

Supporting Information for

Cyanine-based Dithienylethenes: Synthesis, Characterization, Photochromism and Biological imaging in living cells

Fang Hu, Lina Jiang, Meijiao Cao, Zhiqiang Xu, Juanyun Huang, Di Wu, Wenchao Yang,

Sheng Hua Liu and Jun Yin**

*Key Laboratory of Pesticide and Chemical Biology, Ministry of Education, College of Chemistry, Central
China Normal University, Wuhan 430079, P. R. China*

E-mail: yinj@mail.ccnu.edu.cn

chshliu@mail.ccnu.edu.cn

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1. The solvatochromic properties of cyanine-based dithienylethenes.

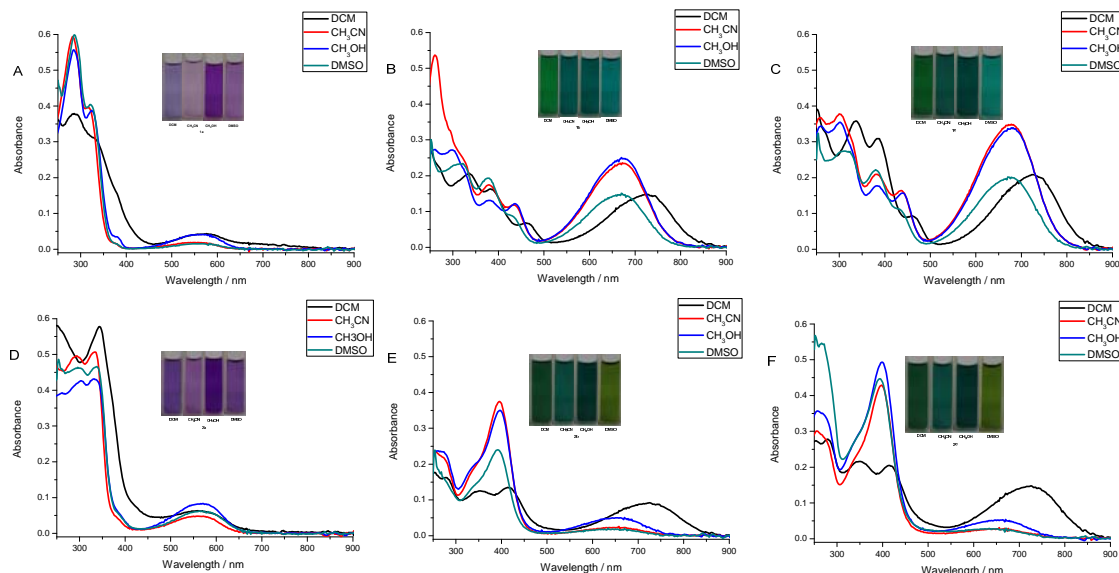


Figure S1. Absorption spectral changes of cyanine-based dithienylethenes **1a** (A), **1b** (B), **1c** (C), **2a** (D), **2b** (E) and **2c** (F) by photoirradiation in different solvents (2.0×10^{-5} mol/L).

2. The reversibility and repeatability of cyanine-based dithienylethenes.

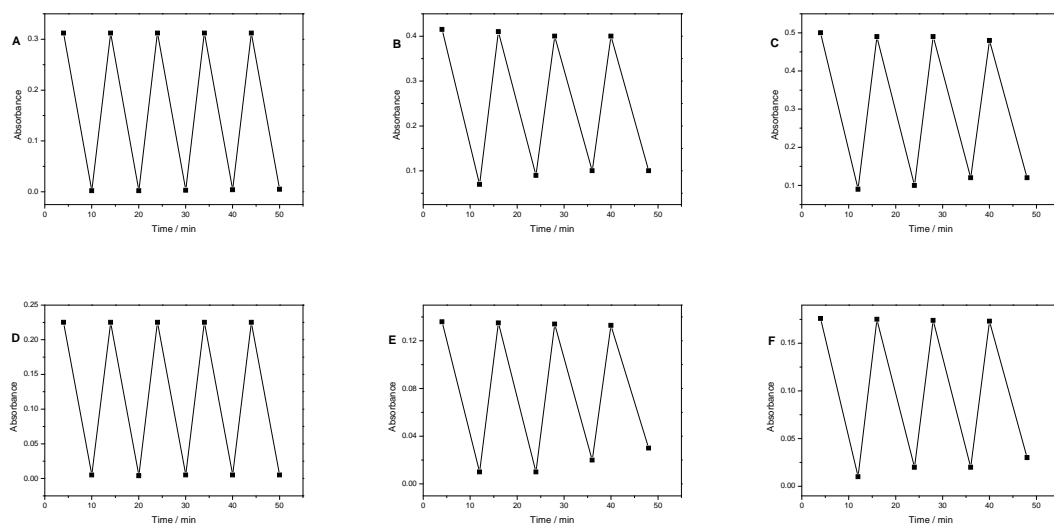


Figure S2. The reversibility and repeatability of cyanine-based dithienylethenes **1a** (A), **1b** (B), **1c** (C), **2a** (D), **2b** (E) and **2c** (F) by photoirradiation in CH_2Cl_2 (2.0×10^{-5} mol/L).

