

Electronic Supplementary Information

Exploring multi-stimuli-responsive Pt(II) complexes: Supramolecular self-assembly, lysosome-specific targeted photodynamic therapy and photodegradation of organic pollutants

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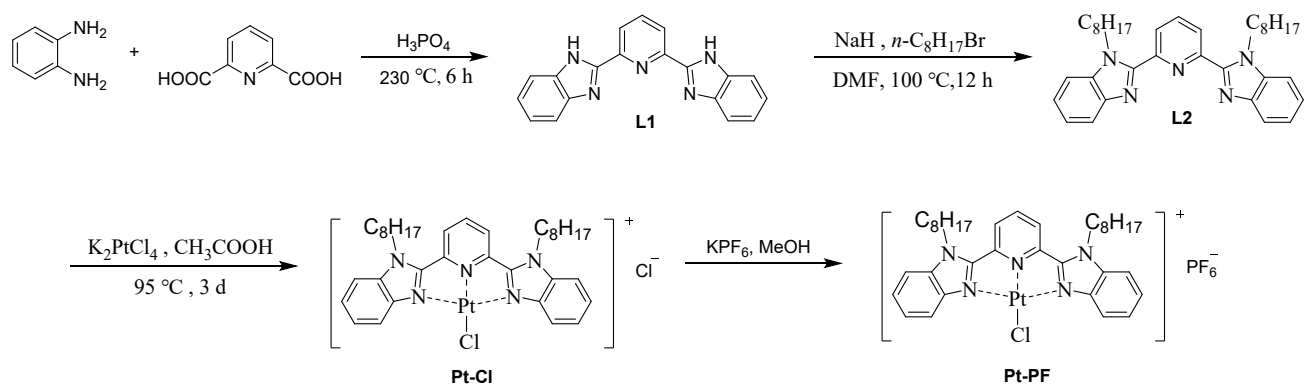
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Scheme S1. Synthetic routes to **Pt-Cl** and **Pt-PF**.

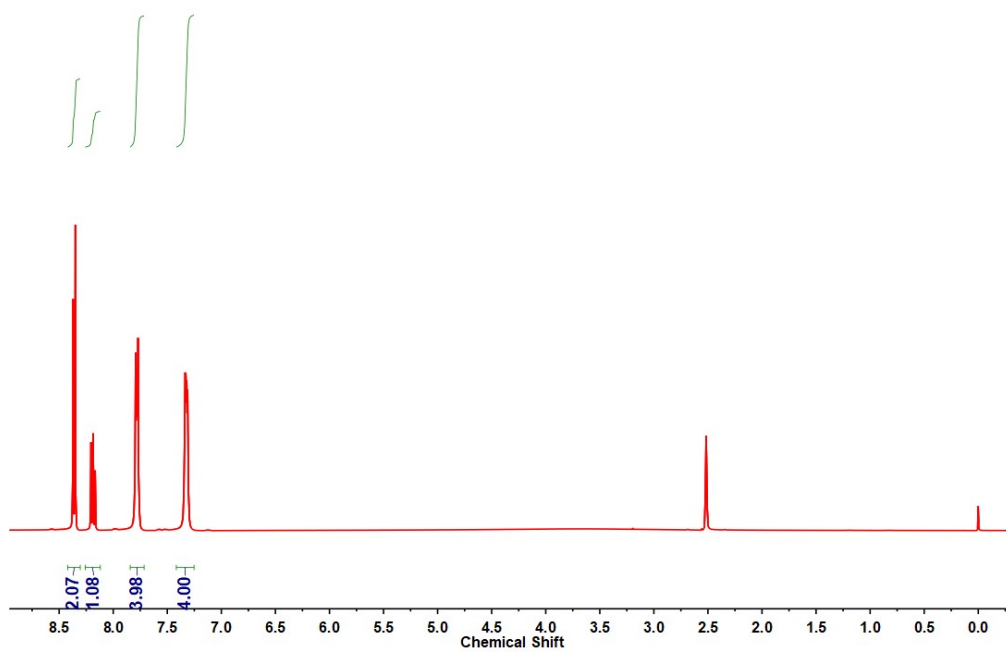


Fig. S1 ^1H NMR spectrum (400 MHz, CDCl_3) of compound **L1**.

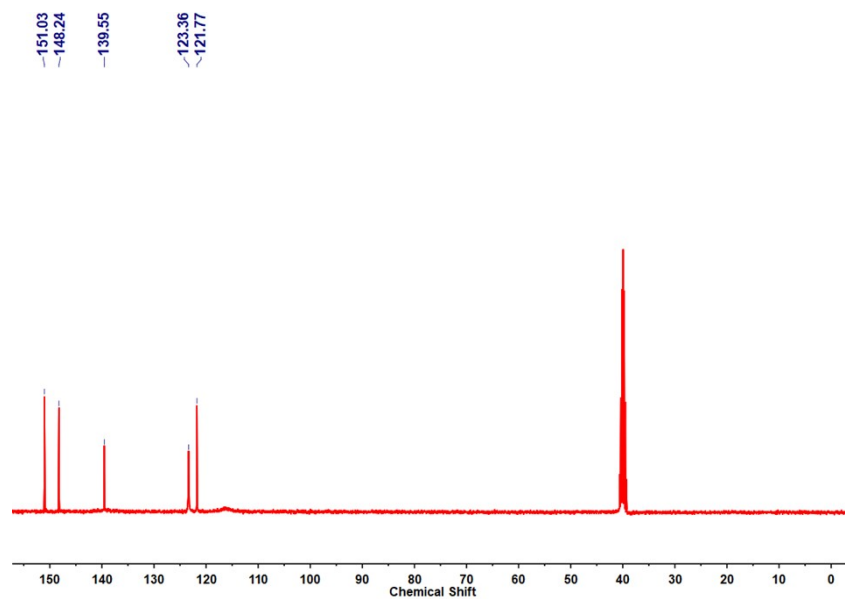


Fig. S2 ^{13}C NMR spectrum (101 MHz, CDCl_3) of compound **L1**.

