Electronic Supplementary Information for

A Highly Selective Phosphorescence Probe for Histidine in Living Bodies

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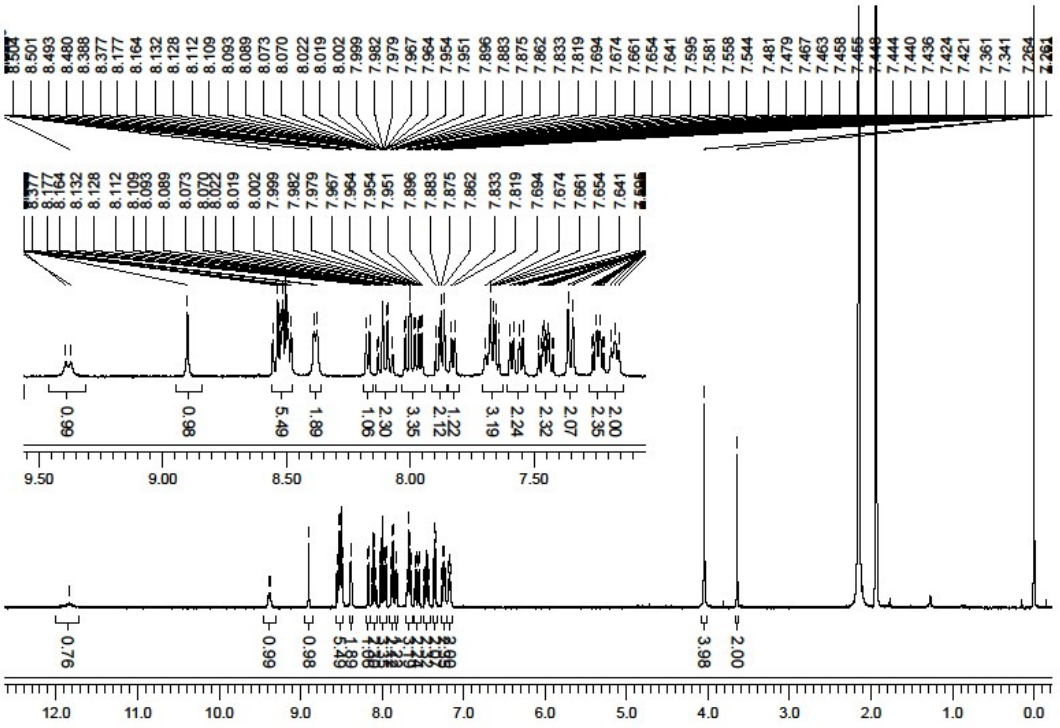

Figure S1. ^{1}H NMR of $[Ru(bpy)_2(phen\text{-}DPA)](PF_6)_2$ (CD_3CN, 400MHz).

