

Supporting Information

Colorimetric and luminescent bifunctional Ru(II) complexes for rapid and highly sensitive recognition of cyanide

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Fig. S1 UV-Vis spectra of other three Ru(II) complexes (20 μM) after addition of CN^- in $\text{CH}_3\text{CN}/\text{H}_2\text{O}$ (99.6:0.4 v/v) solution containing 50 mM Bu_4NPF_6 at 25 $^\circ\text{C}$.

Fig. S2 (Left) PL titration of other three Ru(II) complexes (5 μM) with CN^- in $\text{CH}_3\text{CN}/\text{H}_2\text{O}$ (99.6:0.4 v/v) solution containing 50mM Bu_4NPF_6 at 25 $^\circ\text{C}$. (Right) Plot of the PL intensity change ($I - I_0$) at about λ_{618} nm upon addition of CN^- (lines serve to illustrate the change in stoichiometry).

Fig. S3 PL spectra of other three Ru(II) complexes (5 μM) with different anions in $\text{CH}_3\text{CN}/\text{H}_2\text{O}$ (99.6:0.4 v/v) solution containing 50 mM Bu_4NPF_6 at 25 $^\circ\text{C}$.

Fig. S4 Behavior of other three Ru(II) complexes toward CN^- and other anions as measured by PL in $\text{CH}_3\text{CN}/\text{H}_2\text{O}$ (99.6:0.4 v/v) solution containing 50 mM Bu_4NPF_6 at 25 $^\circ\text{C}$.

Fig. S5 Time course of the photoluminescence response of other three Ru(II) complexes (5 μM) upon addition of CN^- in in $\text{CH}_3\text{CN}/\text{H}_2\text{O}$ (99.6:0.4 v/v) solution containing 50 mM Bu_4NPF_6 at 25 $^\circ\text{C}$.

Fig. S6 ESI-MS experiments of the 1:1 $\{[\text{Ru}(\text{bpy})_2(\text{L1-CN})]^{2+}\text{CN}^-\}^+$, 1:1 $\{[\text{Ru}(\text{dmb})_2(\text{L2-CN})]^{2+}\text{CN}^-\}^+$, and the 1:2 adduct, $\{[\text{Ru}(\text{dmb})_2(\text{L2-2CN})]^{2+}\text{PF}_6^-\}^+$

Fig. S7 ^1H NMR spectroscopy of $[\text{Ru}(\text{bpy})_2(\text{L1})](\text{PF}_6)_2$ and CN^- in CD_3CN

