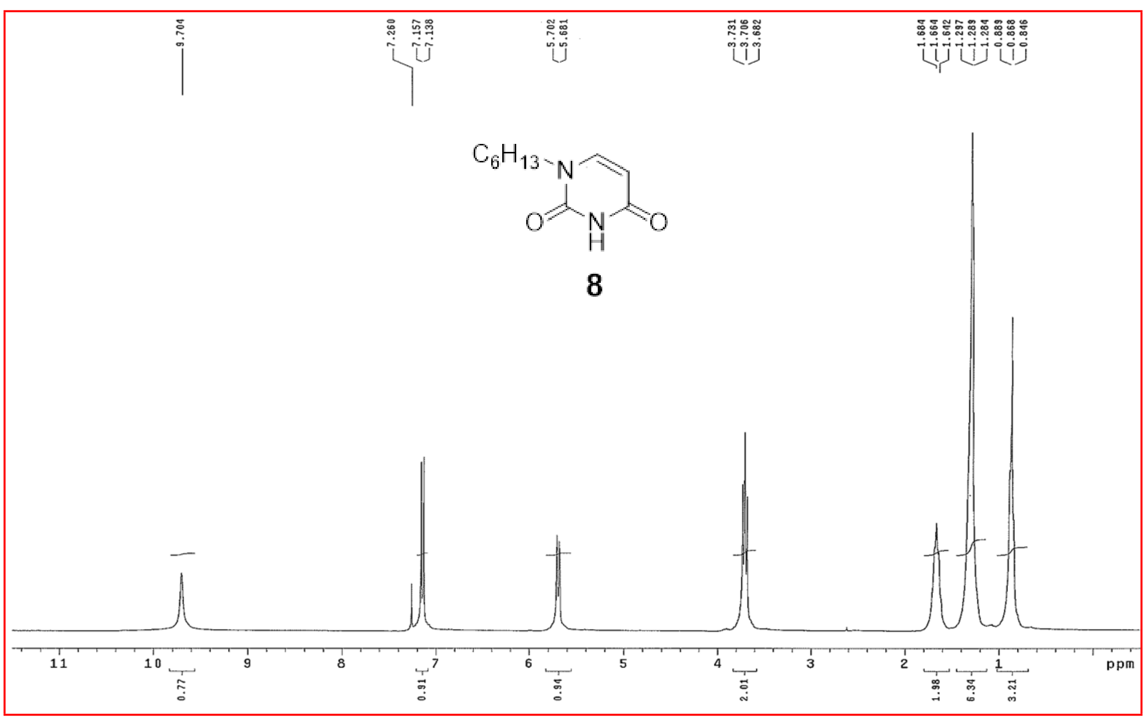

Figure S13. [1]H NMR spectrum of compound **8**.

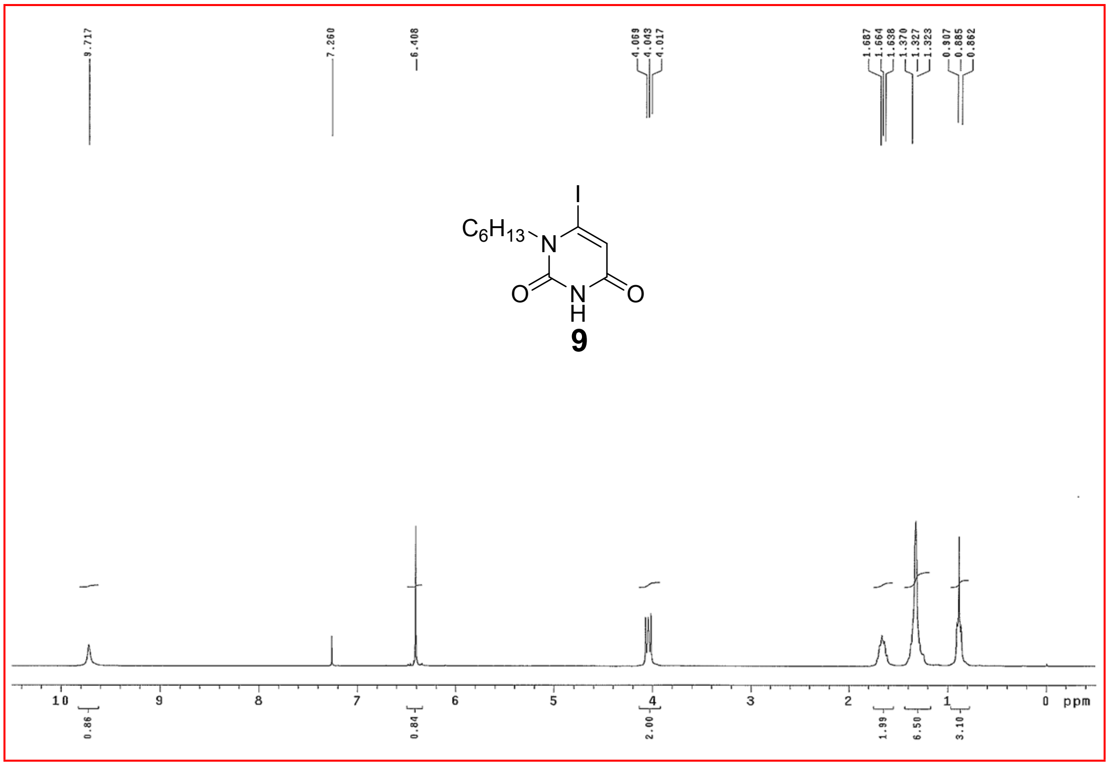

Figure S14. ^{1}H NMR spectrum of compound **9**.

