

Supporting Information

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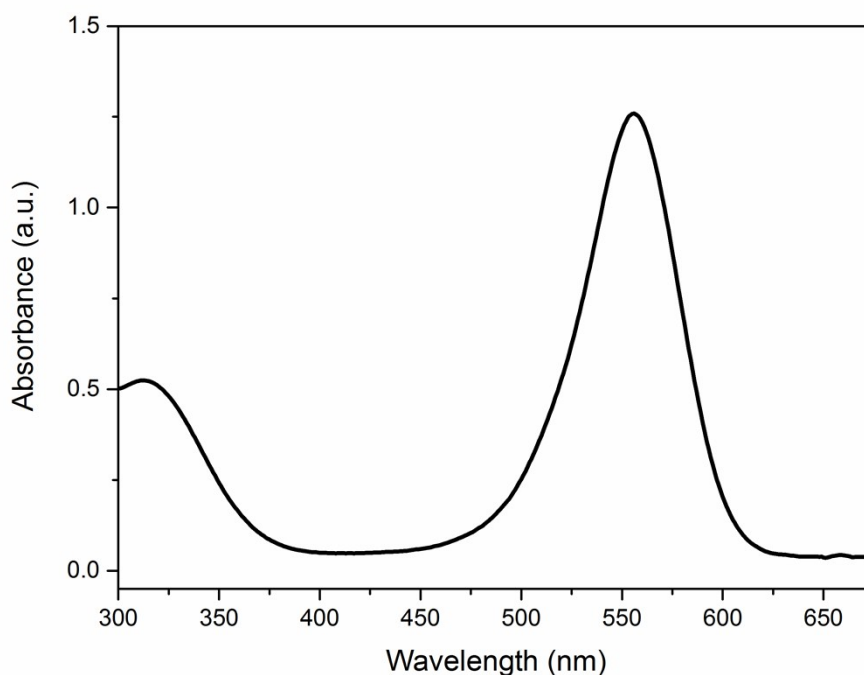


Figure S1 UV-Vis spectrum of TPE-DASA before visible light (532 nm) irradiation in THF. [TPE-DASA]= 4.456×10^{-5} M.

