

Supplementary Materials to

Pyrenebutyrate Pt(IV) Complexes with Nanomolar Anticancer Activity

Anife Ahmedova ^{1,*}, Rositsa Mihaylova ², Silviya Stoykova ¹, Veronika Mihaylova ¹, Nikola Burdzhiev ¹, Viktoria Elincheva ², Georgi Momekov ² and Denitsa Momekova ²

¹ Faculty of Chemistry and Pharmacy, Sofia University, 1, J. Bourchier Blvd., 1164 Sofia, Bulgaria; sstoykova@chem.uni-sofia.bg (S.S.); ahvm@chem.uni-sofia.bg (V.M.); ohnb@chem.uni-sofia.bg (N.B.)

² Faculty of Pharmacy, Medical University-Sofia, 2 Dunav Street, 1000 Sofia, Bulgaria; rmihaylova@pharmfac.mu-sofia.bg (R.M.); gmomekov@pharmfac.mu-sofia.bg (G.M.); dmomekova@pharmfac.mu-sofia.bg (D.M.)

* Correspondence: ahmedova@chem.uni-sofia.bg; Tel.: +359-2-8161-247

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IR Spectra of all synthesized compounds

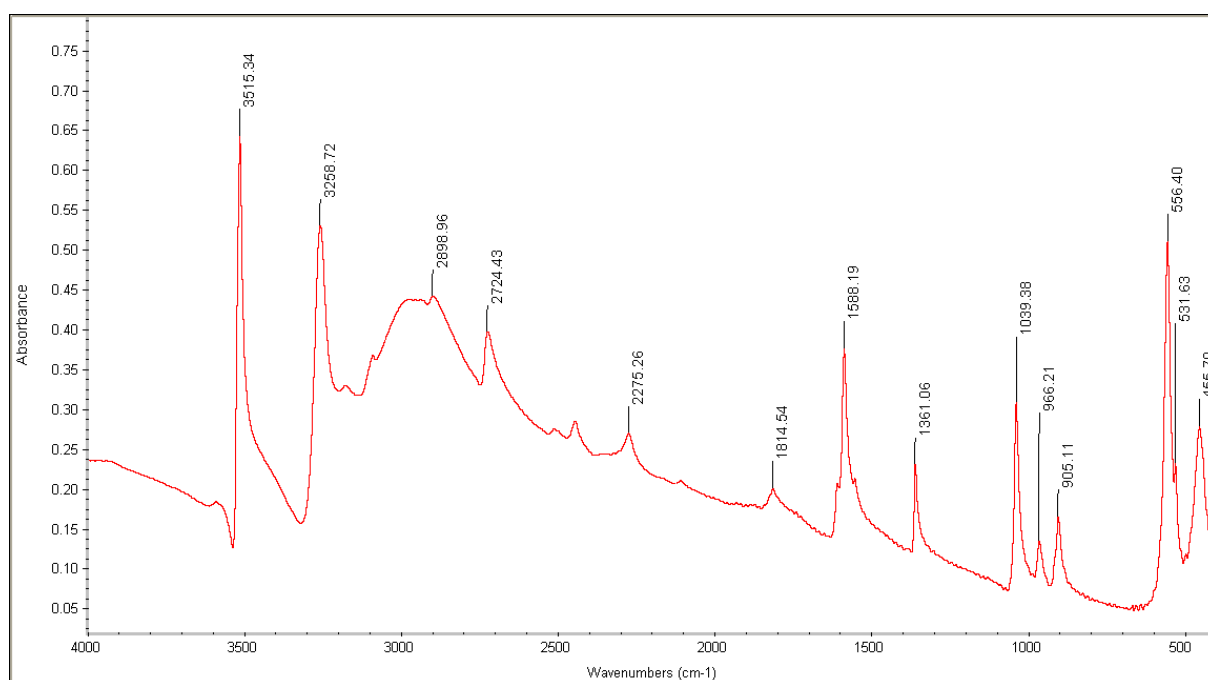


Figure S1. IR spectrum of oxoplatin, c,c,t -[Pt(NH₃)₂Cl₂(OH)₂]

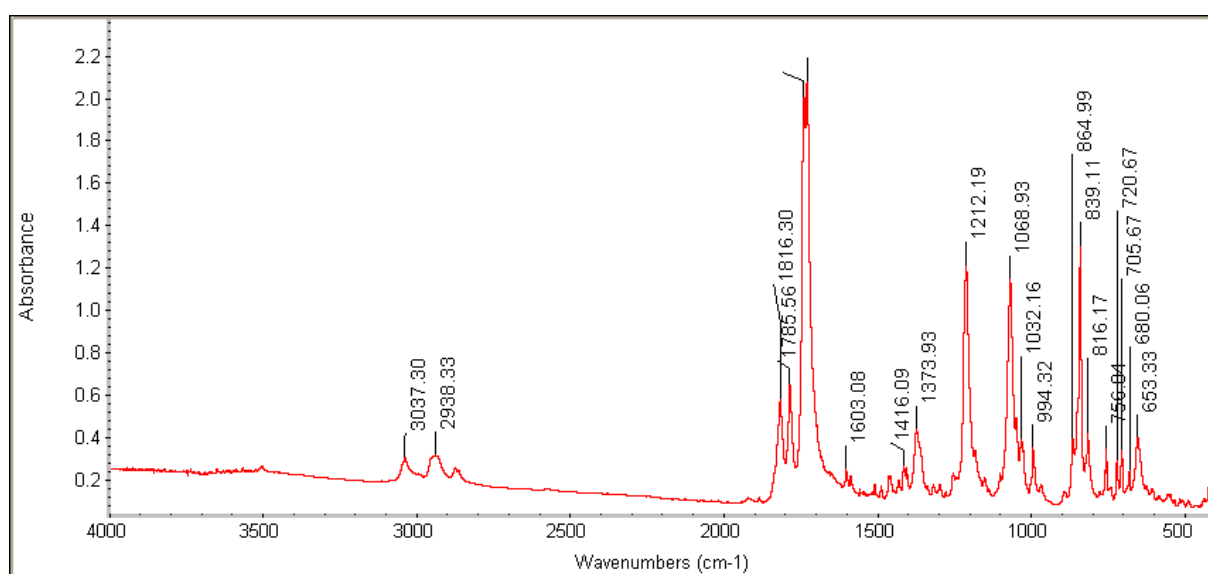


Figure S2. IR spectrum of activated NHS-ester of 1-pyrenebutyric acid.

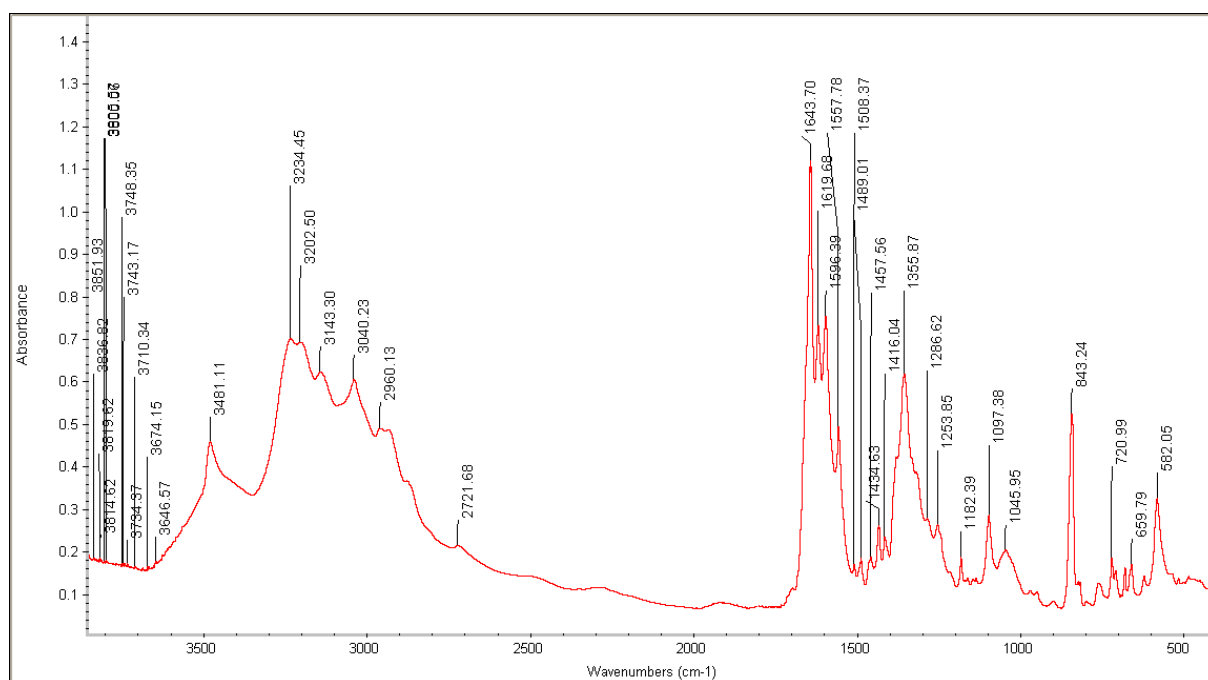


Figure S3. IR spectrum of complex 1.

