

## Supporting Information

for

# **A highly selective multi-responsive fluorescence sensor for Zn<sup>2+</sup> based on a diarylethene with a 4,6-dimethylpyrimidine unit**

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**Figures captions:**

**Fig. S1.**  $^1\text{H}$  NMR spectra (400 MHz) measured in  $\text{DMSO-}d_6$ .

**Fig. S2.**  $^{13}\text{C}$  NMR spectra (100 MHz) measured in  $\text{DMSO-}d_6$ .

**Fig. S3.** Mass spectra of compound **3** in acetonitrile.

**Fig. S4.**  $^1\text{H}$  NMR spectra (400 MHz) measured in  $\text{DMSO-}d_6$ .

**Fig. S5.**  $^{13}\text{C}$  NMR spectra (100 MHz) measured in  $\text{DMSO-}d_6$ .

**Fig. S6.** Mass spectra of diarylethene **10** in acetonitrile.

**Fig. S7.** Changes in the fluorescence and color of **1C** induced by  $\text{Zn}^{2+}/\text{EDTA}$  in acetonitrile ( $2.0 \times 10^{-5} \text{ mol L}^{-1}$ ): (A) **1C** induced by  $\text{Zn}^{2+}/\text{EDTA}$ ; (B) The changes of fluorescence intensity at 518 nm with the addition of different equivalents of  $\text{Zn}^{2+}$ .

**Fig. S8.** Competitive tests for the selectivity of **10** for  $\text{Zn}^{2+}$  in acetonitrile in the presence of other metal ions.

