Electronic Supplementary Information

Supramolecular polymerization induced self-assembly into micelle and vesicle *via* acid-base controlled formation of fluorescence responsive supramolecular hyperbranched polymers

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Instruments and Materials

^{1}H and ^{13}C NMR spectra were recorded on a JNM-ECS400 spectrometer or Varian 600 NMR in CD_2Cl_2 and/or $CDCl_3$ with TMS as an internal standard. High-resolution electrospray ionization mass spectra (HR-ESI-MS) were obtained on a Bruker APEX II FT-MS mass spectrometer. Luminescence measurements were made on a Hitachi F-7000 spectrofluorimeter with a xenon lamp as the excitation source. Dynamic light scattering (DLS) measurements were performed on a Brookhaven BI-200SM spectrometer. TEM images were obtained with JEM-2100 operating at 200 kV. All measurements were carried out at room temperature. All reaction operations were performed under an anhydrous Ar atmosphere. Anhydrous tetrahydrofuran (THF) were distilled over Na and benzophenone. Dichloromethane and *i*-Pr_2NH was dried over CaH_2.

Synthetic procedures:

Compounds **3**[s1] and 1,3,5-Triethynylbenzene[s2] were synthesized according to the procedures in the related literatures and showed identical ^{1}H NMR spectra to those reported therein.

Compound 4: 1,3,5-triethylnylbenzene (0.20 g, 1.33 mmol), **3** (3.50 g, 5.99 mmol), CuI (0.10 g, 0.53 mmol) and $Pd(PPh_3)_4$ (0.31 g, 0.27 mmol) were added to a

mixture solvent of THF (49 mL) and *i*-Pr_2NH (49 mL) in an oven dried Schlenk flask under an argon atmosphere. The resulting mixture was stirred at 65 °C for 10 h. After removing the solvents, the crude product was extracted by dichloromethane (3 × 50 mL) and dried over anhydrous $MgSO_4$. Further purification was achieved by column chromatography (SiO_2) using petroleum ether as eluent to afford **4** as a yellow oil (1.7 g, 89% yield). ^{1}H NMR (400 MHz, $CDCl_3$, ppm), δ: 7.60 (s, 3H, Ar), 6.97-6.96 (d, 6H, Ar), 3.94-3.83 (m, 12H, OCH_2), 1.81-1.76 (m, 6H, CH), 1.63-1.28 (m, 48H, CH_2), 1.01-0.86 (m, 36H, CH_3), 0.28 (s, 27H, $SiMe_3$). ^{13}C NMR (100 MHz, $CDCl_3$, ppm), δ: 154.63, 154.04, 134.12, 124.54, 117.29, 116.76, 114.27, 113.96, 101.42, 100.43, 93.45, 87.43, 77.68, 77.36, 77.04, 72.38, 71.99, 39.95, 39.87, 31.00, 30.84, 29.48, 29.44, 23.43, 23.42, 14.46, 14.43, 11.61.

Compound 5: 4 (1.00 g, 0.70 mmol) and K_2CO_3 (1.15 g, 8.33 mmol) were added to a THF/MeOH mixture solvent (56 mL, volume ratio, 1/1) in an round bottom flash. The resulting mixture was stirred at room temperature for 5 h and then the solvent was removed. The crude product was extracted by dichloromethane (3 × 50 mL) and dried with anhydrous Na_2SO_4. Further purification was achieved by column chromatography (SiO_2, petroleum ether as eluent). The product **5** was isolated as a yellow oil. (0.82 g, 96% yield). ^{1}H NMR (400 MHz, $CDCl_3$, ppm), δ: 7.53 (s, 3H, Ar), 6.91-6.90 (d, 6H, Ar), 3.82-3.80 (m, 12H, OCH_2), 3.26 (s, 3H, ≡CH), 1.74-1.69 (m, 6H, CH), 1.52-1.18 (m, 48H, CH_2), 0.92-0.77 (m, 36H, CH_3). ^{13}C NMR (100 MHz, $CDCl_3$, ppm), δ: 154.67, 154.65, 154.06, 134.18, 124.50, 117.75, 117.06, 114.30, 113.33, 113.31, 93.43, 87.26, 82.77, 80.23, 77.68, 77.36, 77.04, 72.40, 72.36, 39.83, 39.66, 30.80, 29.46, 29.35, 24.20, 23.42, 23.37, 14.41, 11.60, 11.45.

Compound 6a and 6b: 5 (1.04 g, 0.85 mmol), 4-iodobenzaldehyde (197 mg, 0.68 mmol), CuI (5.72 mg, 0.03 mmol) and $Pd(PPh_3)_4$ (46.2 mg, 0.04 mmol) were added to a mixture solvent of THF (54 mL) and *i*-Pr_2NH (54 mL) in an oven dried Schlenk flask under an argon atmosphere. The mixture was stirred at 20 °C for 6 h. The solvent was removed and then the crude product was extracted by dichloromethane (3 × 25 mL). The organic layers were merged and dried over anhydrous $MgSO_4$. Further purification was achieved by column chromatography (SiO_2) using petroleum

ether/dichloromethane (10/1) as eluent. The product **6a** (124 mg, 11% yield) and **6b** (146 mg, 12% yield) were isolated as a yellow oil, respectively.

6a: ^{1}H NMR (400 MHz, $CDCl_3$, ppm), δ: 10.03 (s, 1H, CHO), 7.89-7.87 (d, 2H, Ar), 7.68-7.66 (d, 2H, Ar), 7.61 (s, 3H, Ar), 7.04 (s, 1H, Ar), 7.02 (s, 1H, Ar), 6.99 (s, 2H, Ar), 6.98 (s, 2H, Ar), 3.95-3.88 (m, 12H, OCH_2), 3.35 (s, 2H, ≡CH), 1.84-1.77 (m, 6H, CH), 1.63-1.34 (m, 48H, CH_2), 1.01-0.87 (m, 36H, CH_3). ^{13}C NMR (100 MHz, $CDCl_3$, ppm), δ: 191.76, 154.72, 154.41, 154.23, 154.10, 135.69, 134.22, 132.23, 130.18, 129.95, 124.55, 124.48, 117.83, 117.14, 114.70, 114.38, 113.36, 93.90, 93.45, 90.60, 87.36, 87.30, 82.76, 80.27, 77.68, 77.56, 77.36, 77.04, 72.53, 72.49, 72.46, 39.95, 39.90, 39.71, 29.49, 24.37, 23.45, 23.40, 14.45, 11.65, 11.63, 11.49.

6b: ^{1}H NMR (400 MHz, $CDCl_3$, ppm), δ: 9.96 (s, 2H, CHO), 7.82-7.80 (d, 4H, Ar), 7.61-7.59 (d, 4H, Ar), 7.55 (s, 3H, Ar), 6.97 (s, 2H, Ar), 6.95 (s, 2H, Ar), 6.92 (s, 1H,Ar), 6.91 (s, 1H, Ar), 3.87-3.81 (m, 12H, OCH_2), 3.28 (s, 1H, ≡CH), 1.75-1.74 (m, 6H, CH), 1.54-1.27 (m, 48H, CH_2), 0.93-0.81 (m, 36H, CH_3). ^{13}C NMR (100 MHz, $CDCl_3$, ppm), δ: 191.77, 154.39, 154.21, 135.67, 132.30, 129.95, 124.53, 116.96, 116.87, 114.61, 113.65, 94.35, 93.84, 90.55, 87.42, 77.68, 77.36, 77.04, 72.48, 72.23, 39.92, 39.87, 31.01, 29.48, 23.46, 23.43, 14.41, 14.44, 11.65, 11.62.

Compound 8a: 6a (0.24 g, 0.17 mmol), **7** (0.25 g, 0, 44 mmol), CuI (7.62 mg, 0.04 mmol) and $Pd(PPh_3)_4$ (20.1 mg, 0.02 mmol) were added to a mixture solvent of THF (12 mL) and *i*-Pr_2NH (6 mL) in an oven dried Schlenk flask under an argon atmosphere. The mixture was stirred at 65 °C for 4 d. The solvent was removed and then the crude product was extracted by dichloromethane (3 × 25 mL). The organic layers were merged and dried over anhydrous $MgSO_4$. Further purification was achieved by column chromatography (SiO_2) using dichloromethane/acetone (10/1) as eluent. The product **8a** was isolated as a yellow oil (50.0 mg, 13% yield). ^{1}H NMR (400 MHz, CD_2Cl_2, ppm), δ: 9.94 (s, 1H, CHO) , 7.81-7.79 (d, 2H, Ar), 7.61-7.59 (d, 2H, Ar), 7.55 (s, 3H, Ar), 7.27-7.20 (m, 4H, Ar), 7.04-6.97 (m, 16H, Ar), 4.30-4.26 (m, 16H, OCH_2), 3.88-3.87 (m, 12H, OCH_2), 3.77-3.70 (m, 16h OCH_2), 1.57-1.54 (m, 16H, OCH_2), 1.74-1.60 (m, 6H, CH), 1.55-1.42 (m, 48H, CH_2), 0.93-0.80 (m, 36H, CH_3). ^{13}C NMR (100 MHz, CD_2Cl_2, ppm), δ: 191.27, 153.99, 153.71, 148.82, 148.34,

147.99, 147.79, 135.55, 133.67, 131.90, 129.45, 124.34, 123.52, 119.79, 116.57, 114.05, 113.27, 110.00, 93.91, 92.94, 89.93, 87.27, 77.62, 74.15, 72.11, 71.90, 69.27, 69.18, 68.88, 68.72, 68.56, 68.40, 67.45, 53.76, 53.58, 53.40, 53.22, 53.04, 52.80, 47.81, 44.40, 39.60, 30.65, 30.08, 29.66, 29.14, 29.11, 26.16, 24.03, 23.11, 23.07, 22.67, 18.62, 13.90, 11.10, 11.02.

Compound AB_2-1: 8a (88.7 mg, 0.04 mmol) and benzylamine (4.30 mg, 0.04 mmol) were dissolved in anhydrous dichloromethane (8 mL) in an oven dried Schlenk flask (25 mL) under an argon atmosphere. The resulting solution was stirred at 35 °C for 1d. The in-situ ^{1}H NMR spectrum revealed that 98% of **8a** converted into a Schiff-base form. Subsequently sodium triacetoxyborohydride (29.7 mg, 0.14 mmol) was added under an argon atmosphere. The resulting mixture was stirred at room temperature for another day. The solvent was removed and then the crude product was purified by recrystallization in a chloroform/methanol mixture solvent (1/3). The final product **AB_2-1** was isolated as a claybank solid (57.0 mg, 63% yield). ^{1}H NMR (400 MHz, CD_2Cl_2, ppm), δ: 7.54 (s, 3H, k, Ar), 7.42-7.41 (d, 2H, o, Ar),7.30-7.23 (m, 6H, x, t, n, Ar), 7.18-7.17 (d, 1H, w, Ar), 7.04-7.02 (d, 2H, q, Ar), 6.97-6.95 (m, 7H, i, j, l. m, p, Ar), 6.80 (s, 8H, s, Ar), 6.78-6.76 (d, 2H, r, Ar), 4.05-4.03 (m, 16H, α, OCH_2), 3.86-3.85 (m, 28H, β, a, OCH_2), 3.74 (s, 2H, θ, NH_2), 3.72 (s, 2H, v, NH_2), 3.69-3.67 (m, 16H, γ, OCH_2), 1.76-1.71 (m, 6H, b, CH), 1.52-1.27 (m, 48H, c, d, e, g, CH_2), 0.94-0.79 (m, 36H, f , h, CH_3). ^{13}C NMR (100 MHz, CD_2Cl_2, ppm), δ: 154.08, 153.84, 153.70, 149.71, 149.12, 148.67, 133.71, 131.55, 128.44, 125.27, 124.47, 121.46, 116.67, 116.49, 115.98, 114.68, 114.33, 113.58, 113.23, 112.93, 95.14, 92.90, 87.43, 84.66, 72.20, 71.99, 71.15, 69.94, 69.76, 69.33, 53.88, 53.70, 53.52, 53.34, 53.16, 39.72, 30.76, 30.73, 29.78, 29.25, 13.99, 11.20. HR-ESI-MS (m/z), $[C_{292}H_{374}N_2O_{44} + H_2]^{2+}$ calculated: 2308.8674; found: 2308.8711.

