Electronic Supplementary Material (ESI) for Materials Chemistry Frontiers.

Supporting Information

Post-Synthetically Modified Porous Organic Polymer for Photocatalytic Water Purification

Minhyeok Choi,† Nem Singh,† Subin Son, Ji Hyeon Kim, Minjung Kang, Su Hong Park, Dong Hoon Choi,* Chang Seop Hong* and Jong Seung Kim*

Department of Chemistry, Korea University, Seoul 02841, Korea

*E-mail: dhchoi8803@korea.ac.kr, cshong@korea.ac.kr and jongskim@korea.ac.kr

† These authors contributed equally to this work.

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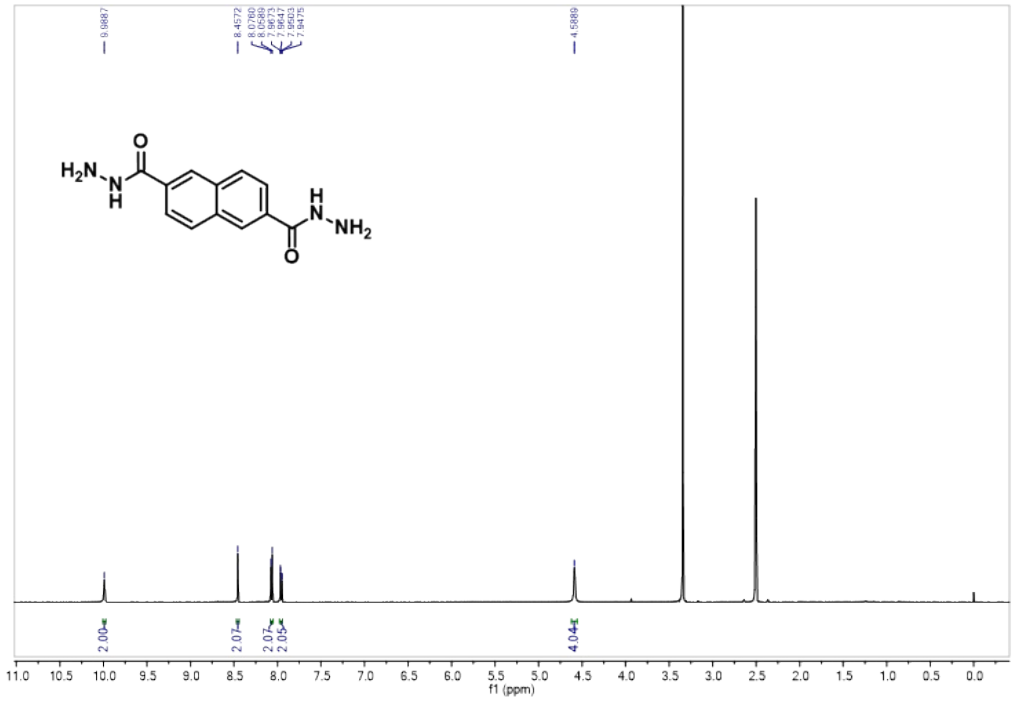