3. Details of UV-Vis Absorption Spectra.

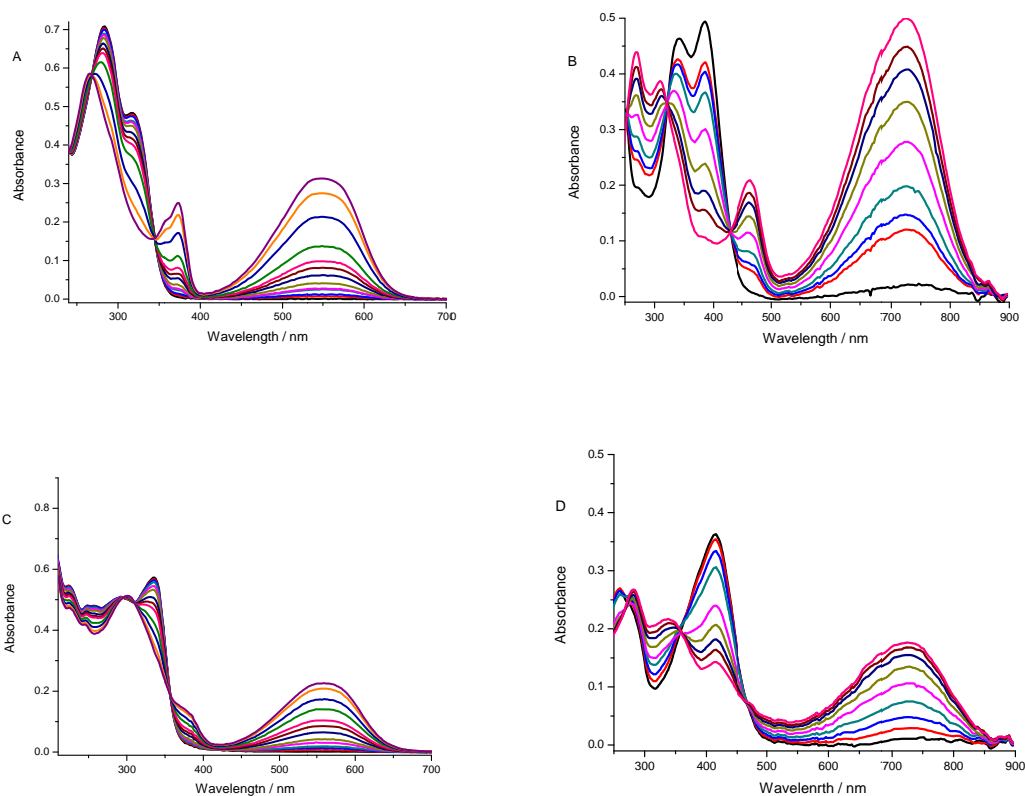


Figure S3. Absorption spectral changes of cyanine-based dithienylethenes **1a** (A), **1c** (B), **2a** (C) and **2c** (D) by photoirradiation in CH_2Cl_2 (2.0×10^{-5} mol/L).

4. The fluorescence changes of cyanine-based dithienylethenes.

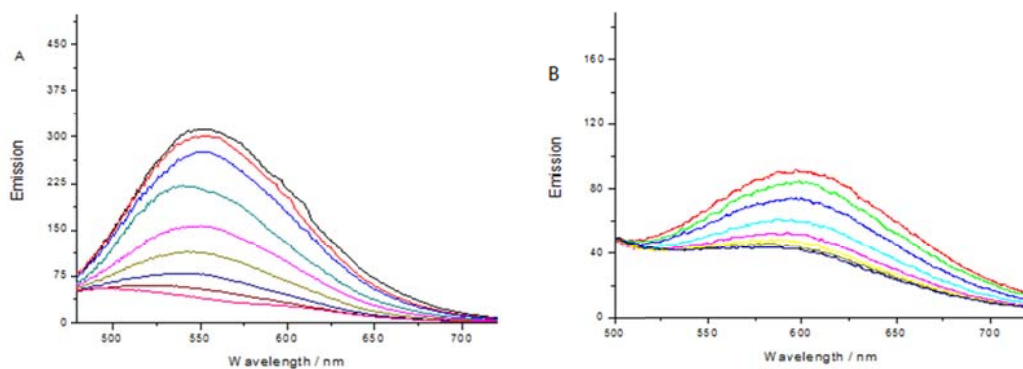


Figure S4. The fluorescence changes of cyanine-based dithienylethenes **1c** (A) and **2c** (B) by photoirradiation in CH_2Cl_2 (2.0×10^{-5} mol/L).

5. The optimized structures and Plots of HOMO and LUMO for cyanine-based dithienylethenes.

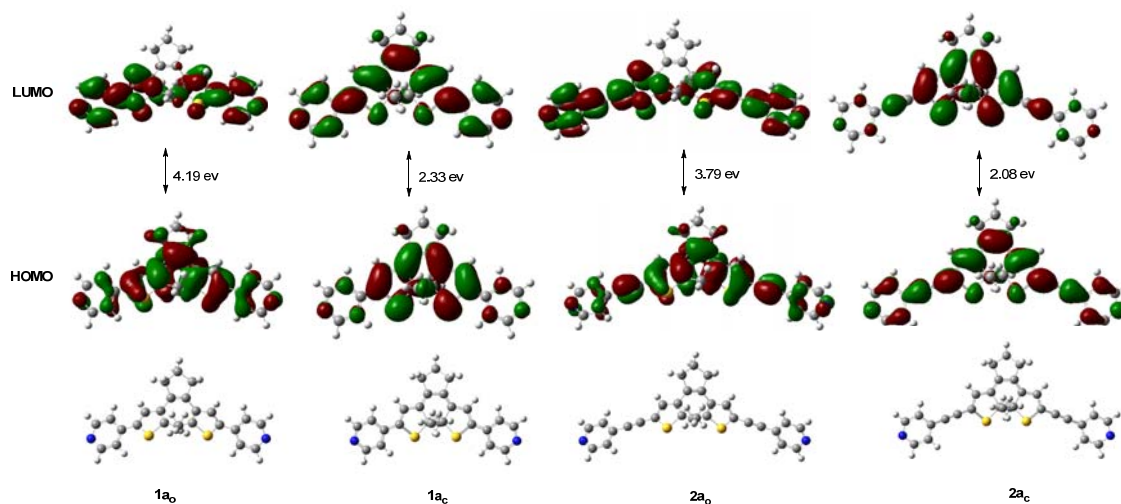


Figure S5. The optimized structures and Plots of HOMO and LUMO for cyanine-based dithienylethenes at B3LYP/6-31G* level, by using Gaussian 09 program.

