

Selective ion pair recognition of citrate AND zinc ions in water by ratiometric luminescence signaling

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Twelve spectral titrations under the stated conditions showing the changes in the Eu emission spectral profile as a function of added salts.

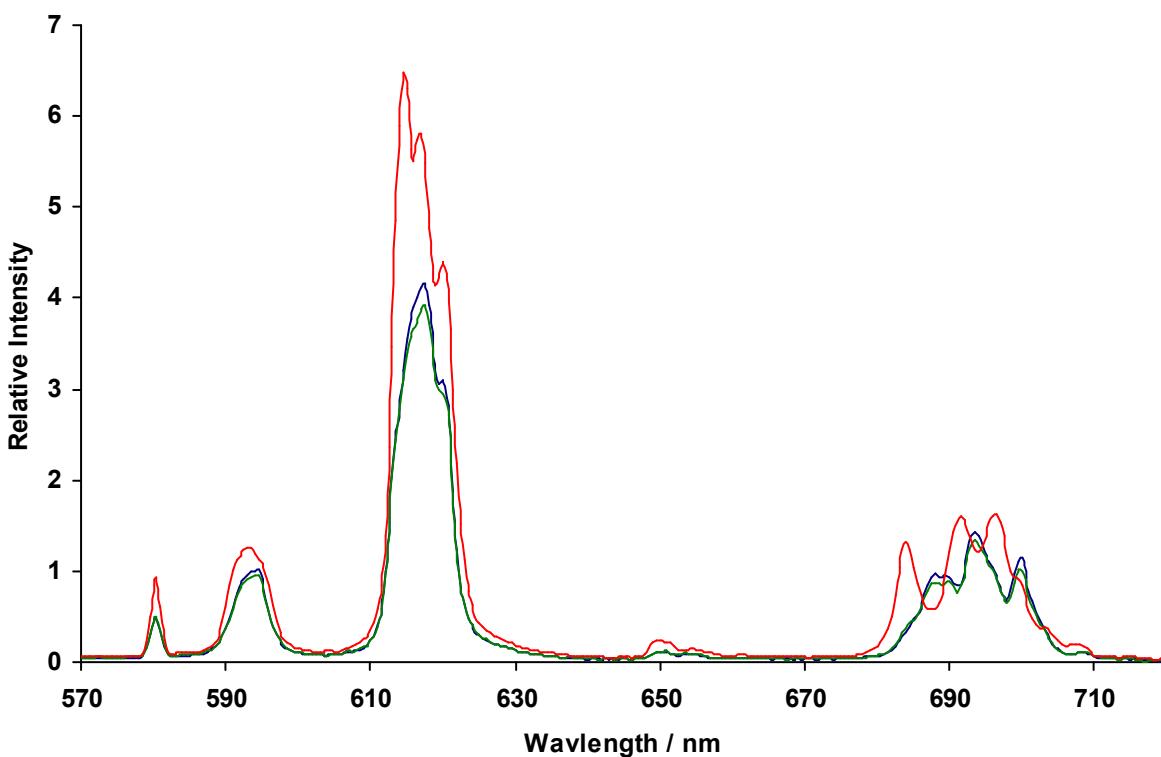


Figure ESI-1 Europium emission spectral profile for $[\text{Eu} \cdot \text{L}_2]$ ($5 \mu\text{M}$) in the presence of excess sodium acetate alone (—) and a combination of sodium acetate and zinc chloride (—) ($\lambda_{\text{exc}} = 332 \text{ nm}$, H_2O , pH 7.4).