Fig. S1 ^{1}H NMR (DMSO, 500 MHz) spectrum of NPDH

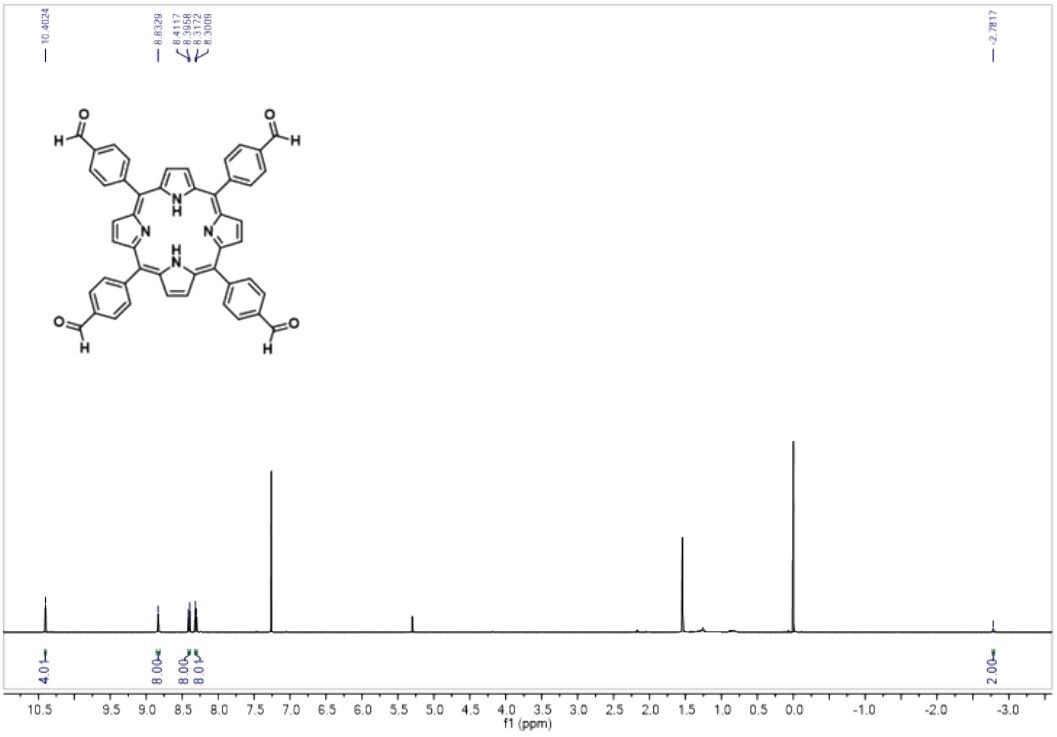

Fig. S2 ^{1}H NMR ($CDCl_3$, 500 MHz) spectrum of CHO-TPP

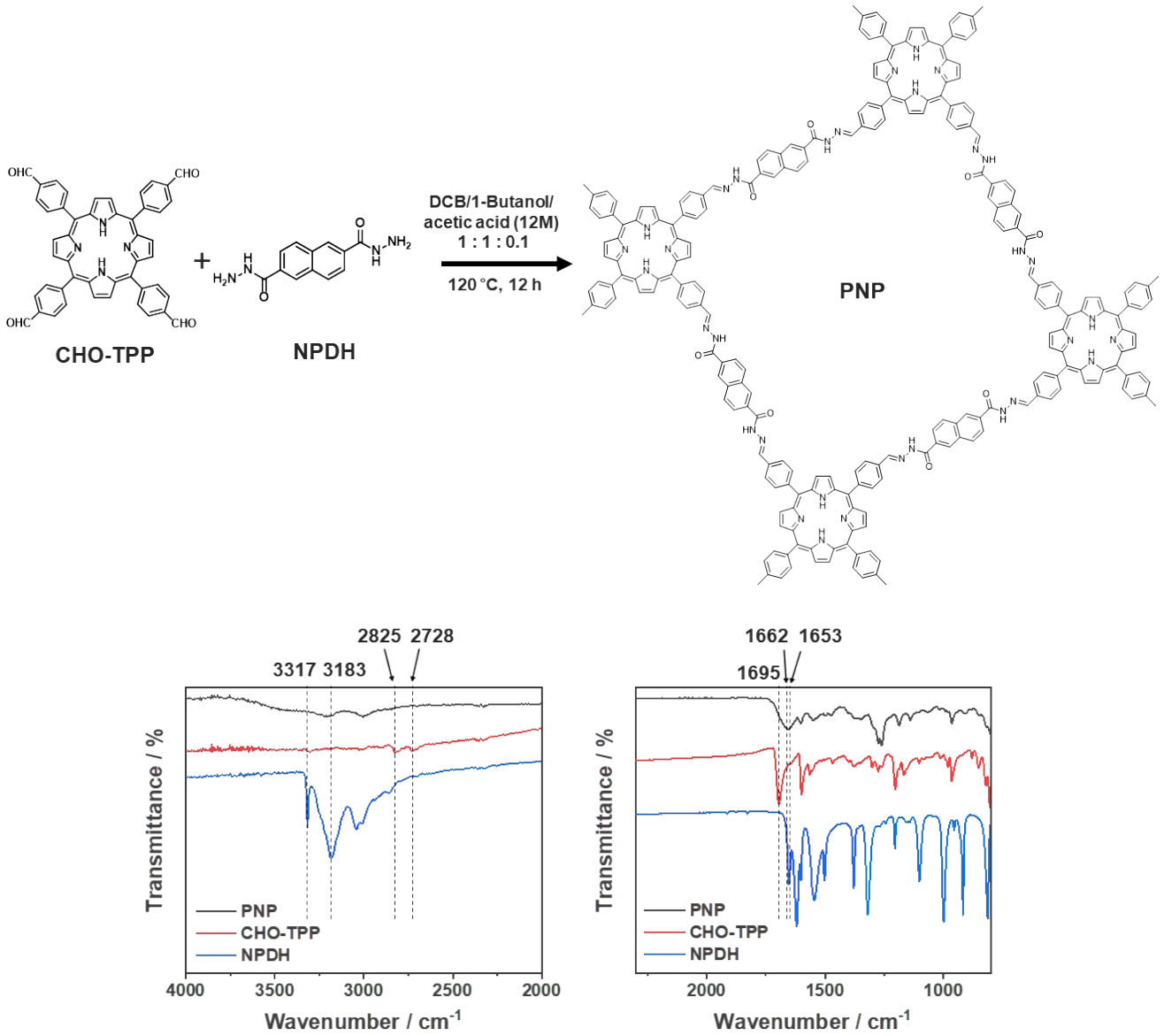

Fig. S3 Systematic representation of synthesis of PNP (top) and IR spectra of CHO-TPP, NPDH, and **PNP**.