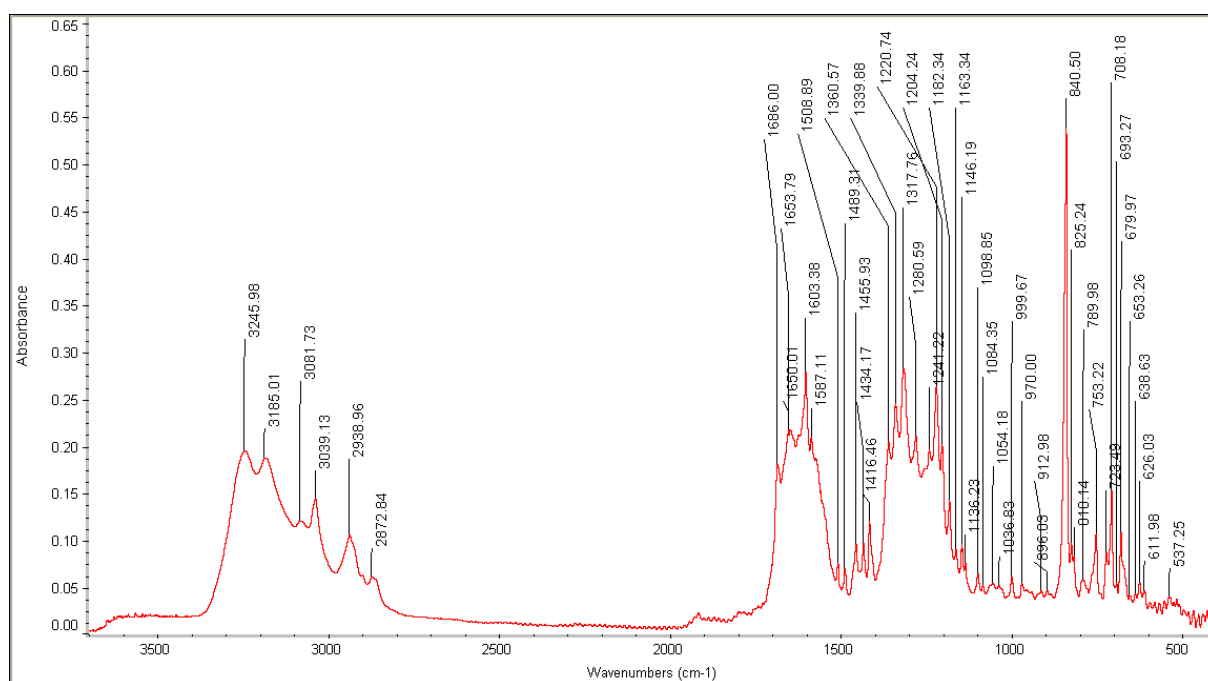


Figure S4. IR spectrum of complex 2.

NMR Spectra of all synthesized compounds

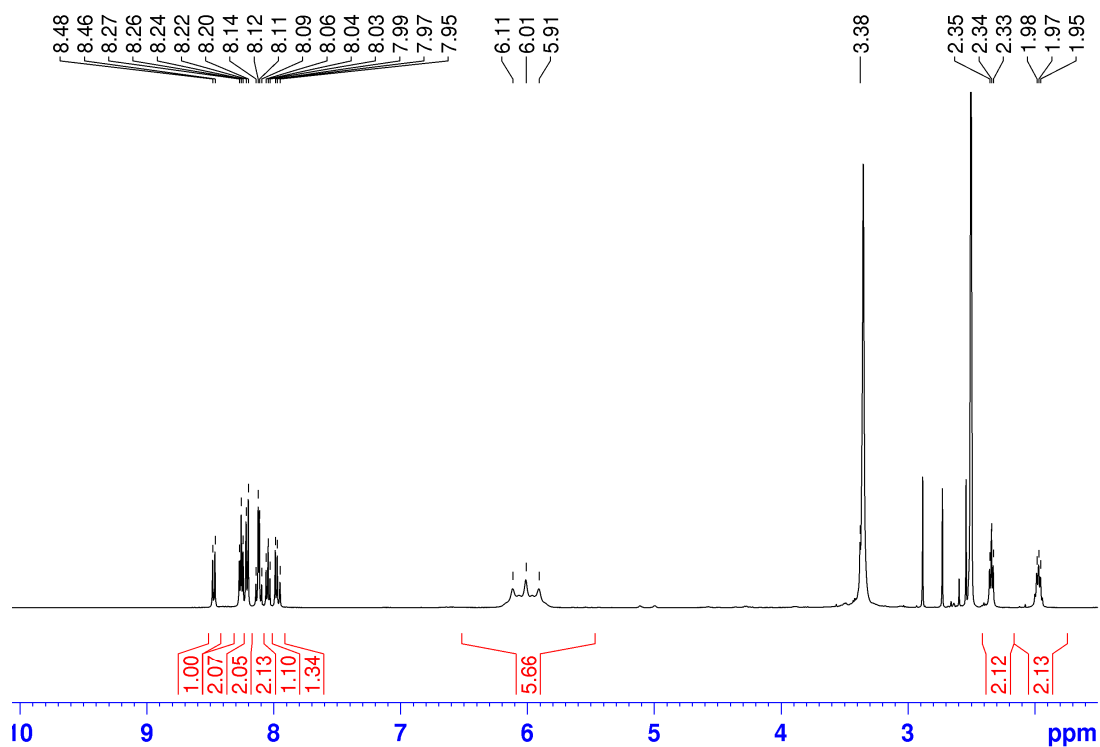


Figure S5. ¹H NMR spectrum of complex 1.

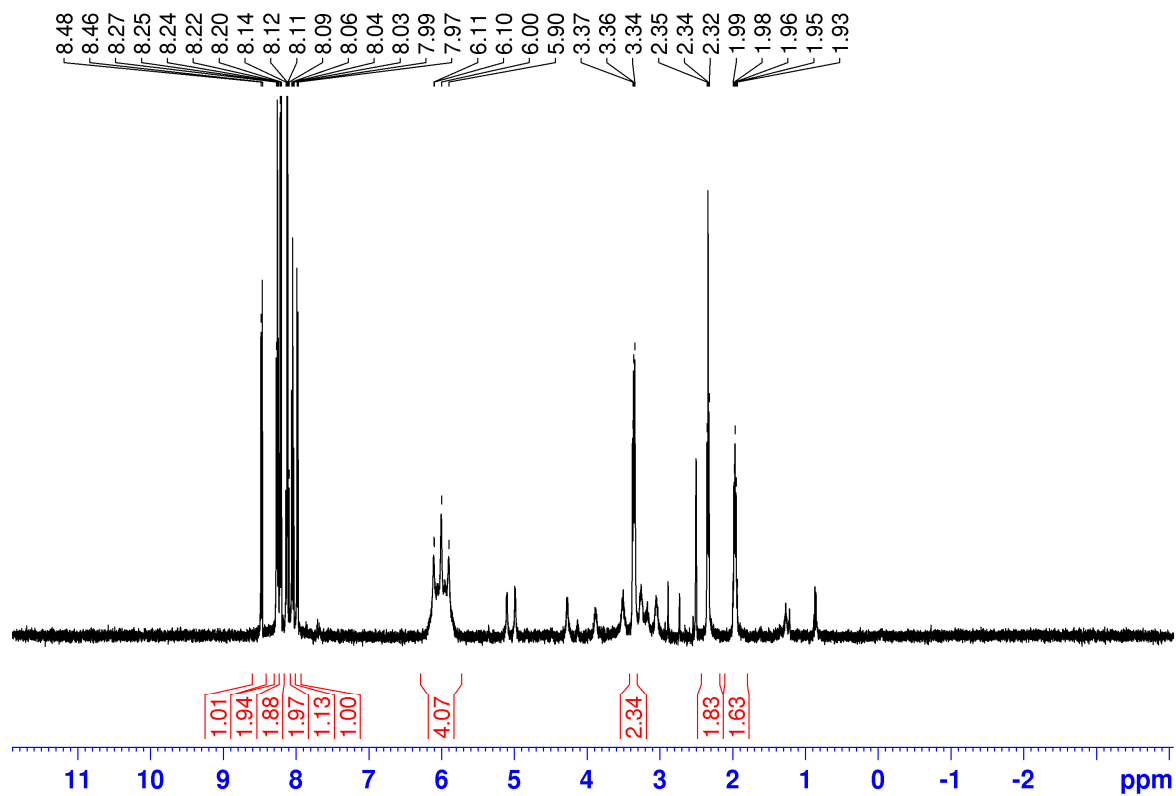


Figure S6. 1D DOSY NMR spectrum of complex 1.