6. The apoptosis data of cells.

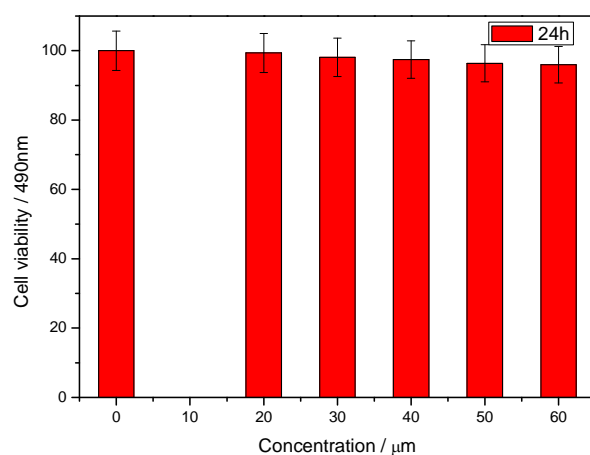


Figure S6. Cell viability value (%) by MTT method.

7. The stability test of cyanine-based dithienylethenes .

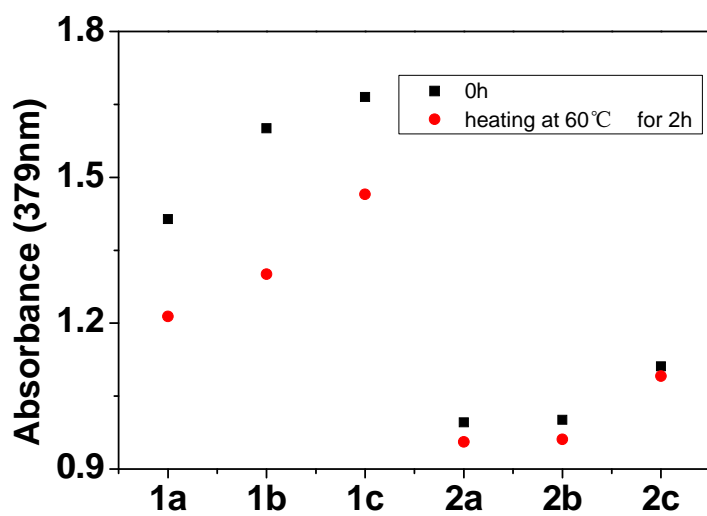
