Supporting Information

A lysosome-targeted near-infrared photosensitizer for photodynamic therapy and two-photon fluorescence imaging

Yinuo Tu[1†], Weikang Xia[2†], Xu Wu[1,*], Lei Wang[2,*]

1. Department of Thoracic Surgery, Huiqiao Medical Center, Nanfang Hospital, Southern Medical University, Guangzhou, Gaungdong, 510515, China

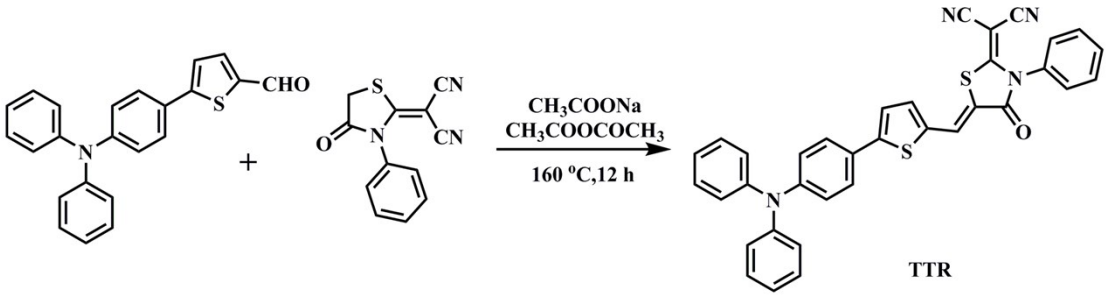
2. College of Materials and Chemical Engineering, Key Laboratory of Inorganic Nonmetallic Crystalline and Energy Conversion Materials, China Three Gorges University, Yichang, 443002, China

†These authors contributed equally to this work.

Corresponding authors: wuxu_southhospital@163.com

lei.wang@ctgu.edu.cn

Contents



Scheme S1. The Synthesis routine of **TTR**.

