Supporting Information

Star-Shaped Triphenylene Discotic Liquid Crystalline Oligomers and their Hydrogen-Bonded Supramolecular Complexes with Simple Acids

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Table of Content

1 ^{1}H NMR

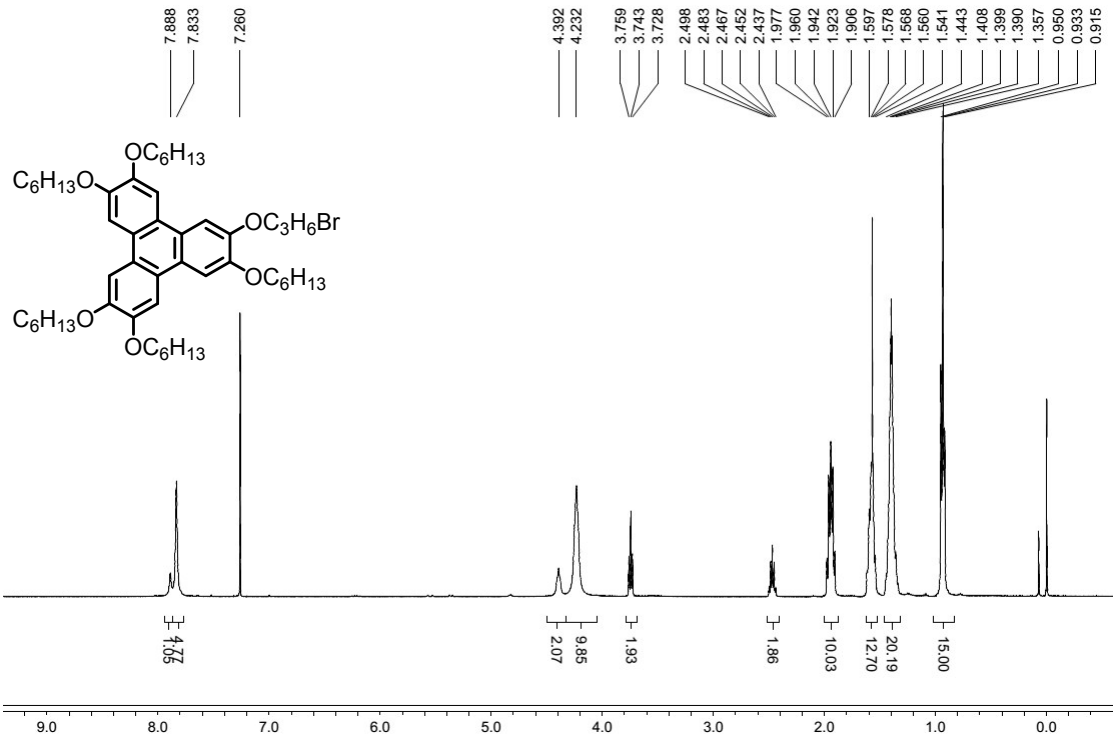

Figure S1: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **1a**

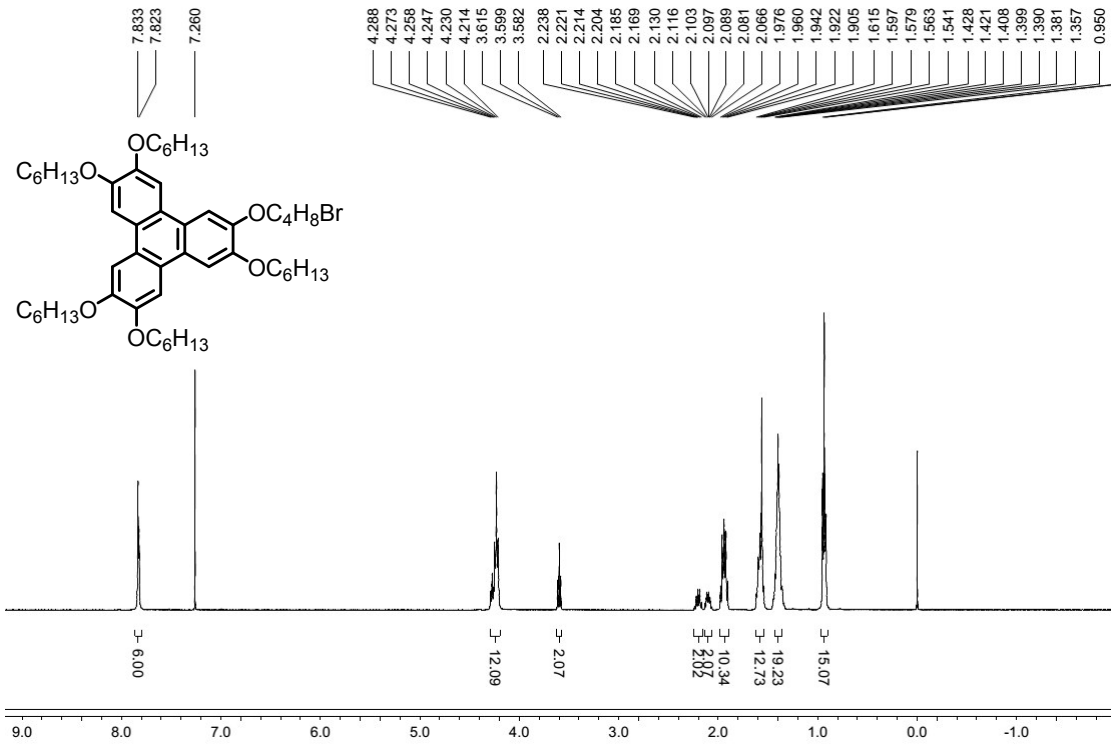

Figure S2: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **1b**

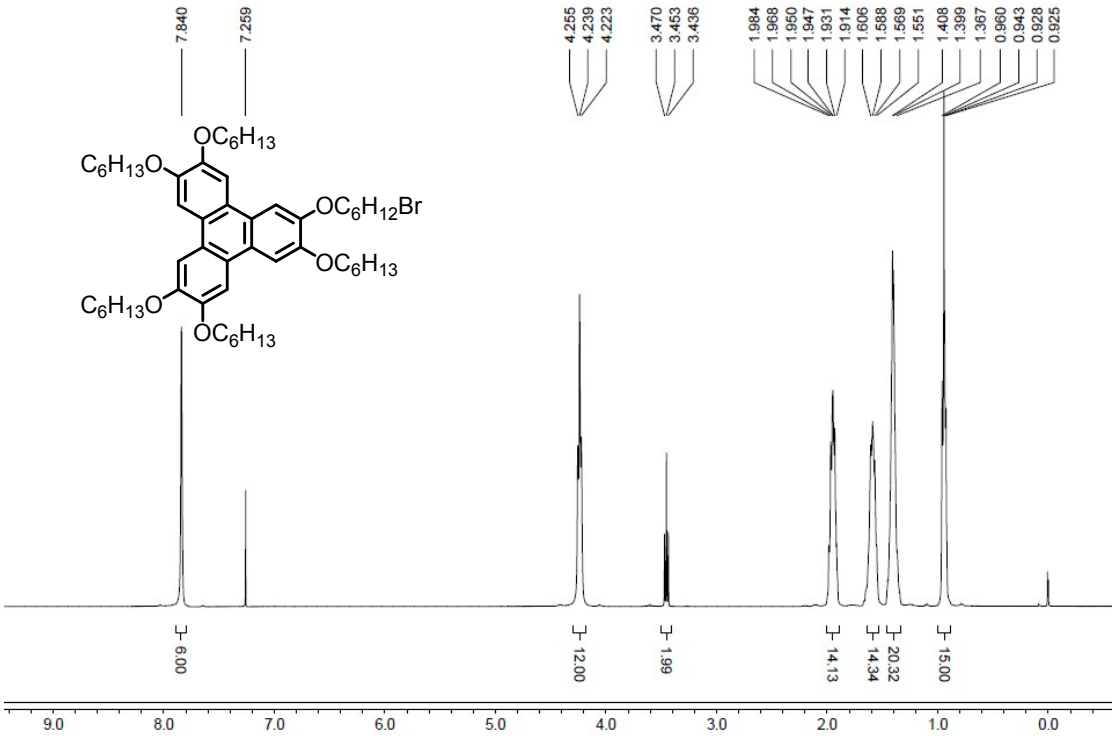

Figure S3: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **1c**

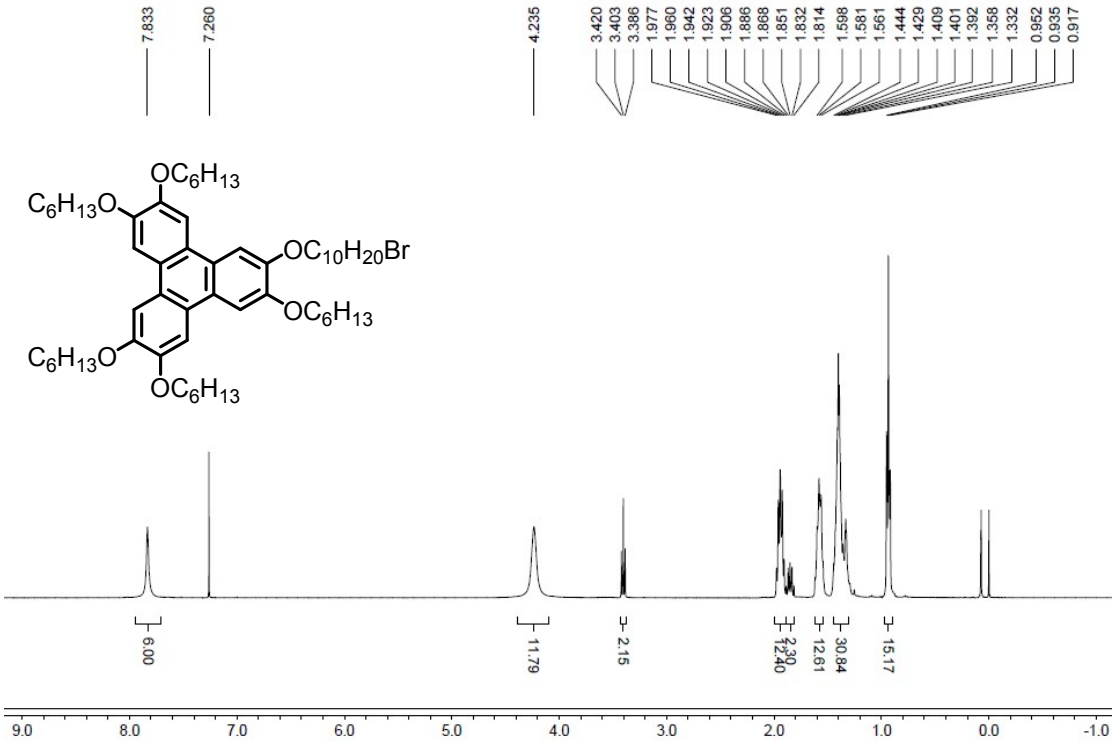

Figure S4: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **1d**