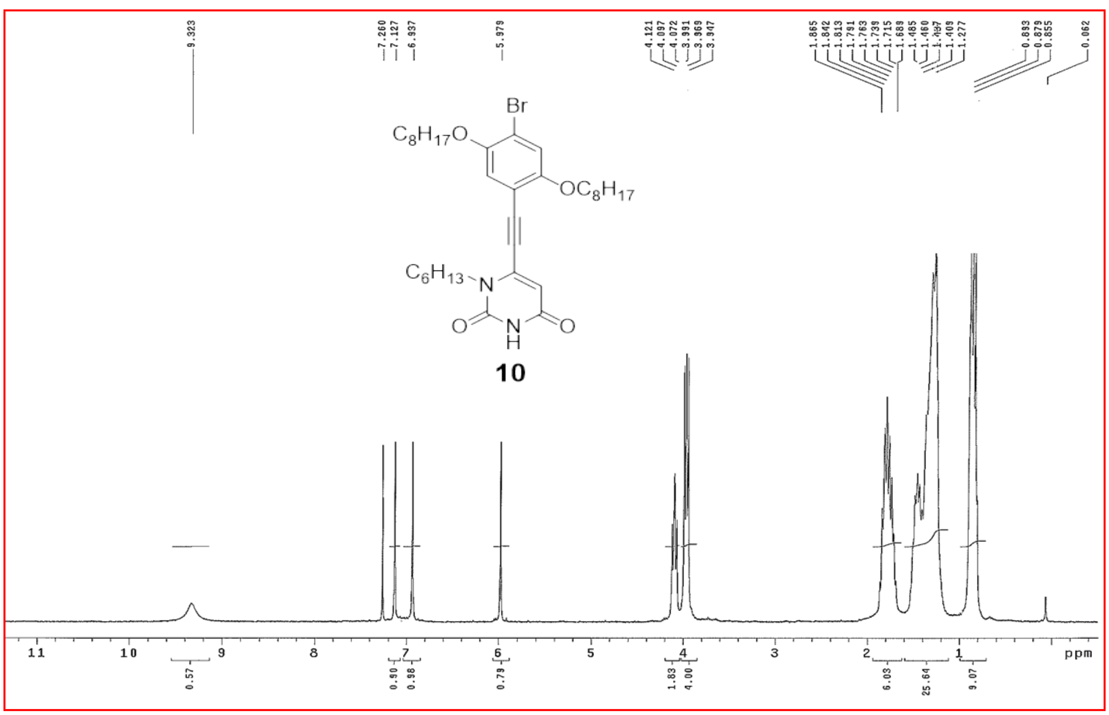

Figure S15. ^{1}H NMR spectrum of compound **10**.

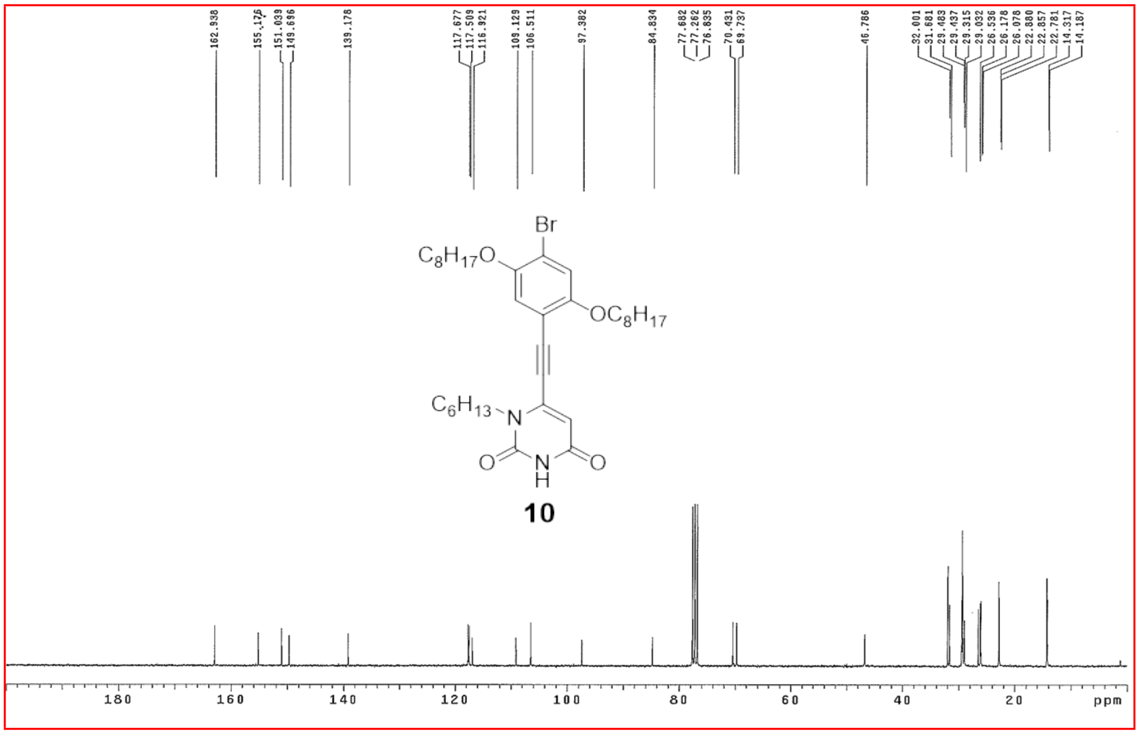

Figure S16. ^{13}C NMR spectrum of compound **10**.

