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Supporting information

for

Targeted and NIR Light-Controlled Delivery of Nitric Oxide Combined with Platinum (IV) Prodrug for Enhanced Anticancer Therapy

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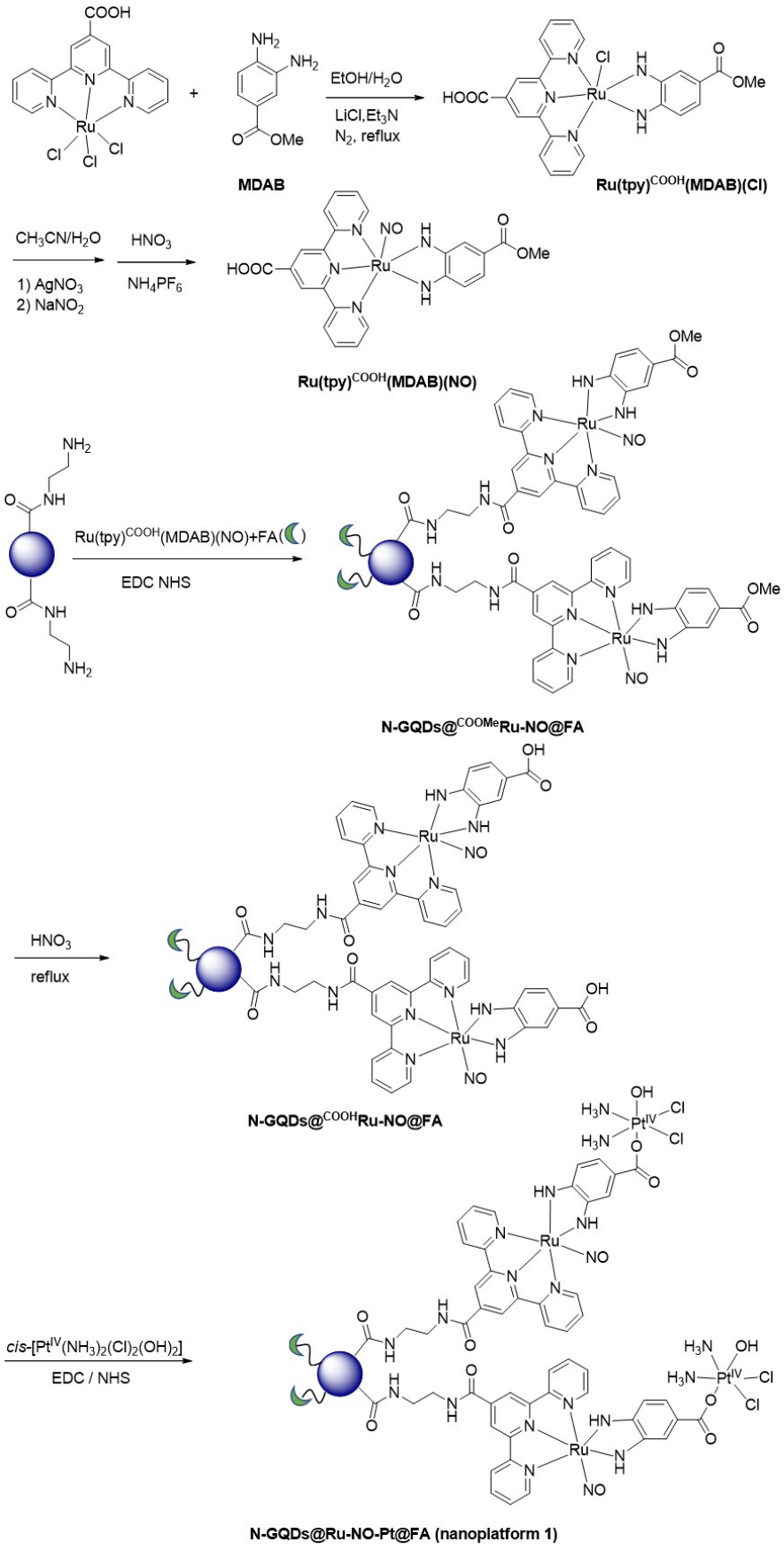