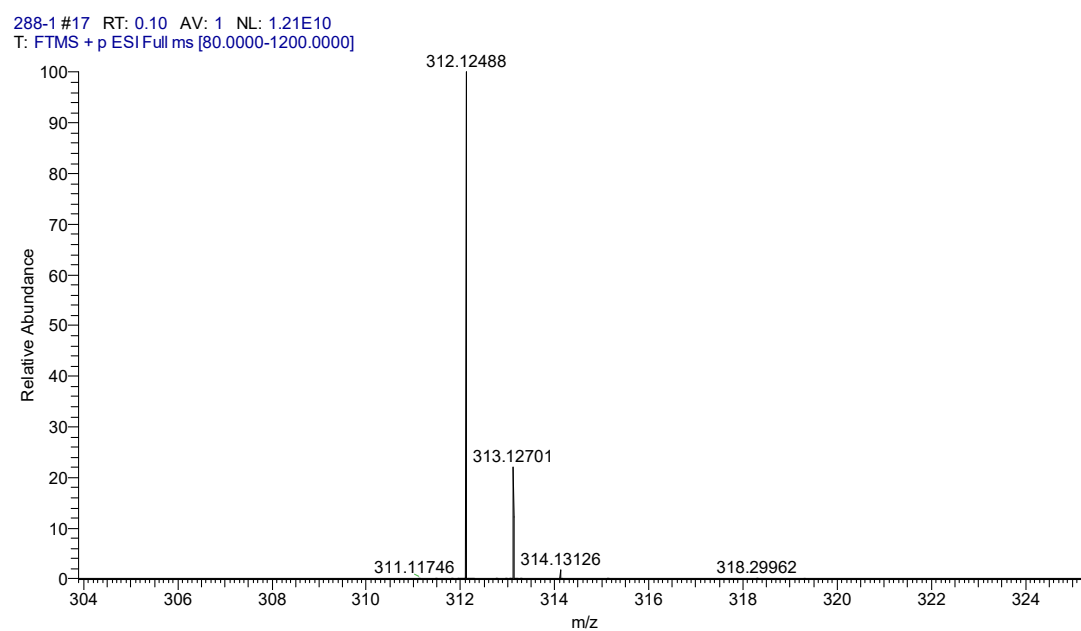


Fig. S3 HRMS spectrum of **L1**.

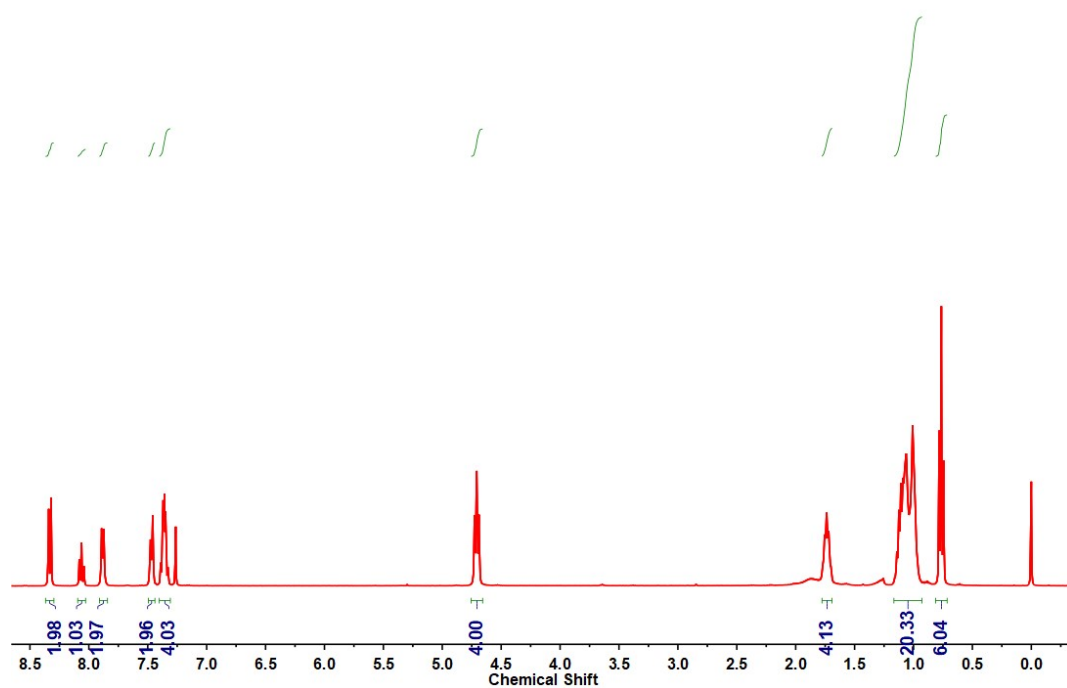


Fig. S4 ^1H NMR spectrum (400 MHz, CDCl_3) of compound **L2**.

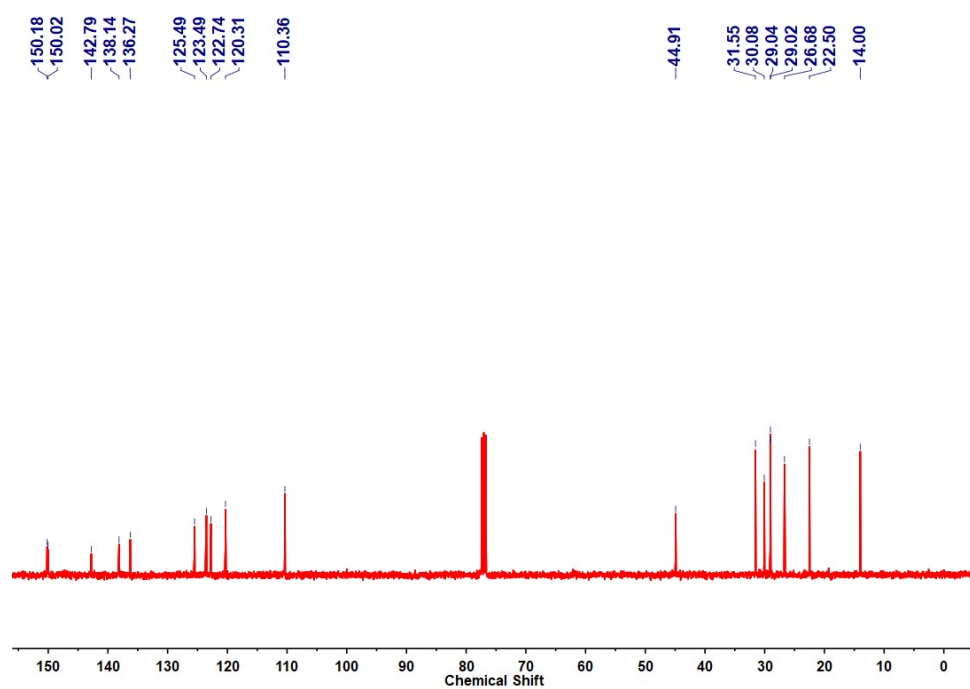


Fig. S5 ^{13}C NMR spectrum (101 MHz, CDCl_3) of compound **L2**.

