Electronic Supplementary Material (ESI) for Photochemical & Photobiological Sciences

Electronic Supporting Information (ESI)

Excited State Behaviour of Substituted Dipyridophenazine Cr(III) Complexes in the Presence of Nucleic Acids

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Complex	Absorption band position [nm]			
$[Cr(phen)_2(dppz)](Cl)_3$	271	280	360 (ε=13 900 $M^{-1}cm^{-1}$)	377
$[Cr(phen)_2(Me_2dppz)](Cl)_3$	270	286	371(ε=12 200 $M^{-1}cm^{-1}$)	389
$[Cr(phen)_2(F_2dppz)](Cl)_3$	270	~281	357 (ε=11 500 $M^{-1}cm^{-1}$)	376

Table S1. Absorption bands position of $[Cr(phen)_2X_2dppz](Cl)_3$ (X=H, Me, F).

$[Cr(phen)_2(X_2dppz)](CF_3SO_3)_3$	Peak No.	Peak Type	Area	FWHM/nm	Center/nm
X=H	1	Gaussian	861	15	698
	2	Lorentz	22577	12	730
	3	Lorentz	5683	22	746
	4	Lorentz	2571	61	801
X=Me	1	Gaussian	912	15	697
	2	Lorentz	25226	12	729
	3	Lorentz	6335	22	746
	4	Lorentz	1905	40	805
X=F	1	Gaussian	1161	16	697
	2	Lorentz	26585	12	729
	3	Lorentz	6689	22	745
	4	Lorentz	3432	59	805

Table S2. Multipeaks fitting parameter results for emission spectra of $[Cr(phen)_2(X_2dppz)](CF_3SO_3)_3$ (X=H, Me, F)

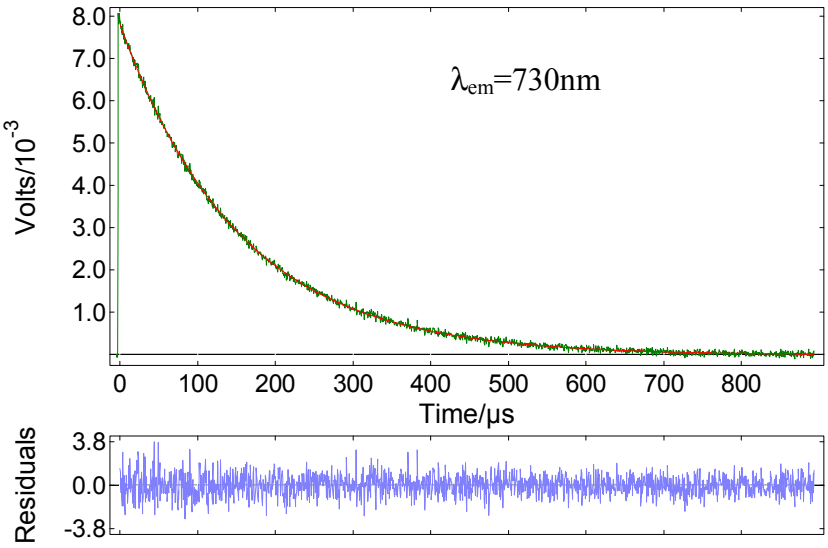

Fig. S1. Monoexponential fit (red line) to photoluminescence decay curve of N_2 purged 10 µM water solution of $[Cr(phen)_2(F_2dppz)](CF_3SO_3)_3$ (λ_{ex}=308 nm, λ_{em}=730 nm)