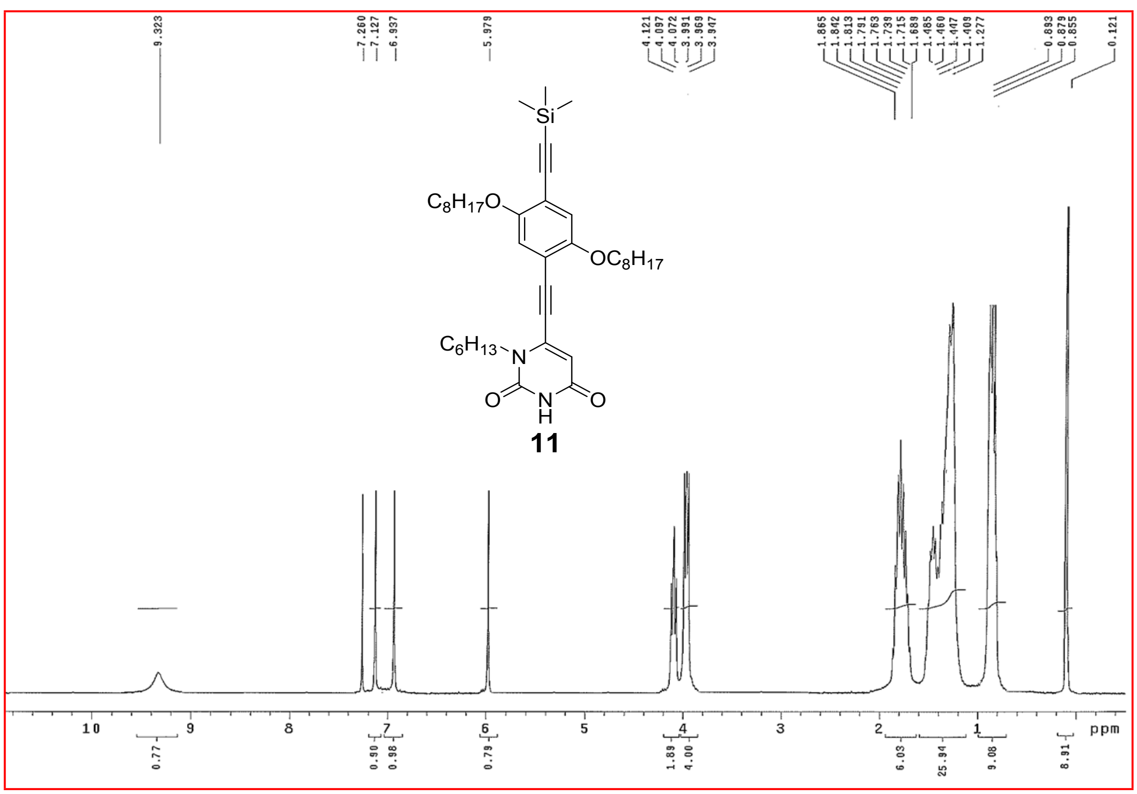

Figure S17. ^{1}H NMR spectrum of compound **11**.

