

An amphiphilic water-soluble biphen[3]arene with tunable lower critical solution temperature behavior

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Electronic Supplementary Information

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1. ^1H NMR, ^{13}C NMR and mass spectra of amphiphilic water-soluble biphen[3]arene **H**

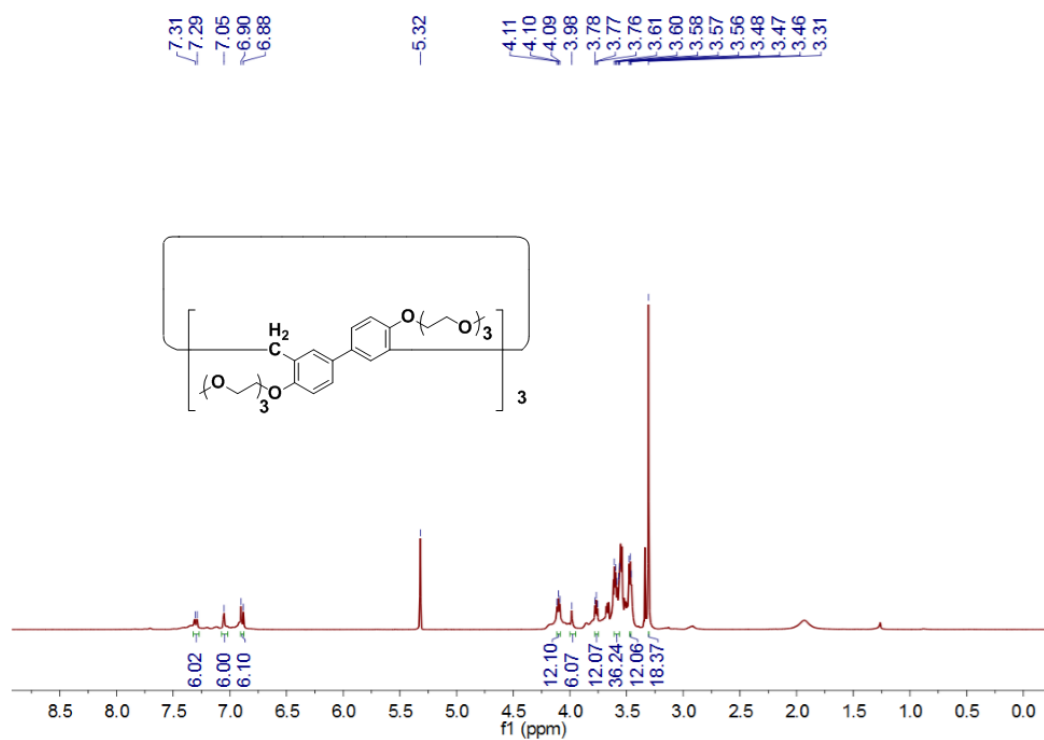


Figure S1. ^1H NMR spectrum (400 MHz, dichloromethane- d_2 , 293 K) of **H**.