288-2 #12 RT: 0.07 AV: 1 NL: 1.76E9
T: FTMS + p ESI Full lock ms [80.0000-1200.0000]

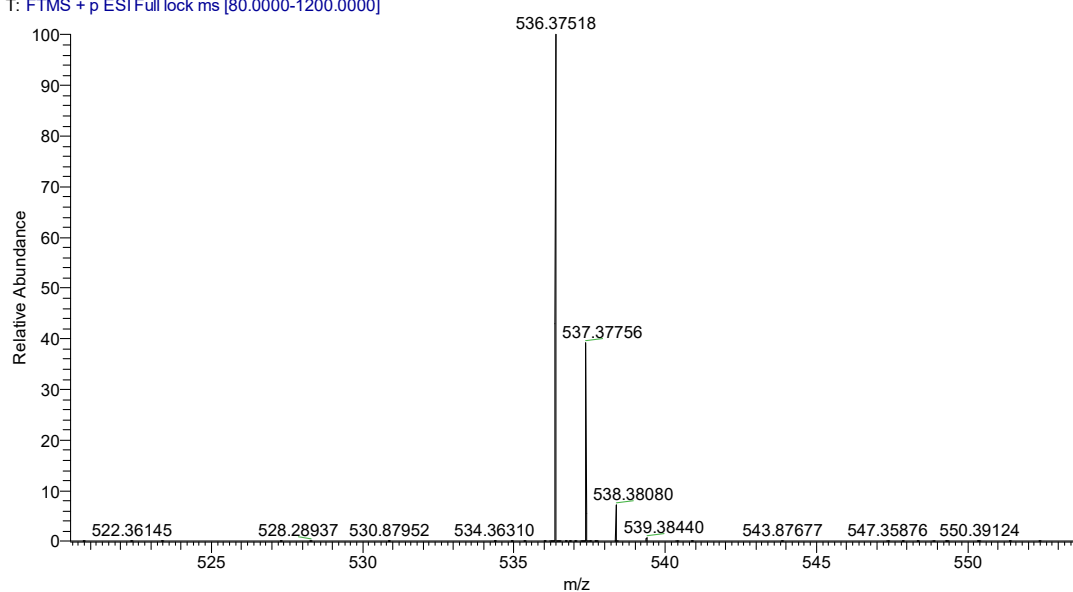


Fig. S6 HRMS spectrum of **L2**.

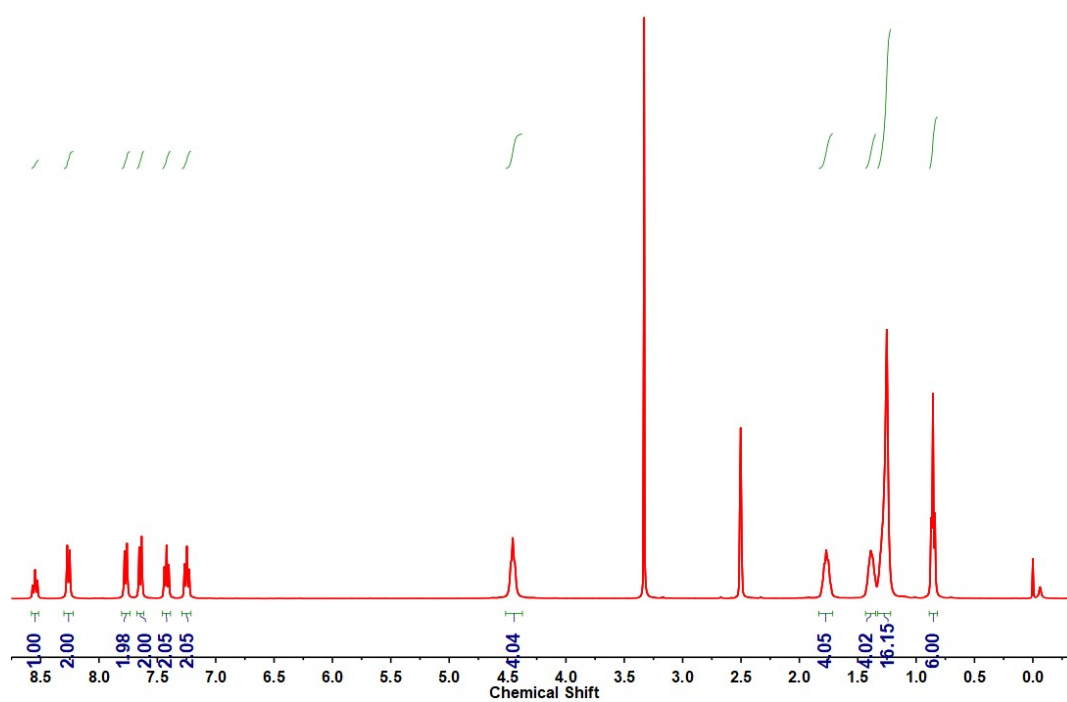


Fig. S7 ¹H NMR spectrum (400 MHz, CDCl₃) of compound **Pt-Cl**.

