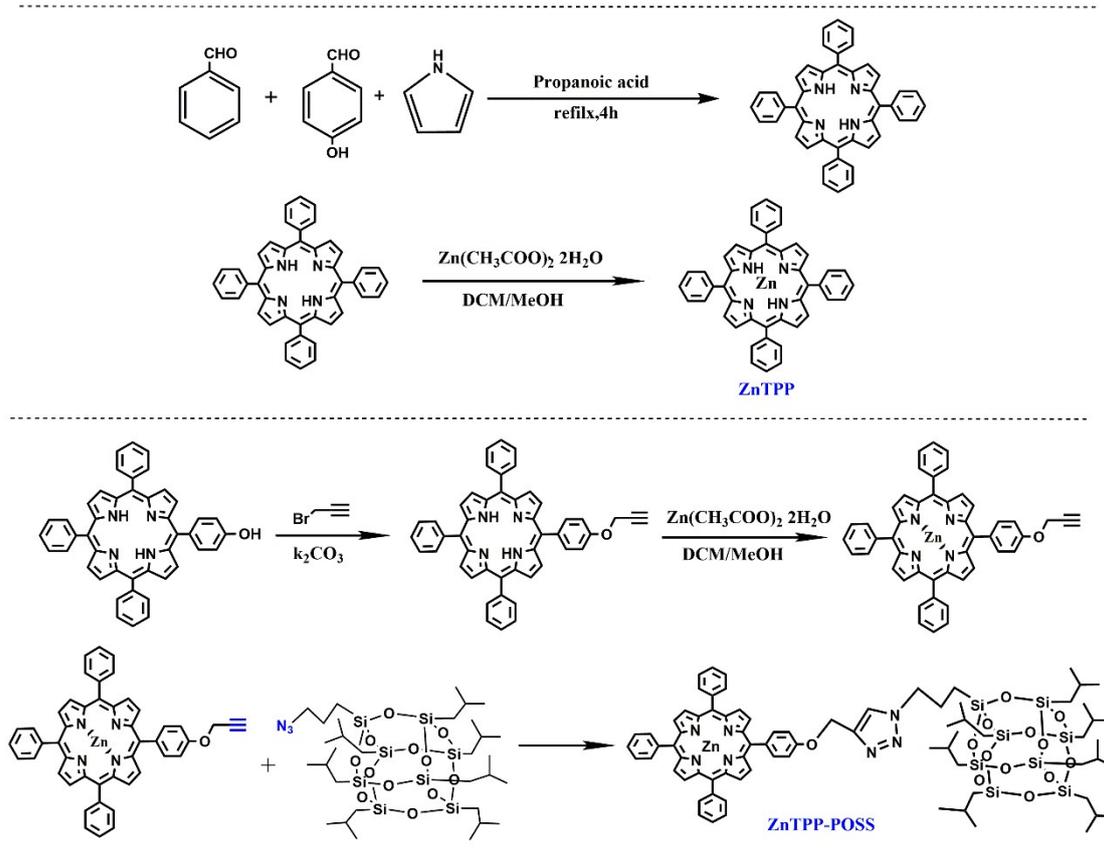


Supporting information

**Photo-controlled RAFT polymerization mediated by
organic/inorganic hybrid photoredox catalysts: enhanced catalytic
efficiency**



Scheme S1. Synthesis of zinc porphyrin (ZnTPP) and zinc porphyrin-POSS (ZnTPP-POSS).

