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Supporting Information for

Modulating the selectivity by switching sensing media: a bifunctional chemosensor selectivity for Cd²⁺ and Pb²⁺ in different aqueous solution

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1. The characterization data of chemosensor RI

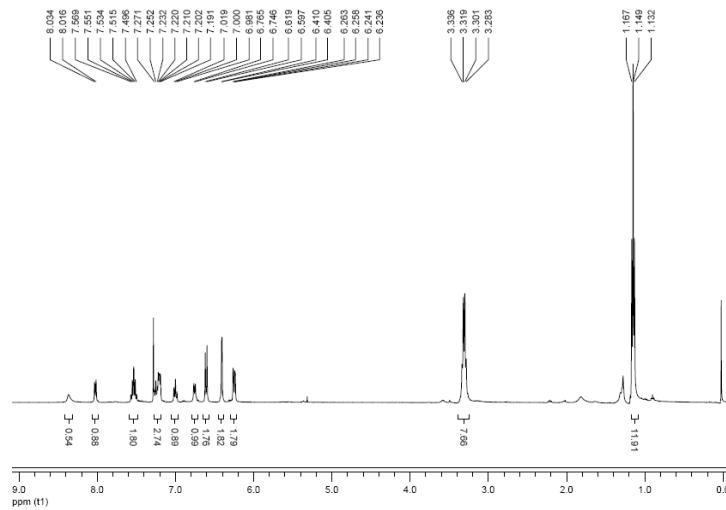


Fig. S1 (a) The ^1H NMR spectra of RI

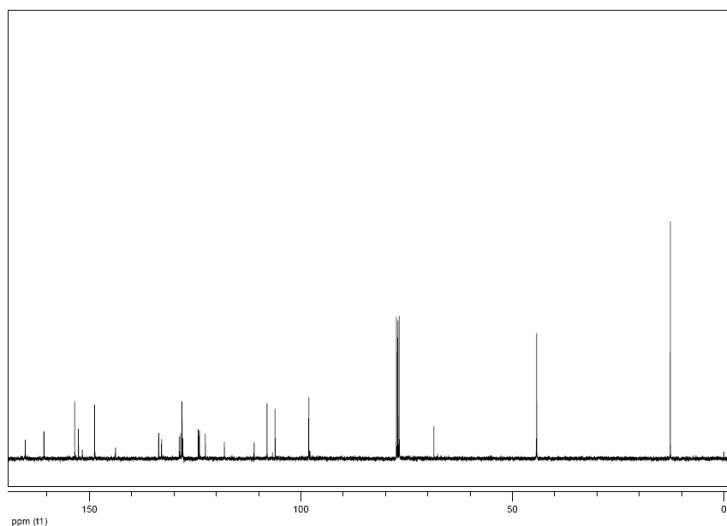


Fig. S1 (b) The ^{13}C NMR spectra of RI

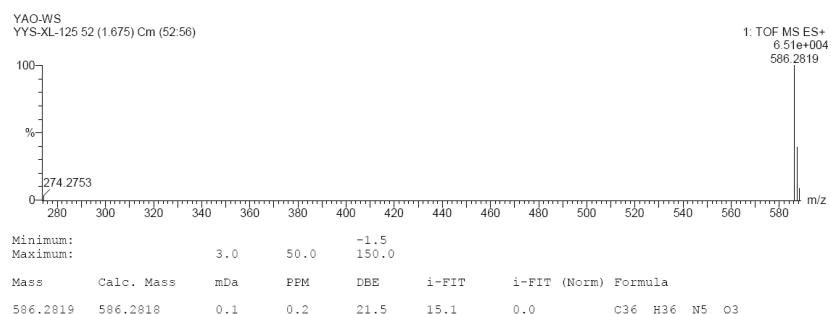


Fig. S1 (c) The HRMR spectra of RI

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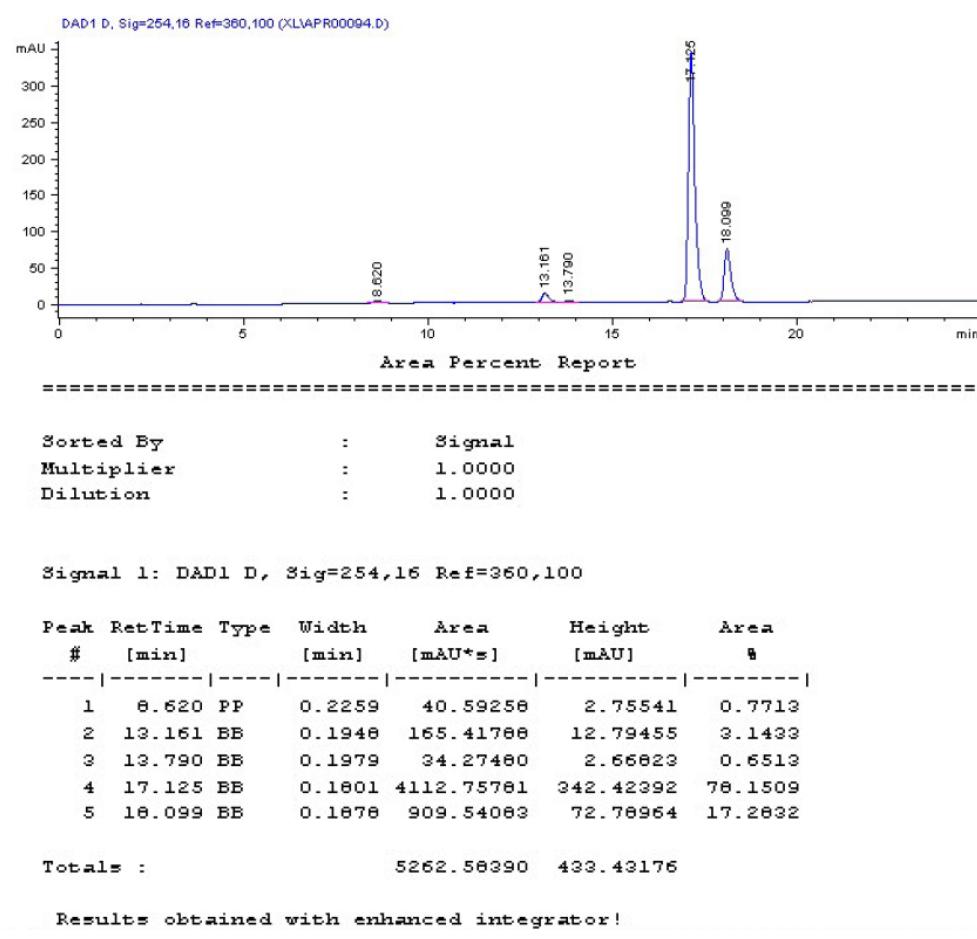


