

Supporting information

Synthesis and Characterization of Nitric Oxide-Releasing Platinum (IV) Prodrug and Polymeric Micelle Triggered by Light

Swapan Pramanick,^{†,#} Jihoon Kim,^{‡,#} Jinhwan Kim,[‡] Gurusamy Saravanakumar,[‡] Dongsik Park,[†] and Won Jong Kim^{,†}*

[†]Department of Chemistry, Pohang University of Science and Technology (POSTECH), 77 Cheongam-ro, Nam-gu, Pohang 37673, Republic of Korea

[‡]Center for Self-assembly and Complexity, Institute for Basic Science, 77 Cheongam-ro, Nam-gu, Pohang 37673, Republic of Korea

These authors contributed equally to this work.

*Corresponding author. Tel.: +82-54-279-2104; fax: +82-54-279-3399

E-mail address: wjkim@postech.ac.kr

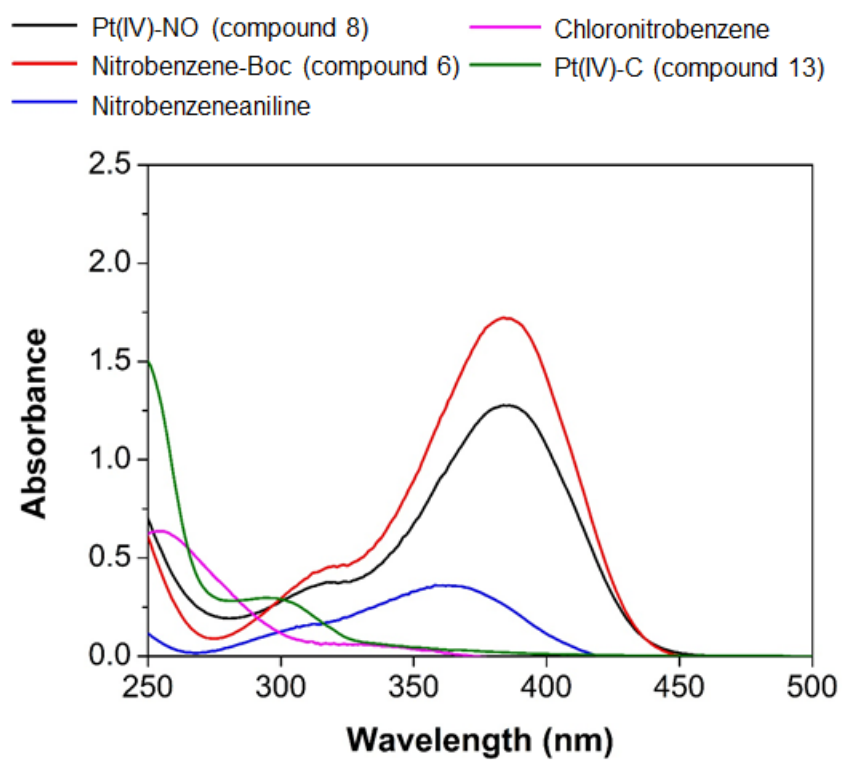


Fig. S1 UV-vis spectra of Pt(IV)-NO, nitrobenzene-Boc, nitrobenzeneaniline, chloronitrobenzene and Pt(IV)-C at concentration of 0.05 mg/mL.

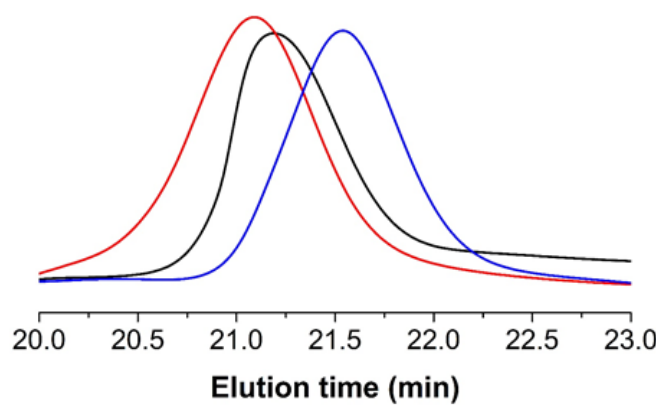


Fig. S2 GPC profile of E-polymer (red line), C-polymer (black line) and PEG-NH₂ macroinitiator (blue line).