Compound 8b: 6b (100 mg, 0.07 mmol), **7** (45.9 mg, 0.08 mmol), CuI (1.34 mg, 0.007 mmol) and $Pd(PPh_3)_4$ (16.19 mg, 0.014 mmol) were dissolved to a mixture solvent of THF (6 mL) and *i*-Pr_2NH (3 mL) in an oven dried Schlenk flask under an argon atmosphere. The mixture was stirred at 65 °C for 3d. The solvent was removed and then the crude product was extracted by dichloromethane (3 × 25 mL). The

organic layers were merged and dried over anhydrous $MgSO_4$. Further purification was achieved by column chromatography (SiO_2) using dichloromethane/acetone (10/1) as eluent. The product **8b** was isolated as a yellow oil (24.9 mg, 19% yield). ^{1}H NMR (400 MHz, $CDCl_3$, ppm), δ PPM: 9.95 (s,2H, CHO) , 7.82-7.79 (d, 4H, Ar), 7.61-7.59 (d, 4H, Ar), 7.55 (s, 3H, Ar), 7.05-7.03 (d, 2H, Ar), 6.97-6,92 (m, 7H, Ar), 6.82 (s, 5H, Ar), 6.76-6.74 (d, 1H, Ar), 4.09-4.07 (m, 8H, OCH_2), 3.87-3.86 (m,20H, OCH_2), 3.78 (s, 8H, OCH_2), 1.77-1.74 (m, 6H, CH), 1.48-1.28 (m, 48H, CH_2), 0.94-0.80 (m, 36H, CH_3). ^{13}C NMR (100 MHz, $CDCl_3$, ppm), δ: 191.74, 154.36, 154,26, 154.18, 153.95, 135.64, 134.23, 132.28, 130.12, 129.93, 124.67, 124.45, 116.94, 116.86, 114.64, 113.59, 94.30, 93.89, 93.29, 90.55, 87.33, 77.68, 77.57, 77.36, 77.04, 72.47, 70.23, 69.73, 39.90, 39.85, 30.99, 29.47, 23.44, 23.41, 14.45, 14.42, 11.63, 11.60.

Compound AB_2-2: 8b (120 mg, 0.064 mmol), benzylamine (13.7 mg, 0.128 mmol) were dissolved in anhydrous dichloromethane (12 mL) in an oven dried Schlenk flask under an argon atmosphere. The resulting mixture was allowed to stir at 35 °C for 1 d. The in-situ ^{1}H NMR spectrum revealed that 98% of **8b** converted into a Schiff-base form. Subsequently sodium triacetoxyborohydride (108.5 mg, 0.512 mmol) was added under the argon atmosphere. The resulting solution was stirred at room temperature for another day. The solvent was removed and then the crude product was purified by recrystallization in a chloroform/methanol mixture solvent (1/3). The final product **AB_2-2** was isolated as a claybank solid (98.0 mg, 76% yield). ^{1}H NMR (400 MHz, CD_2Cl_2, ppm), δ: 7.54 (s, 3H, k, Ar), 7.43-7.41 (d, 4H, o, Ar), 7.30-7.24 (m, 12H, x, t, n, Ar), 7.19-7.17 (d, 2H, w, Ar), 7.04-7.02 (d, 1H, q, Ar), 6.98-6.96(m, 7H, i, j, l, m, p, Ar), 6.81 (s, 4H, s, Ar), 6.78-6.76 (d, 1H, r, Ar), 4.05-4.03 (m, 8H, α, OCH_2), 3.86-3.79 (m, 8H, β, OCH_2), 3.75 (s, 4H, θ, NH_2), 3.72 (s, 4H, v, NH_2), 3.70 (s, 8H, γ, OCH_2), 1.76-1.70 (m, 6H, b, CH), 1.59-1.28 (m, 48H, c, d, e, g, CH_2), 0.94-0.81 (m, 36H, f , h, CH_3). ^{13}C NMR (100 MHz, CD_2Cl_2, ppm), δ: 154.07, 153.83, 153.70, 149.73, 149.14, 148.69, 141.38, 140.63, 133.72, 131.51, 128.39, 128.26, 128.20, 126.95, 125.26, 124.45, 121.86, 121.44, 116.70, 114.49, 114.32, 95.04, 92.98, 87.40, 85.75, 72.20, 72.04, 71.25, 71.16, 69.96, 69.79, 69.35, 53.88, 53.70, 53.52, 53.34,53.16, 39.76, 39.72, 30.77, 30.74, 29.25, 23.24, 14.01,

13.98, 11.21, 11.14. HR-ESI-MS (m/z), $[C_{136}H_{170}N_2O_{14} + H]^+$ calculated: 2058.2881, found: 2058.2847.

^{1}H and ^{13}C NMR spectra:

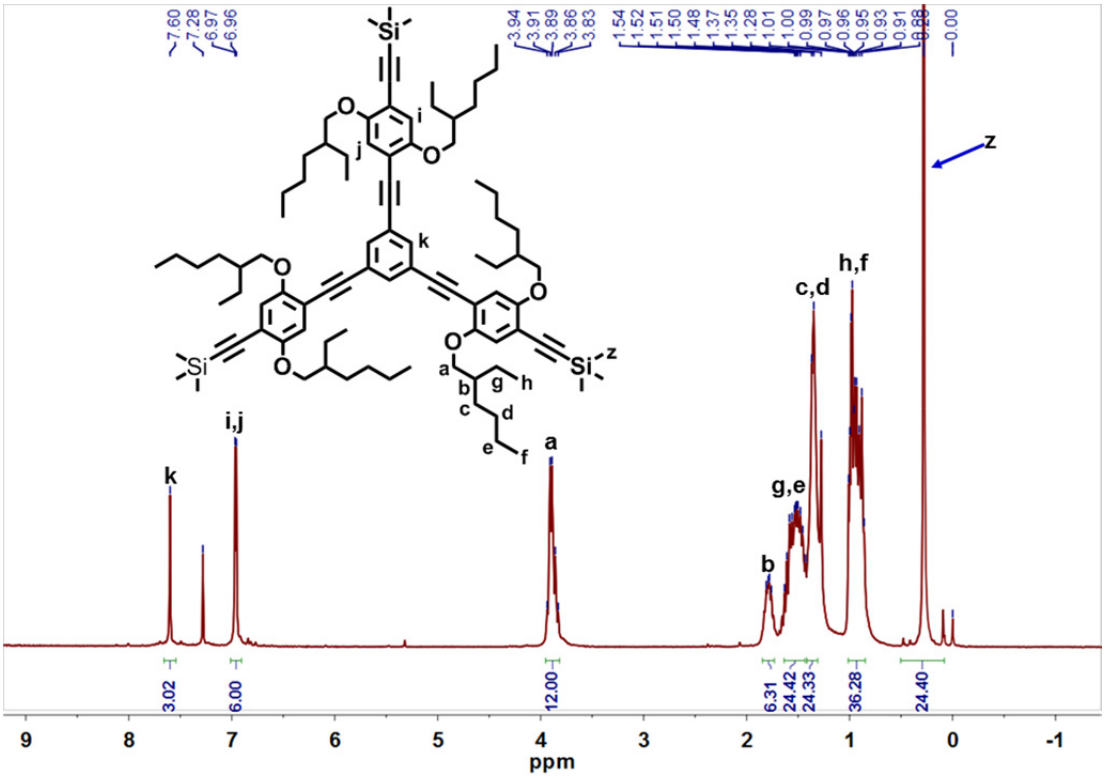

Fig. S1 ^{1}H NMR spectrum of **4**.

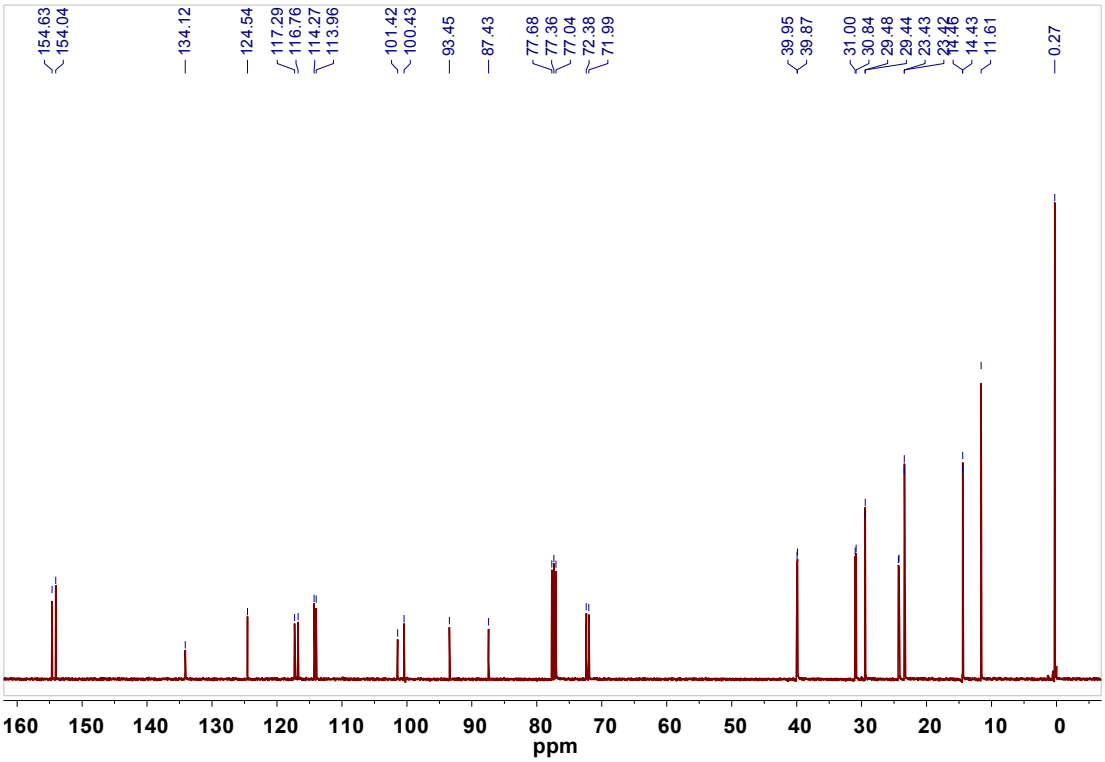

Fig. S2 ^{13}C NMR spectrum of **4**.

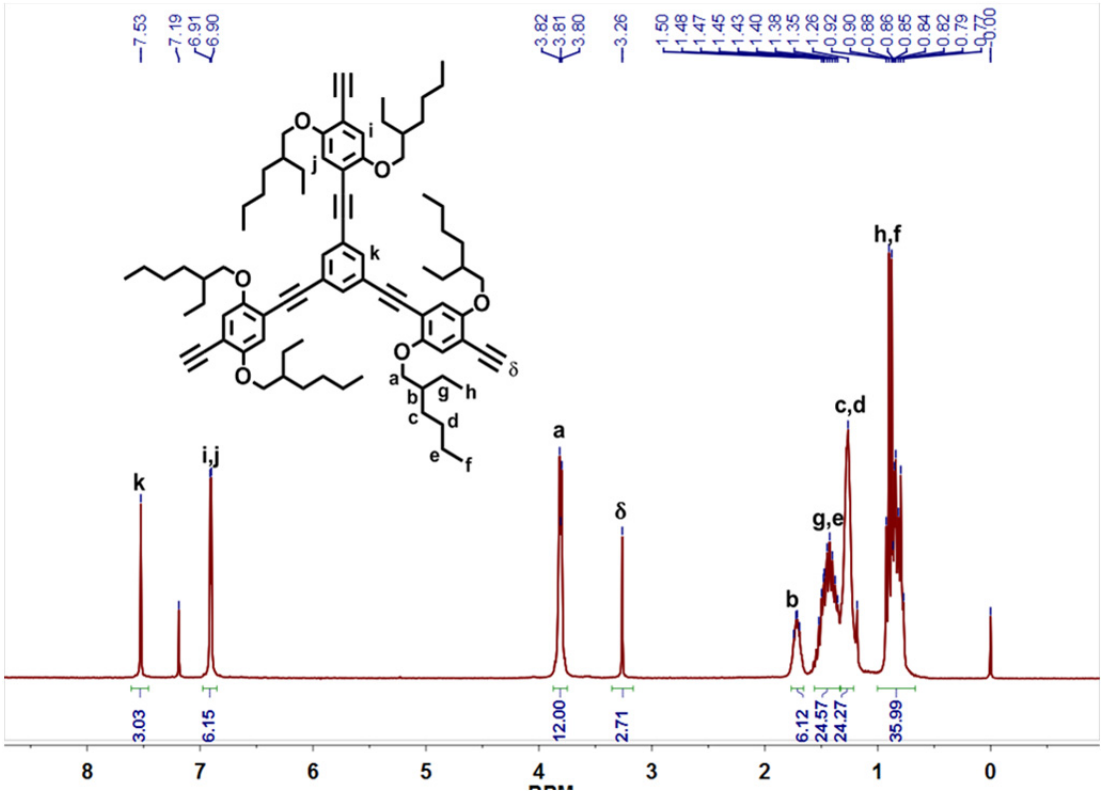

Fig. S3 ^{1}H NMR spectrum of **5**.