Fig. R1 (d) HPLC trace of RI

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LCMS REPORT

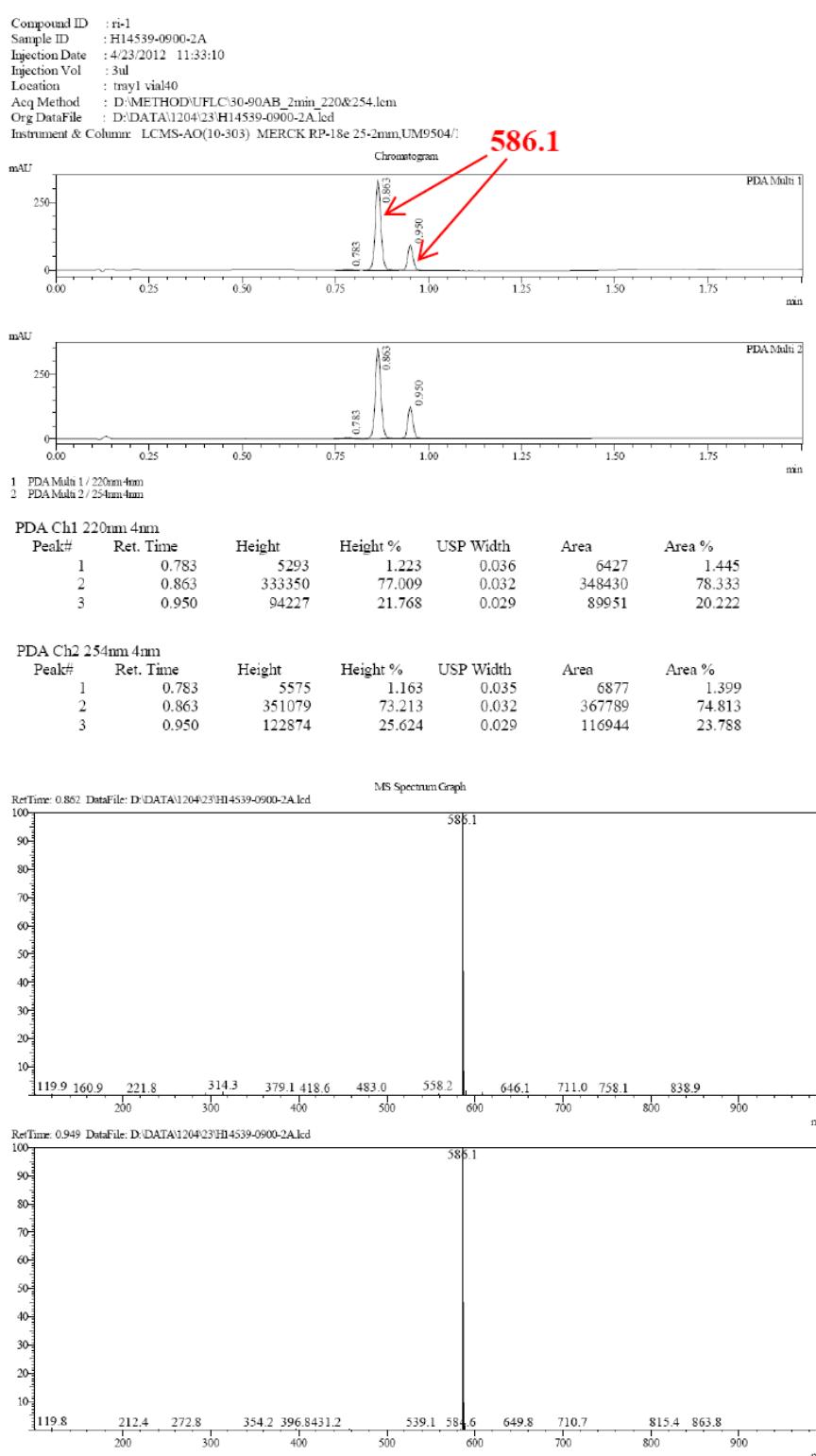


Fig. R1 (e) LCMS trace of RI

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2. The pH-titration of free RI and [RI@Cd²⁺]

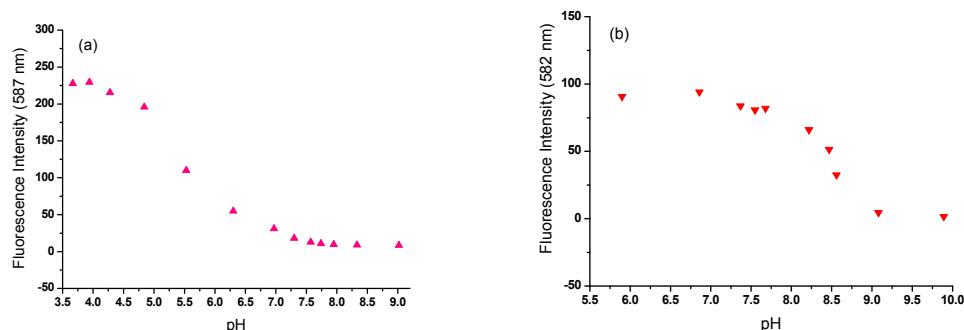


Fig. S2 The influence of pH on the fluorescence of RI (10 μM) without Cd^{2+} (a) and with 80 μM Cd^{2+} (b) in