

SUPPORTING INFORMATION

Folate-Conjugation to Polymeric Micelles *via* Boronic Acid Ester to Deliver Platinum Drugs to Ovarian Cancer

Wei Scarano, Hien T.T Duong, Hongxu Lu, Paul De Souza, Martina H. Stenzel

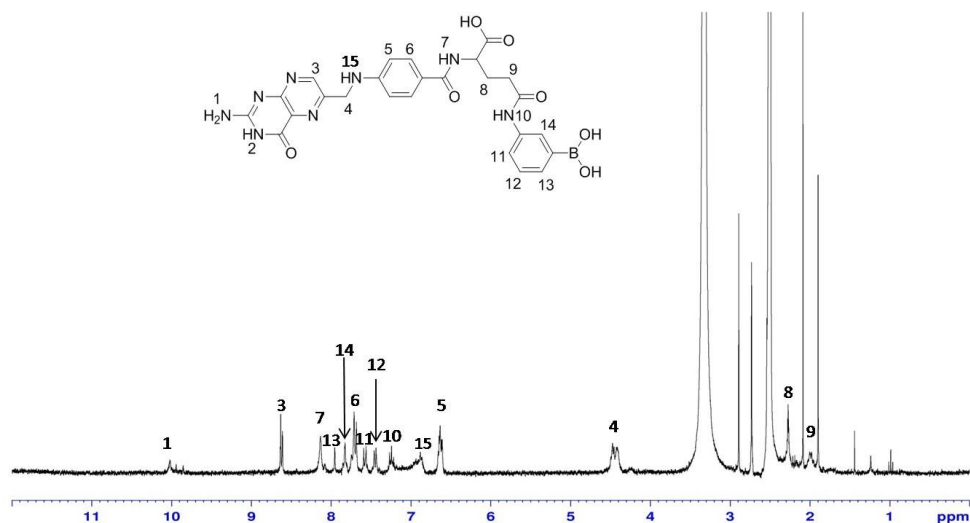


Figure S 1 ^1H -NMR of boronate folic acid in $\text{DMSO}-d_6$

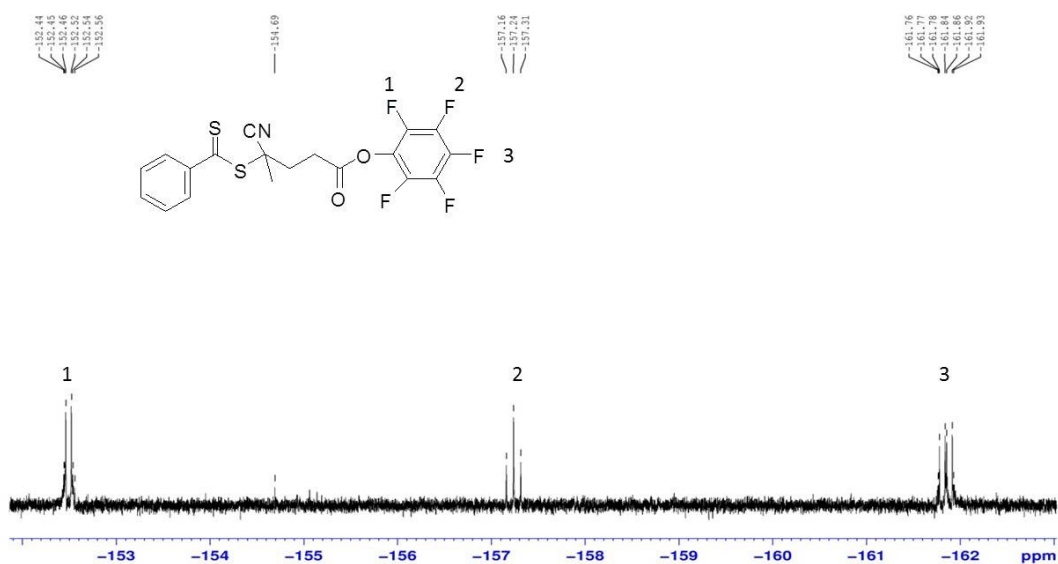