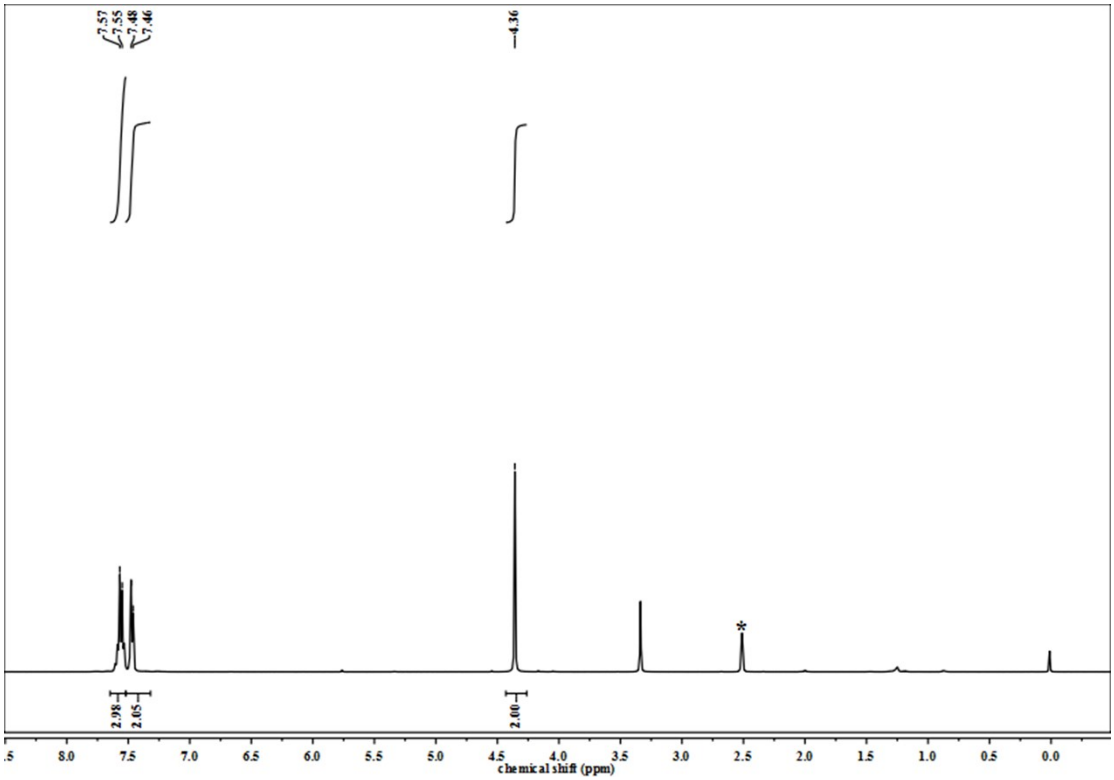


Figure S1. The ^{1}H NMR of 2-dicyanomethylenethiazole.

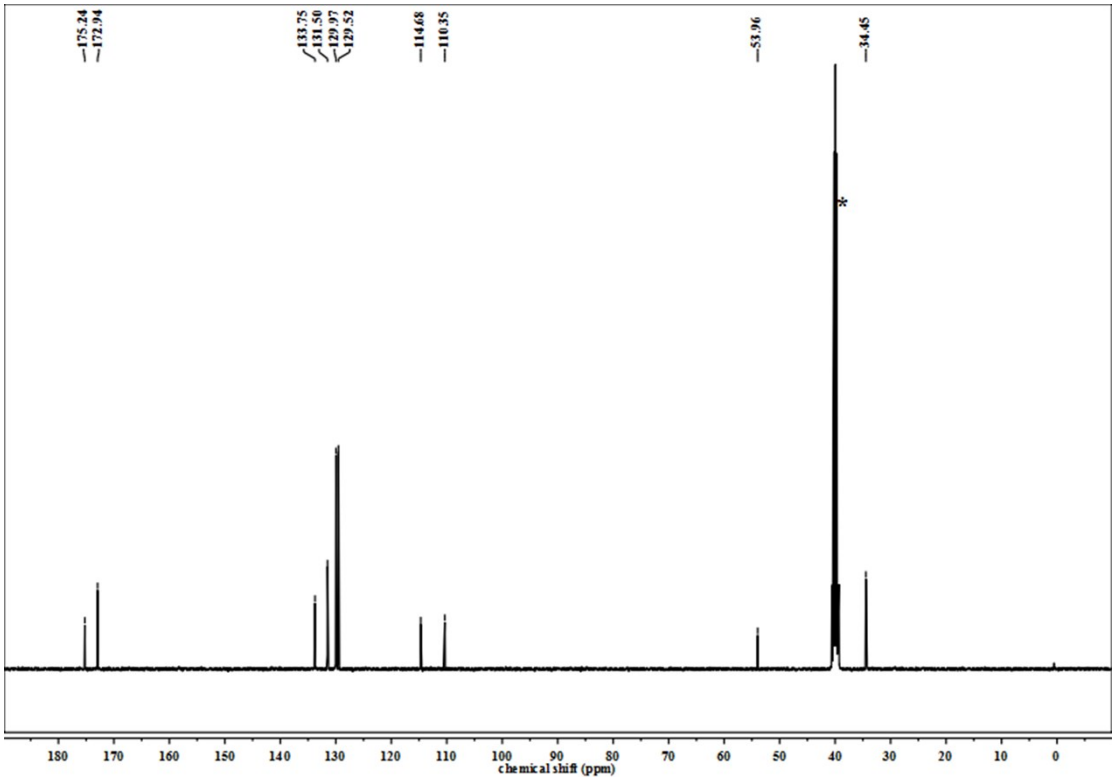


Figure S2. The ^{13}C NMR of 2-dicyanomethylenethiazole.