EtOH/water solution (4:6, v/v), the pH of the solution was adjusted by adding 10% HClO_4 or 2.0 M NaOH. Excitation was performed at 560 nm.

3. UV-Vis absorption titration spectra of RI with Cd²⁺

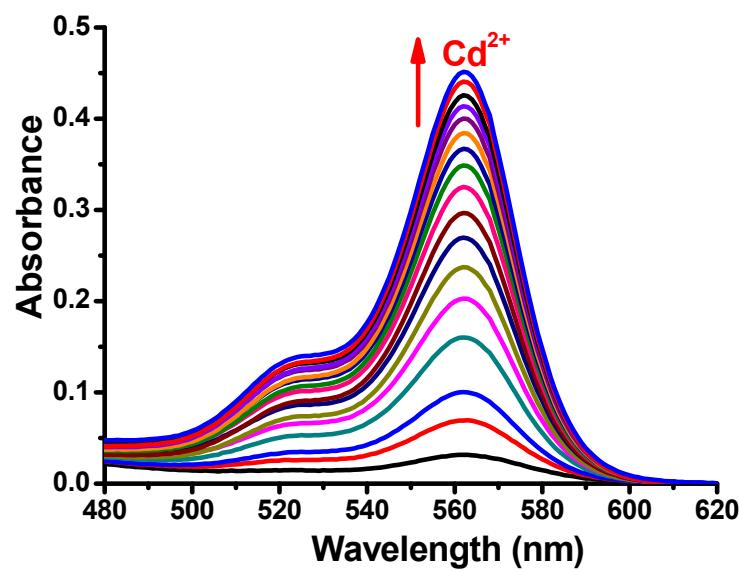


Fig. S3 UV-Vis absorption spectra of RI (10 μM) upon addition of Cd^{2+} (10 ~ 150 μM) in HEPES (10 mM, $\text{CH}_3\text{OH}/\text{H}_2\text{O}$, 4:6, v/v, pH 7.6) buffer solution.