Figure S 2 ^{19}F -NMR of pentafluoro activated RAFT agent in CDCl_3

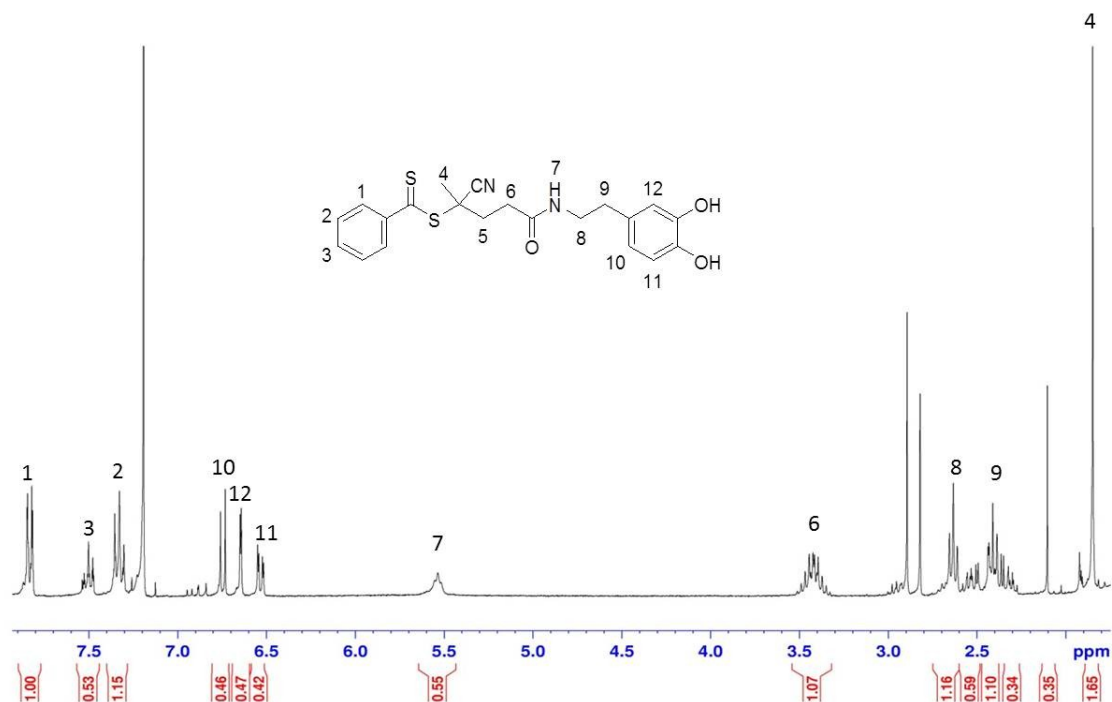


Figure S 3 ^1H -NMR of dopamine terminated RAFT agent in CDCl_3

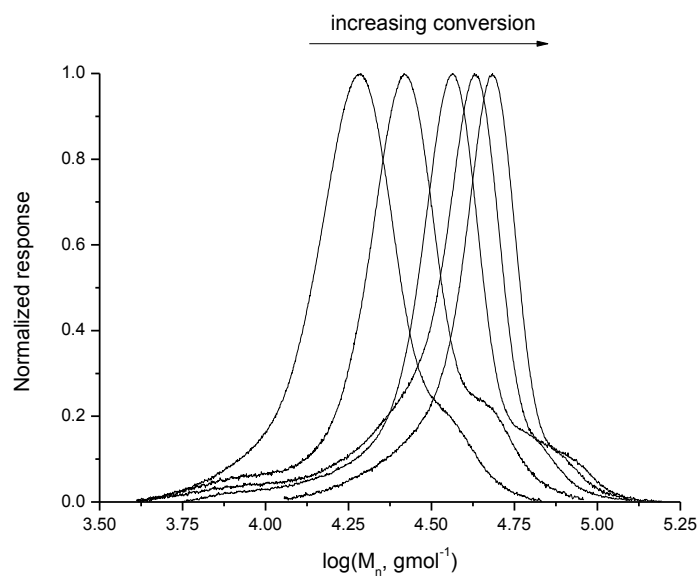


Figure S4. SEC profiles of POEGMEMA-Pt-BMA at 18, 29, 40, 50, and 62.7% monomer *t*-BMA conversions RAFT copolymerization of POEGMAmacroRAFT ($8,000 \text{ g mol}^{-1}$) in DMSO at 70°C