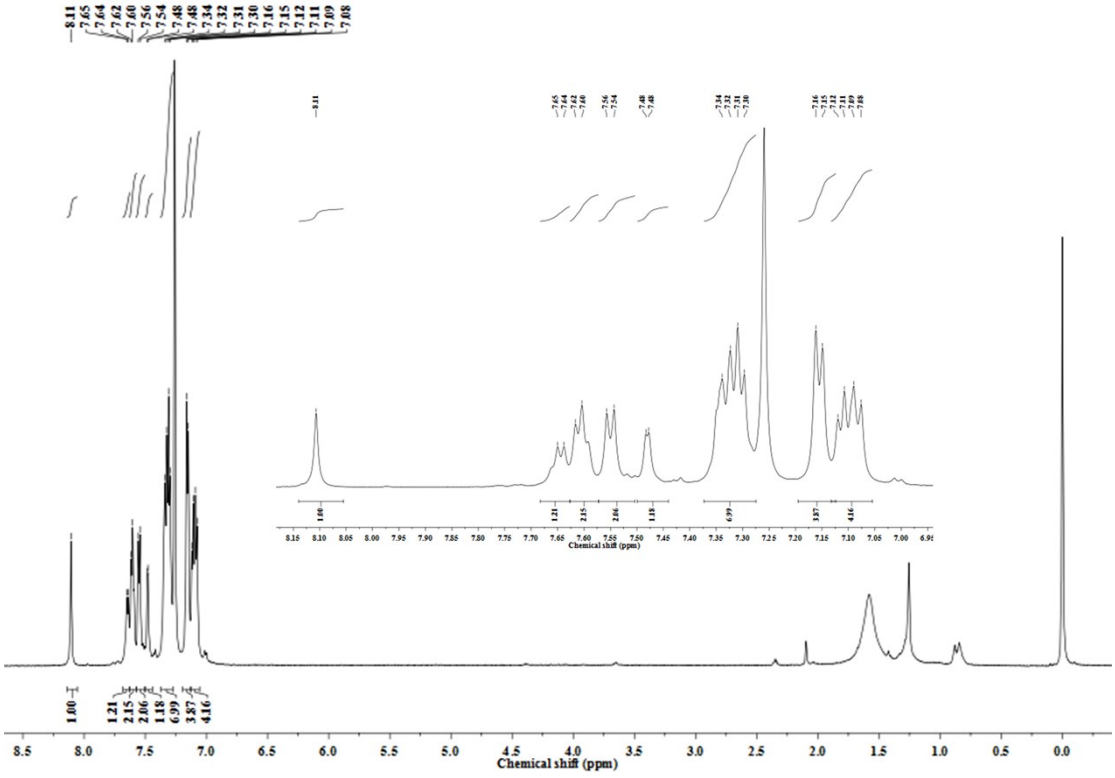


Figure S3. The ^{1}H NMR of **TTR**.