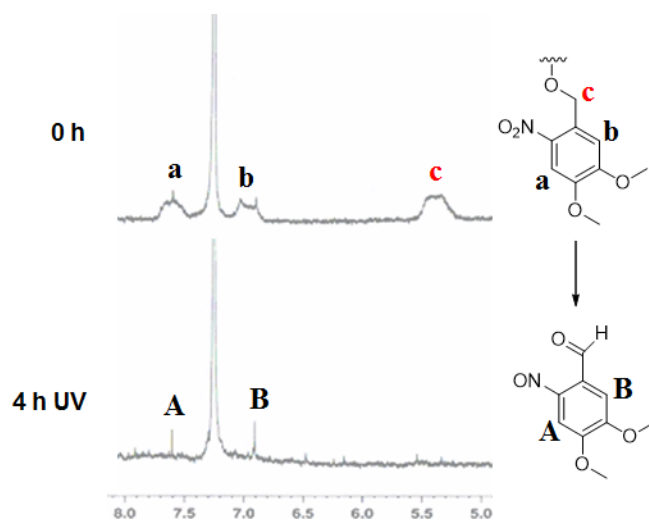


Fig. S3 ¹H NMR of E-polymer in CDCl₃ after light irradiation.

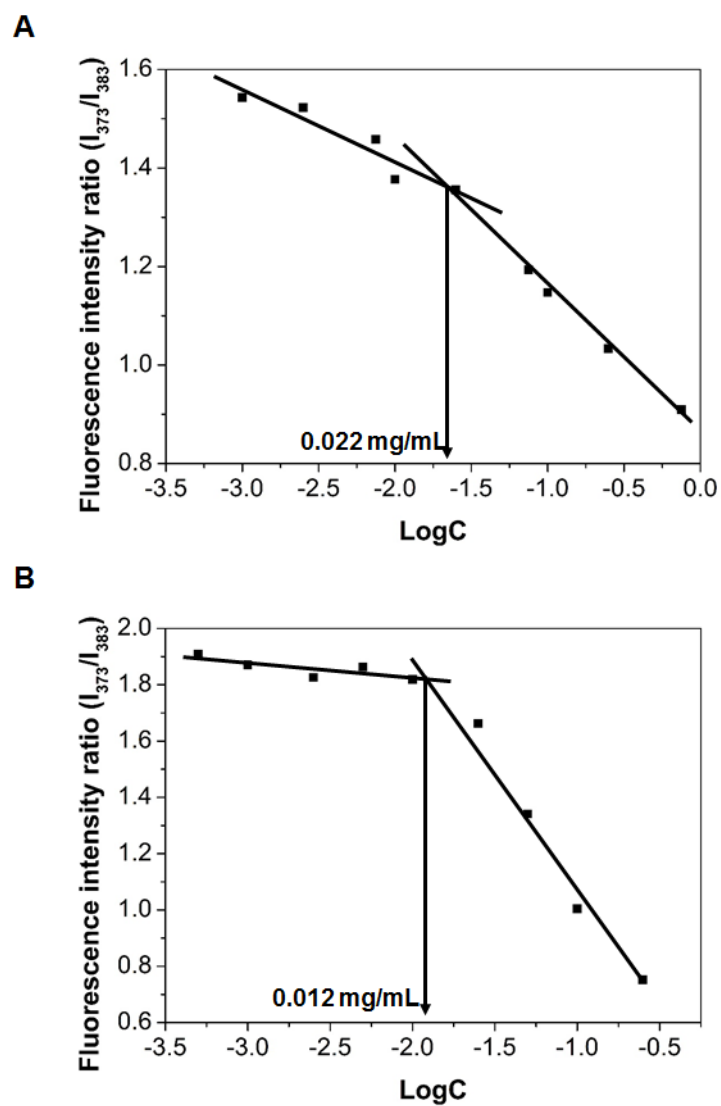


Fig. S4 Fluorescence intensity ratio I_{373}/I_{383} as a function of polymer concentration to determine the critical micelle concentration. (a) C-polymer and (b) E-polymer.

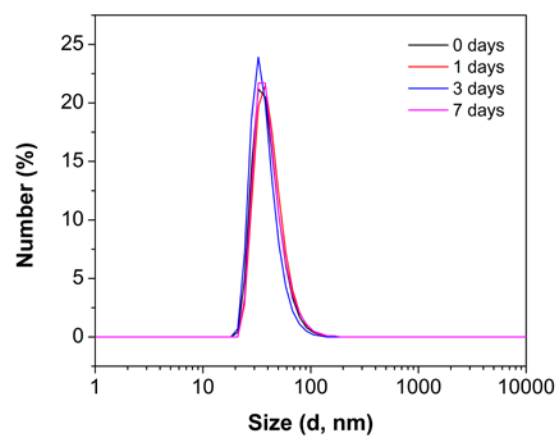


Fig. S5 DLS-assisted stability test of E-micelle. The size of E-micelle was measured after 0, 1, 3, and 7 d incubation in DPBS solutions.