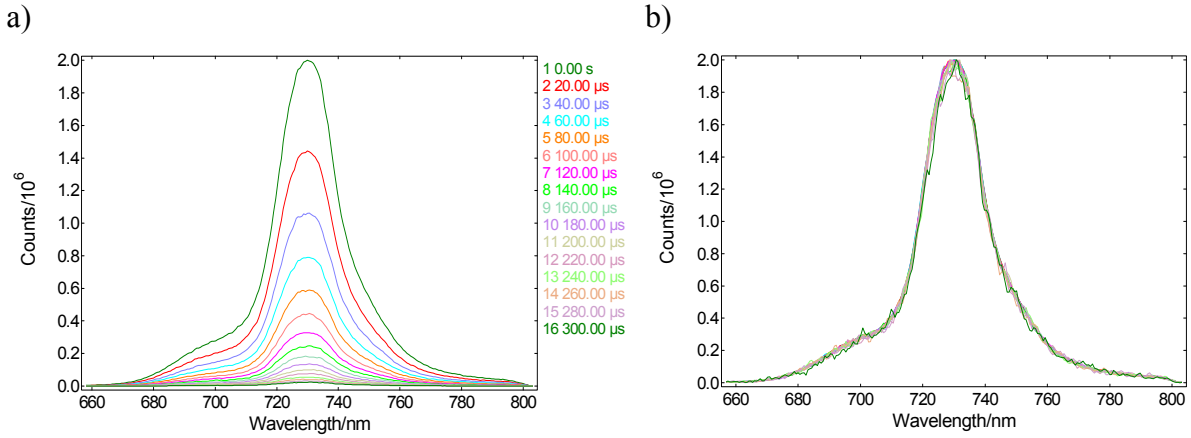

Fig. S2. (a) Time resolved emission spectra (TRES) of 50 µM an air saturated water solution of $[Cr(phen)_2(F_2dppz)](CF_3SO_3)_3$ recorded using ICCD camera (λ_{ex}=308 nm, 10 shots averaging per spectrum, gate width 20 µs). (b) Normalized TRES. Note: spectral resolution of camera measurements is lower than that of the spectrofluorimeter (see Fig. 2 or Fig. S3 for comparison).

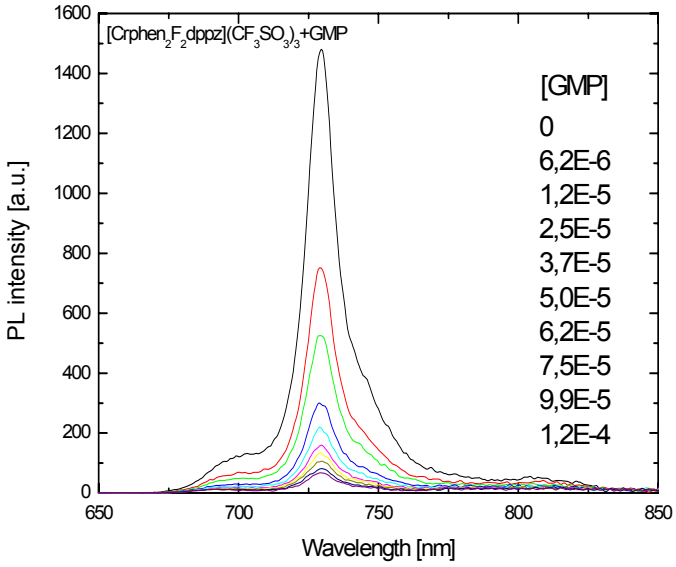

Fig. S3. Emission quenching of 100 mM phosphate buffer solution (pH 7.4) of $[Cr(phen)_2(F_2dppz)](CF_3SO_3)_3$ (45 µM) in the presence of increasing concentration of GMP.

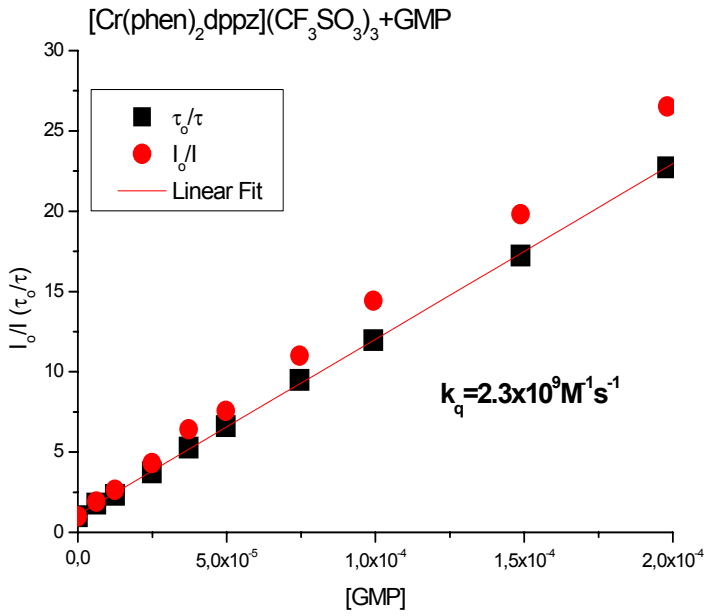

Fig. S4. Steady state and lifetime Stern Volmer plot for emission quenching (at 730 nm) of an air saturated 100mM phosphate buffer (pH = 7.4) solution of $[Cr(phen)_2(dppz)](CF_3SO_3)_3$ (61 µM) in the presence of increasing concentration of GMP.

