Supporting information

PH controlled temperature response reprogramming hydrogel for monitoring human electrophysiological signals

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1. The formulation of hydrogel.

Table.S1 The formulation of hydrogel.

	AUA		AM		NaOH	MBAA	H_2O	KPS
AUA_0-AM_{100}	0M	0g	2M	1.42g	0g	5mg	10ml	0.0275g
AUA_{20}-AM_{80}	0.4M	1.02g	1.6M	1.13g	0.16g	5mg	10ml	0.0275g
AUA_{40}-AM_{60}	0.8M	2.04g	1.2M	0.852g	0.32g	5mg	10ml	0.0275g
AUA_{50}-AM_{50}	1M	2.55g	1M	0.71g	0.4g	5mg	10ml	0.0275g
AUA_{60}-AM_{40}	1.2M	3.06g	0.8	0.568g	0.48g	5mg	10ml	0.0275g
AUA_{80}-AM_{20}	1.6M	4.08g	0.4	0.284g	0.64g	5mg	10ml	0.0275g
AUA_{100}-AM_0	2M	5.10g	0	0g	0.8g	5mg	10ml	0.0275g

2. Test Methods

2.1 ^{1}HNMR test：

^{1}HNMR spectra was recorded on a Bruker AV 11 – 400 spectrometer at 400 MHz in CF3COOD at room temperature.

2.2 FT-IR test：

Fourier transform infrared (FTIR) spectra of the hydrogel were recorded on a Bruker Tensor 27(Bruker Optics Inc.).

2.3 Water contact angle test:

The surface of the hydrogel soaked in the HCl solution was wiped dry, and the water contact angle test was performed with Dataphysics OCA-20.

2.4 scanning electron microscope(SEM) test：

After the hydrogel was freeze-dried, it was brittle in liquid nitrogen. Tested with Hitachi S-4700 instrument. Spray gold on the surface of the sample to improve conductivity.

2.5 Electrocardiogram test:

The ECG test (SynAmp II, NeuroScan Compumedics, USA) was performed with the filter range set to 50 Hz. The hydrogel was prepared into a cuboid of 3mm*3mm*1mm.

3.Results and Discussion

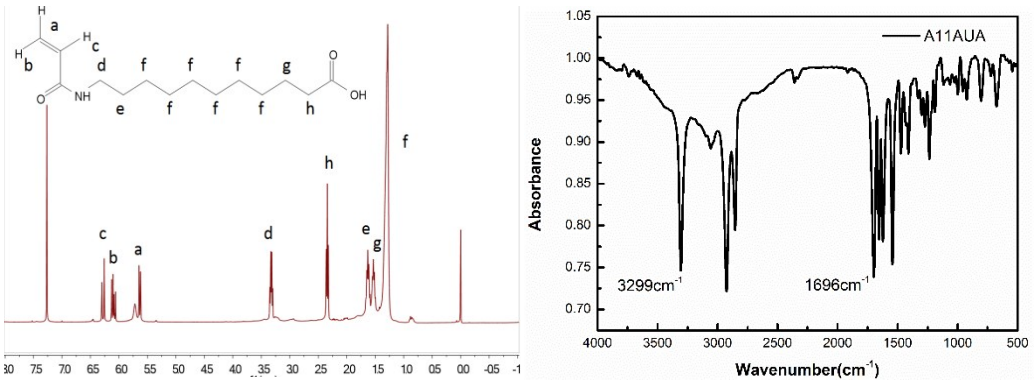

Fig.S1 [1]HNMR and FT-IR of A11AUA

Fig.S1 is the FT-IR spectrum and [1]HNMR of A11AUA synthesized by 11-aminoundecanoic acid and acryloyl chloride. Among them, the appearance of the characteristic peaks at 3303cm^{-1} and 1696cm^{-1} of A11AUA of the infrared spectrum corresponds to the tensile vibration of C = C and C = O, respectively.

