

Supporting Information

For

Ruthenium-Nitrosyl-Functionalized Nanoplatfom for the Targeting of Liver Cancer Cells and NIR-Light Controlled Delivery of Nitric Oxide Combined with Photothermal Therapy

Yan-Hui Li,^a Min Guo,^a Shu-Wen Shi,^a Qian-Ling Zhang,^b Shi-Ping Yang,^c and Jin-Gang Liu^{a*}

^aKey Lab for Advanced Materials, School of Chemistry & Molecular Engineering, East China University of Science and Technology, Shanghai, 200237, P. R. China, E-mail: liujingang@ecust.edu.cn

^bShenzhen Key Lab of Functional Polymer, College of Chemistry and Environmental Engineering, Shenzhen University, Shenzhen, 518060, P. R. China

^cKey Lab of Resource Chemistry of MOE & Shanghai Key Lab of Rare Earth Functional Materials, Shanghai Normal University, Shanghai, 200234, P. R. China

The 10-((2S, 3S, 4R, 5S, 6S)-3, 4, 5-trihydroxy-6-(hydroxymethyl) tetrahydro-2H-pyran-2-yloxy)decanoic acid (**Gal**) was prepared according to previously reported method,¹ and its identity² was confirmed by ¹H NMR and ESI-TOF-MS.

¹H NMR (400 MHz, CD₃OD): 4.20 (d, 1H, H-1), 3.92 (dt, 1H, OCHHCH₂), 3.81 (dd, 1H, H-4), 3.68-3.72 (m, 1H, H-6a), 3.73-3.77 (m, 1H, H-6b), 3.60 (dt, *J* = 6.0, 1H, OCHHCH₂), 3.49-3.52 (m, 2H, H-2, H-5), 3.45 (dd, H-3, 1H), 2.27 (t, 2H, CH₂CH₂COOH), 1.59–1.61 (m, 4 H, CH₂), 1.35–1.28 (m, 10H, CH₂).

ESI-TOF-MS: Calcd. for C₁₆H₂₉O₈ (M-H)⁻: *m/z* = 349.19; Found: *m/z* = 349.23 (negative mode); Calcd. for C₁₆H₃₀O₈Na (M+Na)⁺: *m/z* = 373.18; Found: *m/z* = 373.16 (positive mode).

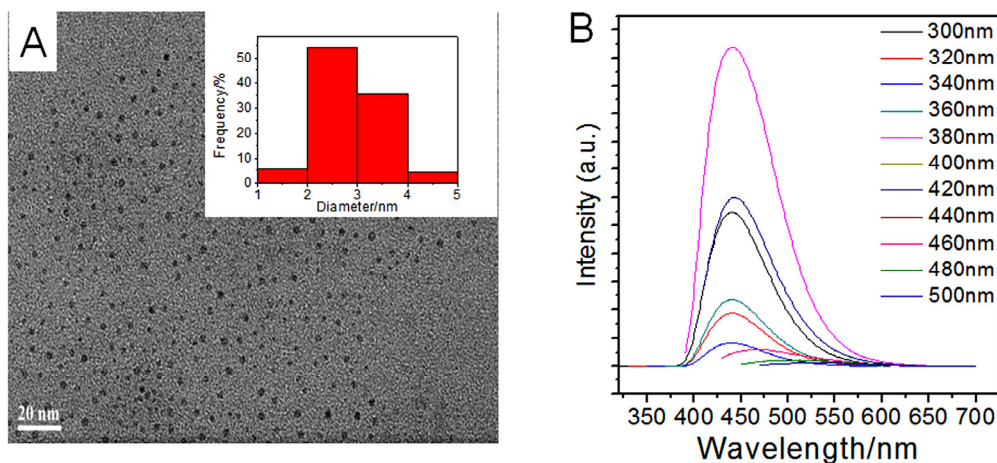


Figure S1 (A) TEM image of N-GQDs. The inset shows the statistical size distribution of N-GQDs. (B) Fluorescence spectra of N-GQDs in aqueous solution with excitation ranging from 300 to 500 nm.