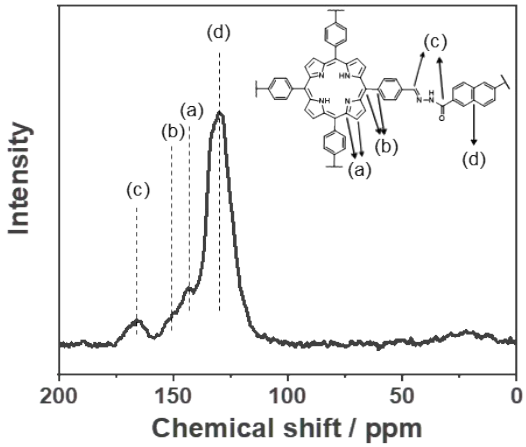

Fig. S4 Solid-state ^{13}C NMR spectra of **PNP**.

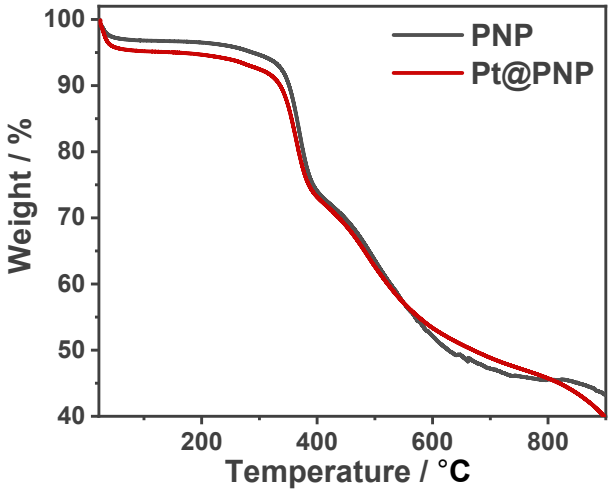

Fig. S5 TGA analysis of **PNP** and **Pt@PNP**.

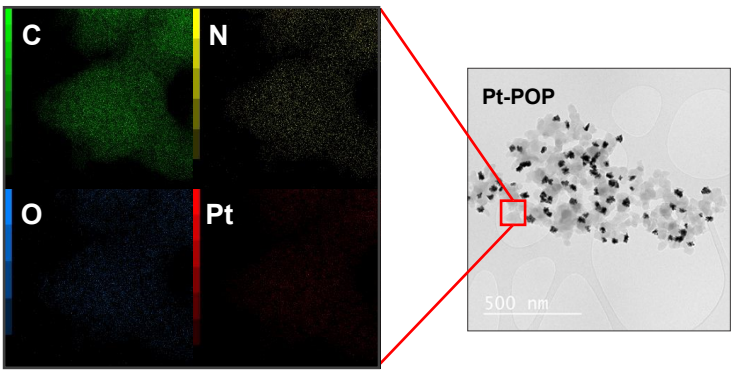

Fig. S6 EDS elemental mapping of **Pt@PNP** without black dot.

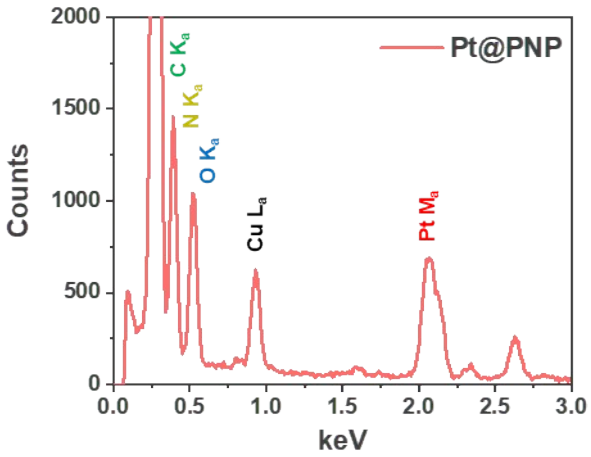

Fig. S7 Area EDS spectra of **Pt@PNP** without black dot.