**Fig. S9.** Mass spectra of **10** induced by the stimulation of  $\text{Zn}^{2+}$  in acetonitrile.

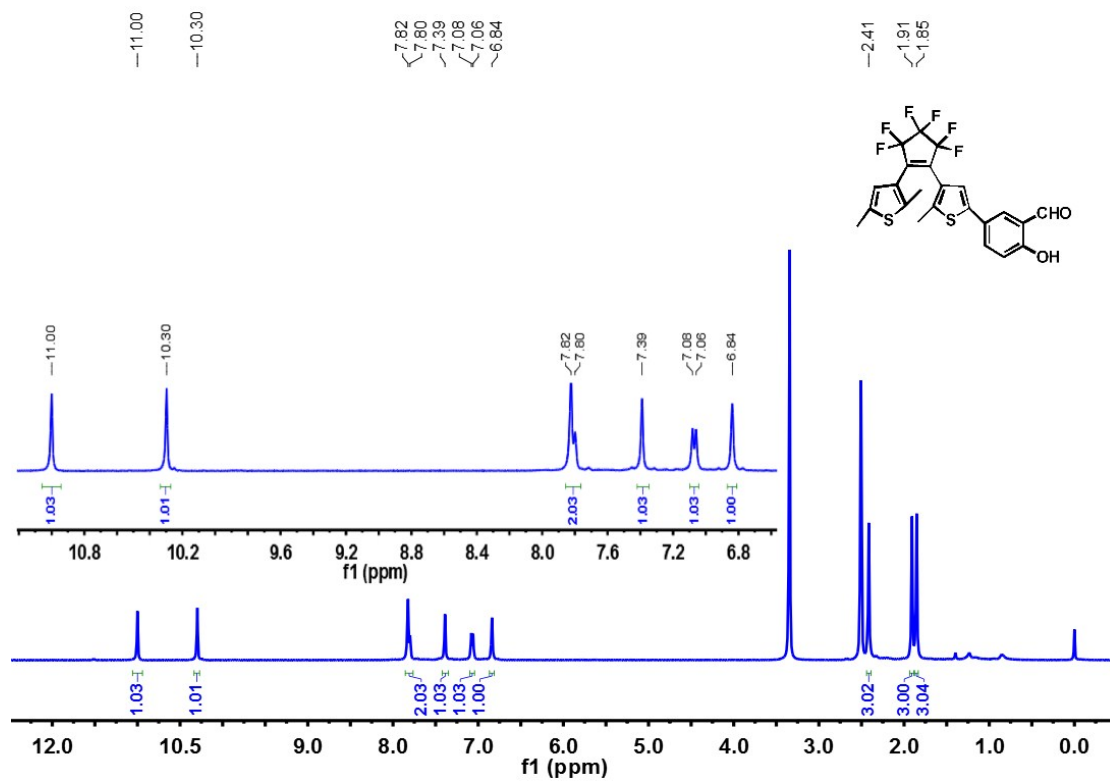


Fig. S1

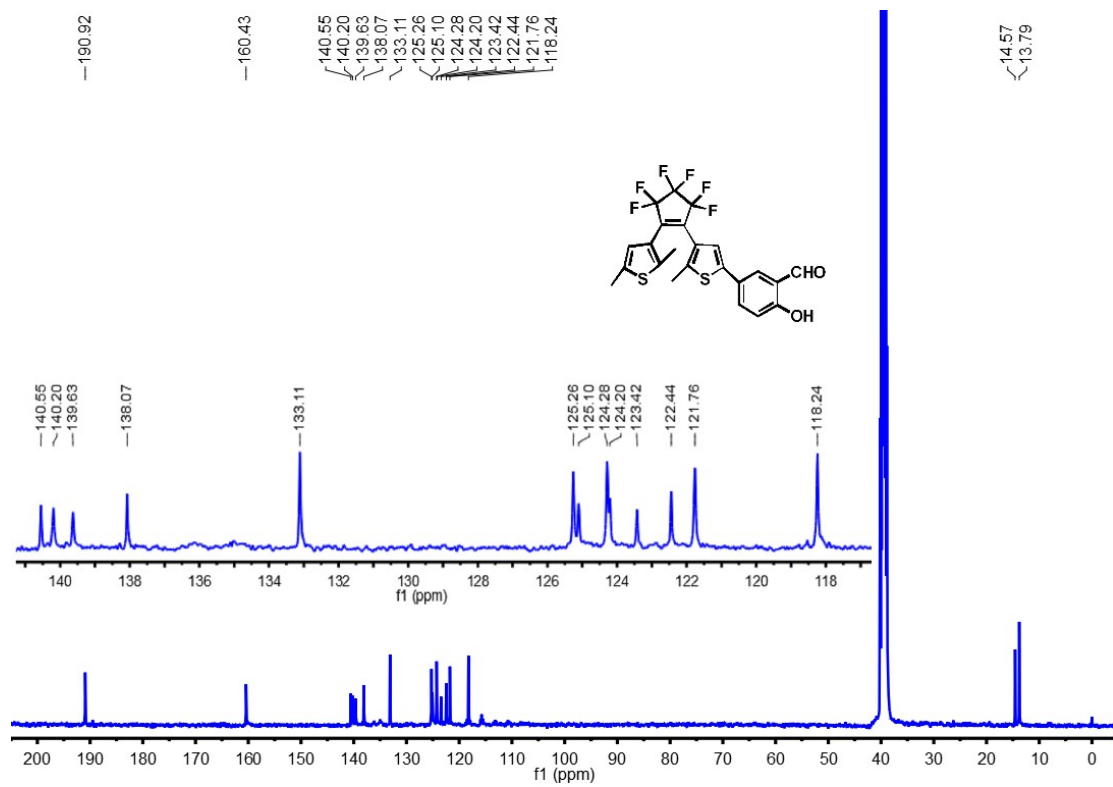


Fig. S2

Spectrum from 20170426-38.wiff (sample 1) - Sample038, +TOF MS (50 - 1600) from 0.093 to 0.302 min

