Electronic Supplementary Information

Synthesis and Properties of a Dendritic FRET Donor-Acceptor System with Cationic Iridium(III) Complex Core and Carbazolyl Periphery

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To confirm that the signals denoted by asterisks are contributed by active protons, we carried out D_2O -exchanging experiments with the NMR samples of IrL_{G0} and IrL_{G1} in CDCl₃. From a comparison of the NMR charts before and after the addition of D_2O (Fig. S1 and S2), the asterisked signals were obviously disappeared after the addition of D_2O . It indicated that these signals are coming from active protons, which undergo rapid H-D exchanging with added D_2O .



Fig. S1. ¹H NMR spectra of IrL_{G0} in CDCl₃ and after addition of two drops of D₂O.



Fig. S2. ¹H NMR spectra of IrL_{G1} in CDCl₃ and after addition of two drops of D_2O .



Fig. S3. Excitation spectra of 10 μ M of Ir L_{Gn} (n=0-3) in CH₂Cl₂ solution emission at 560 nm.



Fig. S4. Cyclic voltammogram of IrL_{Gn} (n=0-3). Scan rate =100 mV/s, concentration = 0.4 mM, platinum working electrode, platinum counter electrode, Ag wire in DMF reference electrode. The potentials are referenced to the ferricenium/ferrocene couple, using 0.1 M tetrabutylammonium hexafluorophosphate as the supporting electrolyte



Fig. S5. Emission spectra of 10 μ M of Ir L_{Gn} (n=0-2) in DMF recorded under different oxygen partial pressures (p_{O_2}) at room temperature. Excitation wavelength 380 nm, at which no FRET could possibly take place.



Fig. S6. ¹H NMR spectra of L_{G1} in CDCl₃



Fig. S7. ¹³C NMR spectra of L_{G1} in CDCl₃



Fig. S8. ¹H NMR spectra of L_{G1} ' in CDCl₃



Fig. S9. ¹³C NMR spectra of L_{G1} ' in CDCl₃





Fig. S10. ¹H NMR spectra of L_{G2} in CDCl₃

Fig. S11. ¹³C NMR spectra of L_{G2} in CDCl₃







Fig. S13. ¹H NMR spectra of L_{G3} in CDCl₃



Fig. S14. MALDI-TOF-MS spectra of L_{G3}



Fig. S15. ¹³C NMR spectra of IrL_{G0} in CDCl₃







Fig. S17. ¹³C NMR spectra of $lr L_{G1}$ in CDCl₃





Fig. S18. MALDI-TOF-MS spectra of $lr L_{G1}$

Fig. S19. ¹³C NMR spectra of $lr L_{G2}$ in CDCl₃







Fig. S21. ¹³C NMR spectra of IrL_{G3} in CDCl₃



Fig. S22. MALDI-TOF-MS spectra of $lr L_{G3}$



Fig. S23. ¹³C NMR spectra of IrL_{G0} '



Fig. S24. ESI-MS spectra of $lr L_{G0}$ '







Fig. S26. ¹³C NMR spectra of IrL_{G1} , in CDCl₃



Fig. S27. ESI-MS spectra of $lr L_{G1}$ '