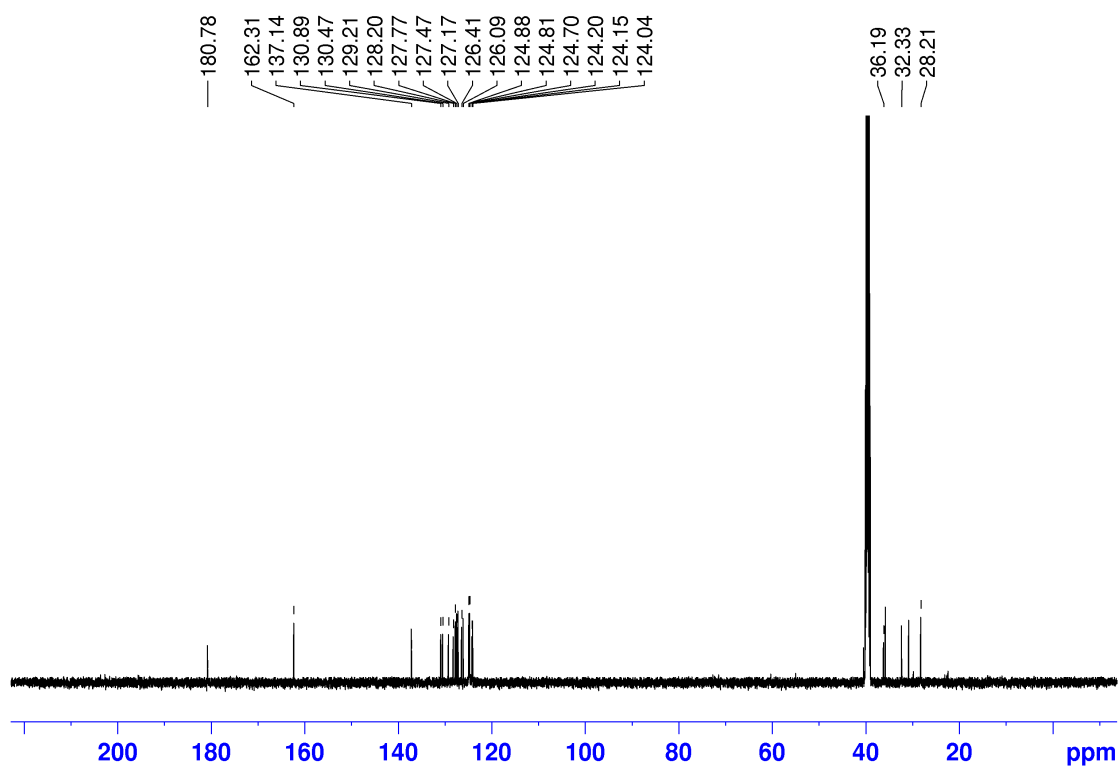


Figure S7. ^{13}C NMR spectrum of complex **1**.

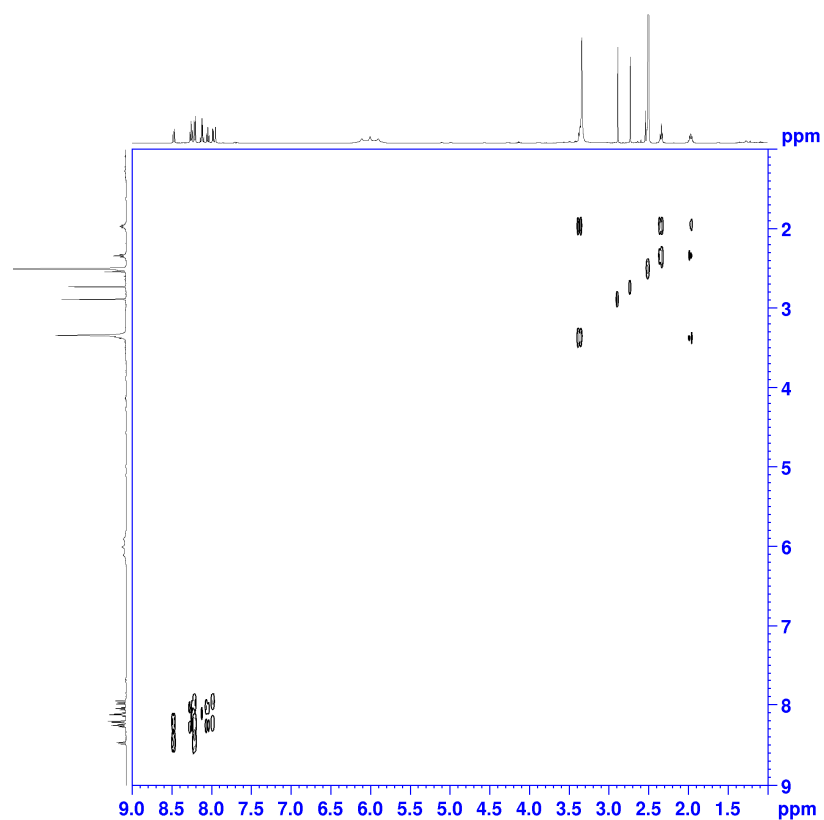


Figure S8. COSY NMR spectrum of complex **1**.

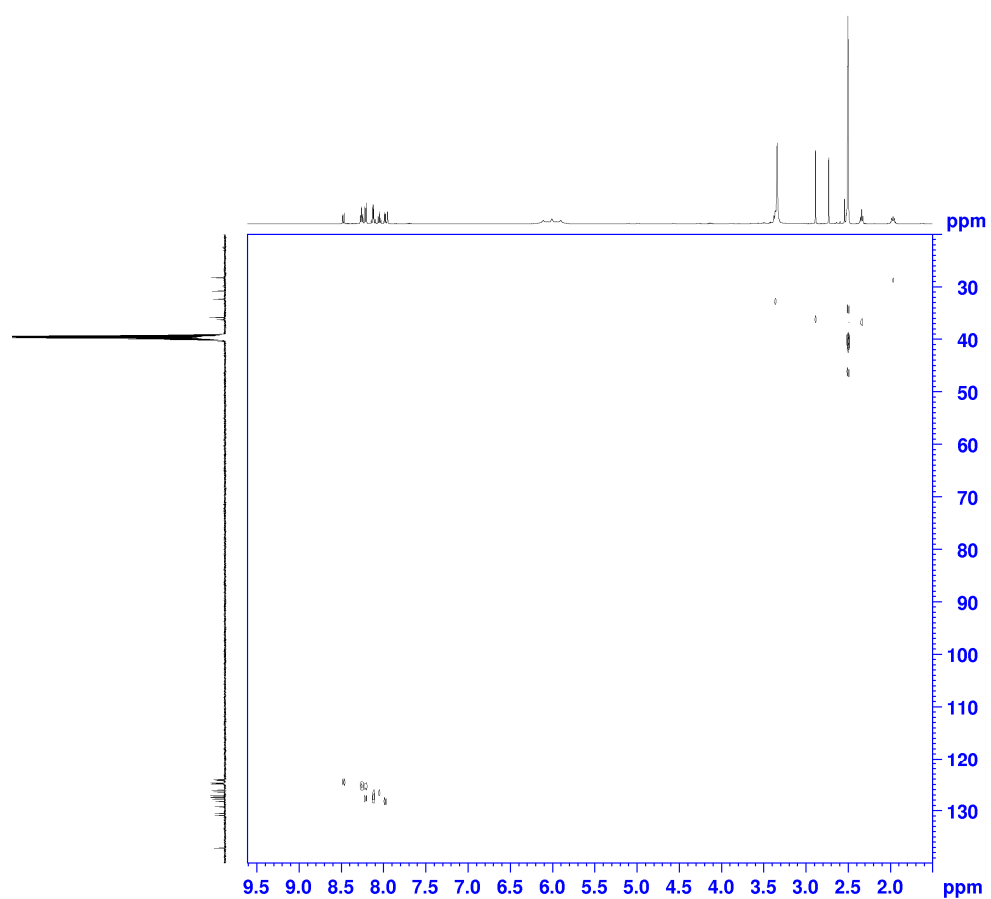


Figure S9. HSQC NMR spectrum of complex **1**.

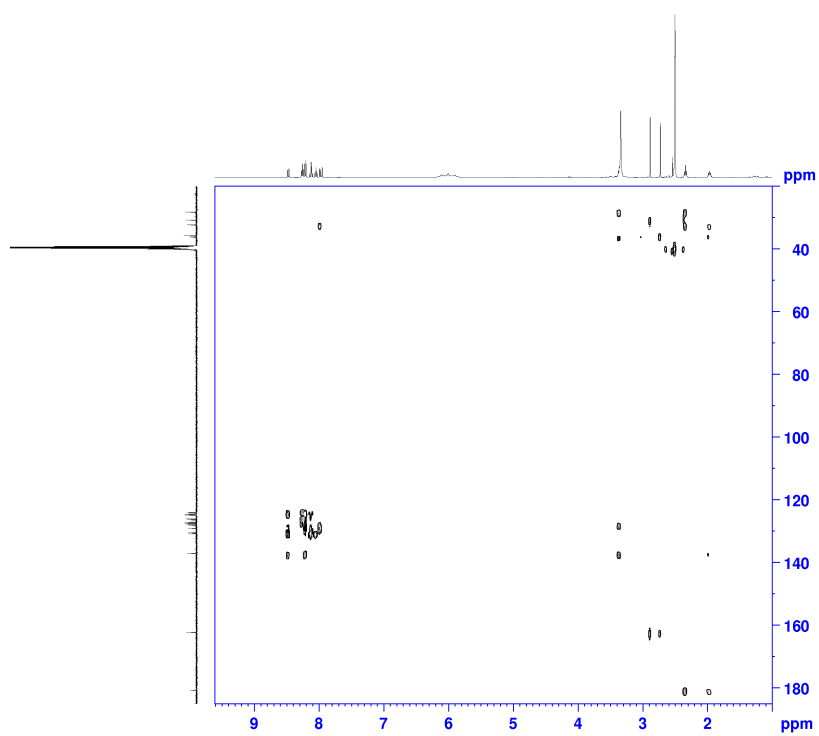


Figure S10. HMBC NMR spectrum of complex **1**.