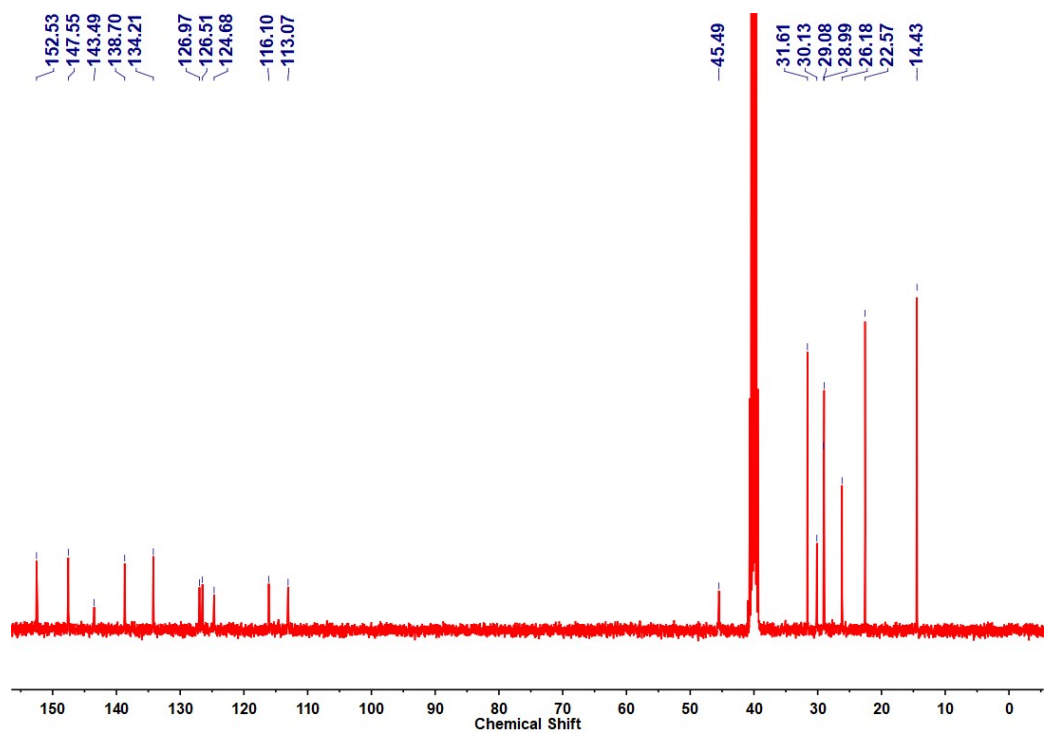


Fig. S8 ^{13}C NMR spectrum (101 MHz, CDCl_3) of compound **Pt-Cl**.

288-3 #29 RT: 0.16 AV: 1 NL: 2.18E8
T: FTMS + p ESI Full lock ms [80.0000-1200.0000]

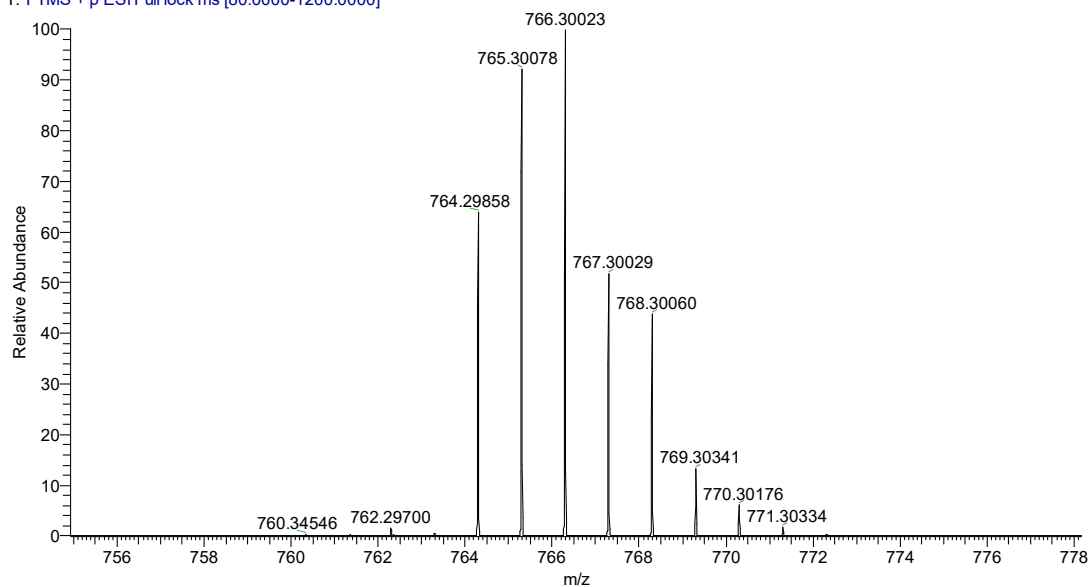


Fig. S9 HRMS spectrum of **Pt-Cl**.

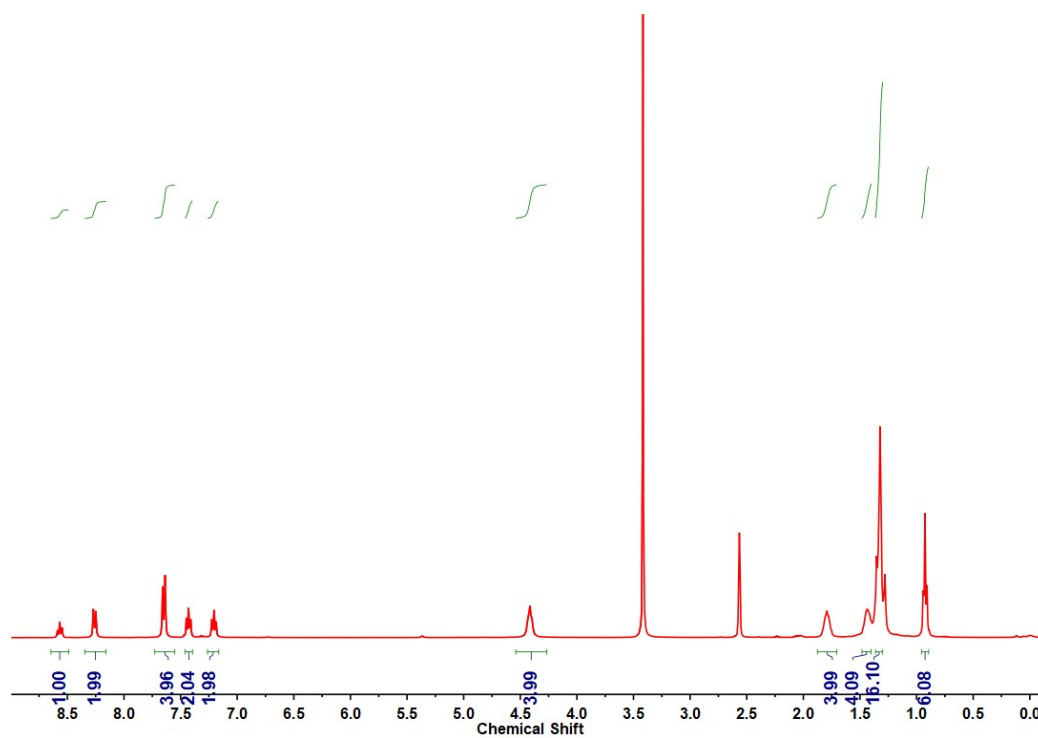


Fig. S10 ¹H NMR spectrum (400 MHz, CDCl₃) of compound **Pt-PF**.