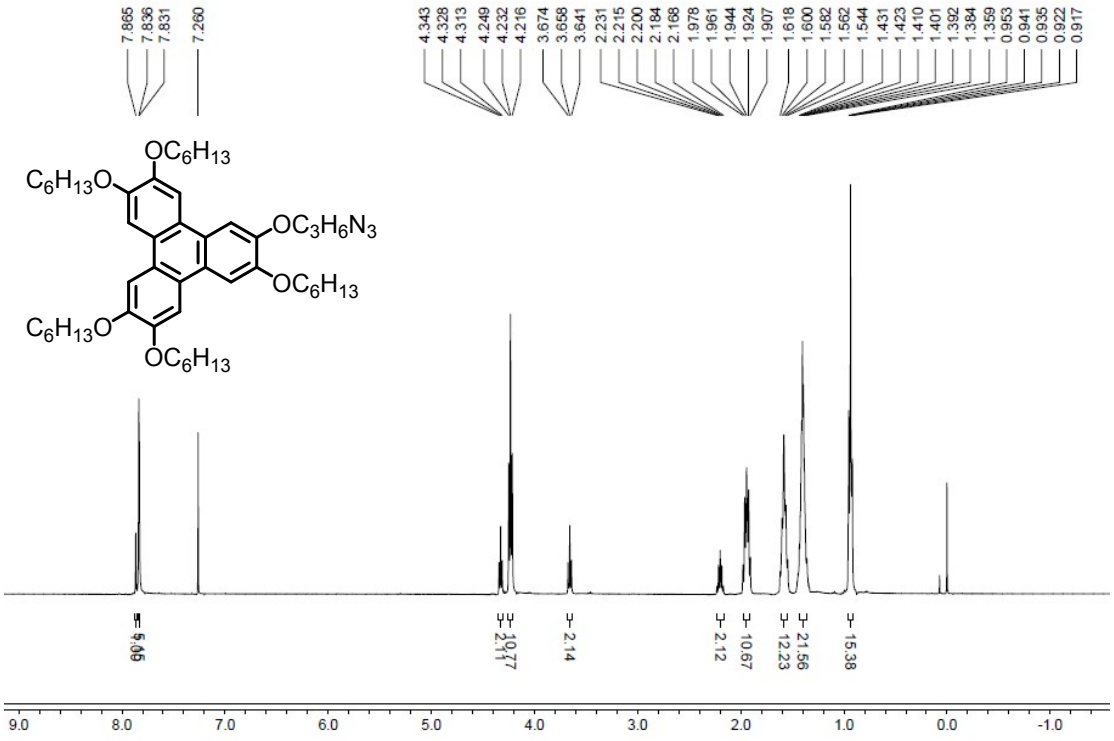

Figure S5: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **2a**

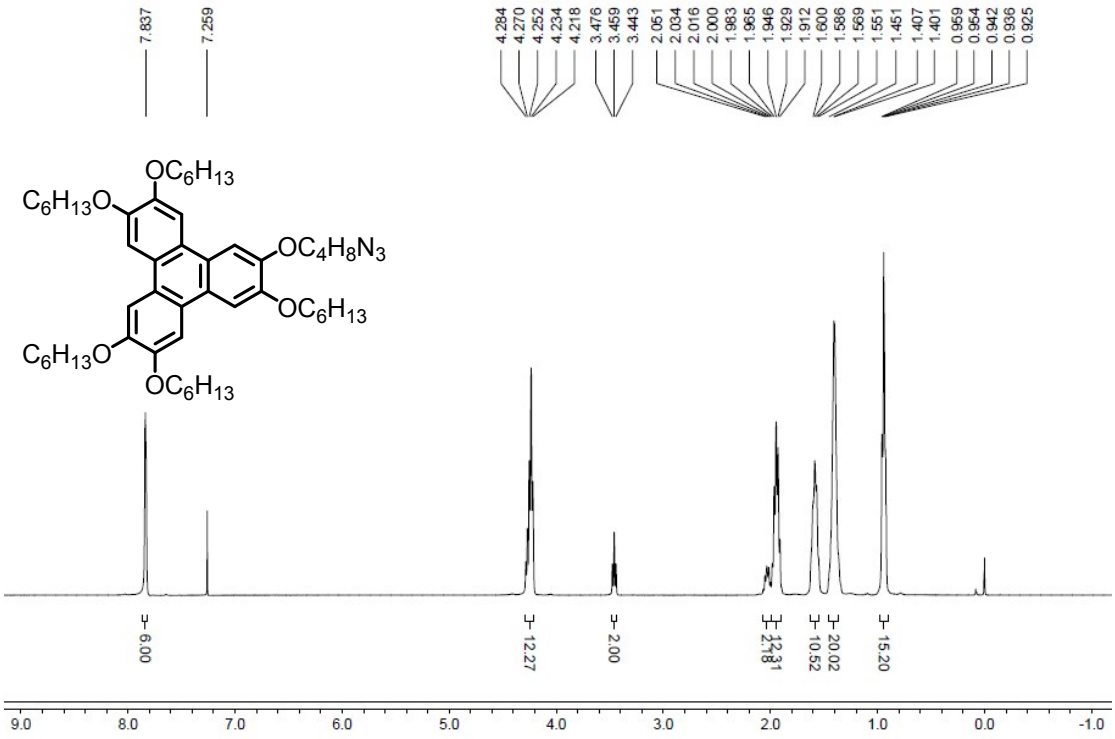

Figure S6: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **2b**

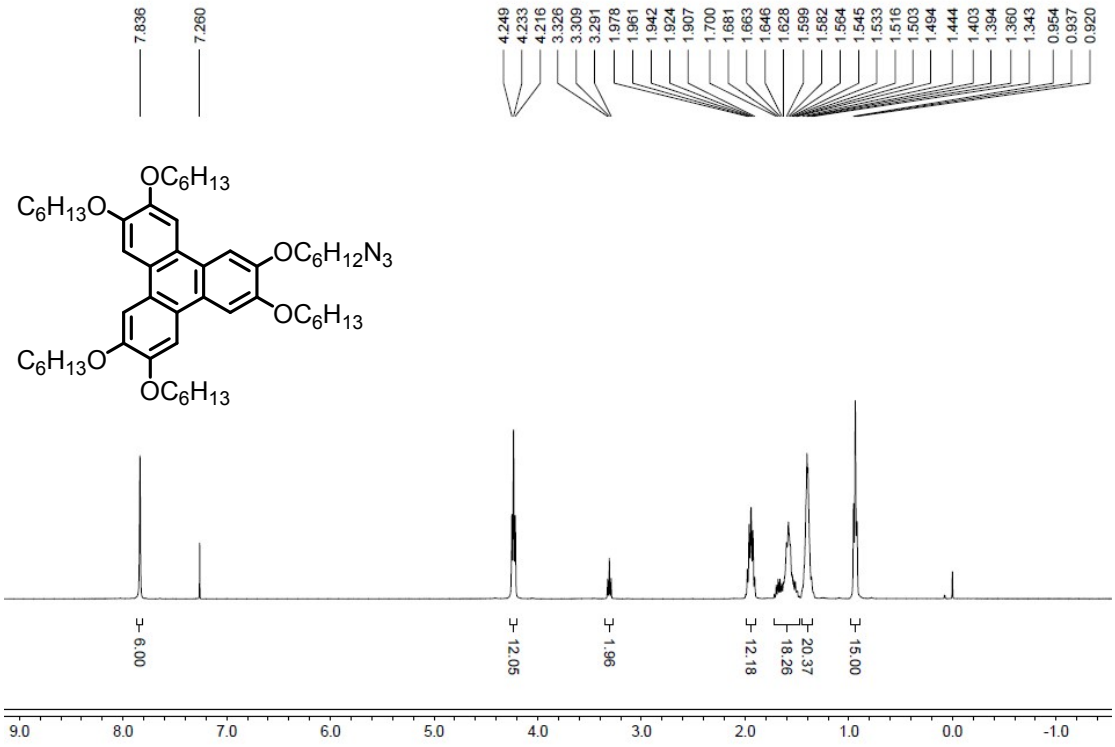

Figure S7: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **2c**

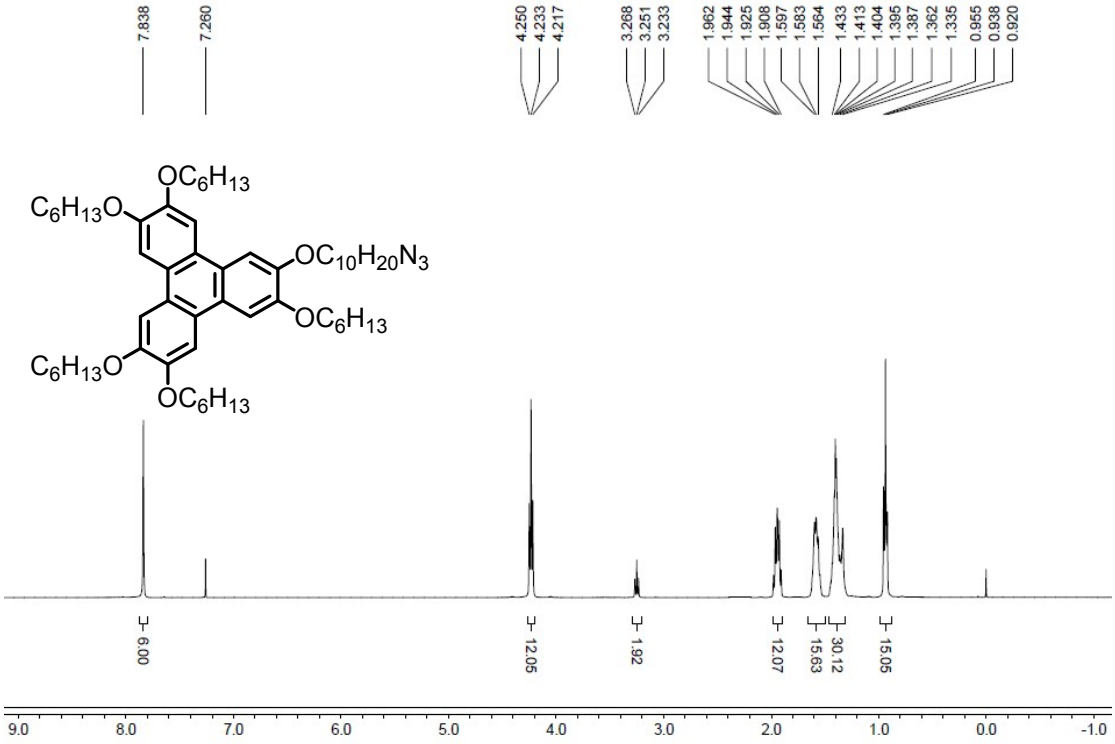

Figure S8: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **2d**

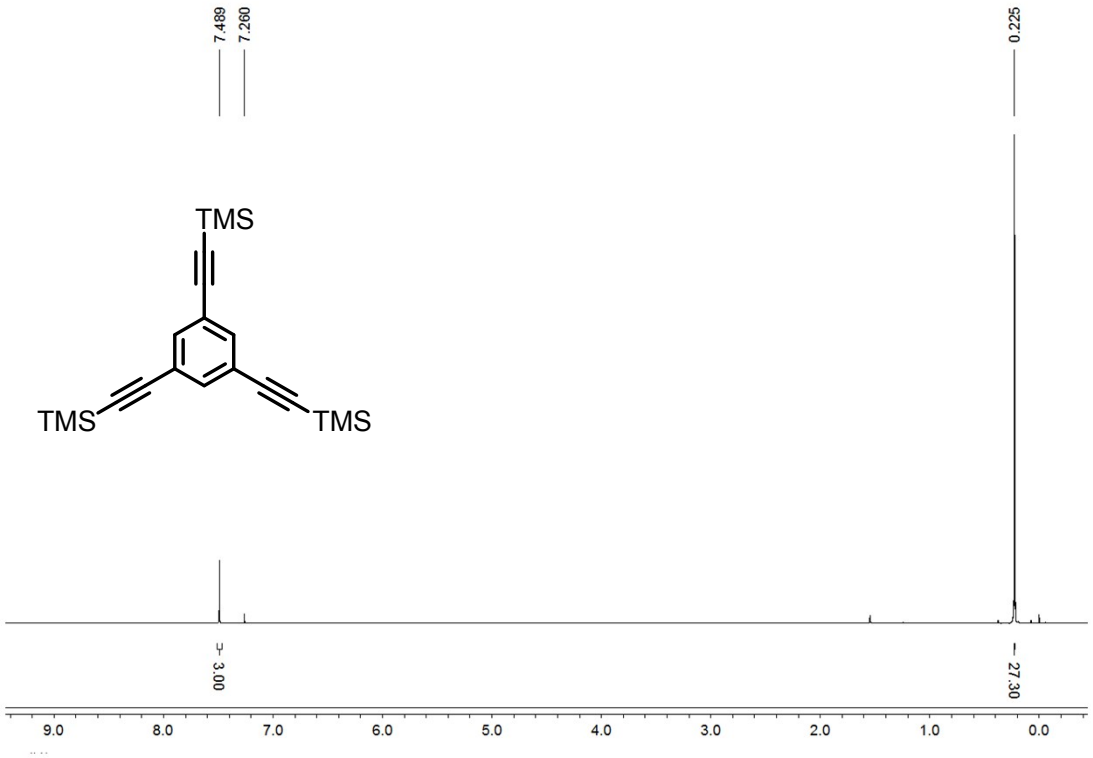

Figure S9: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **3**

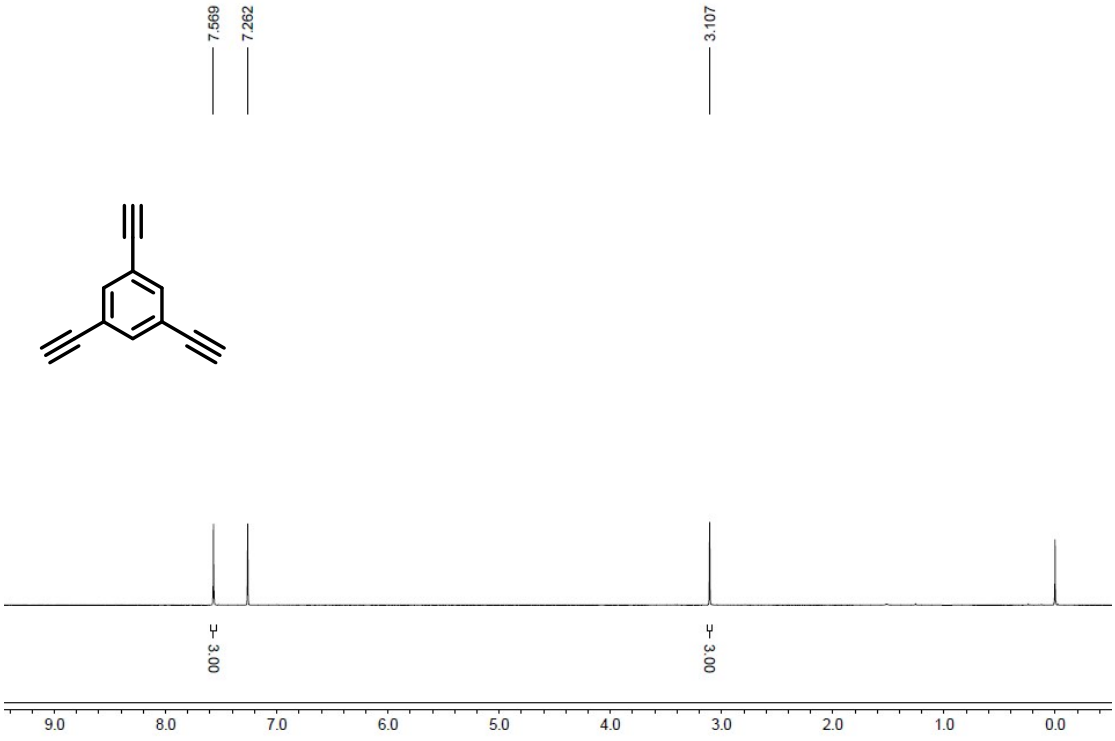

Figure S10: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **3a**

