Electronic Supplementary Material (ESI) for Metallomics

Supporting Information for

A Dual-Targeting, p53-Independent, Apoptosis-Inducing Platinum(II) Anticancer Complex, [Pt(BDI^{QQ})]Cl

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Content

Table S1. IC_{50} values (μM) of $BDI^{QQ}H$ against various cancerous and healthy cell lines. The errors represent standard deviations.

Cell line	Cancer type	$BDI^{QQ}H$
A549	Lung carcinoma	> 100
A2780	Ovarian carcinoma	53.0 ± 0.6
A2780CP70	Ovarian carcinoma	46.5 ± 6.9
MRC-5	Lung fibroblast	67.3 ± 10.0

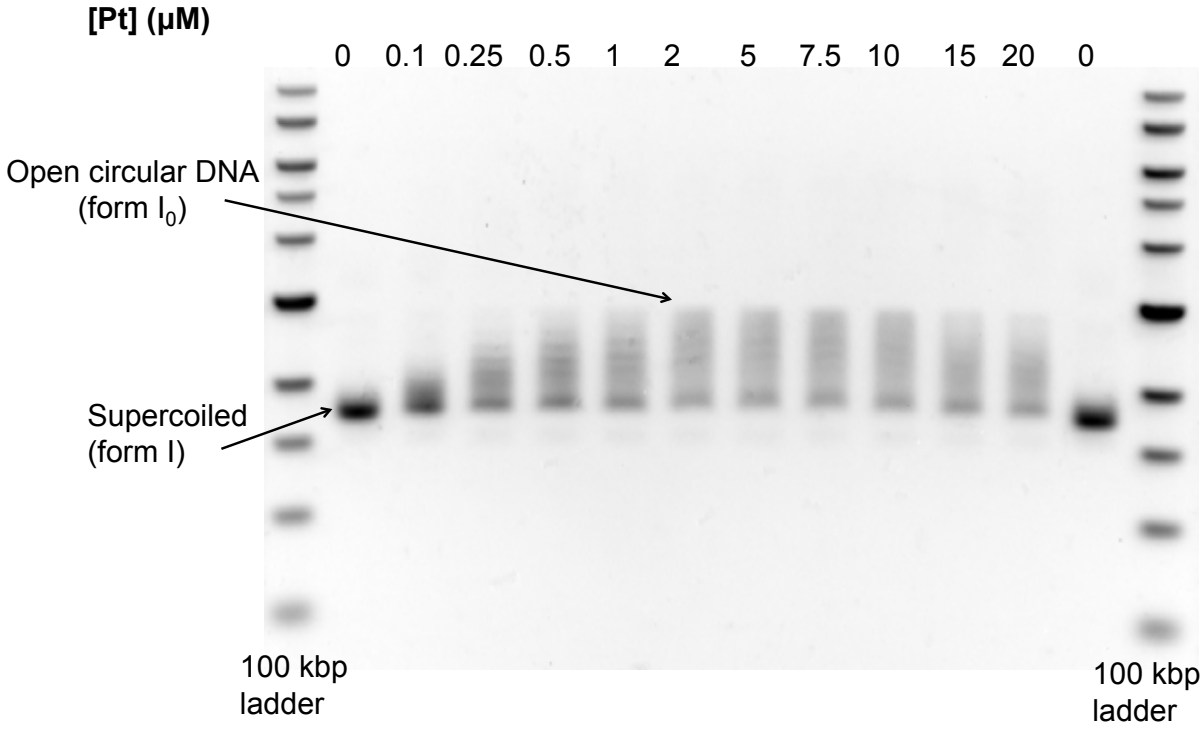

Figure S1. Agarose gel electrophoresis of pUC18 DNA treated with $[Pt(BDI^{QQ})]Cl$ after 6 h incubation at 37 °C. Lane 1: DNA ladder; lane 2: DNA only; lanes 3-12: DNA + 0.1, 0.25, 0.5, 1, 2, 5, 7.5, 10, 15, and 20 μM of $[Pt(BDI^{QQ})]Cl$; lane 13: DNA only; lane 14: DNA ladder.