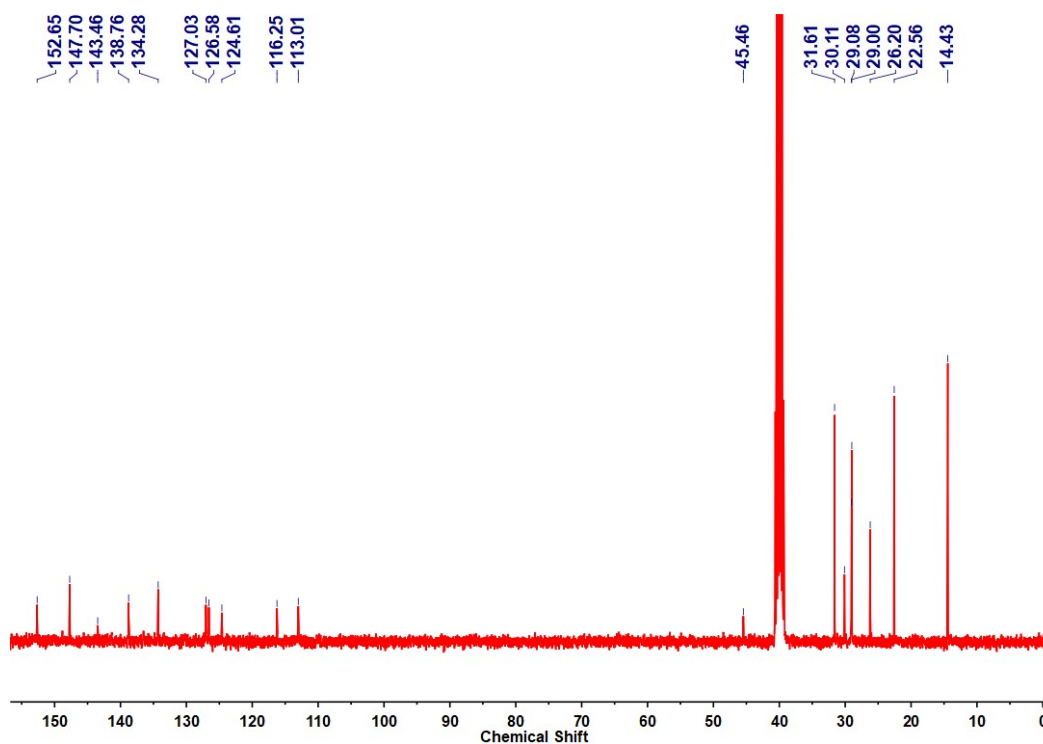


Fig. S11 ¹³C NMR spectrum (101 MHz, CDCl₃) of compound **Pt-PF**.

16-4 #13 RT: 0.07 AV: 1 NL: 1.51E7
T: FTMS + p ESI Full lock ms [80.0000-1200.0000]

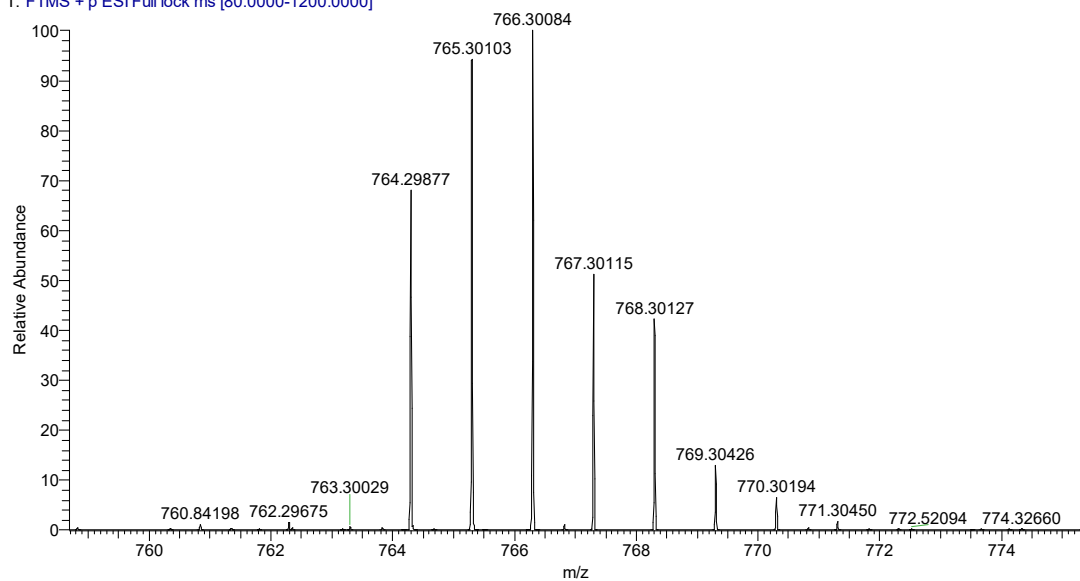


Fig. S12 HRMS spectrum of **Pt-PF**.