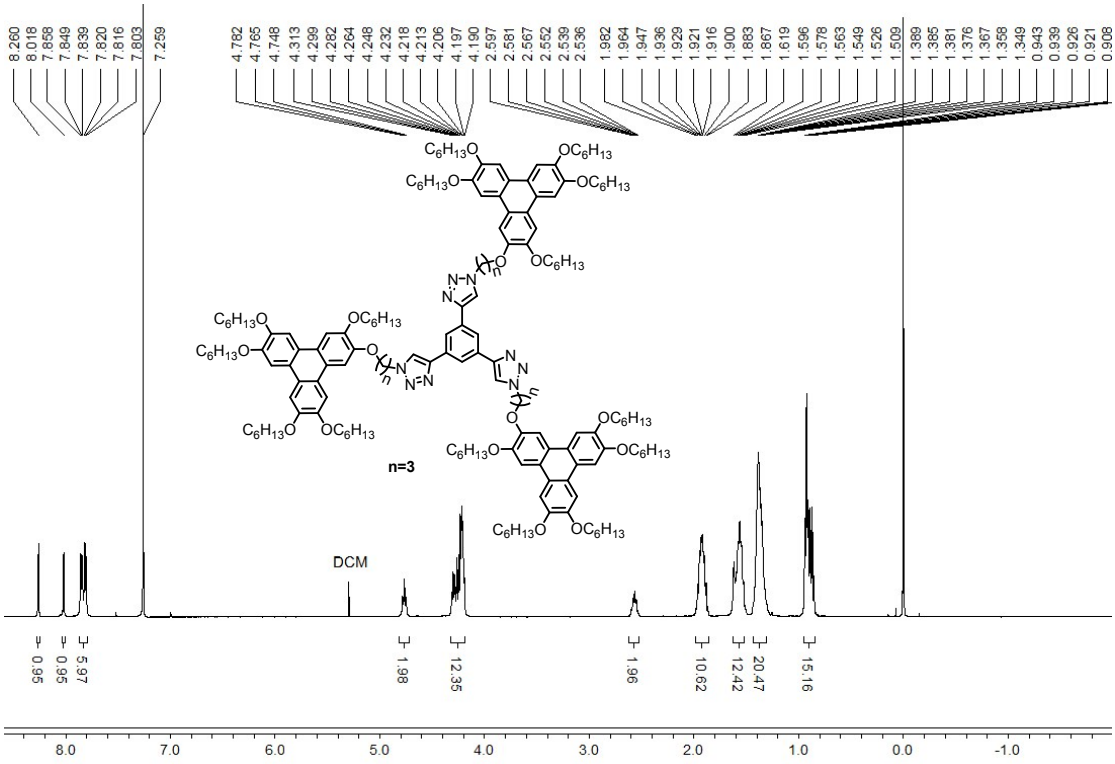

Figure S11: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **4a**, n = 3

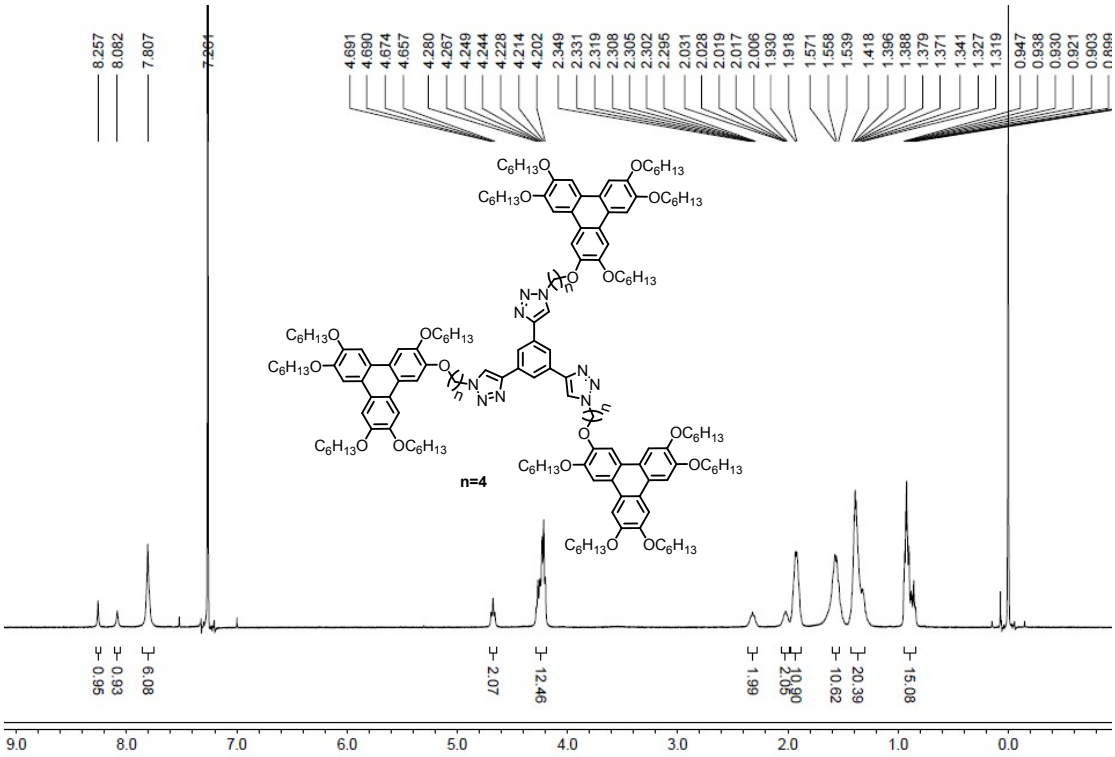

Figure S12: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **4b**, n = 4

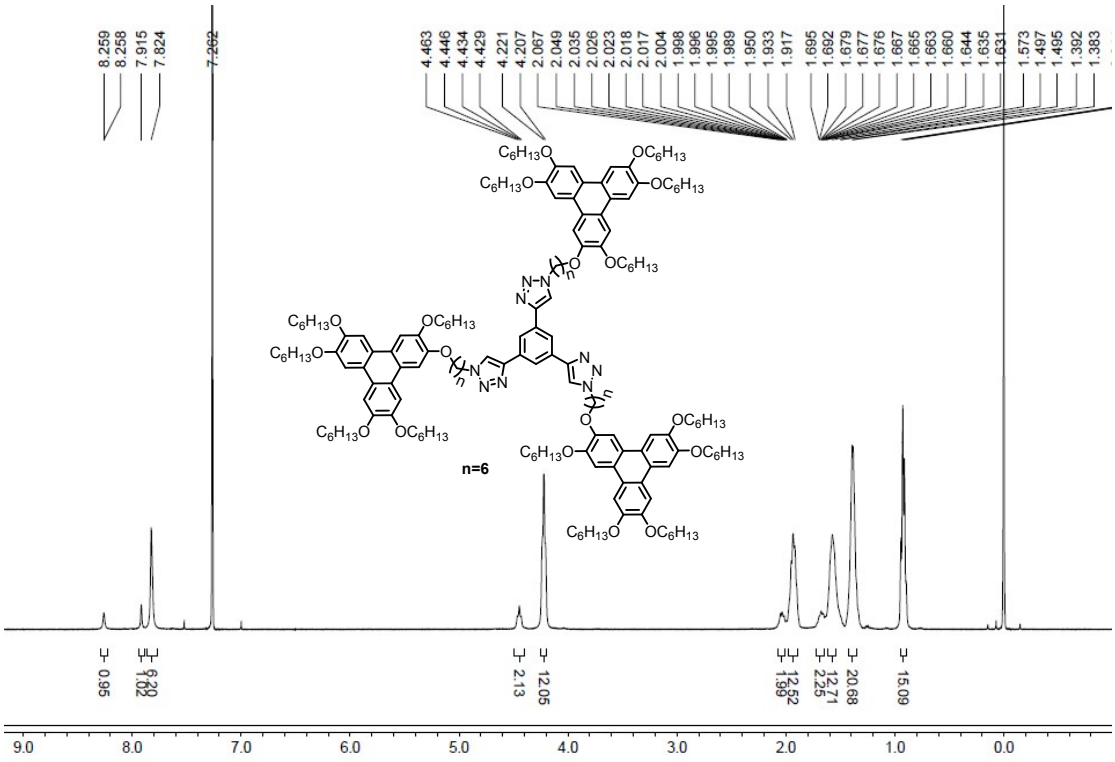

Figure S13: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **4c**, n = 6

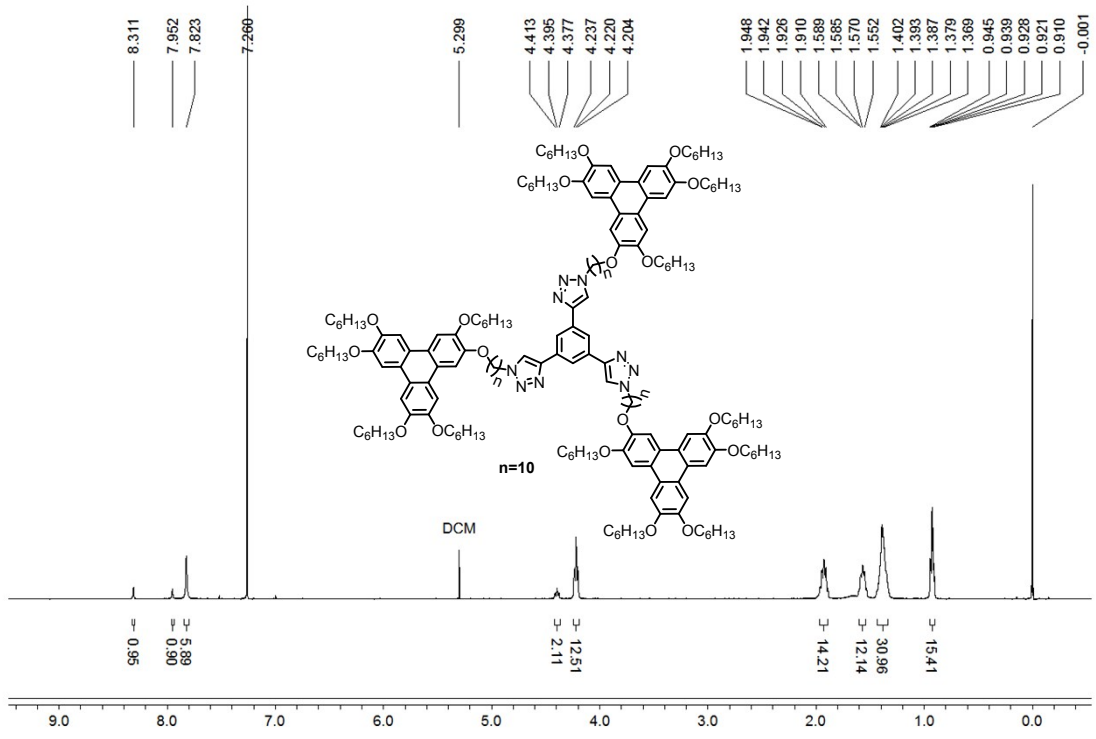

Figure S14: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **4d**, n = 10

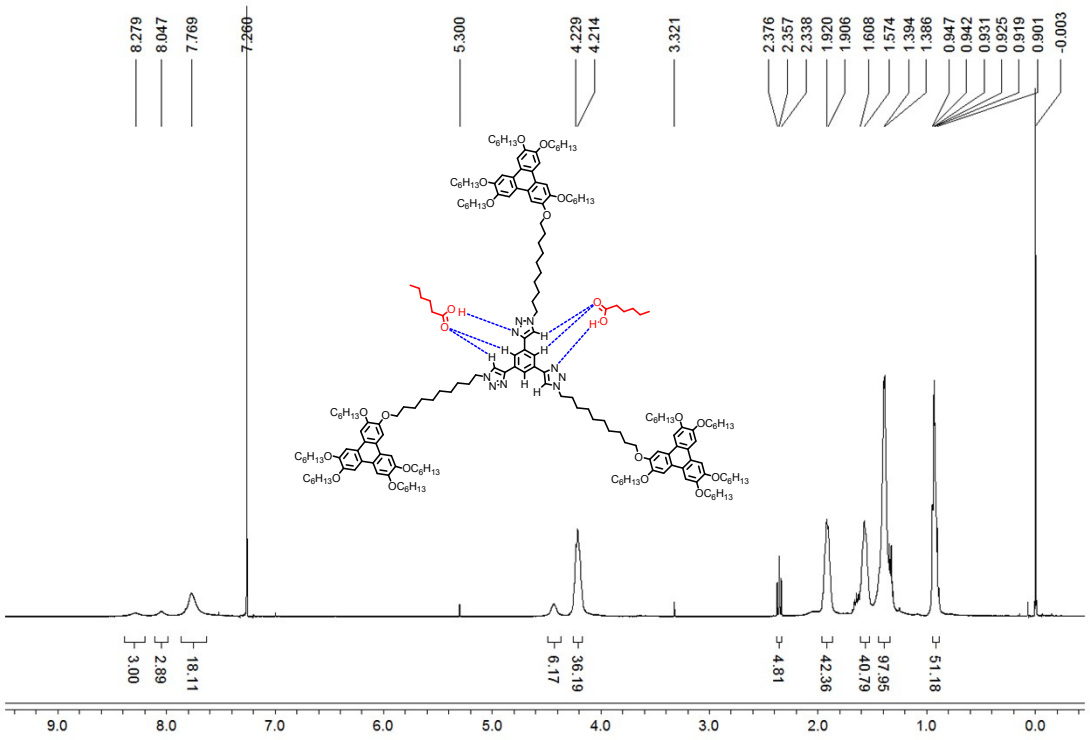

Figure S15: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **5a**

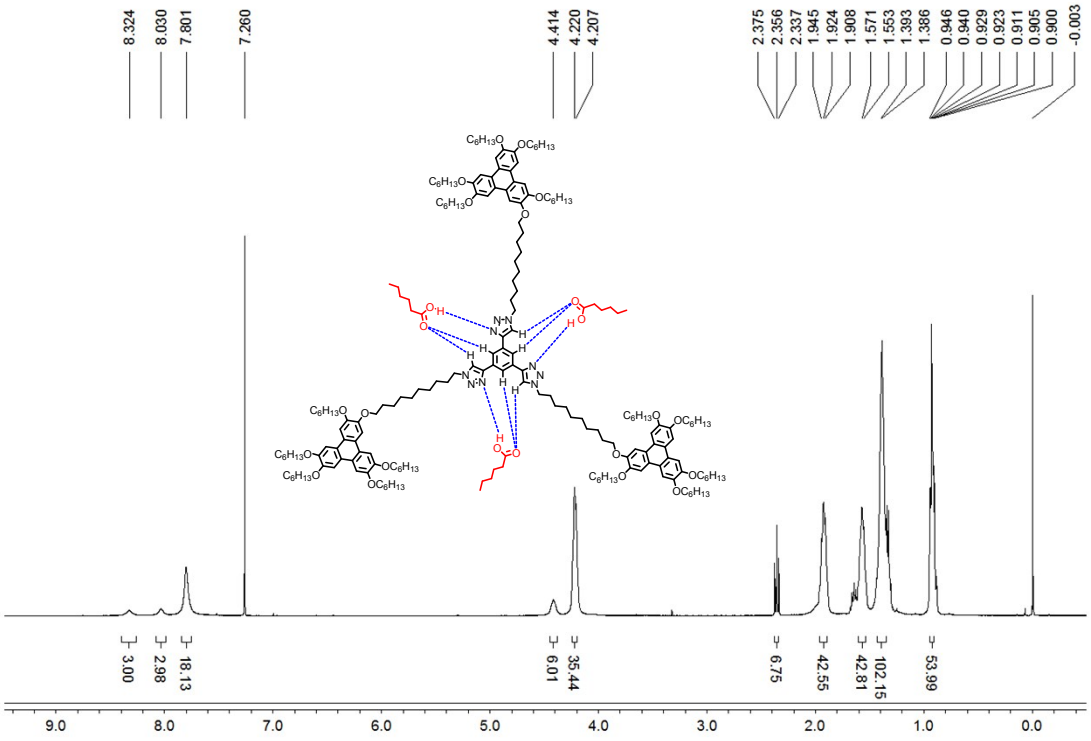