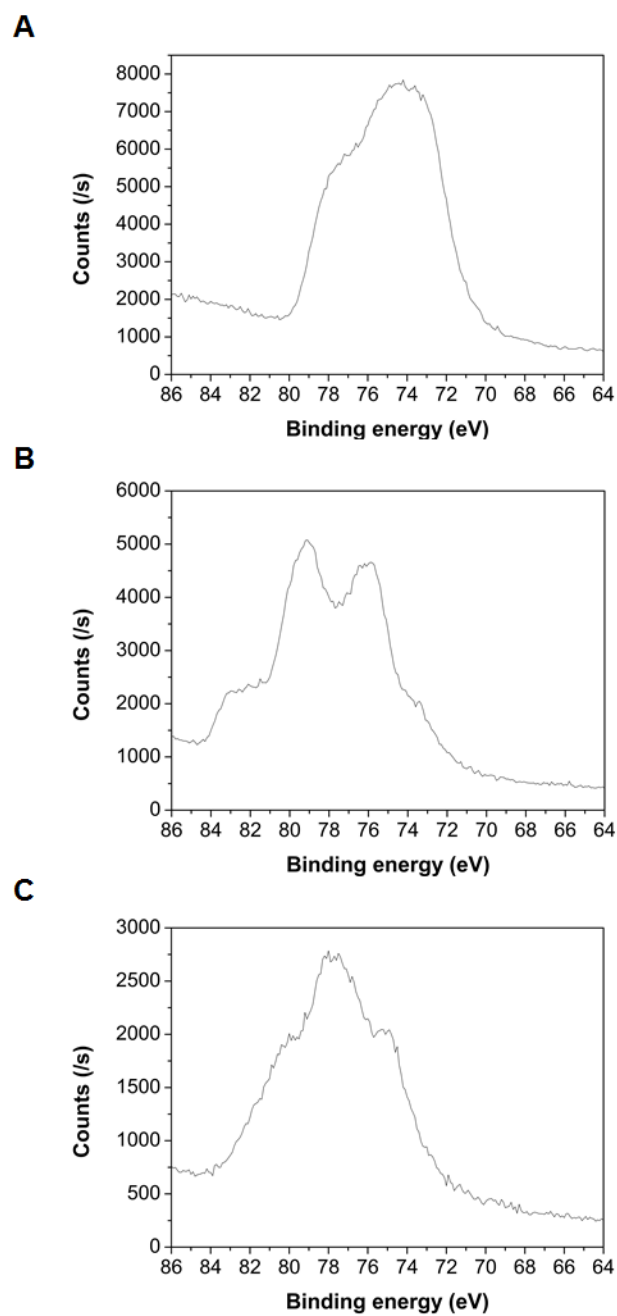


Fig. S6. High resolution XPS spectra for Pt_{4f} of (a) cisplatin, (b) Pt(IV)-NO before light irradiation and (c) Pt(IV)-NO after light irradiation.

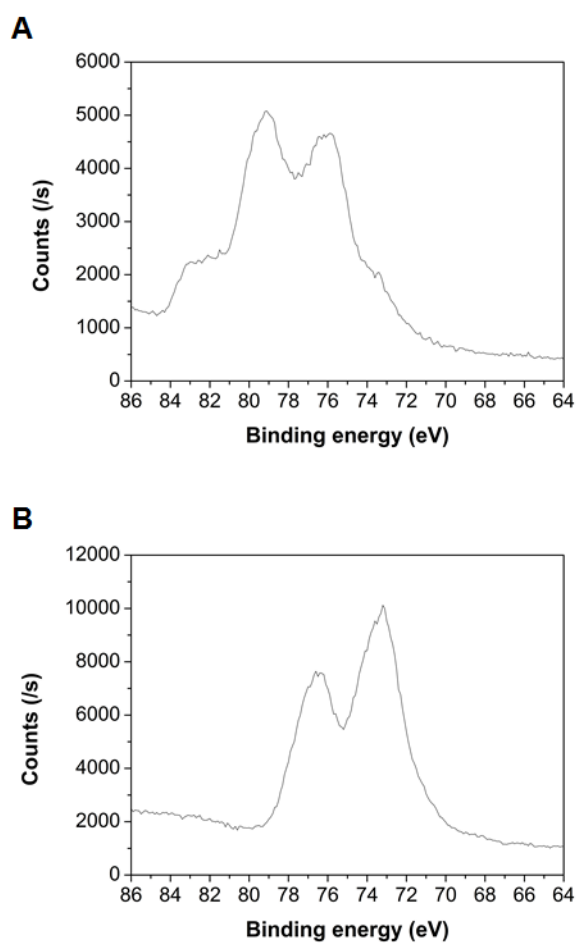


Fig. S7 High resolution XPS spectra for Pt_{4f} of (a) Pt(IV)-NO before reduction and (b) Pt(IV)-NO after reduction.

