Supplementary Information for

Intramolecular Triplet-Triplet Energy Transfer Enhanced Triplet-Triplet Annihilation Upconversion with a Multichromophore Platinum(II) Terpyridyl Acetylide Complex

Shuai Yu, Yi Zeng,* Jinping Chen, Tianjun Yu, Xiaohui Zhang, Guoqiang Yang,* and Yi Li *

*a Key Laboratory of Photochemical Conversion and Optoelectronic Materials Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, China.
E-mail: zengyi@mail.ipc.ac.cn; yili@mail.ipc.ac.cn;

b Beijing National Laboratory for Molecular Sciences (BNLMS), Key Laboratory of Photochemistry, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China.
E-mail: gqyang@iccas.ac.cn
Figure S1. $^1$H NMR spectrum of compound 1 (CDCl$_3$, 400 MHz).

Figure S2. $^1$H NMR spectrum of compound 2 (CDCl$_3$, 400 MHz).
Figure S3. $^1$H NMR spectrum of compound 3 (DMSO-$d_6$, 400 MHz).

Figure S4. $^1$H NMR spectrum of DPA-OH (CDCl$_3$, 400 MHz).
Figure S5. $^1$H NMR spectrum of DPA-Br (CDCl$_3$, 400 MHz).

Figure S6. $^1$H NMR spectrum of compound 4 (DMSO-$d_6$, 400 MHz).
Figure S7. $^1$H NMR spectrum of Pt-DPA (DMSO-$d_6$, 400 MHz).

Figure S8. $^1$H NMR spectrum of Pt-M (DMSO-$d_6$, 400 MHz).
Figure S9. HR-ESI-MS spectrum of Pt-M.

Figure S10. MALDI-TOF MS spectrum of compound 3.
Figure S11. MALDI-TOF MS spectrum of Pt-DPA.

Figure S12. MALDI-TOF MS spectrum of DPA-OH.
Figure S13. FT-IR spectra of Pt-DPA, Pt-M, DPA-OH and compound 3.
Figure S14. Nanosecond time-resolved transient difference absorption spectra of Pt-M (1 × 10^{-4} M) after pulsed excitation (λ_{ex} = 470 nm) in deaerated DMF.

Figure S15. Upconversion emission spectrum of Pt-DPA/DPA-OH (1 × 10^{-5} M/1 × 10^{-4} M) and comparation with Pt-M/DPA-OH (1 × 10^{-5} M/1.1 × 10^{-4} M) when selective excitation of Pt terpyridyl chromophore with a 473 nm laser (power = 9.54 mW).
Figure S16. Emission spectra of DPA-OH (1 × 10^{-5} M), Pt-DPA (1 × 10^{-5} M) (inset) and Pt-M/DPA-OH (1 × 10^{-5} M/1 × 10^{-5} M) in DMF, λ_ex = 350 nm.