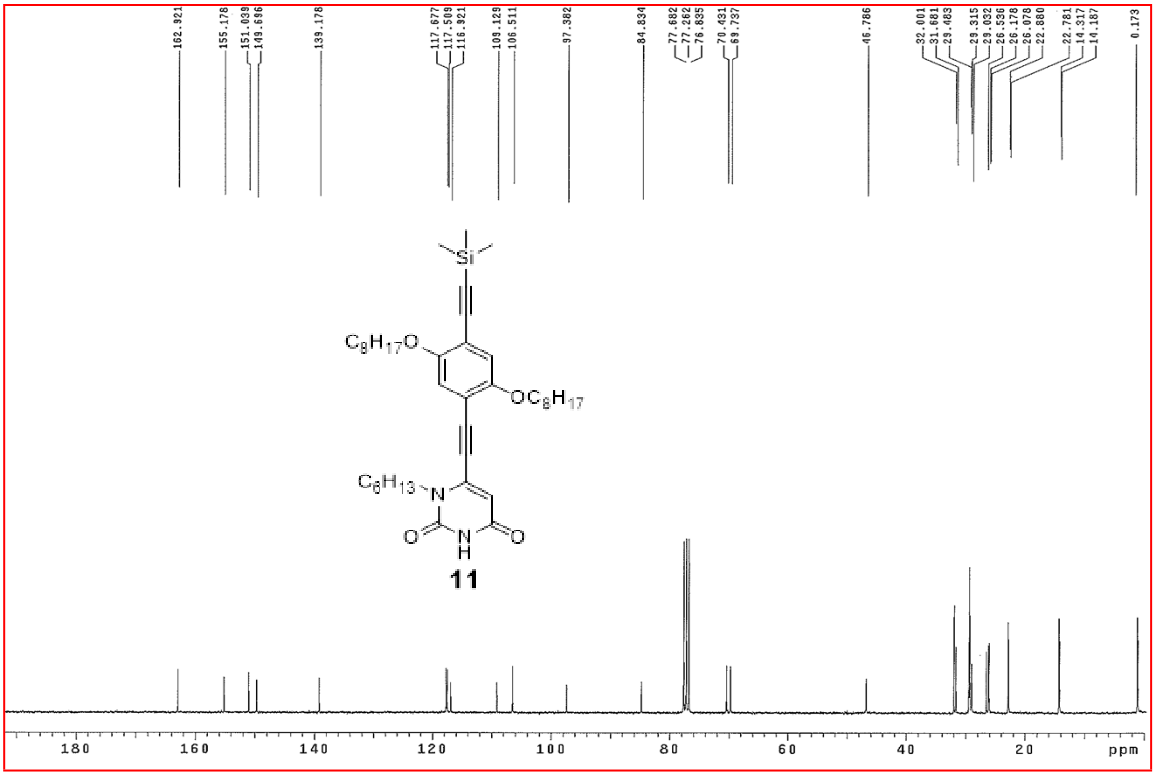

Figure S18. ^{13}C NMR spectrum of compound **11**.

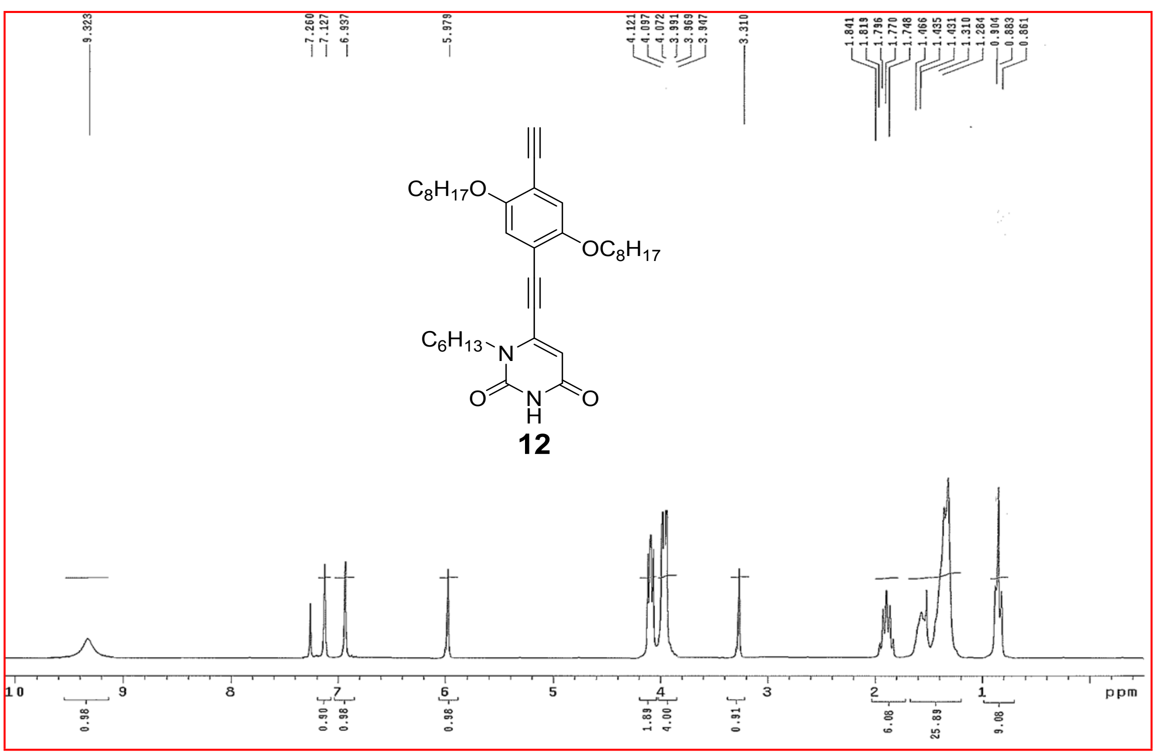

Figure S19. ^{1}H NMR spectrum of compound **12**.