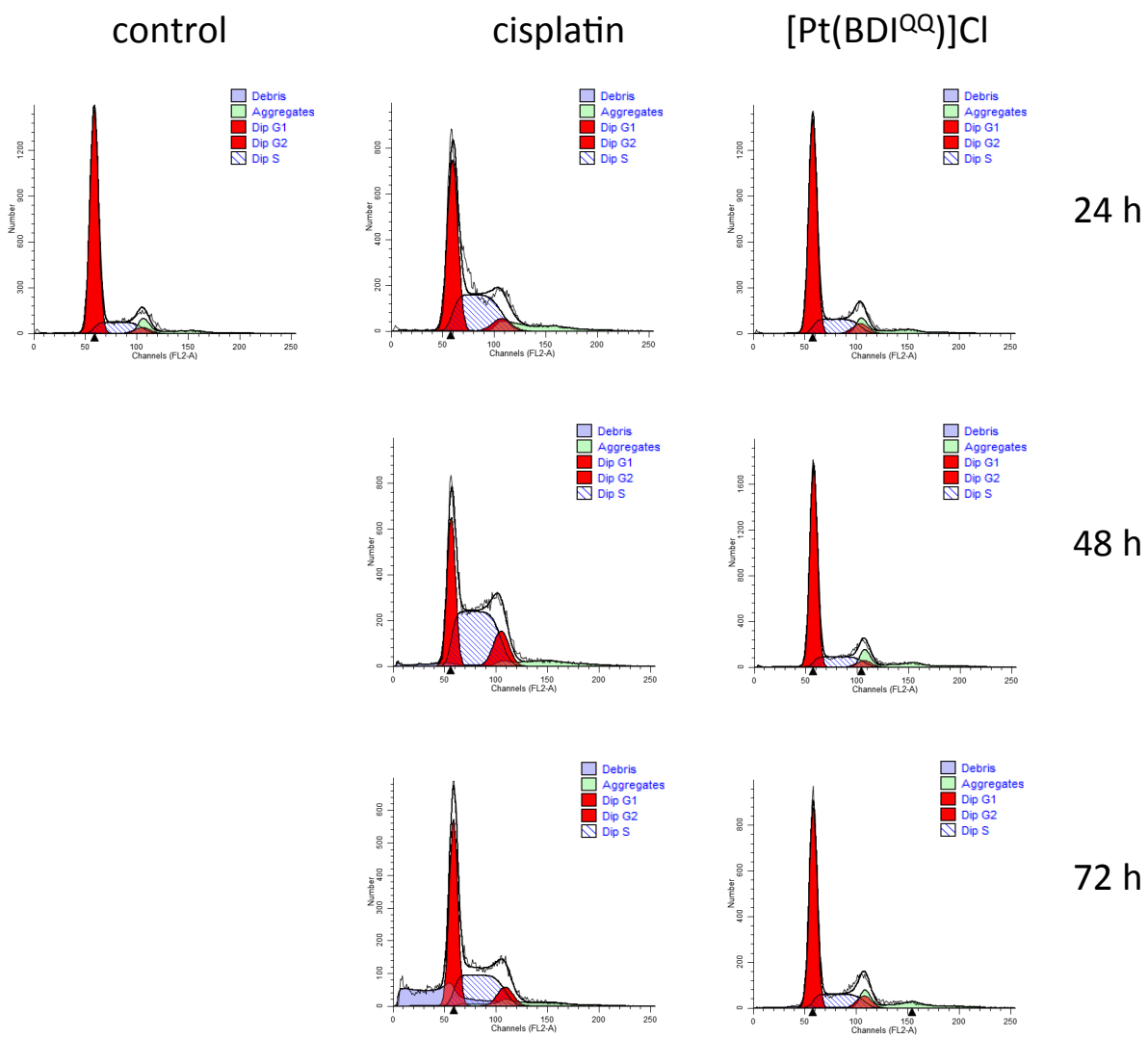

Figure S2. Histogram representing the different phases of the cell cycle for A549 cells in the absence and presence of cisplatin (5 µM) or [Pt(BDI^{QQ})]Cl (2 µM) over the course of 72 h. untreated control: G1: 78.2%, S: 18.1%, G2/M: 3.7%. 24 h treated with cisplatin: G1: 51.7%, S: 41.6%, G2/M: 6.7%. 48 h treated with cisplatin: G1: 31.3%, S: 55.1%, G2/M: 13.6%. 72 h treated with cisplatin: G1: 50.0%, S: 40.5%, G2/M: 9.4%, Debris: 23.7%. 24 h treated with [Pt(BDI^{QQ})]Cl: G1: 71.7%, S: 22.2%, G2/M: 6.0%. 48 h treated with [Pt(BDI^{QQ})]Cl: G1: 74.7%, S: 20.6%, G2/M: 6.3%. 72 h treated with [Pt(BDI^{QQ})]Cl: G1: 68.1%, S: 24.4%, G2/M: 7.5%,