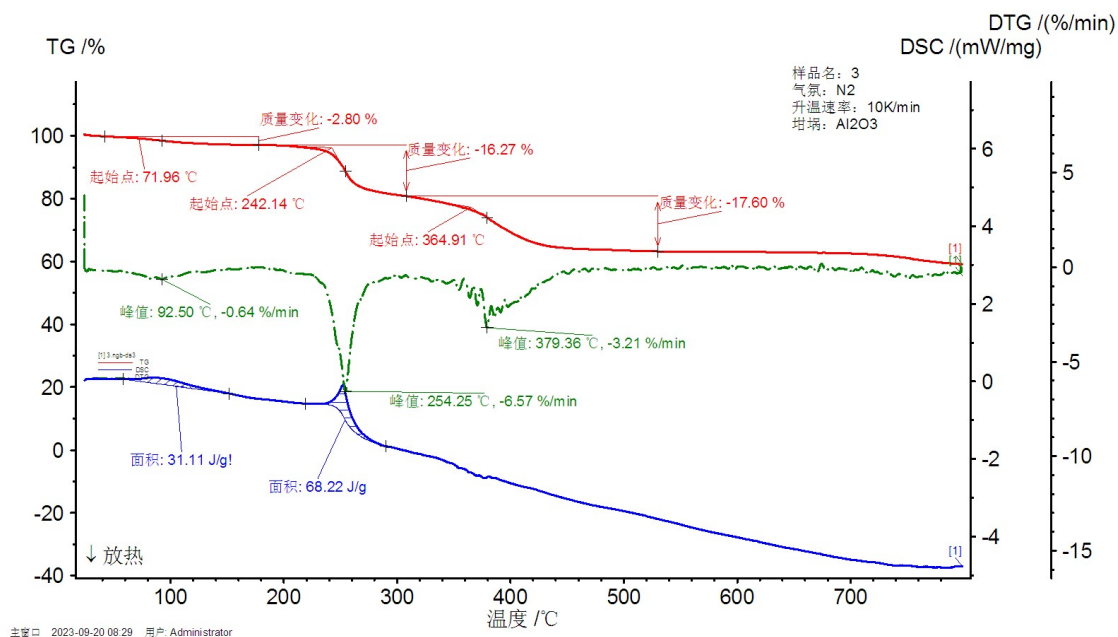


Fig. S13 The thermodynamic data of **Pt-Cl**.

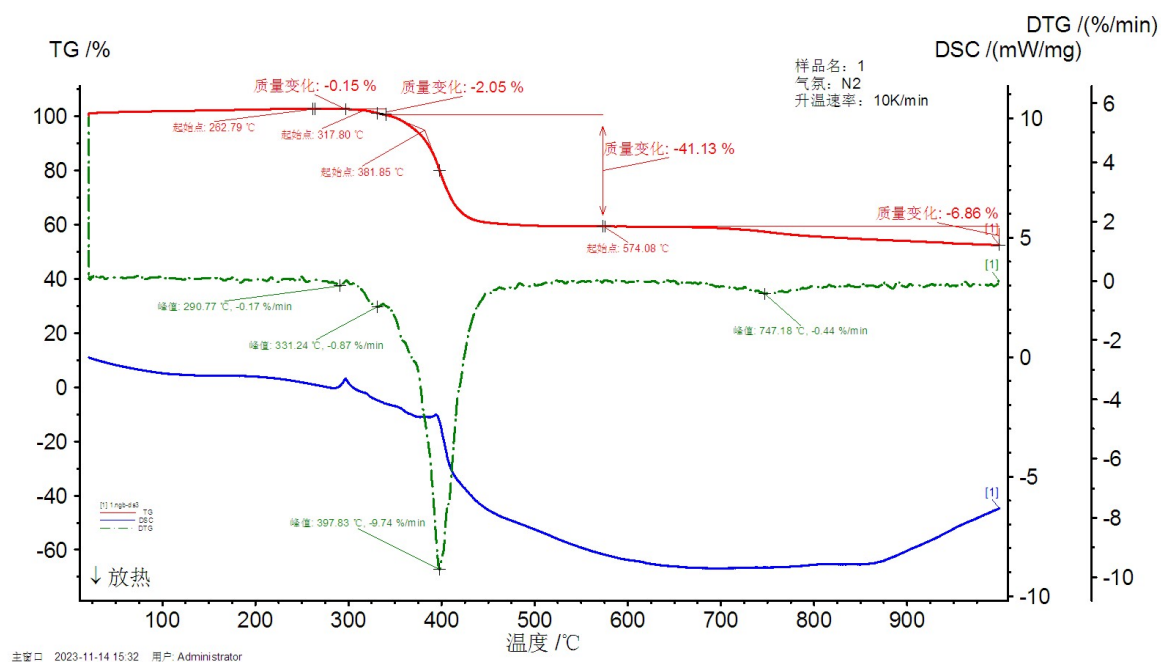


Fig. S14 The thermodynamic data of **Pt-PF**.

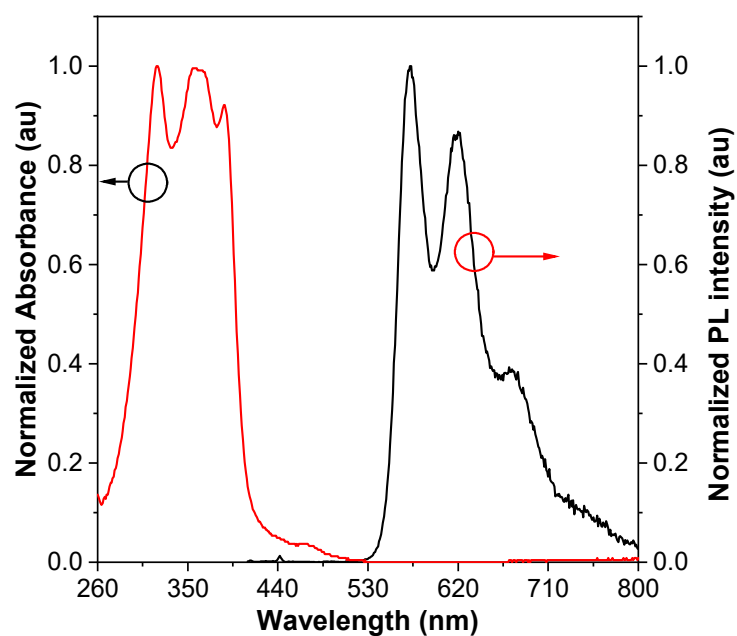


Fig. S15 Normalized absorption spectra and PL spectra of **Pt-PF** measured in DCM