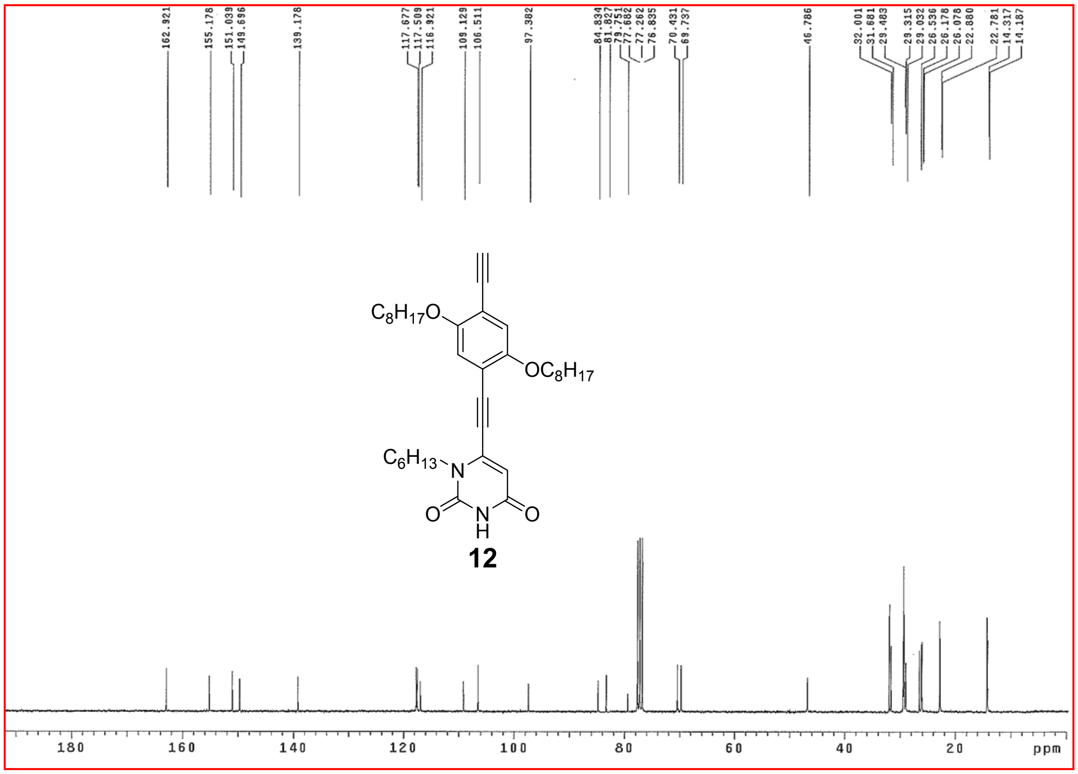

Figure S20. ^{13}C NMR spectrum of compound **12**.

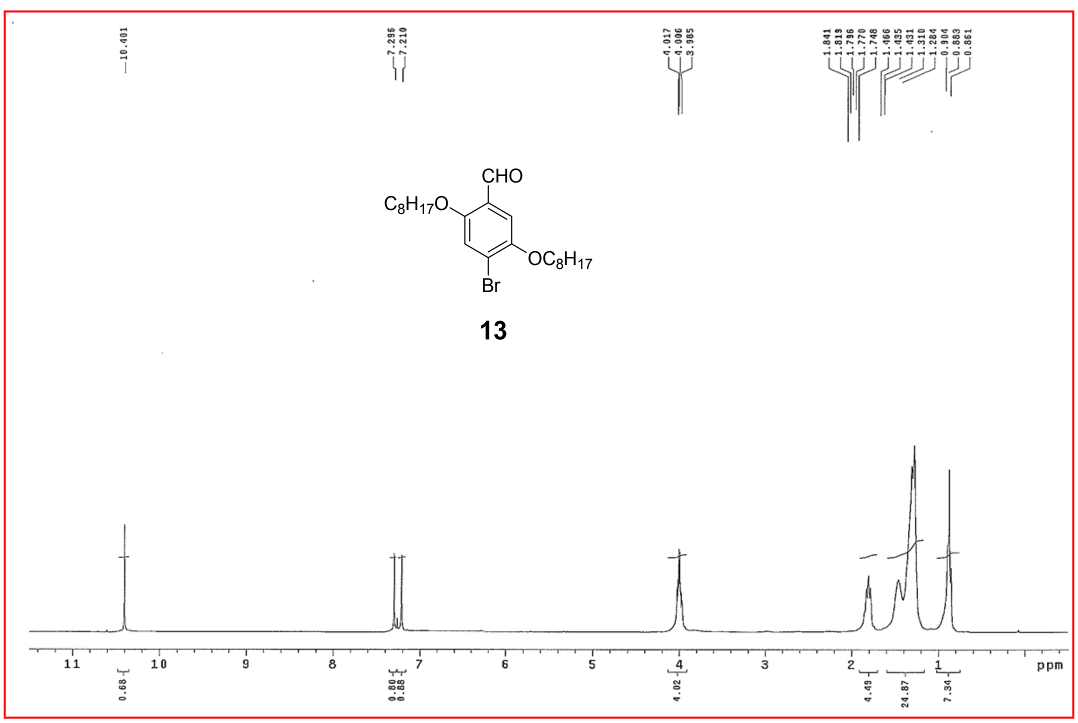

Figure S21. ^{1}H NMR spectrum of compound **13**.