Figure S16: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **5b**

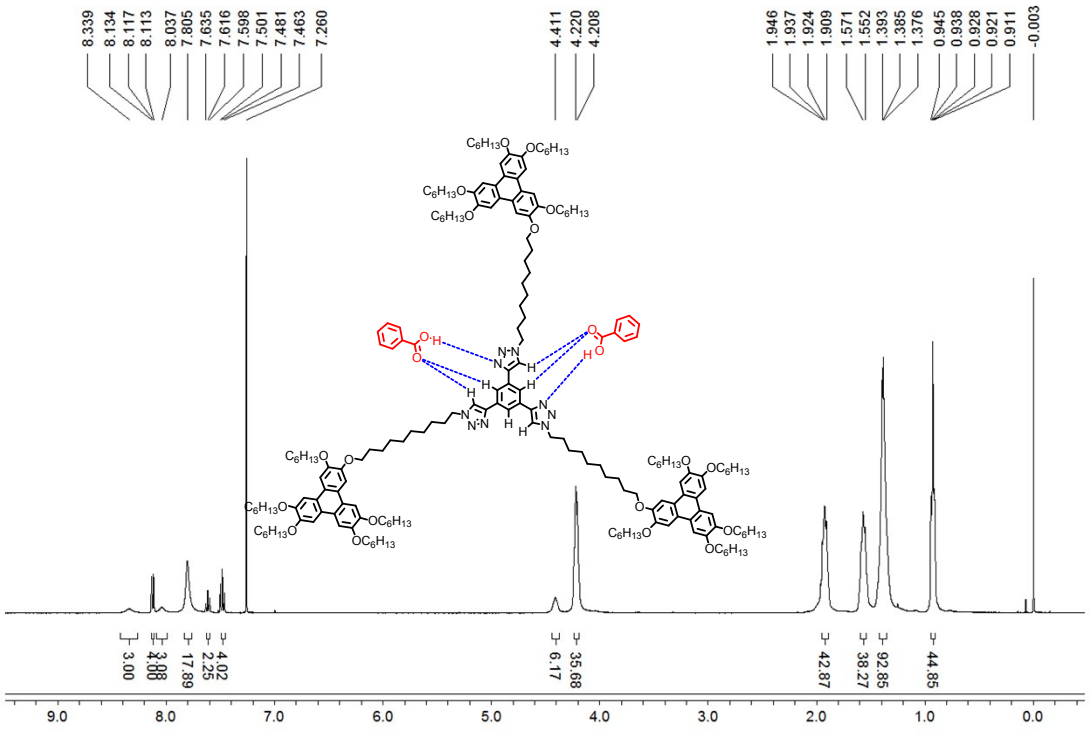

Figure S17: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **5c**

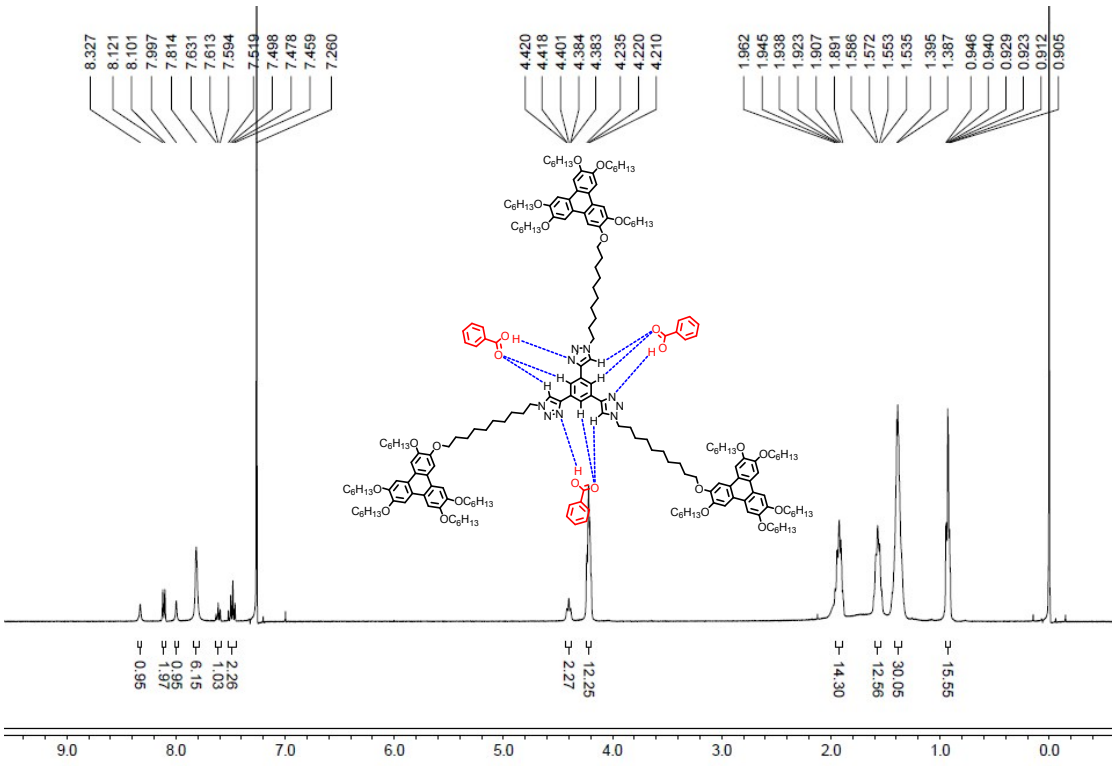

Figure S18: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **5d**

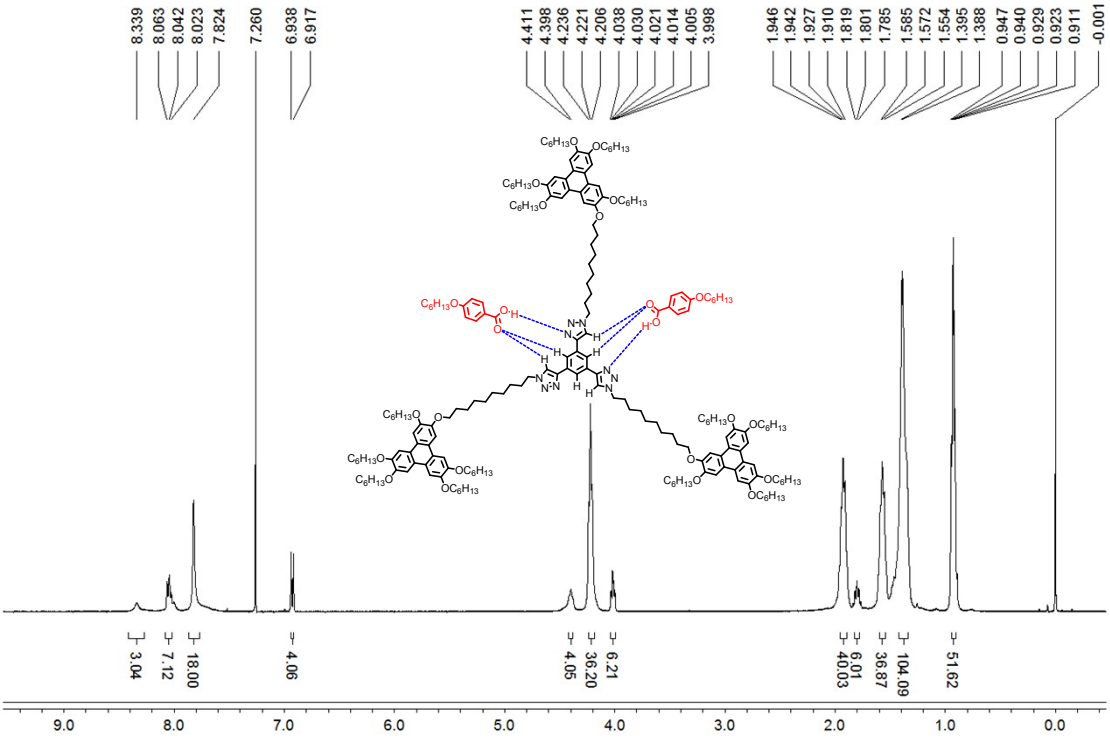

Figure S19: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **5e**

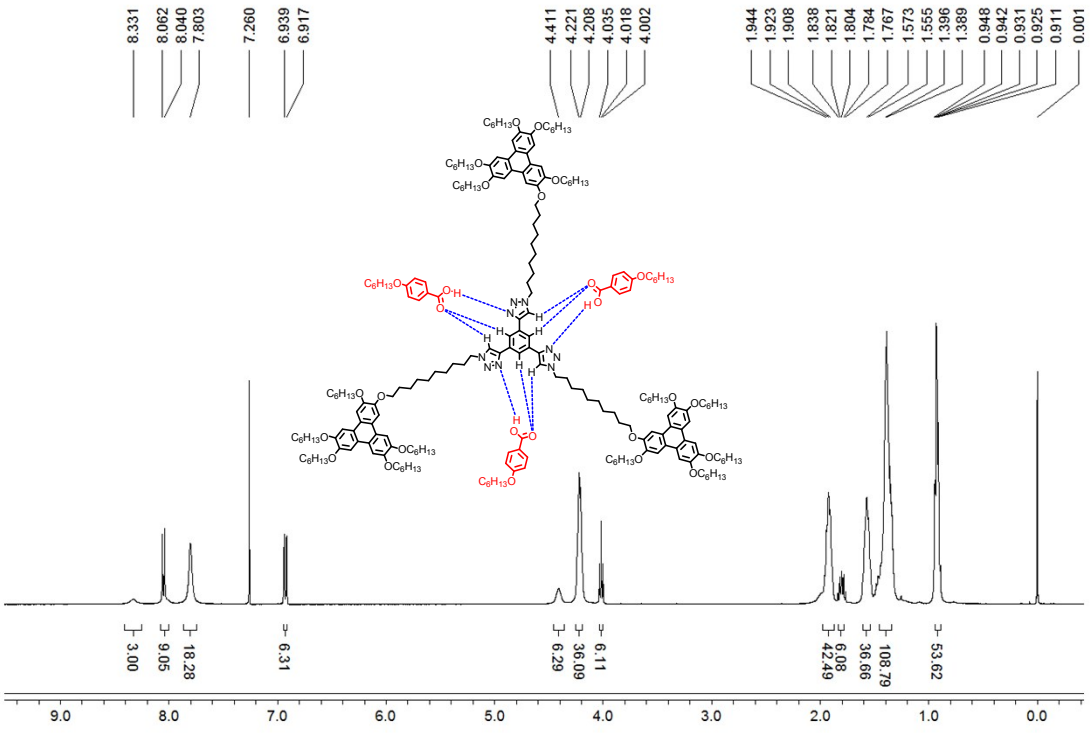

Figure S20: ^{1}H NMR ($CDCl_3$, 400 MHz) spectrum of **5f**

2. ^{13}C NMR

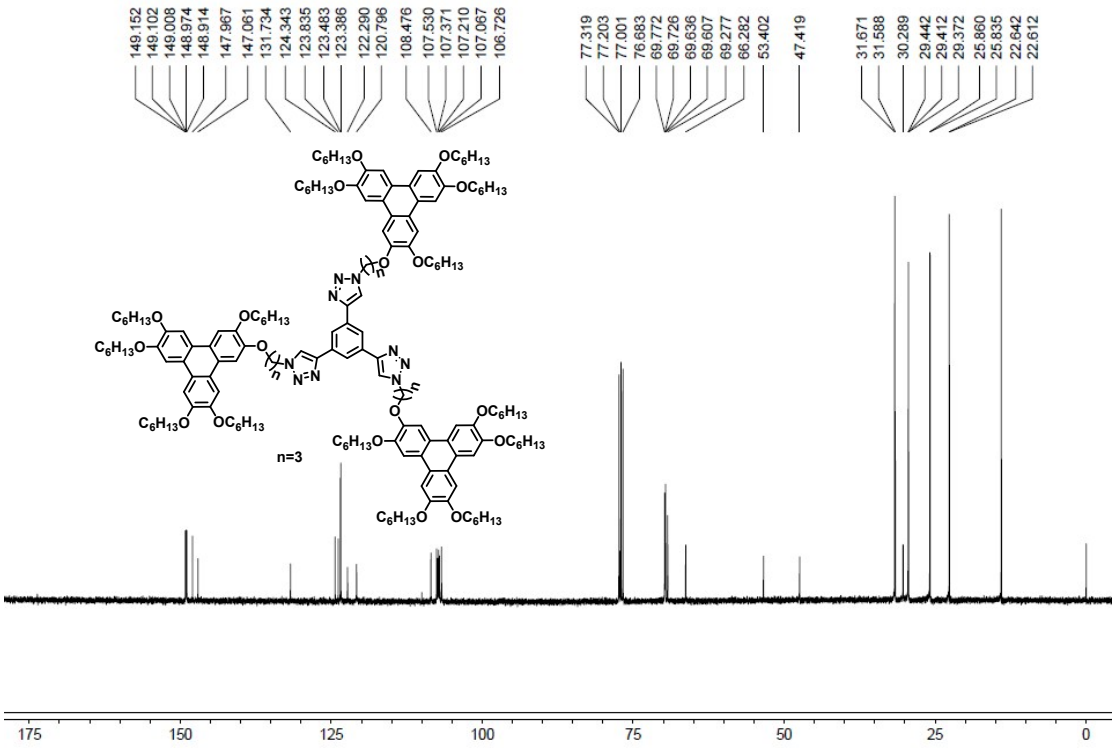

Figure S21: ^{13}C NMR ($CDCl_3$, 100 MHz) spectrum of **4a**, n = 3

