

Supporting Information

Installing logic-gates to Multiresponsive Supramolecular Hydrogel System Co-assembled from Phenylalanine Amphiphile and Bis(pyridinyl) Derivative

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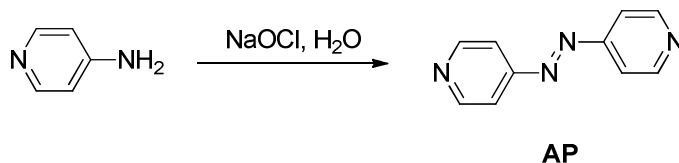
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Synthesis of AP

4, 4'-azopyridine (AP)

A solution of 4-aminopyridine (5.0 g) was dissolved in 100 ml of water. The solution was cooled and then added drop wise to 300 ml of a 10% NaOCl solution at 0 °C. The mixture was stirred at 0 °C for 30 minutes. The orange precipitate was filtered. The crude solid was dissolved in CH₂Cl₂. Black solid was removed via filtration was collected and the solvent was removed via rotary evaporation. The orange solid was then recrystallized from water to yield 3.20 g orange needles (**AP** in 65.4% yield). ¹H NMR (400 MHz, DMSO-d₆, δ, ppm): δ = 7.82 (dd, J = 4.0, 8.0 Hz, 4H), 8.90 (dd, J = 4.0, 8.0 Hz, 4H). EI-MS for C₁₀H₈N₄ calcd. 184.20; found 184.20 [M⁺].



Scheme S1. Synthetic route of **AP**.

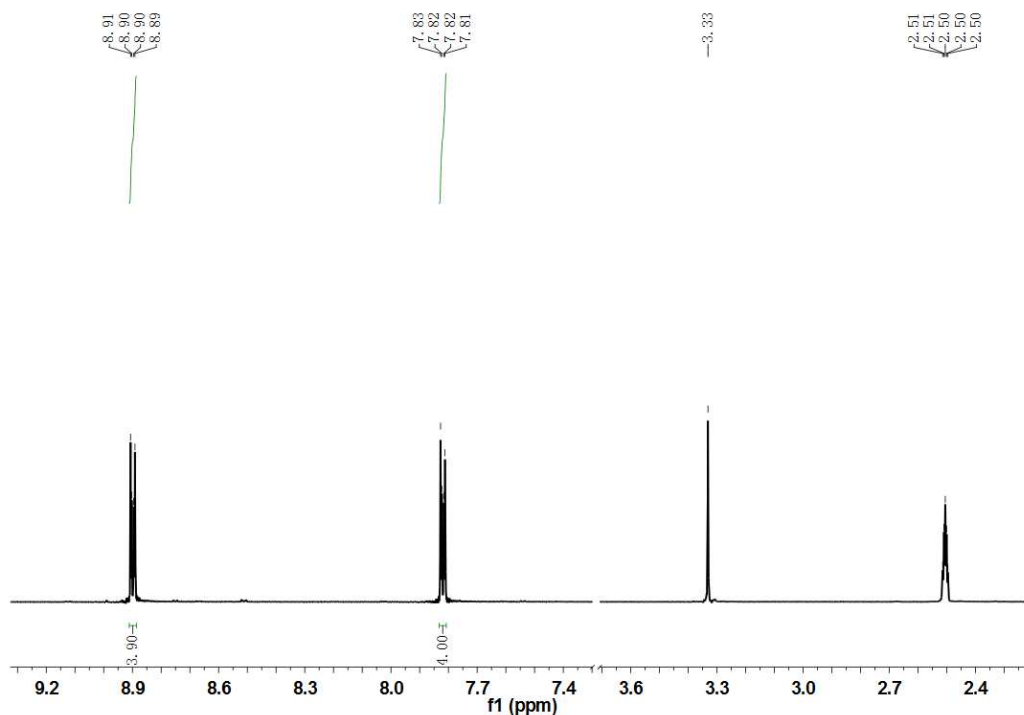


Figure S1. ¹H NMR spectra of AP in DMSO-d₆.

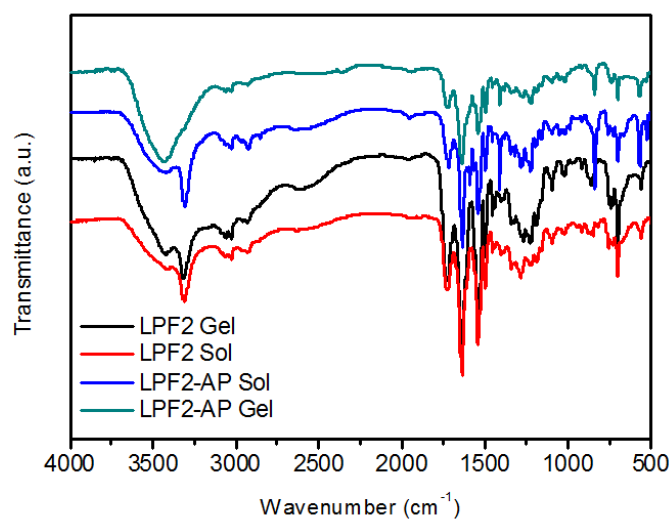


Figure S2. FT-IR curves of LPF2-AP xerogel, LPF2 xerogel, LPF2-AP ethanol solution, and LPF2 ethanol solution.