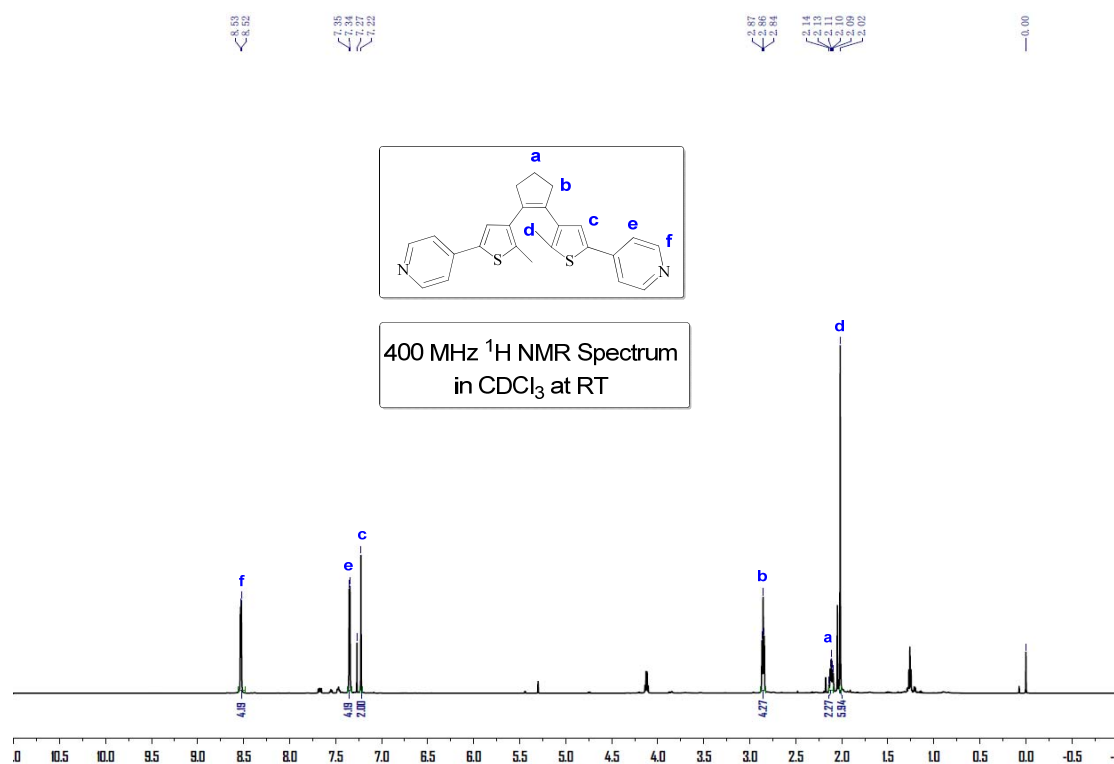
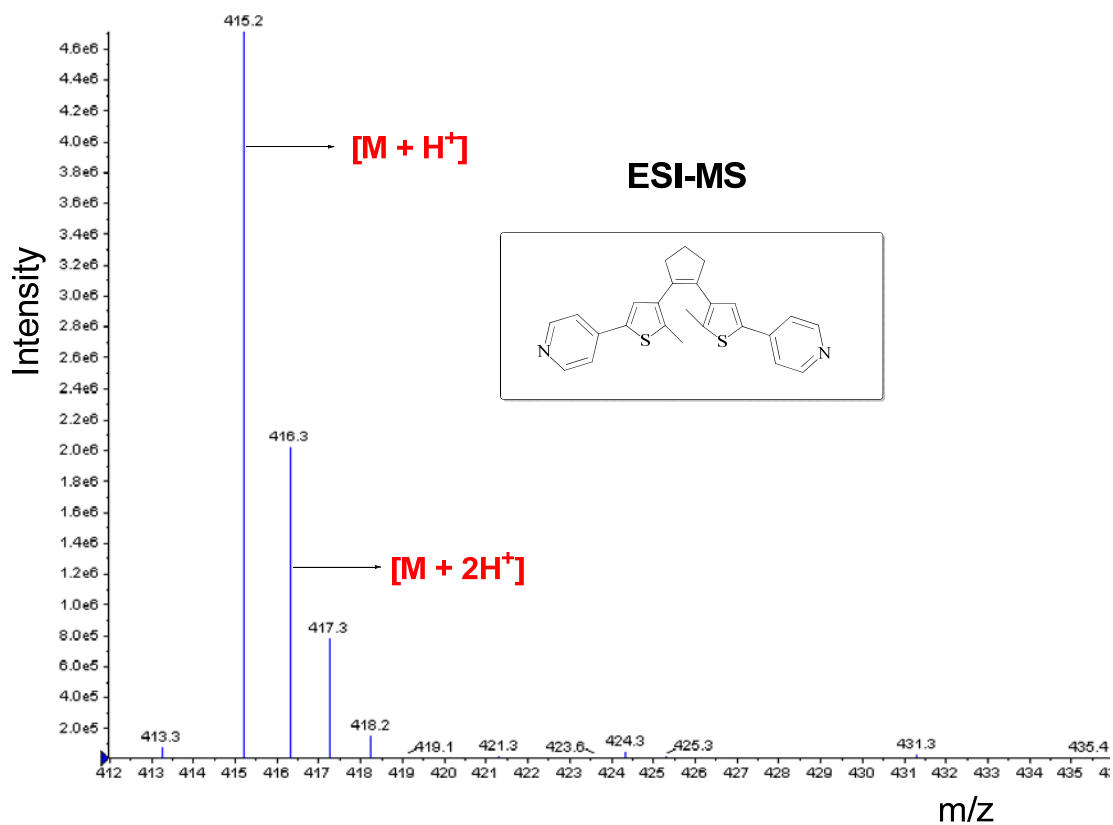
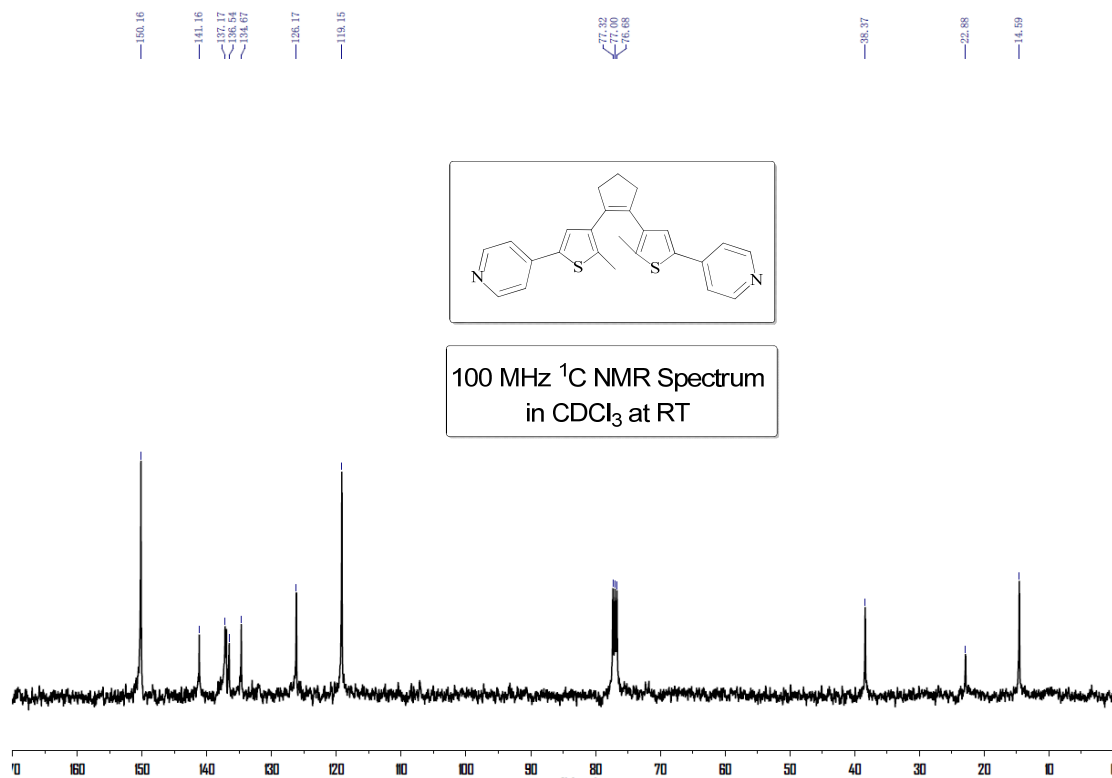
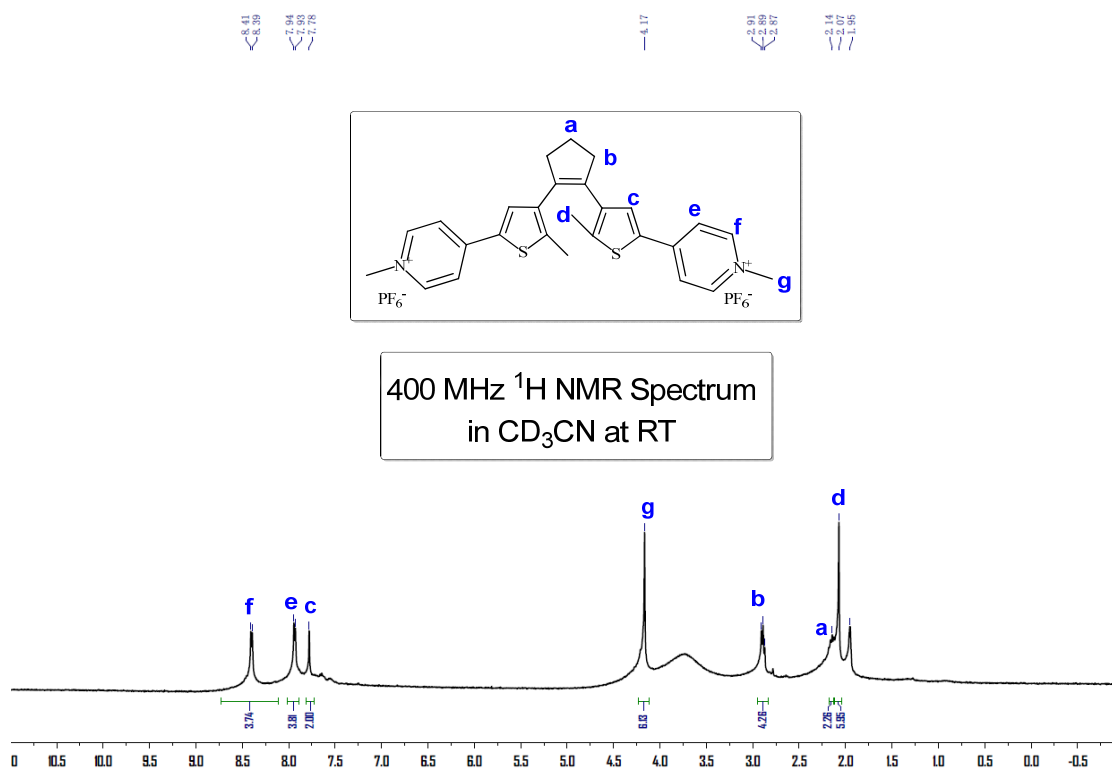
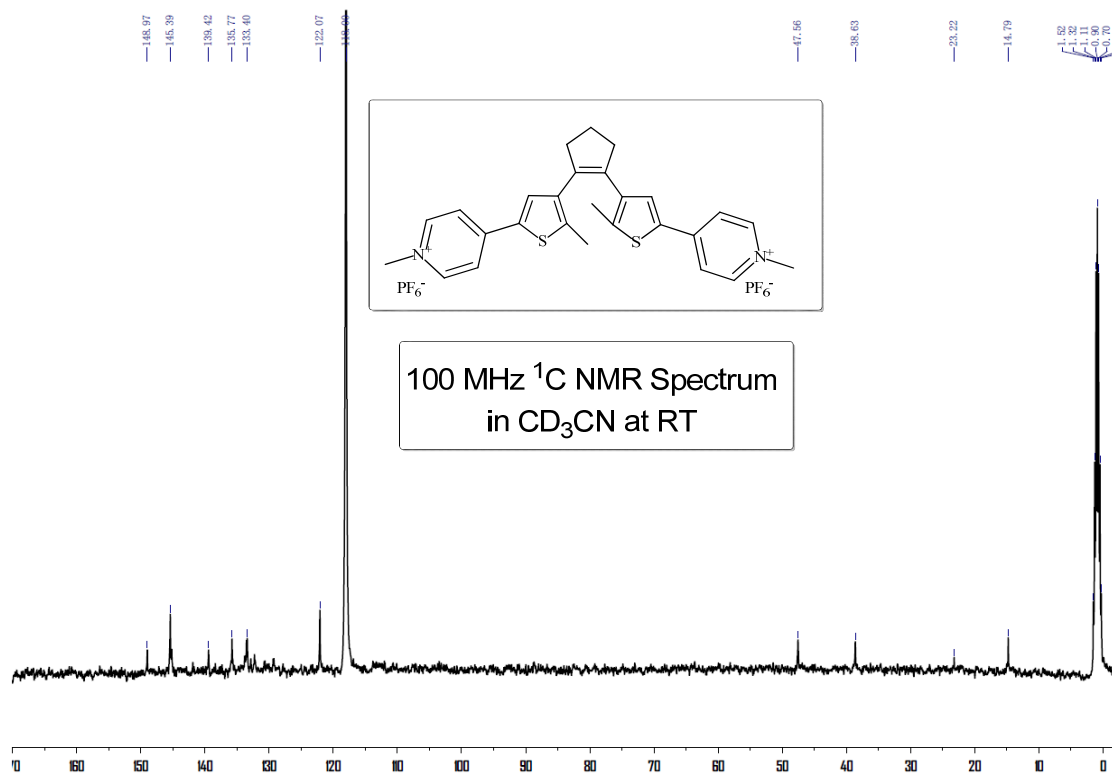