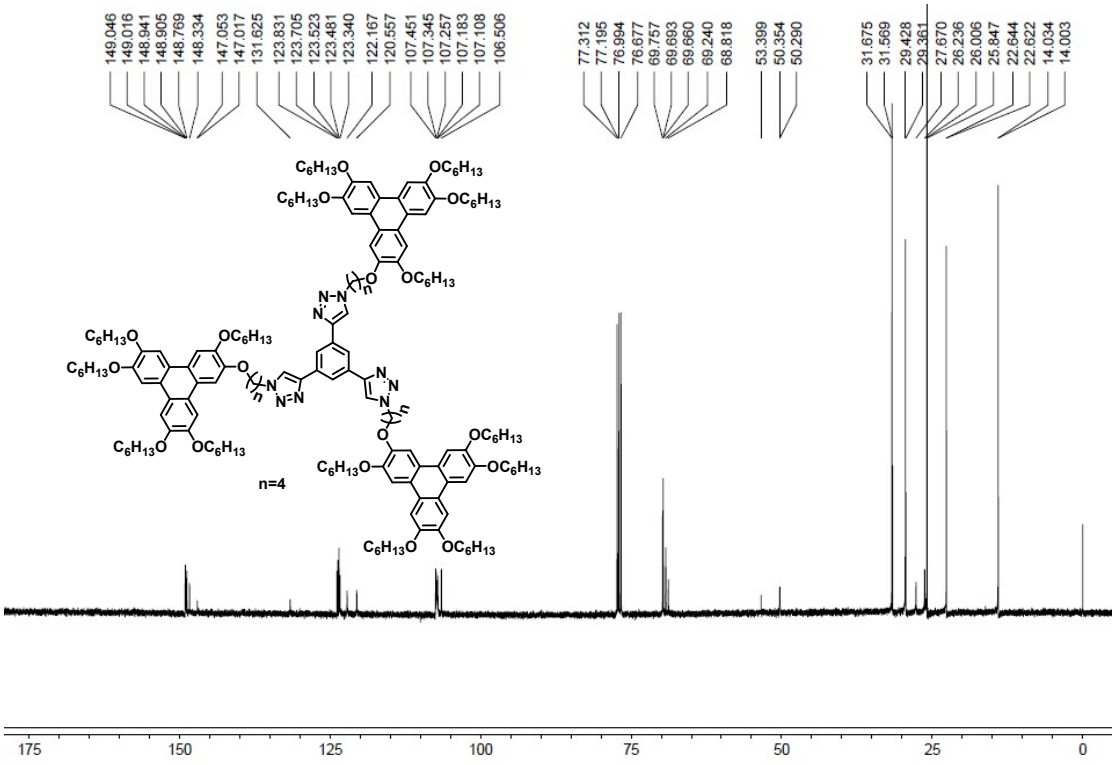

Figure S22: ^{13}C NMR ($CDCl_3$, 100 MHz) spectrum of **4b**, n = 4

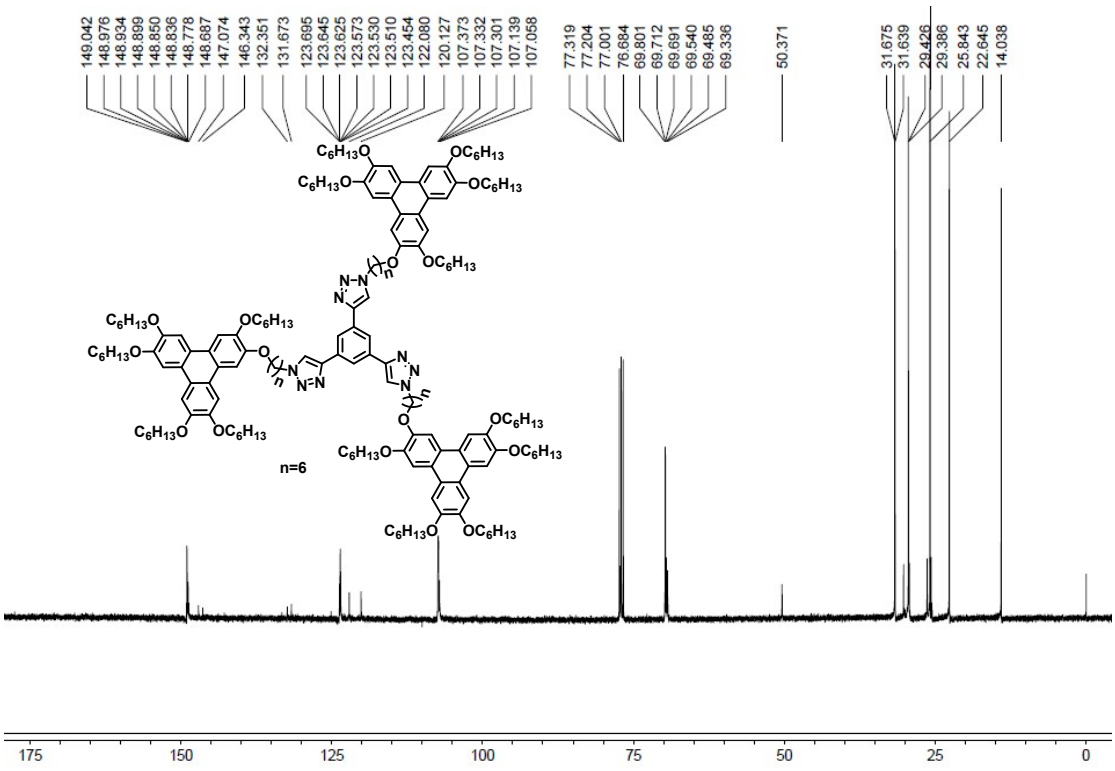

Figure S23: ^{13}C NMR ($CDCl_3$, 100 MHz) spectrum of **4c**, n = 6

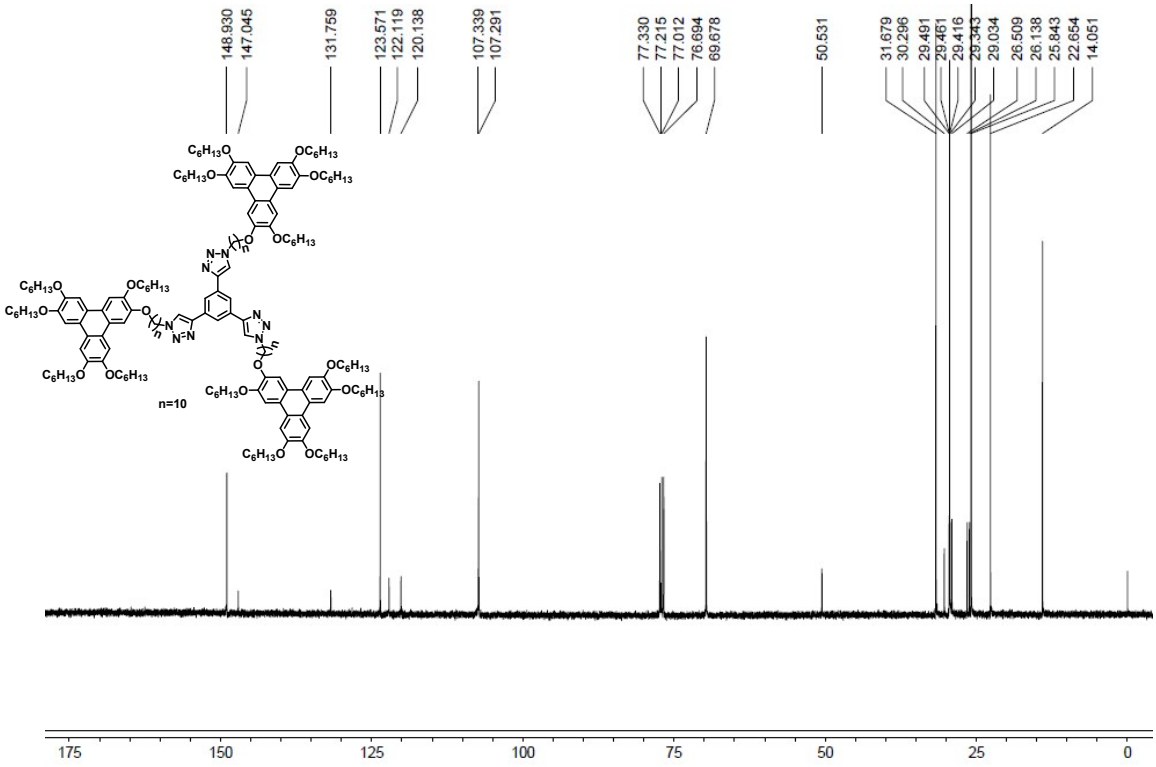

Figure S24: ^{13}C NMR ($CDCl_3$, 100 MHz) spectrum of **4d**, n = 10

3. IR

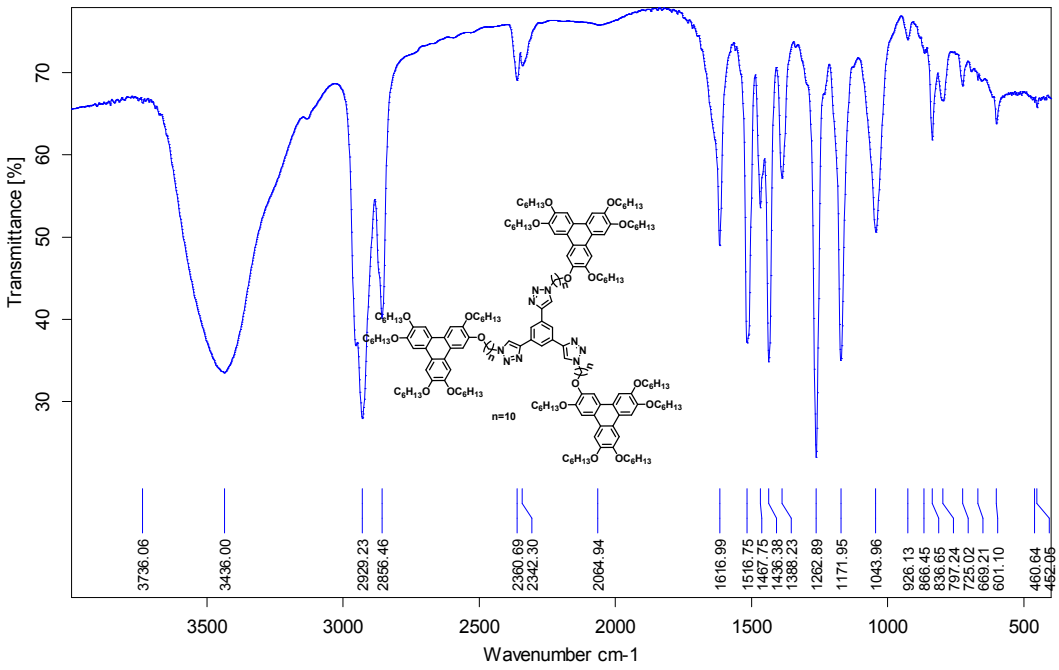

Figure S25: IR spectrum of **4d**, n = 10

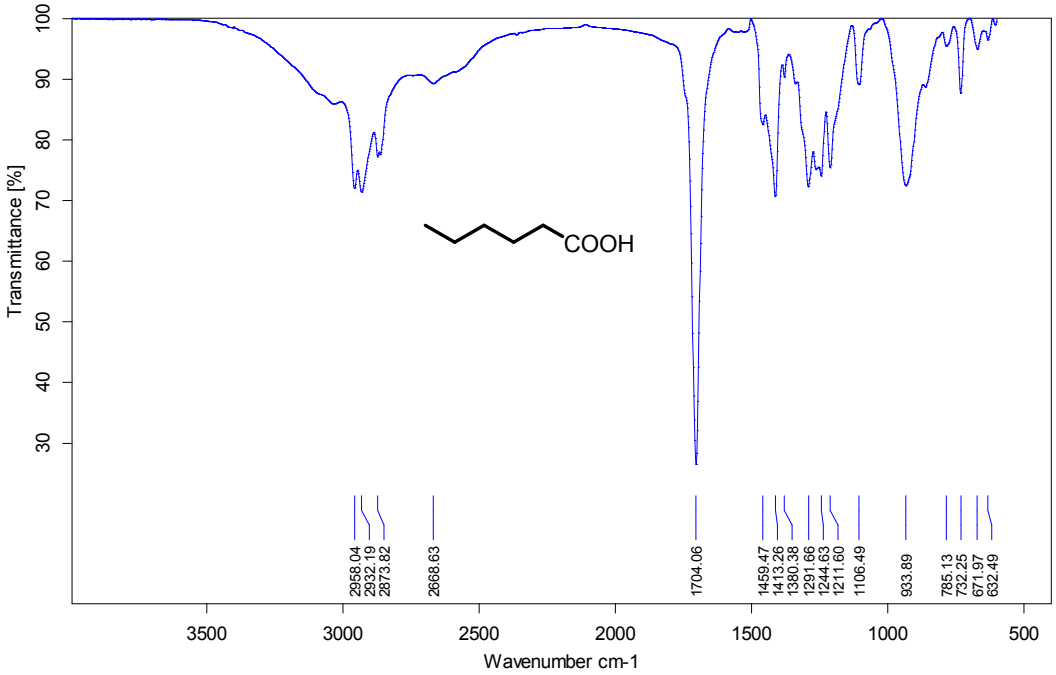

Figure S26: IR spectrum of hexanoic acid

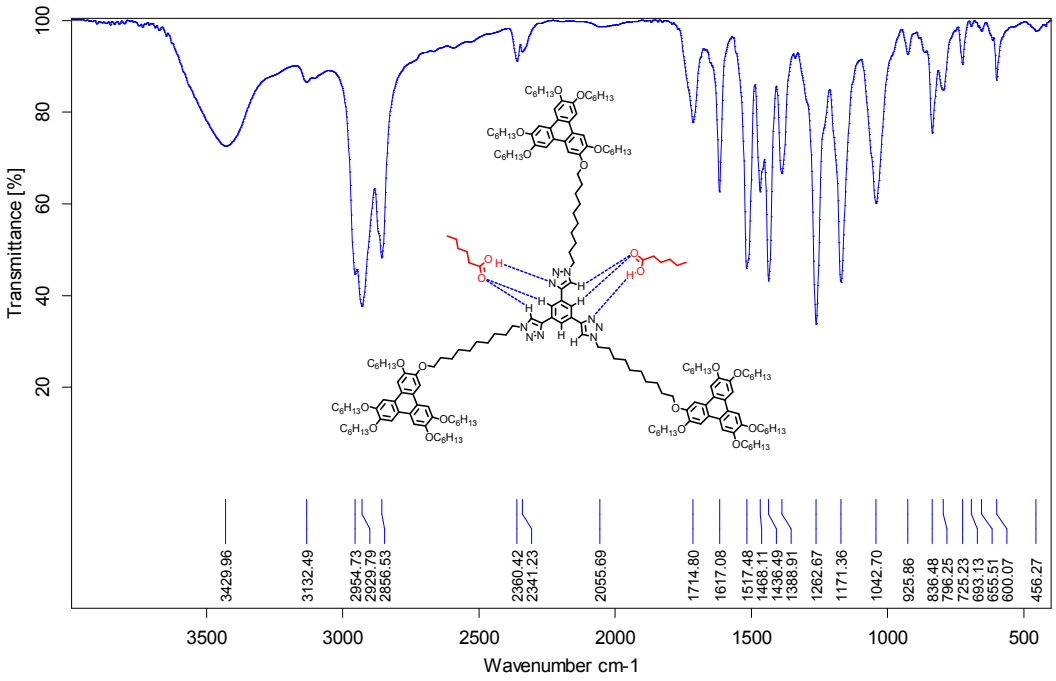

Figure S27: IR spectrum of **5a**

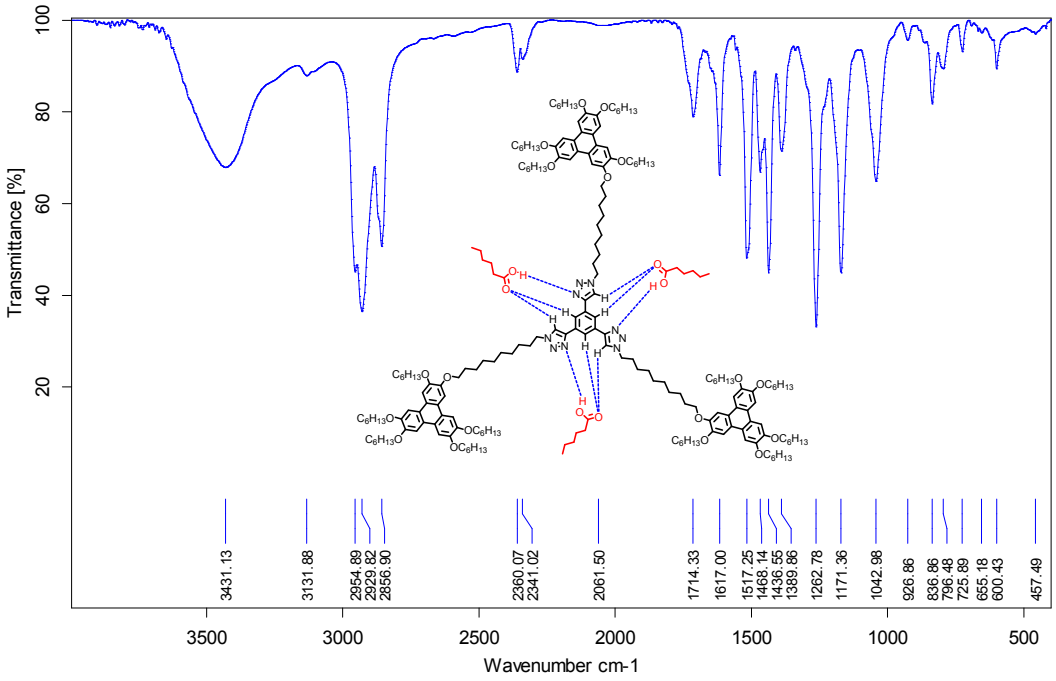

Figure S28: IR spectrum of **5b**