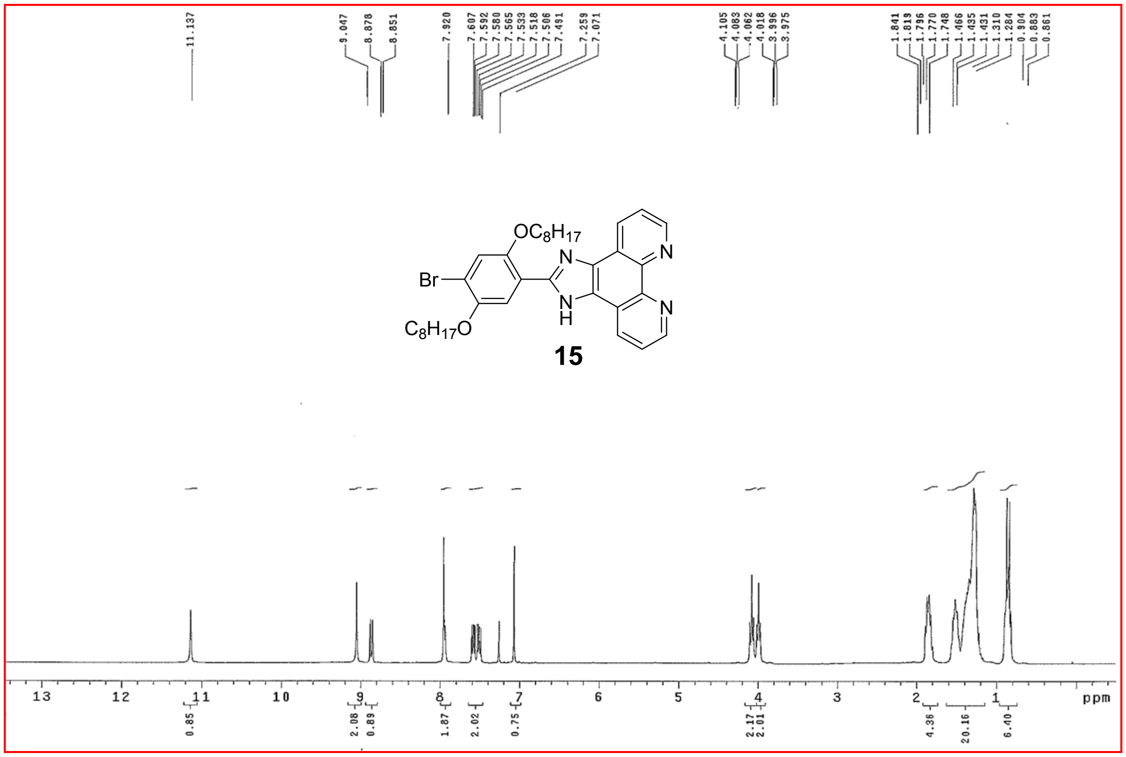

Figure S22. ^{1}H NMR spectrum of compound **15**.

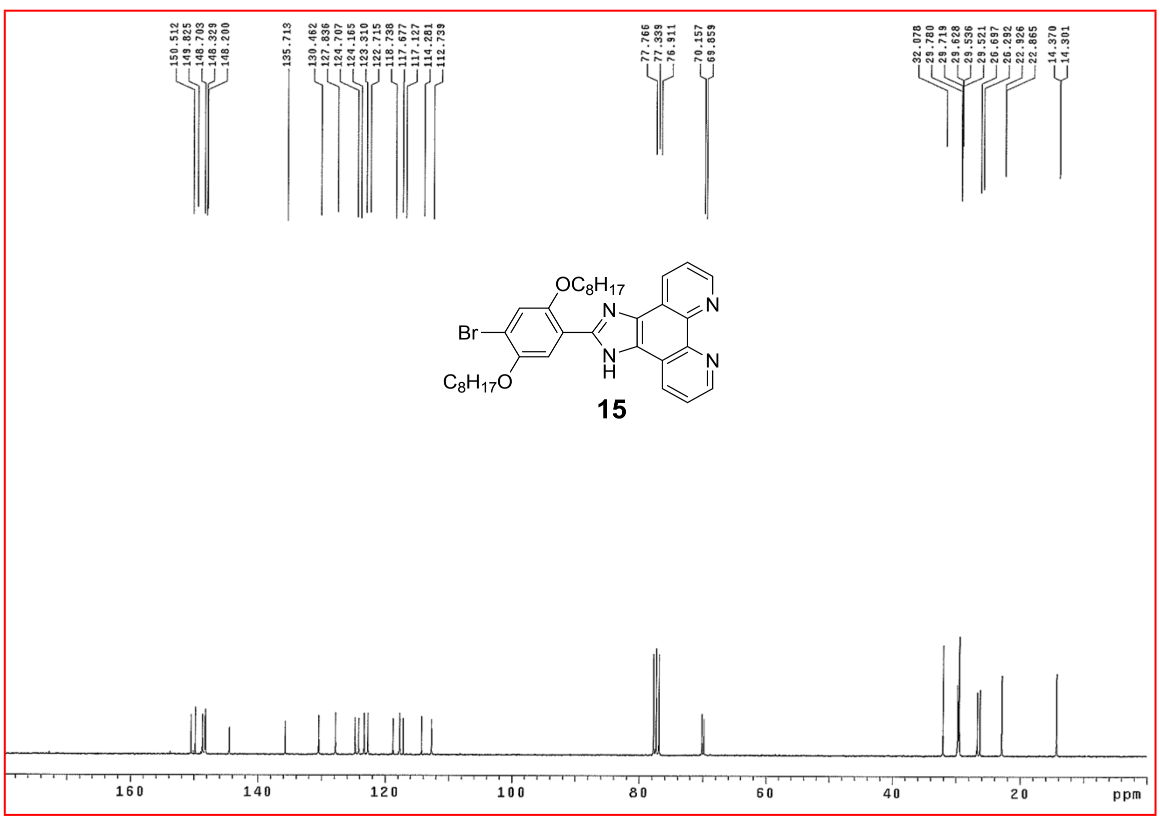

Figure S23. ^{13}C NMR spectrum of compound **15**.