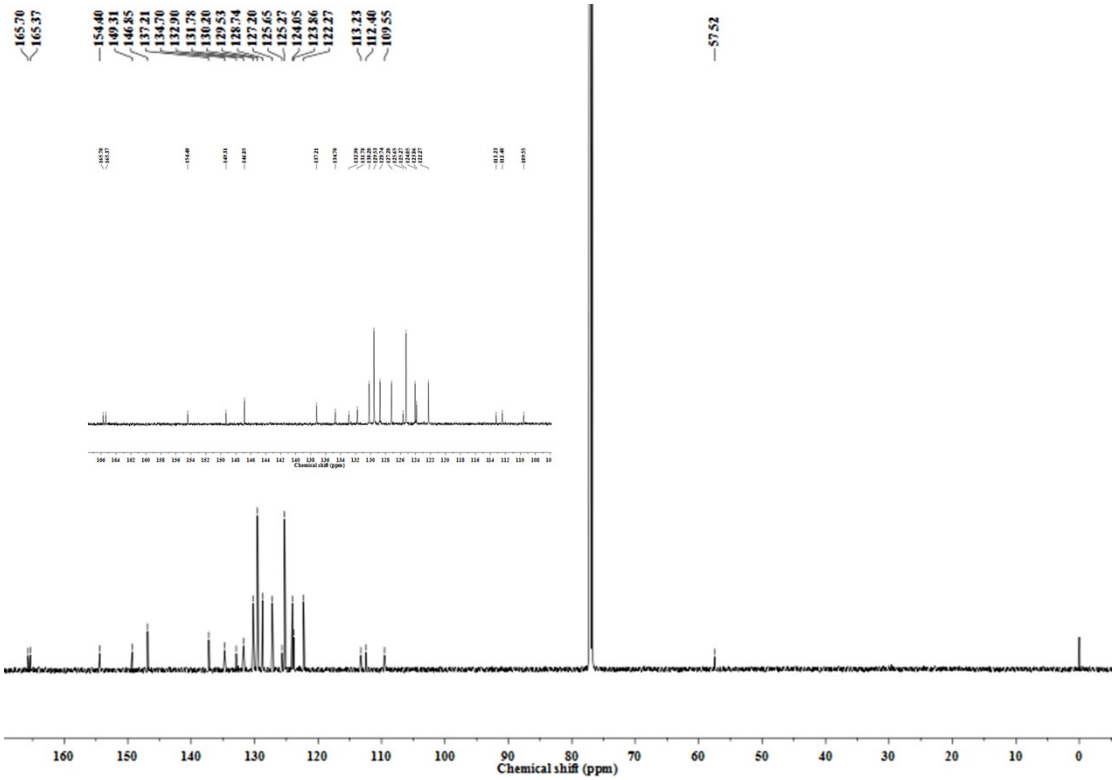


Figure S4. The ^{13}C NMR of **TTR**.