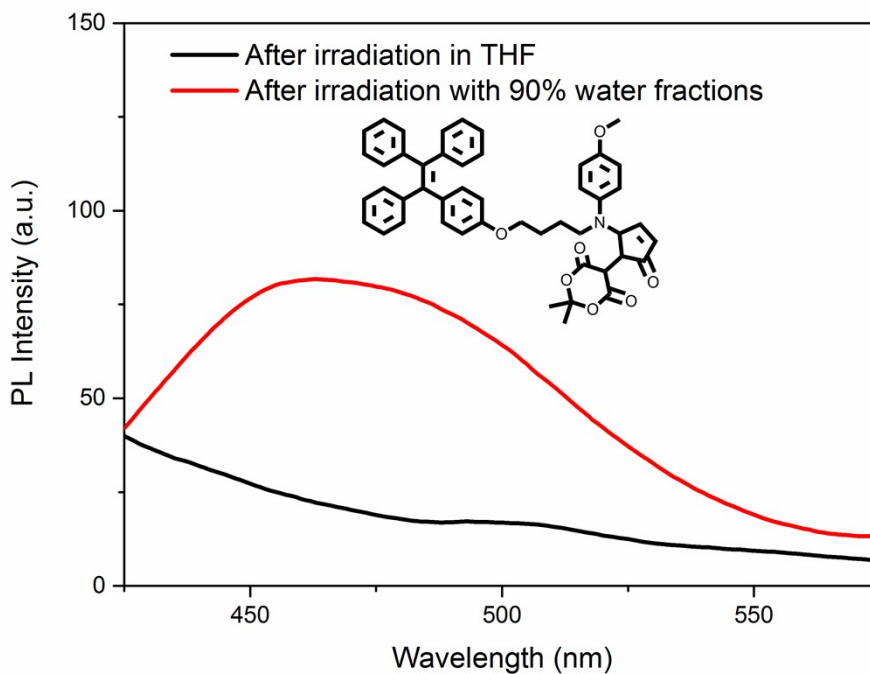
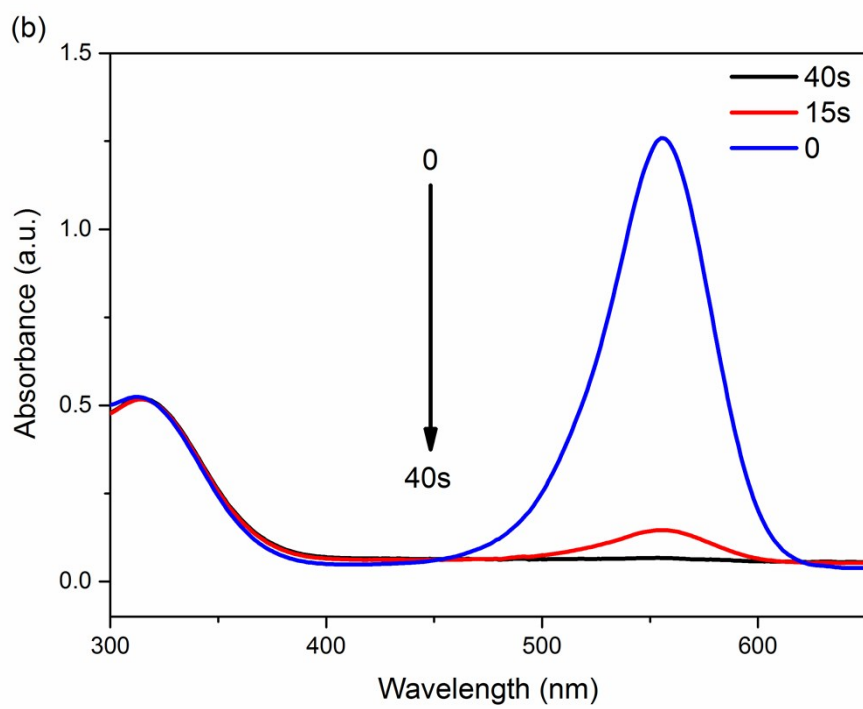
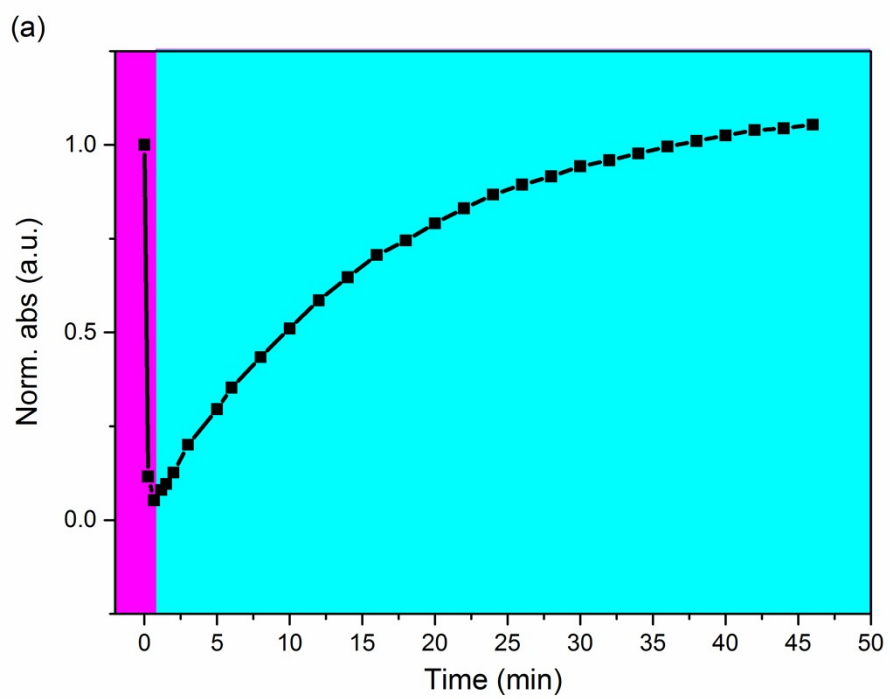


Figure S2 Photoluminescence spectra of TPE-DASA after visible light (532 nm) irradiation with 90% water fractions and pure THF excited at 322 nm (red line: 90% water fractions; black line: pure THF). [TPE-DASA]= 4.456×10^{-5} M.