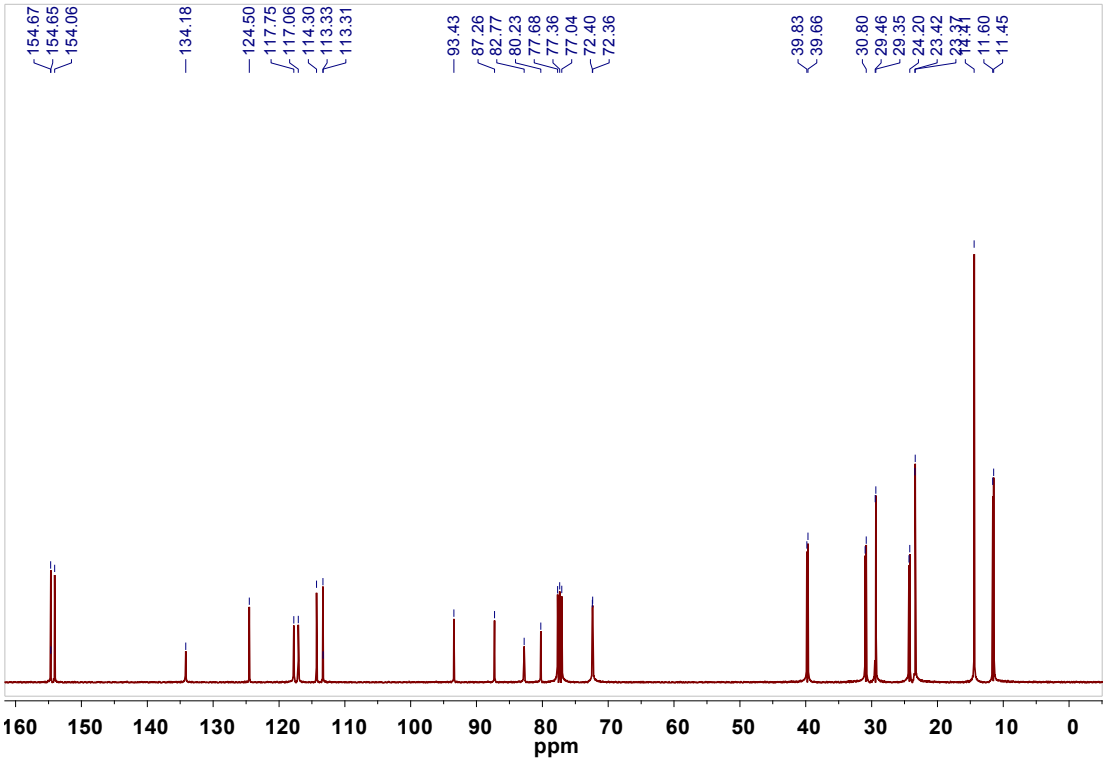

Fig. S4 ^{13}C NMR spectrum of **5**.

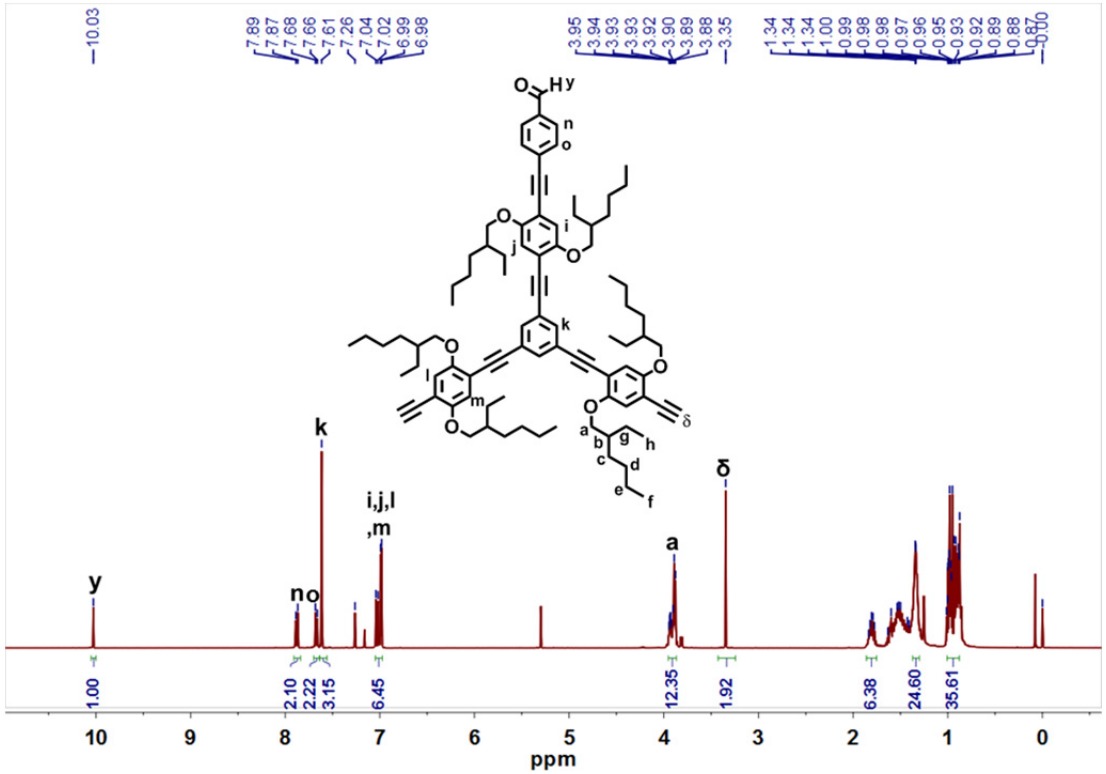

Fig. S5 ^{1}H NMR spectrum of **6a**.

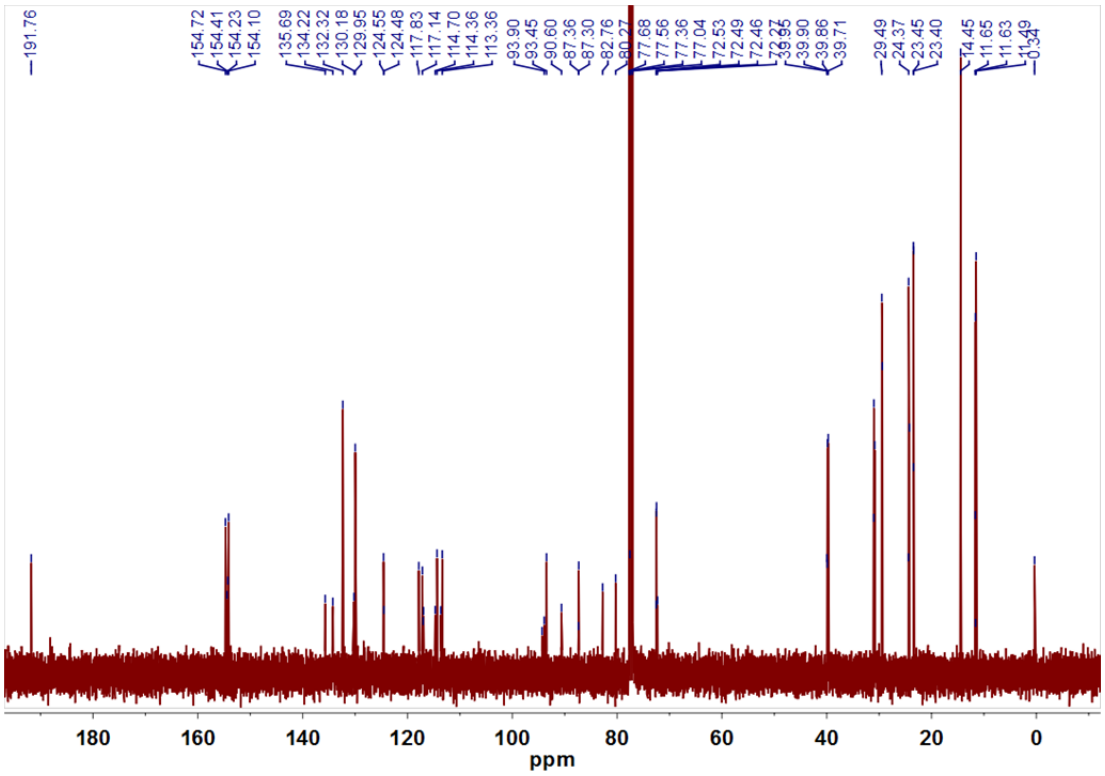

Fig. S6 ^{13}C NMR spectrum of **6a**.

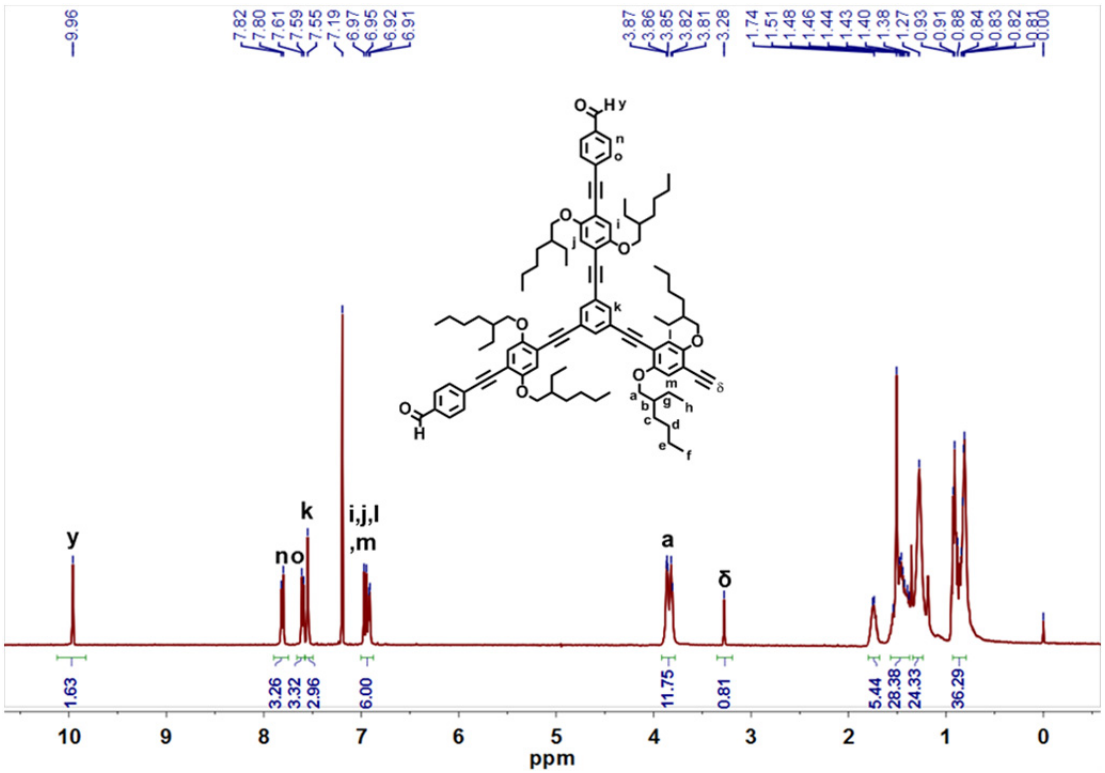

Fig. S7 ^{1}H NMR spectrum of **6b**.

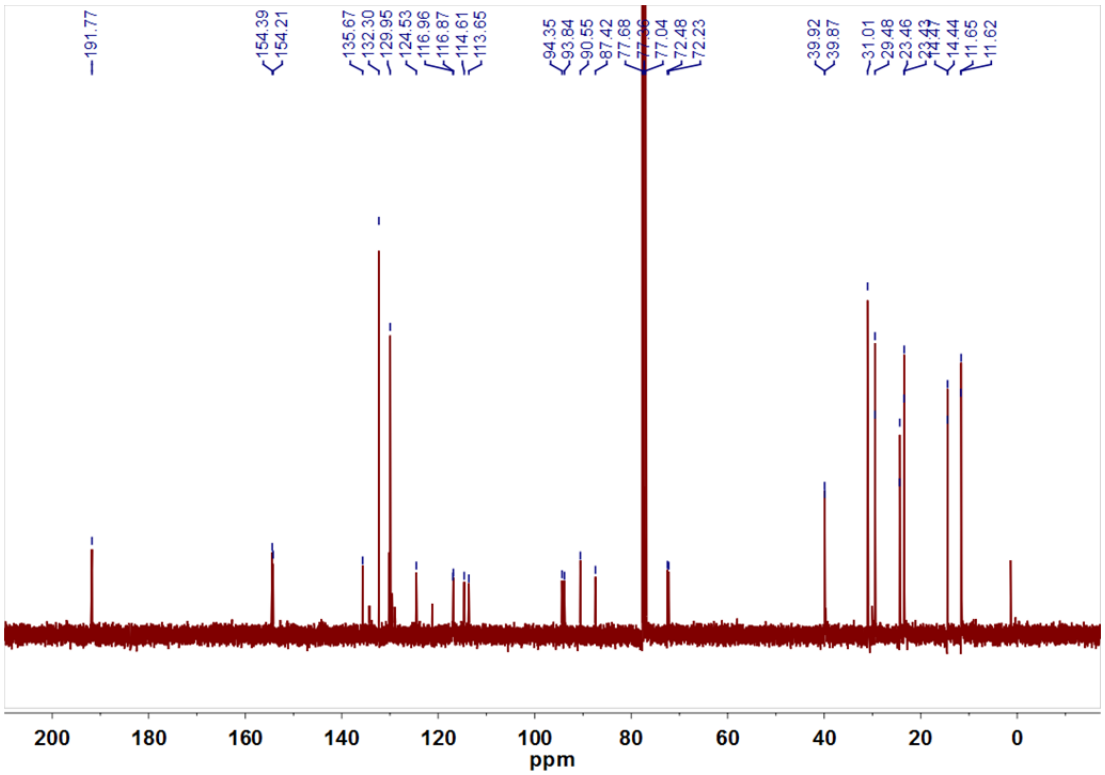

Fig. S8 ^{13}C NMR Spectrum of **6b**.