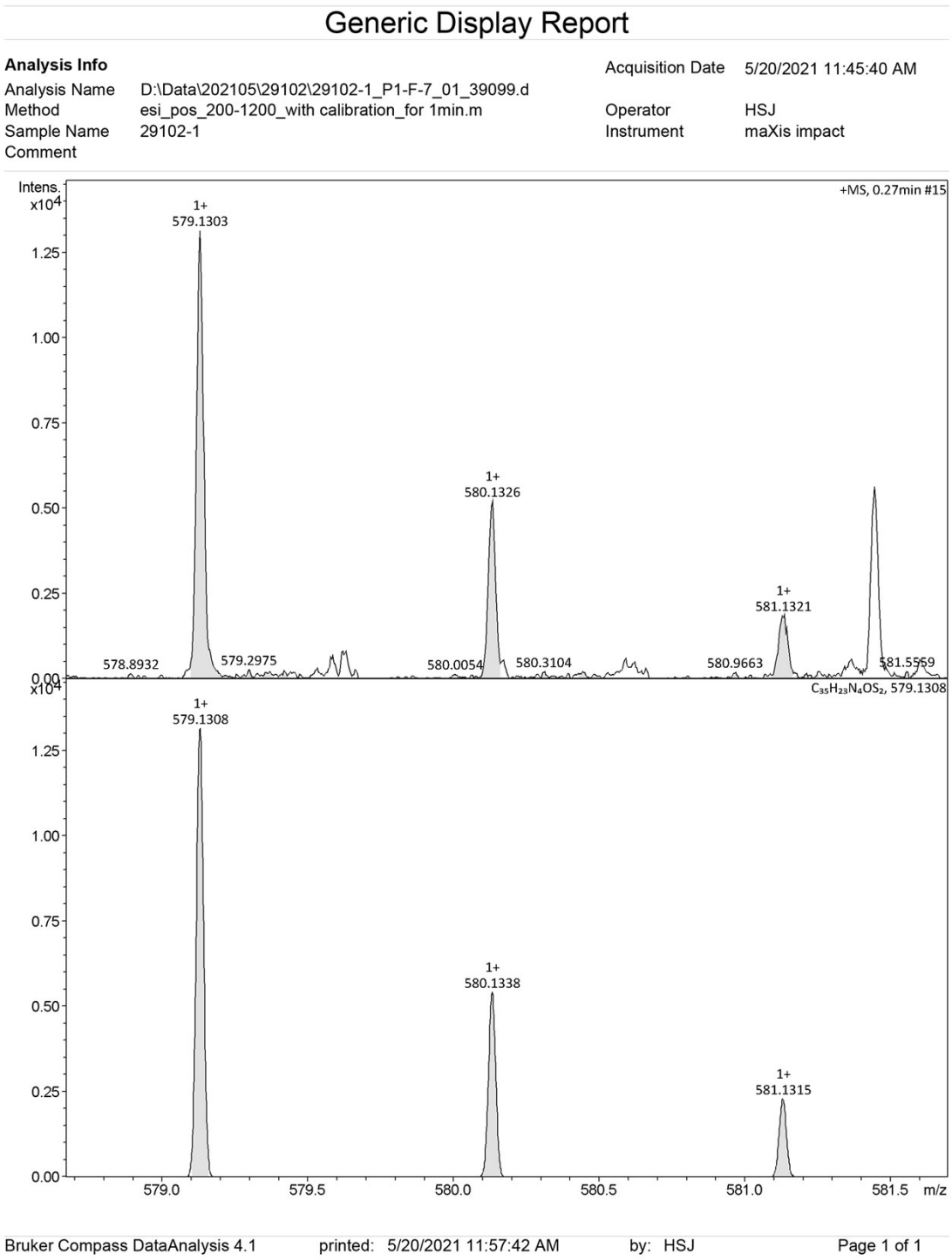


Figure S5. The HRMS of **TTR**.

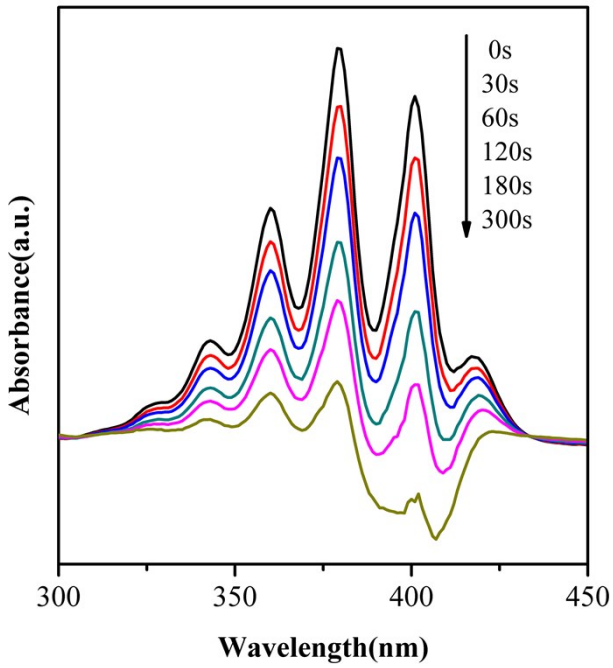


Figure S6. UV-vis spectrum of ABDA in presence of Ce6 (2 μM) under white light irradiation (60 mW/cm^2)

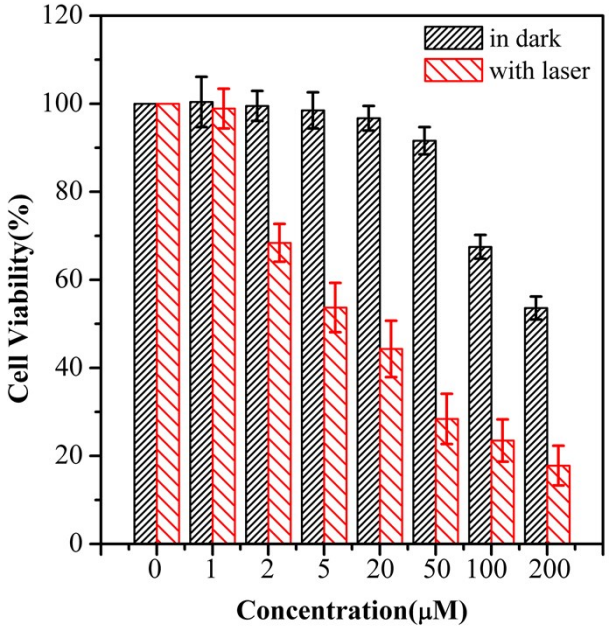


Figure S7. The cell viability of **TTR** in dark or upon laser irradiation (400~700 nm, 60 mW/cm^2).