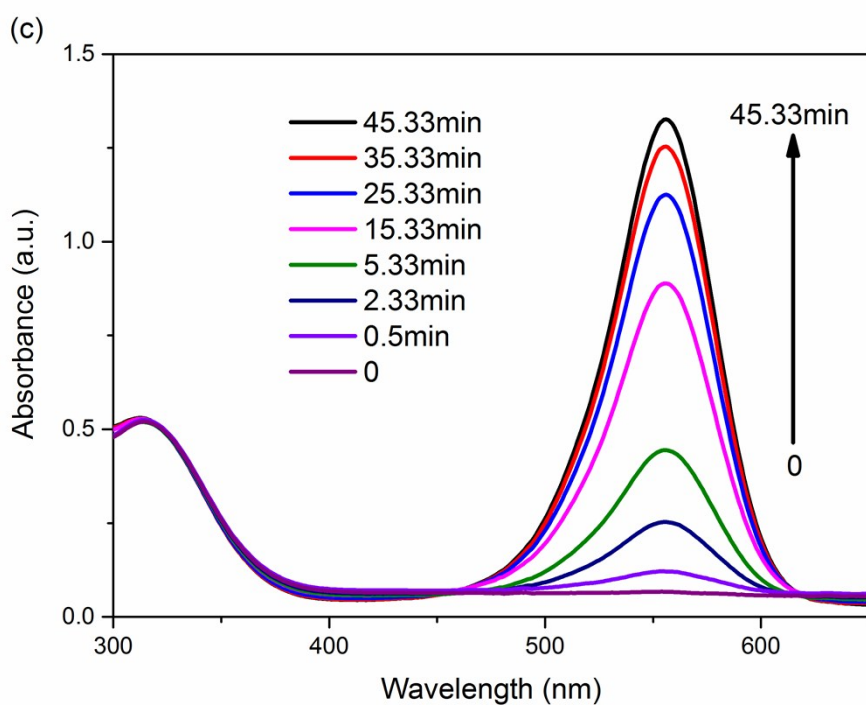


Figure S3 (a) The curve of relative absorption peak intensity of TPE-DASA in THF at 556 nm vs. irradiation and darkness time (purple region: irradiation; blue region: darkness). UV-Vis spectra of TPE-DASA were measured in THF at different visible light (532 nm) irradiation time (b) and darkness time (c). $[TPE-DASA] = 4.456 \times 10^{-5} M$.

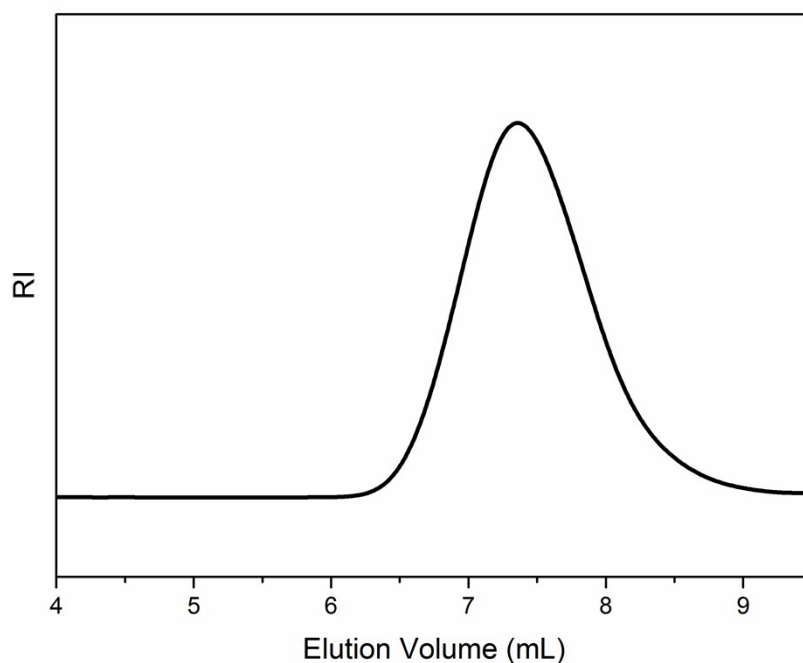


Figure S4 The GPC trace of polymethyl methacrylate (PMMA) ($M_n = 15,000 \text{ g}\cdot\text{mol}^{-1}$, $M_w = 28,000 \text{ g}\cdot\text{mol}^{-1}$, PDI = 1.87)

