

Gelation behaviour and gel properties of two-component organogels containing a photoresponsive gelator

(Supporting information)

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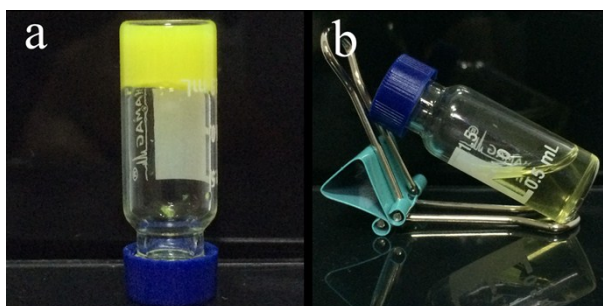


Figure S1 Photos of MB8 gel (8 mg/mL) in ethanol **(a)** before and **(b)** after visible light irradiation for 300s

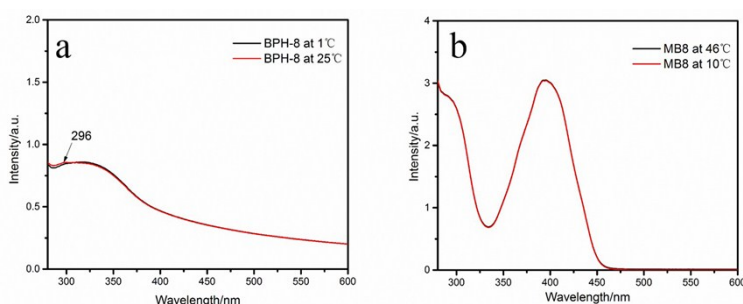


Figure S2 UV-visible absorption spectra at different temperatures in ethanol. **(a)** BPH-8 (0.5 mg/mL), **(b)** MB8 (1.35 mg/mL).

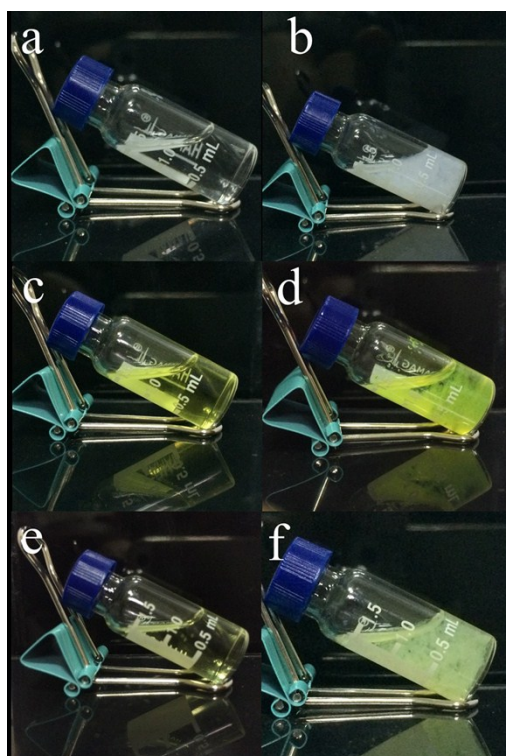


Figure S3 Photos of (a) BPH-8 (0.5 mg/mL) at 46°C, (b) BPH-8 (0.5 mg/mL) at 25°C, (c) MB8 (1.35 mg/mL) at 10°C, (d) MB8 (1.35 mg/mL) at 1°C, (e) mixture of BPH-8 (0.5 mg/mL) and MB8 (1.35 mg/mL) at 46°C, (f) mixture of BPH-8 (0.5 mg/mL) and MB8 (1.35 mg/mL) at 1°C.

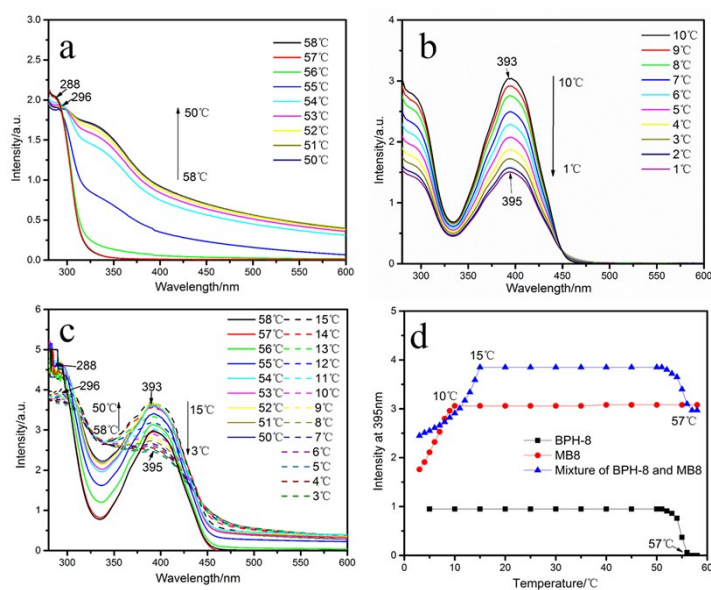


Figure S4 UV-visible absorption spectra at different temperatures in ethanol. (a) BPH-8 (1 mg/mL), (b) MB8 (1.35 mg/mL), (c) mixture of BPH-8 (1 mg/mL) and