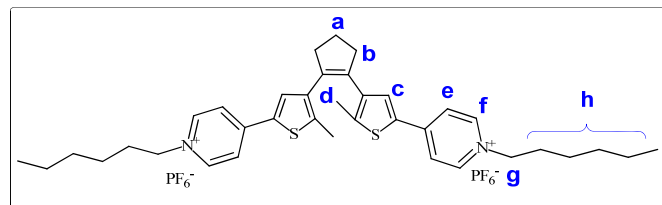
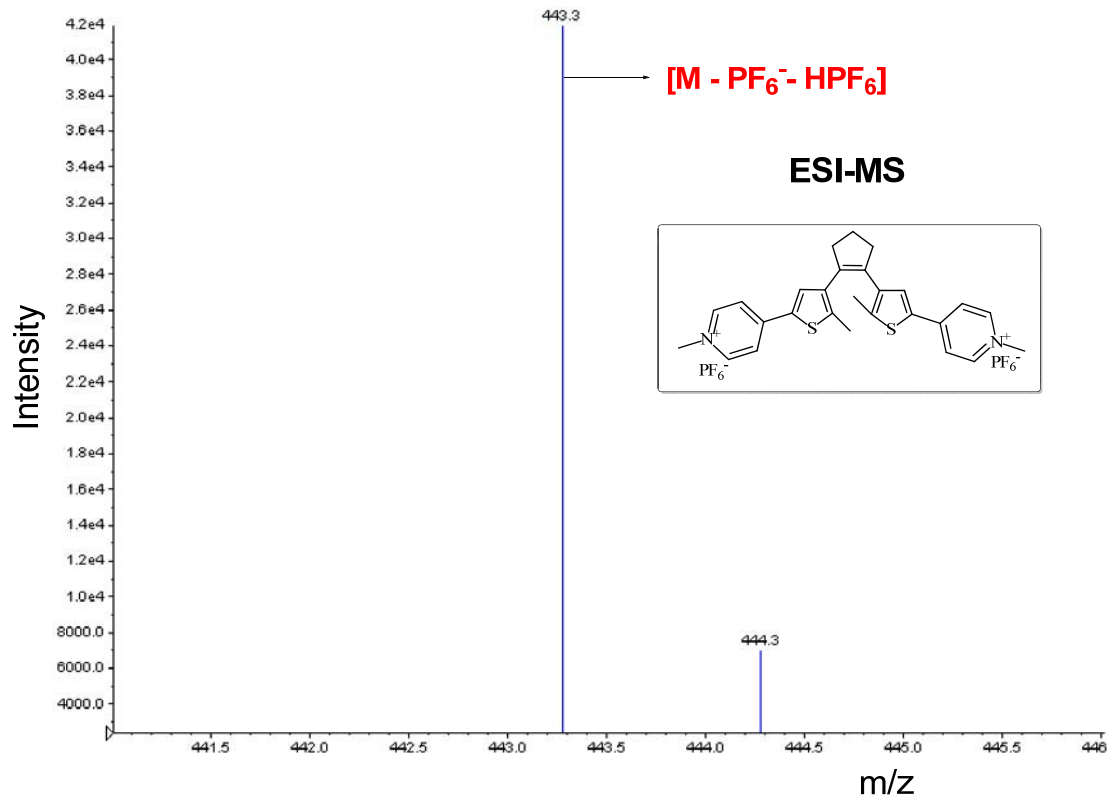
Figure S7. The stability test of cyanine-based dithienylethenes