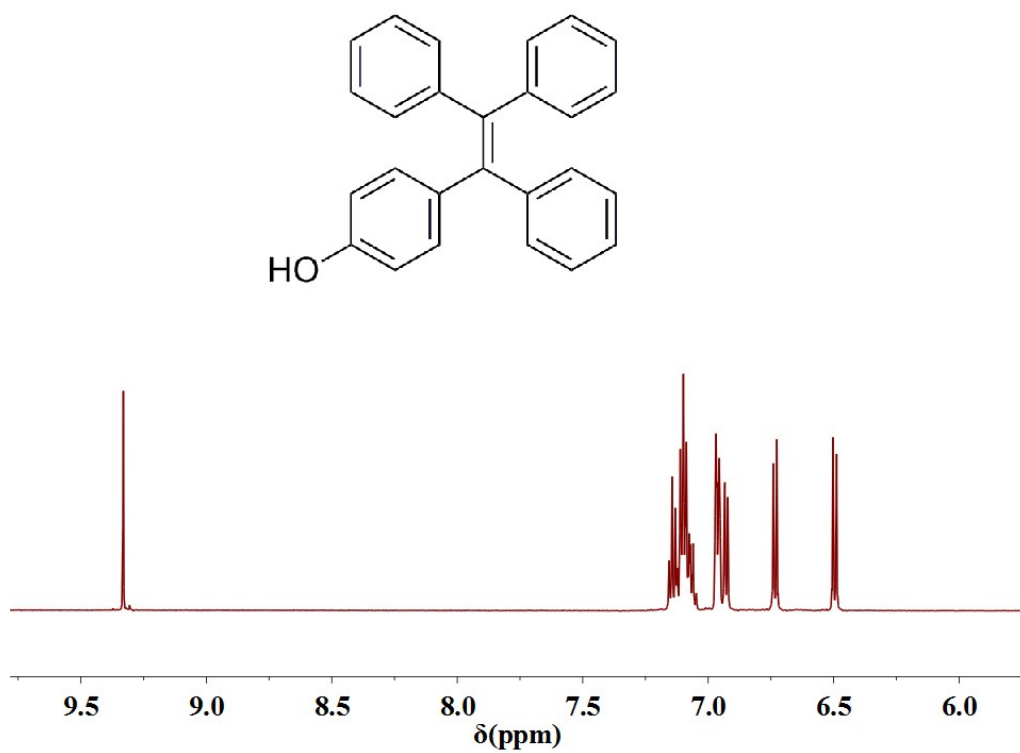


Figure S5 ¹H NMR spectrum of TPE-OH in DMSO-d₆

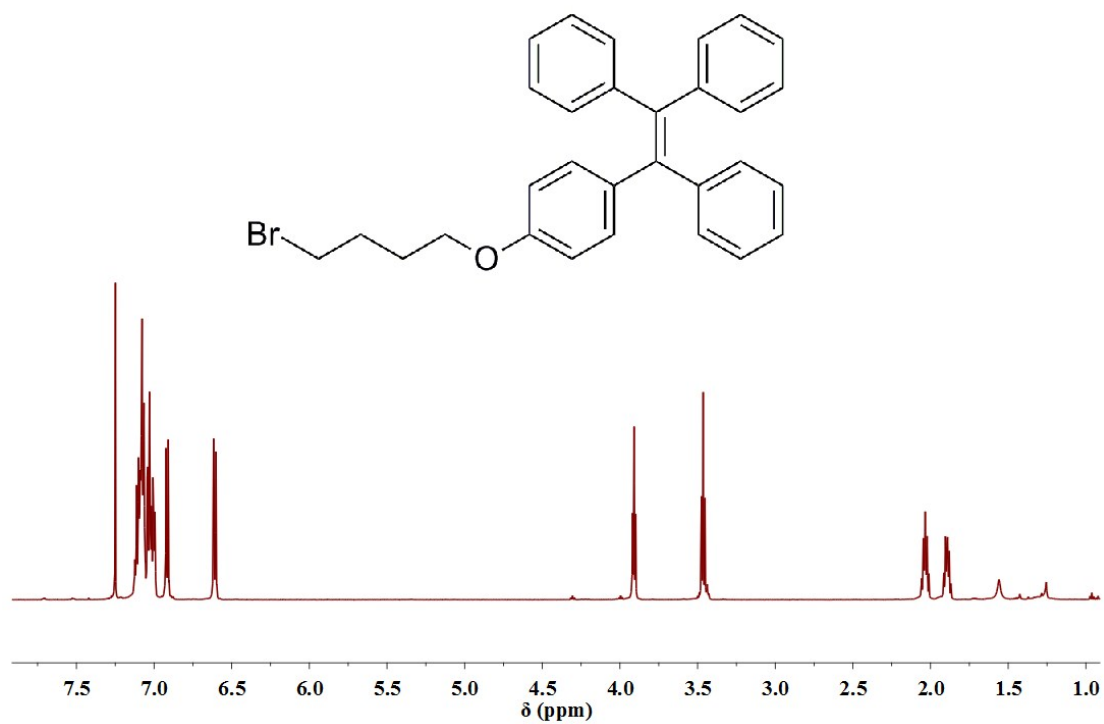


Figure S6 ¹H NMR spectrum of TPE-Br in CDCl₃

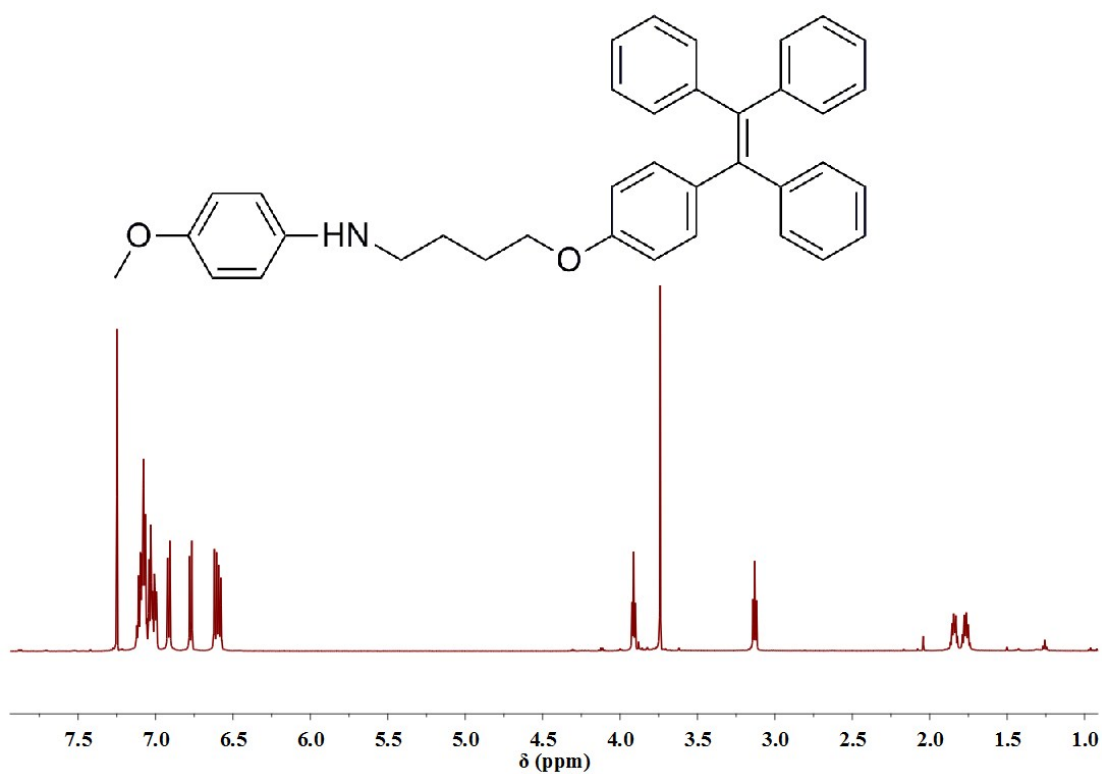