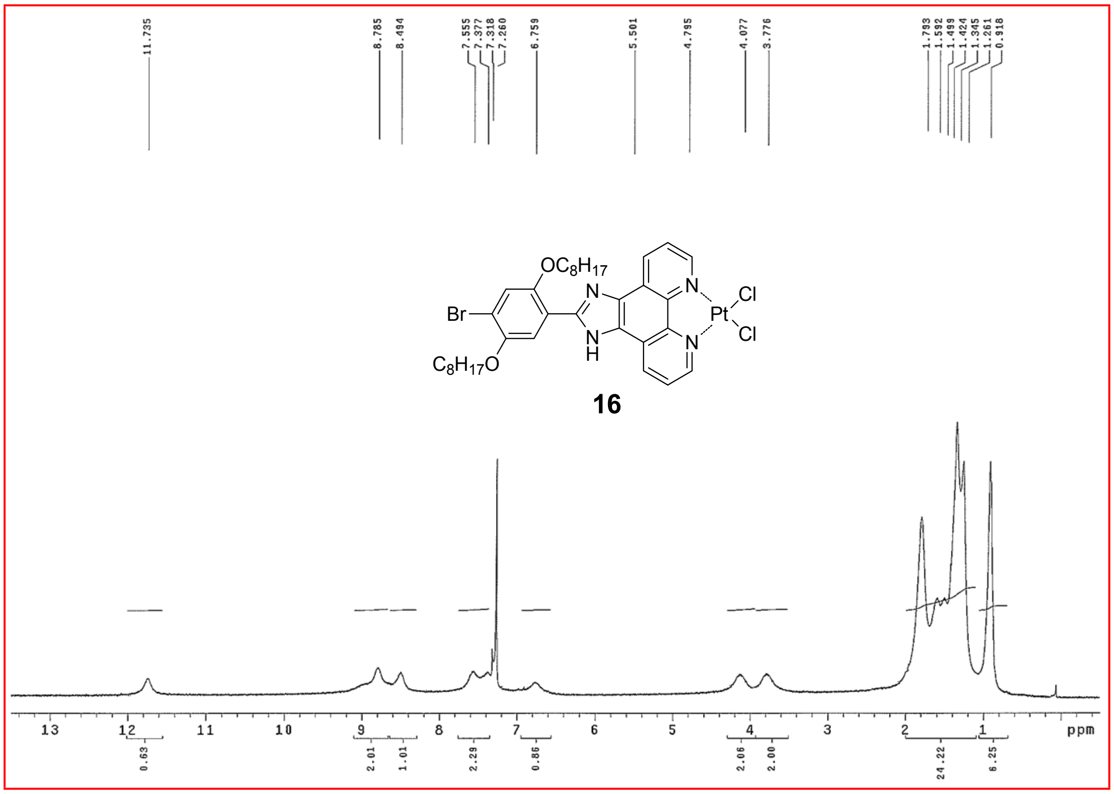

Figure S24. [1]H NMR spectrum of compound **16**.

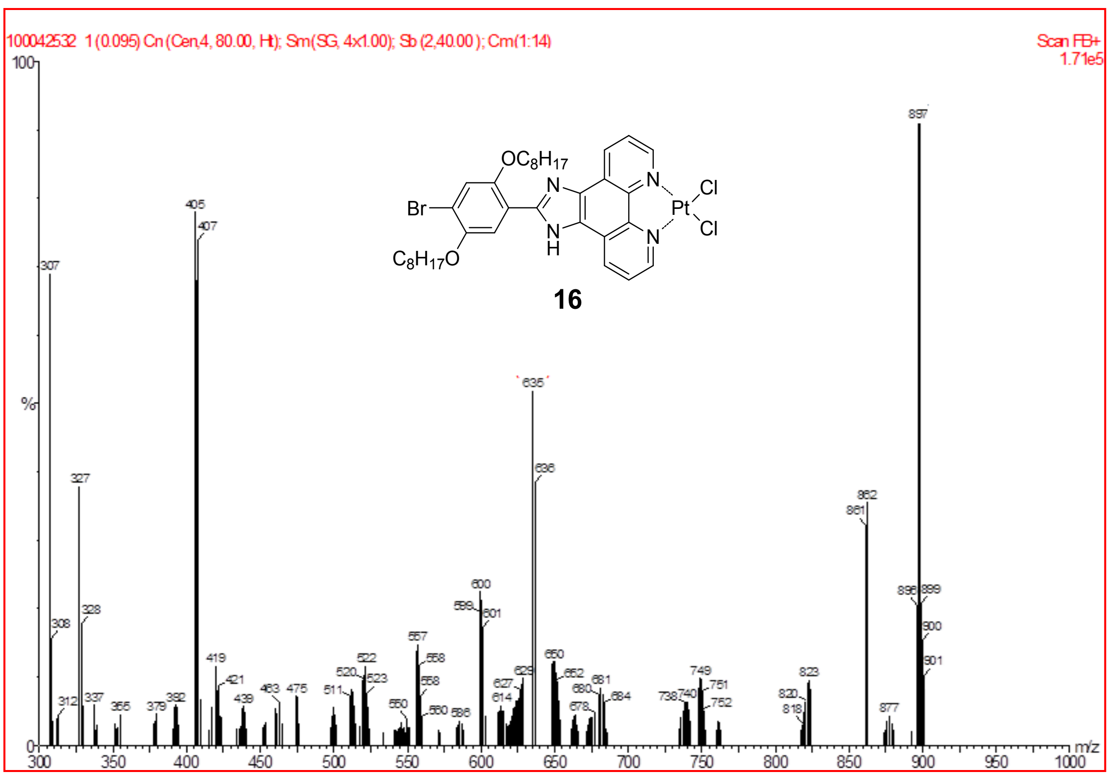

Figure S25. Mass (FAB) spectrum of compound **16**.