8. Appendix: NMR and Mass spectra.

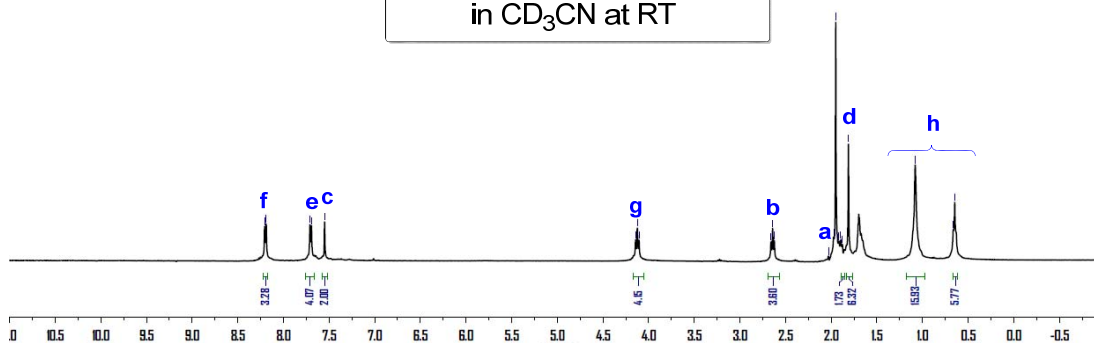


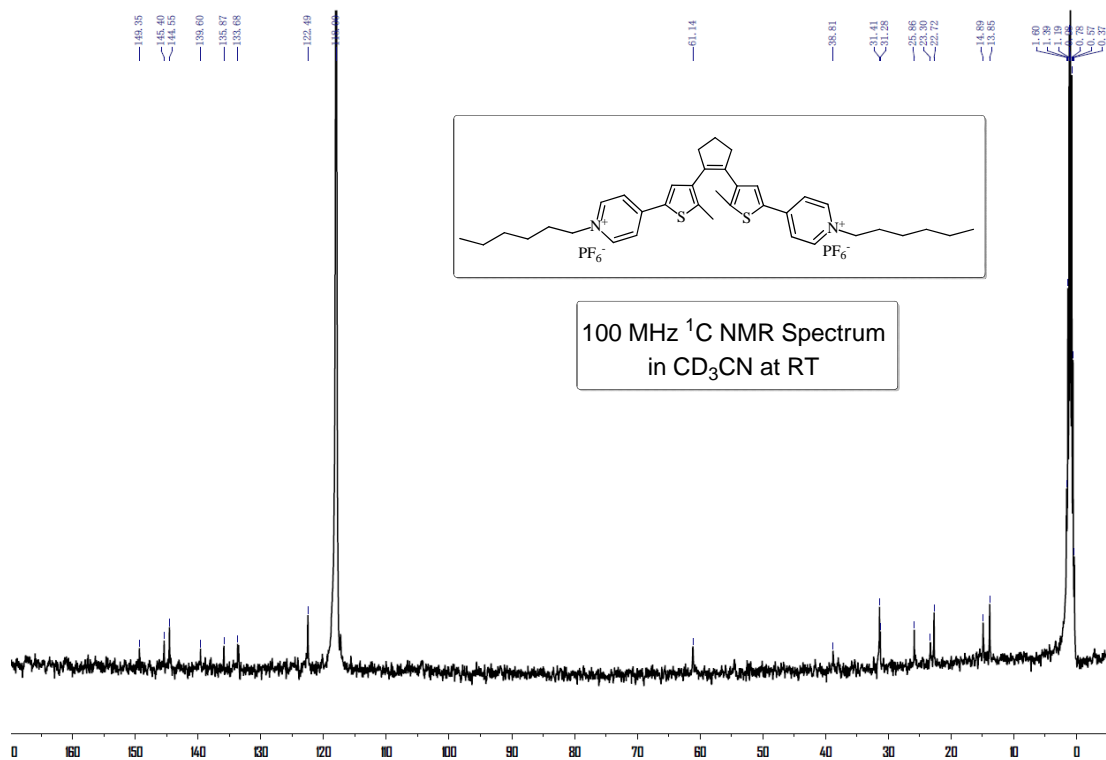