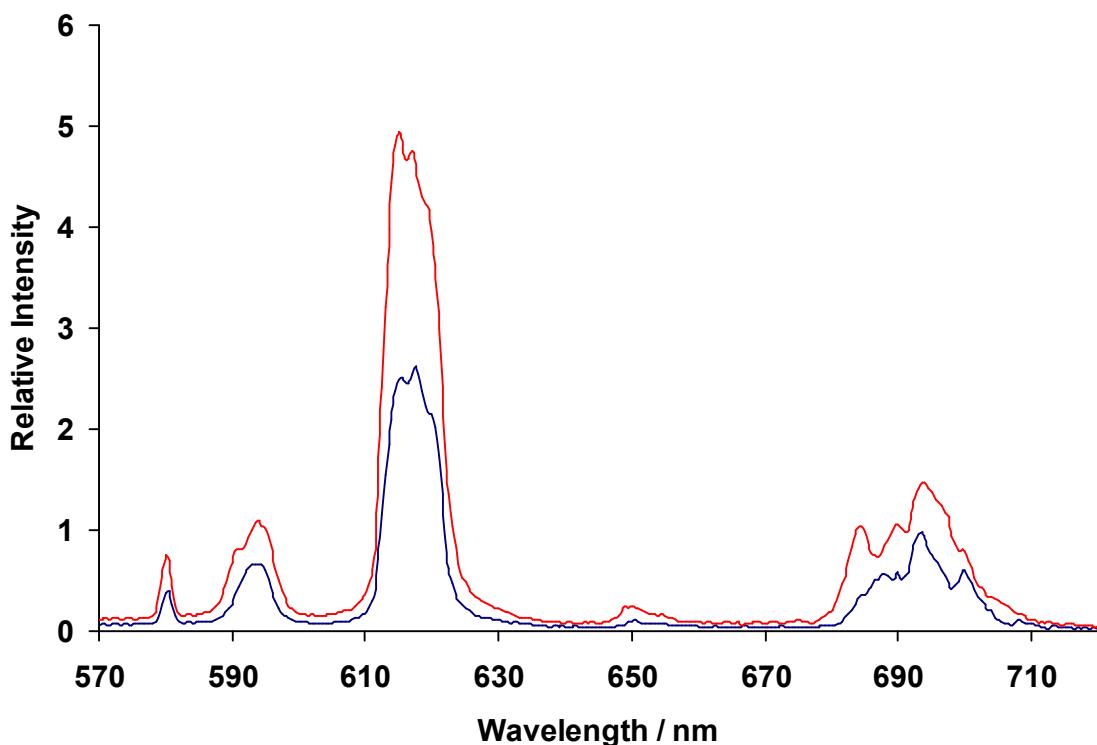


Figure ESI-2 Europium emission spectral profile for $[\text{Eu}.\text{L}_2]$ ($5 \mu\text{M}$) in the presence of sodium bicarbonate and zinc chloride (—) ($\lambda_{\text{exc}} = 332 \text{ nm}$, H_2O , pH 7.4).

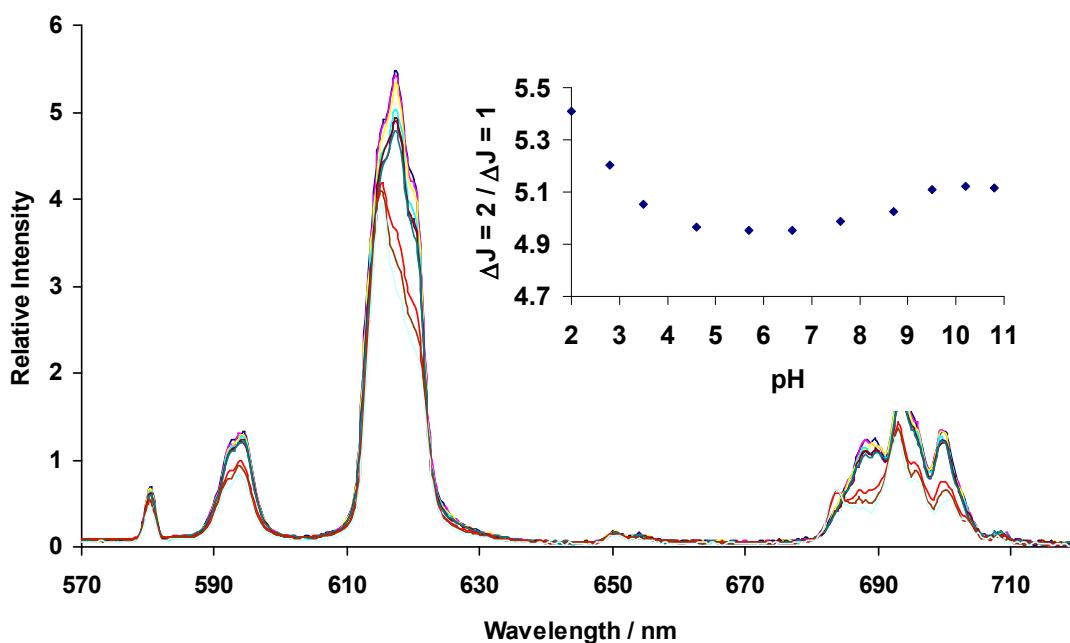


Figure ESI-3 Variation of the europium emission of $[\text{Eu}.\text{L}_2]$ as a function of pH (H_2O , $5 \mu\text{M}$ complex, 298 K , $\lambda_{\text{exc}} = 332 \text{ nm}$) Inset: plot of $\Delta J = 2 / \Delta J = 1$ versus pH.