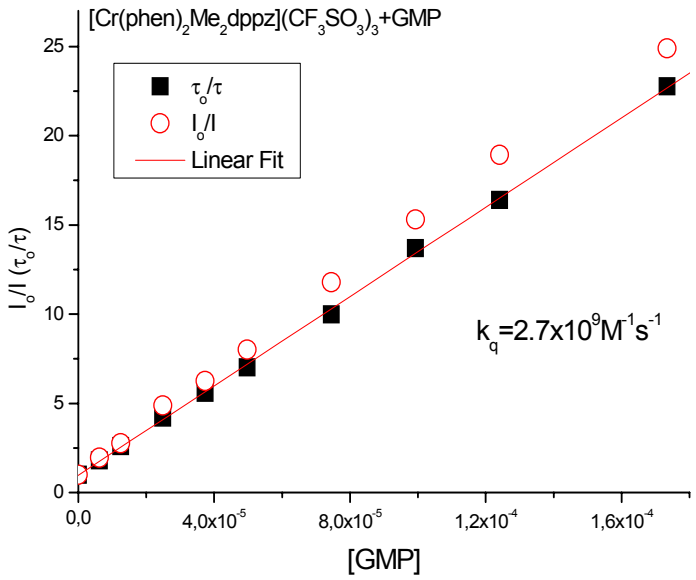

Fig. S5. Steady state and lifetime Stern Volmer plot for emission quenching (at 730 nm) of an air saturated 100mM phosphate buffer (pH = 7.4) solution of $[Cr(phen)_2(Me_2dppz)](CF_3SO_3)_3$ (45 µM) in the presence of increasing concentration of GMP.

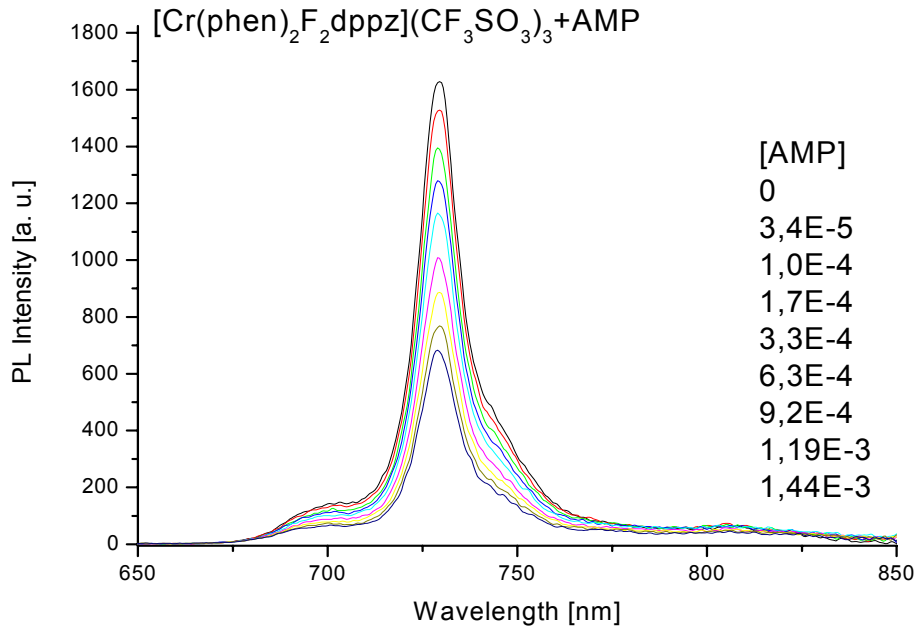

Fig. S6. Emission quenching of 100 mM phosphate buffer solution (pH 7.4) of $[Cr(phen)_2(F_2dppz)](CF_3SO_3)_3$ (36 µM) in the presence of increasing concentration of AMP.