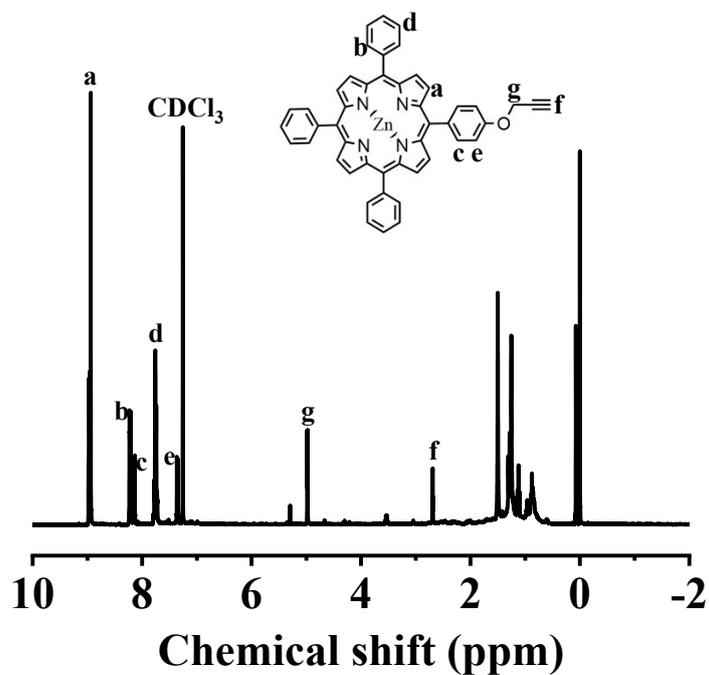


Figure S1. 1H NMR spectrum of alkyne ZnTPP in $CDCl_3$.

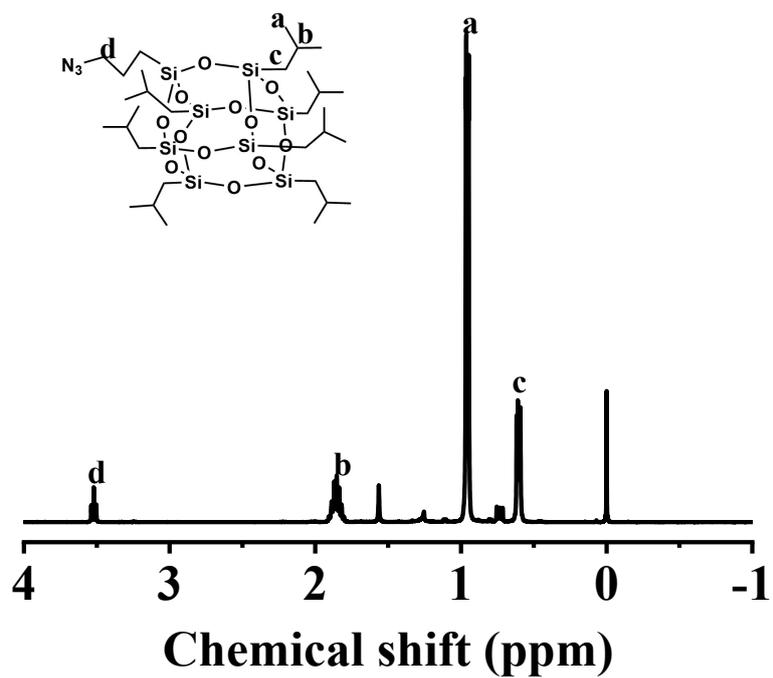


Figure S2. ¹H NMR spectrum of POSS-N₃ in CDCl₃.

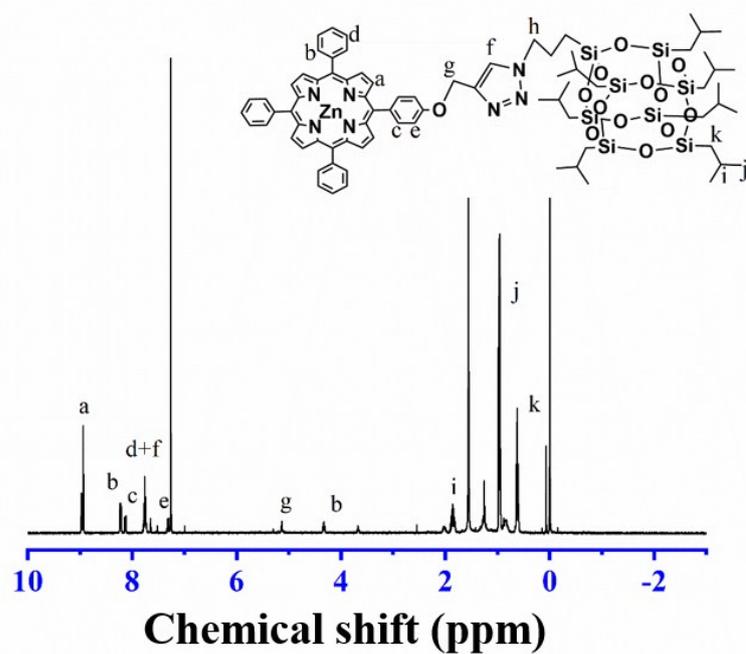


Figure S3. ¹H NMR spectrum of ZnTPP-POSS in CDCl₃.