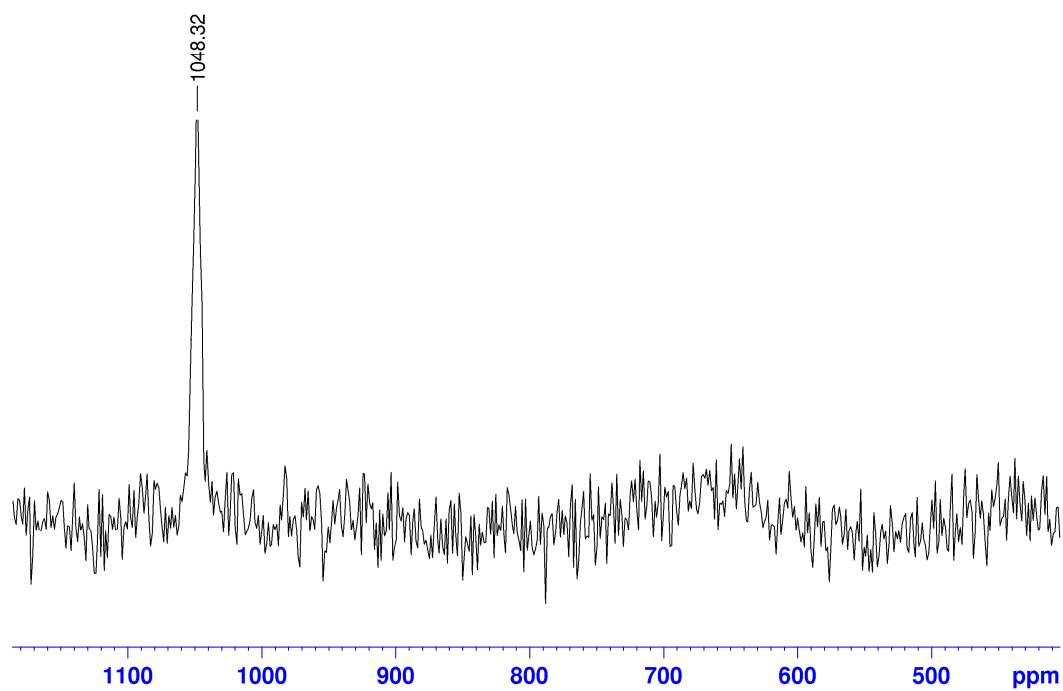


Figure S11. ^{195}Pt NMR spectrum of complex **1**.

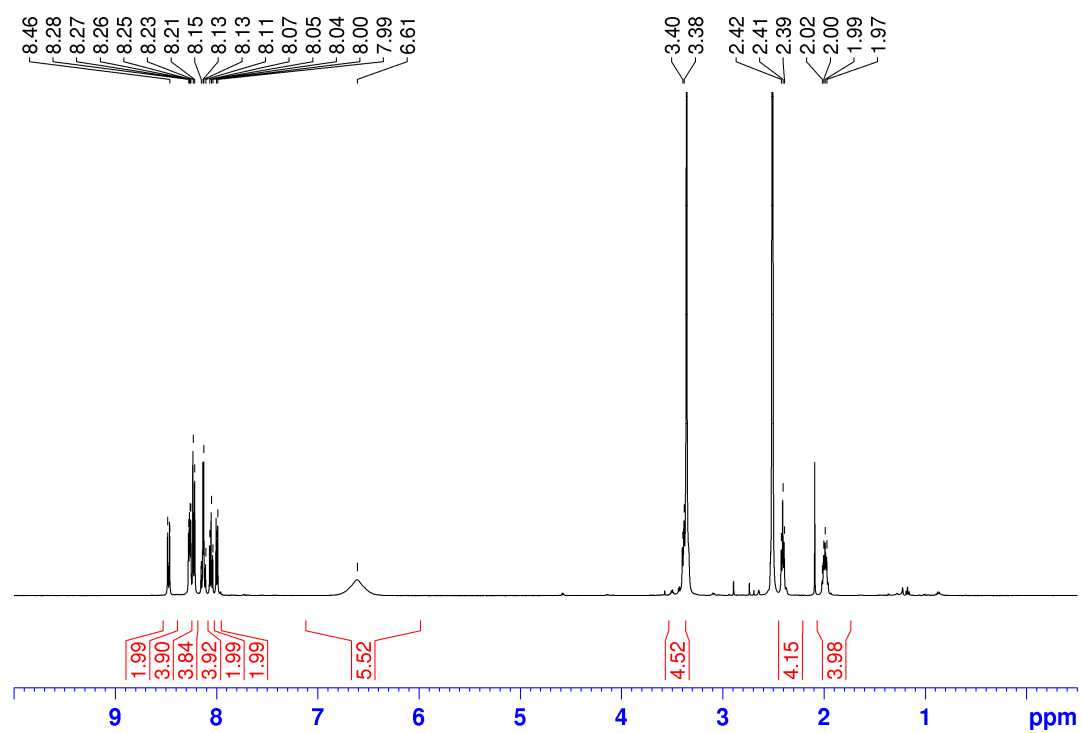


Figure S12. ^1H NMR of complex **2**.

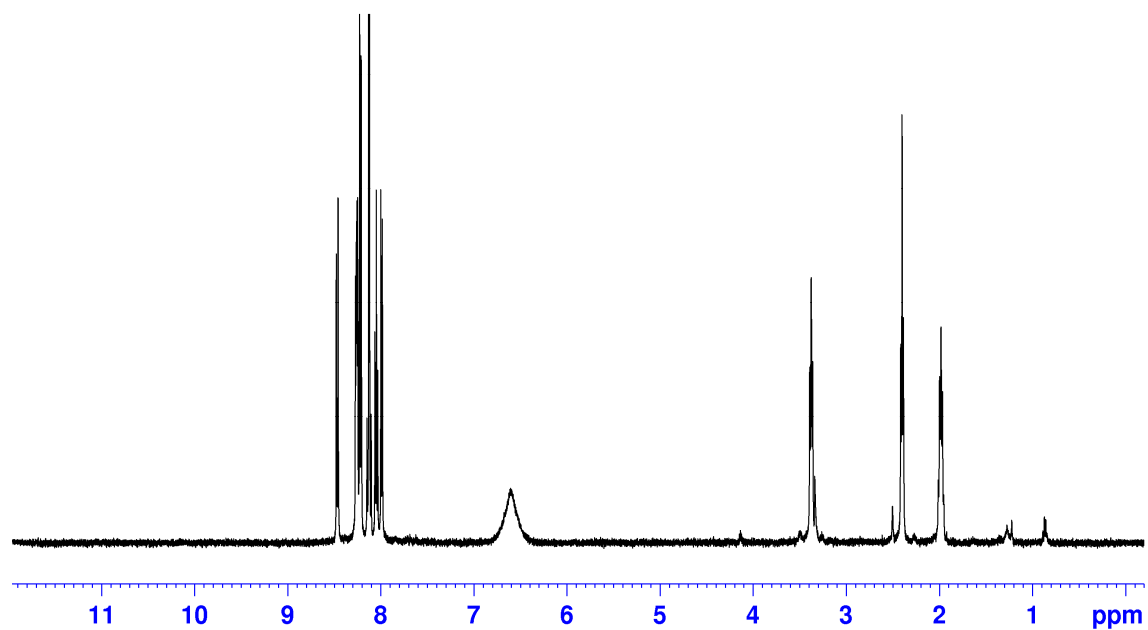


Figure S13. 1D DOSY NMR of complex **2**.

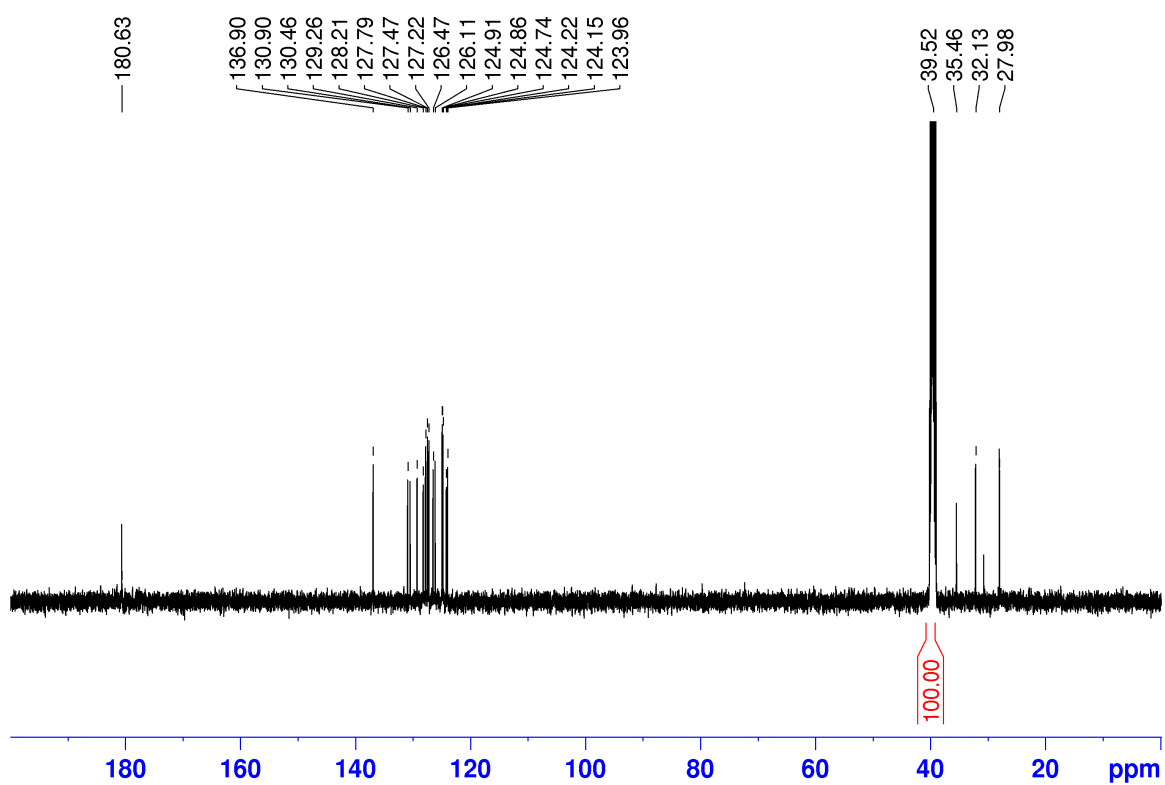


Figure S14. ^{13}C NMR of complex **2**.