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4. UV-Vis absorption spectra of RI with various metal ions

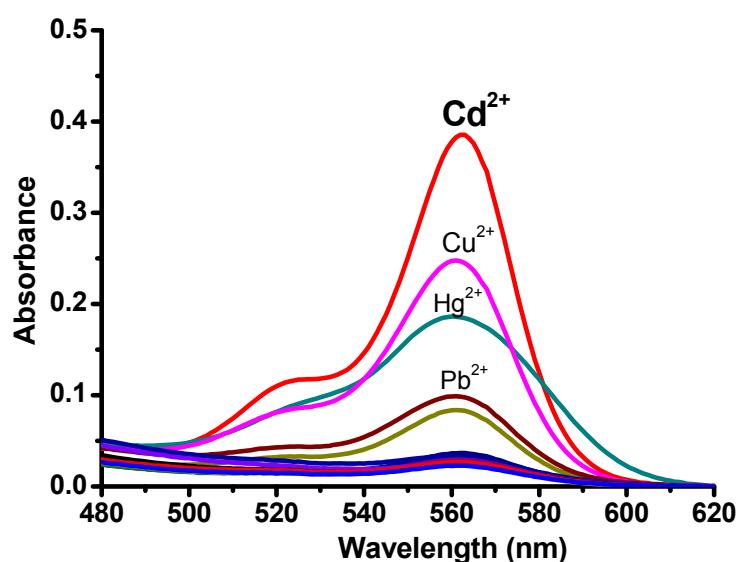


Fig. S4 UV-Vis absorption spectra of RI (10 μM) in the presence of 100 μM of various metal ions in HEPES (10 mM, $\text{CH}_3\text{OH}/\text{H}_2\text{O}$, 4:6, v/v, pH 7.6) buffer solution.

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5. The selectivity and competition of RI for Cd²⁺ and Pb²⁺

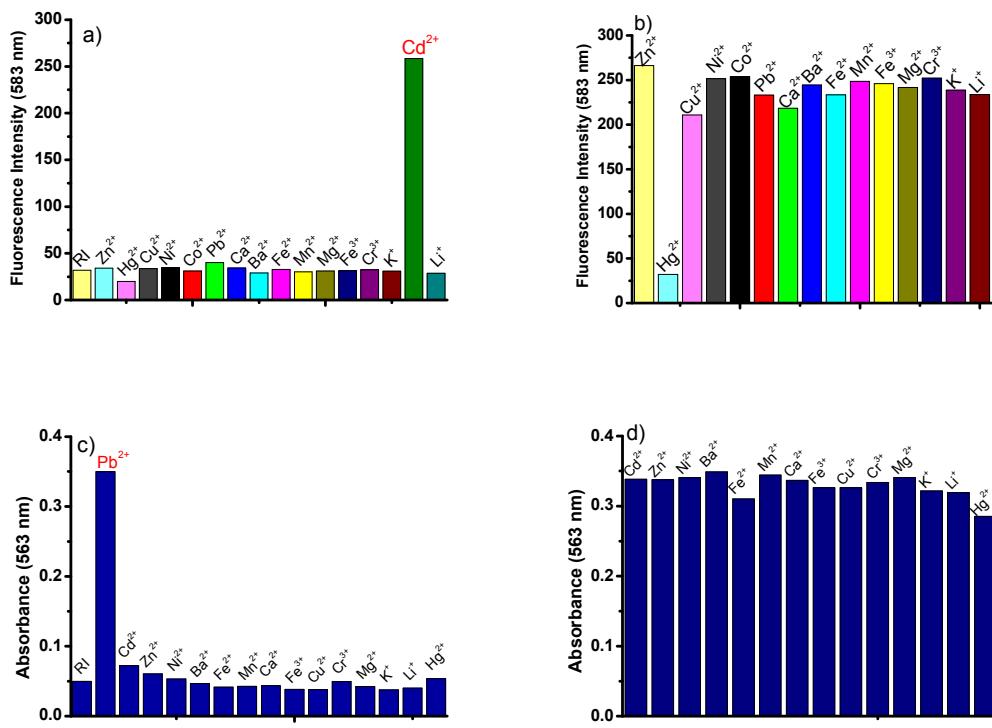


Fig. S5 Figures (a and c) were the selective experiments and figures (b and d) were the competitive experiments. In a and b, the concentration of all the metal ions added to **RI** (10 μ M) were 100 μ M in HEPES (10 mM, CH₃OH/H₂O, 4:6, v/v, pH 7.6) buffer solution. In c and d, the concentration of all the metal ions added to **RI** (10 μ M) were 160 μ M in Tris-HCl (70 mM, CH₃OH/H₂O, 6:4, v/v, pH 7.6) buffer solution.