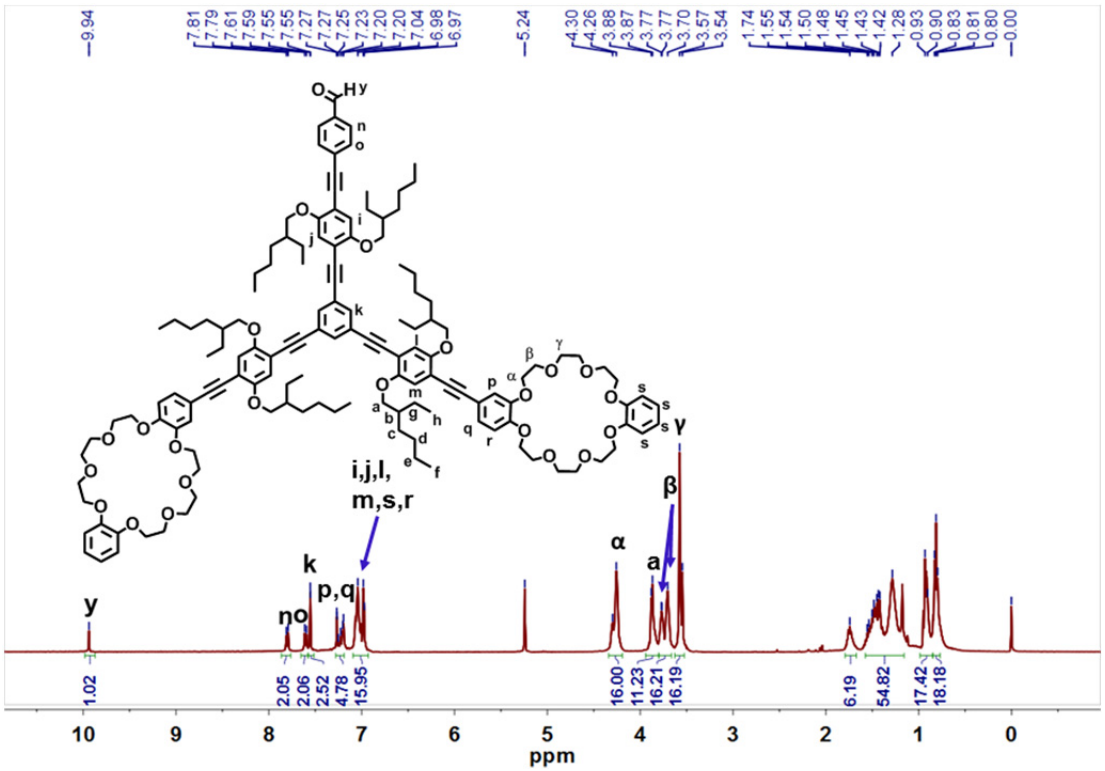

Fig. S9 ^{1}H NMR Spectrum of **8a**.

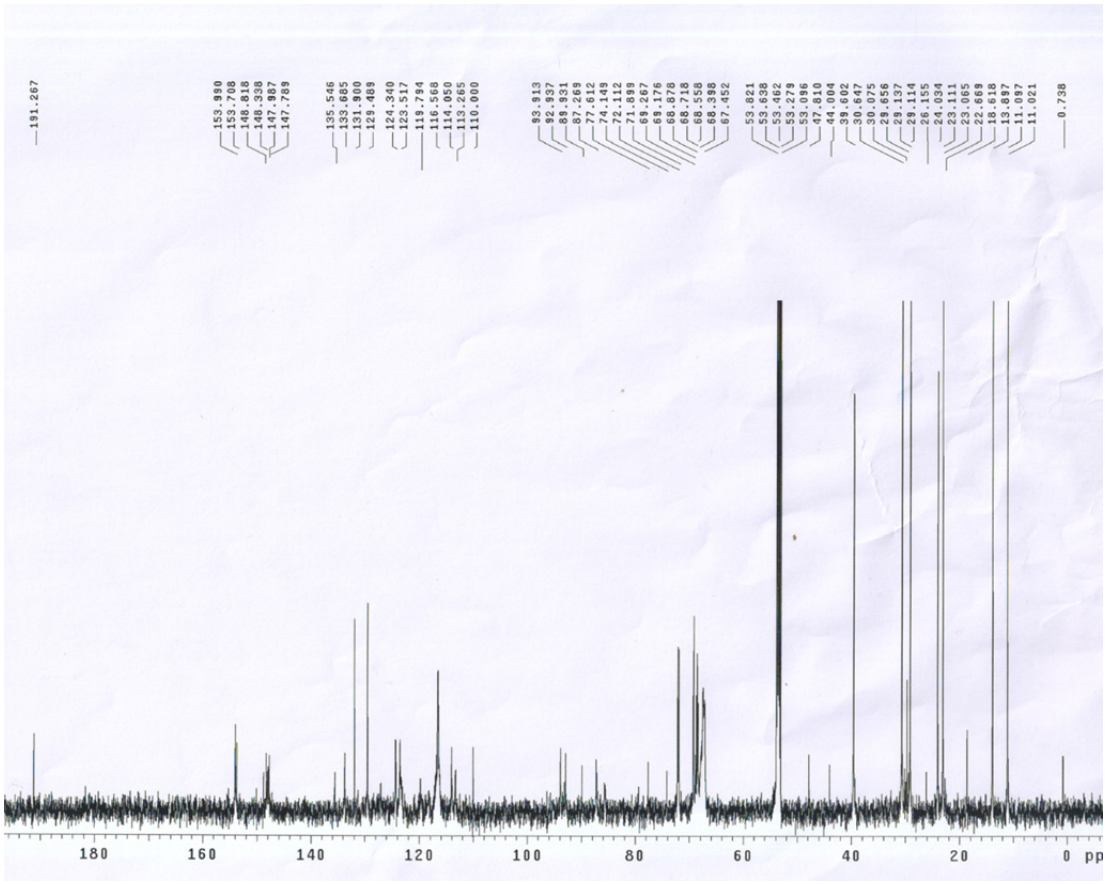

Fig. S10 ^{13}C NMR Spectrum of **8a**.

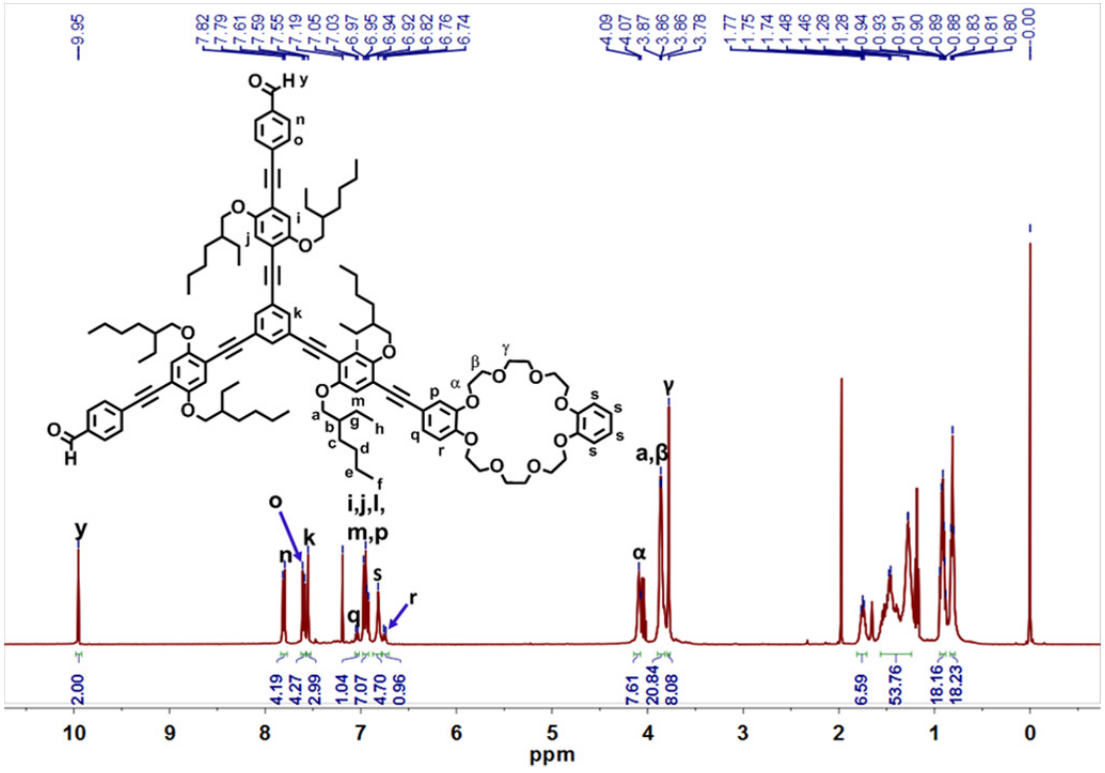

Fig. S11 ^{1}H NMR Spectrum of **8b**.

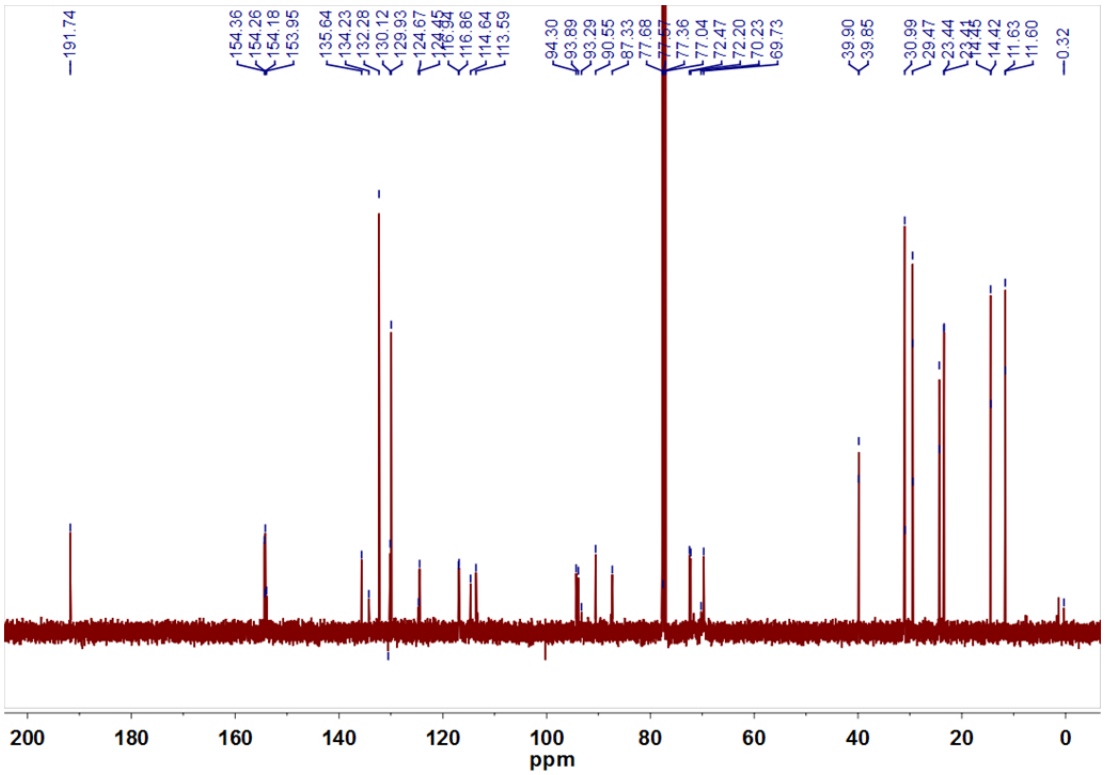

Fig. S12 ^{13}C NMR Spectrum of **8b**.