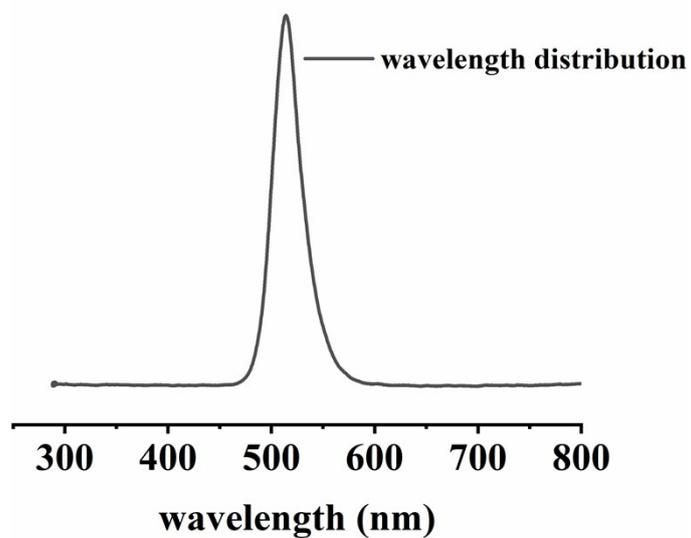


Figure S4. Wavelength distribution of LED light source with $\lambda_{\text{max}} = 515$ nm.

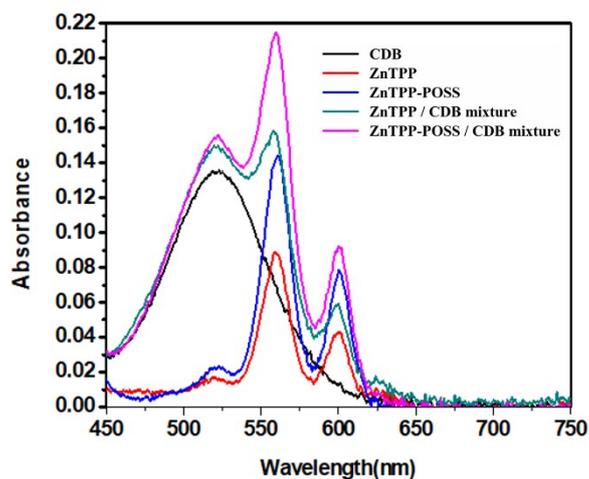


Figure S5. Absorption spectra of CDB, ZnTPP, ZnTPP-POSS, a mixture of ZnTPP / CDB and a mixture of ZnTPP-POSS / CDB. This UV curve is a partially enlarged view of **Figure 1A**.

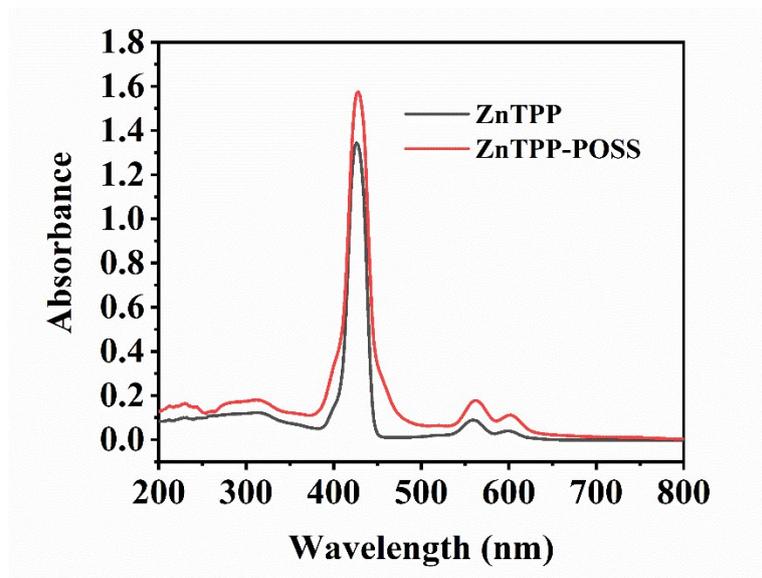


Figure S6. Molar extinction spectrum of ZnTPP and ZnTPP-POSS with a concentration of 19.65 μM .

