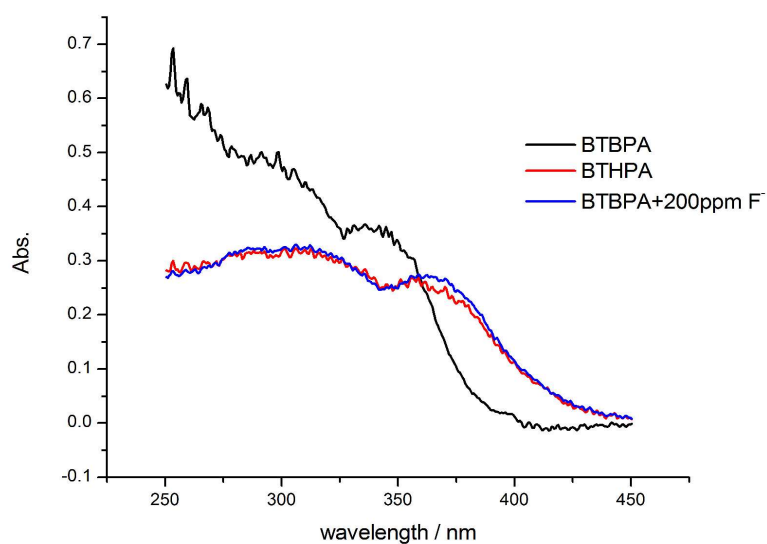


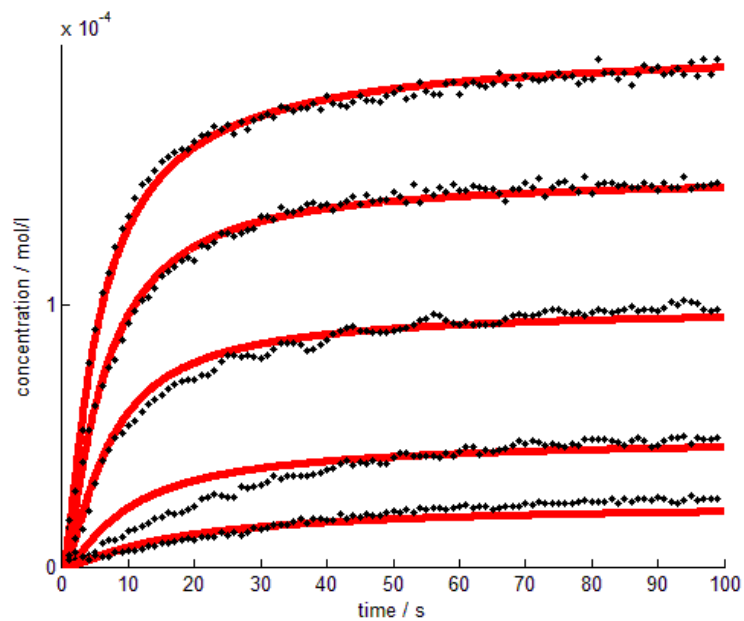
## Supporting Information

### Rapid sensing in 15 seconds for aqueous fluoride anion by water-insoluble fluorescent probe incorporating hydrogel\*\*

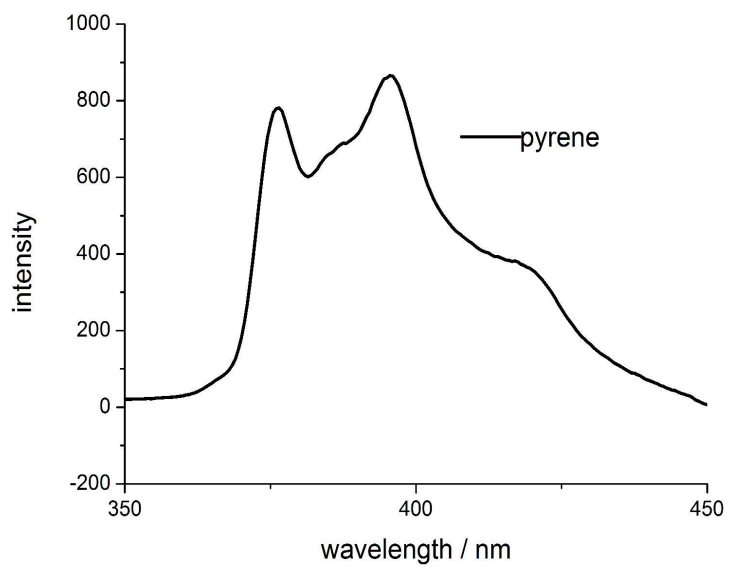
*Lei Xiong, Jiao Feng, Rui Hu, Shuangqing Wang, Shayu Li\*, Yi Li\* and Guoqiang Yang\**



**Figure S1.** The absorption spectra of BTBPA/PVP, BTHPA/PVP and BTBPA/PVP upon addition of NaF solution



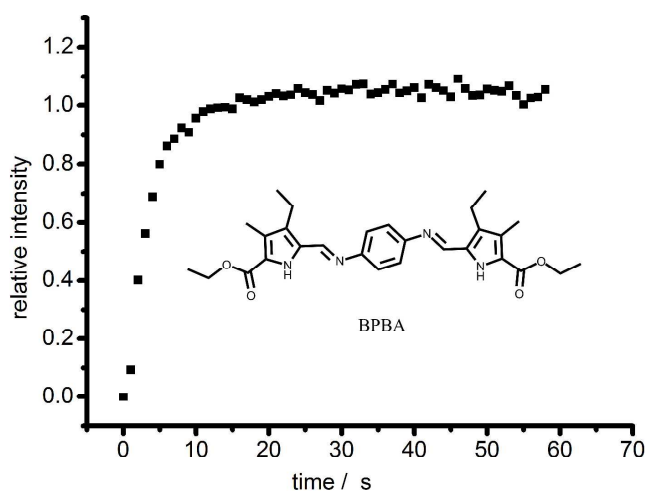
**Figure S2.** The concentration-time relationship of BTHPA and the simulation results (from up to bottom: 4.0, 3.0, 2.0, 1.0 and 0.5ppm)



**Figure S3.** The luminescence spectra of pyrene/PVP

The hydrogel had been demonstrated to be a good substrate to render a methodology to detect anions with a water-insoluble probe. We further evaluated the performance of the hydrogel for cations detection in water to extend its applications.

In our previous work<sup>1</sup>, the molecule BPBA was used as a “turn on” chemodosimeter to detect zinc ion in acetonitrile.<sup>1</sup> The poor water-solubility of BPBA limited its application in the water environment. We fabricated a composite of BPBA and the hydrogel with similar procedure described in the preparation of BTBPA/PVP. Upon addition of aqueous Zn<sup>2+</sup> solution (10 μM, 0.65 ppm), a significant emission enhancement was observed at yellow fluorescence region (Figure S4). This result showed that the hydrogel provided a way of aqueous cation sensing by using water-insoluble fluorescent probes.



**Figure S4.** The time dependence of the fluorescence intensity at 543nm upon addition of aqueous Zn<sup>2+</sup> solution (10 μM, 0.65 ppm)

1. Z. K. Wu, Y. F. Zhang, J. S. Ma and G. Q. Yang, *Inorg. Chem.*, 2006, **45**, 3140-3142.