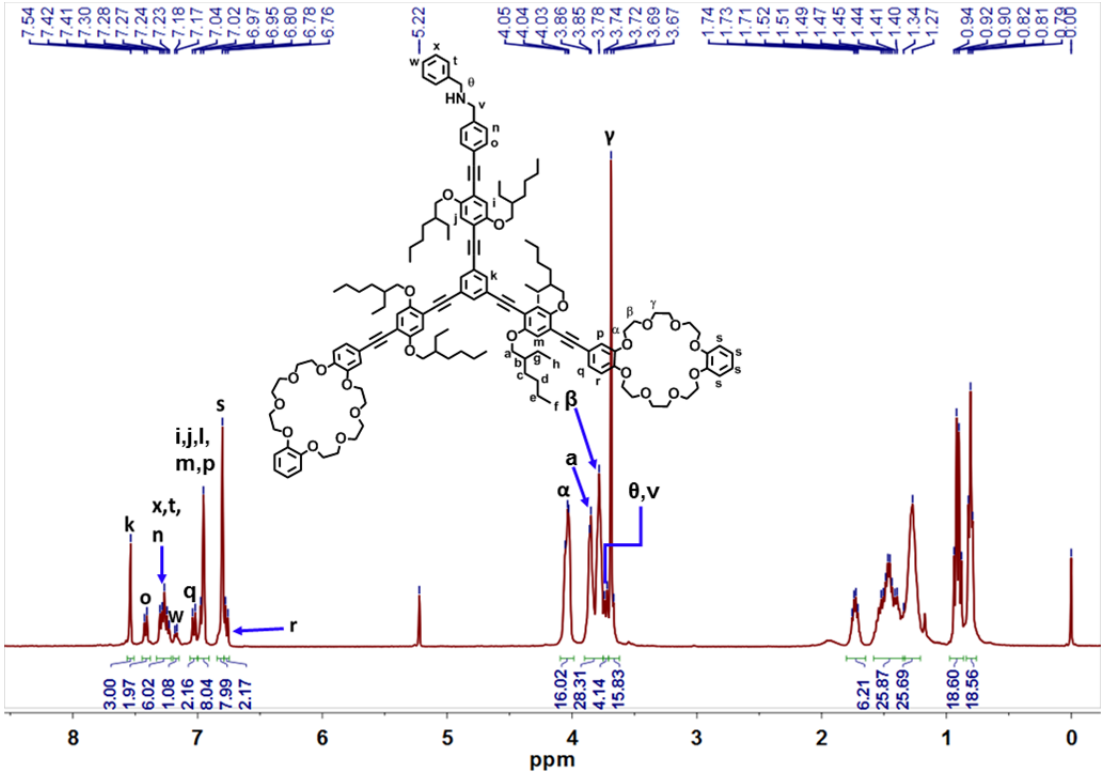

Fig. S13 ^{1}H NMR Spectrum of **AB_2-1**.

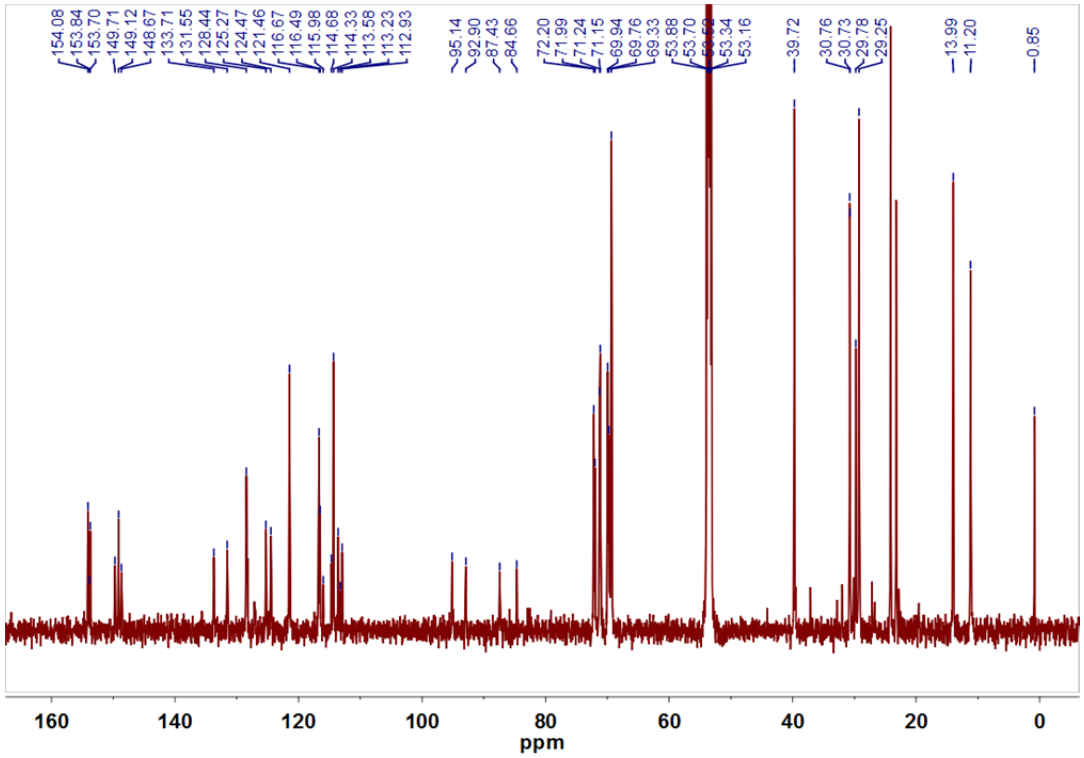

Fig. S14 ^{13}C NMR Spectrum of **AB_2-1**.

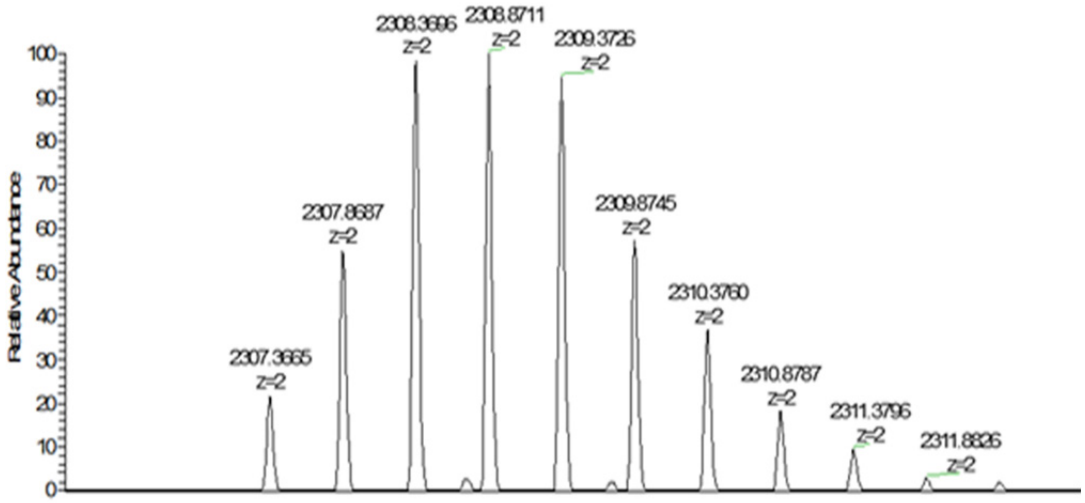

Fig. S15 HR-ESI-MS of **AB_2-1**, $[C_{292}H_{374}N_2O_{44} + H_2]^{2+}$, m/z, calculated: 2308.8674.

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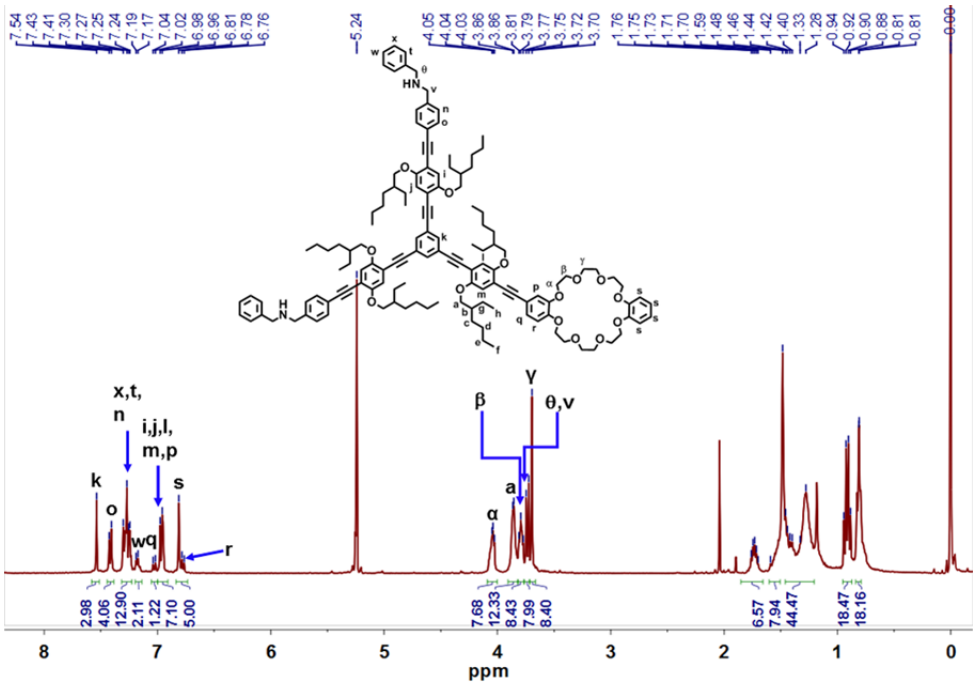


Fig. S16 ^{1}H NMR spectrum of **AB_2-2**.

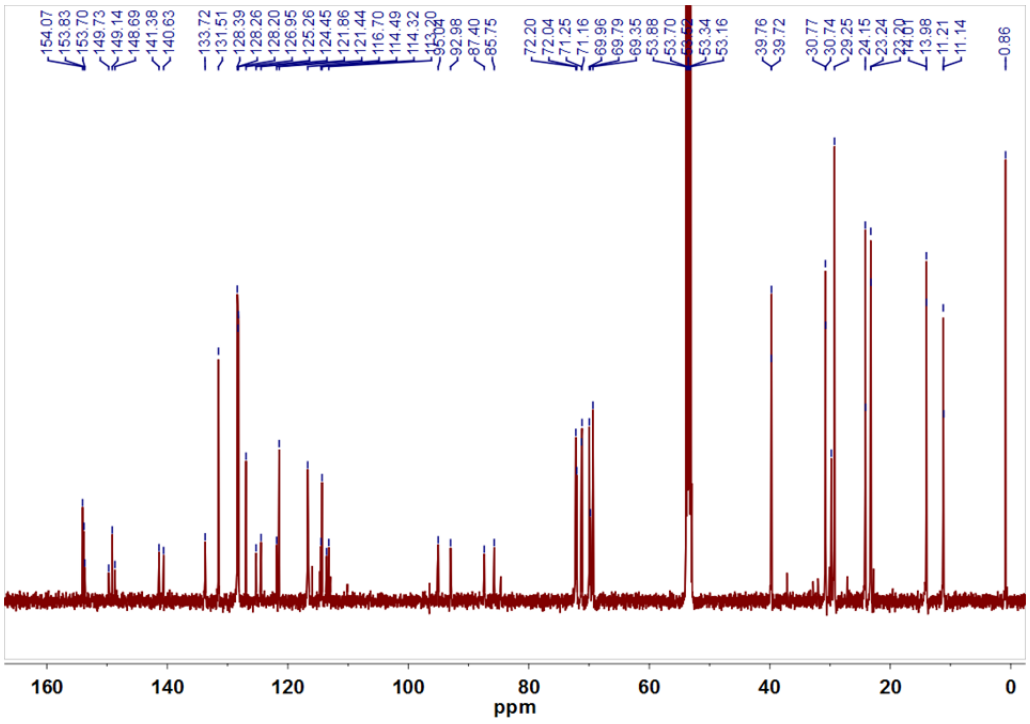


Fig. S17 ^{13}C NMR spectrum of **AB_2-2**.

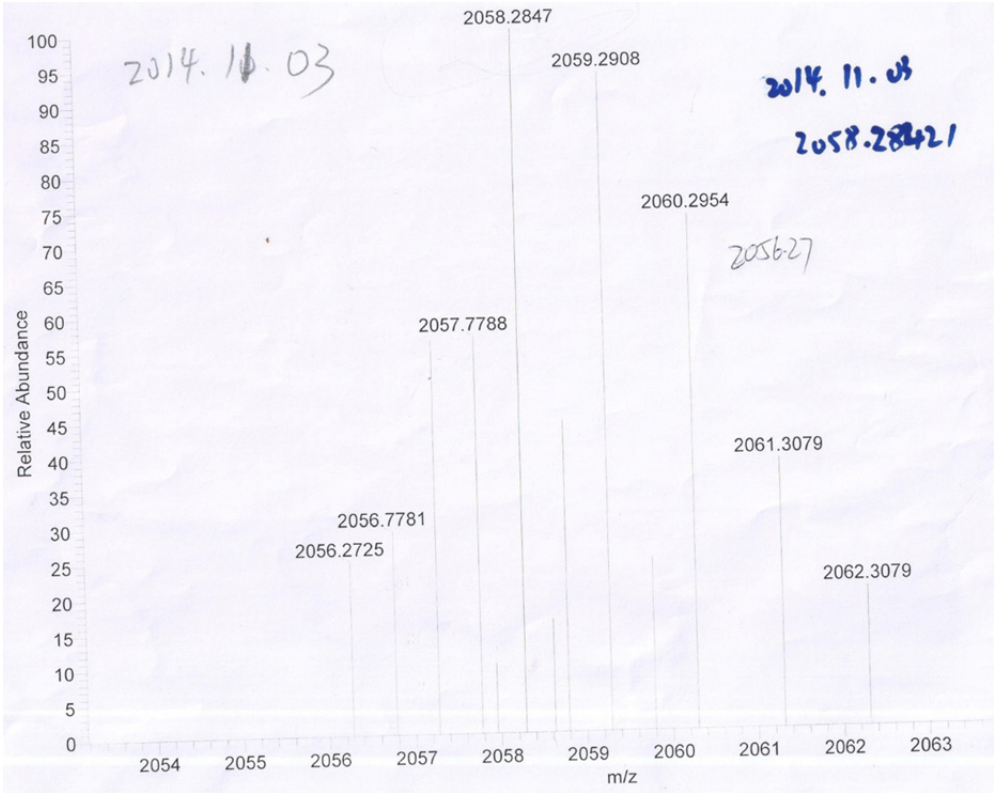


Fig. S18 HR-ESI-MS of **AB_2-2**, $[C_{136}H_{170}N_2O_{14} + H]^+$, m/z, calculated: 2058.2881.