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6. Partial ^1H -NMR spectra of RI and Cd^{2+}

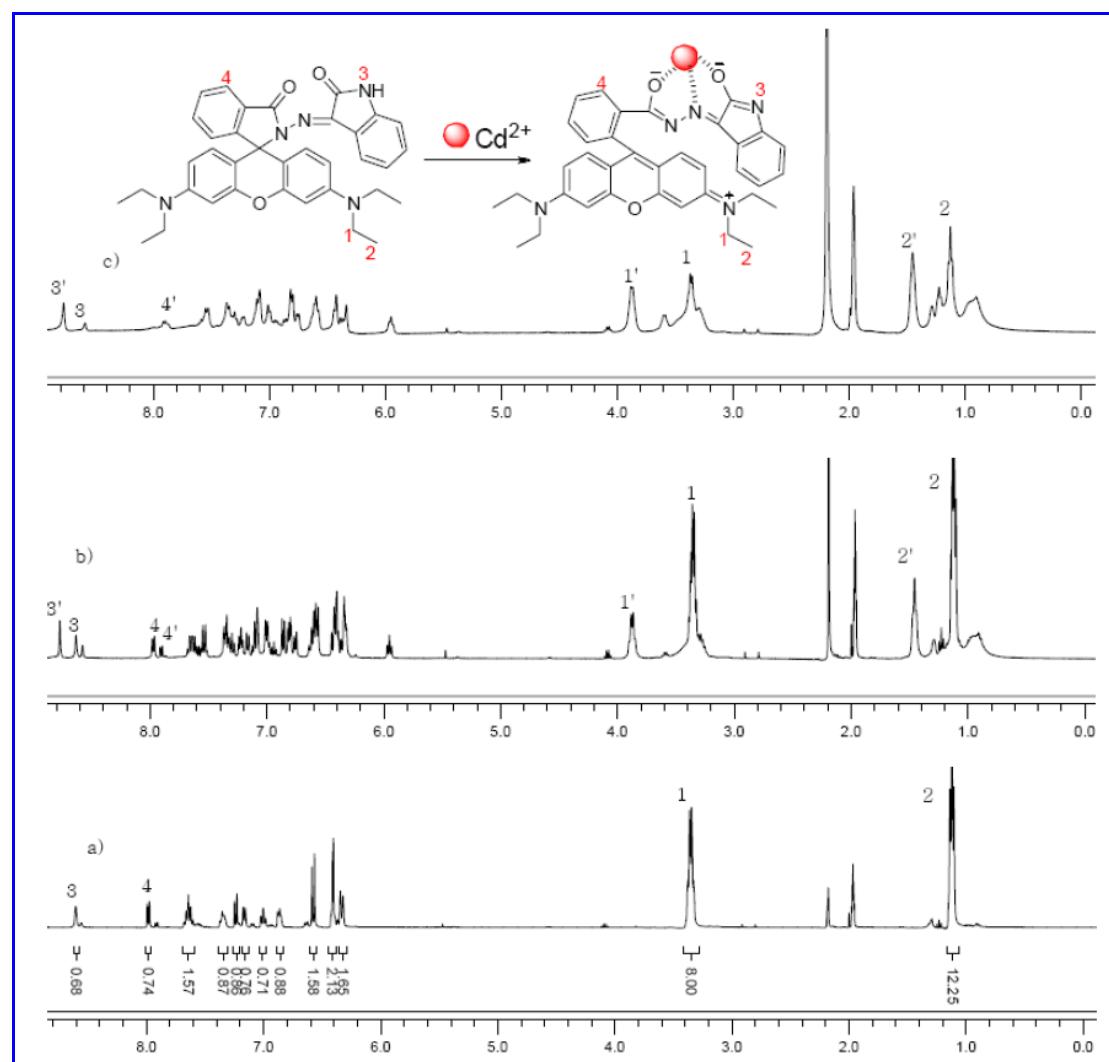


Fig. S6 ^1H -NMR spectra of (a) free sensor RI, (b) sensor RI + Cd^{2+} (0.3 eq), and (c) sensor RI + Cd^{2+} (0.5 eq) in CD_3CN . Inset: proposed binding mode of sensor RI with Cd^{2+} .