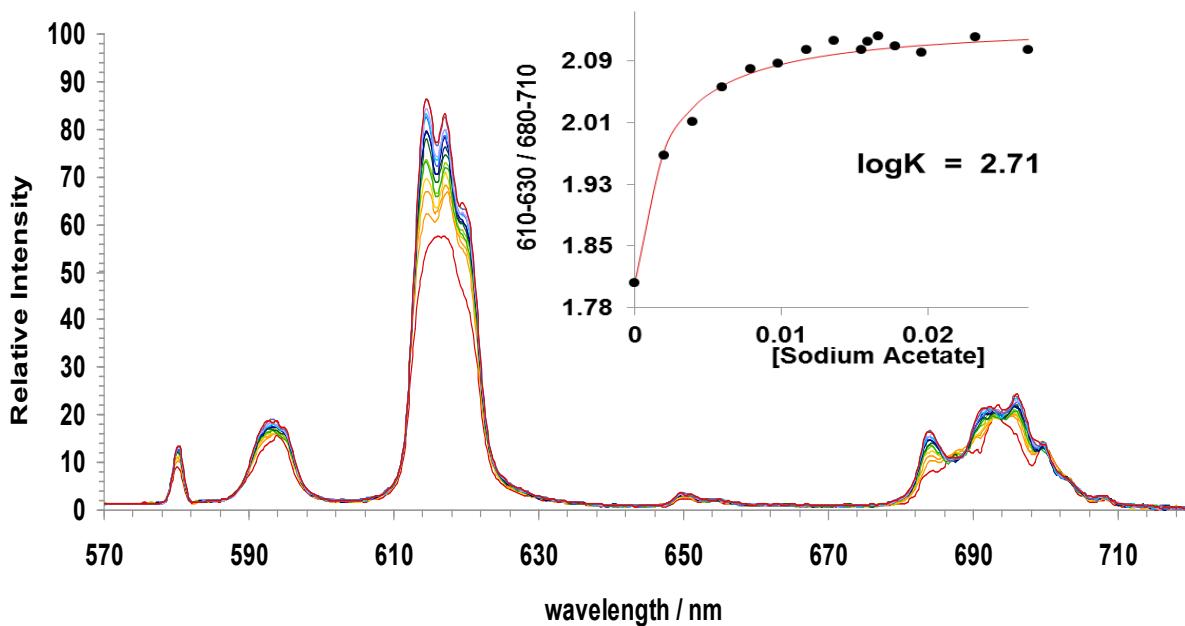


Figure ESI-4 Variation of the europium (III) emission spectral profile for $[\text{Eu} \cdot \text{L}_2]$ (5 μM) as a function of added sodium acetate in the presence of 10 mM zinc chloride ($\lambda_{\text{exc}} = 332 \text{ nm}$, H_2O , pH 7.4). The inset shows the fit (line) to the data points for $\log K_a = 2.71 (\pm 0.04)$.