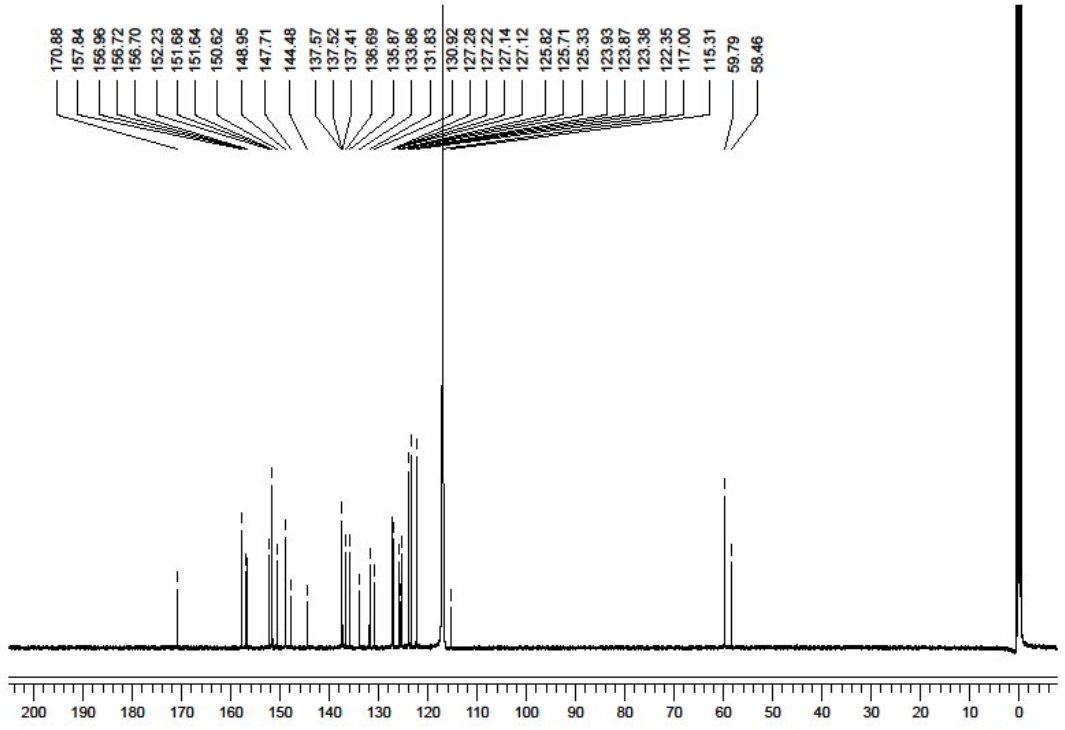

Figure S2. ^{13}C NMR of $[Ru(bpy)_2(phen\text{-}DPA)](PF_6)_2$ (CD_3CN, 100MHz).

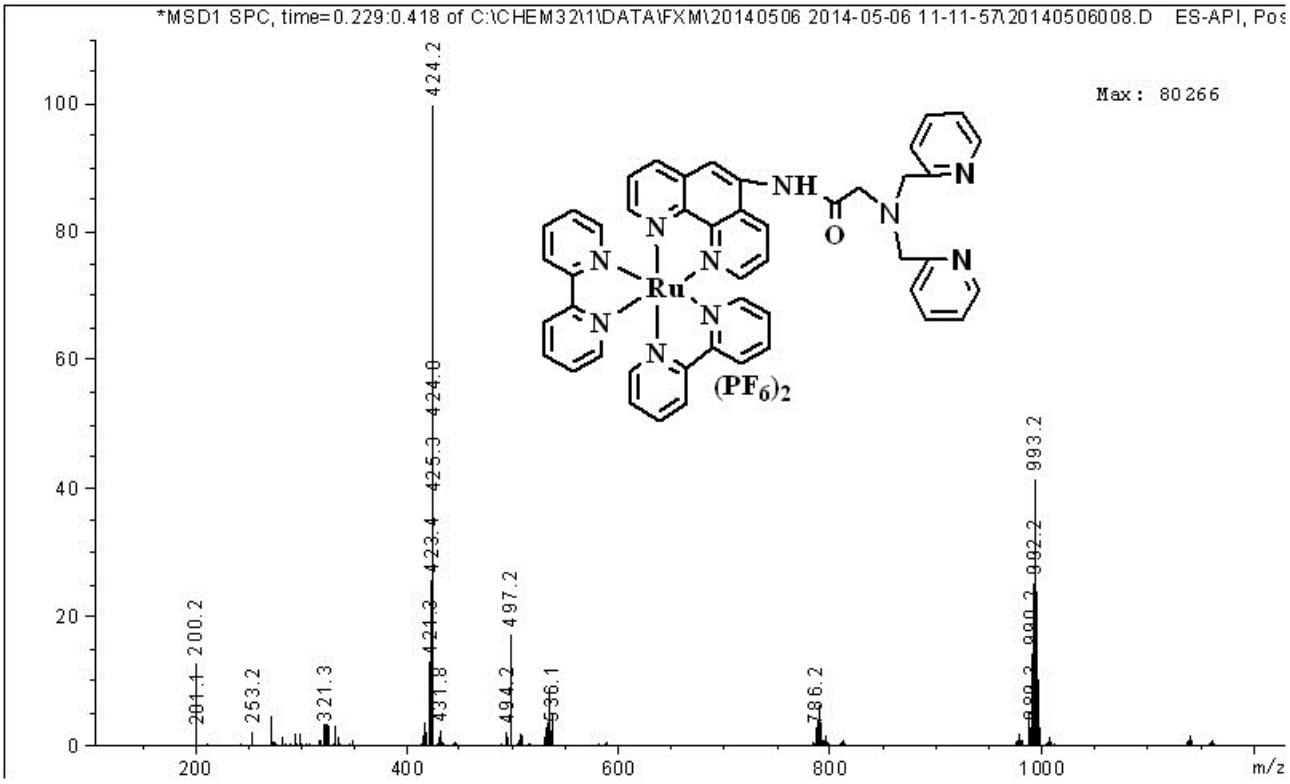

Figure S3. ESI-MS of $[Ru(bpy)_2(phen\text{-}DPA)](PF_6)_2$.