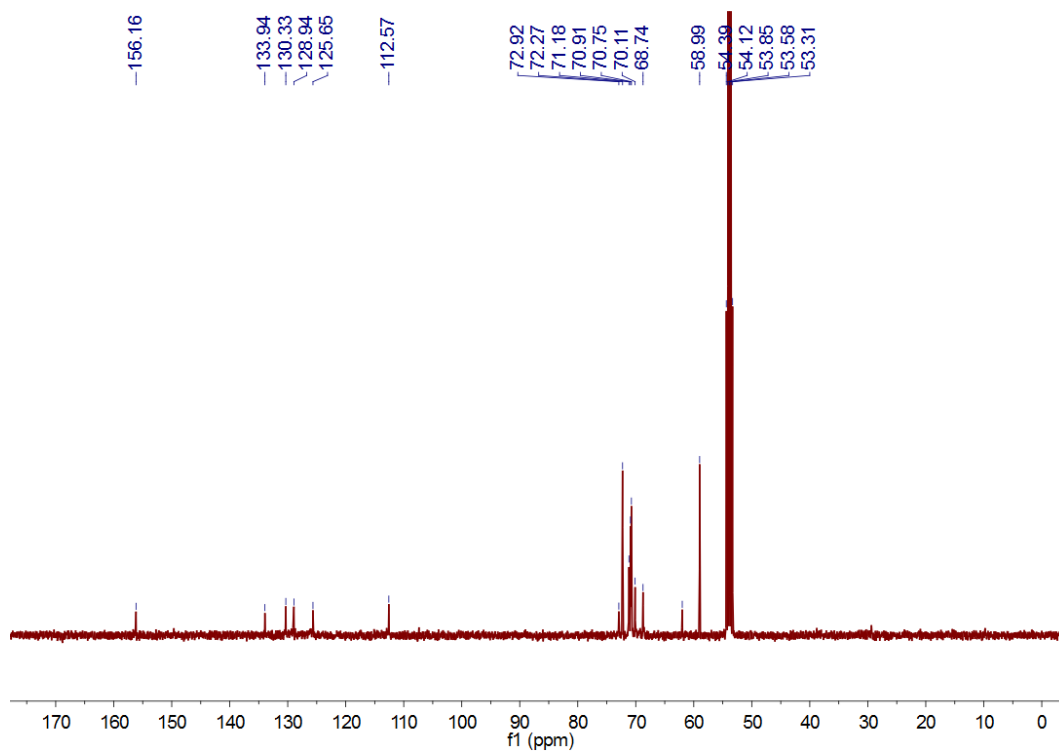


Figure S2. ^{13}C NMR spectrum (100 MHz, dichloromethane- d_2 , 293 K) of **H**.

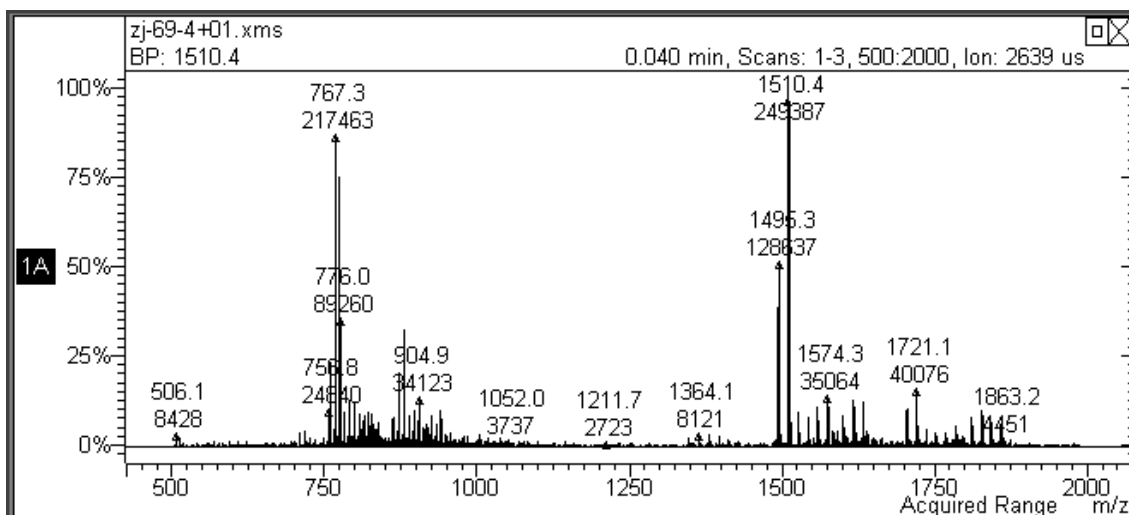


Figure S3. Low-resolution electrospray ionization mass spectrum (LRESI-MS) of **H**. Assignment of the main peak: m/z 767.3 $[M + Na + K]^{2+}$, 1510.4 $[M + K]^+$.