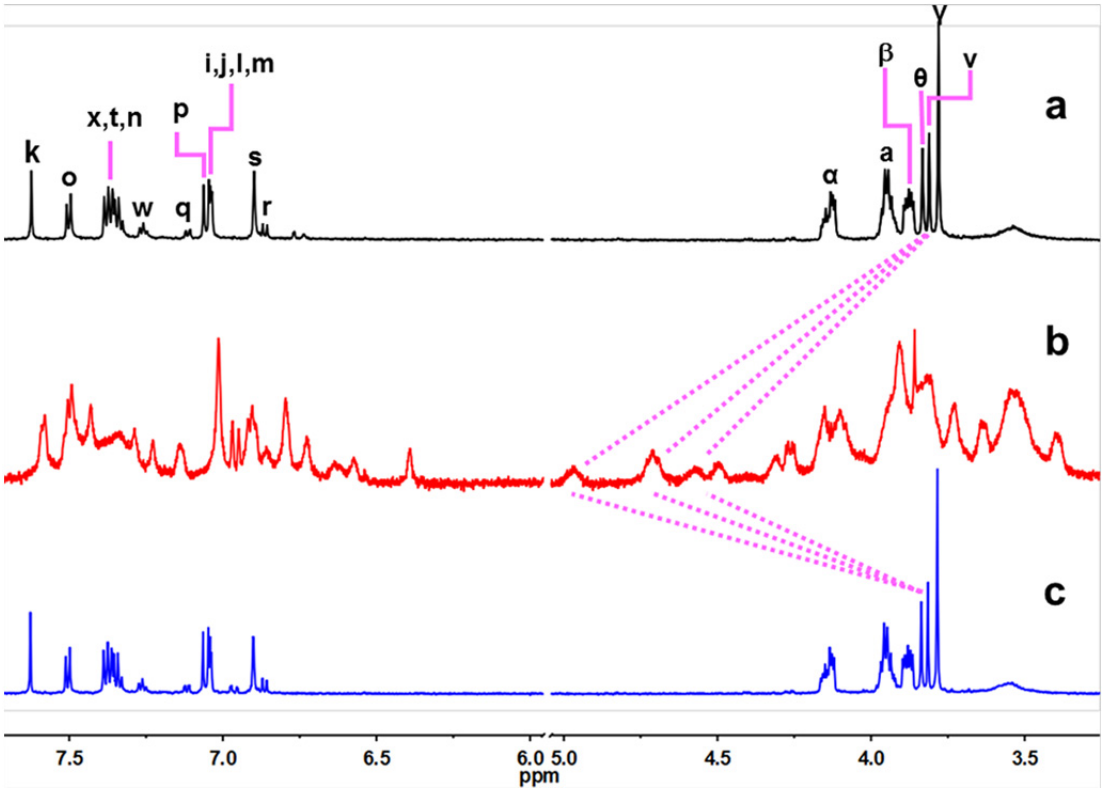
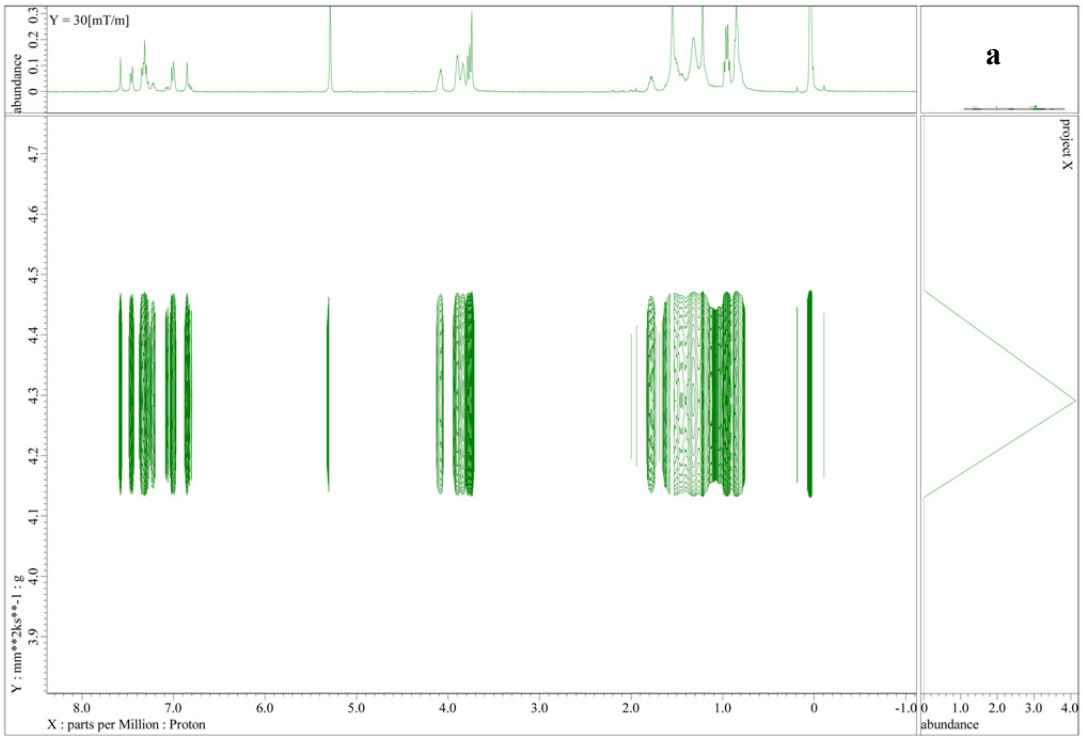


Fig. S19 Partial ^{1}H NMR spectra (400 MHz, CD_2Cl_2, 2.14×10^{-4} mol L^{-1}) of (a) **AB_2-2**, (b) **PAB_2-2** obtained by adding 2.4 equivalents of HFA to the solution of **AB_2-2**, (c) **AB_2-2** obtained by adding 2.8 equivalents of P_1-*t*Bu to the solution of **PAB_2-2**.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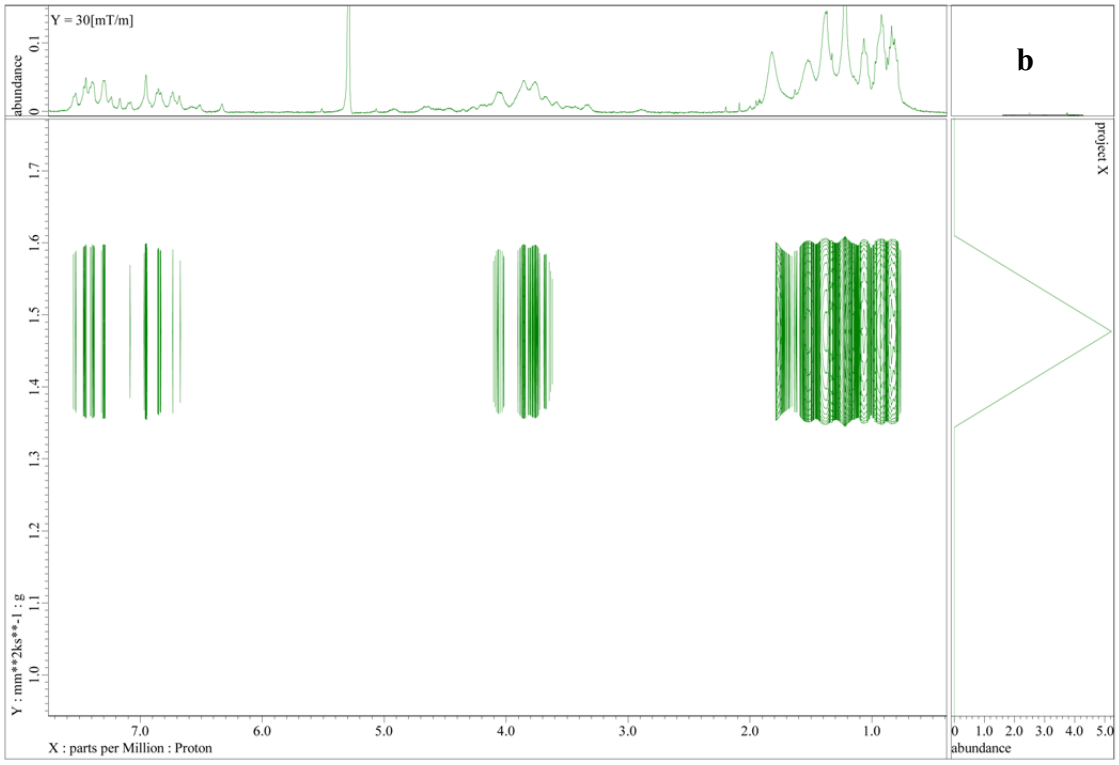
abundance
a
project X
Y : mm**2ks**-1 : g
X : parts per Million : Proton
abundance


Y = 30[mT/m]
abundance
b
project X
Y : mm**2ks**-1 : g
X : parts per Million : Proton
abundance

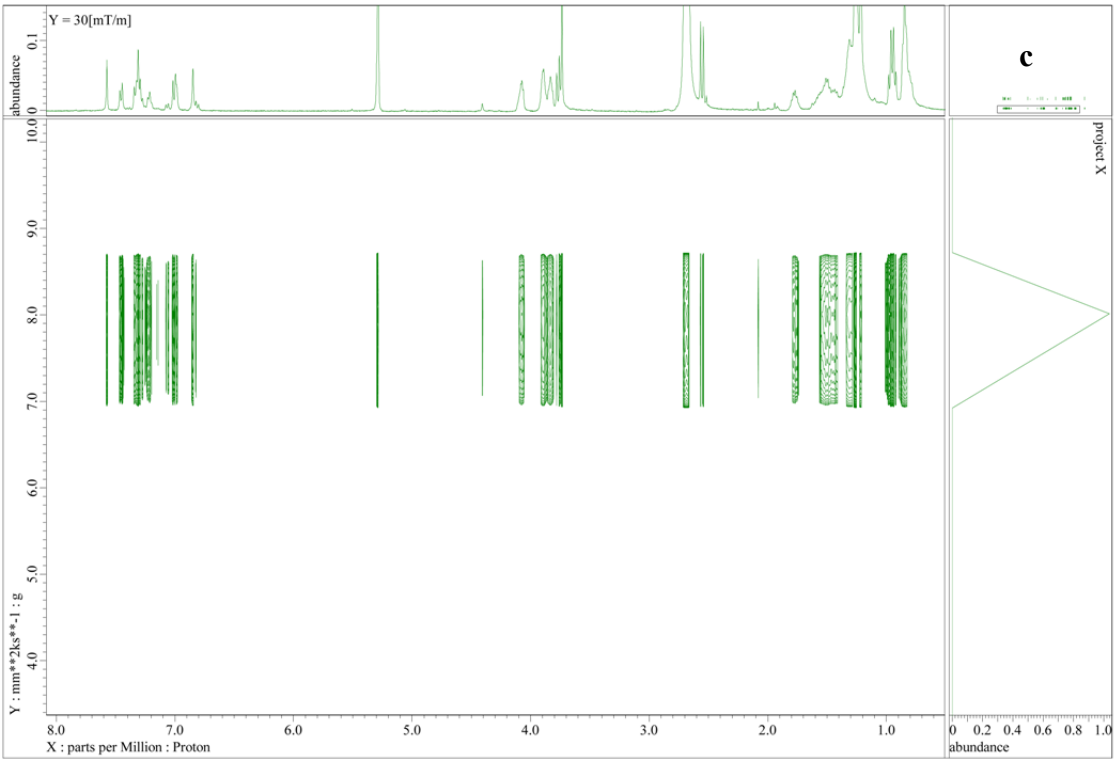


Fig. S20 Diffusion-ordered NMR spectroscopy (DOSY) of (a) **AB_2-2** (2.14×10^{-3} mol L^{-1}), (b) **PAB_2-2** obtained by adding 2.4 equivalents of HFA to the solution of **AB_2-2**, (c) **AB_2-2** obtained by adding 2.8 equivalents of P_1-*t*Bu to the solution of **PAB_2-2**.