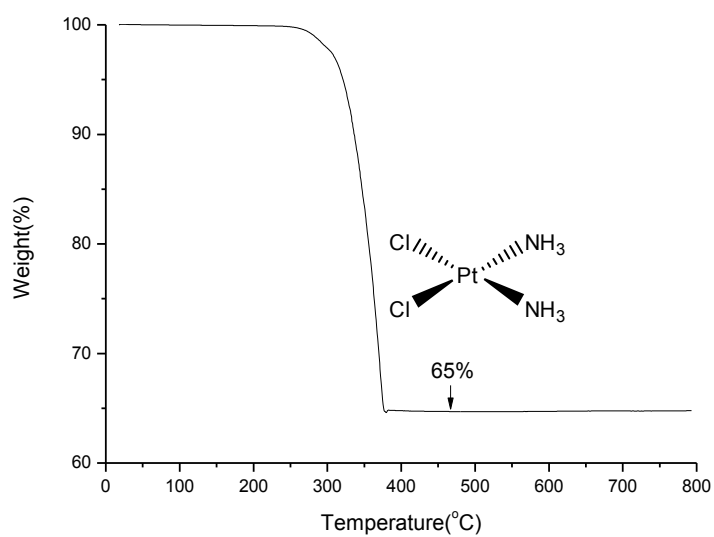


Figure S 5 TGA analysis of cisplatin

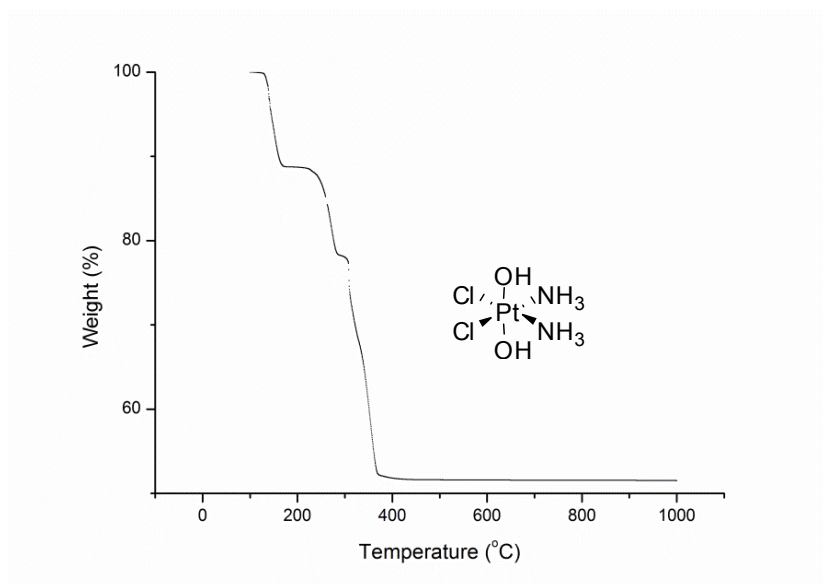


Figure S 6 TGA analysis of oxoplatin

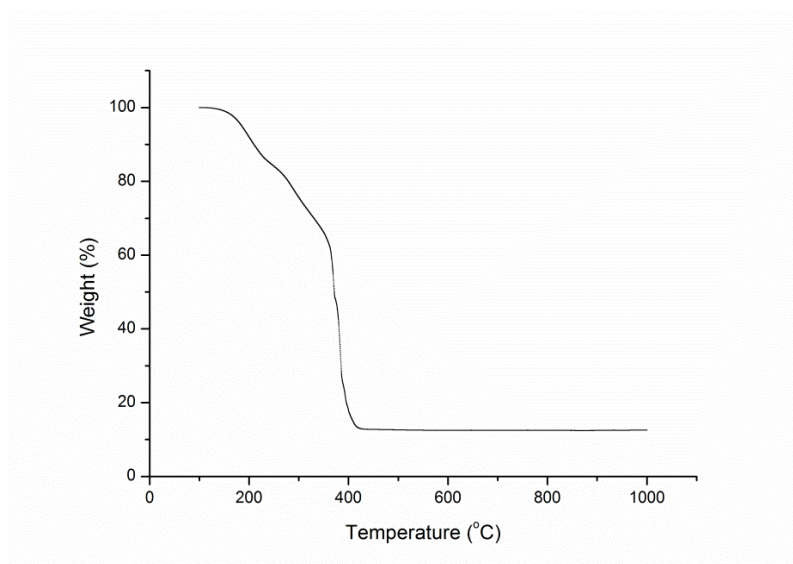


Figure S 7 TGA analysis of PEGMEMA₃₅-b-MAA₂₀₀-Pt

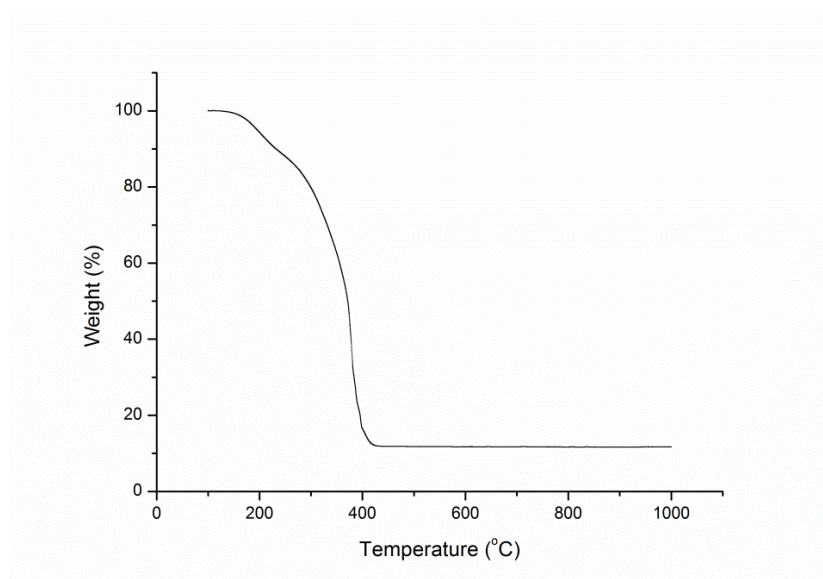


Figure S 8 TGA analysis of PEGMEMA₂₆-b-MAA₉₀-Pt

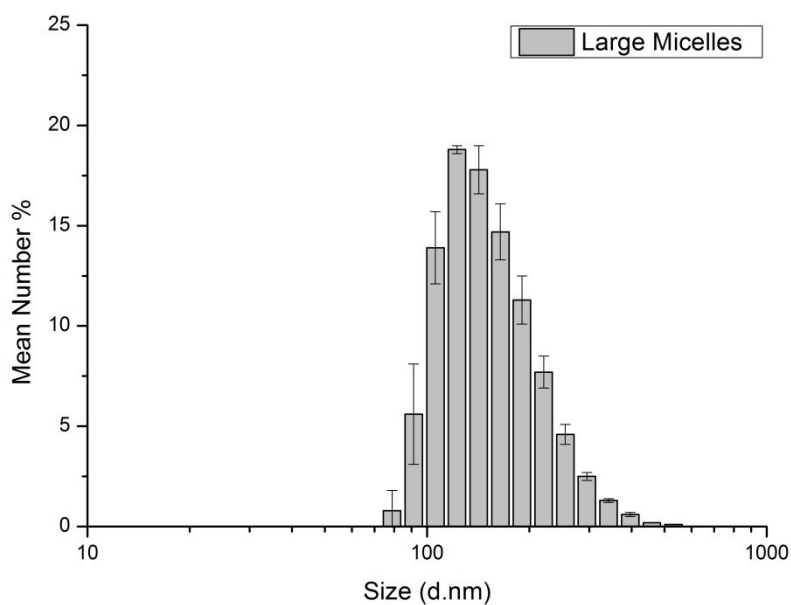


Figure S 9 Hydrodynamic diameter of large micelles obtained via DLS of POEGMEMA₃₅-b-PMAA₂₀₀-Pt