Figure S7 ¹H NMR spectrum of TPE-NH in CDCl₃

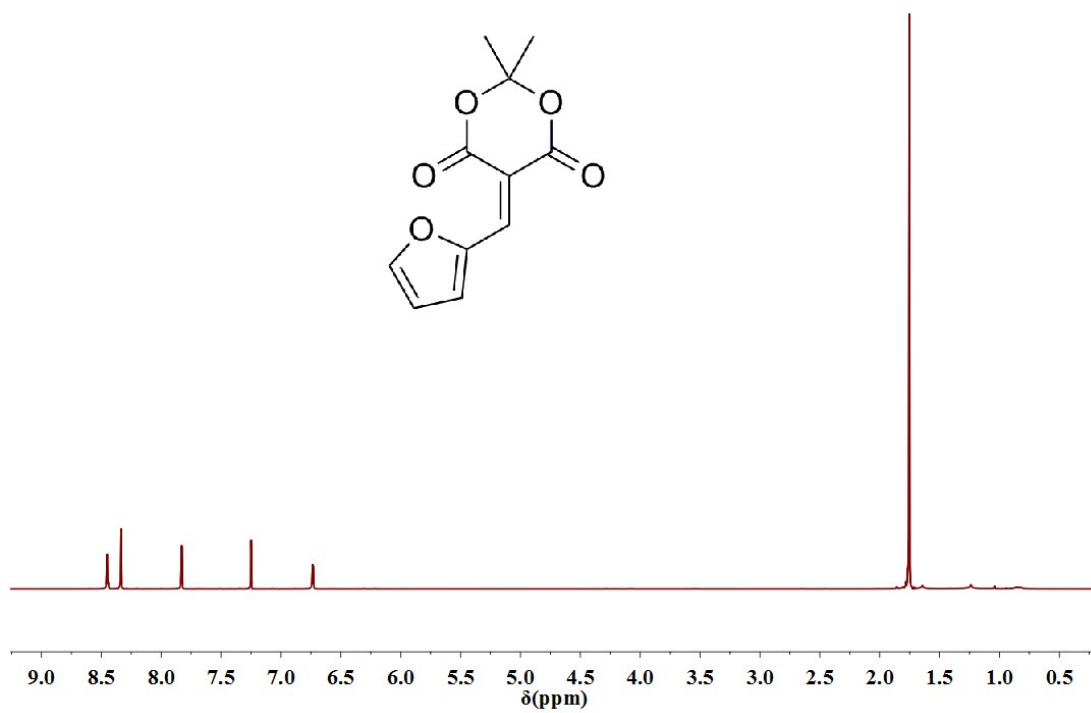


Figure S8 ¹H NMR spectrum of 5-(furan-2-ylmethylene)-2,2-dimethyl-1,3-dioxane-4,6-dione in CDCl₃