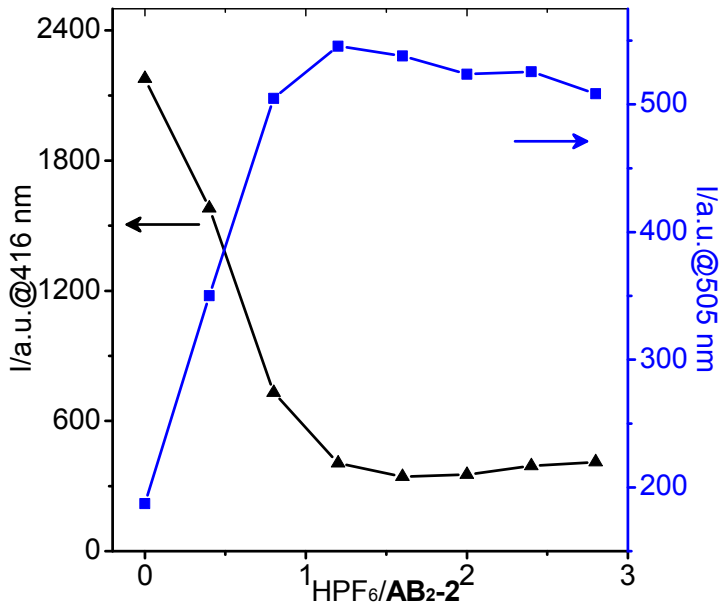


Fig. S21 Fluorescence intensity changes of **PAB_2-2** at 416 and 505 nm upon dropwise adding HPF_6.

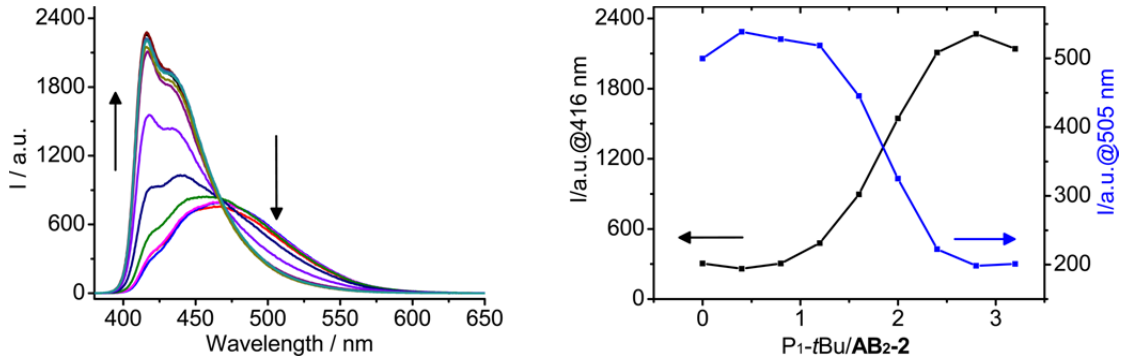


Fig. S22. (Left) Fluorescence spectra of **PAB_2-2** (1.57×10^{-5} mol L^{-1}) in dichloromethane upon titration with P_1-*t*Bu (P_1-*t*Bu/**AB_2-2** = 0, 0.4, 0.8, 1.2, 1.6, 2.0, 2.4, 2.8, 3.2). (Right) Fluorescence intensity changes of **PAB_2-2** at 416 and 505 nm.

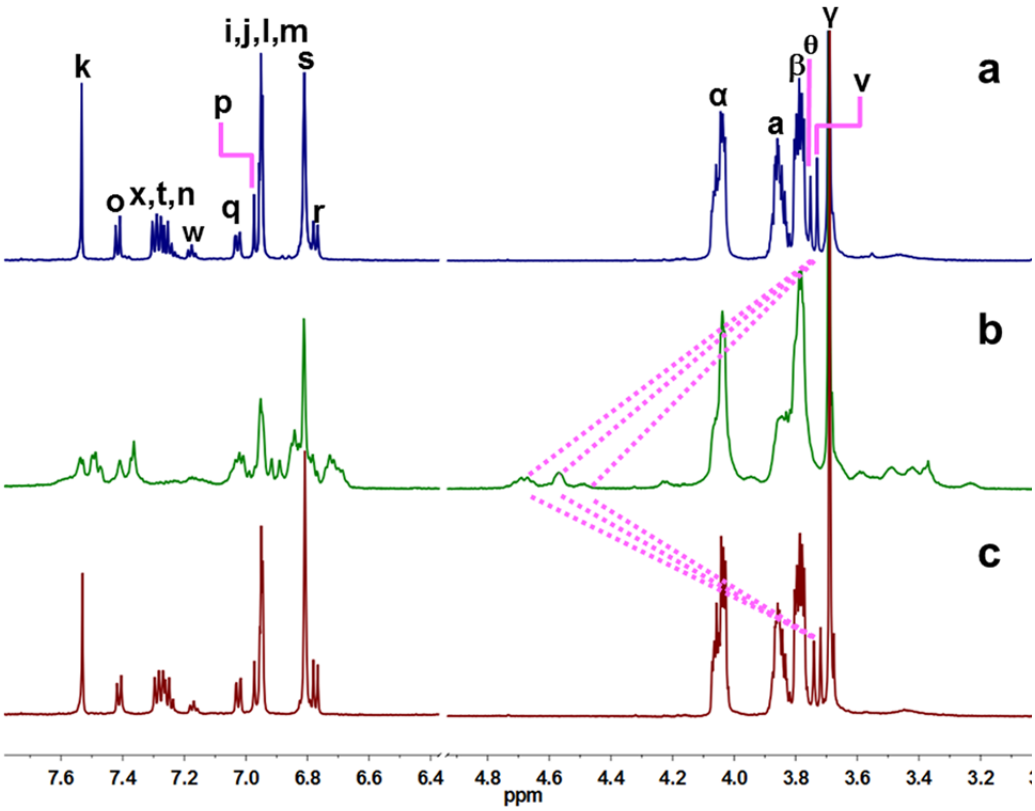
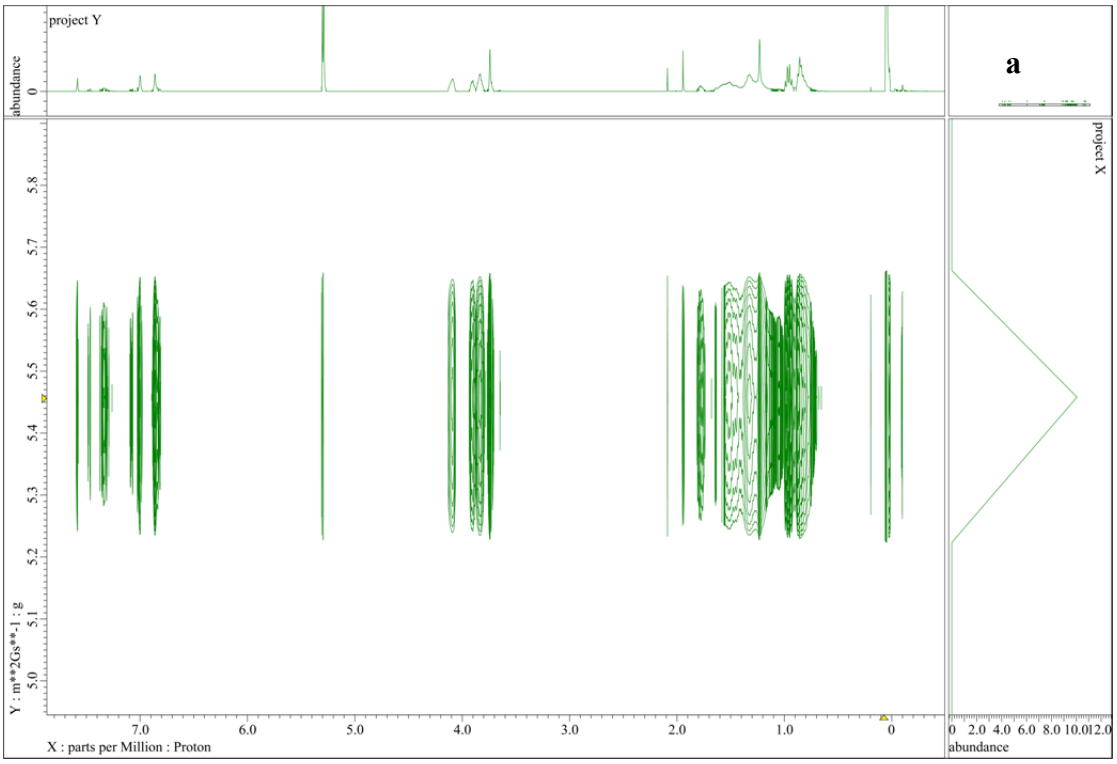
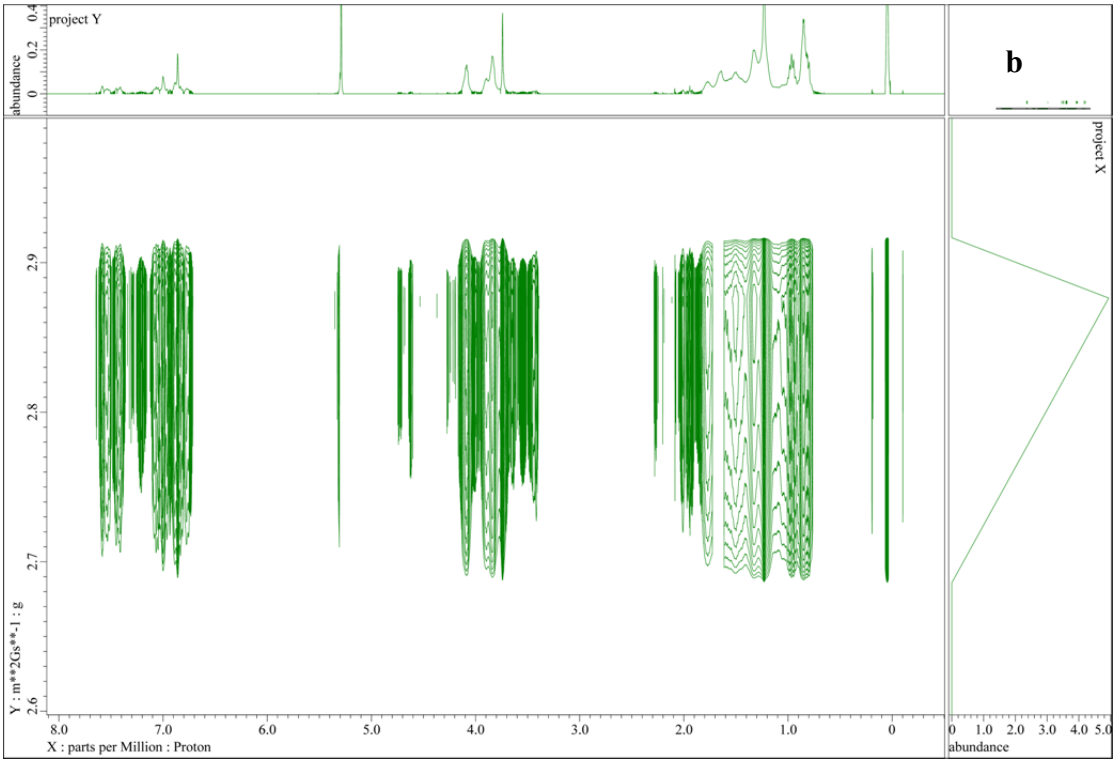


Fig. S23 Partial ^{1}H NMR spectra (400 MHz,CD_2Cl_2, 2.14×10^{-3} mol L^{-1}) of (a) **AB_2-1**, (b) **PAB_2-1** obtained by adding 1.2 equivalents of HFA to the solution of **AB_2-1**, (c) **AB_2-1** obtained by adding 1.4 equivalents of P_1-*t*Bu to the solution of **PAB_2-1**.


project Y
abundance
0
a
project X
5.8
5.7
5.6
5.5
5.4
5.3
5.2
5.1
5.0
Y : m**2Gs**-1 : g
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
X : parts per Million : Proton
0 2.0 4.0 6.0 8.0 10.012.0
abundance


project Y
abundance
0
0.2
0.4
b
project X
2.9
2.8
2.7
2.6
Y : m**2Gs**-1 : g
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
X : parts per Million : Proton
0 1.0 2.0 3.0 4.0 5.0
abundance