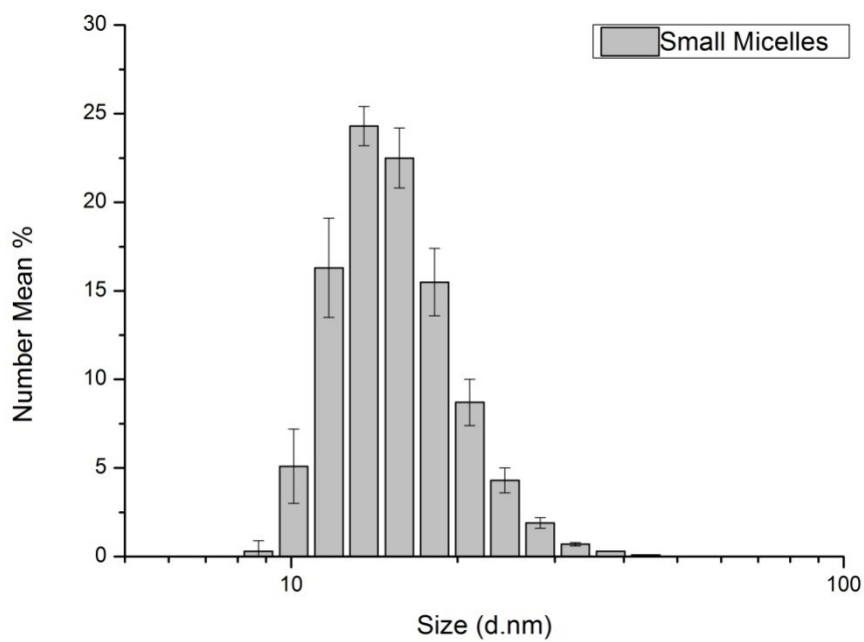


Figure S 10 Hydrodynamic diameter of small micelles obtained via DLS of POEGMEMA₂₆-b-PMAA₉₀-Pt

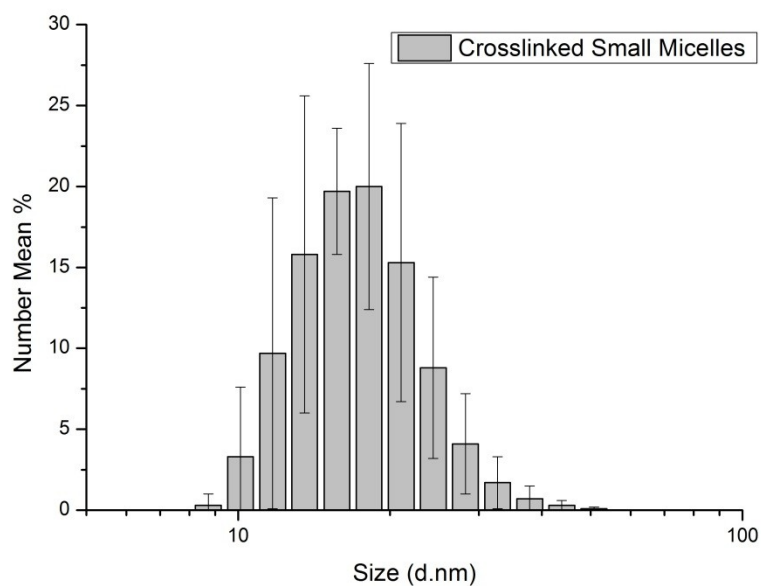


Figure S 11 Hydrodynamic diameter of crosslinked small micelles obtained via DLS of $POEGMEMA_{26}$ - b - $PMAA_{90}$ -Pt crosslinked