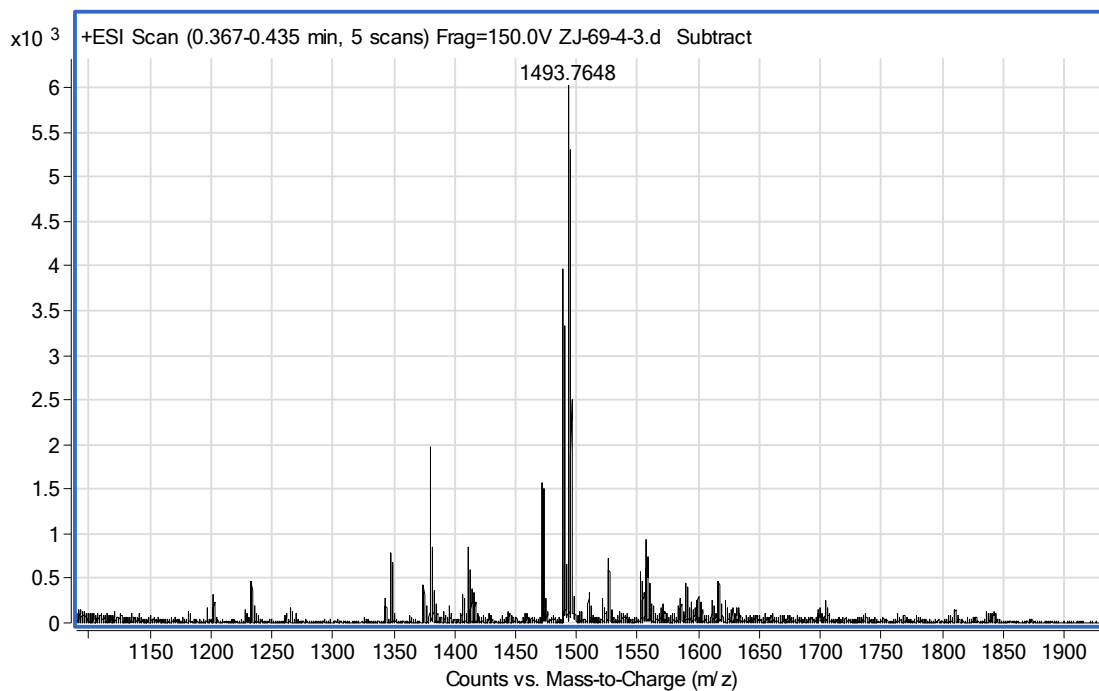


Figure S4. High-resolution electrospray ionization mass spectrum (HRESI-MS) of **H**. Assignment of the main peak: m/z 1493.7648 $[M + Na]^+$.

2. UV-vis absorption spectrum of **H**

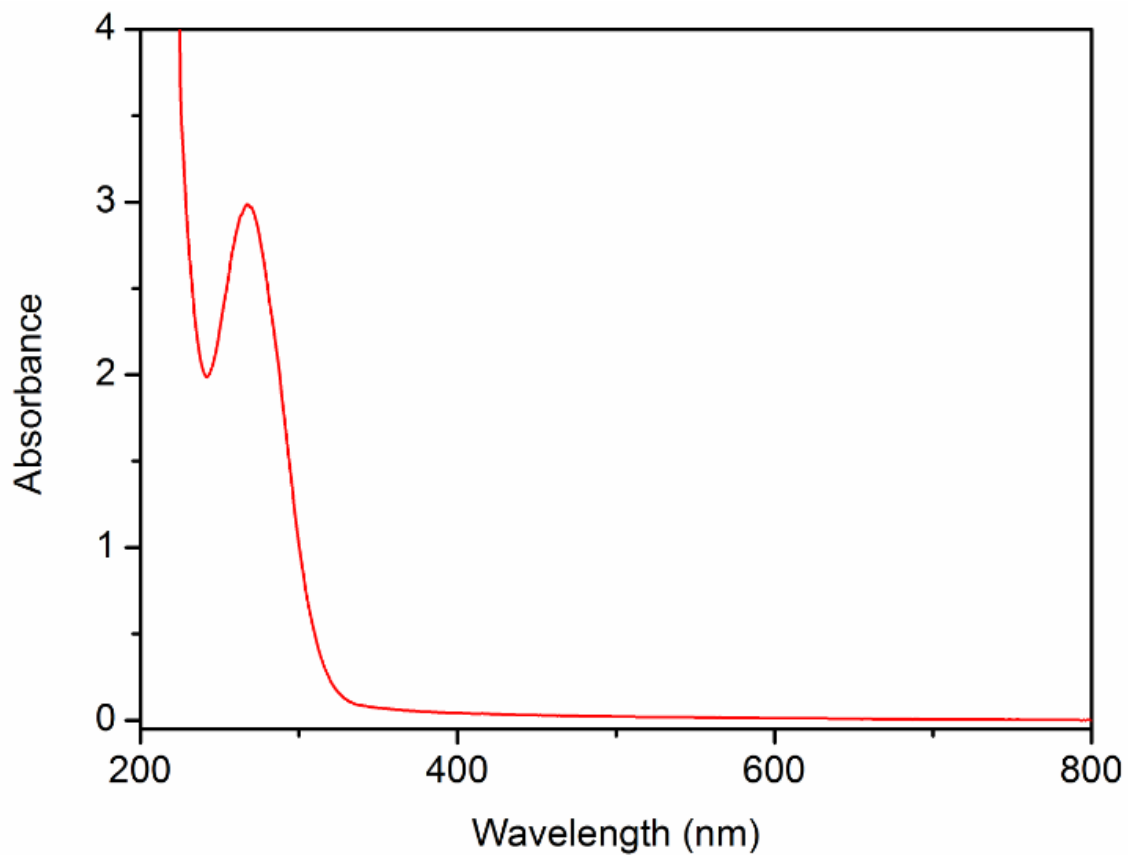


Figure S5. UV-vis absorption spectrum of **H** (0.500 mM) in aqueous solution.