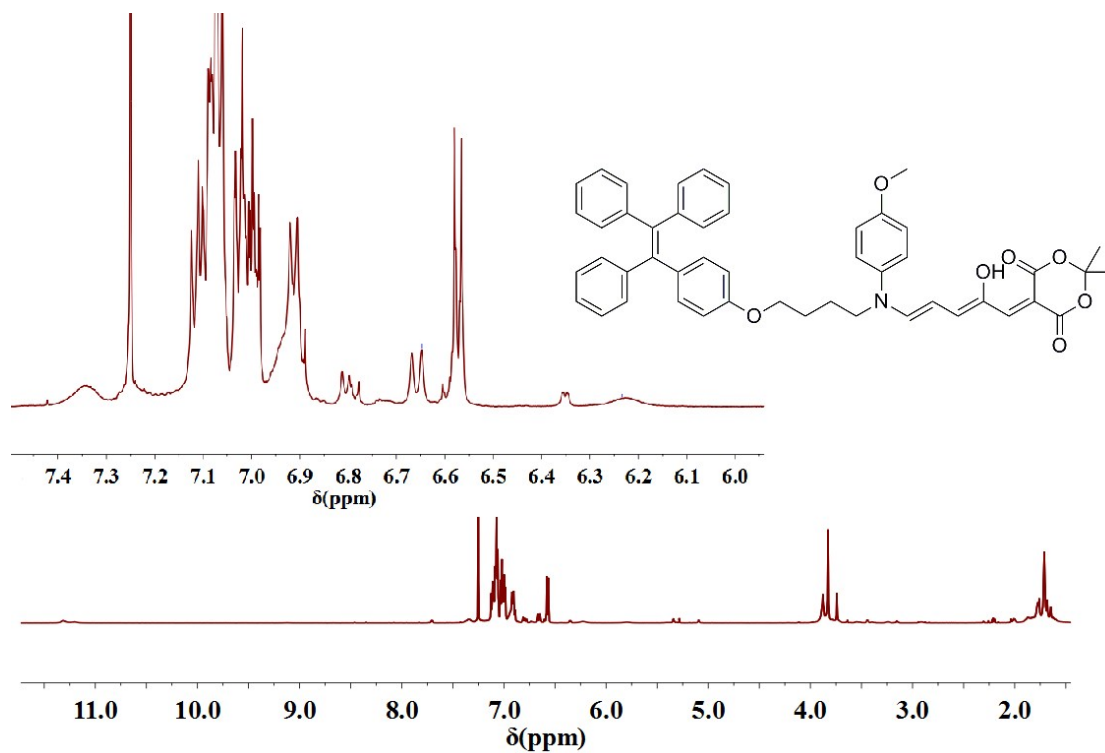


Figure S9 ¹H NMR spectrum of TPE-DASA in CDCl₃

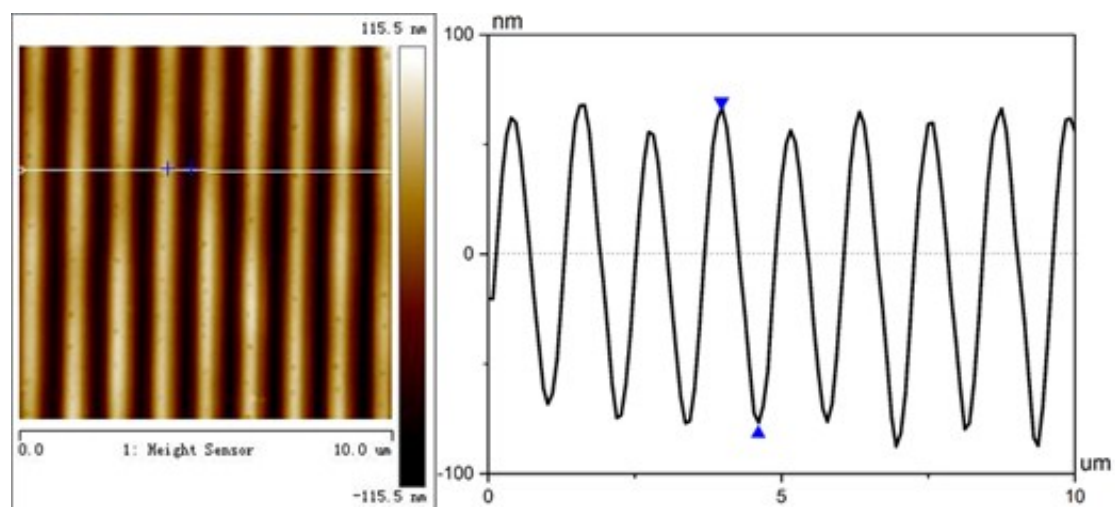


Figure S10 2D-view topographical AFM image of surface relief gratings of TPE-DASA (open form).

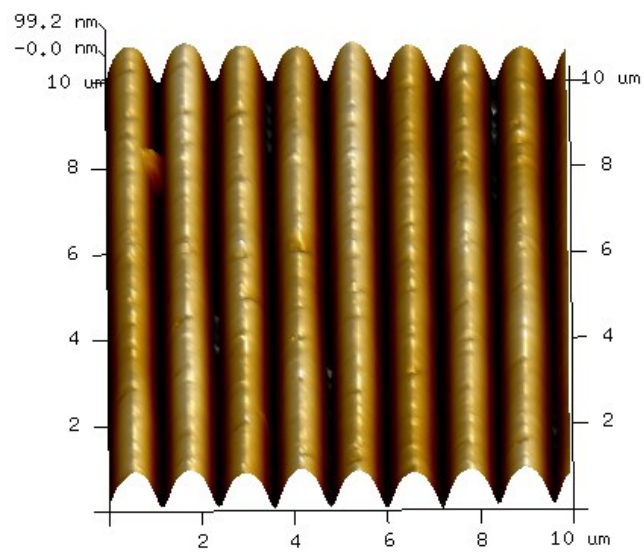