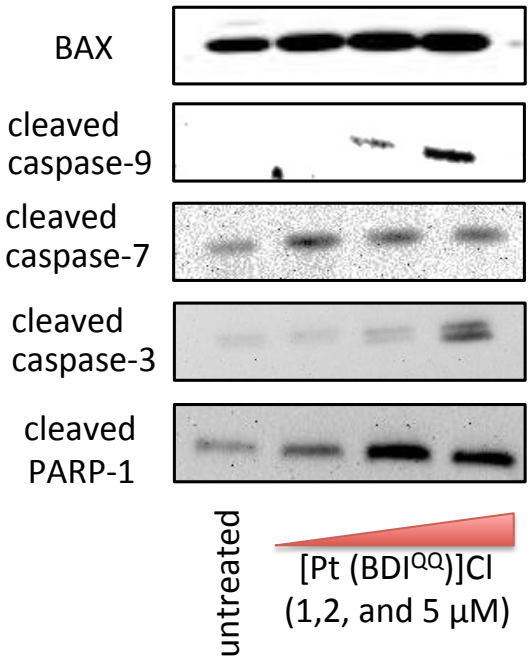

Figure S3. Immunoblotting analysis of proteins related to the apoptosis pathway. Protein expression in A549 cells following treatment with Pt(BDI^{QQ})]Cl (1–5 µM) after 72 h incubation. Whole cell lysates were resolved by SDS-PAGE and analyzed by immunoblotting against BAX, cleaved caspase-9, cleaved caspase-7, cleaved caspase-3, and cleaved PARP-1.

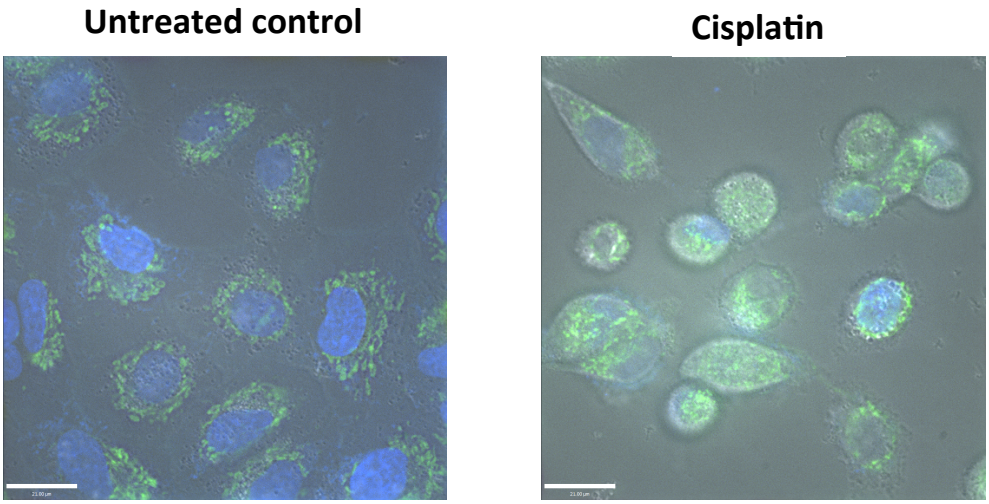

Figure S4. Fluorescence microscopy images of A549 cells untreated and treated with cisplatin (2 µM for 12 h), and then stained with Hoechst 33258 and MitoTracker Green. Scale bar = 21 µm.