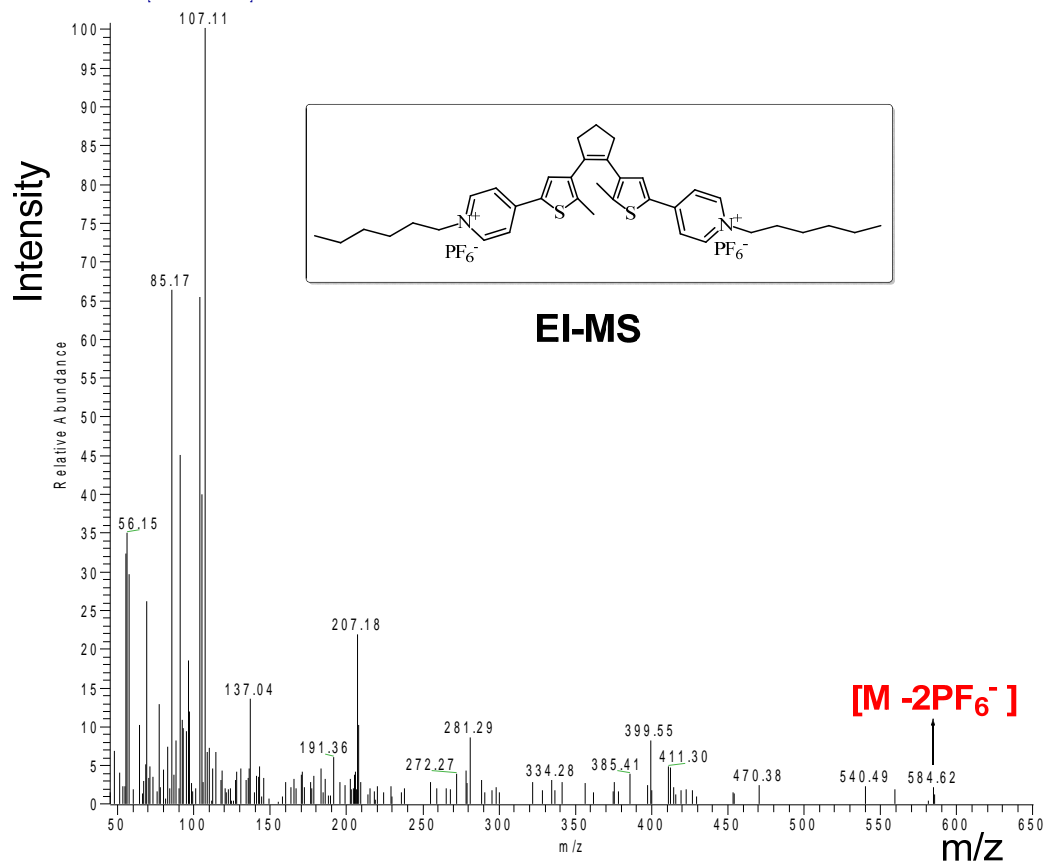


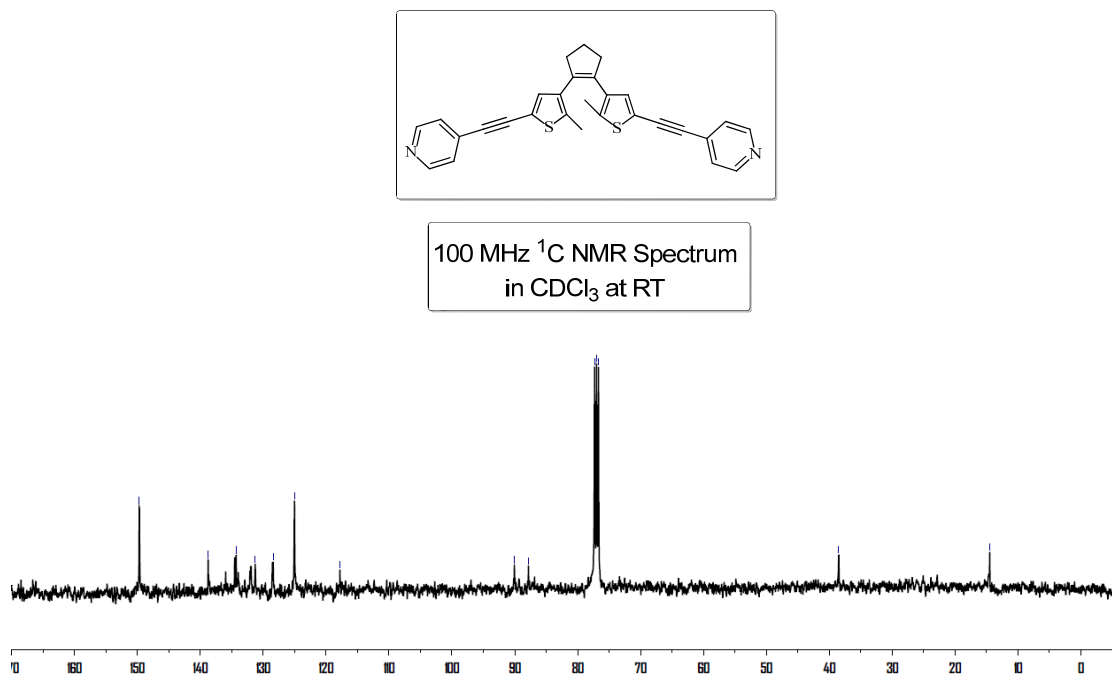
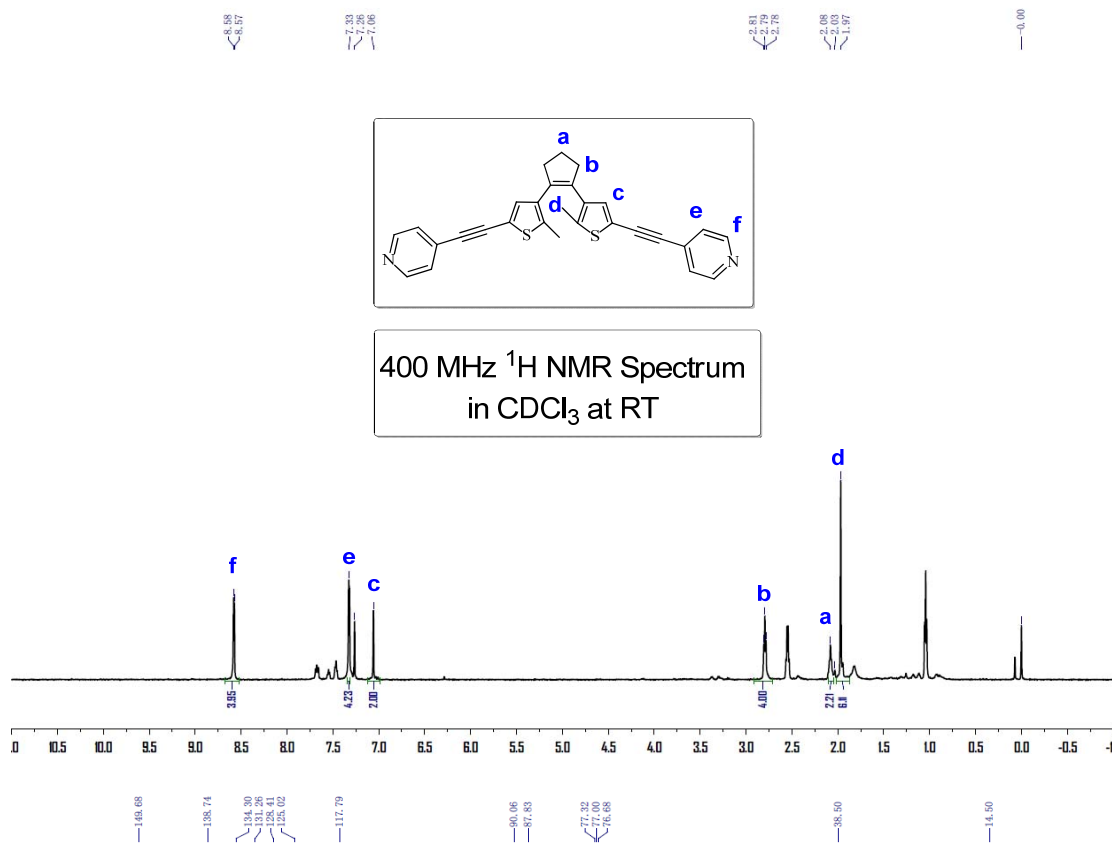
400 MHz ¹H NMR Spectrum
in CD₃CN at RT