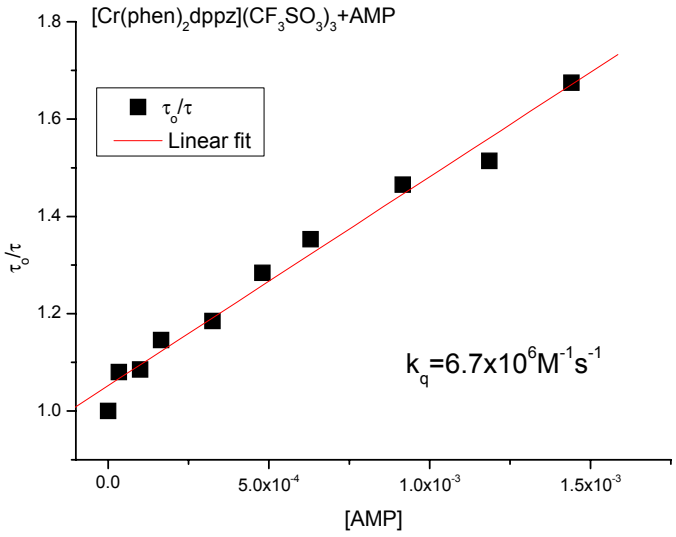

Fig. S7 Linear fit analysis of lifetime Stern Volmer plot for emission quenching (at 730 nm) of an air saturated 100 mM phosphate buffer solution (pH = 7.4) of $[Cr(phen)_2(dppz)](CF_3SO_3)_3$ (16 µM) in the presence of increasing concentration of AMP.

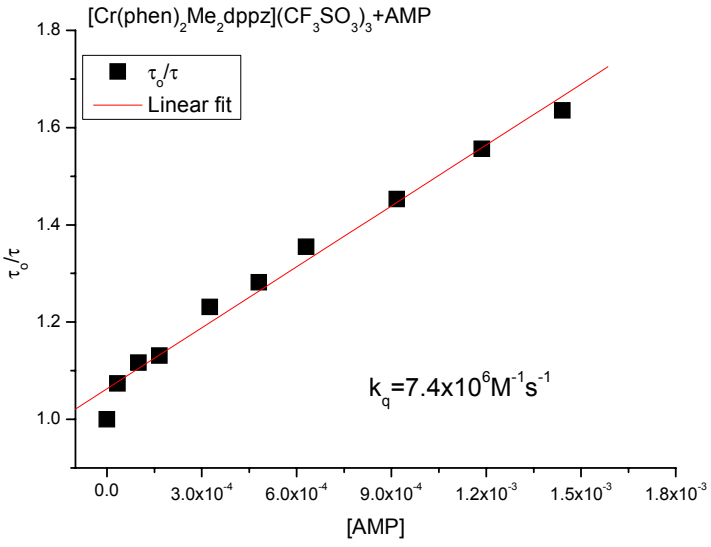

Fig. S8. Linear fit analysis of lifetime Stern Volmer plot for emission quenching (at 730 nm) of an air saturated 100 mM phosphate buffer solution (pH = 7.4) of $[Cr(phen)_2(Me_2dppz)](CF_3SO_3)_3$ (39 µM) in the presence of increasing concentration of AMP.

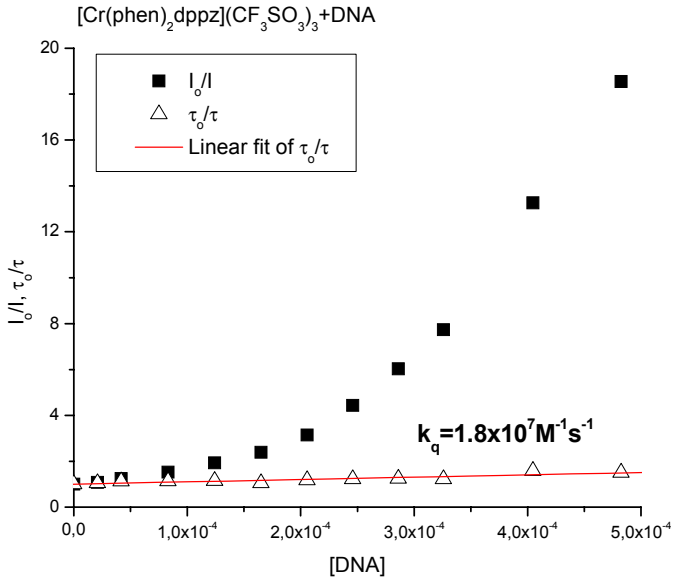

Fig. S9. Steady state and lifetime Stern Volmer plot for emission quenching (at 730 nm) of an air saturated 100 mM phosphate buffer (pH = 7.4) solution of $[Cr(phen)_2(dppz)](CF_3SO_3)_3$ (65 μM) in the presence of increasing concentration of CT-DNA.