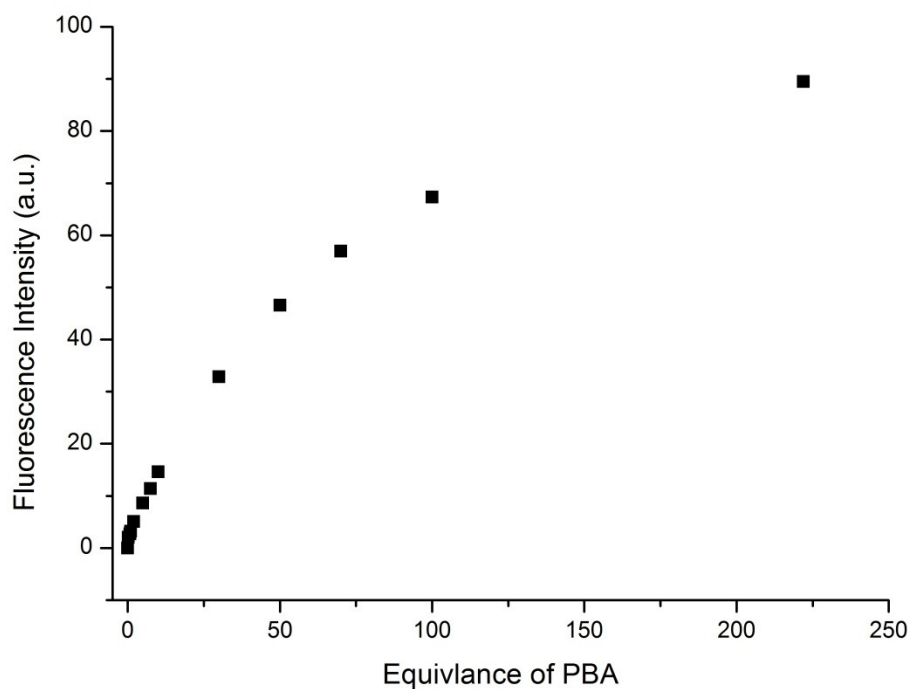


Figure S 12 Fluorescence intensity increases (Exc. $\lambda=468$ nm, Em. $\lambda=572$ nm) of ARS (1.0×10^{-4} M) in the presence of phenylboronic acid (pH 7.4, 0.10 M phosphate buffer).

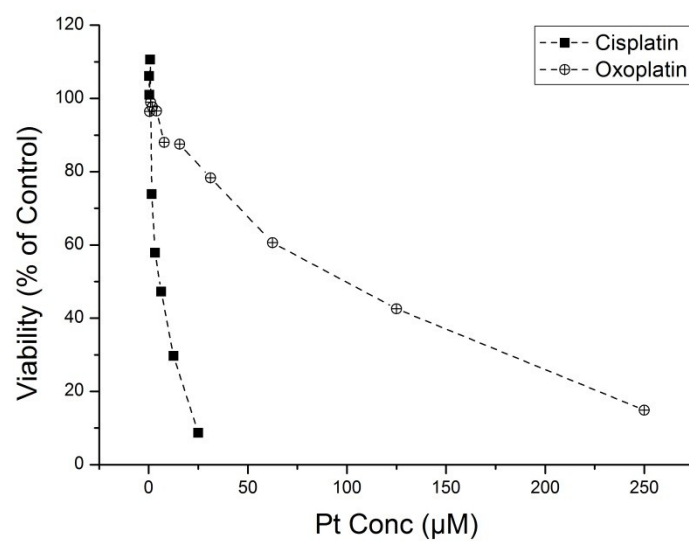


Figure S 13 Cytotoxicity of cisplatin and oxoplatin against A549 human lung carcinoma for 48 h.

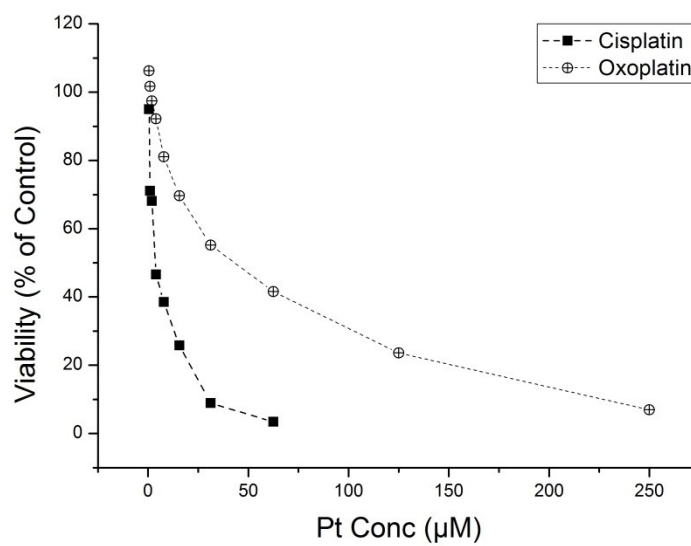


Figure S 14 Cytotoxicity of cisplatin and oxoplatin against OVCAR-3 human ovarian carcinoma for 48 h.

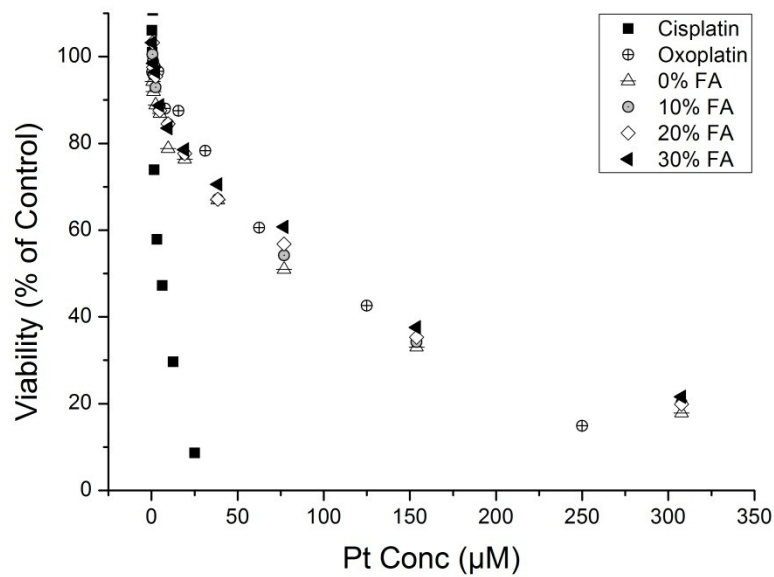


Figure S 15 Cytotoxicity profile of large micelles (150 nm) against A549 lung cancer cells after 48 h.