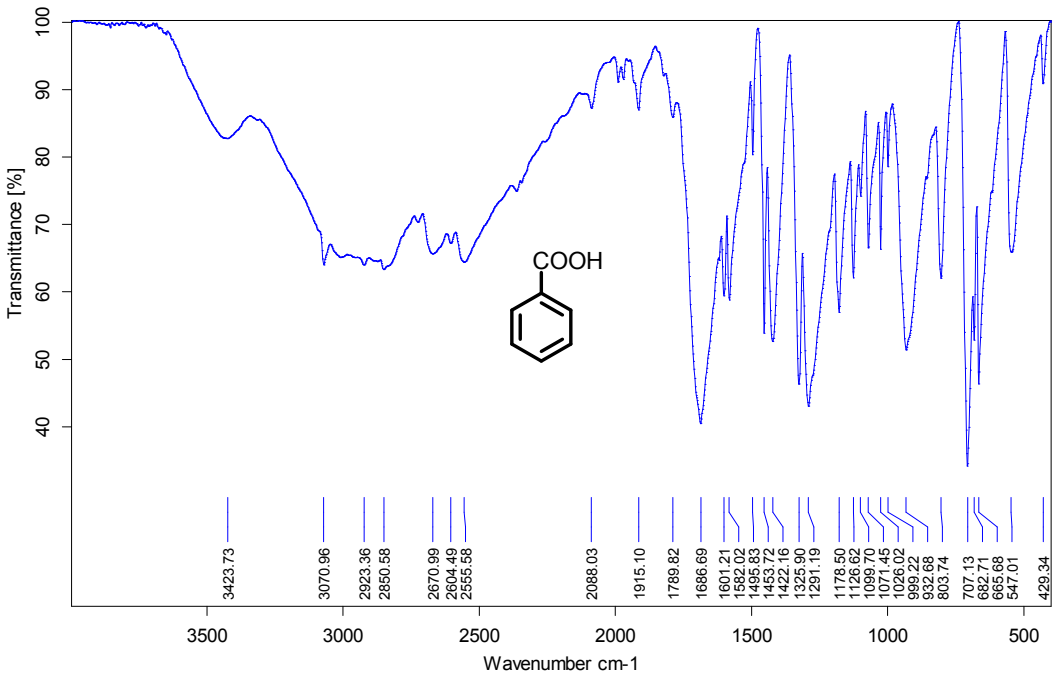

Figure S29: IR spectrum of benzoic acid

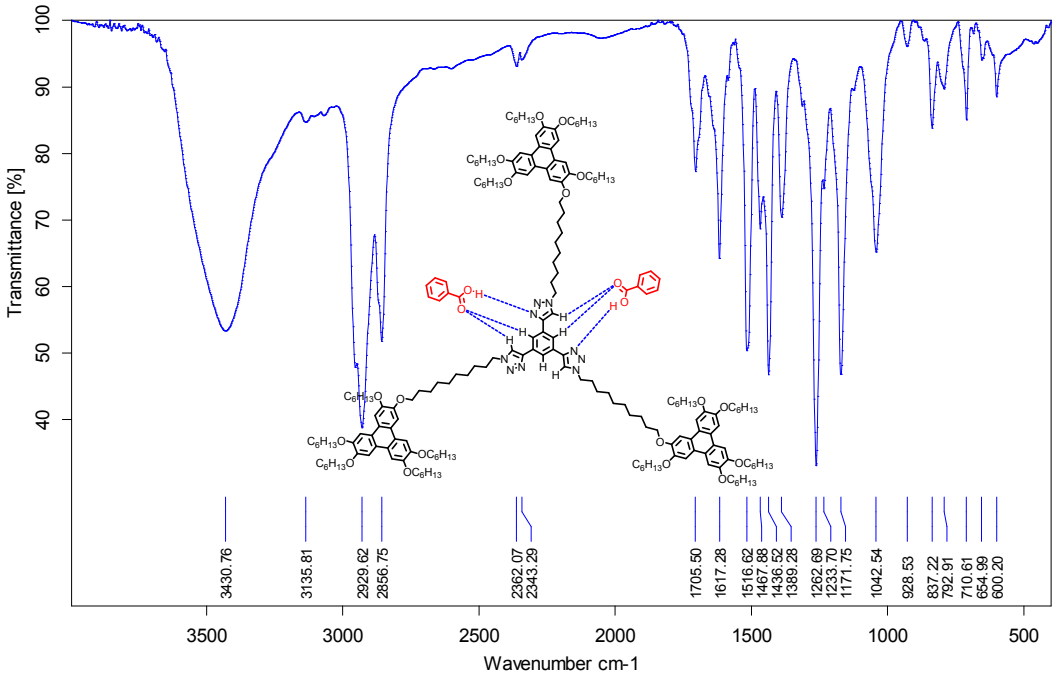

Figure S30: IR spectrum of **5c**

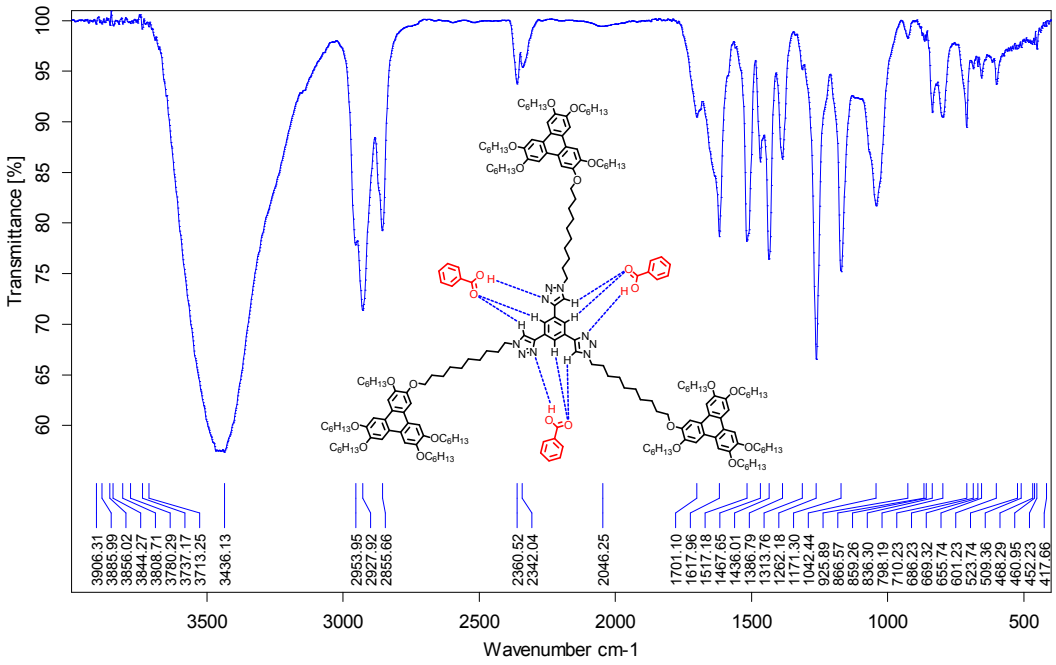

Figure S31: IR spectrum of **5d**

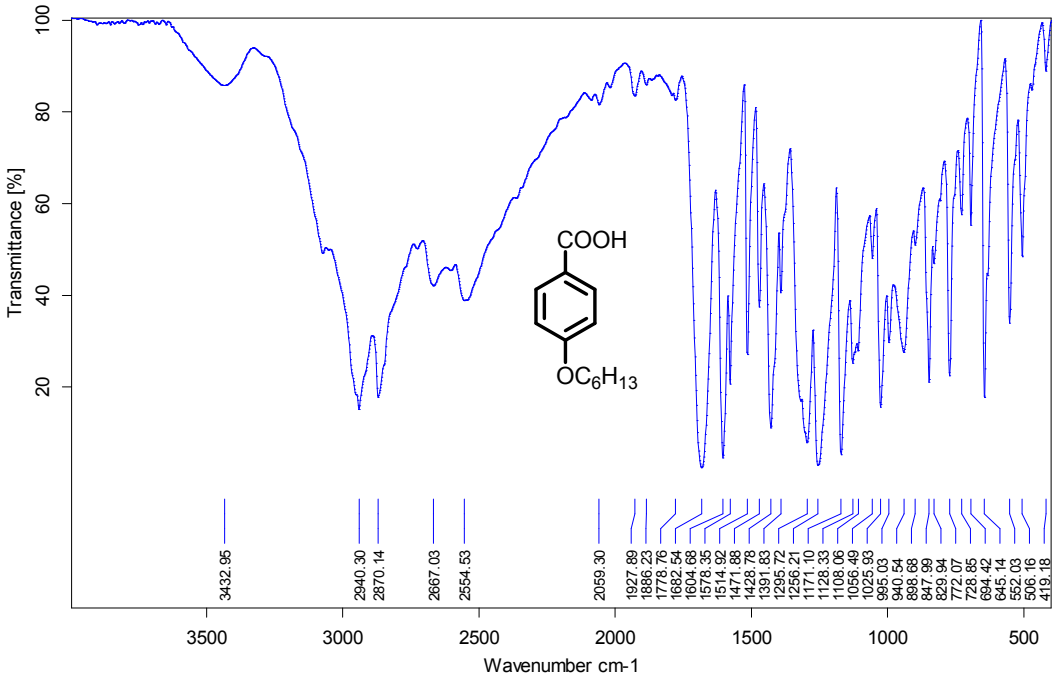

Figure S32: IR spectrum of 4-hexyloxybenzoic acid

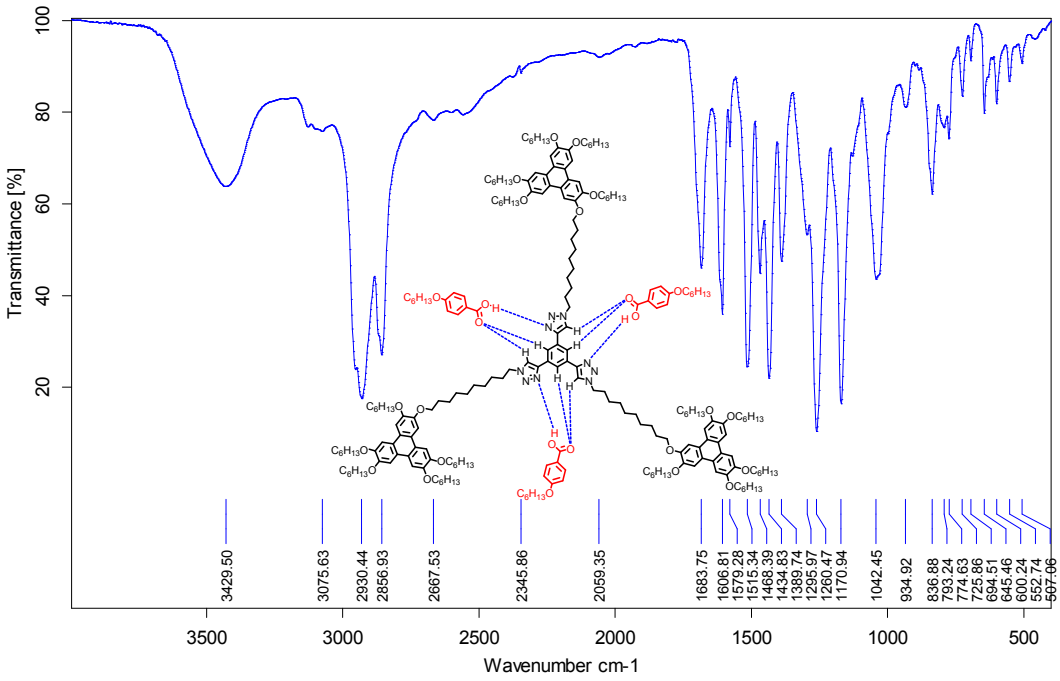

Figure S33: IR spectrum of **5f**

4. DSC

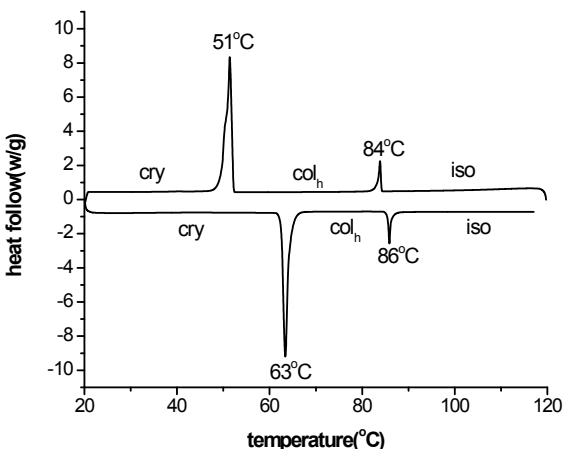

Figure S34: DSC traces of **1b**

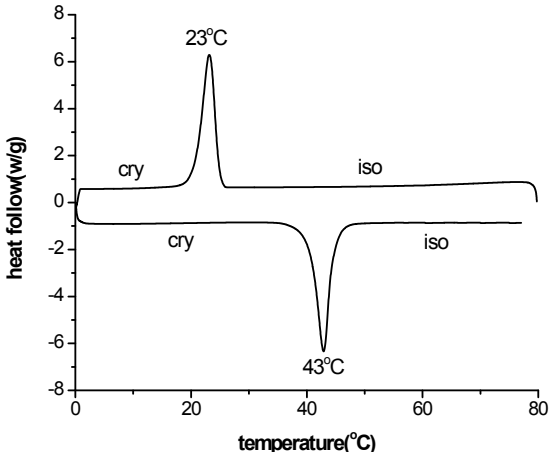

Figure S35: DSC traces of **1d**

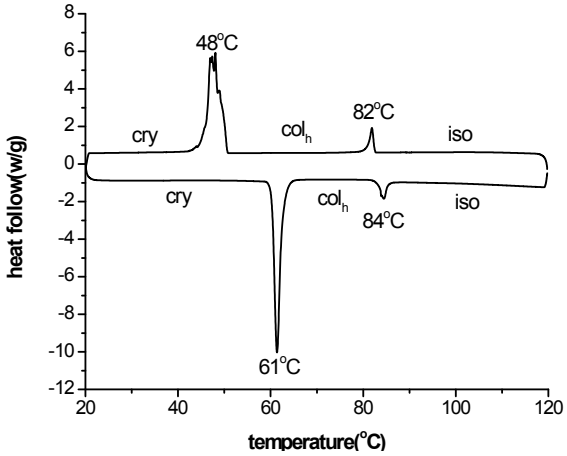

Figure S36: DSC traces of **2b**

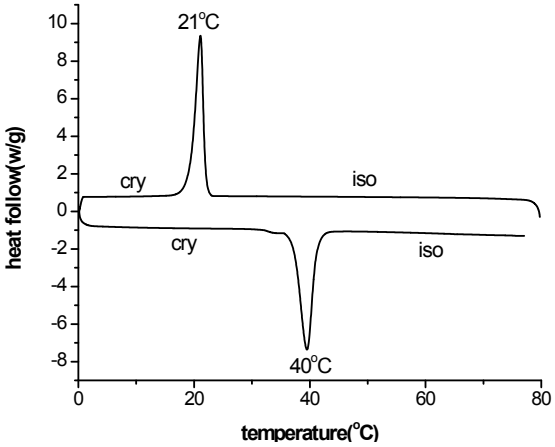