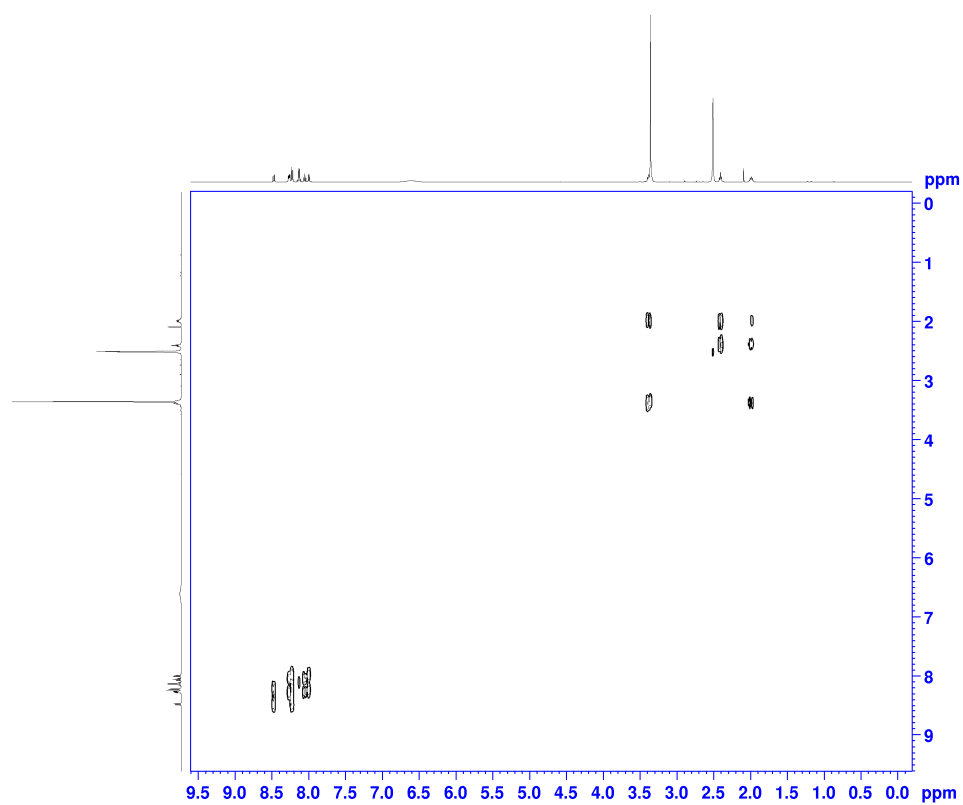


Figure S15. COSY NMR spectrum of complex 2.

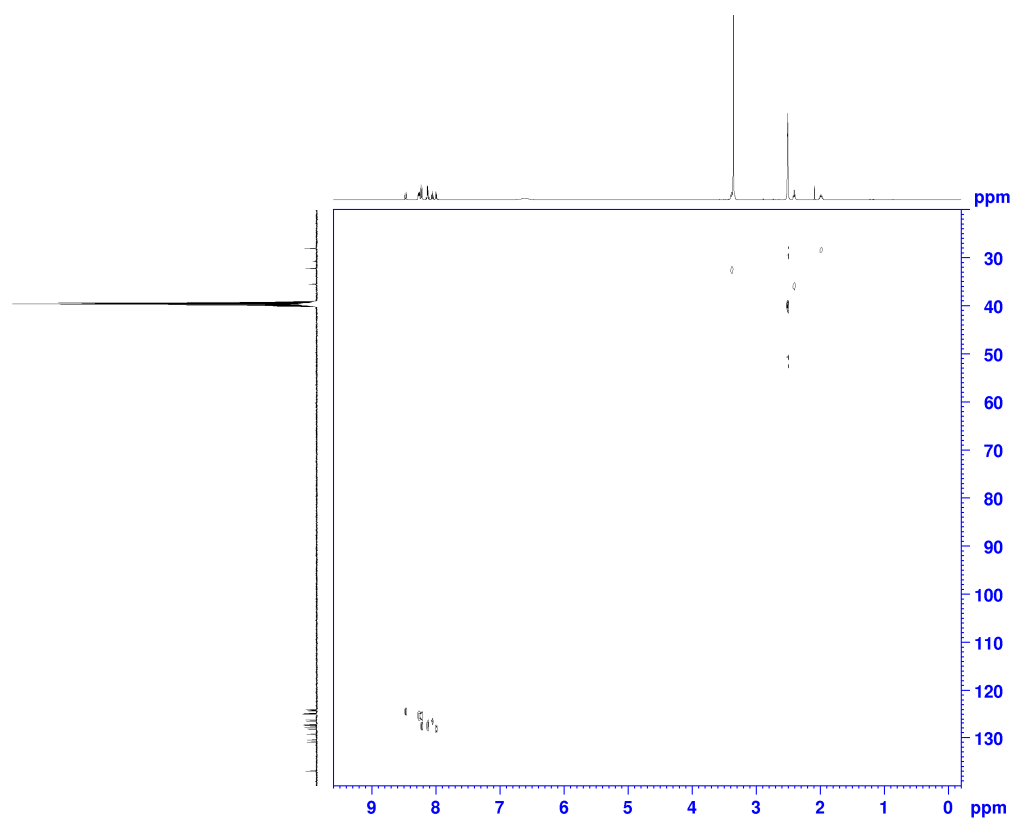


Figure S16. HSQC NMR spectrum of complex 2.

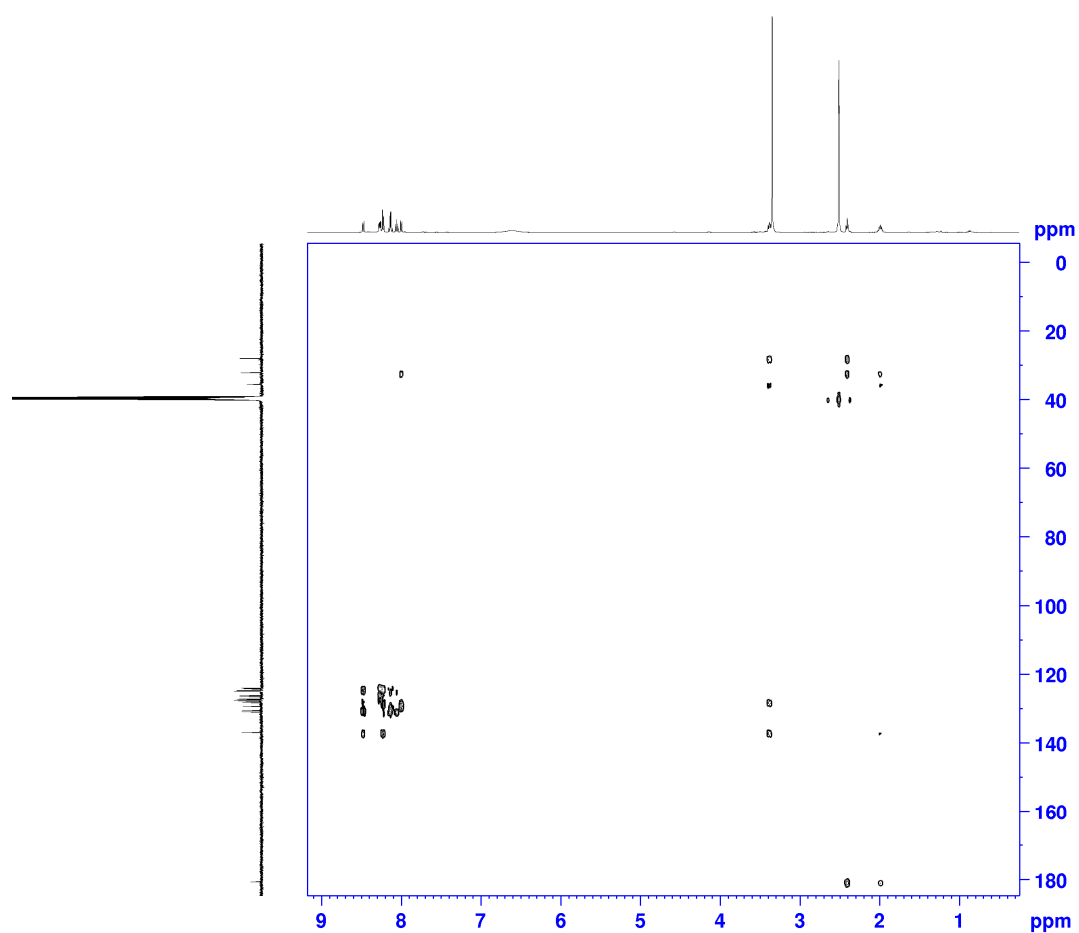


Figure S17. HMBC NMR spectrum of complex **2**.