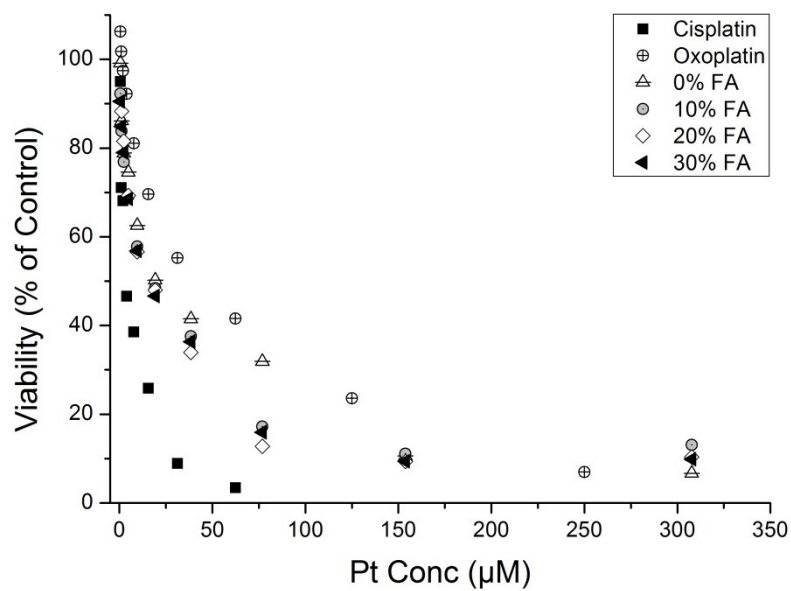


Figure S 16 Cytotoxicity profile of large micelles (150 nm) against OVCAR-3 ovarian cancer cells after 48 h.

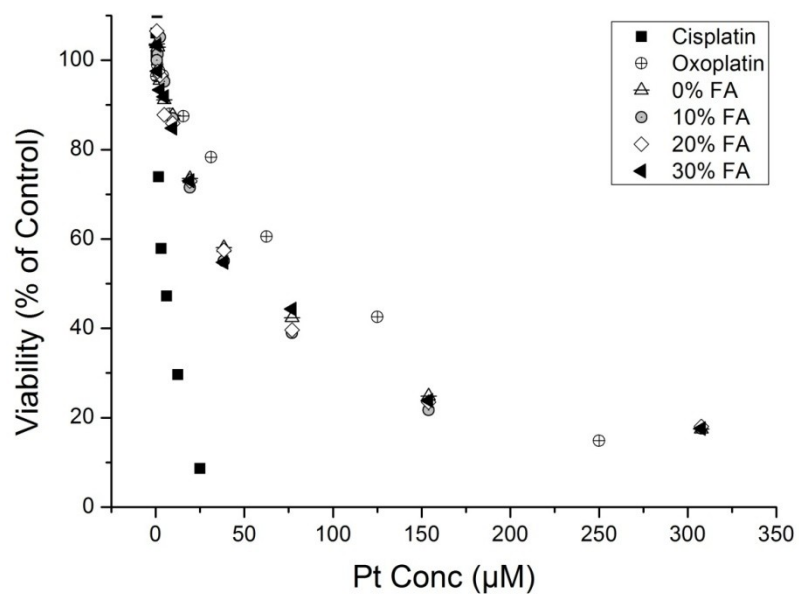


Figure S 17 Cytotoxicity profile of small micelles (20 nm) against A549 lung cancer cells after 48 h.

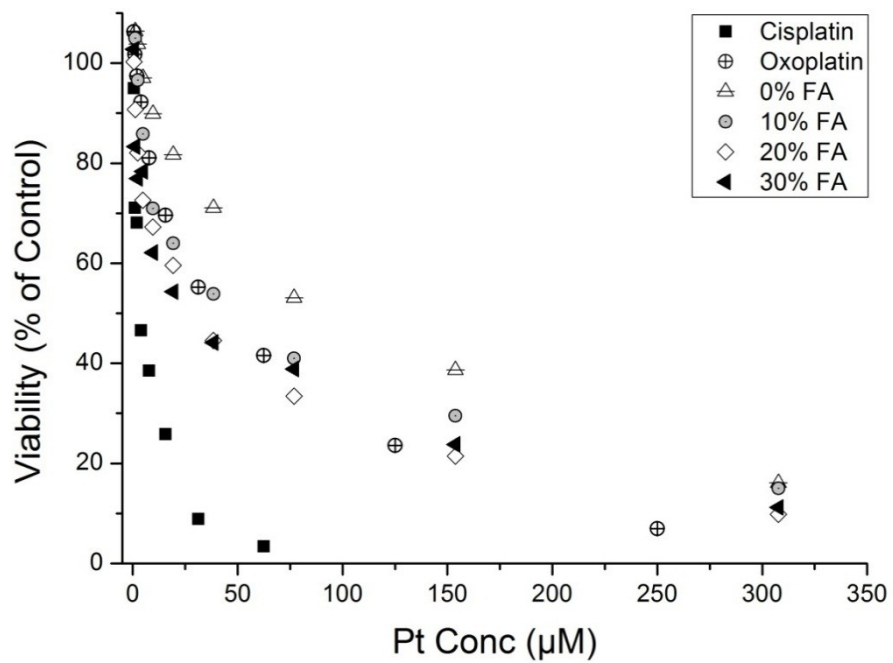


Figure S 18 Cytotoxicity profile of small micelles (20 nm) against OVCAR-3 ovarian cancer cells after 48 h.