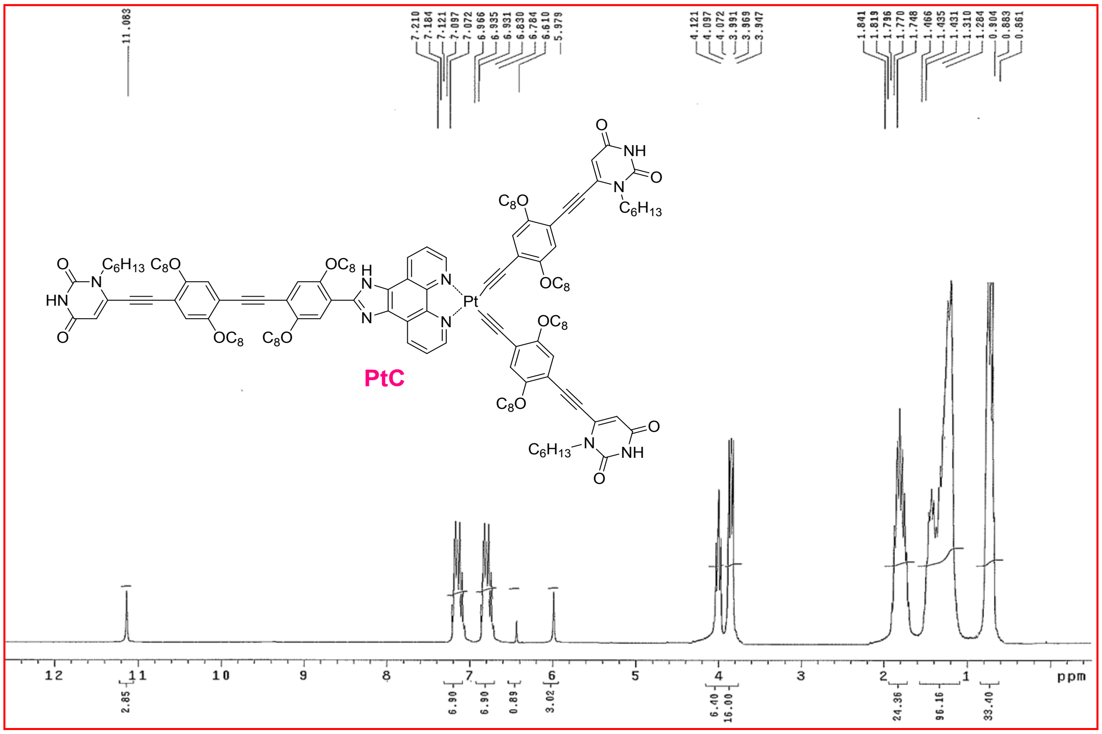

Figure S26. [1]H NMR spectrum of **PtC**.

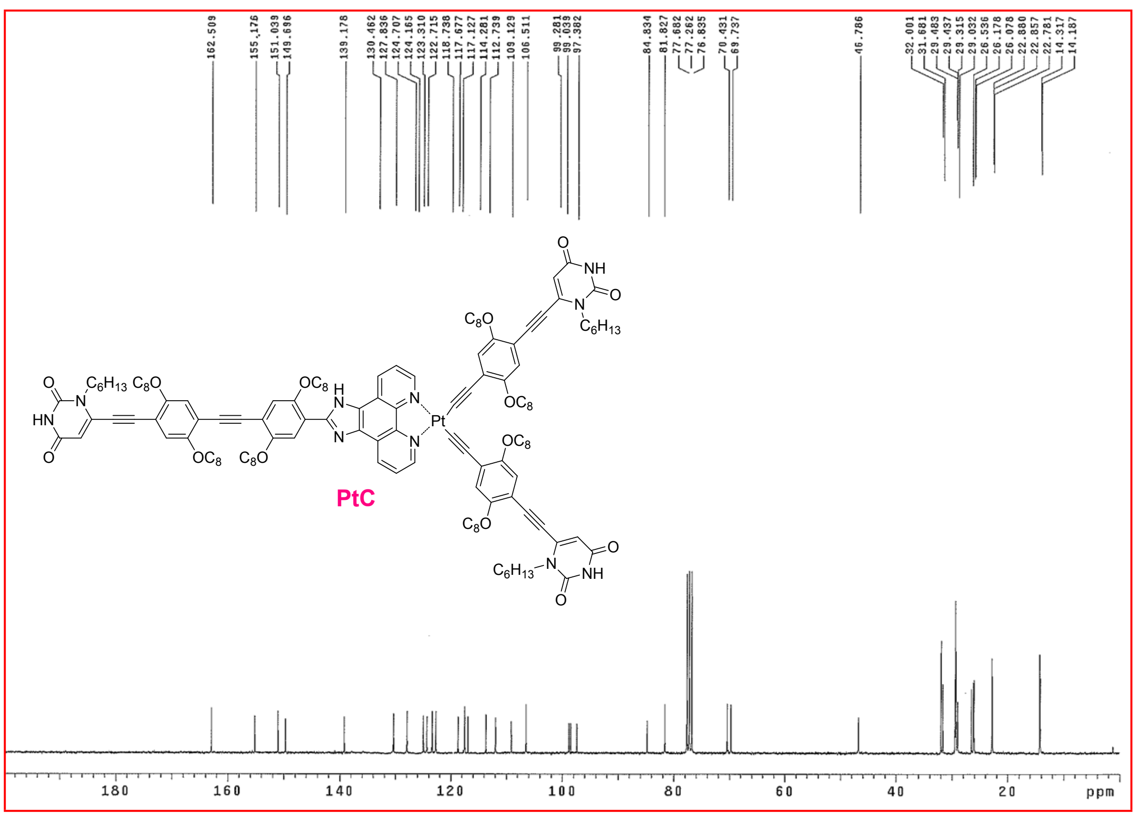

Figure S27. [13]C NMR spectrum of **PtC**.