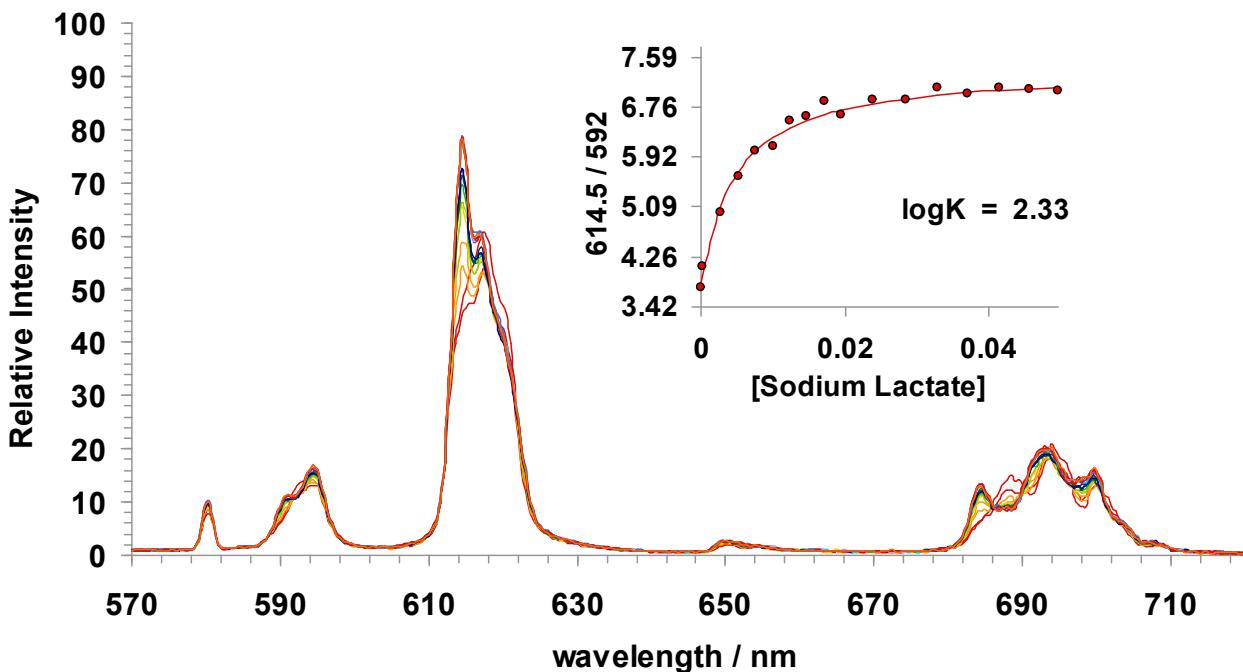


Figure ESI-5 Variation of the europium (III) emission spectral profile for $[\text{Eu} \cdot \text{L}_2]$ (5 μM) as a function of added sodium lactate in the presence of 10 mM zinc chloride ($\lambda_{\text{exc}} = 332 \text{ nm}$, H_2O , pH 7.4). The inset shows the fit (line) to the data points for $\log K_a = 2.33 (\pm 0.04)$.

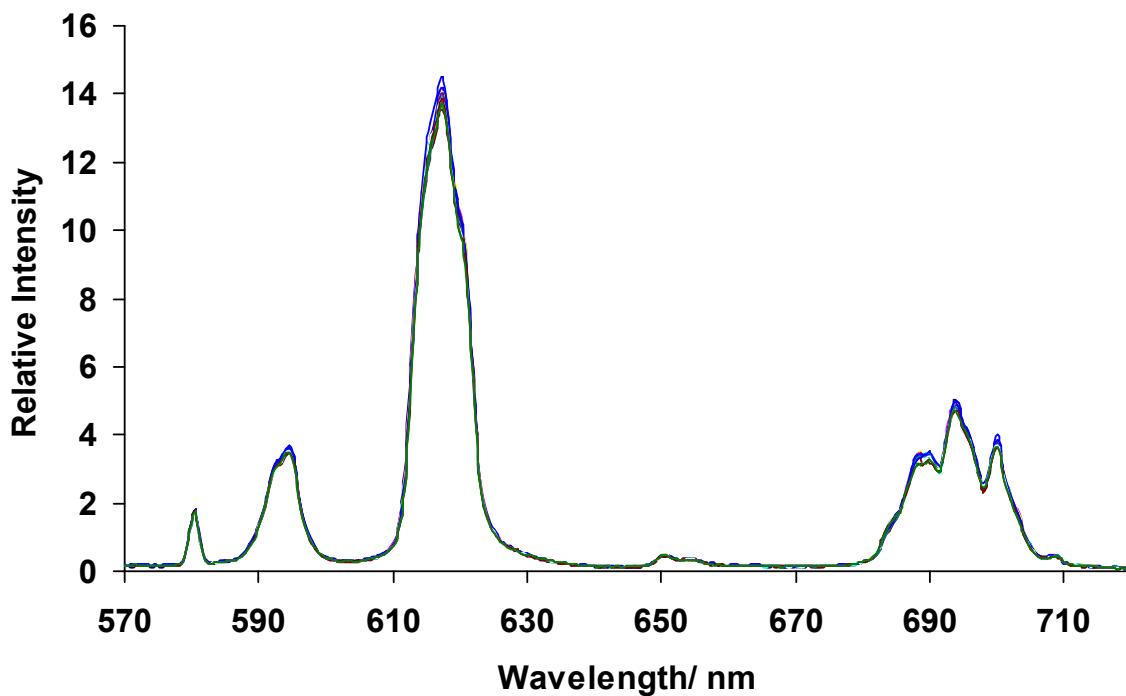


Figure ESI-6 Variation of the europium (III) emission spectral profile for $[\text{Eu} \cdot \text{L}_2]$ (5 μM) as a function of added sodium citrate (up to 70 mM) in the presence of 10 mM magnesium chloride ($\lambda_{\text{exc}} = 332$ nm, H_2O , pH 7.4). No change is observed.