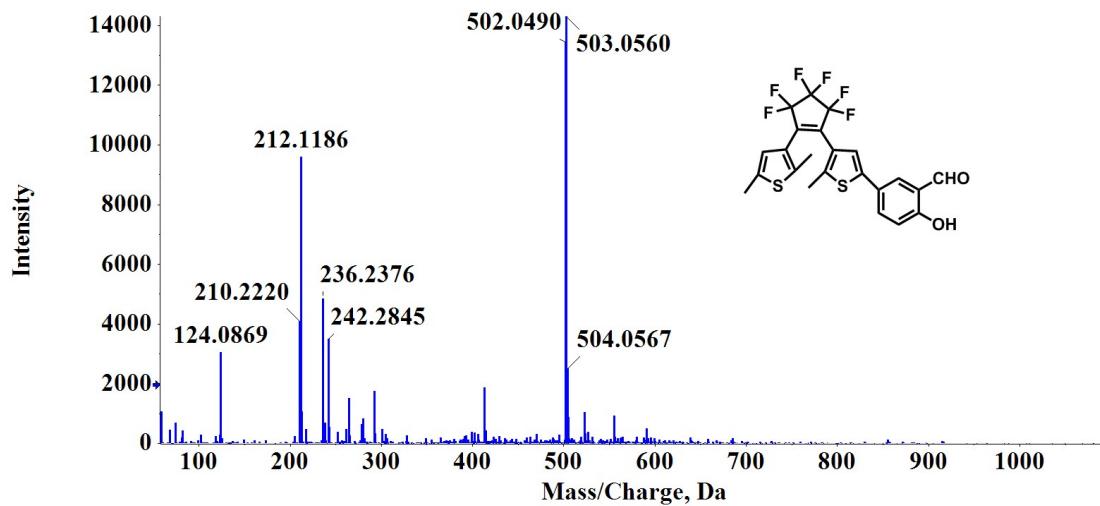


Fig. S3



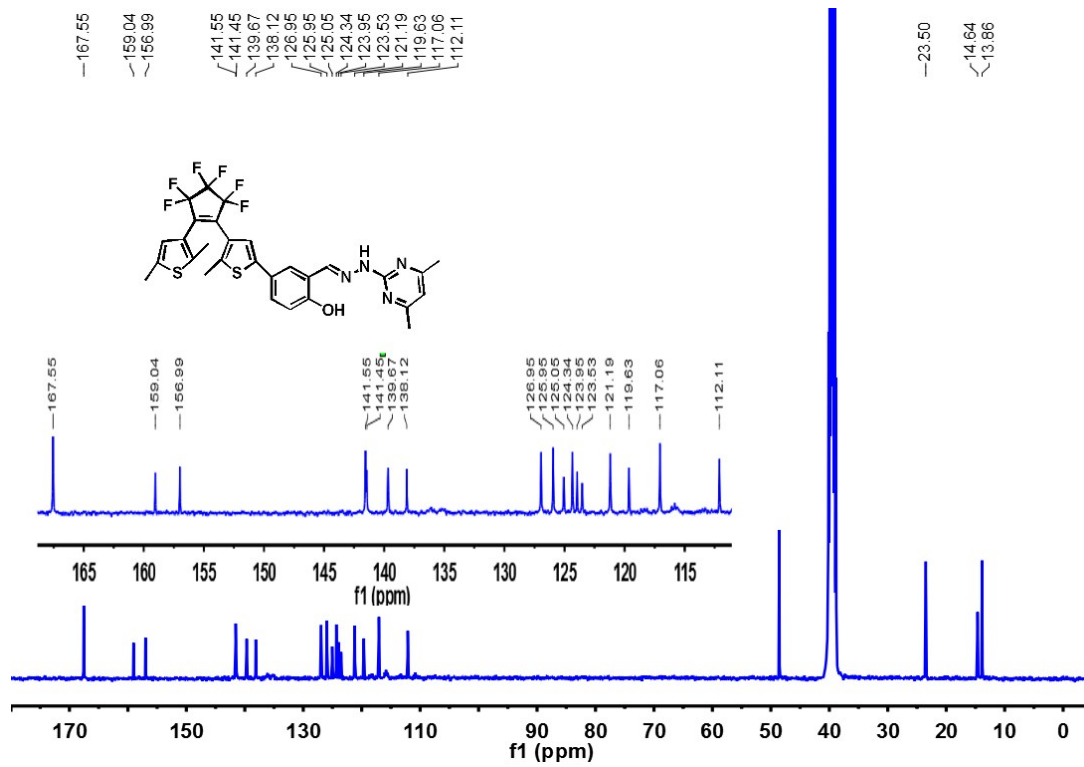
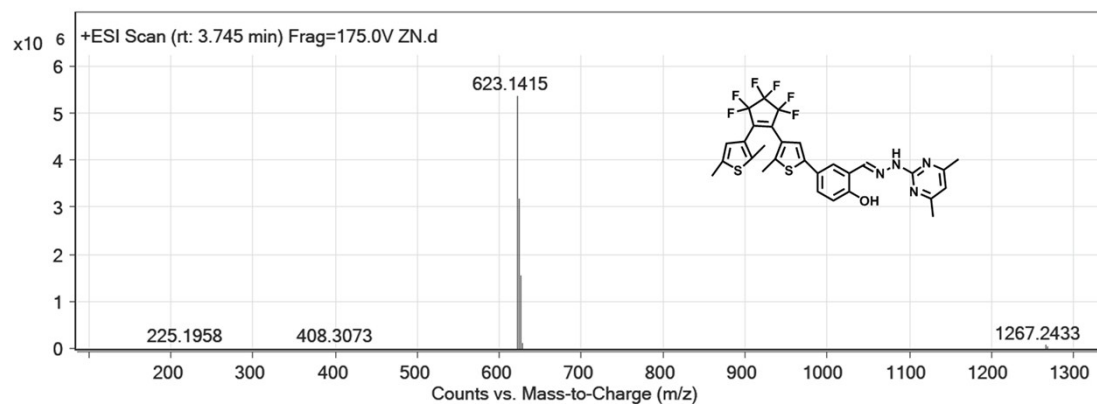
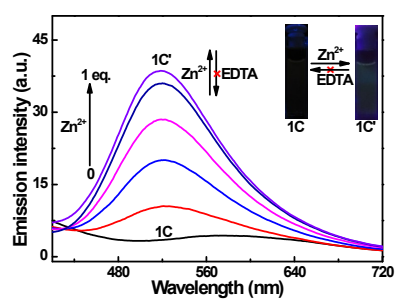