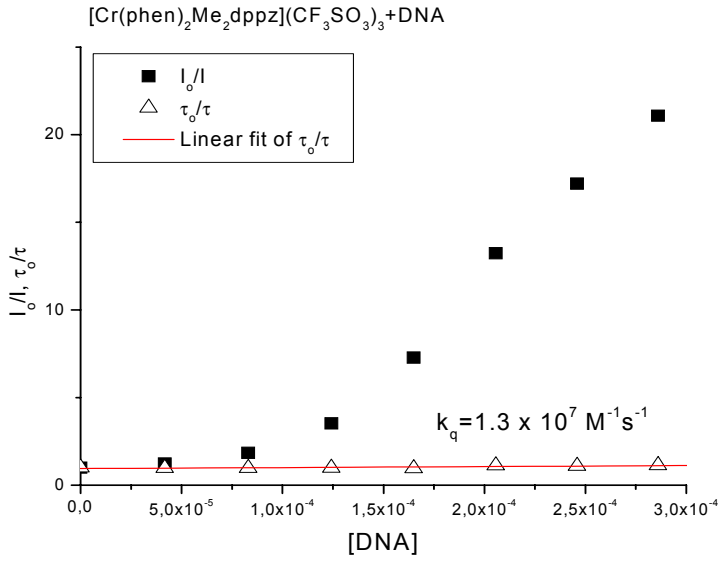

Fig. S10. Steady state and lifetime Stern Volmer plot for emission quenching (at 730 nm) of an air saturated 100 mM phosphate buffer (pH = 7.4) solution of $[Cr(phen)_2(Me_2dppz)](CF_3SO_3)_3$ (42 μM) in the presence of increasing concentration of CT-DNA.

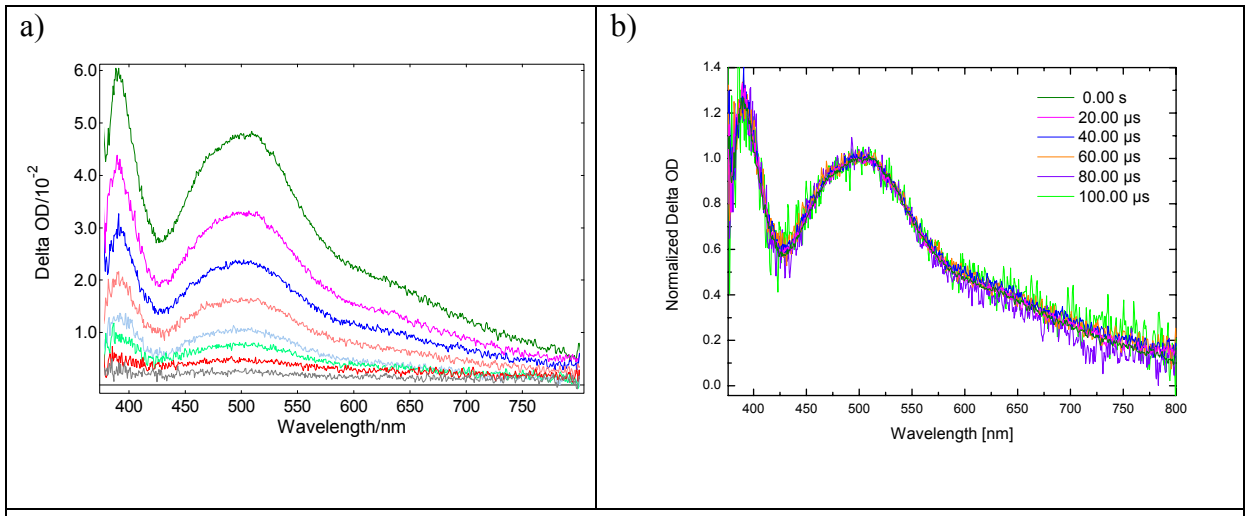

Fig. S11. (a) Time resolved absorption spectra (TRAS) of 50 µM an air saturated aqueous solution $[Cr(phen)_2(Me_2dppz)](Cl)_3$ measured using ICCD camera at different delay times: 0, 20, 40, 60, 80, 100, 140 and 180 µs (gate width 3 µs, 5 laser shots per spectrum, λ_{ex}=308 nm). (b) Normalized (at 500 nm) TRAS.