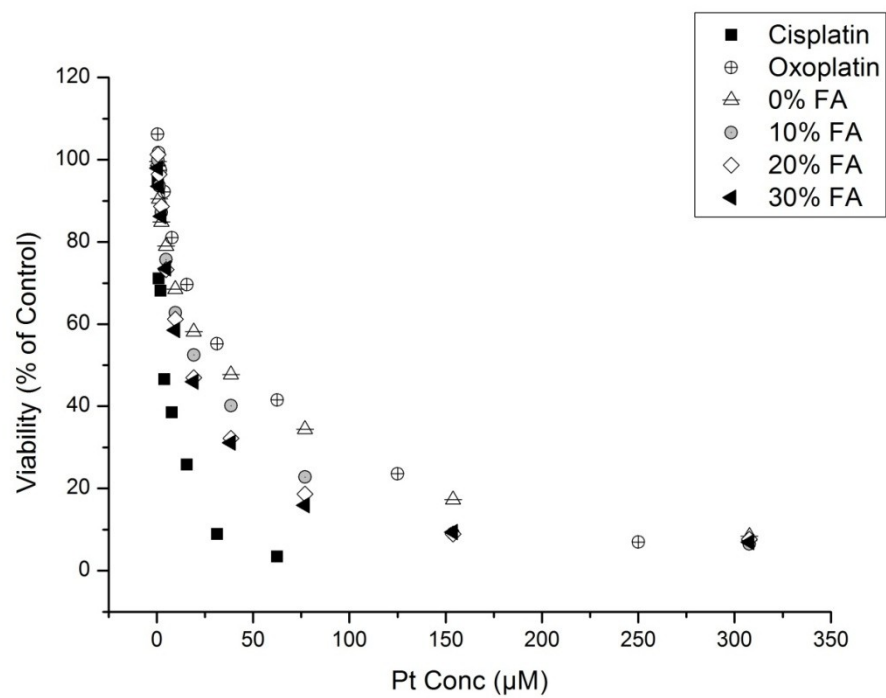


Figure S 19 Cytotoxicity profile of crosslinked small micelles (20 nm) against OVCAR-3 ovarian cancer cells after 48 h.

Table 1 Cell growth inhibition studies for large micelles (150 nm) with A549 human lung carcinoma in folate free RPMI1640 media

Pt Conc (μM)	0% FA	Error %	10% FA	Error %	20% FA	Error %	30% FA	Error %
307.69	17.85	± 5.81	20.17	± 6.97	19.85	± 5.01	21.56	± 5.19
153.85	33.03	± 2.41	34.19	± 5.92	35.28	± 7.56	37.56	± 8.74
76.92	50.96	± 3.19	54.21	± 6.45	56.84	± 7.75	60.75	± 5.95
38.46	66.97	± 2.85	67.14	± 2.62	67.14	± 6.20	70.56	± 6.69
19.23	76.36	± 6.48	77.68	± 6.31	77.68	± 7.48	78.56	± 3.06
9.62	78.84	± 3.83	84.49	± 2.34	84.49	± 2.74	83.54	± 4.68
4.81	86.93	± 4.00	88.34	± 6.30	87.56	± 3.97	88.75	± 6.17
2.40	88.85	± 2.34	92.91	± 4.90	95.44	± 2.01	96.45	± 7.55
1.20	91.96	± 3.31	95.72	± 4.81	97.52	± 7.47	98.45	± 3.21
0.60	94.24	± 2.68	100.49	± 5.34	103.24	± 4.29	103.24	± 3.02

Table 2 Cell growth inhibition studies for large micelles (150 nm) with OVCAR-3 human ovarian carcinoma in folate free RPMI1640 media

Pt Conc (μM)	0% FA	Error %	10% FA	Error %	20% FA	Error %	30% FA	Error %
307.69	6.66	± 6.39	13.08	± 2.01	10.34	± 4.88	9.85	± 2.77
153.85	10.55	± 5.27	11.07	± 2.87	9.38	± 6.76	9.41	± 4.36
76.92	31.88	± 7.49	17.22	± 6.01	12.78	± 2.37	15.95	± 6.37
38.46	41.49	± 6.86	37.59	± 7.96	33.90	± 3.25	36.35	± 2.47
19.23	50.24	± 4.32	48.40	± 3.53	48.00	± 2.96	46.66	± 6.02
9.62	62.54	± 7.33	57.79	± 6.68	56.65	± 7.83	56.85	± 7.88
4.81	74.56	± 3.22	69.10	± 5.93	69.29	± 3.80	68.56	± 3.58
2.40	78.86	± 4.31	76.88	± 3.02	81.57	± 2.81	79.02	± 4.35
1.20	86.09	± 3.22	83.81	± 4.00	88.25	± 4.87	84.87	± 2.67
0.60	99.10	± 1.81	92.26	± 3.17	114.02	± 4.87	90.53	± 2.76

Table 3 Cell growth inhibition studies for small micelles (20 nm) with A549 human lung carcinoma in folate free RPMI1640 media

