## **Supporting Information**

A cationic fluorescent probe for the highly selective detection of sodium dodecyl sulfate (SDS) by electrostatic and hydrophobic self-assembly

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Fig. S1. <sup>1</sup>H NMR spectrum of the probe.



Fig. S2. <sup>13</sup>C NMR spectrum of the probe.



Fig. S3. HRMS of probe in CH<sub>3</sub>CN.



Fig. S4. Fluorescence intensity of the probe (50  $\mu$ M) with different analytes (2 mM) in the presence of SDS (50  $\mu$ M). 1. probe only; 2. Ca<sup>2+</sup>; 3. Mg<sup>2+</sup>; 4. HCO<sub>3</sub><sup>2-</sup>; 5. SDS.



Fig. S5. The fluorescence intensity change of the probe with time before and after adding SDS.



Fig. S6. The fluorescence intensities of the probe with and without SDS under different pH conditions.



Fig. S7. The fluorescence intensities of the probe with and without SDS in  $CH_3CN$  containing different amounts of water.



Fig. S8. <sup>1</sup>H spectra of probe with and without SDS in DMSO- $d_6$ .