Fig. S1

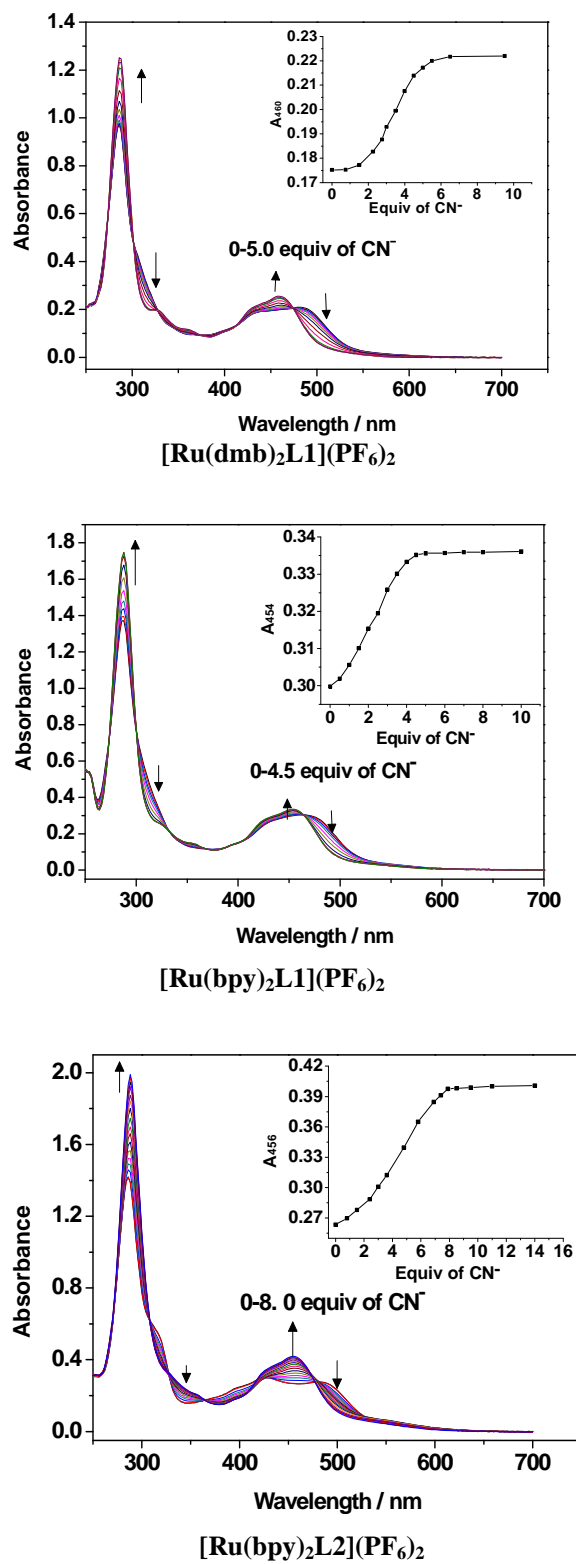


Fig. S2

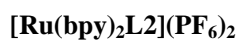
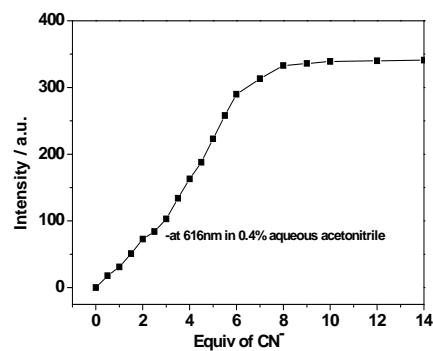
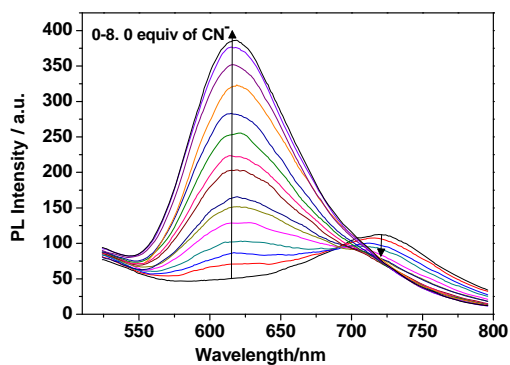
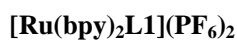
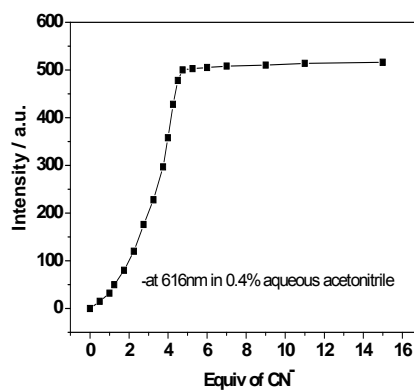
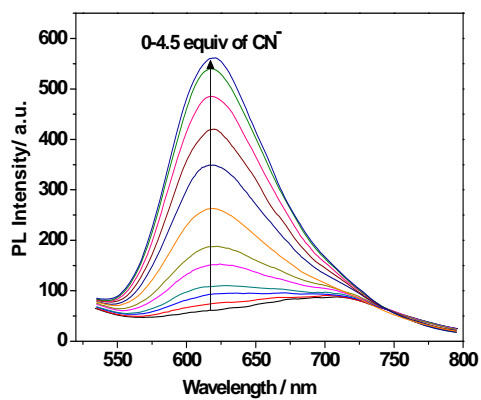
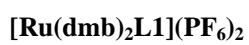
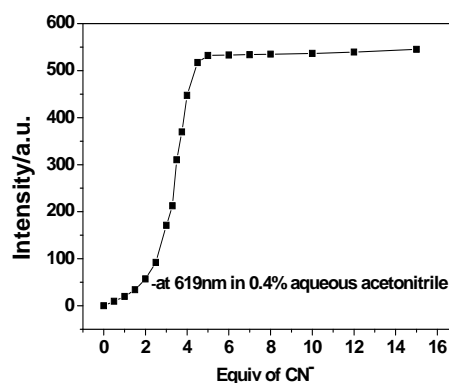
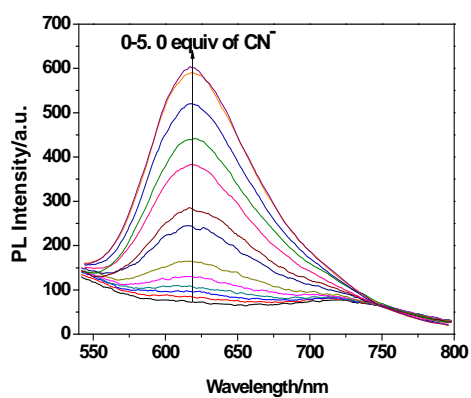