Table S1. FT-IR absorption value of COOH moieties in various xerogels and ethanol solution.

	Wavenumbers (nm ⁻¹)
LPF2-AP gel	3431.81
LPF2 gel	3421.10, 3315.21
LPF2-AP Sol	3425.98, 3306.33
LPF2 Sol	3310.79

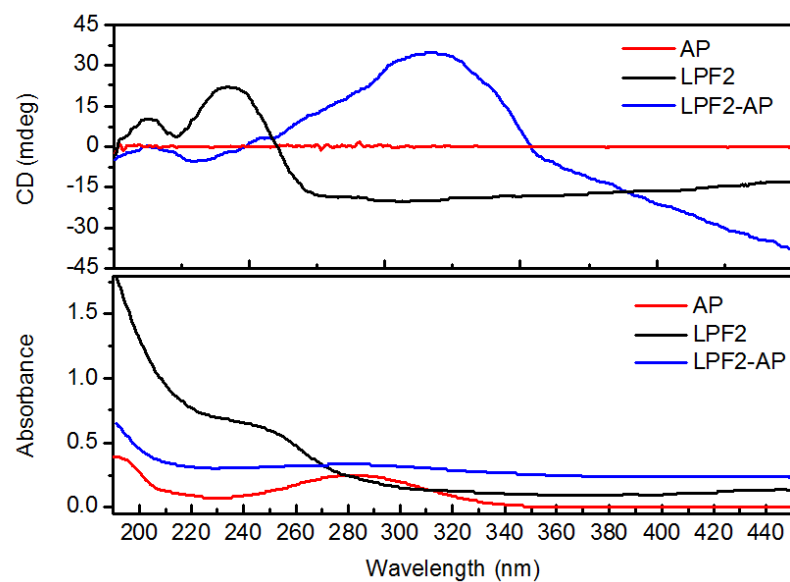


Figure S3. CD and UV-visible absorption spectra of AP solution, LPF2 hydrogel and LPF2-AP hydrogel (total gelators concentration = 0.20 wt %).

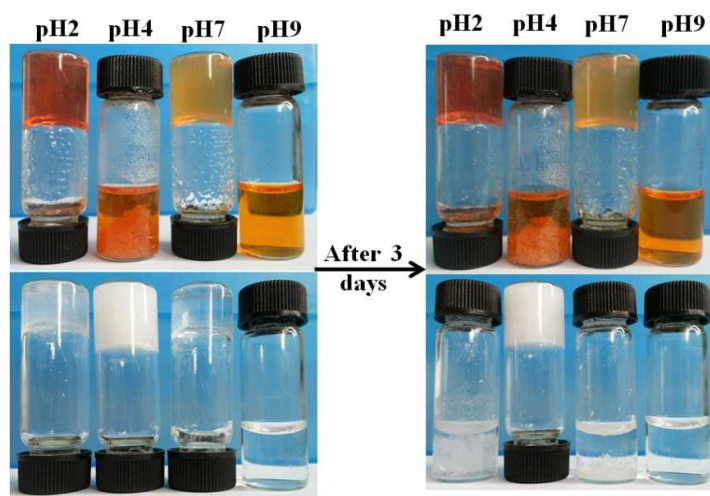


Figure S4. Optical pictures of LPF2-AP hydrogel and LPF2 hydrogel (total gelators concentration = 0.20 wt %) at different pH, respectively.

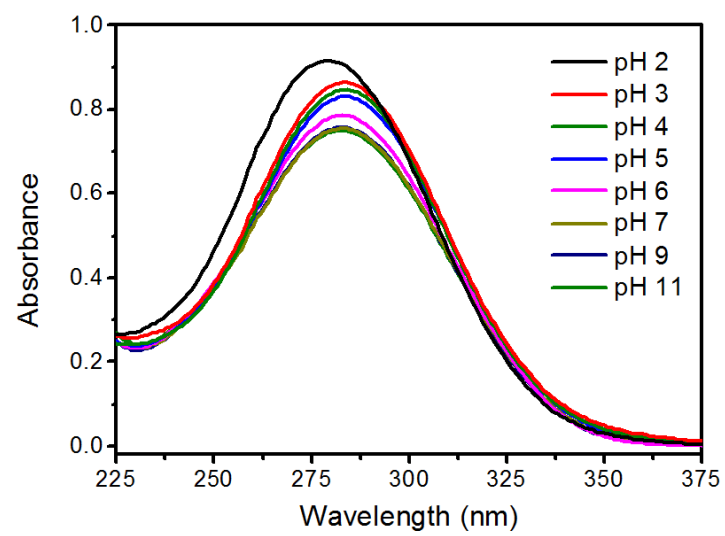


Figure S5. UV spectra of hydrogels LPF2-AP at different pH values.