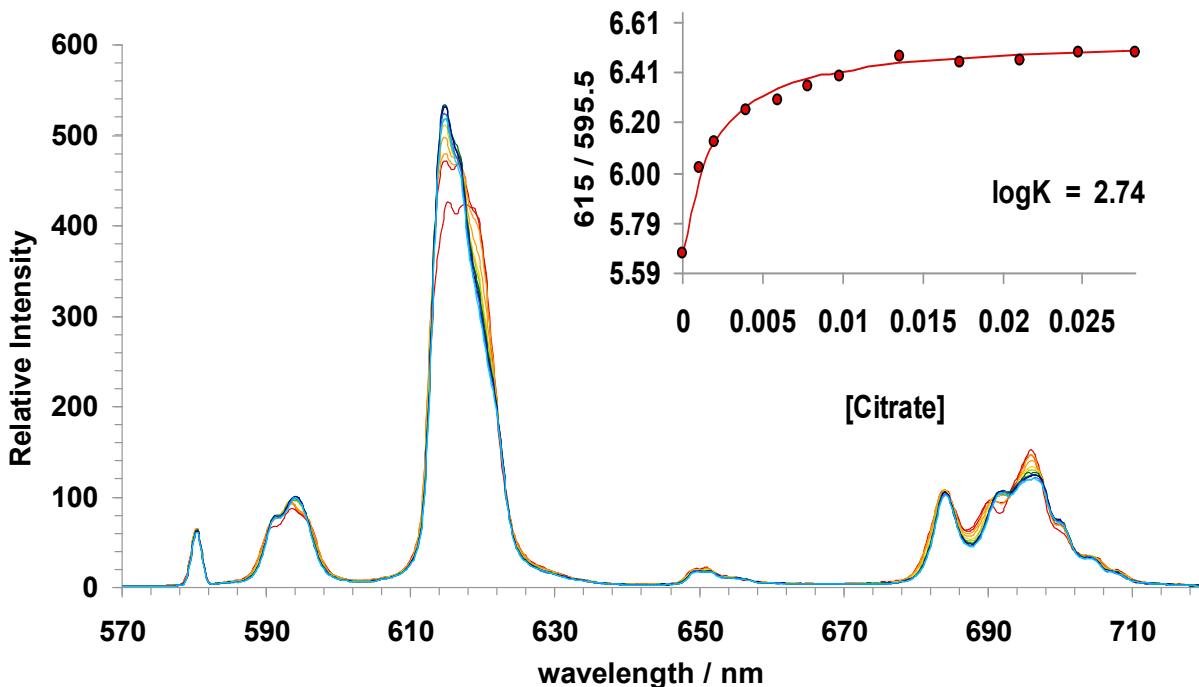


Figure ESI-7 Variation of the europium (III) emission spectral profile for $[\text{Eu} \cdot \text{L}_2]$ (5 μM) as a function of added sodium citrate in the presence of 100 mM NaCl, 30 mM NaHCO_3 , 2.3 mM sodium lactate and 0.9 mM NaH_2PO_4 . ($\lambda_{\text{exc}} = 332$ nm, H_2O , pH 7.4). The inset shows the fit (line) to the data points for $\log K_a = 2.74 (\pm 0.04)$.