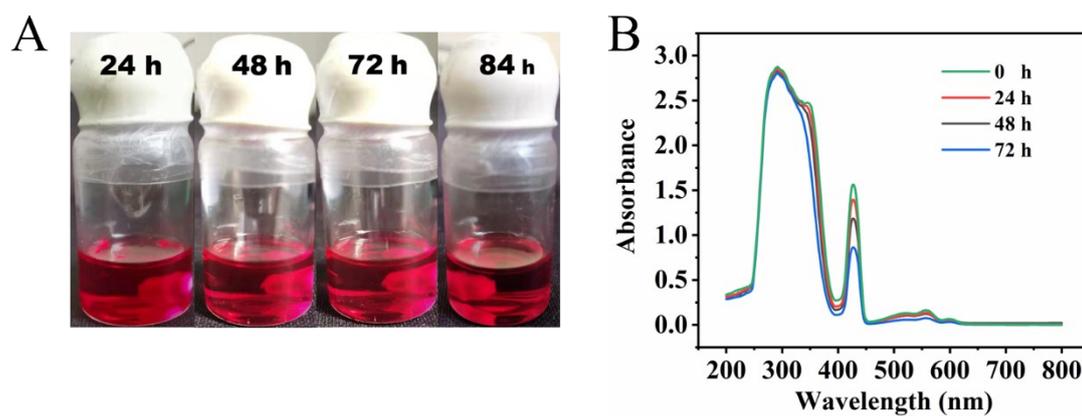


Figure S7. (A) Photographs of different reaction times of the polymerization system.
(B) UV-Vis spectra for solution in different polymeric times.

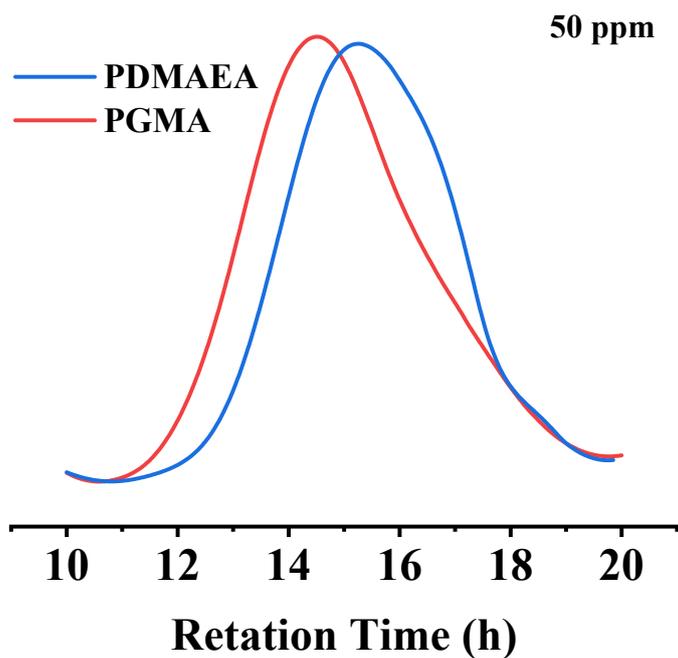


Figure S8. The GPC trace for PDMAEA and PGMA using ZnTPP-POSS as photocatalyst in DMSO under green light, $[\text{Monomer}]/[\text{CDB}]/[\text{ZnTPP-POSS}] = 200: 1: 0.01$ for 50h.