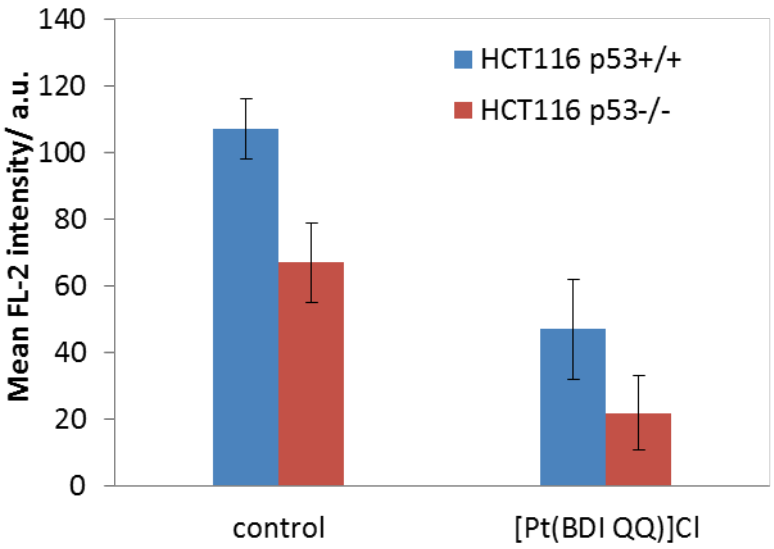

Figure S5. The mean intensity of red fluorescence emitted by JC-1 stained HCT116 p53+/+ and HCT116 p53-/- cells in the absence or presence of [Pt(BDI^{QQ})]Cl (5 μM for 48 h).

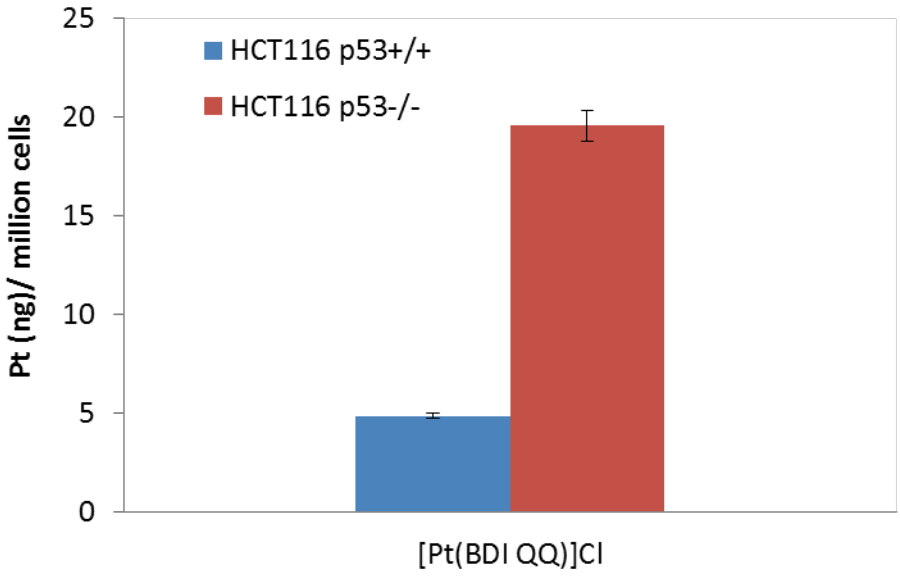

Figure S6. Platinum content in the mitochondria extracted from HCT116 p53+/+ and HCT116 p53-/- cells dosed with [Pt(BDI^{QQ})]Cl (10 μM for 12 h).

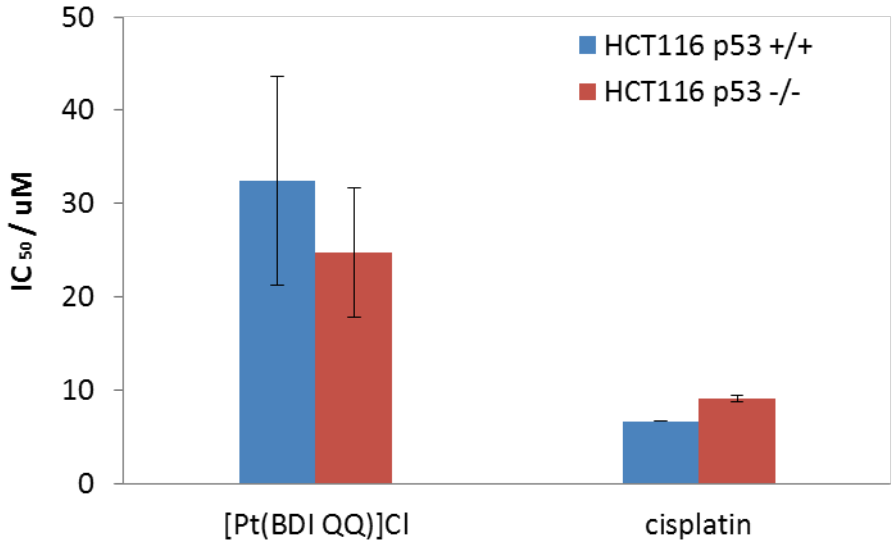

Figure S7. IC_{50} values (in μM) of [Pt(BDI^{QQ})]Cl and cisplatin against HCT116 p53+/+ and HCT116 p53-/- cells after 72 h incubation.

