## Enhancement in the initiating activity of chalcone via long-alkyl chain strategy for free radical photopolymerization and 3D printing

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Fig.S1 <sup>1</sup>H-NMR spectrum of E-HMTO(DMSO-d<sup>6</sup>)



Fig.S2 HRMS spectrum of E-HMTO



Fig.S3 <sup>1</sup>H-NMR spectrum of Z-HMTO(DMSO-d<sup>6</sup>)















Fig.S7 Normalized UV-vis absorption spectra of E-PHMTO and ITX in the solution of acetonitrile



Fig.S8 Steady state photolysis experiments of Z-HMTO(6.3×10<sup>-4</sup> mol/L) in the absence of coinitiator TEA



Fig.S9 Steady state photolysis experiments of Z-HMTO(6.3×10<sup>-4</sup> mol/L) in the presence of coinitiator TEA



Fig.S10 Steady state photolysis kinetics of initiating system E-HMTO/TEA, E-PHMTO, E-PHMTO/TEA, which is corresponding to the photolysis results Fig.3(b)(c)(d)



Fig.S11 Intrinsic reaction coordinate(IRC) calculation result of E-HMTO converting into Z-HMTO



Fig.S12 Intrinsic reaction coordinate(IRC) calculation result of E-PHMTO converting into Z-PHMTO