3. Transmission electron microscopy (TEM) studies of **H** below and above its LCST

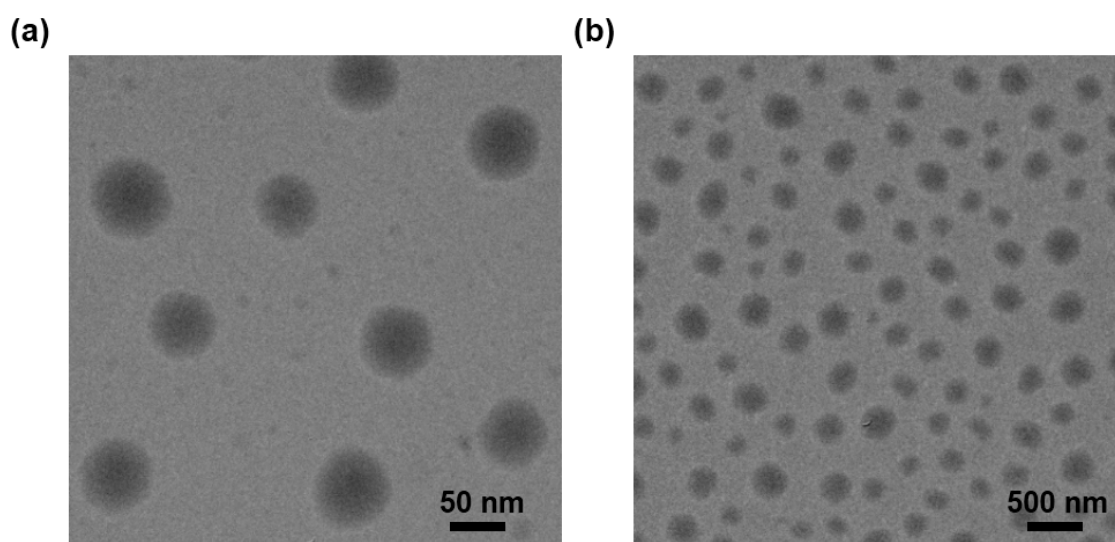


Figure S6. TEM images of aqueous solutions: (a) amphiphilic macrocycle **H** dried at 10 °C; (b) amphiphilic macrocycle **H** dried at 30 °C. [**H**] = 2.00 mM.

4. Dynamic light scattering (DLS) results of **H**

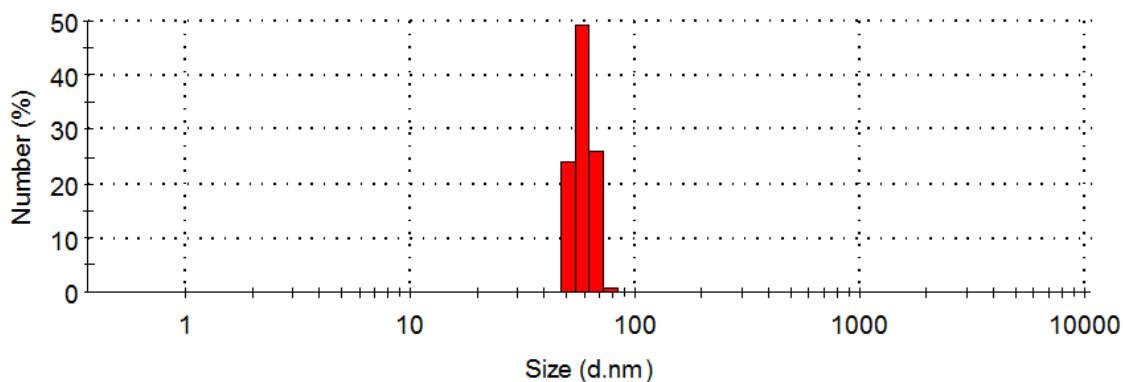


Figure S7. DLS result of **H** (2.00 mM) in aqueous solution at 10 °C. The average hydrodynamic diameter of **H** was ~59 nm, indicating that **H** forms assembled structure.