Scheme S1 Chemical structures and preparation route for the nanoplatform **1.**

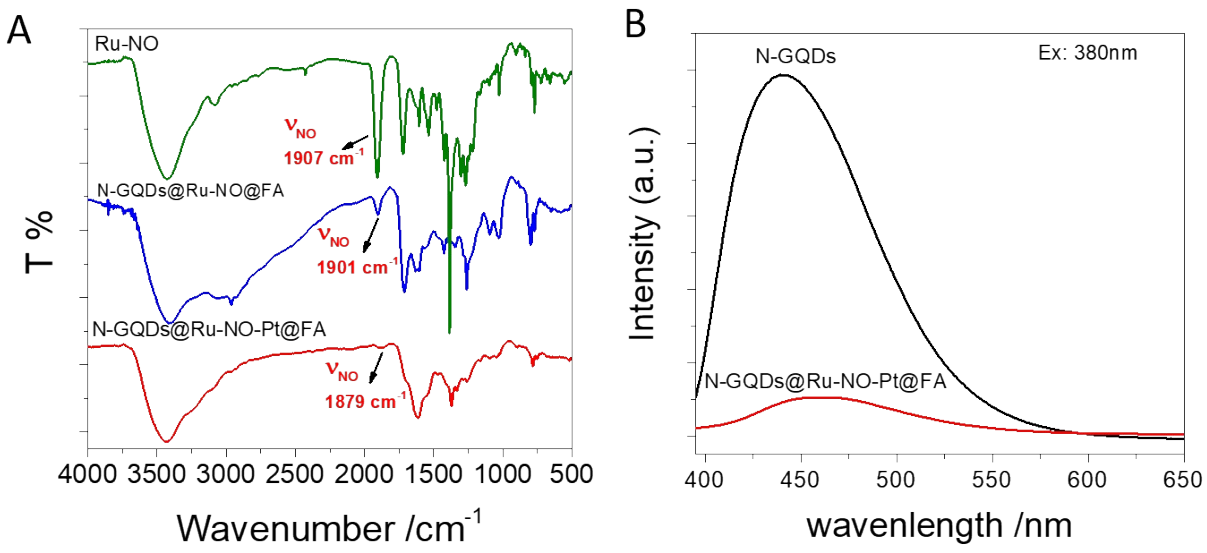

Figure S1 FTIR spectra of {Ru-NO} (green), {N-GQDs@Ru-NO@FA} (blue), and {N-GQDs@Ru-NO-Pt@FA} (red). (H) Fluorescence spectra of N-GQDs (black line) and nanoplatform **1** (red line) in water. Ex: 380 nm.

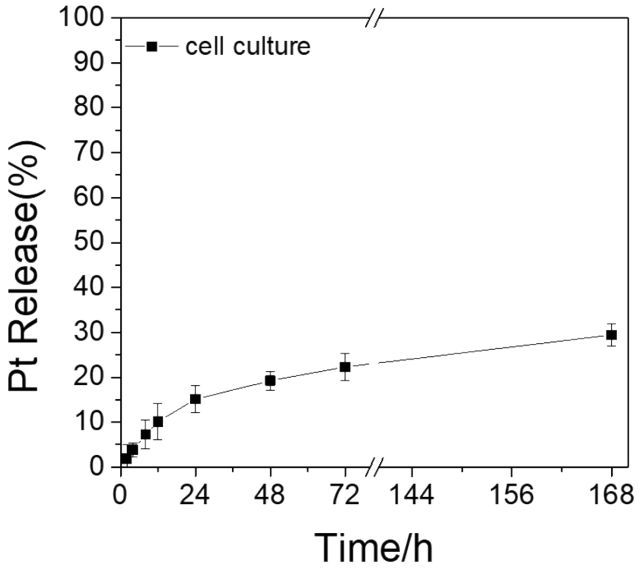

Figure S2 Cumulative Pt released from nanoplatform **1** in cell culture at 37°C.