Figure S11 3D-view topographical AFM image of surface relief gratings of TPE-DASA after visible light (532 nm) irradiation for 15 min.

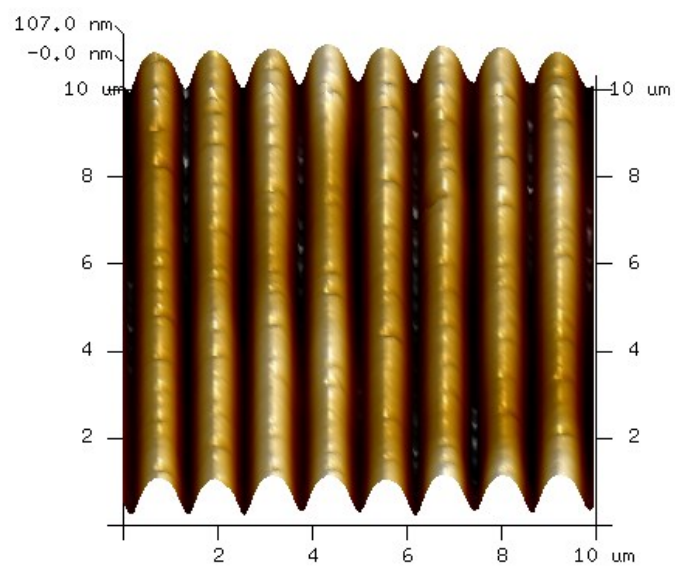


Figure S12 3D-view topographical AFM image of surface relief gratings of TPE-DASA after heating at 55 °C for 10 min.