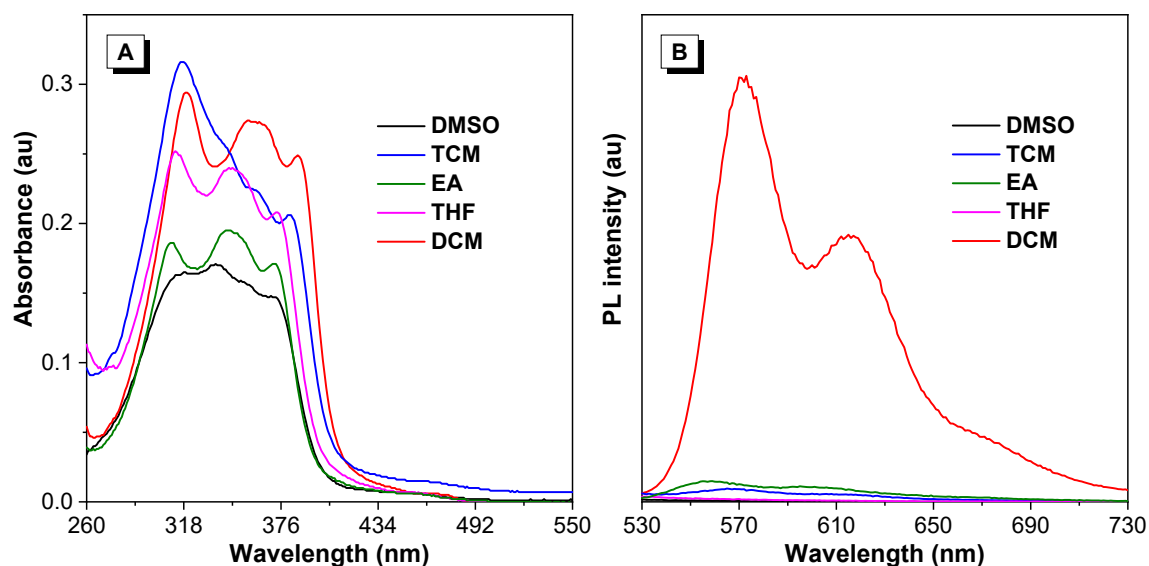


Fig. S16 Absorbance spectra (A) and PL spectra (B) of **Pt-PF** in different solvents. EA, ethyl acetate; THF, tetrahydrofuran; DCM, dichloromethane; DMSO, dimethylsulfoxide. **Pt-PF** concentration: 10 μM .

Table S1. Photophysical properties of **Pt-PF** in various solvents

Solvents	$\lambda_{\text{abs}}(\text{nm})(\epsilon, 10^4 \text{ M}^{-1} \text{ cm}^{-1})$	$\lambda_{\text{em}}(\text{nm})$
Hexane	211(0.21), 237(0.067), 317(0.038)	/
Cyclohexane	218(0.115), 235(0.069), 274(0.047), 314(0.054), 372(0.028)	535
Toluene	319(0.124), 354(0.106), 383(0.09)	556
DCM	249(0.15348), 319(0.24084), 360(0.24242), 386(0.22193), 464(0.00892)	573
Pt-PF THF	250(0.22), 314(0.251), 345(0.24), 375(0.207)	/
EA	250(0.113), 312(0.186), 345(0.195), 373(0.171)	/
TCM	241(0.208), 250(0.22), 317(0.316), 346(0.25), 363(0.222), 381(0.206)	/
Acetone	324(0.205), 345(0.255), 373(0.273)	/
Methanol	220(0.409), 247(0.187), 311(0.235), 354(0.254), 373(0.221)	/
DMSO	317(0.164), 338(0.17), 375(0.144)	/

DCM, dichloromethane; THF, tetrahydrofuran; EA, ethyl acetate; TCM, trichloromethane; DMSO, dimethylsulfoxide.

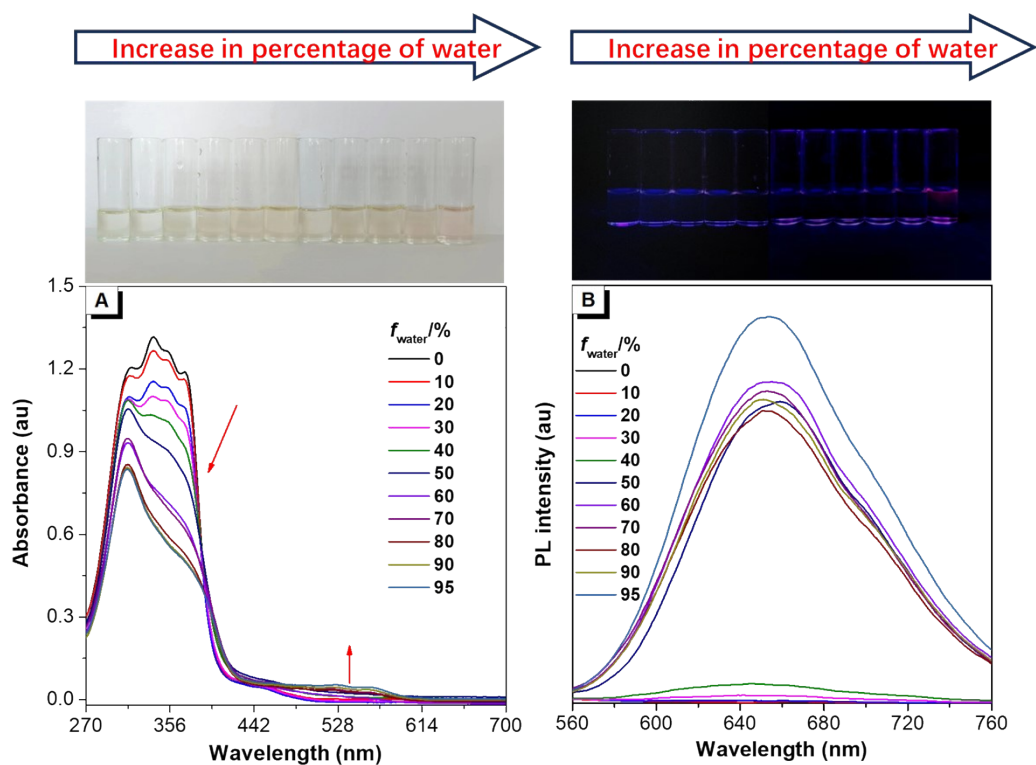


Fig. S17 Solutions of Pt-Cl in DMSO/Water mixture (percentage of water in DMSO from up to down: 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 95%). (A) Absorption and (B) PL spectra of Pt-Cl upon increasing the water content in DMSO. Pt-Cl concentration: 10 μM .