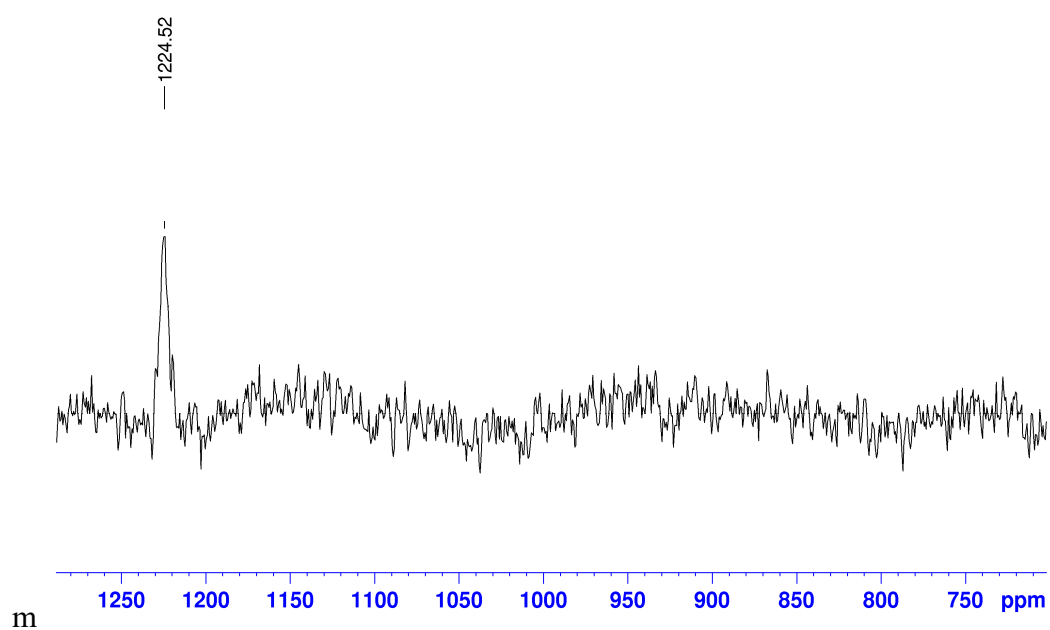


Figure S18. ^{195}Pt NMR of complex **2**.

Reactivity of the studied complexes with biological reductants followed by NMR

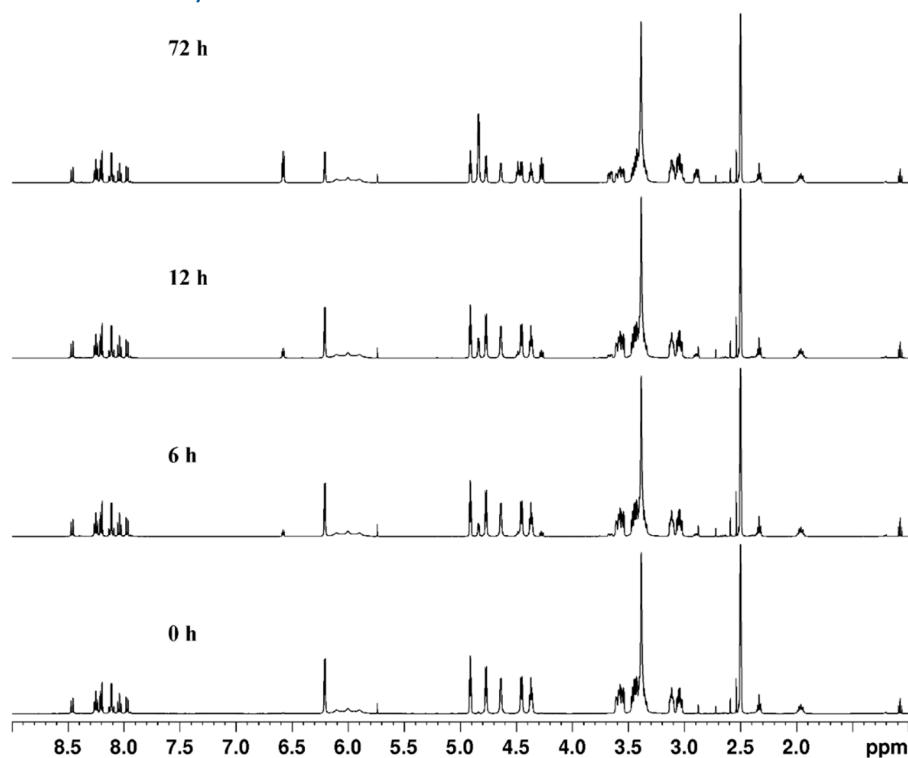


Figure S19. ^1H NMR spectra of complex **1** upon addition of glucose.

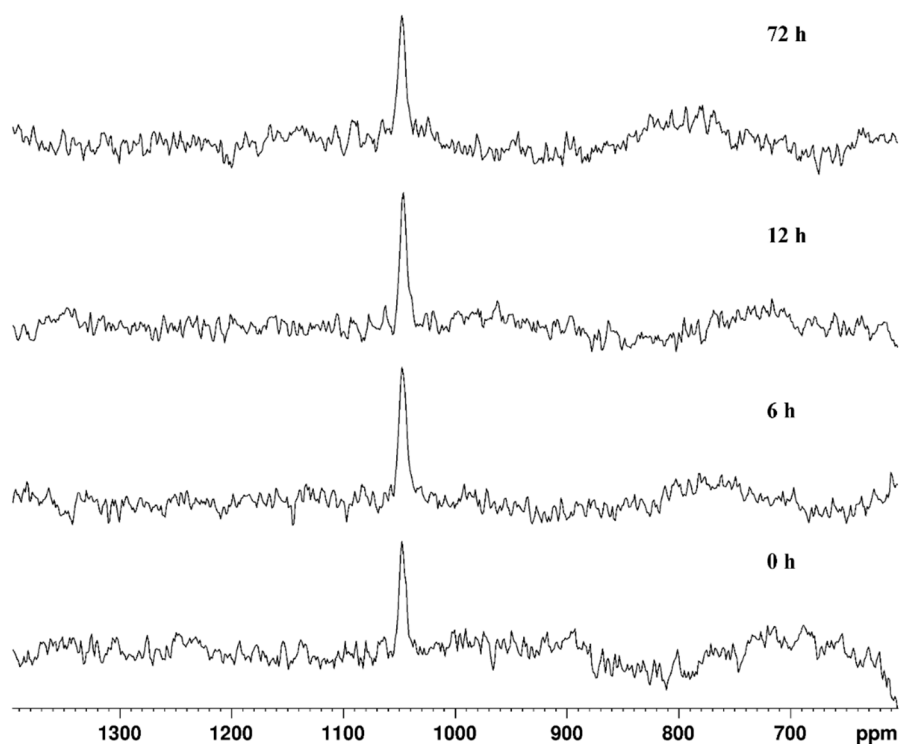


Figure S20. ^{195}Pt NMR spectra of complex **1** upon addition of glucose.

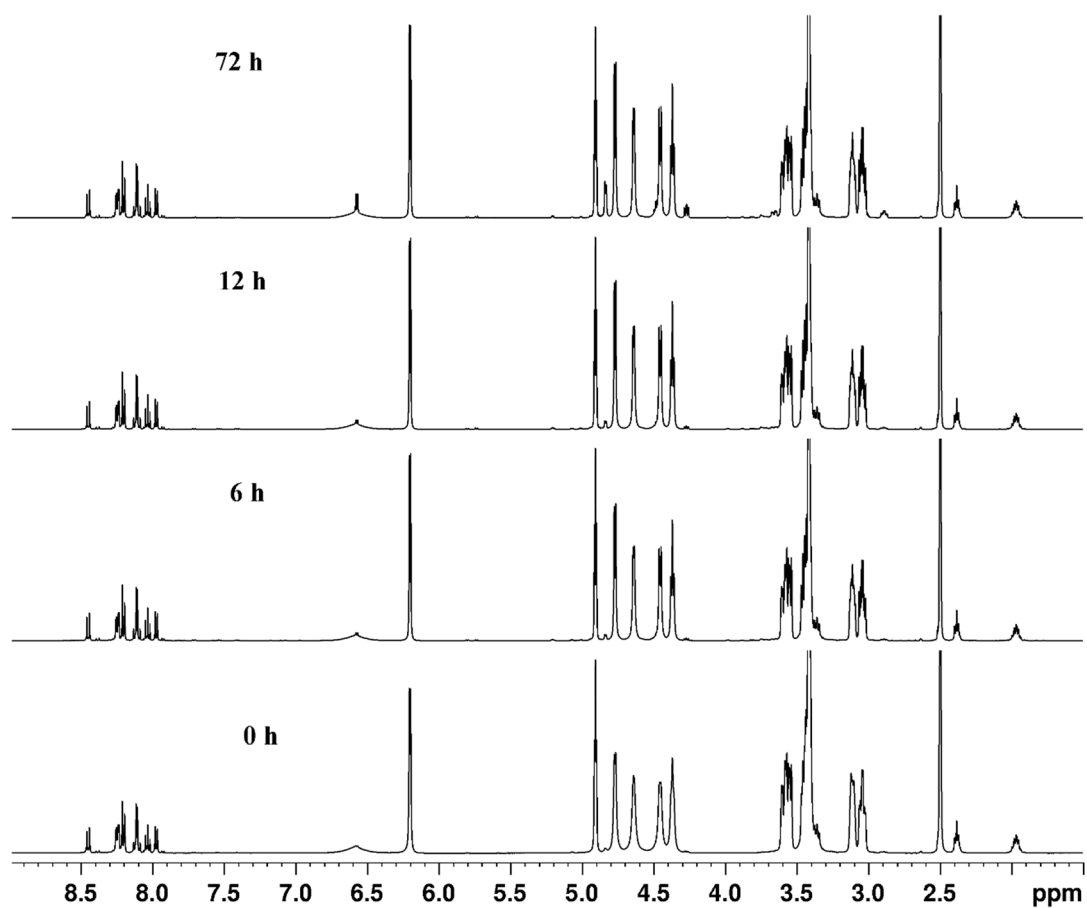


Figure S21. ^1H NMR spectra of complex **2** upon addition of glucose.