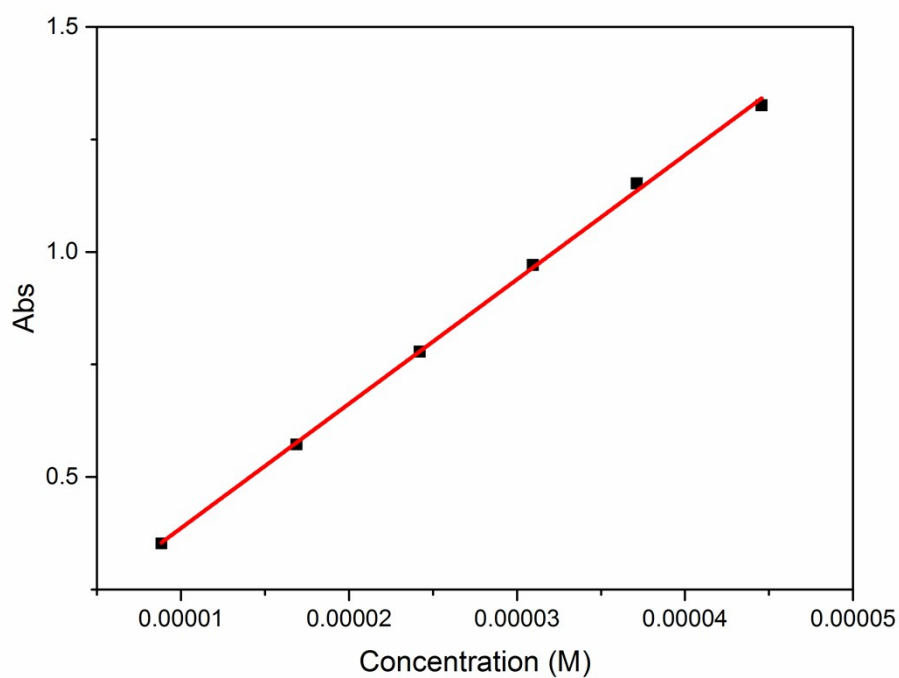


Figure S13 Linear plot of Abs at 556 nm vs concentration (M) of TPE-DASA in THF (Molar extinction coefficient in THF is about $27600 \text{ M}^{-1}\text{cm}^{-1}$).

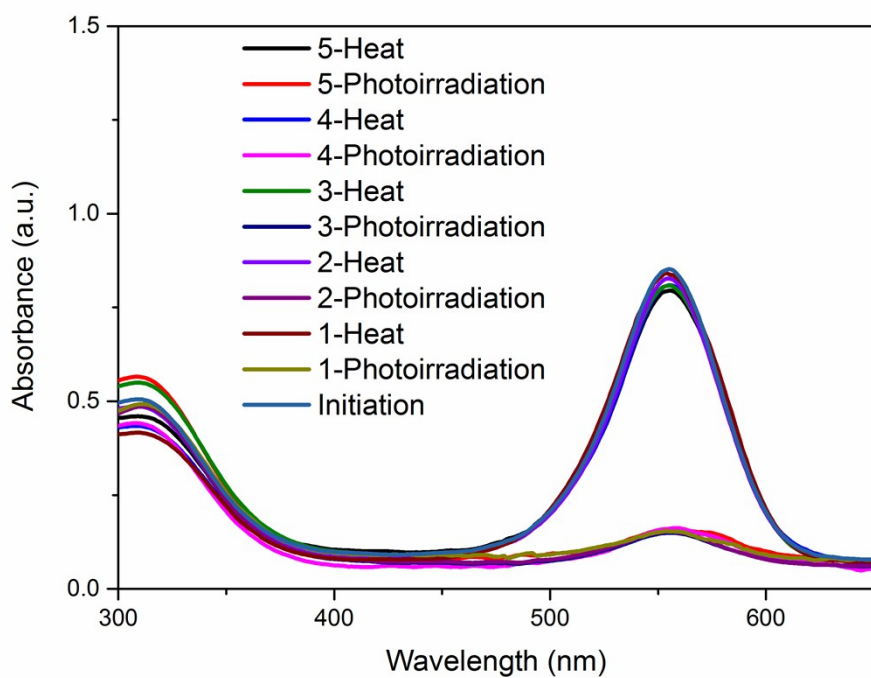


Figure S14 UV-Vis spectra of TPE-DASA film upon alternating visible light irradiation and heating.