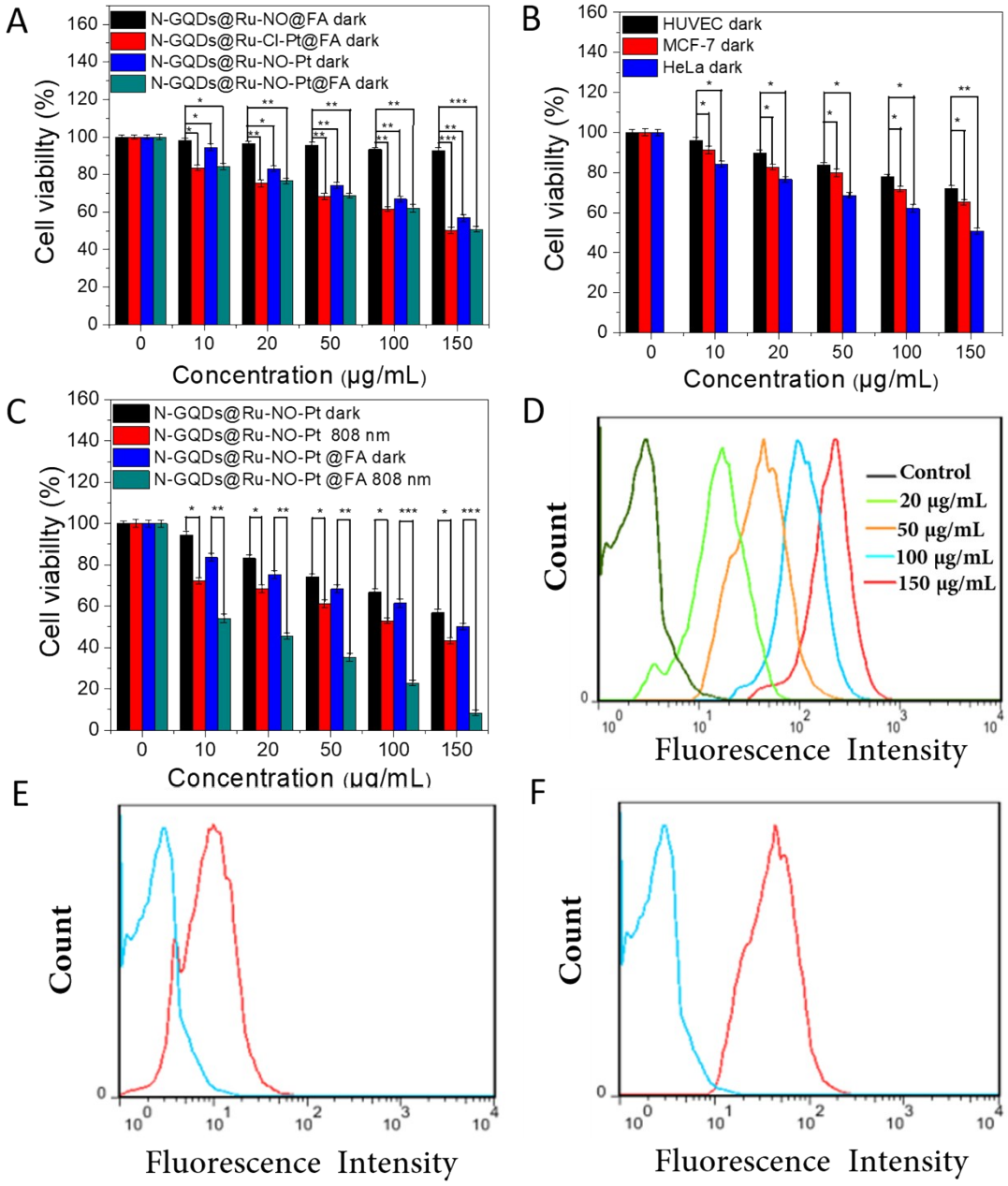

Figure S3 (A) Cytotoxicity assays of HeLa cells treated with {N-GQDs@Ru-NO@FA}, {N-GQDs@Ru-Cl-Pt@FA},{N-GQDs@Ru-NO-Pt} and nanoplatform **1** of concentrations ranging from 0 to 150 μg mL^{-1} for an incubation time of 24 h under dark conditions. (B) Cytotoxicity assays of HUVEC, MCF-7 and HeLa cells treated with nanoplatform **1** of concentrations ranging from 0 to 150 μg mL^{-1} for an incubation time of 24 h under dark conditions. (C) Dark and NIR light-induced (808 nm, 600 mW cm^{-2}, 10 min) lethality of HeLa cells treated with 0-150 μg mL^{-1} of nanoplatform **1**. (D) Flow cytometry analysis of HeLa cells treated with nanoplatform **1** in concentrations of 0 (black line), 20 (green line), 50 (origin line), 100 (blue line), and 150 μg mL^{-1} (red line), respectively. (E) Flow cytometry analysis of MCF-7 cells treated with 50 μg mL^{-1} of nanoplatform **1** (red line) for 4 h. (F) Flow cytometry analysis of HeLa cells treated with 50 μg mL^{-1} of nanoplatform **1** for 4 h (red line). The untreated cells were taken as the control (blue line).