Pt Conc (μM)	0% FA	Error %	10% FA	Error %	20% FA	Error %	30% FA	Error %
307.69	17.46	± 5.58	17.59	± 6.20	18.04	± 4.55	17.58	± 4.96
153.85	24.83	± 4.90	21.72	± 5.15	23.52	± 3.49	23.86	± 6.17
76.92	42.35	± 6.09	38.99	± 8.89	39.62	± 6.14	44.32	± 5.33
38.46	58.06	± 5.00	55.09	± 7.05	57.50	± 3.16	54.78	± 4.82
19.23	73.51	± 6.05	71.51	± 6.80	73.00	± 3.40	73.03	± 7.59
9.62	87.60	± 3.49	86.98	± 9.55	85.89	± 9.36	84.78	± 2.19
4.81	91.13	± 1.18	95.21	± 9.15	87.80	± 4.86	91.85	± 6.36
2.40	95.49	± 2.49	105.16	± 2.25	96.63	± 8.58	93.36	± 2.52
1.20	102.92	± 2.46	101.37	± 4.63	97.46	± 8.31	97.53	± 2.45
0.60	103.63	± 1.56	100.00	± 3.83	106.51	± 4.32	103.37	± 2.50

Table 4 cell growth inhibition studies for small micelles (20 nm) with OVCAR-3 human ovarian carcinoma in folate free RPMI media

Pt Conc (μM)	0% FA	Error %	10% FA	Error %	20% FA	Error %	30% FA	Error %
307.69	16.13	± 6.56	15.01	± 4.81	9.81	± 3.87	11.22	± 3.20
153.85	38.67	± 4.06	29.52	± 5.73	21.43	± 5.33	23.81	± 3.88
76.92	53.12	± 8.59	40.97	± 7.32	33.41	± 2.19	38.86	± 2.99
38.46	71.09	± 2.97	53.87	± 3.67	44.55	± 4.99	44.14	± 8.74
19.23	81.72	± 9.16	64.02	± 6.72	59.59	± 4.12	54.31	± 4.40
9.62	89.89	± 3.17	70.93	± 5.35	67.27	± 5.87	62.15	± 8.85
4.81	97.04	± 3.28	85.81	± 6.14	72.61	± 6.39	78.39	± 4.95
2.40	103.80	± 7.83	96.59	± 4.88	82.04	± 3.36	76.97	± 5.93
1.20	106.40	± 4.36	104.97	± 4.08	90.71	± 6.68	83.33	± 6.81
0.60	115.63	± 4.93	112.95	± 3.21	100.26	± 2.01	102.77	± 2.76

Table 5 Cell growth inhibition studies for small crosslinked micelles (20nm) with OVCAR-3 human ovarian

Pt Conc (μ M)	0% FA	Error %	10% FA	Error %	20% FA	Error %	30% FA	Error %
307.69	8.36	± 4.44	6.55	± 3.37	7.70	± 4.55	6.95	± 2.21
153.85	17.31	± 5.22	9.03	± 6.23	8.96	± 4.48	9.41	± 4.58
76.92	34.38	± 5.34	22.77	± 3.59	18.65	± 6.18	15.95	± 6.71
38.46	47.78	± 4.61	40.13	± 6.18	32.18	± 3.30	31.12	± 2.00
19.23	58.19	± 2.91	52.52	± 2.06	46.96	± 6.86	45.97	± 2.31
9.62	68.56	± 6.63	62.76	± 3.86	61.25	± 2.58	58.58	± 5.19
4.81	79.02	± 2.47	75.68	± 4.44	73.25	± 5.38	73.54	± 5.43
2.40	84.87	± 5.66	87.23	± 6.88	88.65	± 2.95	86.22	± 2.18
1.20	90.53	± 2.15	93.69	± 3.88	96.46	± 1.31	93.55	± 4.16
0.60	99.54	± 2.14	99.94	± 4.08	101.24	± 2.44	97.95	± 6.31

carcinoma in folate free RPMI1640 media

Table 6 Cell growth inhibition studies for small crosslinked micelles (20nm) with OVCAR-3 human ovarian carcinoma in normal RPMI1640 media

Pt Conc (μ M)	0% FA	Error %	10% FA	Error %	20% FA	Error %	30% FA	Error %
1230.77	17.84	± 4.57	8.94	± 8.04	11.08	± 4.30	13.18	± 3.17
615.38	25.42	± 7.44	21.15	± 6.34	16.03	± 3.59	22.09	± 8.85
307.69	31.42	± 2.87	28.89	± 4.05	25.11	± 6.75	27.41	± 6.62
153.85	37.52	± 3.06	34.14	± 7.48	28.06	± 4.41	32.82	± 8.25
76.92	40.20	± 2.69	39.38	± 6.03	32.07	± 7.11	35.19	± 3.00
38.46	46.12	± 7.11	52.72	± 8.23	39.56	± 2.31	40.43	± 4.50
19.23	64.14	± 8.38	67.67	± 4.26	53.38	± 6.20	59.49	± 2.54
9.62	75.51	± 5.13	77.82	± 3.45	64.56	± 8.82	66.45	± 4.40
4.81	84.10	± 3.95	86.41	± 6.09	82.81	± 3.12	74.06	± 2.25
2.40	88.63	± 2.38	92.61	± 4.28	112.66	± 2.71	85.35	± 3.16