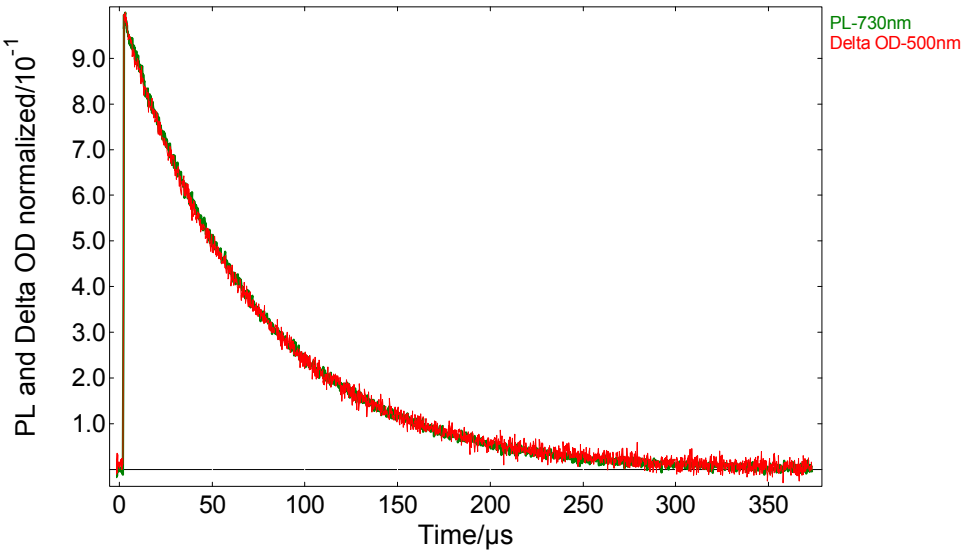

Fig. S12. Comparison of normalized kinetics of transient absorption band at 500 nm (red line) and phosphorescence at 730 nm (green line) of 50 µM aerated aqueous solution of $[Cr(phen)_2(Me_2dppz)](Cl)_3$ (λ_{ex}=308nm). Note: both curves look almost identical.

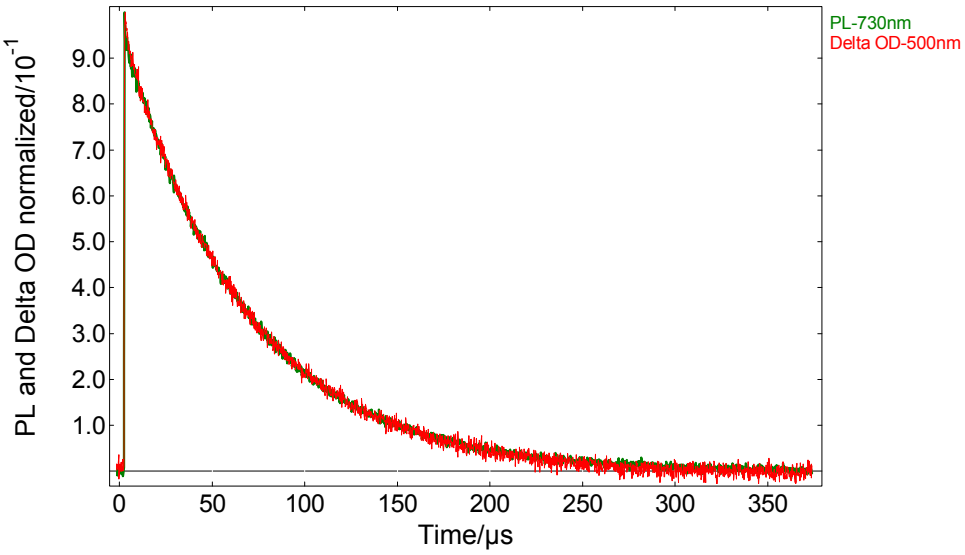

Fig. S13. Comparison of normalized kinetics of transient absorption band at 500 nm (green line) and phosphorescence at 730 nm (red line) of 50 μM aerated aqueous solution of $[Cr(phen)_2(dppz)](Cl)_3$.