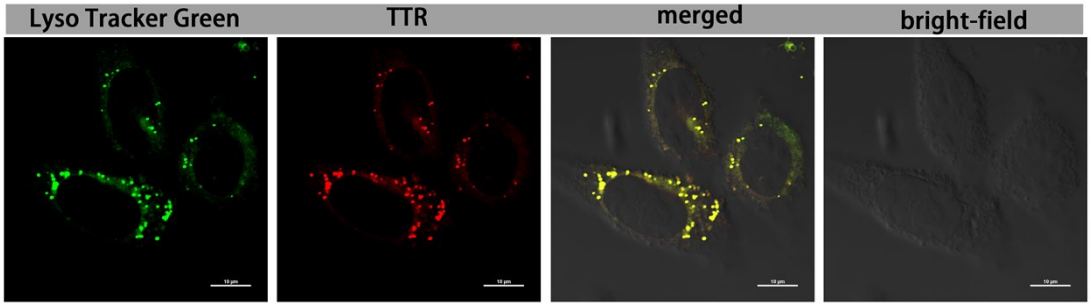


Figure S8. Confocal fluorescence images of HeLa cells

Scatter Region	Number Pixels	Area [µm x µm]	Relative Area [%]	Mean Intensity Ch2 GaAsP-T1	Mean Intensity Ch2 GaAsP-T2	Standard Deviation Ch2 GaAsP-T1	Standard Deviation Ch2 GaAsP-T2	Colocalization Coefficient Ch2 GaAsP-T1	Colocalization Coefficient Ch2 GaAsP-T2	Weighted Coloc. Coefficient Ch2 GaAsP-T1	Weighted Coloc. Coefficient Ch2 GaAsP-T2	Overlap Coefficient	Correlation R	Correlation R x R
1	21331	164.66	2.0	39.6	13.1	11.3	4.5							
2	56345	434.94	5.4	12.3	25.1	9.4	6.9							
3	50260	387.97	4.8	70.5	49.7	49.7	36.3	0.702	0.471	0.808	0.638	0.90	0.83	0.70

Scatter Region	Number Pixels	Area [µm x µm]	Relative Area [%]	Mean Intensity Ch2 GaAsP-T1	Mean Intensity Ch2 GaAsP-T2	Standard Deviation Ch2 GaAsP-T1	Standard Deviation Ch2 GaAsP-T2	Colocalization Coefficient Ch2 GaAsP-T1	Colocalization Coefficient Ch2 GaAsP-T2	Weighted Coloc. Coefficient Ch2 GaAsP-T1	Weighted Coloc. Coefficient Ch2 GaAsP-T2	Overlap Coefficient	Correlation R	Correlation R x R
1	15099	116.55	1.4	68.7	18.5	20.4	6.9							
2	3752	28.96	0.4	36.8	38.1	8.9	12.7							
3	17743	136.96	1.7	108.3	57.5	48.6	30.8	0.540	0.825	0.649	0.877	0.81	0.62	0.39

Figure S9. The relevant cofficient data for HeLa cells (above) and A549 cells (below)

