Supporting information for:

Monitoring pyrophosphate anion via cobalt (II)-modulated fluorescence of Cadmium sulfide quantum dots

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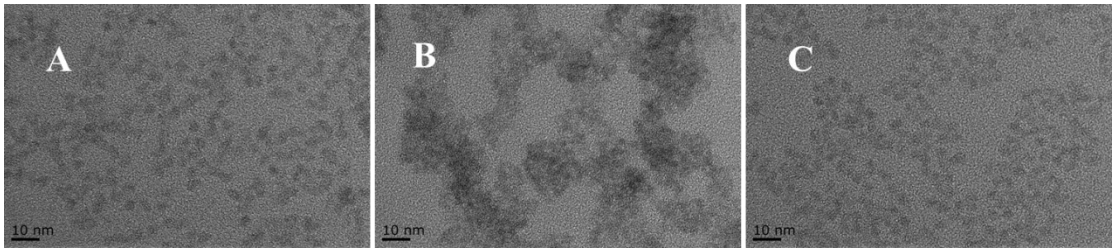

Figure S1 TEM images of off-on fluorescence process (a) CdS QDs (b) CdS QDs-Co^{2+} aggregation; (c) CdS QDs-Co^{2+} aggregation in the prescence of PPi.

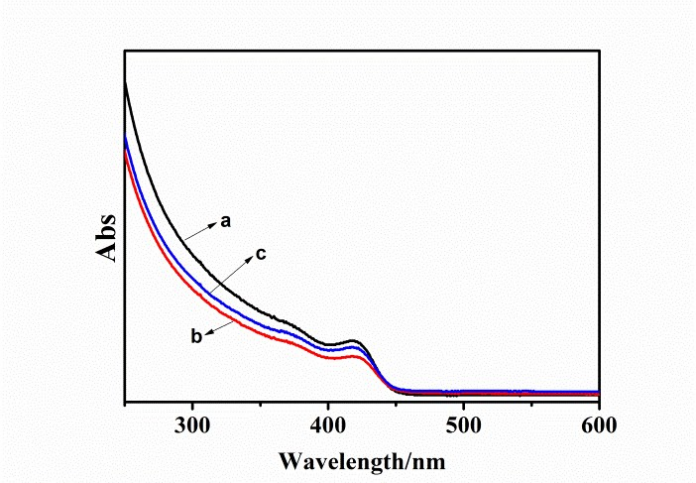

Figure S2 UV-vis absorption spectrum of the CdS QDs (a), CdS QDs-Co^{2+} (b), CdS QDs-Co^{2+} -PPi (c) Concentration: CdS QDs: 1mg mL^{-1}; Co^{2+}: 150 μM; PPi: 75.0 μM; Tris-HCl buffer (0.1 Mm, pH = 7.0); λ_{ex}: 415 nm; λ_{em}: 611 nm.

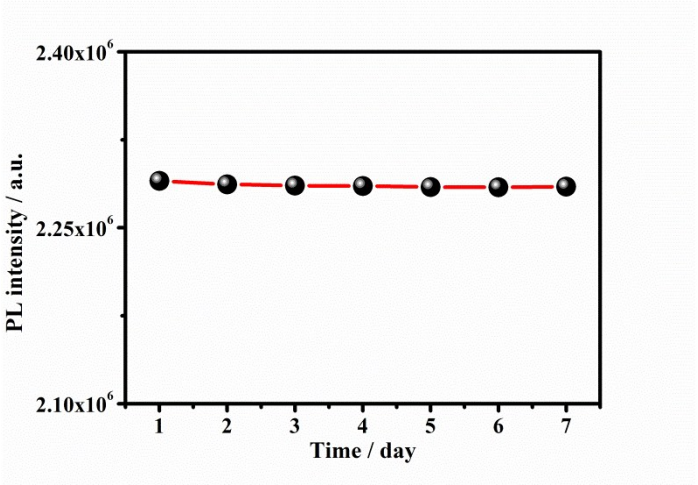

Figure S3 Photostability of the CdS QDs-Co^{2+} in the prescence of PPi as a function of the storage time, Concentration: CdS QDs: 1mg mL^{-1}; Co^{2+}: 150 μM; PPi: 75.0 μM; Tris-HCl buffer (0.1 Mm, pH = 7.0); λ_{ex}: 415 nm; λ_{em}: 611 nm.