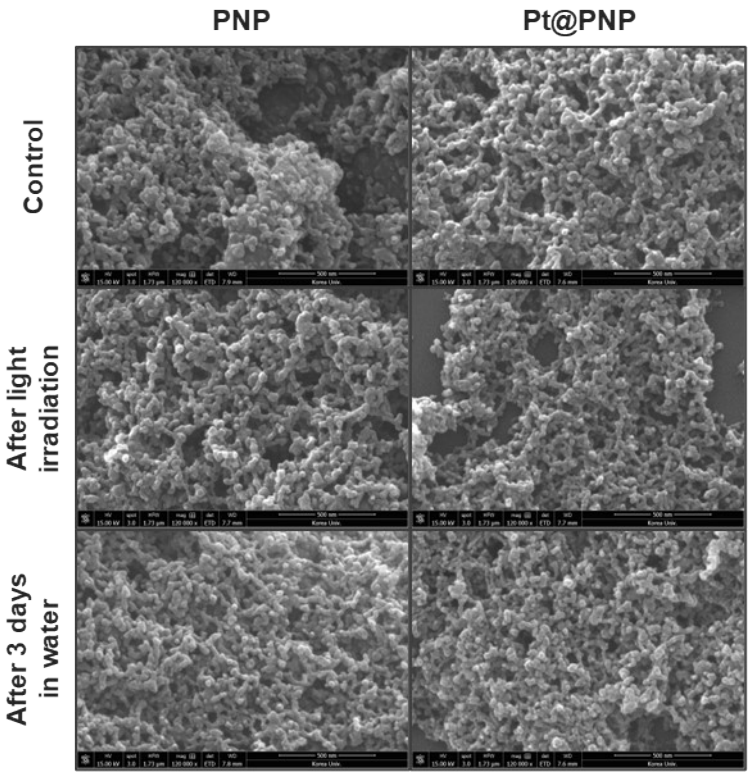

Fig. S8 SEM images of **PNP** and **Pt@PNP** for checking stability under light irradiation for 2 h and in water for 3 days.

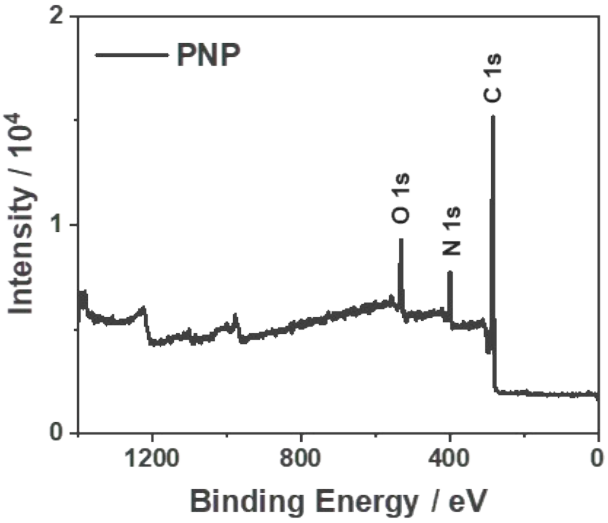

Fig. S9 XPS analysis of **PNP**.

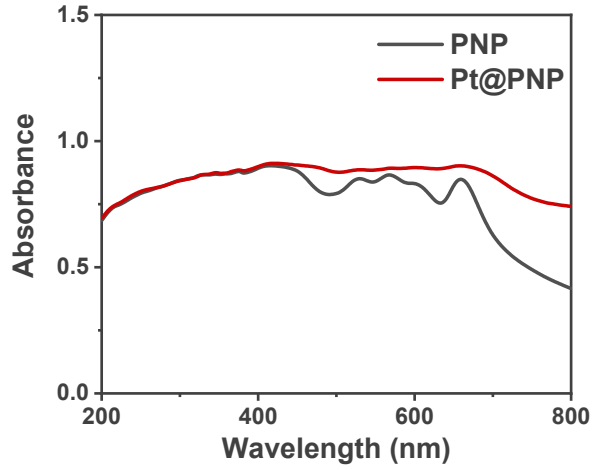

Fig. S10 Solid-state UV-vis spectra of **PNP** and **Pt@PNP**.

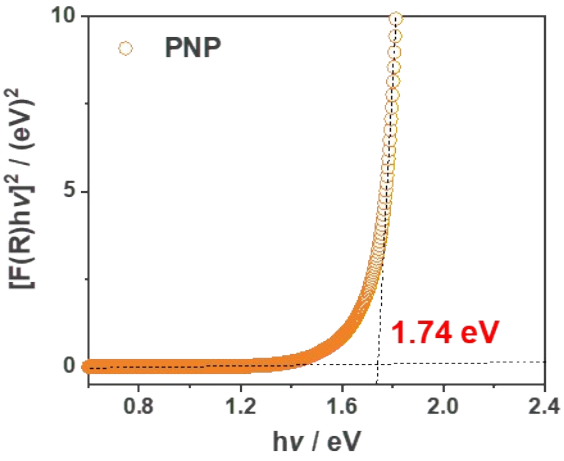

Fig. S11 The optical band gap of **PNP** from ssUV-vis reflectance spectra.