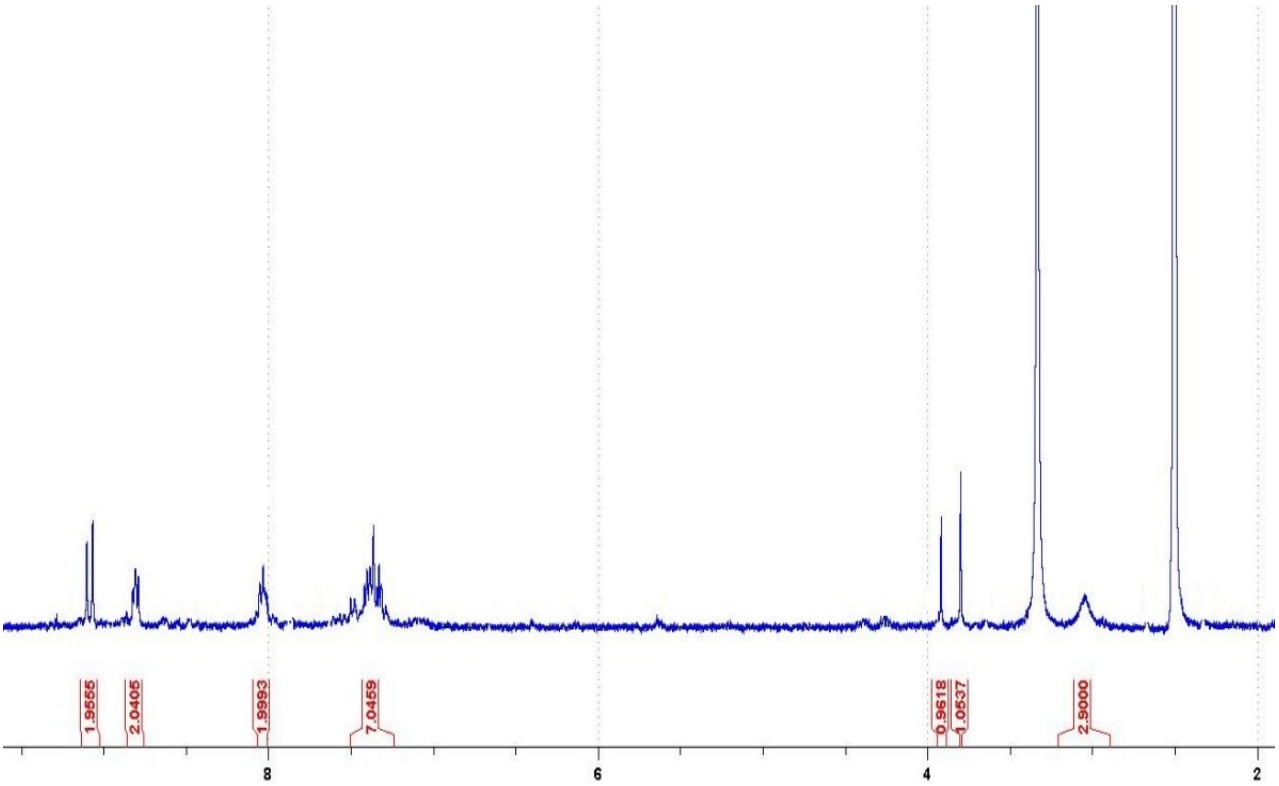

Figure S4 ^{1}H NMR spectrum of [Ru(tpy)^{COOH}(MDAB)(Cl)](PF$_6$) in DMSO-d_6.

^{1}H-NMR (400 Hz, DMSO-d_6), δ 9.05-9.12 (d, 2H), 8.76-8.85 (m, 2H), 8.00-8.06 (m, 2H), 7.24-7.51(m, 7H), 3.92 (s, 1H), 3.80(s, 1H), 3.05(s, 3H) ppm. (The