Fig. S3

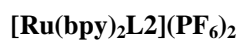
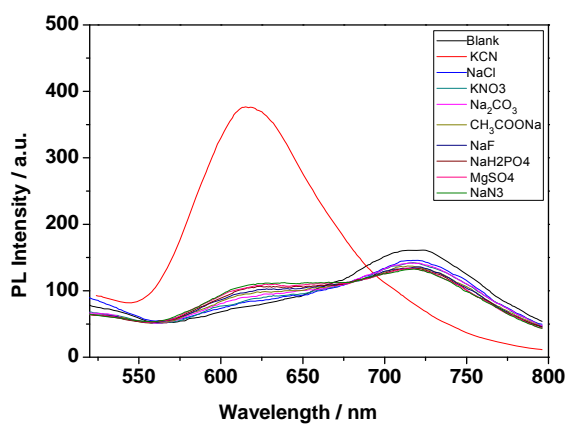
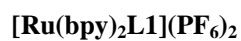
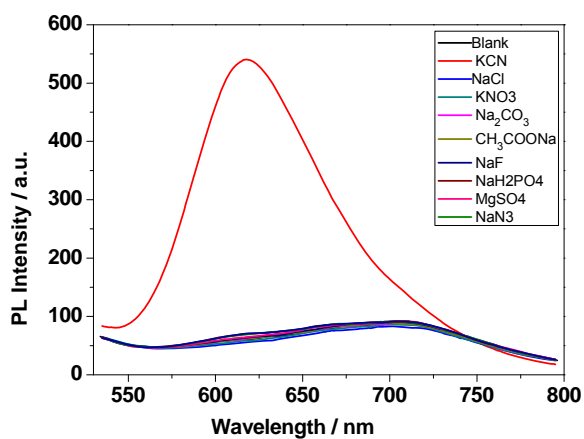
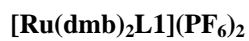
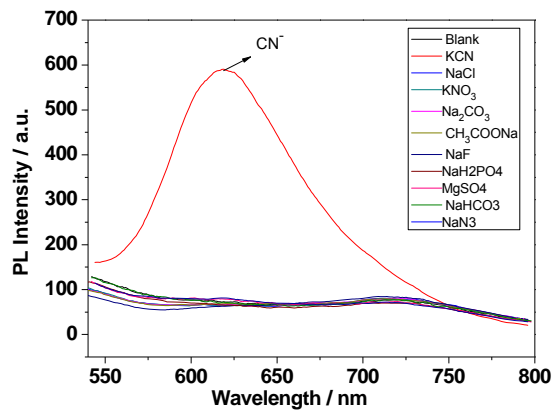


