Supporting Information

Fluorene-Based Material Containing Triple Azacrown Ether Groups: Synthesis, Characterization and Application in Chemosensor and Electroluminescent Device

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Figure S1 $^1$H NMR and $^{13}$C NMR spectra of compound FTC.
Figure S2 COSY spectrum of FTC [(a) 0.4~2.4 ppm and (b) 6.2~8.2 ppm].

Figure S3 NOESY spectrum of FTC (6.4~8.2 ppm).
**Figure S4** (a) Differential scanning calorimetric curves of FTC obtained from the first and second scan with a heating rate of 10 °C/min. (b) Thermogravimetric analysis of FTC with heating rate of 10 °C/min under nitrogen atmosphere.
**Figure S5** Absorption spectra of FTC with various metal ions in solution (methanol/H₂O = 9/1, v/v). The concentration of FTC and metal ions were fixed at 10⁻⁵ M and 10⁻⁴ M, respectively.

**Figure S6** Photoluminescence spectra of FTC with various metal ions in solution (methanol/H₂O = 9/1, v/v). The concentration of FTC and metal ions were fixed at 10⁻⁵ M and 10⁻⁴ M, respectively. Excitation wavelength was 412 nm.
**Figure S7** Fluorescence emission response profile of FTC upon addition of various metal ions in solution (methanol/H$_2$O = 9/1, v/v). The concentration of FTC and metal ions were fixed at $10^{-5}$ M and $10^{-4}$ M, respectively. Excitation wavelength was 412 nm.

**Figure S8** Absorption spectrum of Fe$^{3+}$ (solid line) and fluorescence spectrum of FTC (dashed line) in solution (THF/H$_2$O = 9/1, v/v). Excitation wavelength was 418 nm.
**Figure S9** Absorption spectrum of Fe$^{3+}$ (solid line) and fluorescence spectrum of FTC (dashed line) in solution (Methanol/H$_2$O = 9/1, v/v). Excitation wavelength was 412 nm.

**Figure S10** Photoluminescence spectra of FTC with varying concentration of Fe$^{3+}$ in solution (ethanol/H$_2$O = 9/1, v/v). The concentration of FTC was fixed at 10$^{-5}$ M. Excitation wavelength was 413 nm.
**Figure S11** The Stern-Volmer plot of FTC with varying concentration of Fe$^{3+}$ in solution (ethanol/H$_2$O = 9/1, v/v). The concentration of FTC was fixed at 10$^{-5}$ M. Excitation wavelength was 413 nm.

**Figure S12** The Stern-Volmer plot of FTC with varying concentration of Fe$^{3+}$ in solution (THF/H$_2$O = 9/1, v/v). The concentration of FTC was fixed at 10$^{-5}$ M. Excitation wavelength was 418 nm.
**Figure S13** Absorption spectra of FTC with varying concentration of HCl in solution (THF/H$_2$O = 9/1, v/v). The concentration of FTC was fixed at $10^{-5}$ M.

**Figure S14** Photoluminescence spectra of FTC with various concentration of HCl in solution (THF/H$_2$O = 9/1, v/v). The concentration of FTC was fixed at $10^{-5}$ M. Excitation wavelength was 419 nm.
**Figure S15** Cyclic voltammogram of FTC in 0.1 M n-Bu$_4$NClO$_4$, scan rate: 100 mV/s.