

Supplementary Information for

**Versatile, Stable, and Air-Tolerant Triplet-Triplet Annihilation Upconversion
Block Copolymer Micelles**

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Synthesis and characterization.

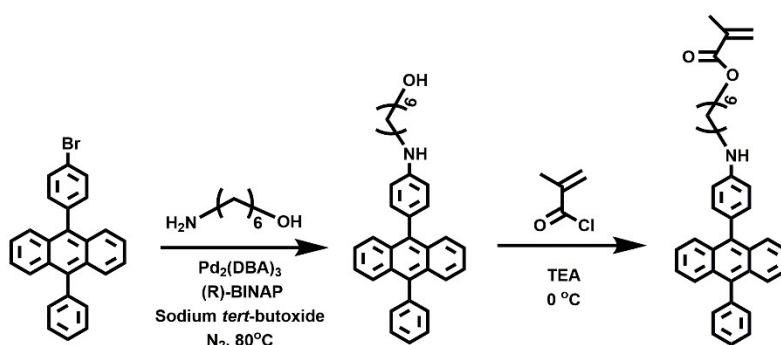


Figure S1 Synthesis of the DPA-containing monomer DPAMA.

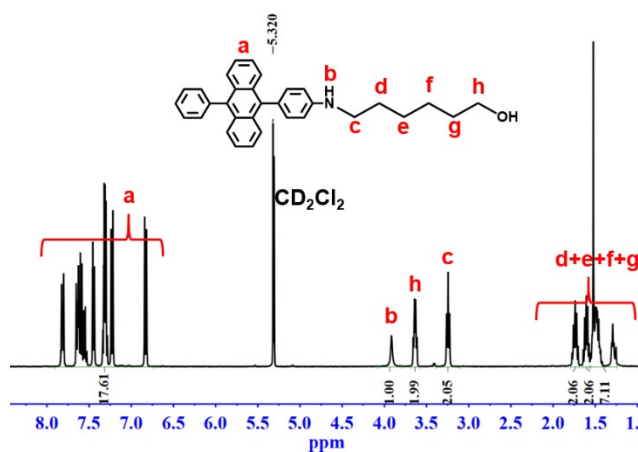


Figure S2 ^1H NMR spectrum of DPA(CH_2) $_6$ OH.

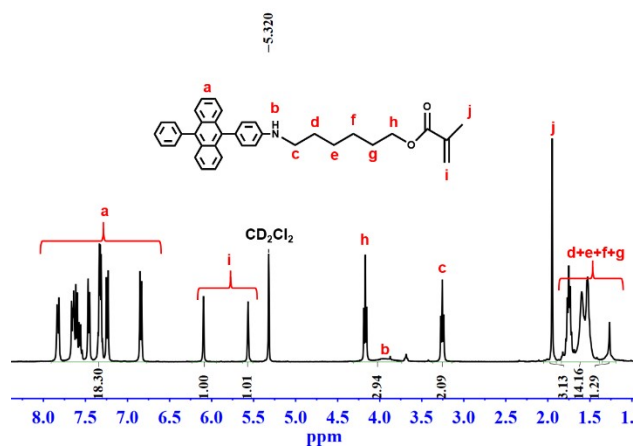


Figure S3 ^1H NMR spectrum of DPAMA.

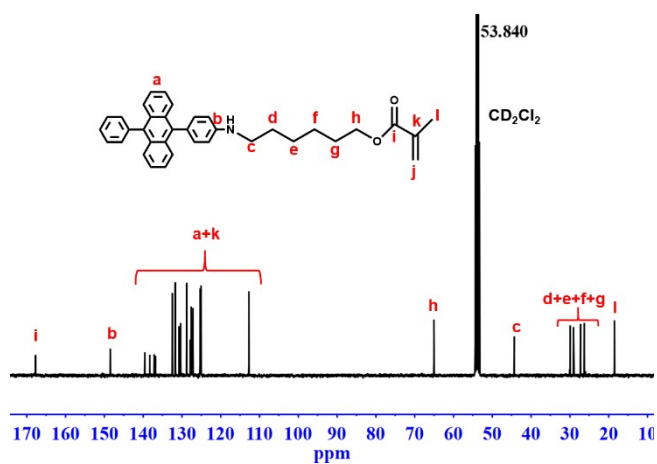


Figure S4 ^{13}C NMR spectrum of DPAMA.

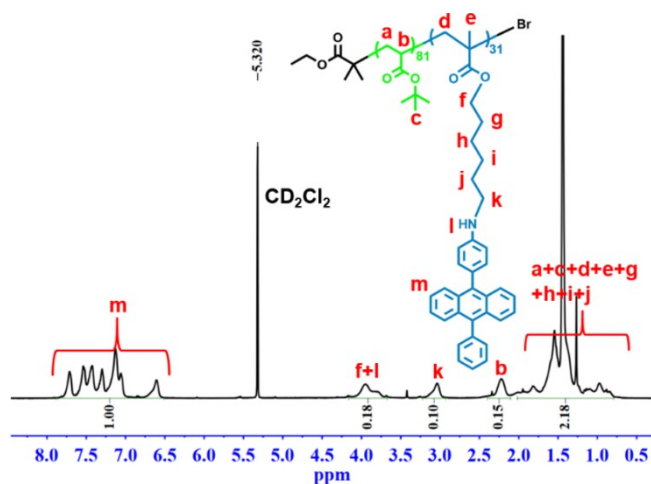


Figure S5 ^1H NMR spectrum of PtBA-*b*-PDPAMA diblock copolymer.