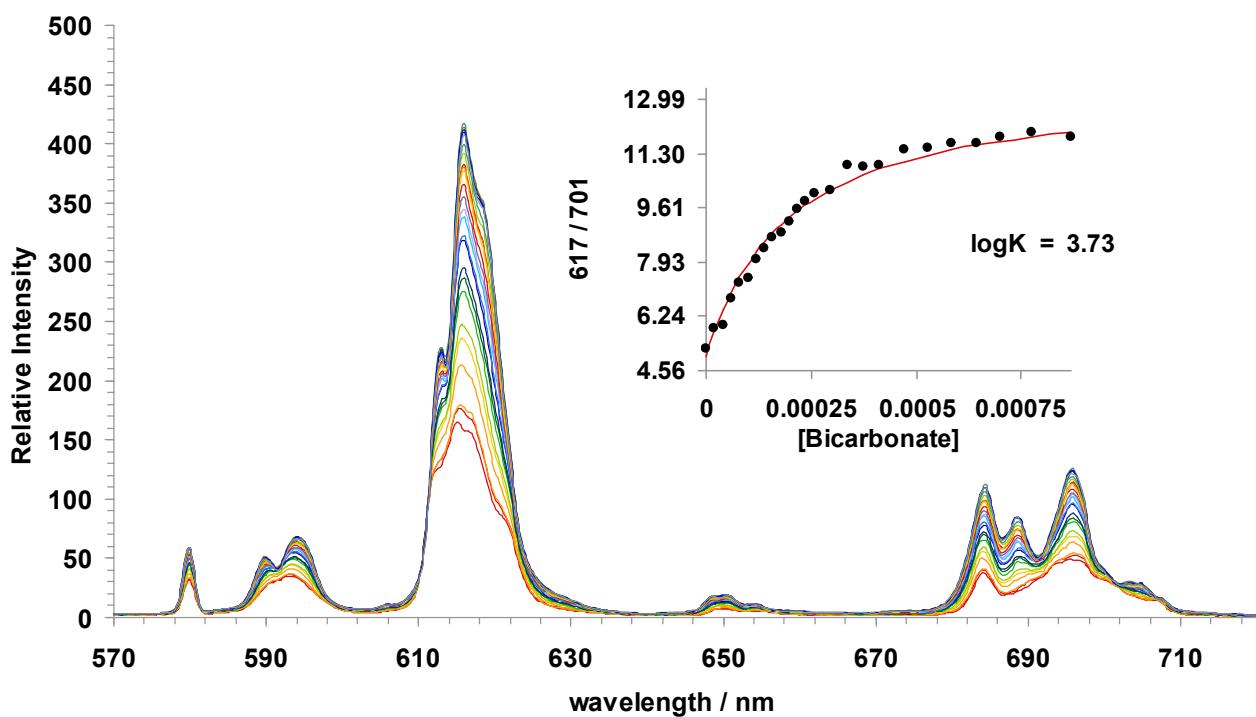


Figure ESI-8 Variation of the europium (III) emission spectral profile for $[Eu \cdot L^{1b}]$ (5 μM) as a function of added sodium bicarbonate ($\lambda_{exc} = 332$ nm, H_2O , pH 7.4). The inset shows the fit (line) to the data for 1:1 association, with $\log K_a = 3.73 (\pm 0.04)$.

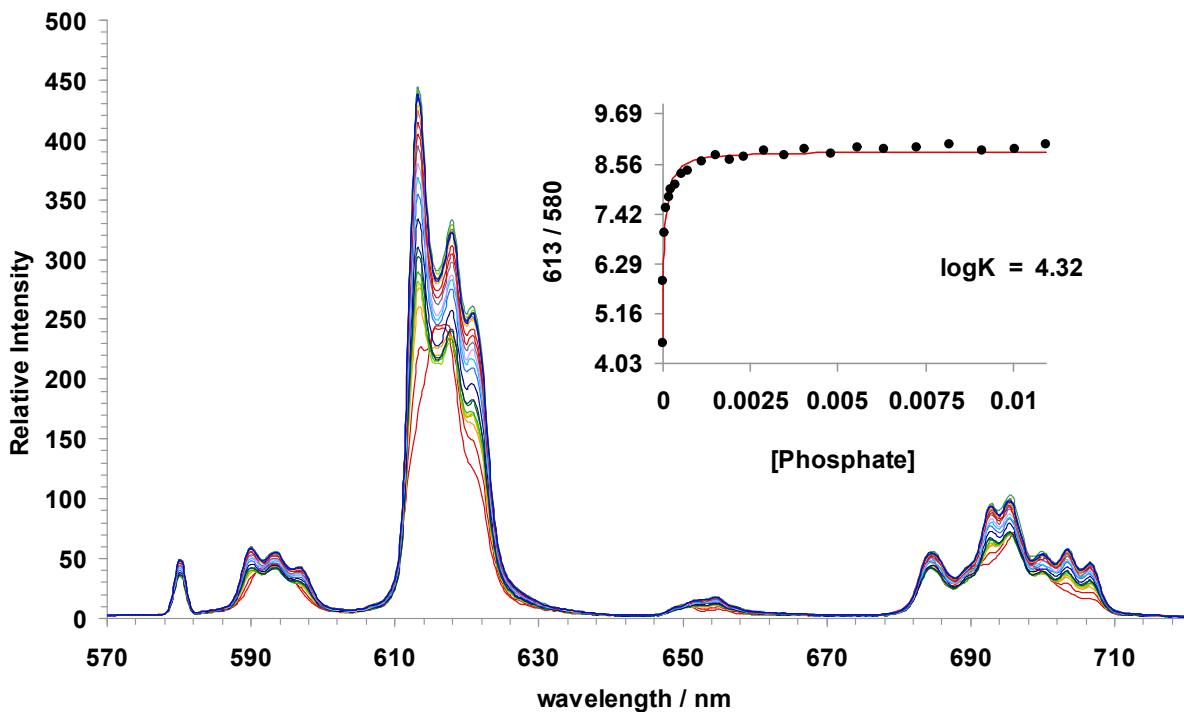


Figure ESI-9 Variation of the europium (III) emission spectral profile for $[Eu \cdot L^{1b}]$ (5 μM) as a function of added sodium dihydrogen phosphate ($\lambda_{exc} = 332$ nm, H_2O , pH 7.4). The inset shows the fit (line) to the data for 1:1 association, with $\log K_a = 4.32 (\pm 0.05)$.