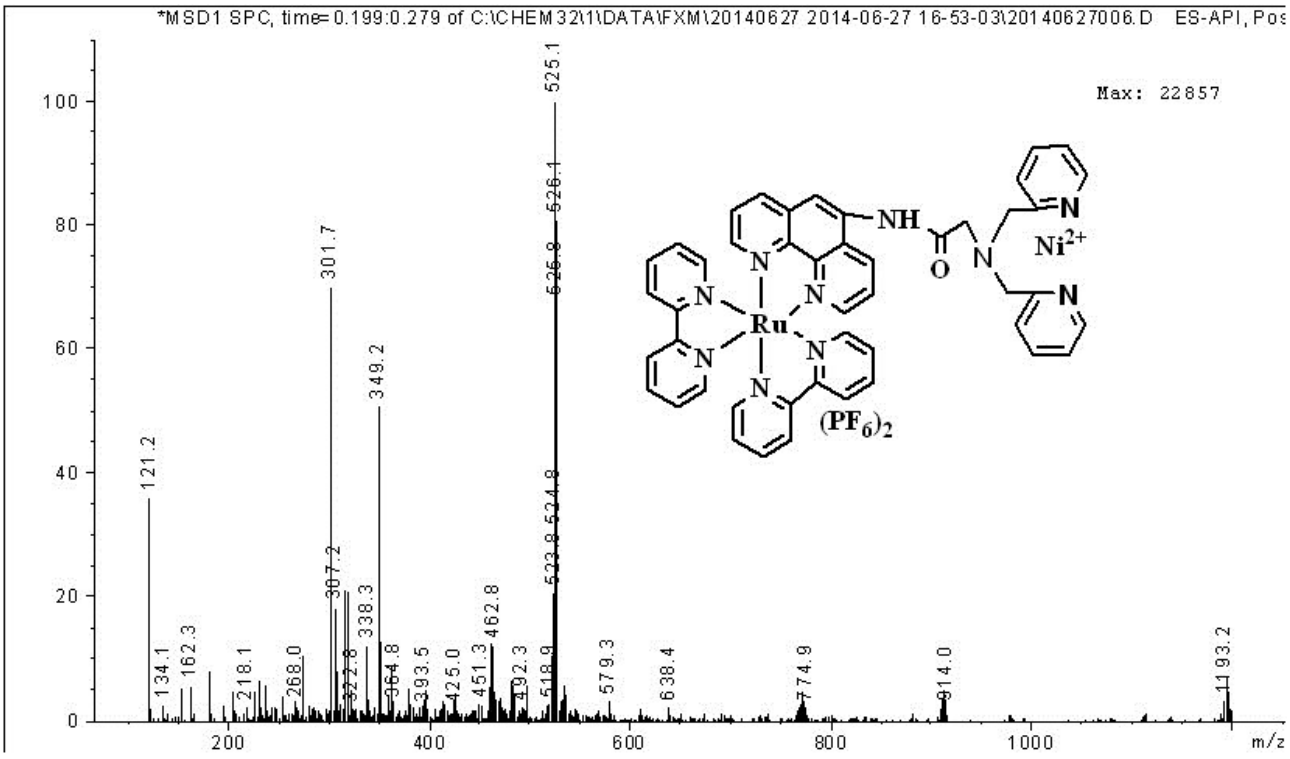

Figure S4. ESI-MS of **Ru-Ni**.