proton of the carboxyl group rapidly exchanges with the active hydrogen in the solution, resulting in the carboxyl hydrogen not being easily detected.)

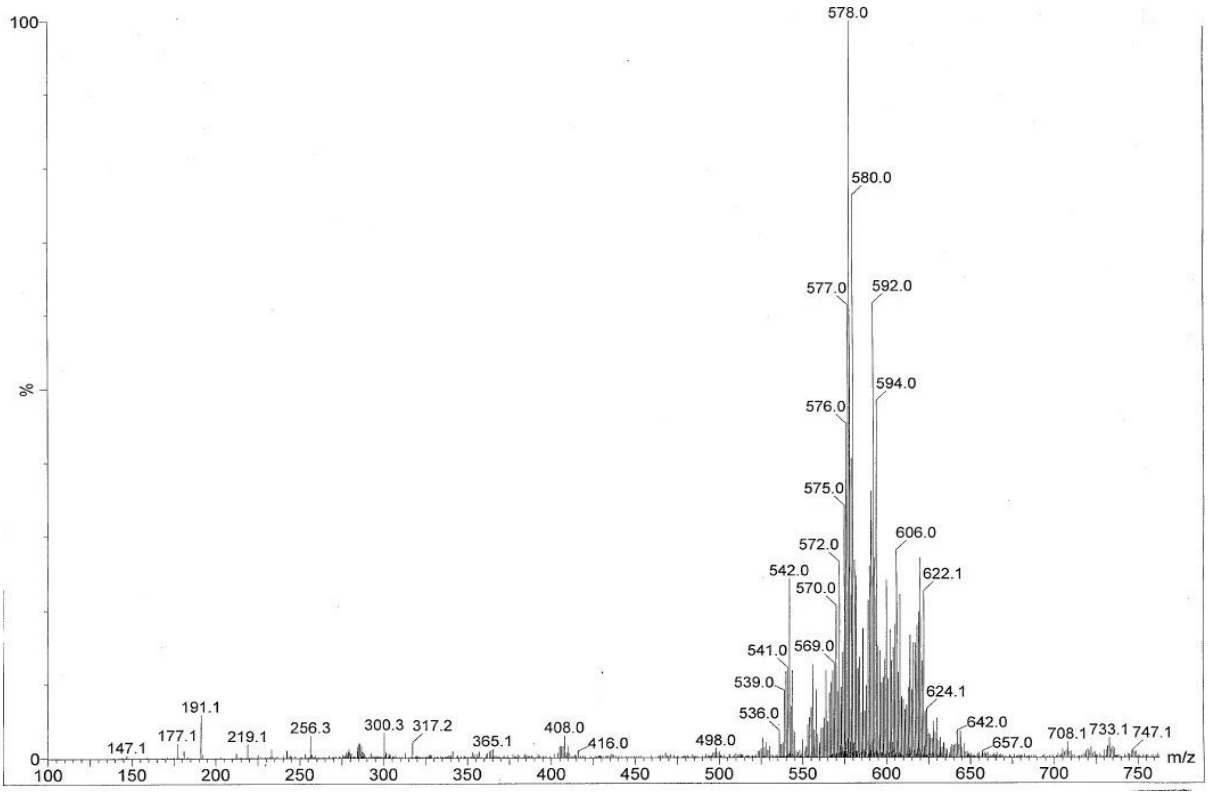

Figure S5 ESI-MS spectra analysis of $[Ru(tpy)^{COOH}(MDAB)(Cl)](PF_6)$ in CH_3OH