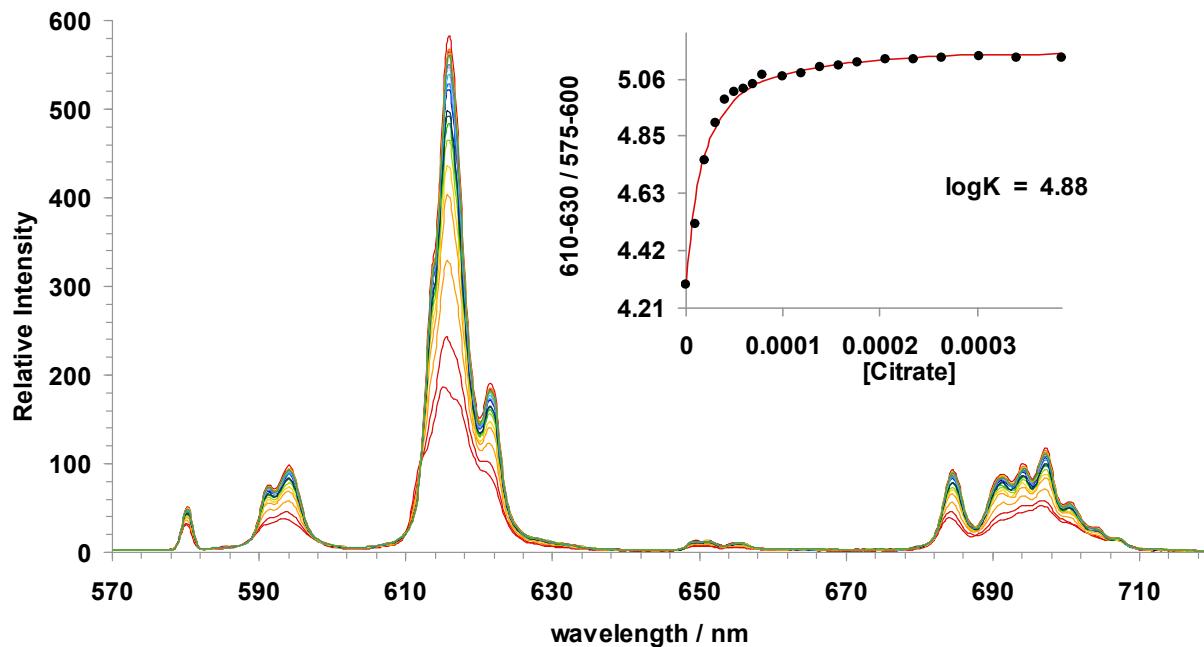


Figure ESI-10 Variation of the europium (III) emission spectral profile for $[\text{Eu} \cdot \text{L}^{1\text{b}}]$ (5 μM) as a function of added sodium citrate ($\lambda_{\text{exc}} = 332$ nm, H_2O , pH 7.4). The inset shows the fit (line) to the data for 1:1 association, with $\log K_a = 4.88 (\pm 0.05)$.