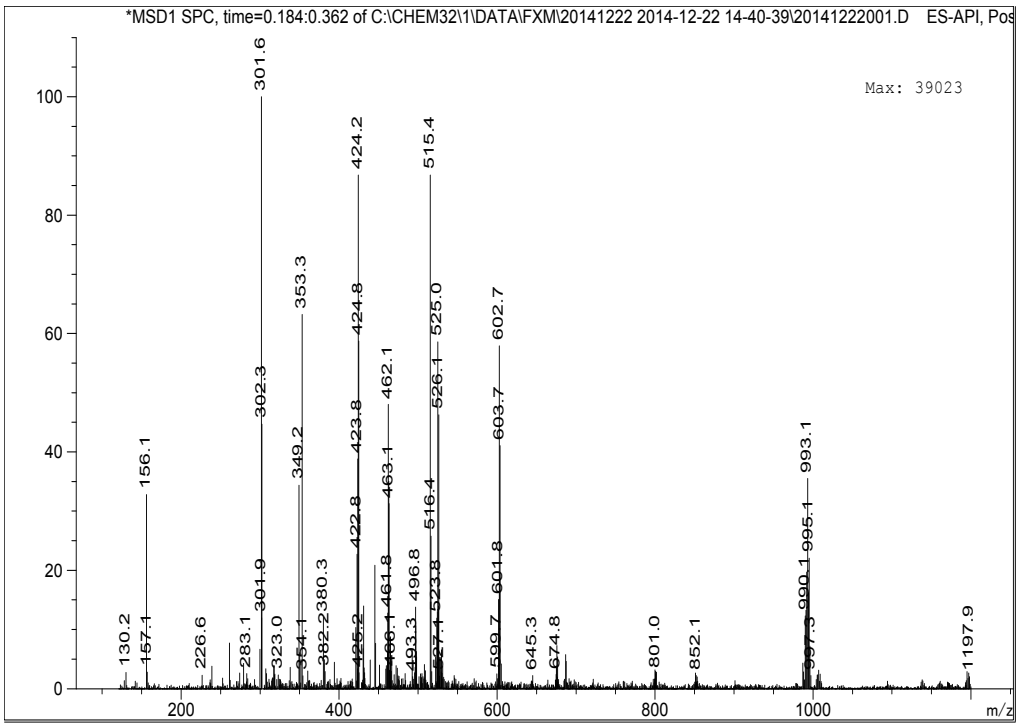

Figure S5. ESI-MS of the product of **Ru-Ni** reacted with Histidine.

Table S1. Photophysical parameters of the Ru complexes[a].

complex	$\lambda_{ex,max}$ (nm)	ε_{450} ($cm^{-1}M^{-1}$)	$\lambda_{em,max}$ (nm)	ϕ (%)	τ (ns)[b]
$[Ru(bpy)_2(phen\text{-}DPA)](PF_6)_2$	450	1.64×10^4	603	4.17	683
Ru-Ni	450	1.77×10^4	603	0.35	655

[a] All data were obtained in EtOH/HEPES buffer (50 mM, pH 7.2, 2 : 3, v/v). [b] Phosphorescence lifetime, measured with the phosphorescence method.

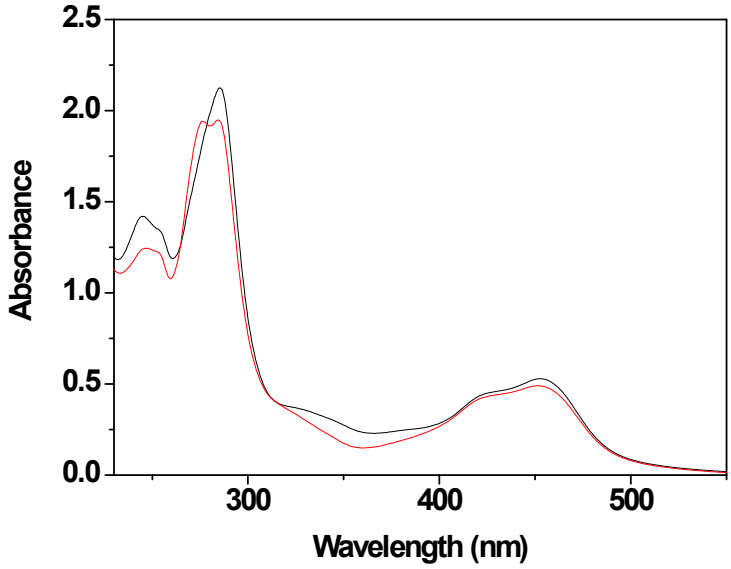

Figure S6. UV/Vis absorption spectra of the Ru complexes (30 μM) in EtOH/HEPES buffer (50 mM, pH 7.2, 2 : 3, v/v). $[Ru(bpy)_2(phen\text{-}DPA)](PF_6)_2$: black line; **Ru-Ni:** red line