ESI-MS *m/z* $[M\text{-}PF_6^-]^+$: calculated 578.03, found 578.0. $[M\text{-}PF_6^-\text{-}OH+OCH_3]^+$: calculated 592.03, found 592.0.

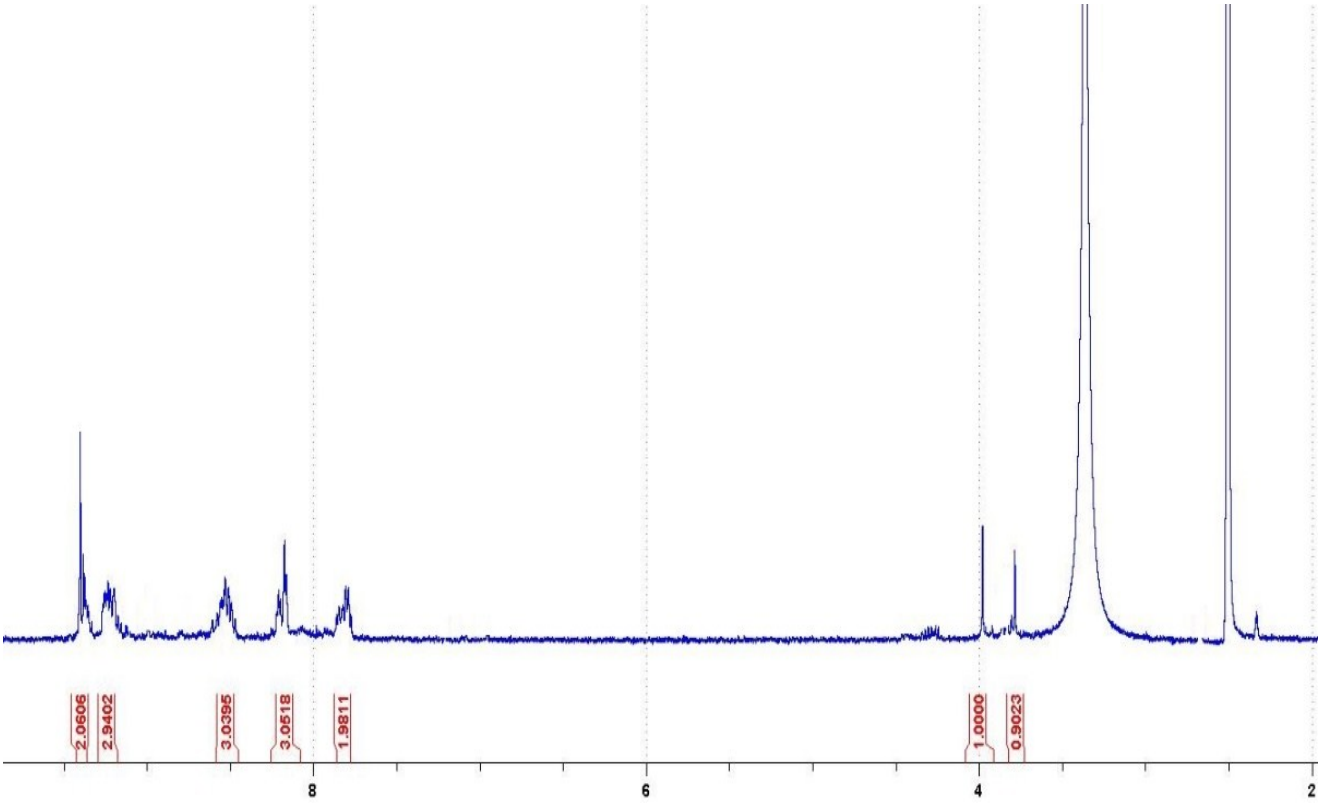

Figure S6 ^{1}H NMR spectrum of [Ru(tpy)^{COOH}(MDAB)(NO)](PF$_6$)$_3$ in DMSO-d_6.