Fig. S5

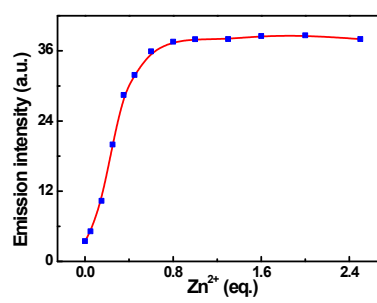


**Fig. S6**





(A)



(B)

Fig. S7

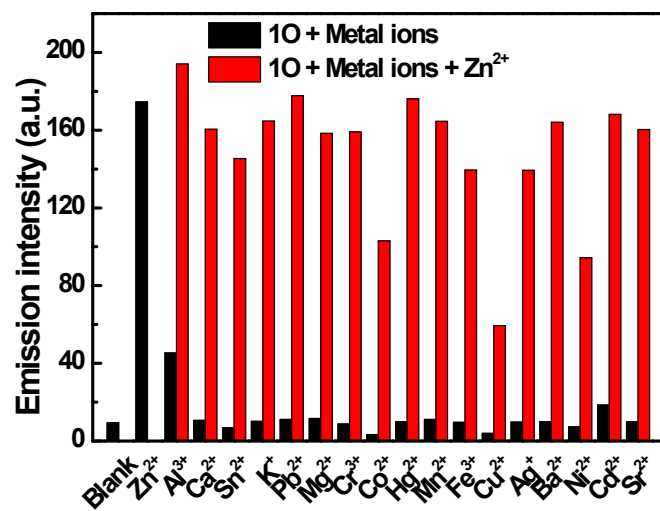
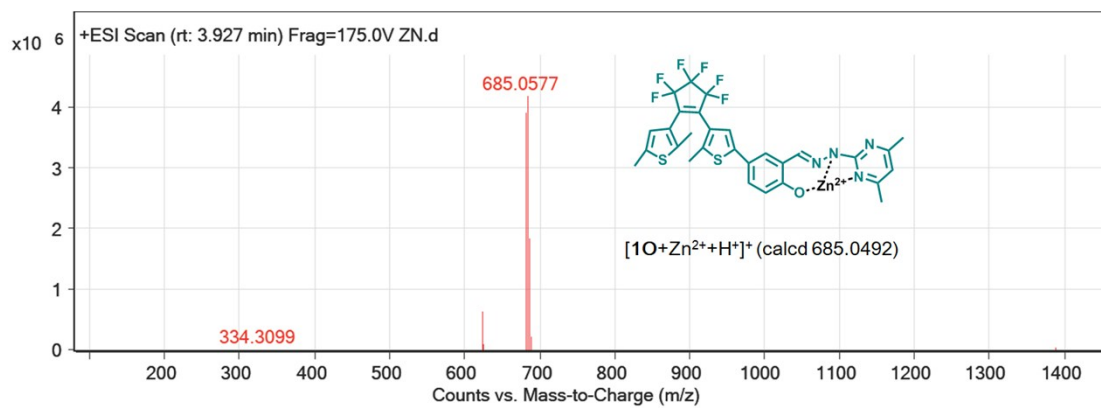


Fig. S8



**Fig. S9**