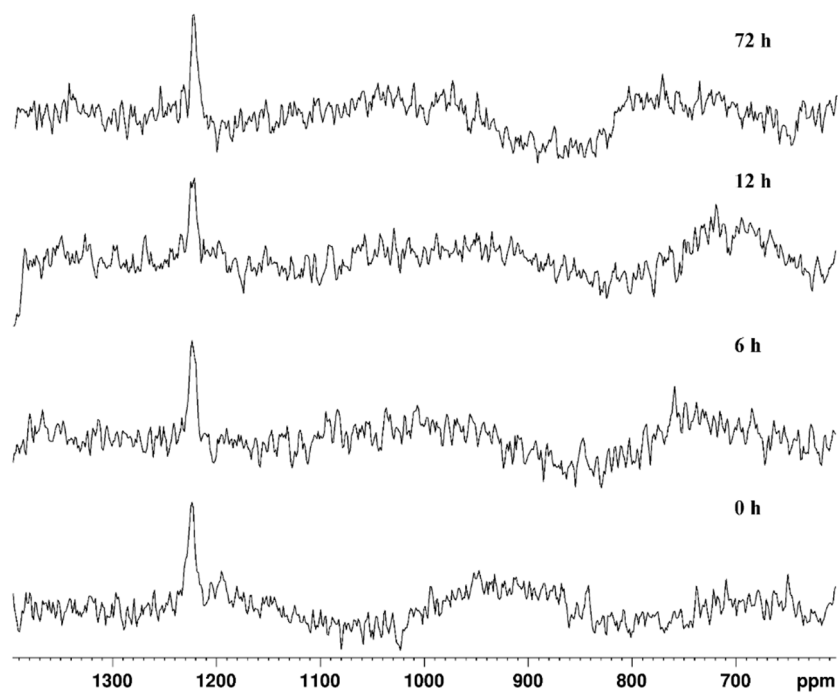


Figure S22. ^{195}Pt NMR spectra of complex **2** upon addition of glucose.

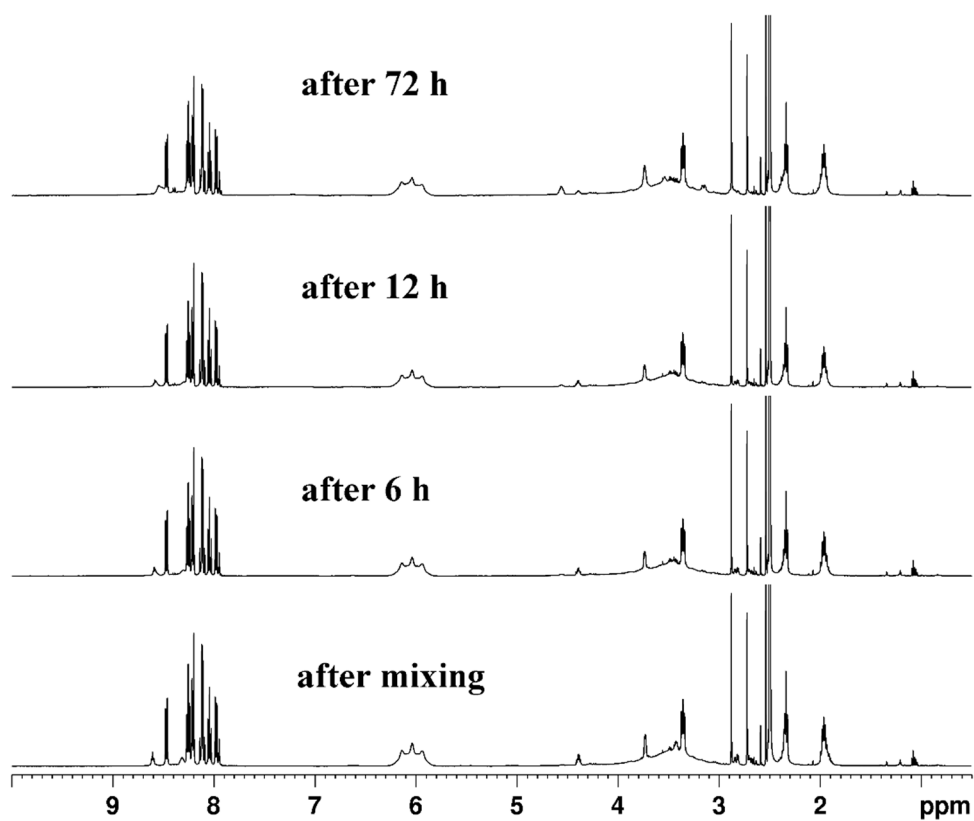


Figure S23. ^1H NMR spectra of complex **1** upon addition of glutathione .

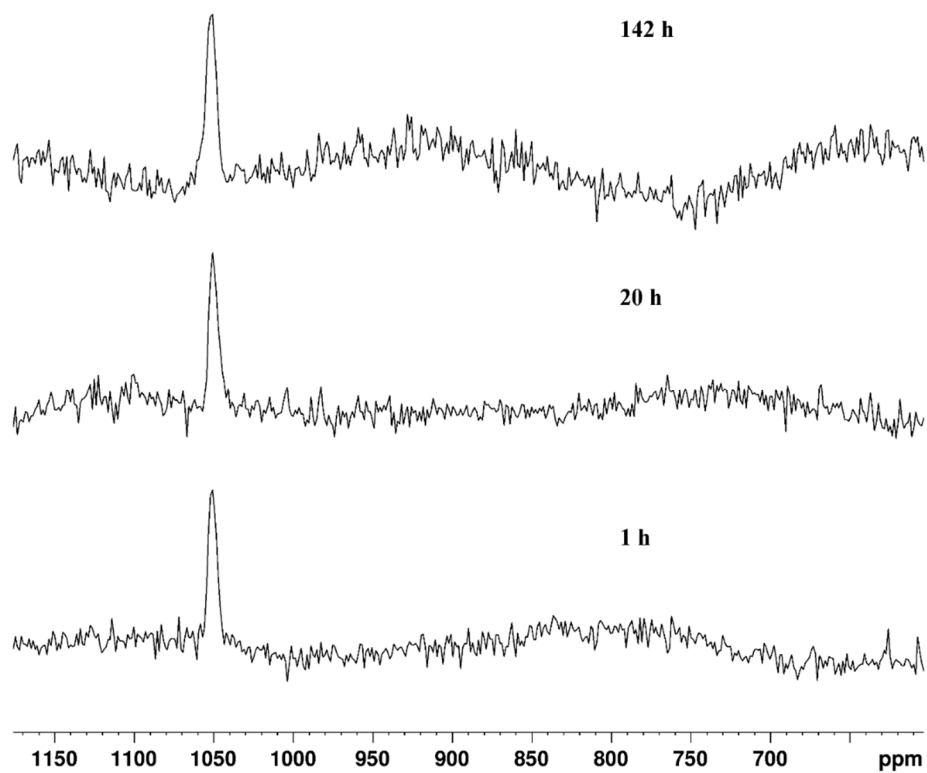


Figure S24. ^{195}Pt NMR spectra of complex **1** upon addition of glutathione.