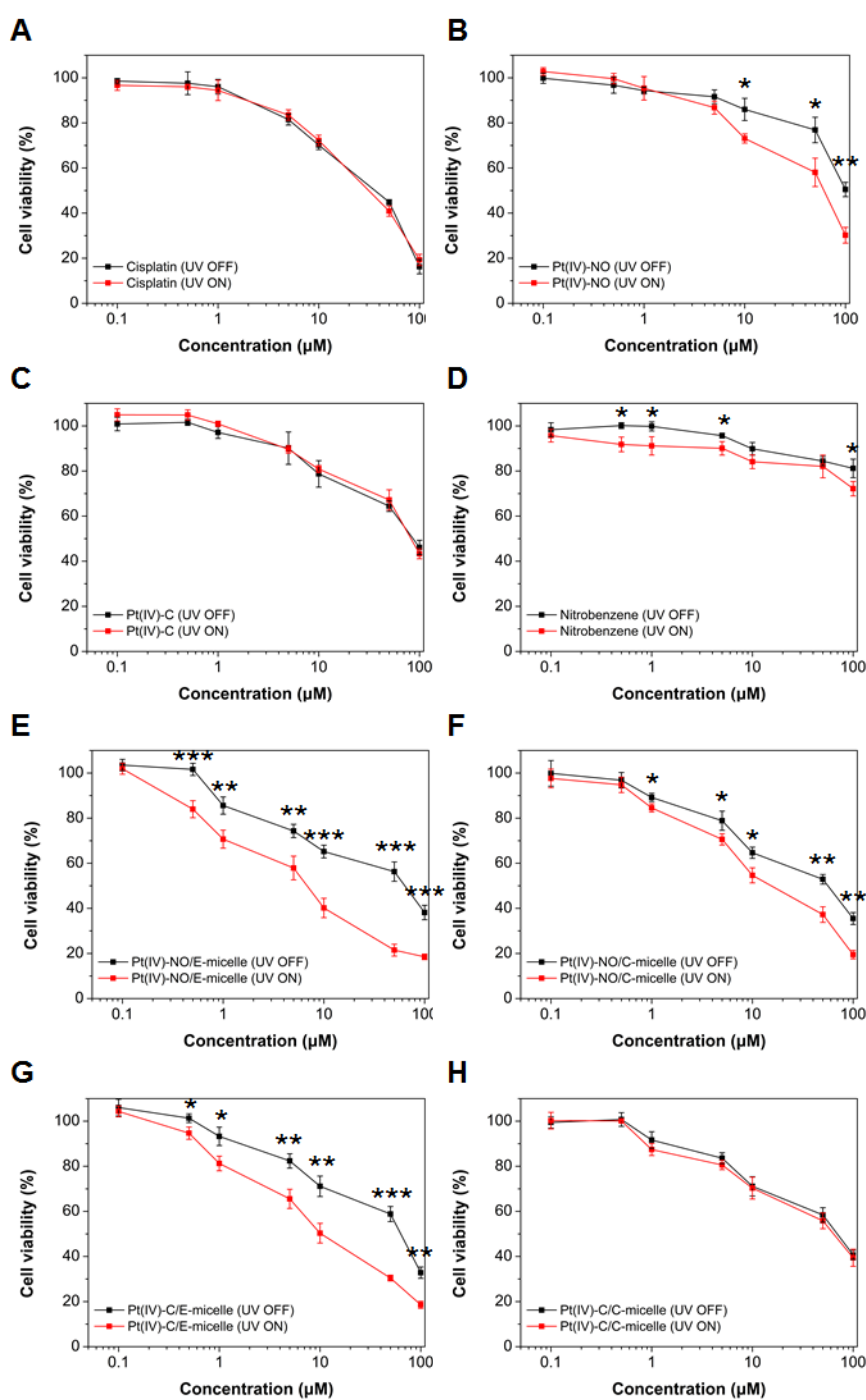


Fig. S8 *In vitro* anticancer effects of (a) cisplatin, (b) Pt(IV)-NO, (c) Pt(IV)-C, (d) nitrobenzene, (e) Pt(IV)-NO/E-micelle, (f) Pt(IV)-NO/C-micelle, (g) Pt(IV)-C/E-micelle, and (h) Pt(IV)-C/C-micelle with and without light irradiation in MCF-7 cell lines (*P<0.05; **P<0.01; ***P<0.001).