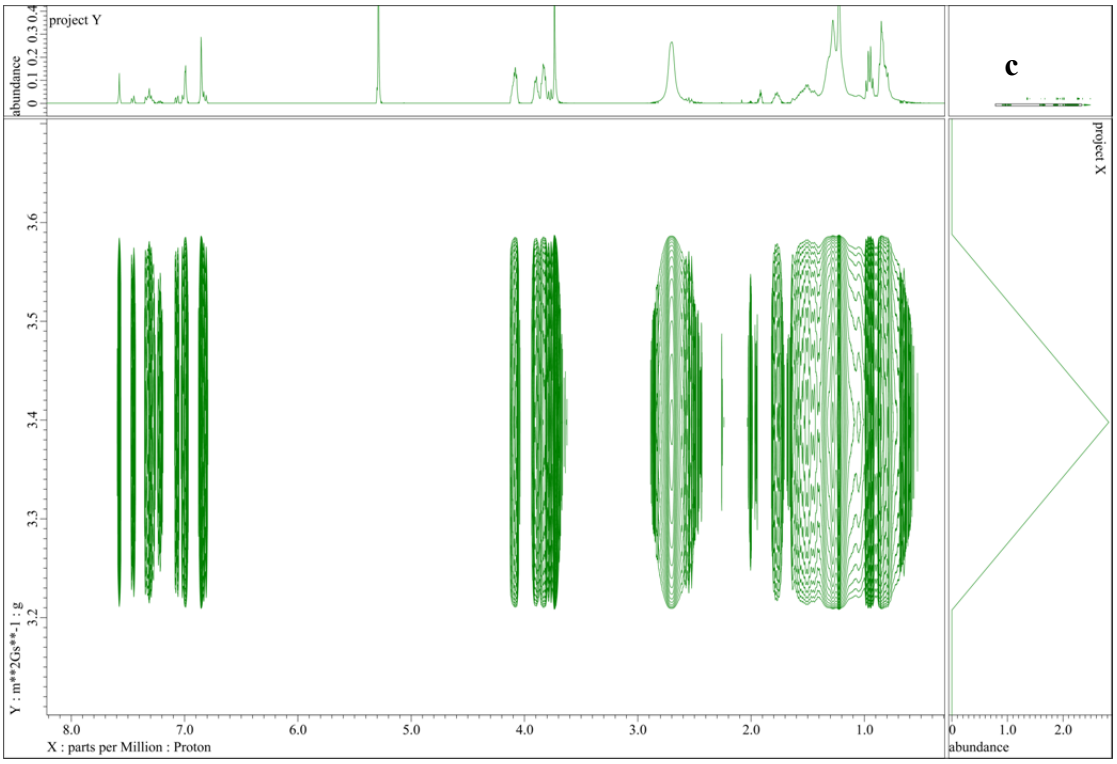


Fig. S24 Diffusion-ordered NMR spectroscopy (DOSY) of (a) **AB_2-1** (2.14×10^{-3} mol L^{-1}), (b) **PA_2B-1** obtained by adding 1.2 equivalents of HFA to the solution of **AB_2-1**, (c) **AB_2-1** obtained by adding1.4 equivalents of P_1-*t*Bu to the solution of **PAB_2-1**.

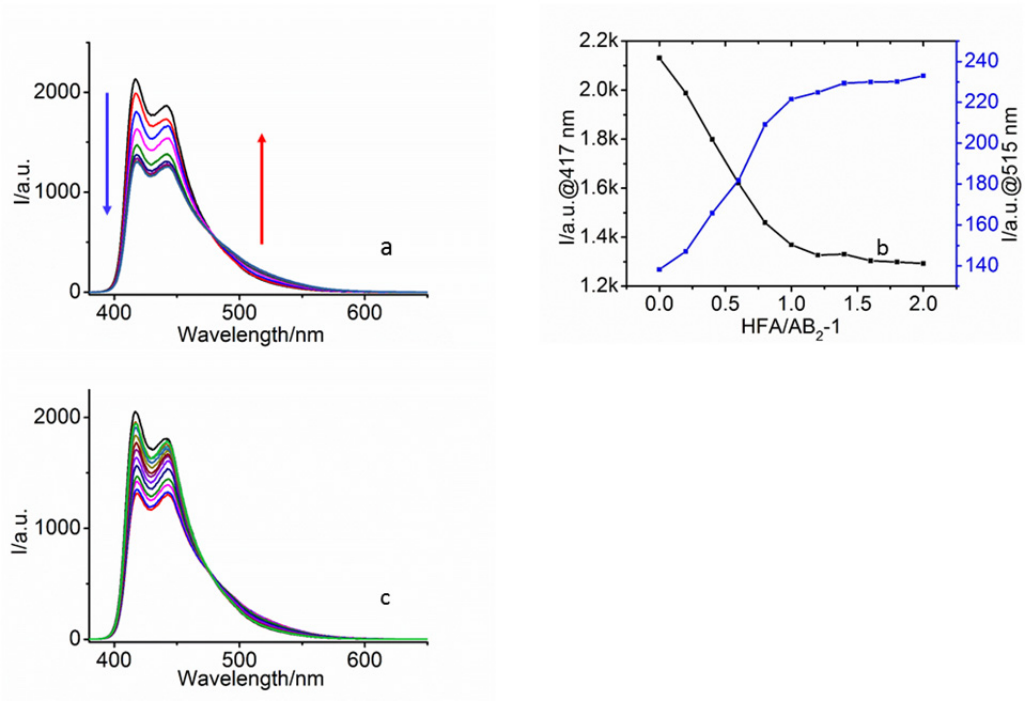


Fig. 25. (a) Fluorescence spectral change of AB_2-1 (1.57×10^{-5}) in dichloromethane upon titration with HFA (HFA/**AB_2-1** = 0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0), (b) Fluorescence intensity changes of **A_2B-1** at 417 nm, (c) Fluorescence spectra of **PAB_2-1** in dichloromethane upon titration with P_1-*t*Bu.

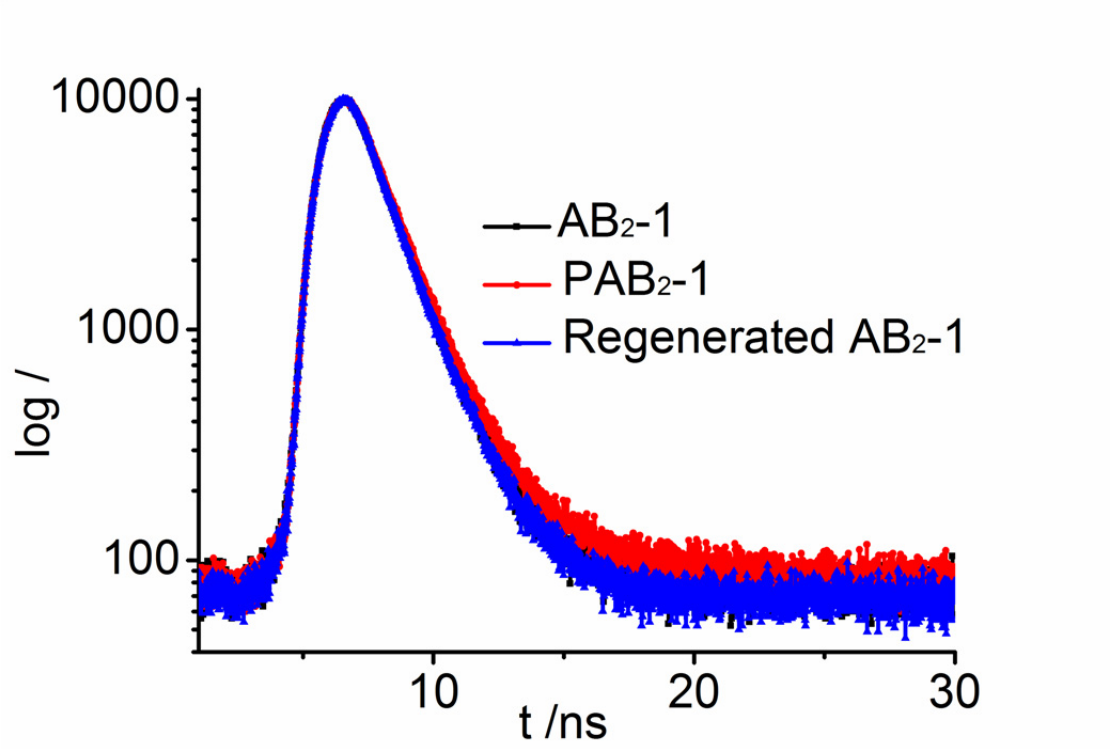


Fig. S26. Fluorescence decay profiles of **AB_2-1** (1.57×10^{-5} mol L^{-1}) in dichloromethane at 416 nm (λ_{ex} = 370 nm, a, black), (b, red) **PAB_2-1** obtained upon addition of 1.2 eq. of HFA, (c, blue) **AB_2-1** regenerated after addition of 1.4 eq. of P_1-*t*Bu.

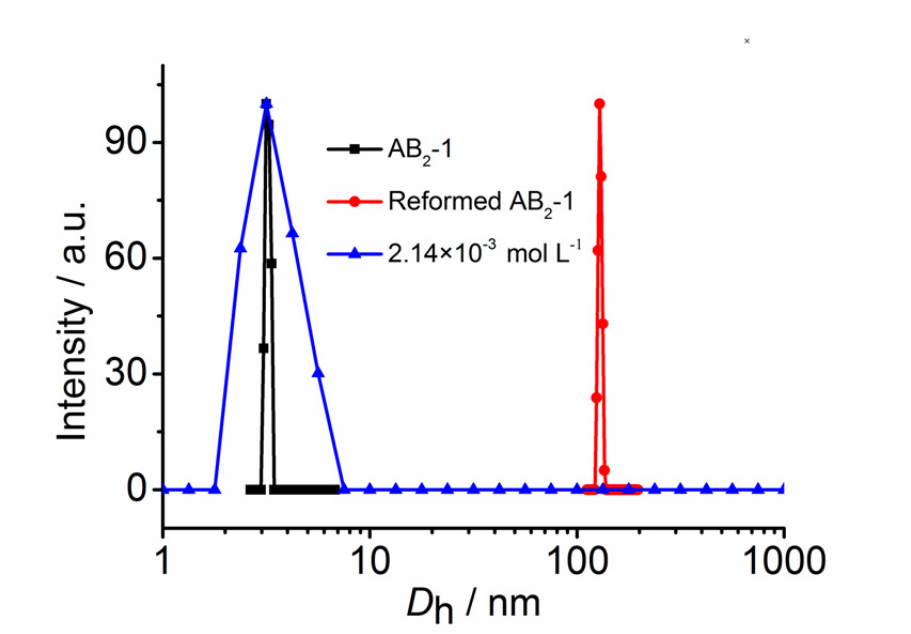


Fig. S27. (B) **AB_2-1** monomer, (L) AB-HFA10^{-3} mol.L^{-1}, (f) obtained by PAB_2-1 with 2.8 equivalents of P_1-*t*Bu

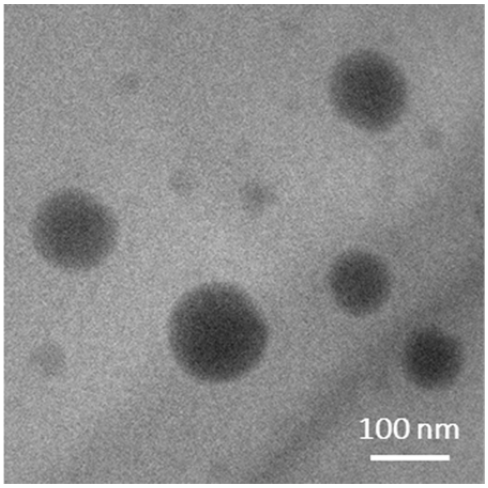


Fig. S28. TEM images **PAB_2-1** at a concentration of 2.14×10^{-3} mol L^{-1}.

Table S1. Luminescence lifetime (τ_1 and τ_2) for **AB_2-2** and **PAB_2-2**.

Sample	τ_1[ns]	RW %	τ_2[ns]	RW %
[a]	1.33	100	–	–
[b]	1.47	44.92	12.46	55.08
[c]	1.32	100	–	–

[a] 1.57×10^{-5} mol L^{-1} (**AB_2-2**) solution in CH_2Cl_2, [b] **PAB_2-2** obtained by adding 2.4 equivalents of HFA to the solution of **AB_2-2**, [c] **AB_2-2** obtained by adding 2.8 equivalent of P_1-*t*Bu to the solution of **PAB_2-2**.

Table S2. Luminescence lifetime (τ_1 and τ_2) for **AB_2-1** and **PAB_2-1**.

Sample	τ_1[ns]	RW %	τ_2[ns]	RW %
[a]	1.30	100	–	–
[b]	1.32	96.32	3.88	3.68
[c]	1.28	100	–	–

[a] 1.57×10^{-5} mol L^{-1} (**AB_2-1**) solution in CH_2Cl_2, [b] **PAB_2-1** obtained by adding 1.2 equivalents of HFA to the solution of **AB_2-1**, [c] **AB_2-2** obtained by adding 1.4 equivalents of P_1-*t*Bu to the solution of **PAB_2-1**.

References

S1 (*a*) F. Koch and W. Heitz, *Macromol. Chem. Phys.*, 1997, **198**, 1531; (*b*) Y. Shirai, Y. Zhao, L. Cheng and J. M. Tour, *Org. Lett.*, 2004*,* **6***,* 2129.
S2. S. Leininger, P. J. Stang and S. Huang, *Organometallics*, 1998, **17**, 3981.