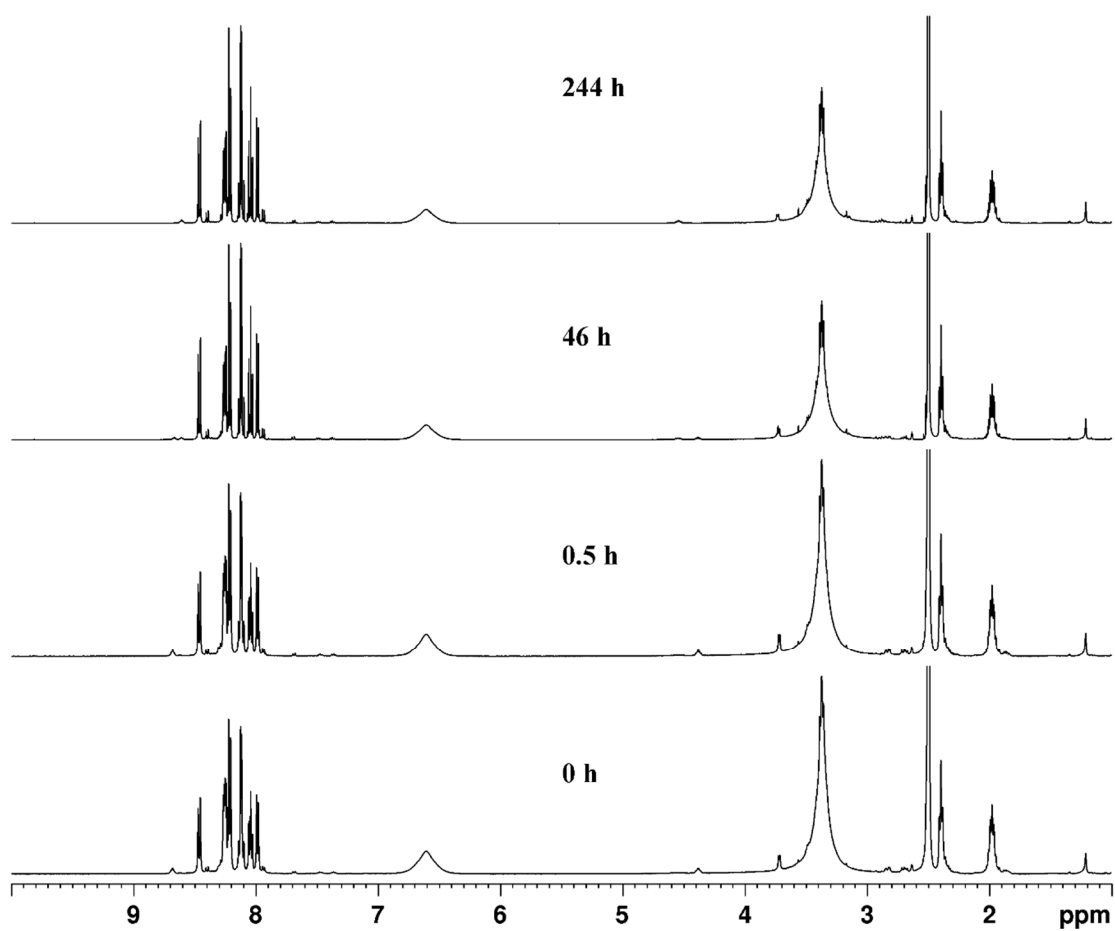


Figure S25. ^1H NMR spectra of complex **2** upon addition of glutathione.

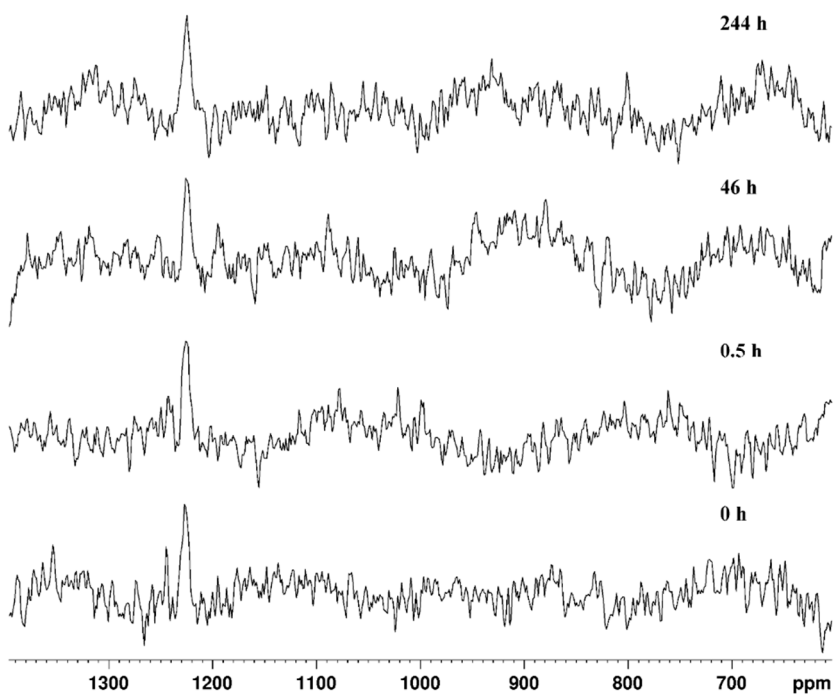


Figure S26. ^{195}Pt NMR spectra of complex **2** upon addition of glutathione

Platinum uptake data and LDH activity

Table S1. Pt uptake [in ng Pt/ 10⁶ cells] by HL-60 and HT-29 cells after 4 hours of incubation with 10 μ M solutions of complexes **1**, **2** and cisplatin (CDDP):

	Total Cellular Uptake	Cytosolic Fraction	Membrane/ Particulate Fraction	Nuclear Fraction	Cytoskeletal Fraction
HT-29_CDDP	19.8 \pm 1.0	2.9 \pm 0.1	3.3 \pm 0.2	0.8 \pm 0.01	5.8 \pm 0.2
HT-29_ 1	308.0 \pm 15.0	155.0 \pm 7.6	116.0 \pm 5.6	18.3 \pm 0.9	12.4 \pm 0.5
HT-29_ 2	80.9 \pm 4.0	8.4 \pm 0.4	33.0 \pm 1.4	5.7 \pm 0.2	34.5 \pm 1.5
HL-60_CDDP	30.8 \pm 1.3	5.1 \pm 0.3	3.8 \pm 0.2	1.1 \pm 0.1	16.8 \pm 0.7
HL-60_ 1	154.0 \pm 7.3	97.3 \pm 4.9	33.5 \pm 1.4	5.9 \pm 0.3	1.3 \pm 0.1
HL-60_ 2	255.0 \pm 12.5	47.9 \pm 2.4	60.1 \pm 2.8	6.1 \pm 0.3	134.0 \pm 6.0

Table S2. Pt uptake in cellular fractions [in pmol Pt/ μ g protein] of HL-60 and HT-29 cells after 4 hours of incubation with 10 μ M solutions of complexes **1**, **2** and cisplatin (CDDP).

	Total Cellular Uptake	Cytosolic Fraction	Membrane/ Particulate Fraction	Nuclear Fraction	Cytoskeletal Fraction
HT-29_CDDP	0.413 \pm 0.009	0.060 \pm 0.001	0.069 \pm 0.001	0.017 \pm 0.0001	0.121 \pm 0.001
HT-29_ 1	6.776 \pm 2.296	3.410 \pm 0.581	2.552 \pm 0.326	0.403 \pm 0.008	0.273 \pm 0.004
HT-29_ 2	1.435 \pm 0.103	0.149 \pm 0.001	0.585 \pm 0.017	0.101 \pm 0.001	0.612 \pm 0.019
HL-60_CDDP	1.305 \pm 0.085	0.216 \pm 0.002	0.161 \pm 0.001	0.047 \pm 0.0002	0.712 \pm 0.025
HL-60_ 1	10.964 \pm 0.610	6.927 \pm 0.299	2.385 \pm 0.184	0.420 \pm 0.009	0.093 \pm 0.001
HL-60_ 2	10.803 \pm 0.535	2.029 \pm 0.206	2.546 \pm 0.124	0.258 \pm 0.003	5.677 \pm 0.611

Table S3. Total protein content in HL-60 and HT-29 cells after 4 hours of incubation with 10 μ M solutions of complexes **1**, **2** and cisplatin (CDDP). Ko stands for untreated control cells.

Compounds	Total Protein [μ g]	
	Total	STDEV
HT-29_ Ko	260	6,8
HT-29_CDDP	246	6,7
HT-29_ Compl. 1	233	9,6
HT-29_ Compl. 2	289	9,5
HL-60_ Ko	137	3,8
HL-60_CDDP	121	1,4
HL-60_ Compl. 1	72	2,7
HL-60_ Compl. 2	121	1,1

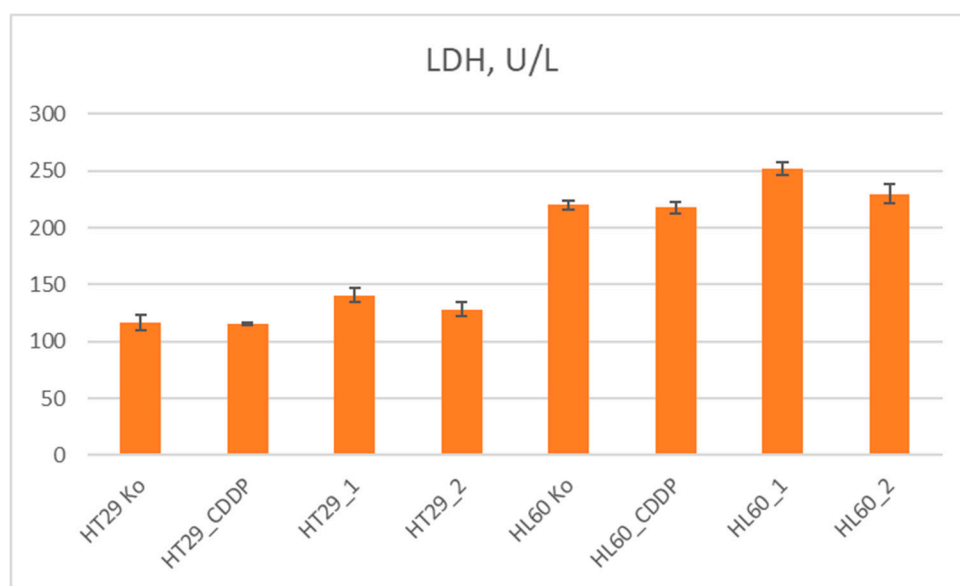


Figure S27. LDH activity data in the supernatants of the HL-60 and HT-29 cells after 4 hours of incubation with 10 μ M solutions of complexes **1**, **2** and cisplatin (CDDP). Ko stands for untreated control cells.