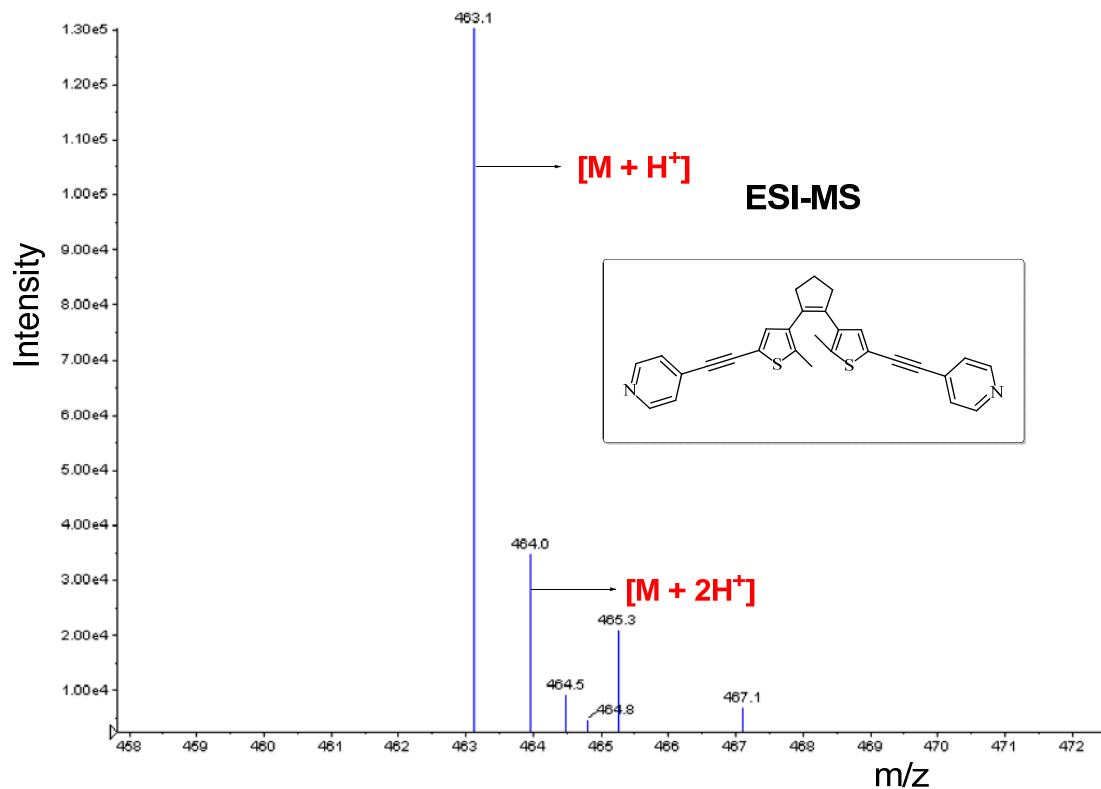




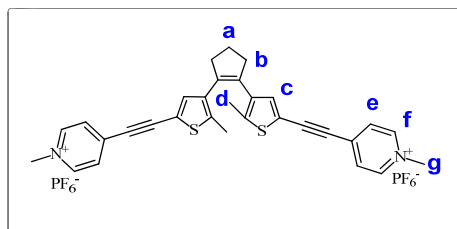
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8.49
7.90
7.88
7.35
4.22
2.98
2.93
2.12
2.10
2.08
2.06
1.95



400 MHz 1H NMR Spectrum
in CD_3CN at RT