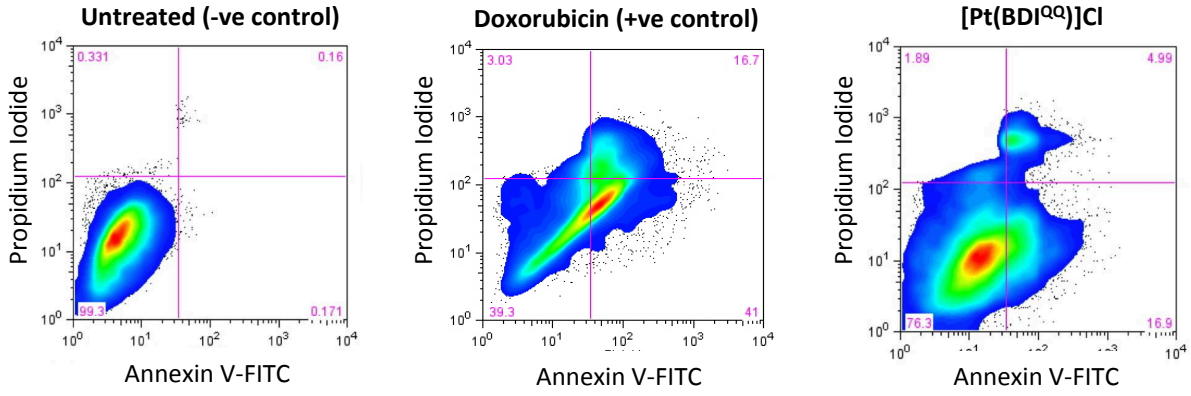

Figure S8. Representation of FITC Annexin V/PI binding assay plots of untreated cells (-ve control), cells treated with doxorubicin (0.5 μM for 12 h), and Pt(BDI^{QQ})]Cl (5 μM for 72 h).

Table S2. Data obtained from the FITC Annexin V/PI binding assay. Lower right quadrant represents cells undergoing early-stage apoptosis.

Quadrant	Untreated	Doxorubicin	Pt(BDI^{QQ})]Cl
Upper left	1.03 ± 0.99	0.79 ± 0.29	2.40 ± 0.71
Upper Right	1.27 ± 1.56	9.54 ± 4.85	3.52 ± 2.00
Lower Left	96.45 ± 4.03	53.65 ± 23.83	80.85 ± 6.43
Lower Right	1.21 ± 1.47	36.05 ± 15.34	13.27 ± 5.13

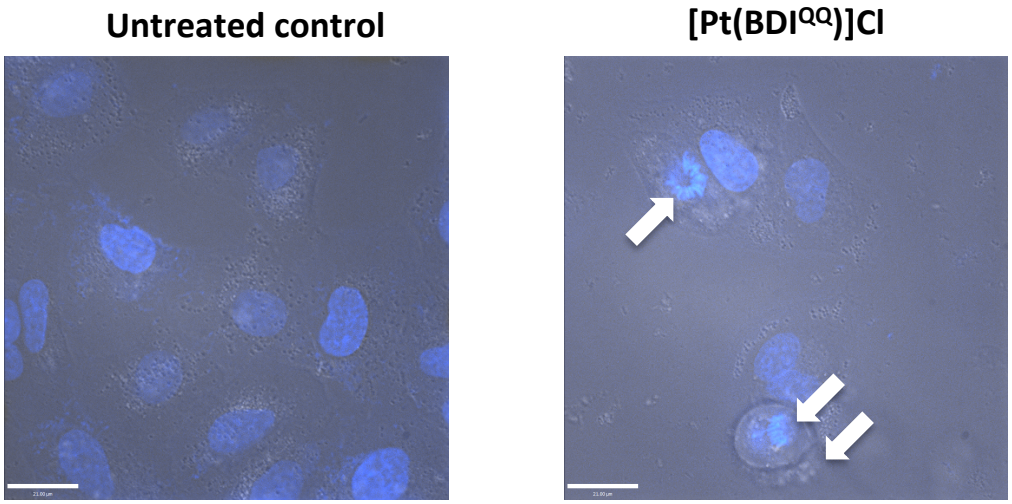

Figure S9. Fluorescence microscopy images of A549 cells untreated and treated with [Pt(BDI^{QQ})]Cl (20 μM for 12 h), and then stained with Hoechst 33258. The arrows indicate membrane blebbing and nuclear regions with intense staining. Scale bar = 21 μm.