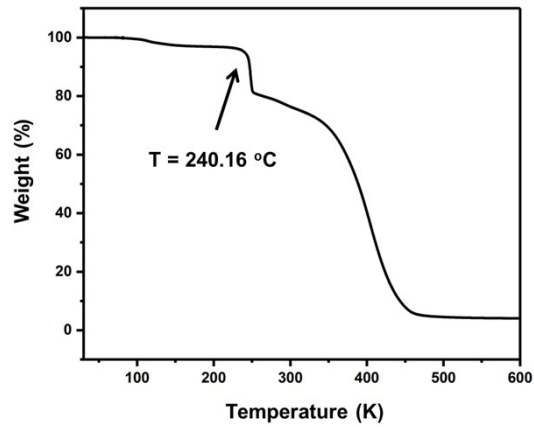


Figure S6 TGA trace of the *PtBA-b-PDPAMA*-diblock copolymer.

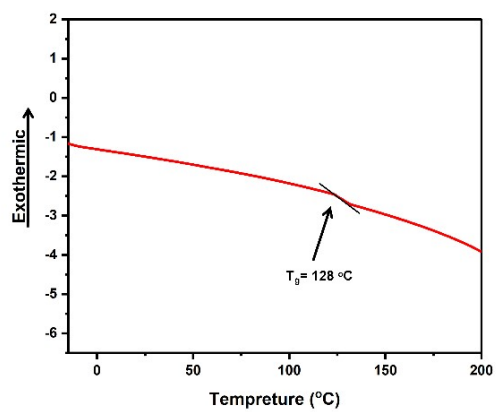


Figure S7 DSC trace of *PtBA-b-PDPAMA*-diblock copolymer.

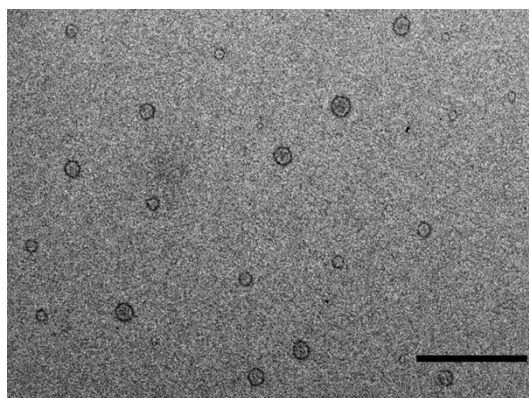


Figure S8 EM image of the UC micelles after hydrolysis of the *PtBA* chains and staining with uranyl acetate. Scale bar is 500 nm.

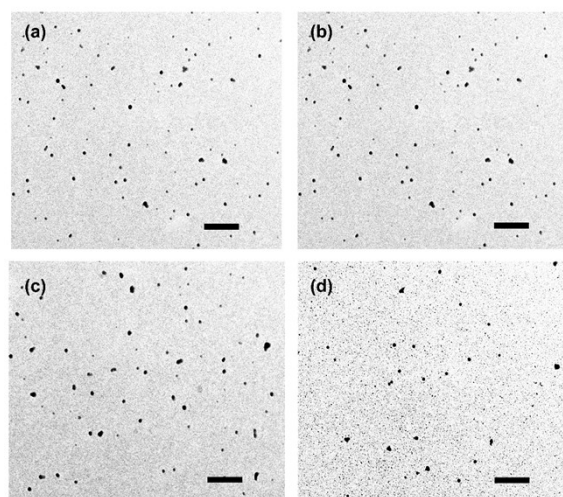


Figure S9 EM image of the UC micelles co-assembled in (a) *n*-butanol, (b) acetone, (c) 1,4-dioxane, (d) *n*-butyl acetate. Scale bars are 500 nm.

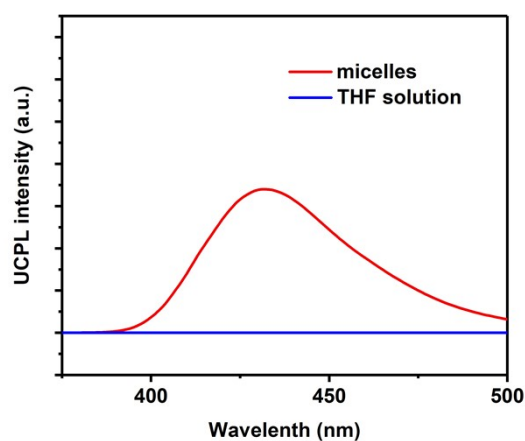


Figure S10 PL spectra ($\lambda_{\text{ex}} = 532 \text{ nm}$) of the UC micelles in *n*-butanol (red), and the dissolved diblock copolymer and PtOEP in THF (blue) at 77 K.

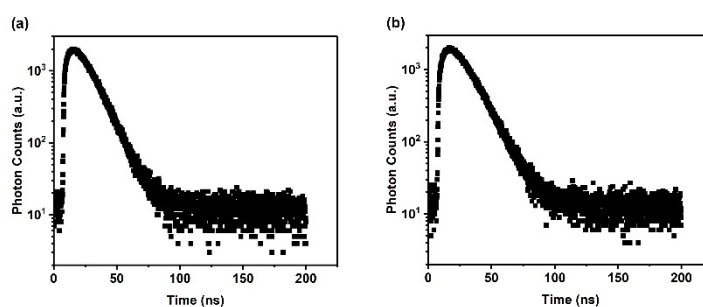


Figure S11 Phosphorescence decays of the *n*-butanol solutions of (a) pure PtBA-b-PDPAMA micelles, (b) UC micelles irradiated at 360 nm.

Table S1 Characterization results of PtBA-*b*-PDPAMA micelles.

Solution	Diameter from EM image (nm)	D_h from DLS (nm)	PDI from DLS
<i>n</i> -Butanol	55	61	0.203
Acetone	57	65	0.176
1,4-Dioxane	49	57	0.183
<i>n</i> -Butyl acetate	52	59	0.166