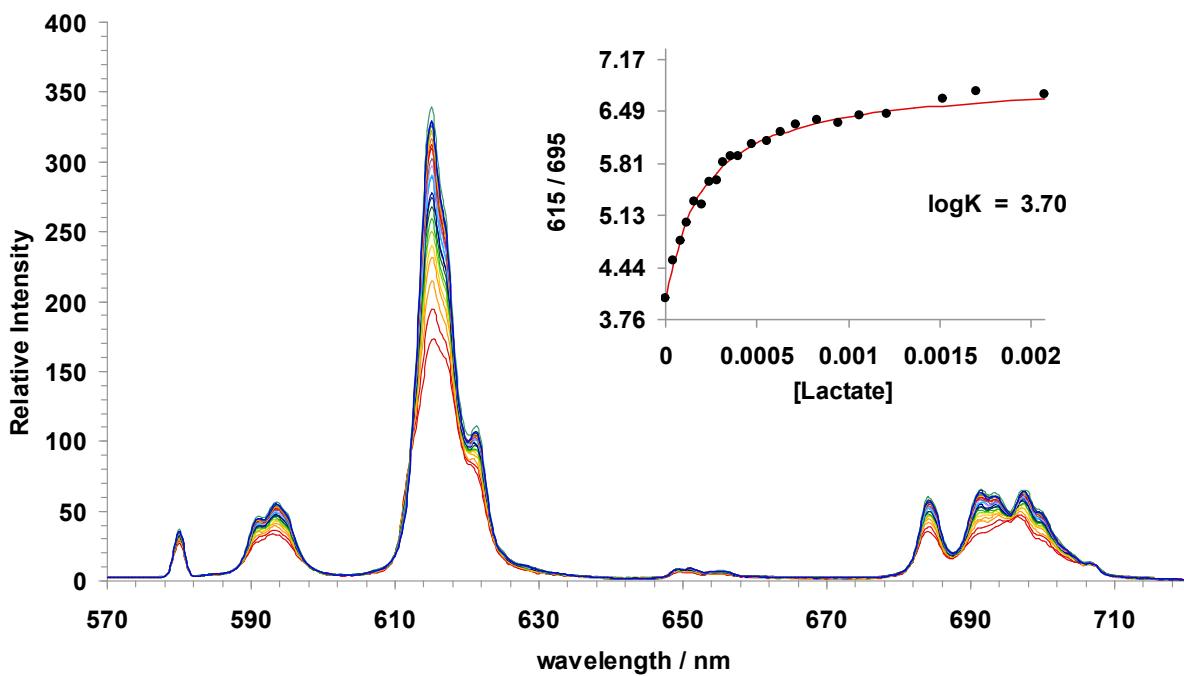


Figure ESI-11 Variation of the europium (III) emission spectral profile for $[\text{Eu} \cdot \text{L}^{1\text{b}}]$ (5 μM) as a function of added sodium lactate ($\lambda_{\text{exc}} = 332$ nm, H_2O , pH 7.4). The inset shows the fit (line) to the data for 1:1 association, with $\log K_a = 3.70 (\pm 0.03)$.

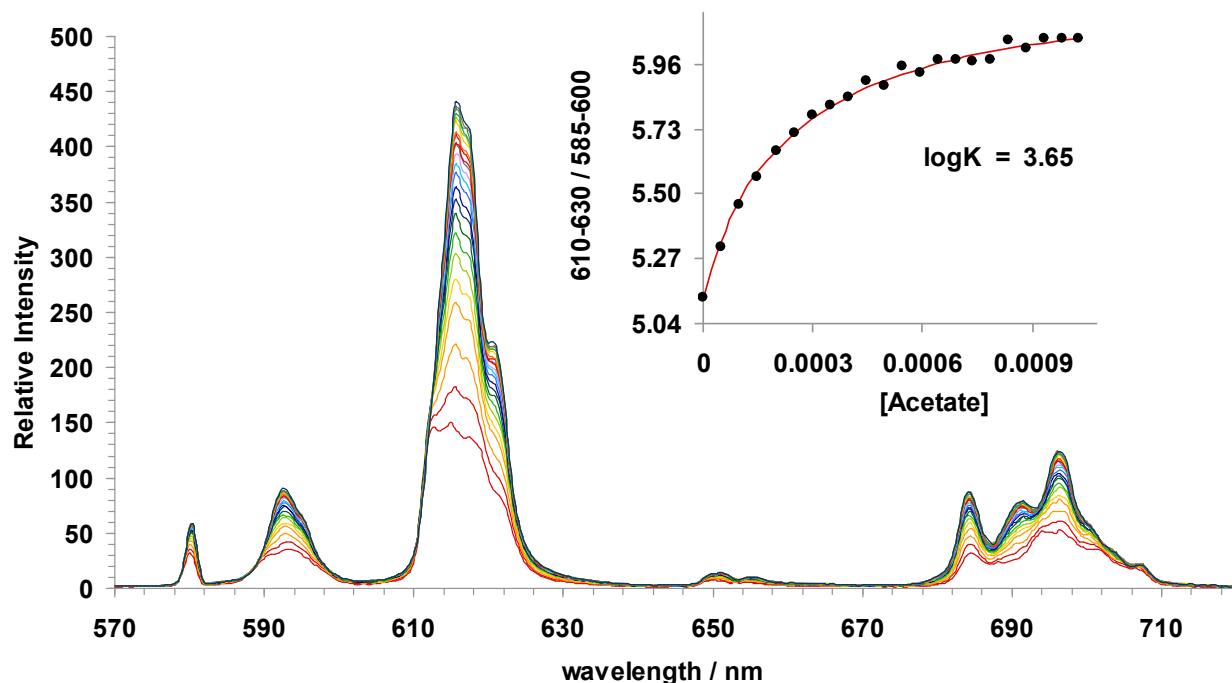


Figure ESI-12 Variation of the europium (III) emission spectral profile for $[\text{Eu} \cdot \text{L}^{1\text{b}}]$ ($5 \mu\text{M}$) as a function of added sodium acetate ($\lambda_{\text{exc}} = 332 \text{ nm}$, H_2O , pH 7.4). The inset shows the fit (line) to the data for 1:1 association, with $\log K_a = 3.65 (\pm 0.03)$.