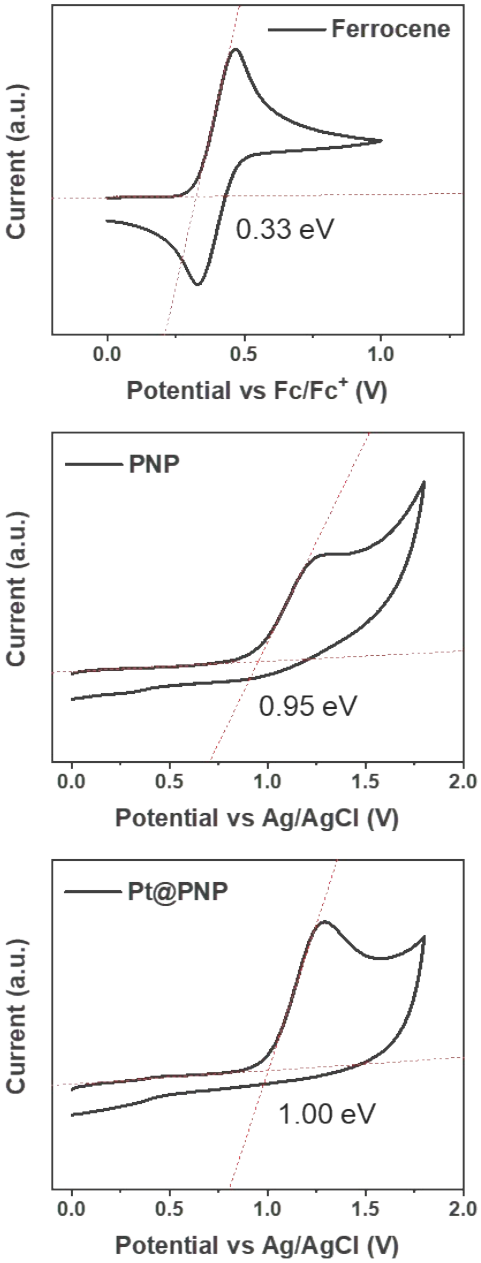

Fig. S12 Cyclic voltammetry data of ferrocene as a reference, **PNP**, and **Pt@PNP** to measure the energy level of polymers. Before the measurement of the energy level of polymers, the experiment was conducted using ferrocene as a reference in anhydrous acetonitrile with tetrabutylammonium hexafluorophosphate (0.1 M). The working electrode was prepared by drop-casting water/isopropyl alcohol suspension of POP with 5 wt% Nafion.