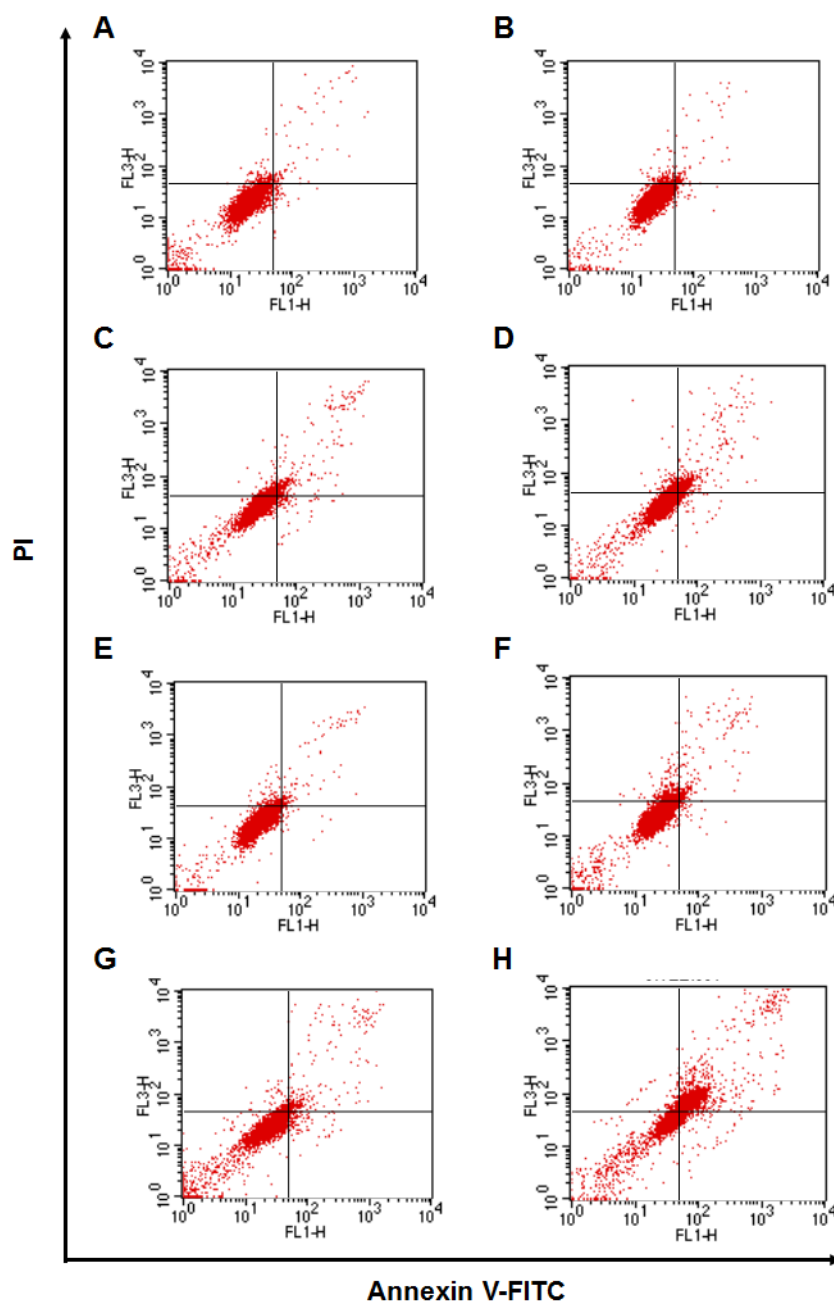


Fig. S9 Detection of Apoptosis using Annexin V-FITC/PI staining-assisted flow cytometry analysis of MCF-7 cell treated with (a) control (UV off), (b) control (UV on), (c) Pt(IV)-C/E-micelle (UV off), (d) Pt(IV)-C/E-micelle (UV on) (e) Pt(IV)-NO/C-micelle (UV off), (f) Pt(IV)-NO/C-micelle (UV on), (g) Pt(IV)-NO/E-micelle (UV off), and (h) Pt(IV)-NO/E-micelle (UV on).

Table S1. IC₅₀ value in MCF-7 (μM).

Sample	UV OFF	UV ON	Sample	UV OFF	UV ON
Cisplatin	34.2	33.1	Pt(IV)-NO/E-micelles	65.7	7.1
Pt(IV)-NO	101	62.4	Pt(IV)-NO/C-micelles	56.2	21.4
Pt(IV)-C	85.2	84.7	Pt(IV)-C/E-micelles	66.1	11.1
Nitrobenzene	N.D.	N.D.	Pt(IV)-C/C-micelles	76.1	74.3