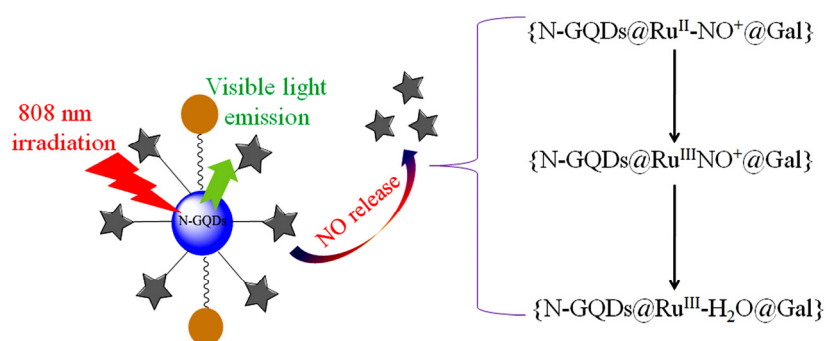


Figure S2 Plausible photochemical pathways for NO release from nanoplatform 1 under 808 nm laser irradiation.

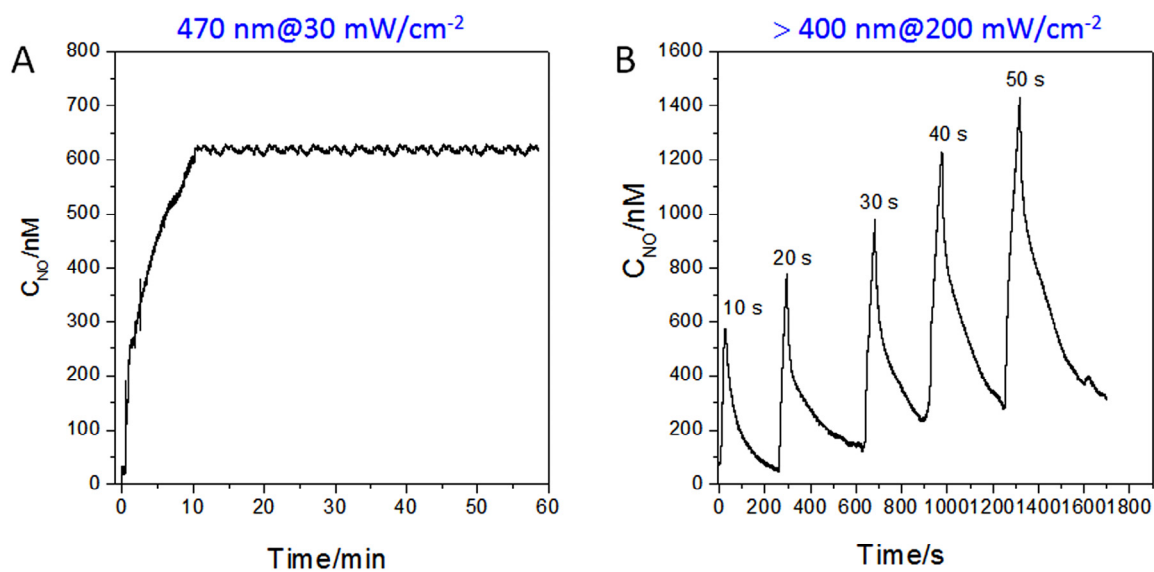


Figure S3 (A) Light-induced release of NO from 1.5 mg/mL of nanoplatform 1 in an anaerobic saline solution under a constant 470-nm light irradiation (30 mW/cm^2 , LED BLR 470 nm light). (B) NO flux released from 1.5 mg/mL of nanoplatform 1 in an anaerobic saline solution upon irradiation with visible light (200 mW/cm^2 , $> 400 \text{ nm}$, Asahi Spectra Max 303, 1.0 collimator lens and a longpass filter UV400) for the indicated time periods.

References:

- 1 B. Becker, R. H. Furneaux, F. Reck, O. A. Zubkov, *Carbohydr. Res.*, 1999, **315**, 148-158.
- 2 T. Kodai, K. Umebayashi, T. Nakatani, K. Ishiyama, N. Noda, *Chem. Pharm. Bull.*, 2007, **55**, 1528-1531.