Solution test data of POPs

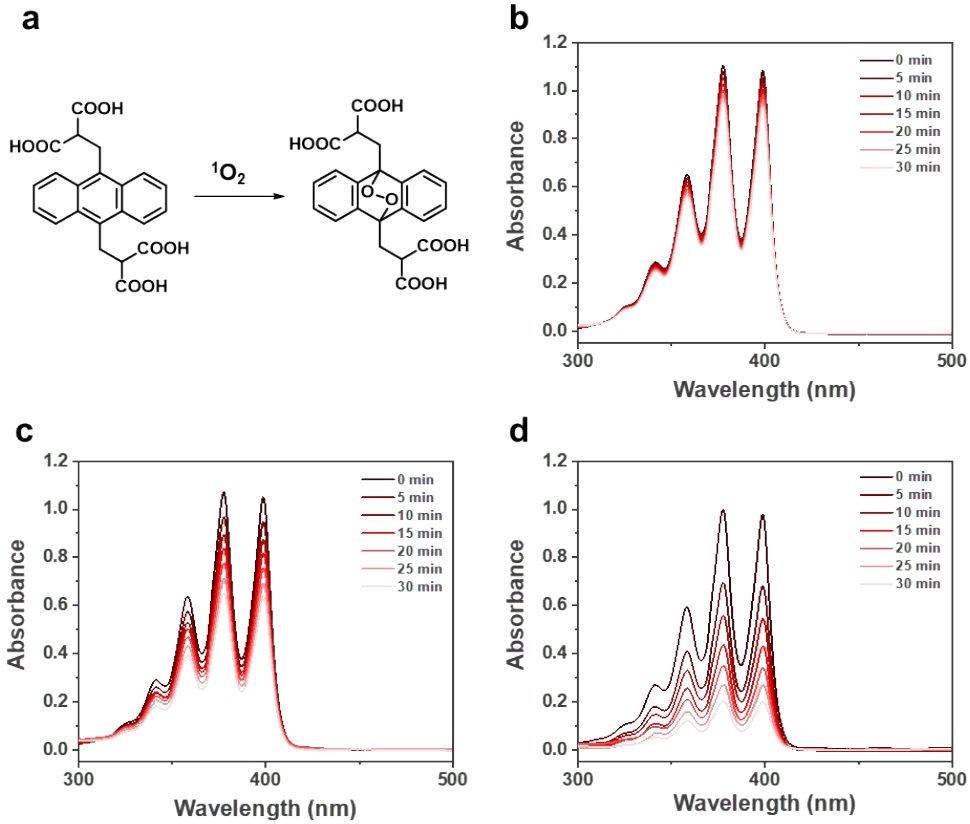

Fig. S13 (a) The reaction scheme of ABDA with singlet oxygen. Time-dependent UV-Vis absorption spectra of ABDA (100 μM) in 1% DMSO/water solution upon white LED lamp irradiation (50 mW/cm^2) (b) without/with (c) **PNP** and (d) **Pt@PNP** (0.1 mg/mL).

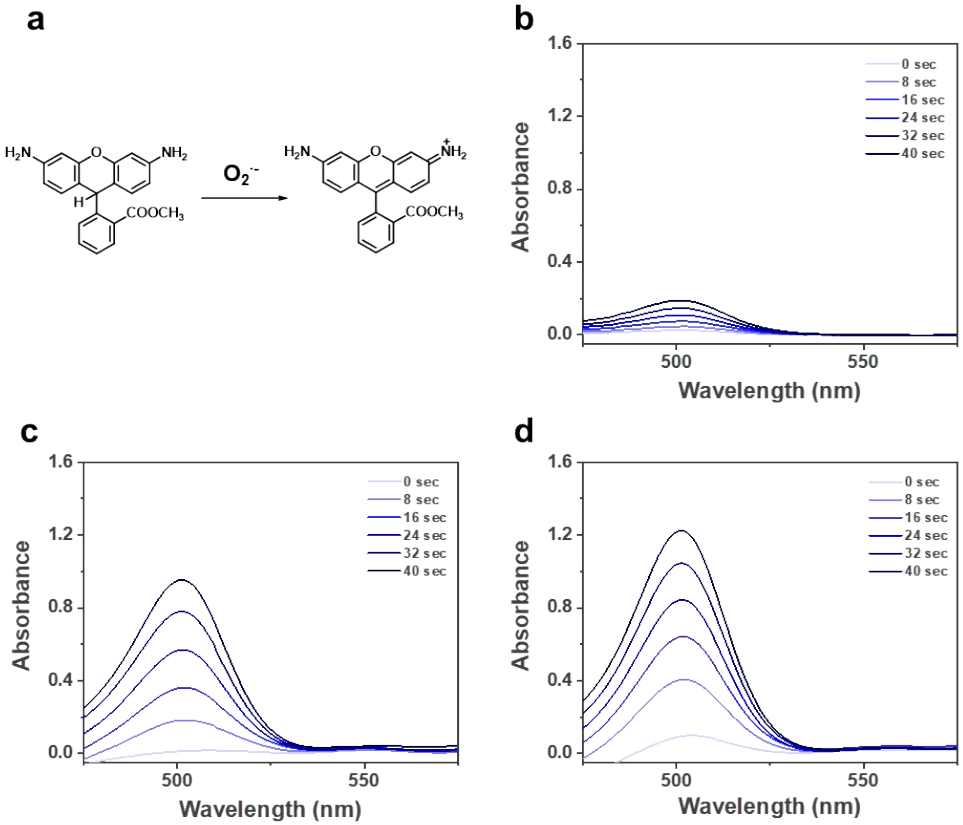

Fig. S14 (a) The reaction scheme of DHR123 with superoxide radical. Time-dependent UV-Vis absorption spectra of DHR123 (100 μM) in 1% DMSO/water solution upon white LED lamp irradiation (50 mW/cm^2) (b) without/with (c) **PNP** and (d) **Pt@PNP** (0.1 mg/mL).