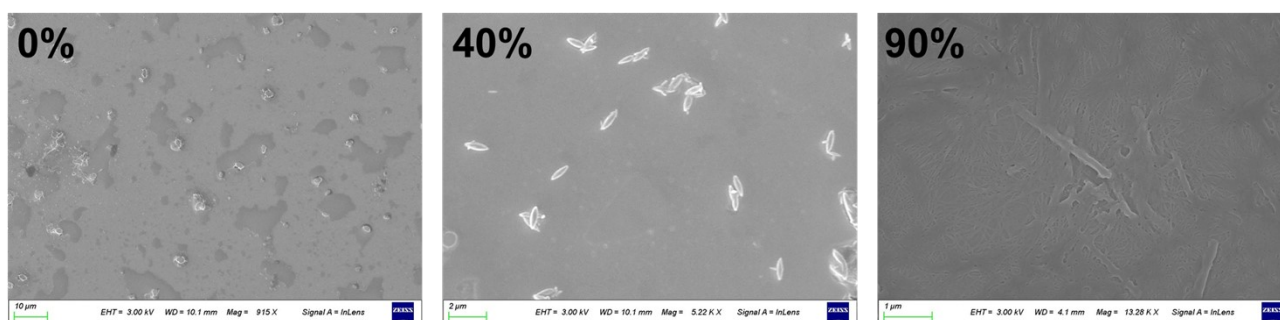


Fig. 18 SEM images Pt-Cl at different contents of water (A) 0%; (B) 40%; (C) 90%.

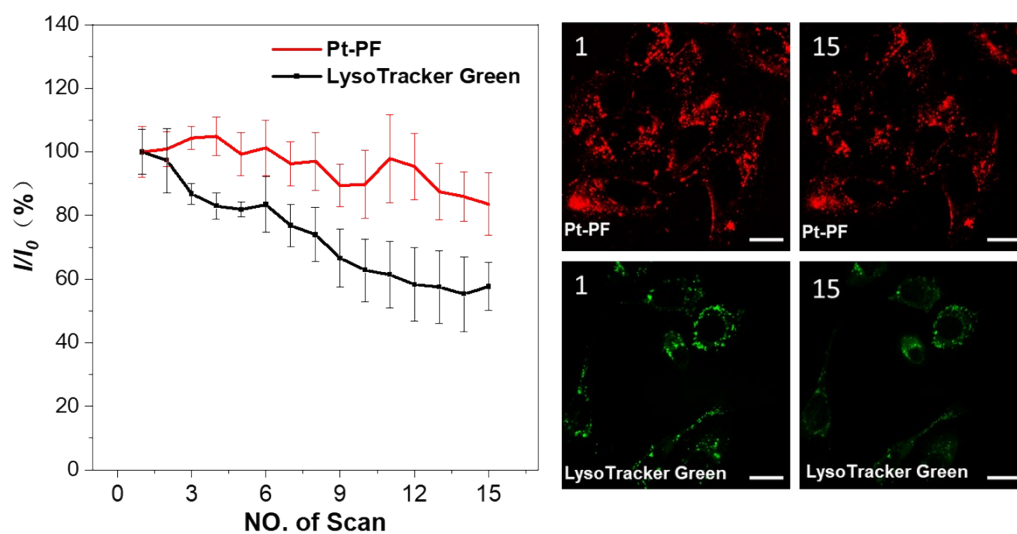


Fig. S19 Loss in fluorescence of U2OS cells stained with **Pt-PF** and LysoTracker Green with the number of scans of laser irradiation. Concentration: 5 μM , λ_{ex} : 405 nm; scanning rate: 80 s per, frame scale bar:20 μm .

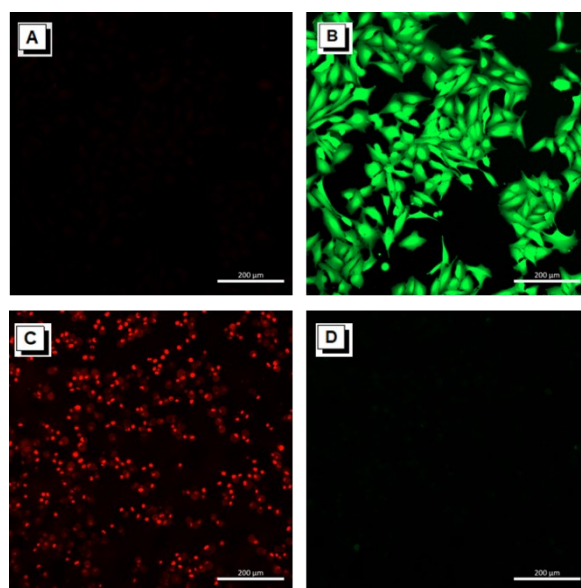


Fig. S20 Live/dead staining of **Pt-PF** (5 μ M) treated U2OS cells with or without light irradiation using Calce-DA/PI (1 μ M). (A) and (B) the fluorescence of U2OS cells stained with Calce-DA/PI in the absence of white light; (C) and (D) the fluorescence of U2OS cells stained with Calce-DA/PI in the presence (light) of white light irradiation for 1 h. scale bar: 200 μ m.

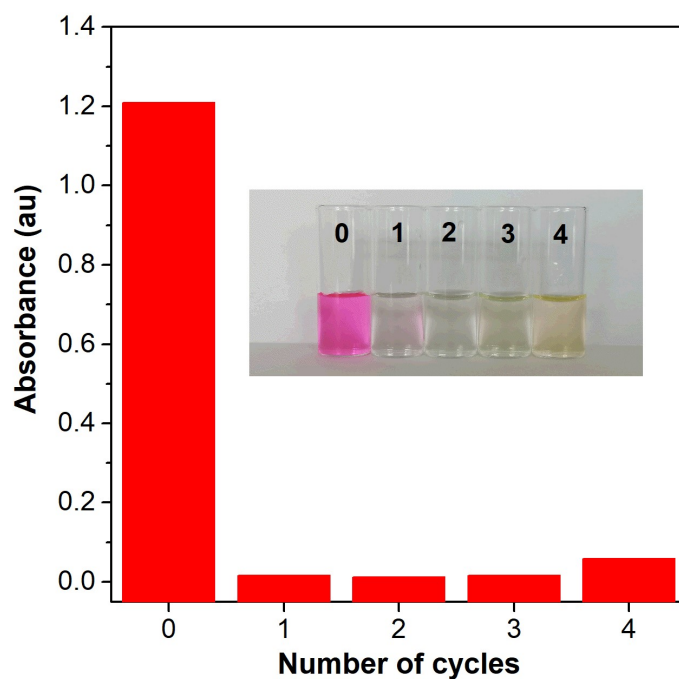


Fig. S21 Cyclic absorption of photocatalytic degradation of RhB. **Pt-Cl**: 50 mg.