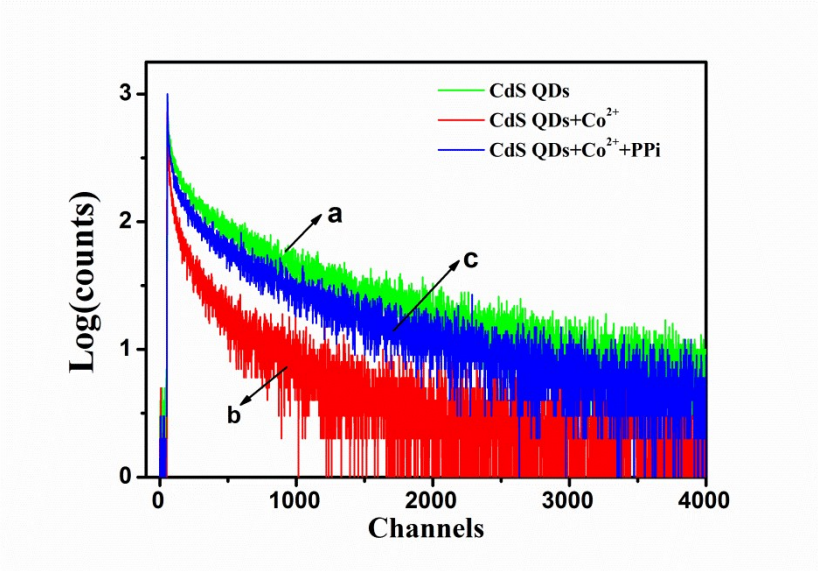

Figure S4 Decay curves of luminescence lifetime CdS QDs (a), CdS QDs-Co^{2+} (b), CdS QDs-Co^{2+} in the prescence of PPi (c).

Table S1 Fluorescent lifetimes of the CdS QDs, CdS QDs-Co^{2+}, CdS QDs-Co^{2+} in the prescence of PPi (λ_{ex}: 340 nm; λ_{em}: 611 nm)[a]

Sample	**τ_1/ns (%)**	**τ_2/ns (%)**
CdS QDs	9.25 (19.19)	7.30 (80.81)
CdS QDs-Co^{2+}	3.68 (26.19)	2.57 (73.81)
CdS QDs-Co^{2+}-PPi	6.76 (20.35)	5.79 (79.65)

[a] Concentration: CdS QDs: 1mg mL^{-1}; Co^{2+}: 150 μM; PPi: 75.0 μM; Tris-HCl buffer(0.1 Mm, pH = 7.0)

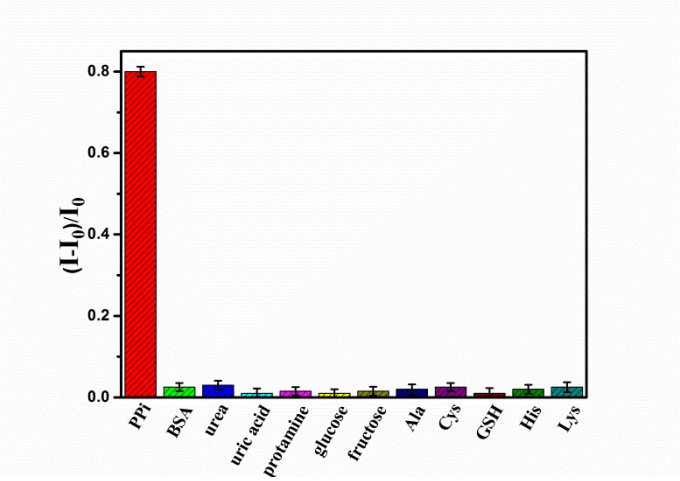

Figure S5 Selectivity of the fluorescence system for PPi over other substances. The concentration of PPi was 50 μM and other substances were 5 mM, respectively. λ_{ex}, 415 nm; λ_{em}, 611 nm.