^{1}H-NMR (400 Hz, DMSO-d_6), δ 9.39 (d, 2H), 9.17-9.26 (m,3H), 8.46-8.58 (m, 3H), 8.15-8.25 (m, 3H), 7.75-7.87(m, 2H), 3.98(s, 1H), 3.77(s, 1H) ppm. (The proton of the carboxyl group rapidly exchanges with the active hydrogen in the solution, resulting in the carboxyl hydrogen not being easily detected. The peak at around 3.3 ppm derived from the three hydrogen atoms in the methyl ester overlaps with the water peak.)

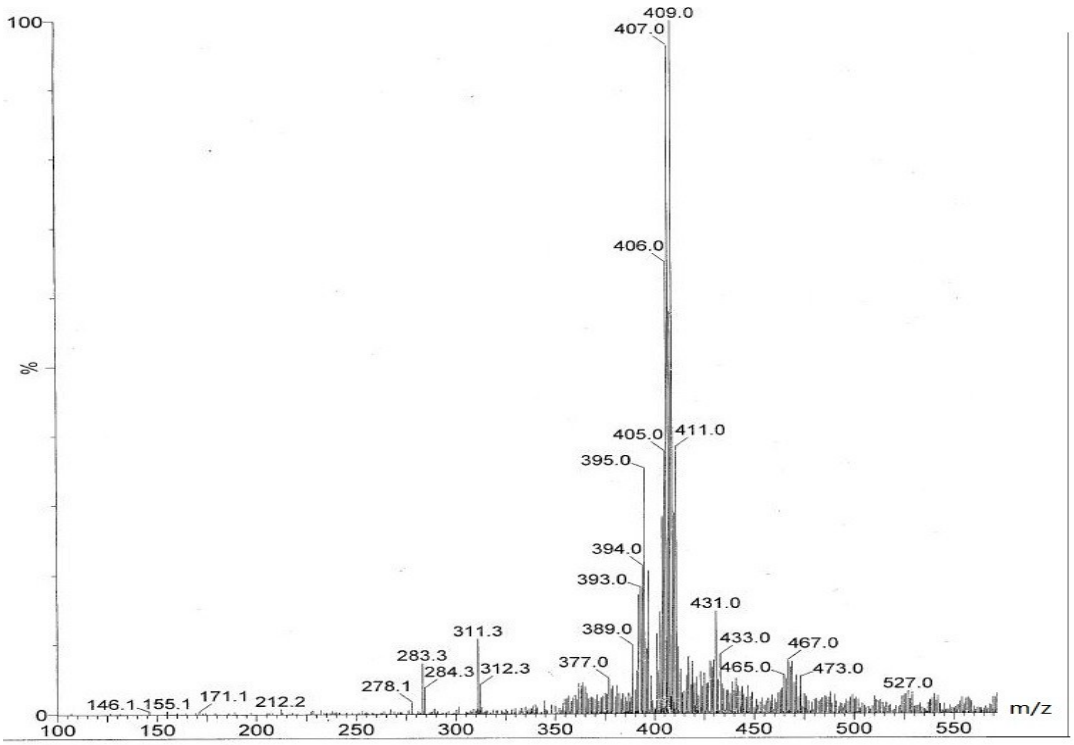

Figure S7 ESI-MS spectra analysis of $[Ru(tpy)^{COOH}(MDAB)\ (NO)](PF_6)_3$ in CH_3OH

ESI-MS: *m/z* $[M\text{-}3PF_6^{-}\text{-}C_8H_8O_2N_2\text{-}2H^{+}\text{-}NO+CH_3OH]^{+}$: calculated 409.0, found 409.0.