MB8 (1.35 mg/mL) (molar ratio: 2:4.3). **(d)** Plots of absorption intensity at 395 nm versus temperature for BPH-8, MB8 and their mixture.

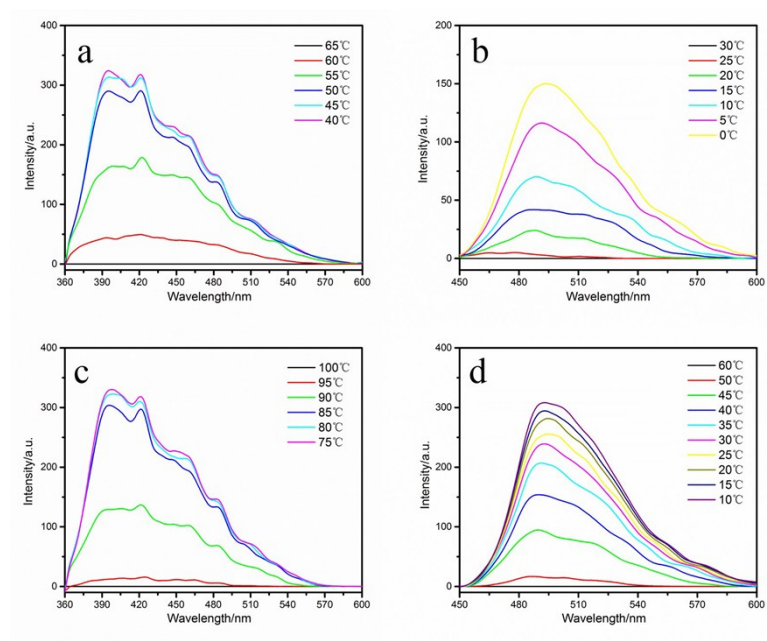


Figure S5 Temperature-dependent fluorescence emission spectra of **(a)** BPH-8 (1.5 mg/mL), **(b)** MB8 (4 mg/mL), **(c)** BPH-8 (3 mg/mL), **(d)** MB8 (8 mg/mL).

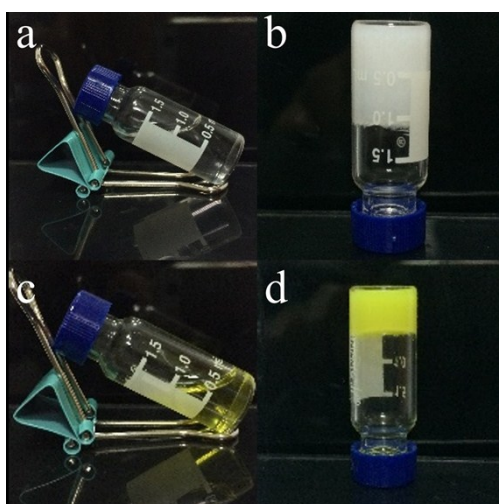


Figure S6 photos of BPH-8 (3 mg/mL) at **(a)** 110°C, **(b)** 70°C and MB8 (8 mg/mL) at **(c)** 70°C, **(d)** 10°C.