Figure S37: DSC traces of **2d**

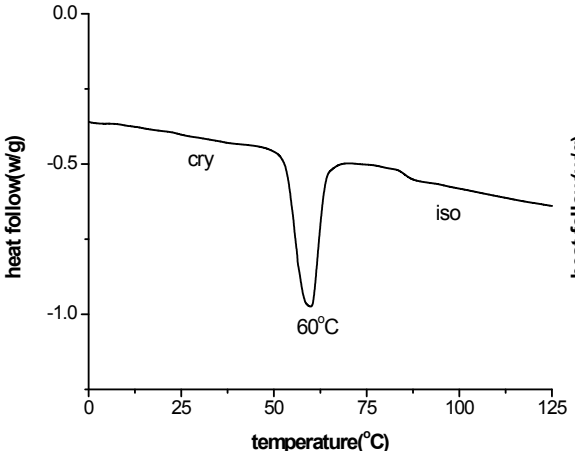

Figure S38: DSC traces of **4c**, n = 6

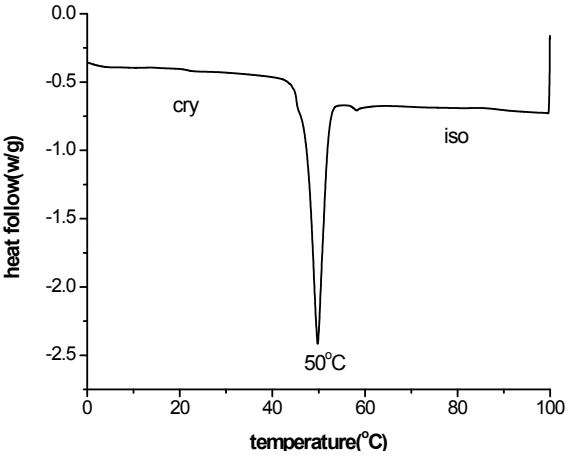

Figure S39: DSC traces of **4d**, n = 10

5. SAXS

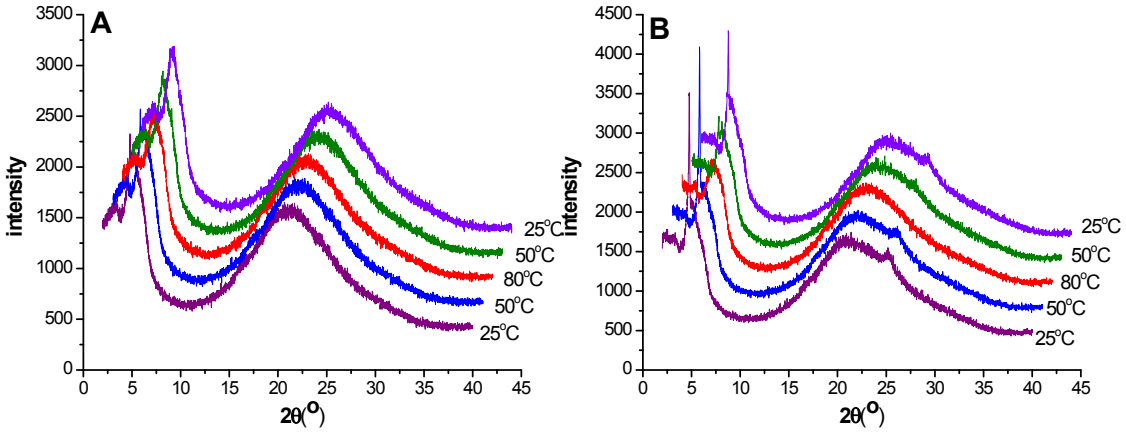

Figure S40: SAXS patterns of at variable temperatures of **5a** (A) and **5b** (B).

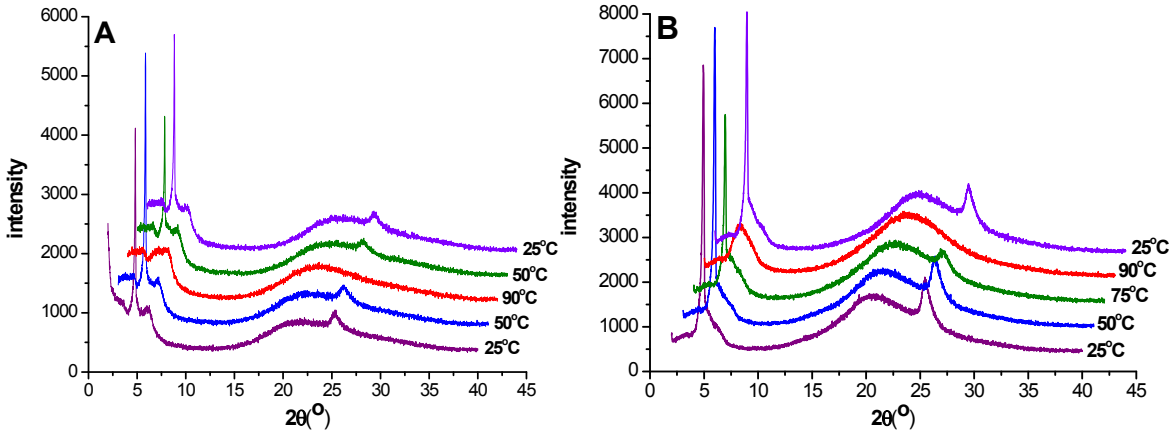

Figure S41: SAXS patterns of at variable temperatures of **5c** (A) and **5d** (B).

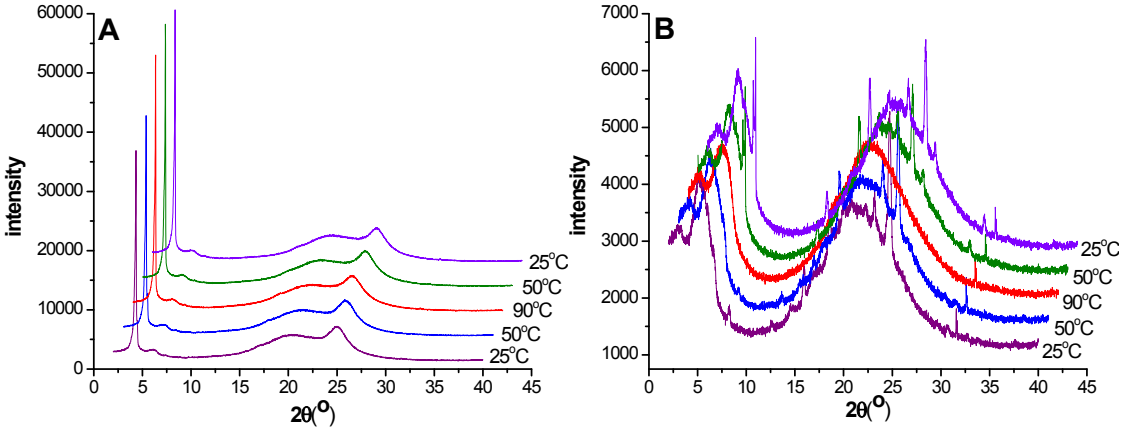

Figure S42: SAXS patterns of at variable temperatures of **5e** (A) and **5f** (B).

6. SAXS in isotropic liquid

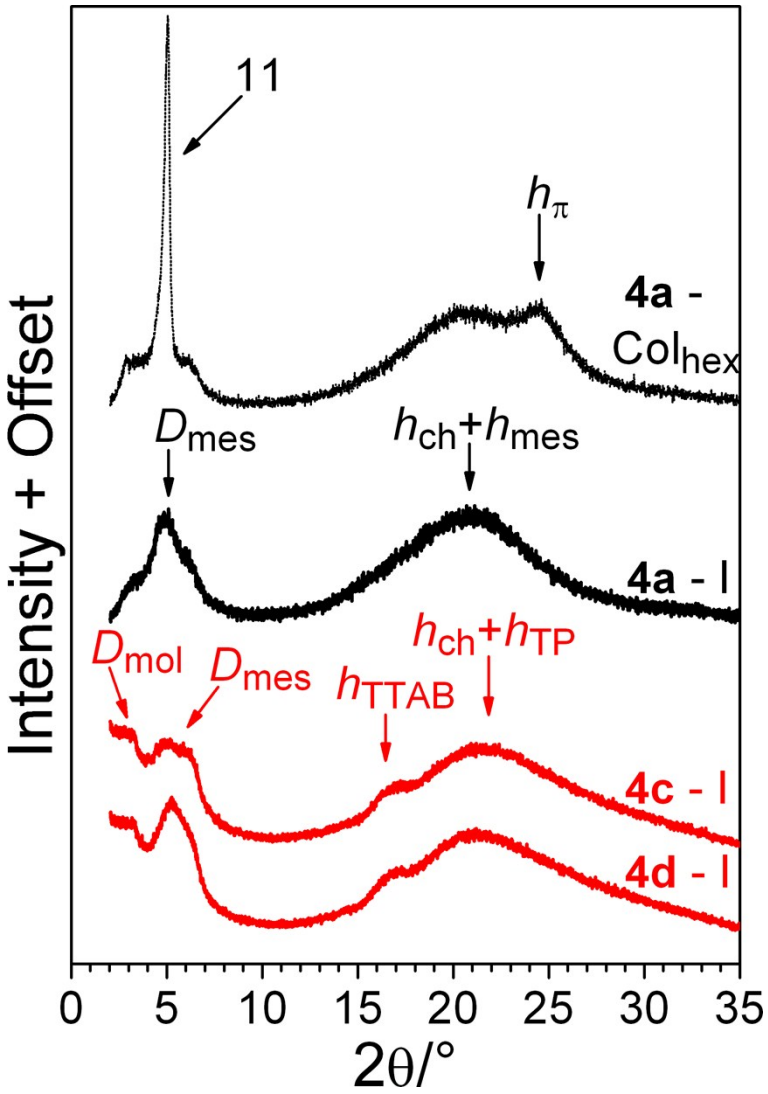

Figure S43: SAXS patterns in the isotropic state of **4a** at 130°C, **4c** at 75°C and **4d** at 70°C, compared to the room-temperature hexagonal columnar phase of **4a**; (11) and h_π are respectively the most intense reflection of the columnar lattice and the scattering signal from π-stacked triphenylene units; D_{mes}, h_{mes} and h_{ch} come from piling and lateral distances between mesogens, and from lateral distances between chains; h_{TTAB} and h_{TP} correspond to piling distances between tris-triazolyl-benzene units (TTAB) and loosely piled triphenylene units (TP); D_{mol} stands for the lateral distance between piled molecules, thus between TTAB separated by TP.