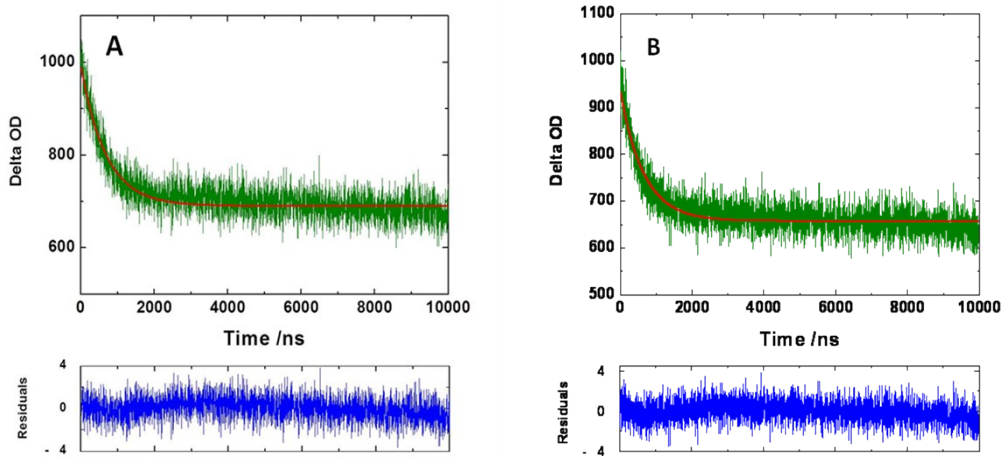

Figure S7. Decay traces of the Ru(II) complexes solutions. (A) $[Ru(bpy)_2(phen\text{-}DPA)](PF_6)_2$; (B) **Ru-Ni**

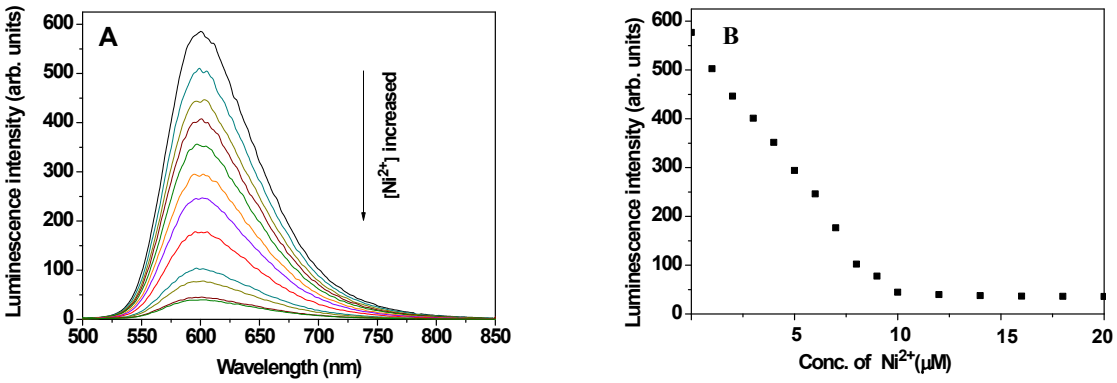

Figure S8. (A) Emission spectra of $[Ru(bpy)_2(phen\text{-}DPA)](PF_6)_2$ (10 μM) in the presence of different concentrations of Ni^{2+} in EtOH/HEPES buffer (50 mM, pH 7.2, 2 : 3, v/v) (Ni^{2+} concentrations: 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10 and 12 μM). (B) The change in luminescence intensity of $[Ru(bpy)_2(phen\text{-}DPA)](PF_6)_2$ at 603 nm in the presence of different concentrations of Ni^{2+} (0-20 μM). Excitation wavelength: 450 nm.

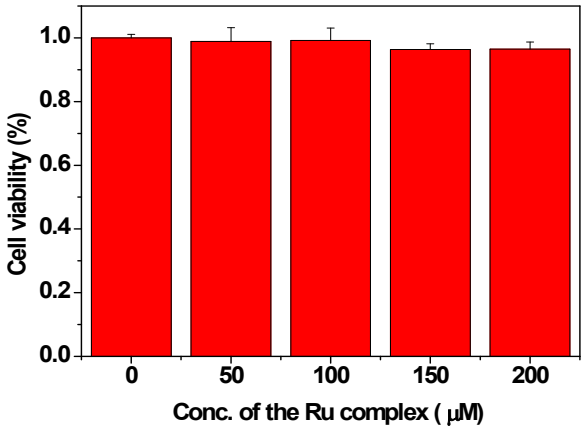

Figure S9. Viabilities of the HeLa cells after incubated with different concentrations of **Ru-Ni** for 3 h.