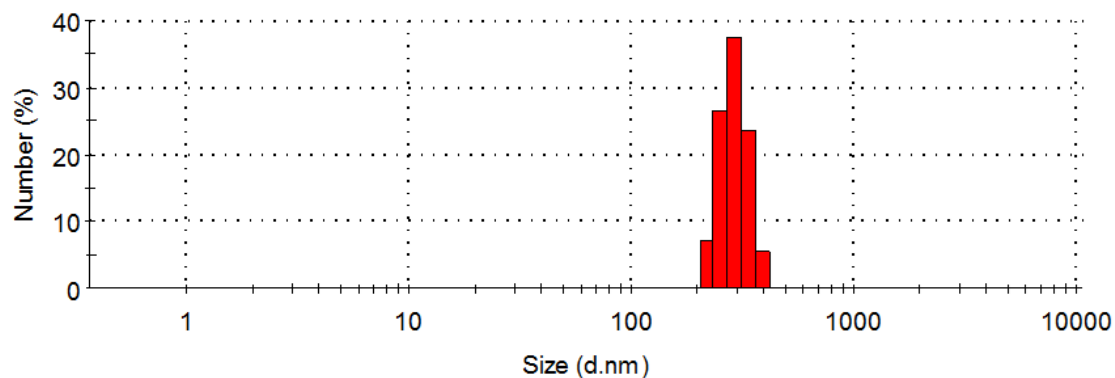


Figure S8. DLS result of **H** (2.00 mM) in aqueous solution at 30 °C. The average hydrodynamic diameter of **H** increased to ~296 nm above T_{cloud} , indicating that **H** forms large aggregate structure.

5. ^1H NMR study of **H** in the presence and absence of K^+

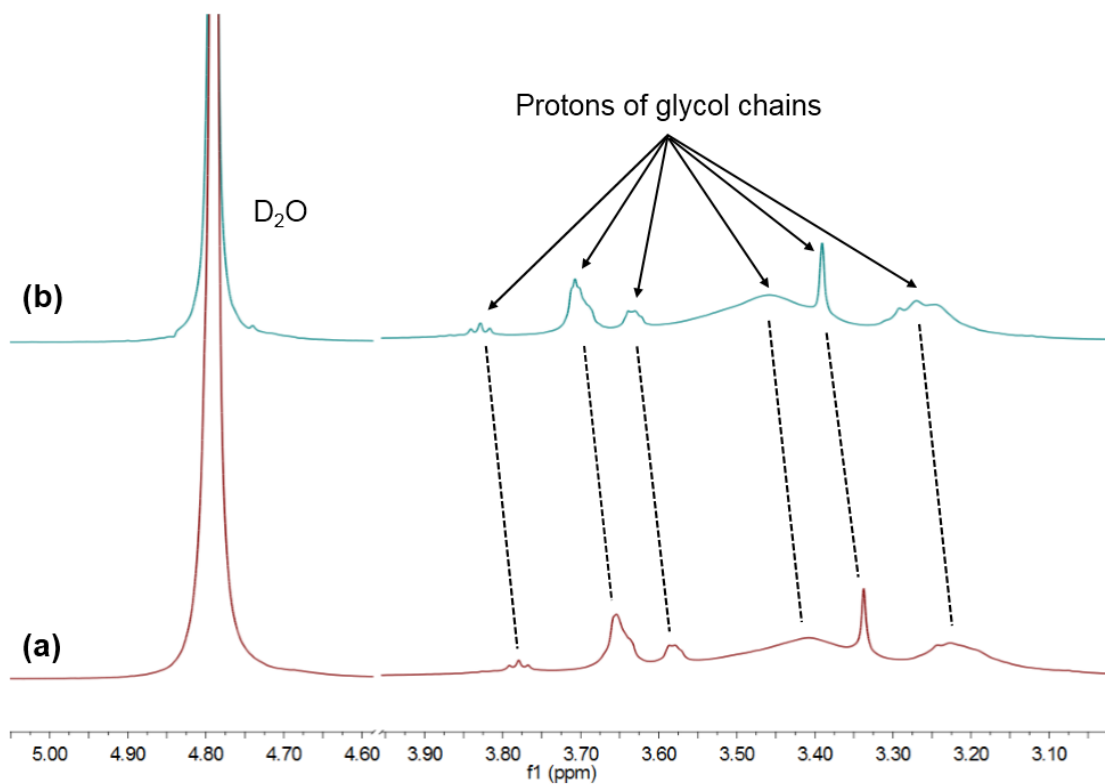


Figure S9. ^1H NMR spectrum (D_2O , 293 K, 500 MHz) of **H**: (a) in the absence of K^+ ; (b) in the presence of equimolar K^+ . $[\text{H}] = 5.00$ mM.