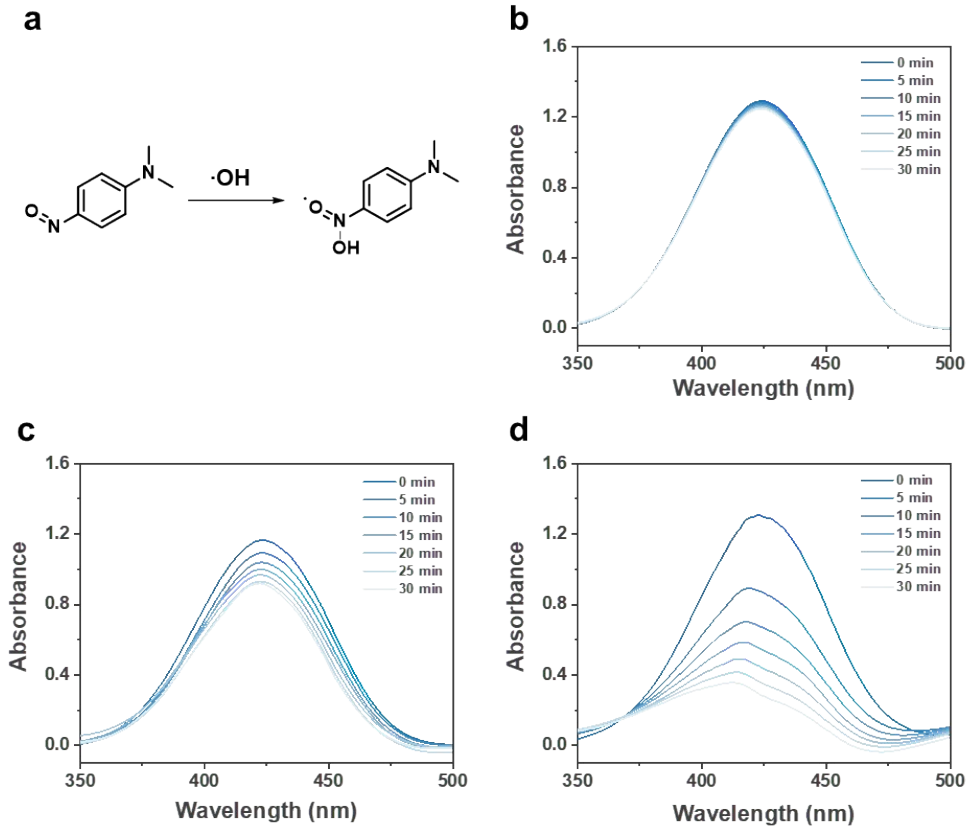

Fig. S15 (a) The reaction scheme of RNO with hydroxyl radical. Time-dependent UV-Vis absorption spectra of RNO (50 μM) in MeOH solution upon white LED lamp irradiation (50 mW/cm^2) (b) without/with (c) **PNP** and (d) **Pt@PNP** (0.1 mg/mL).

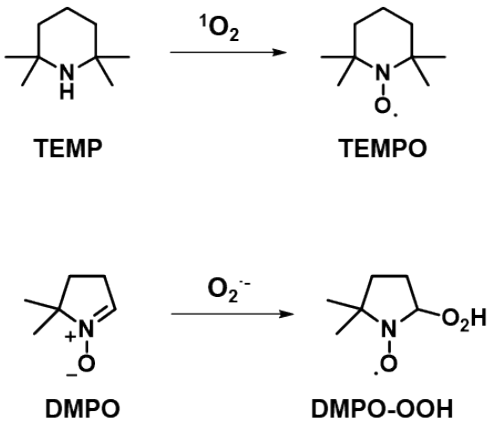

Fig. S16 The reaction scheme of TEMP and DMPO, as spin trapping-agent, after reacting with each ROS.