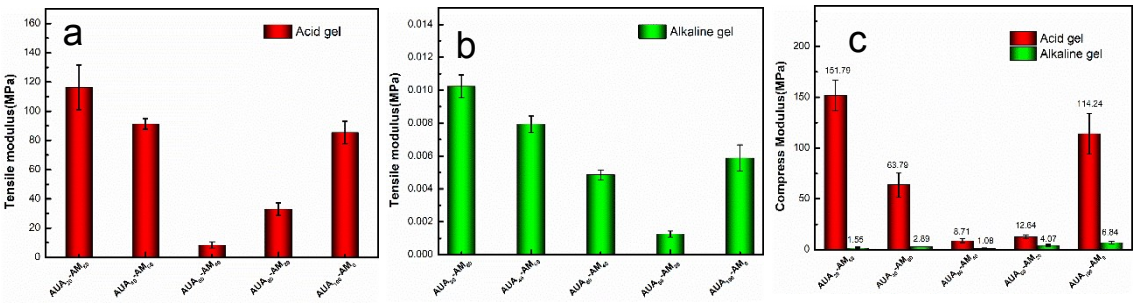

Fig.S2 Tensile and compressive modulus of acid gel and alkaline gel;(a) Tensile modulus of acid gel; (b) Tensile modulus of alkaline gel; (c) Comparison of Compression modulus of acid gel and alkaline gel.

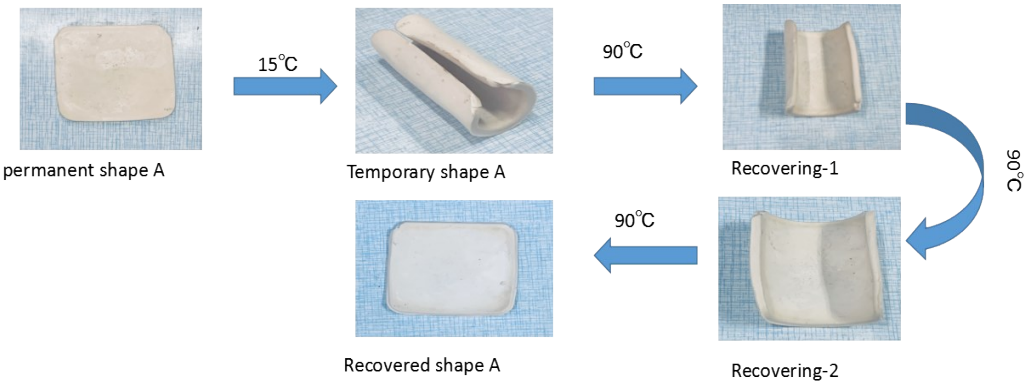

Fig.S3 Photograph of acid gel shape memory

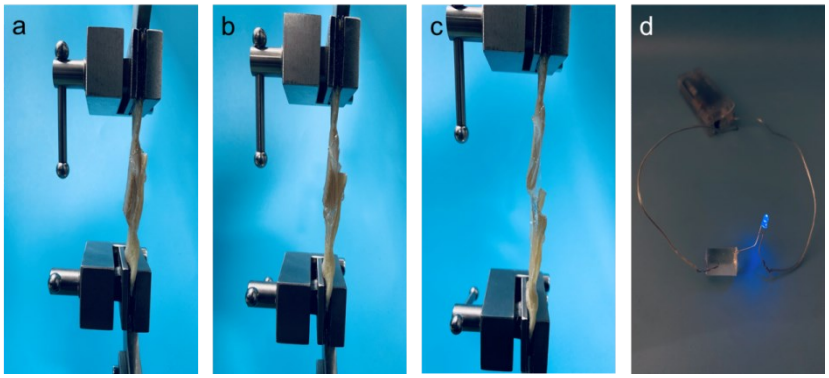

Fig.S4 (a-c) Hydrogel adhesion test process; (d) Hydrogel can light the bulb at 3V