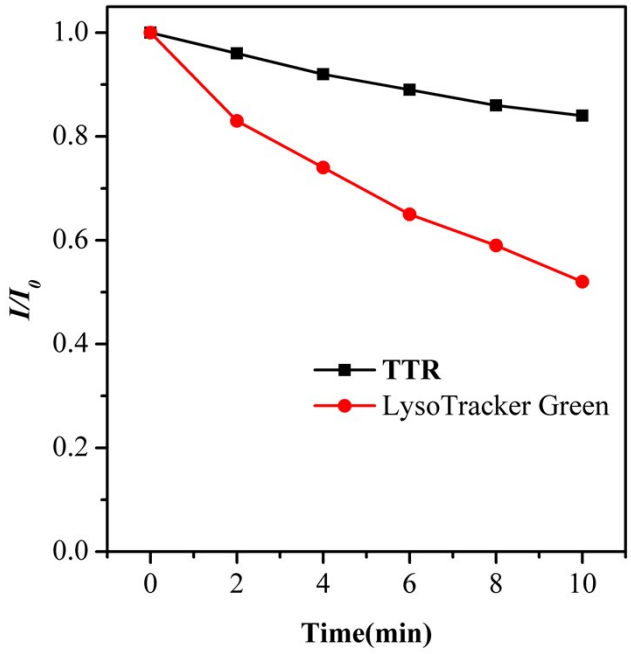


Figure S10. The photostability of **TTR** and Lysosensor Yellow under continuous scanning at 561 nm(2% laser power) for 10 mins, where I_0 is the initial fluorescence intensity and I is the fluorescence intensity of each sample at various time points.

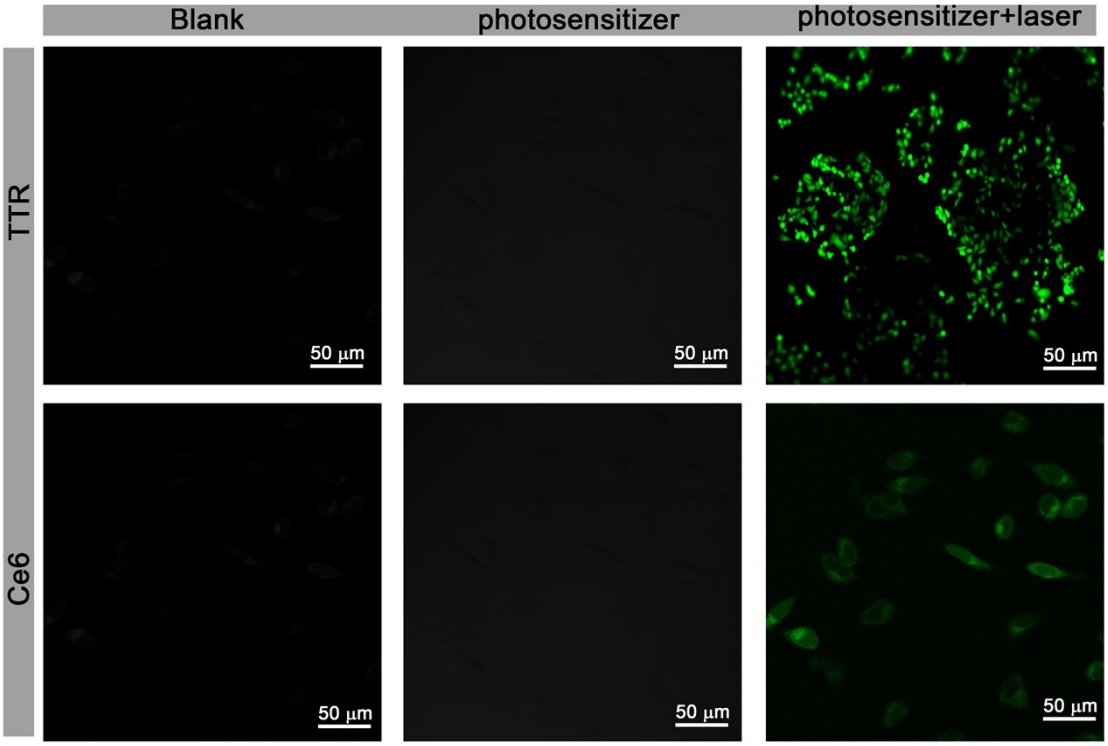


Figure S11. Detection of intracellular ROS generation by DCFDA in presence of **TTR** (2 μM) and Ce6 (2 μM) under laser off and irradiation (60 mW/cm^2) in 4T1 cells