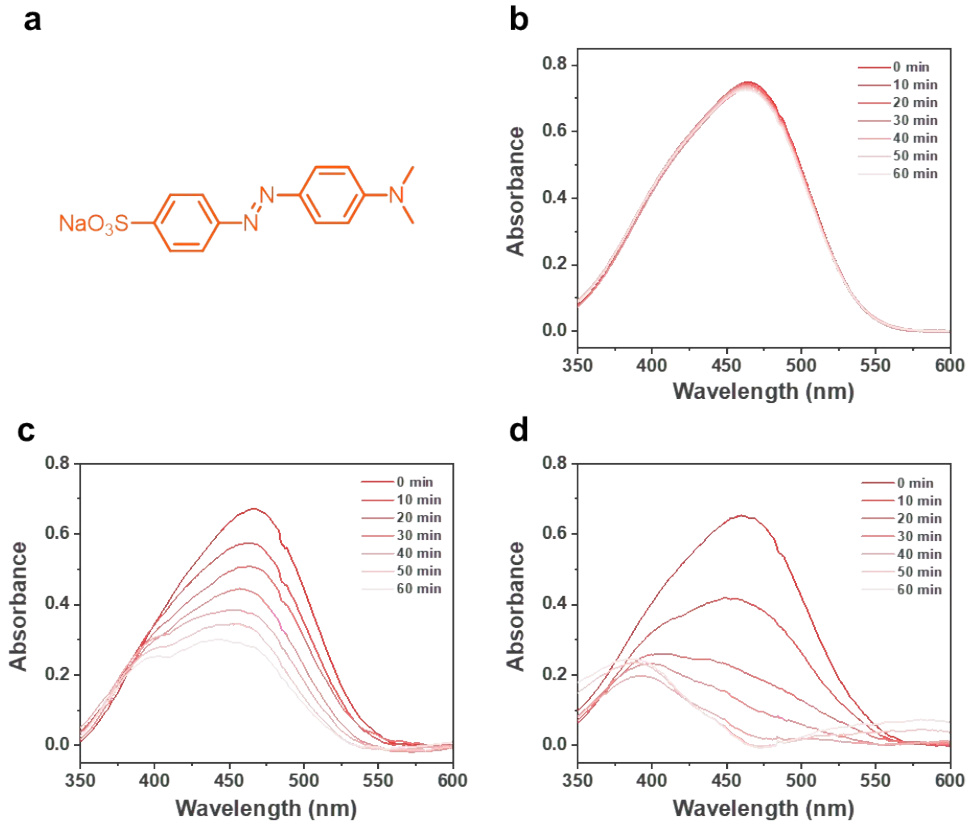

Fig. S17 (a) The structure scheme of methyl orange. Time-dependent UV-Vis absorption spectra of MO (10 ppm) in aqueous solution upon white LED lamp irradiation (50 mW/cm^2) (b) without/with (c) **PNP** and (d) **Pt@PNP** (0.1 mg/mL).

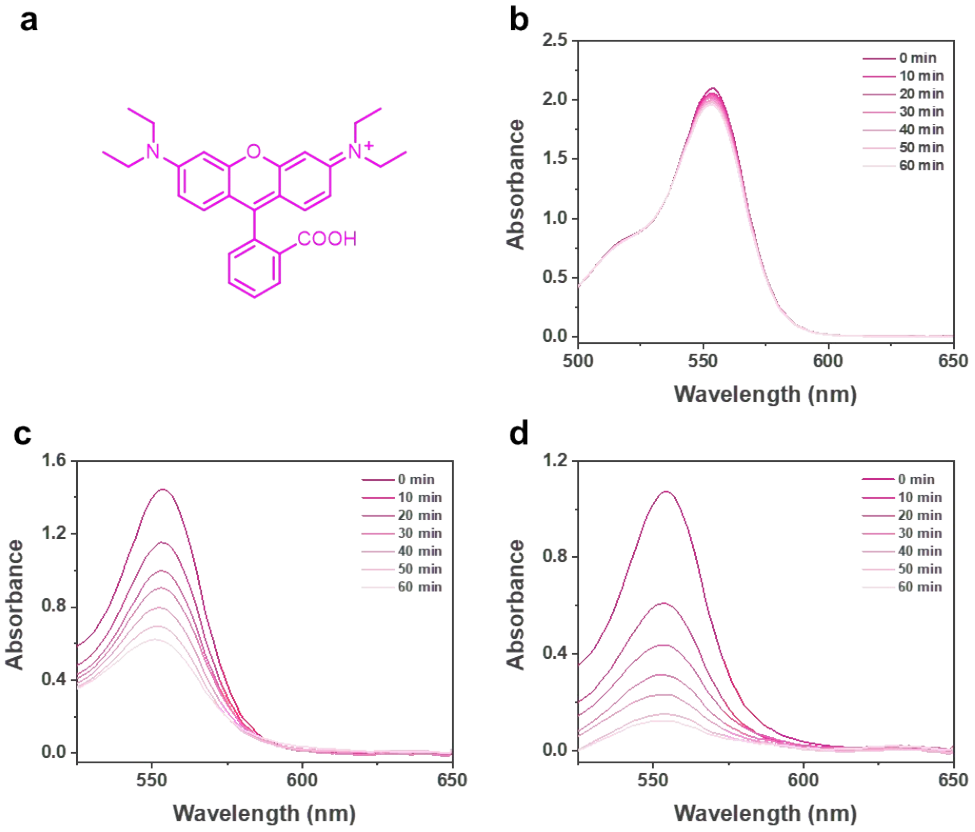

Fig. S18 (a) The structure scheme of rhodamine B. Time-dependent UV-Vis absorption spectra of Rh B (10 ppm) in aqueous solution upon white LED lamp irradiation (50 mW/cm^2) (b) without/with (c) **PNP** and (d) **Pt@PNP** (0.1 mg/mL).