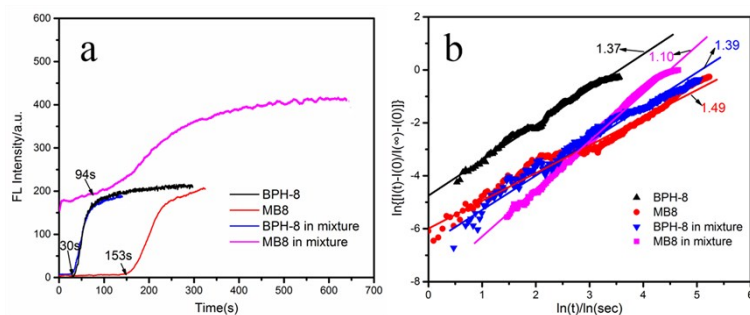


Figure S7 Time-dependent fluorescence spectra of **(a)** BPH-8 gel (3 mg/mL) in ethanol (cooling from 110°C to 70°C), MB8 gel (4 mg/mL) in ethanol (cooling from 40°C to 0°C), mixture of BPH-8 (3 mg/mL) and MB8 (4 mg/mL) (molar ratio: 2 : 4.3) in ethanol. (the blue line was detected from 110°C to 70°C, the pink line was detected from 40°C to 0°C and the FL spectra was measured at 70°C or 0°C). **(b)** Dickinson plots of the fluorescence data of BPH-8 (3 mg/mL) in ethanol or MB8 (4 mg/mL) in ethanol or BPH-8 (3 mg/mL) and MB8 (4 mg/mL) in mixture. ($\lambda_{ex}=340$ nm, $\lambda_{em}=499$ nm).

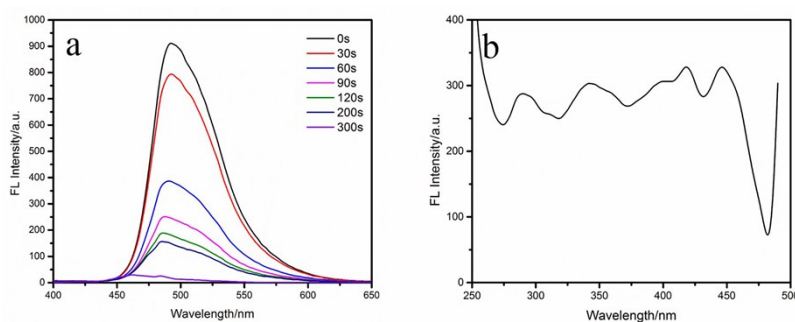


Figure S8 (a) Fluorescence emission spectra of MB8 gel (8 mg/mL) in ethanol irradiated by visible light at different time. **(b)** Fluorescence excitation spectrum of MB8 (8 mg/mL) in ethanol. ($\lambda_{em}=499$ nm).



Figure S9 The photos of the BPH-8 gel (3 mg/mL) in ethanol **(a)** under natural light, **(b)** under 365 nm UV light, the MB8 gel (8 mg/mL) in ethanol under **(c)** natural light, **(d)** 365 nm UV light, mixture of BPH-8 gel (3 mg/mL) and MB8 gel (8 mg/mL) in

ethanol **(e)** under natural light, **(f)** under 365 nm UV light.

Experimental

The sample BPH-8 and MB8 were synthesised by our team before, the chemical structure and the content of elements satisfied the international standard.

Organogel were prepared by mixing a predetermined amount of BPH-8 (3 mg) or MB8 (8 mg) or mixture of BPH-8 (3 mg) and MB8 (8 mg or 4 mg) with 1mL ethanol in a sample vial with a crew cap and heated until the solids were completely dissolved (nearly 130°C). The hot solution was allowed to cool to room temperature by gradient cooling procedure (from 110°C quenched to 70°C and then from 70°C quenched to 10°C for 8 mg/mL MB8 or from 40°C to 0°C for 4 mg/mL MB8).

The xerogels used for texts of SEM were obtained by using the method of freeze-dried in freeze drying machine.

UV-absorption spectra were measured by Shimadzu UV-1601PC spectrometer. The Fluorescence measurements were performed using a Perkin Elmer LS 55 fluorescence spectrophotometer with a 1.0cm length quartz cell.

Scanning electron microscopy (SEM) observations were recorded with a SSX-550 apparatus. Samples for this measurement were prepared by casting the organogel on a silica substrate and all the samples were dried at room temperature, then coated by gold before observation.

The rheological properties were studied on a TA instrument (AR2000 Rheometer) equipped with a stainless steel plate of 40mm diameter. The samples were sandwiched between the two plates with a gap of 0.5 mm throughout the experiments.

The films of xerogels used for the text of static contact angle (CA) of water were obtained by dosing the hot solution to the silicon wafer. After several minutes, the gel formed. Afterwards, continuing to dose the hot solution to the surface and repeat this process several times until the silicon wafer surface was covered by the gel completely. Then, we took the silicon wafer to freeze drying machine and freeze-dried the samples.

Surface wettability was characterized using a commercial video-based, software-controlled contact angle analyzer (Kruss DSA 30) on the xerogel film at room temperature. The water droplet size used for measurements was 20 μ L. At least five different positions were measured and averaged to get a reliable value for the same sample.

Visible light source was 500W xenon lamp light source ($\lambda_{\text{visible light}} = 350 \text{ nm} - 570 \text{ nm}$) (model: LSXS-X500).