Fig. S4

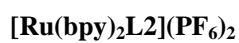
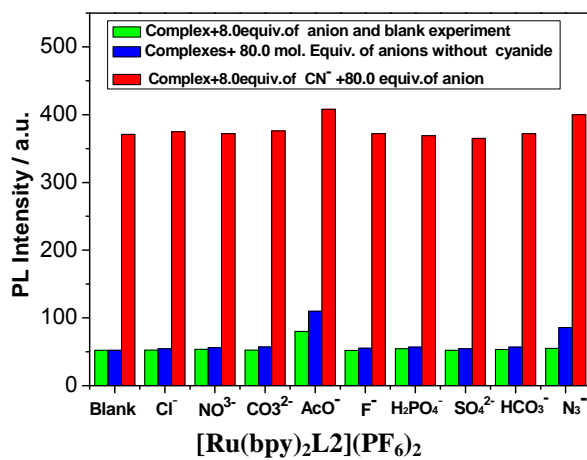
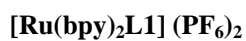
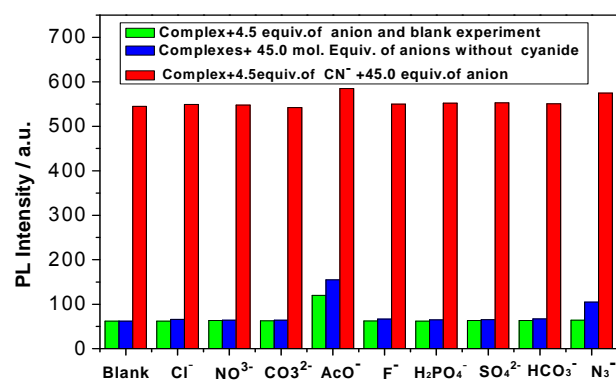
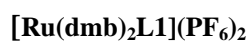
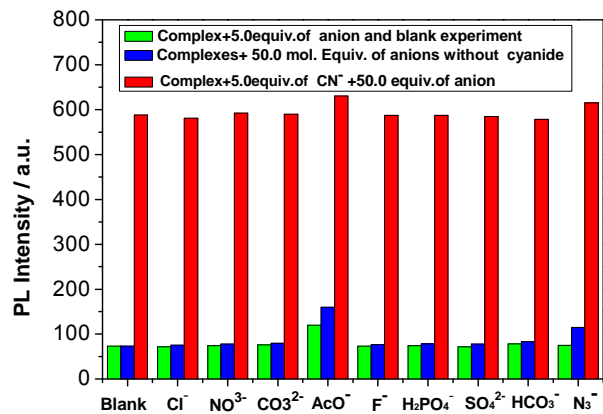


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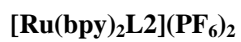
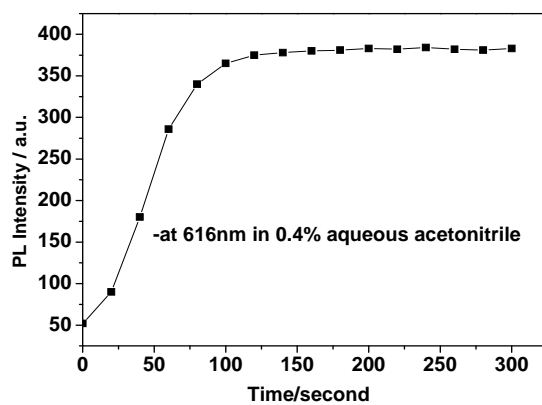
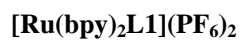
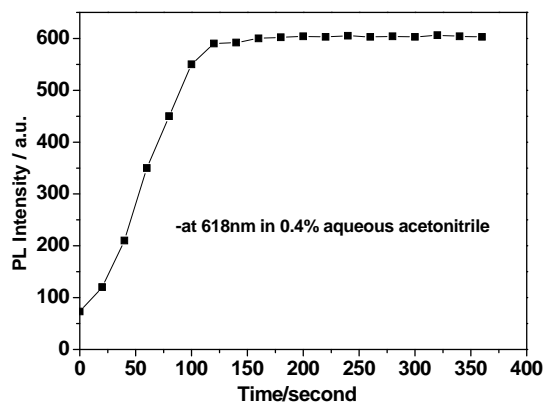
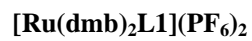
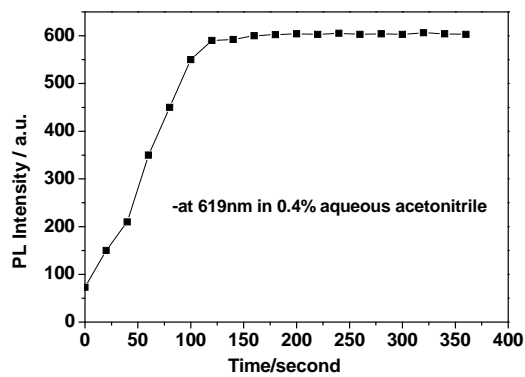