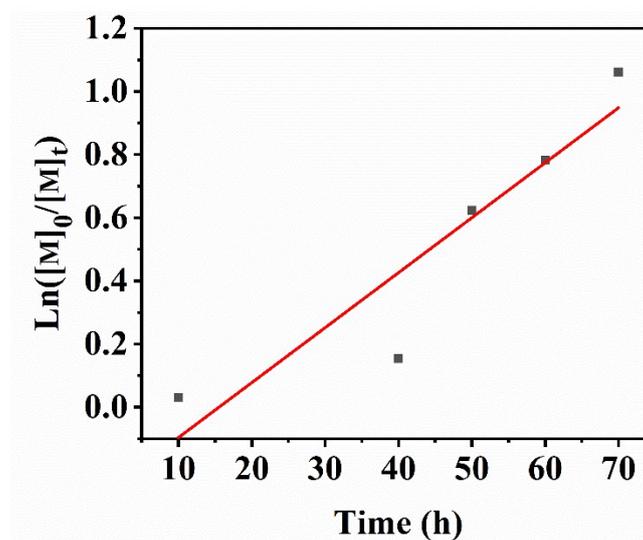


Figure S9. Polymerization kinetics. Results of polymerization of MMA in DMSO utilizing ZnTPP-POSS as the photo-redox catalyst, $[\text{MMA}]/[\text{CDB}]/[\text{ZnTPP-POSS}] = 200: 1: 0.01$.

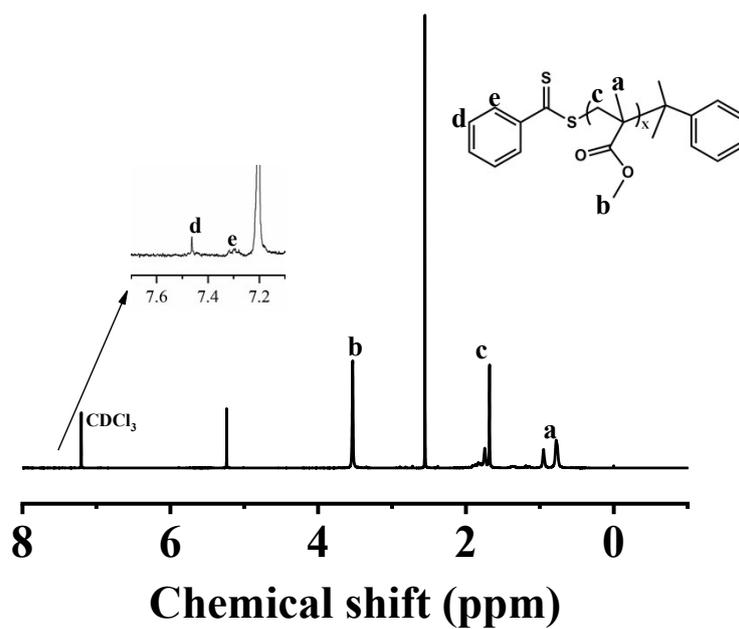


Figure S10. ^1H NMR spectrum of PMMA in CDCl_3 .

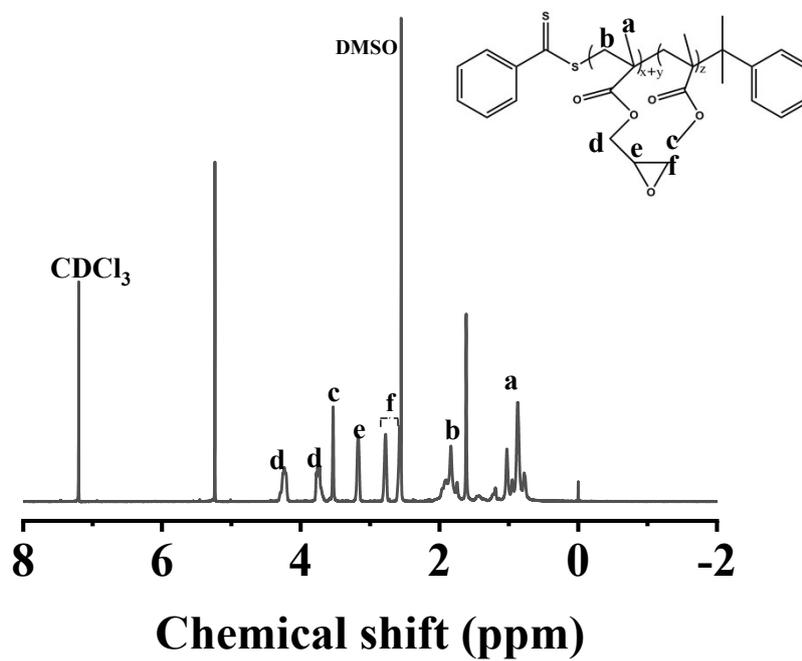


Figure S11. ^1H NMR spectrum of PMMA-*b*-PMMA-*b*-PGMA in CDCl_3 .