Fig. S6

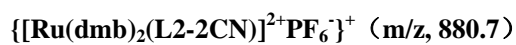
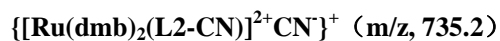
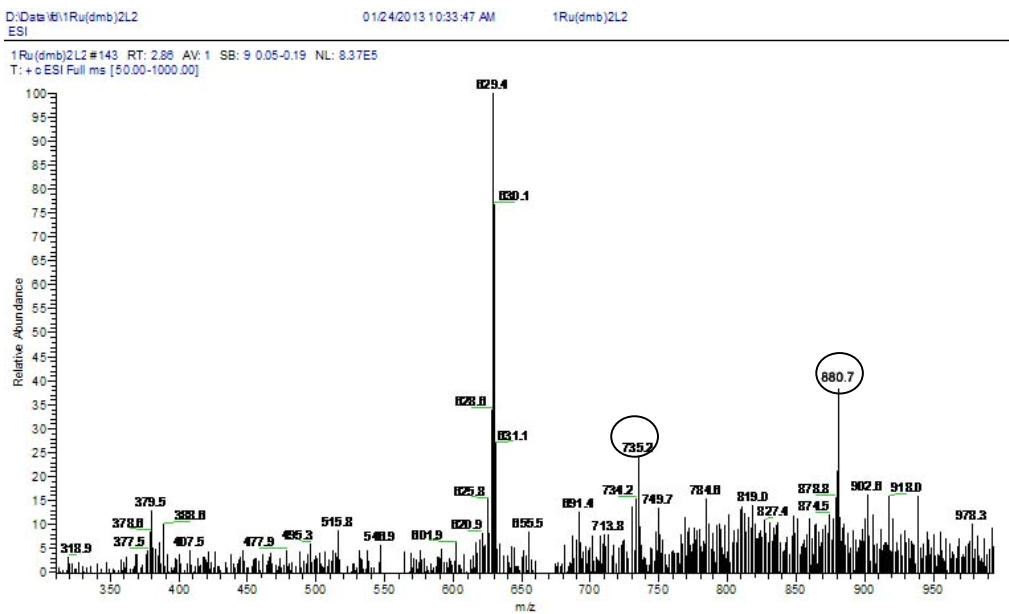
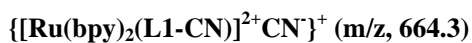
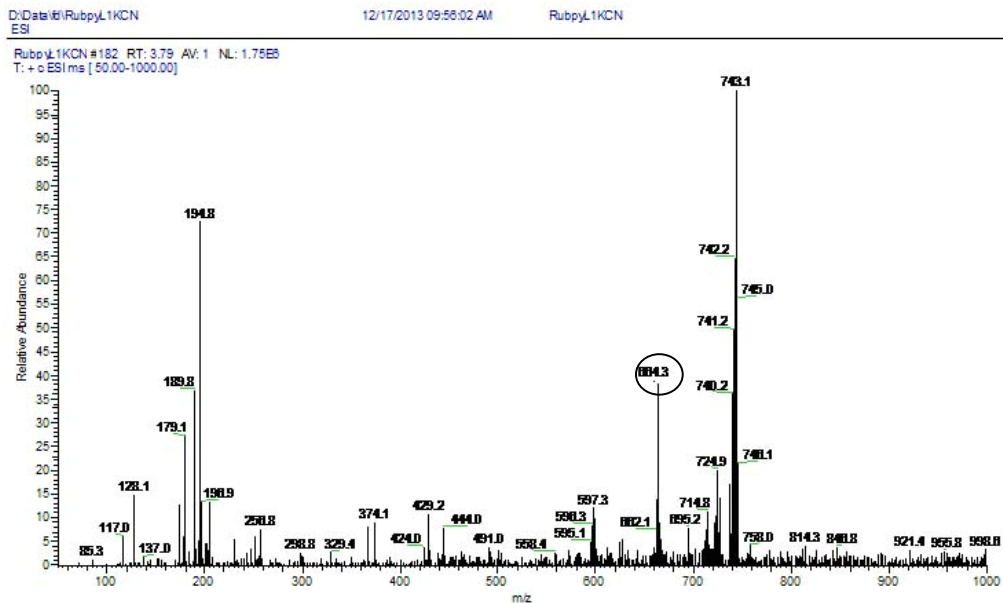


Fig. S7

