Supplemetary Information for

An *in situ-forming* zwitterionic hydrogel as vitreous substitute

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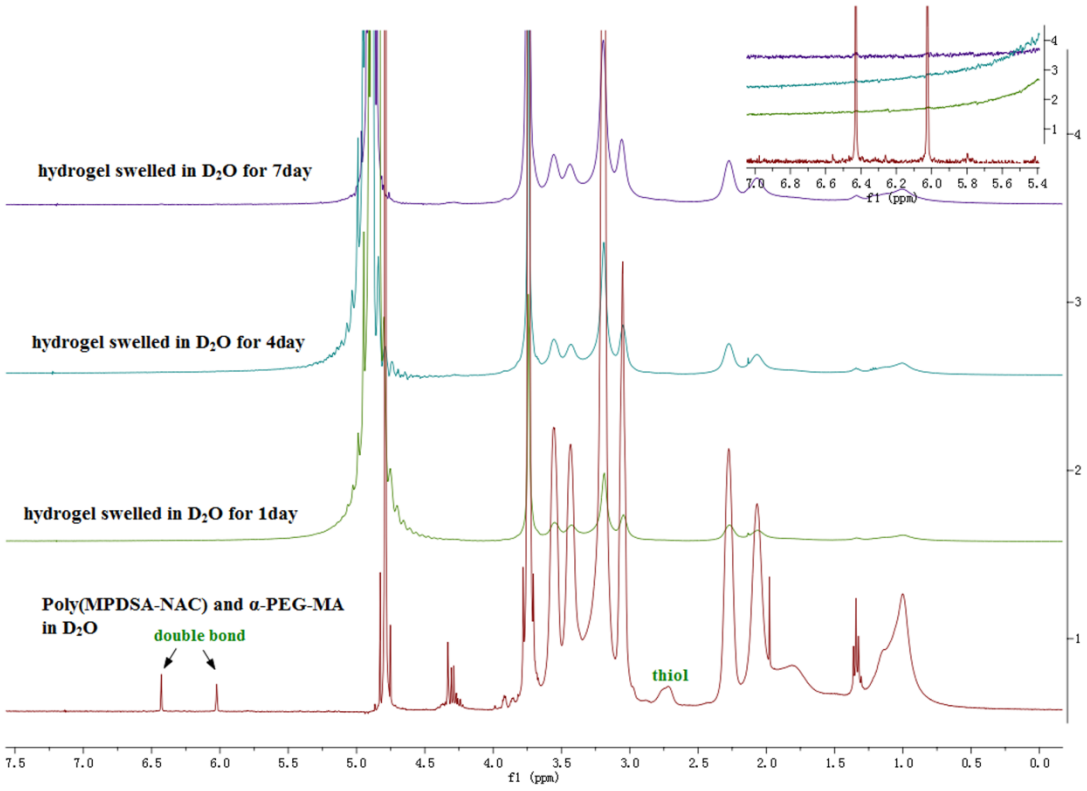


Fig. S1 ^{1}H NMR spectra of the gel (thiol/ene ratio of 1:1) prepared in PBS (pH 7.4) and swelled in acidic D_2O for 1, 4 and 7 days (400 MHz)

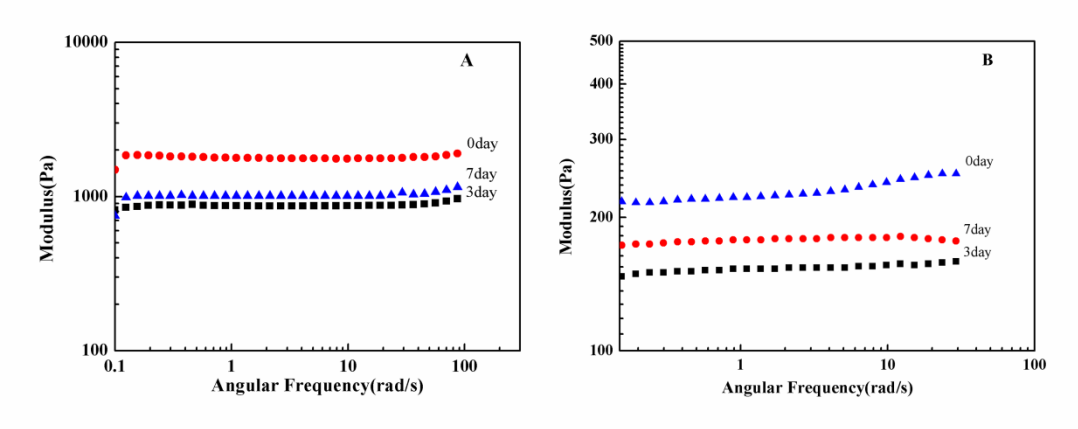


Fig. S2 Changes of storage modulus during swelling. A) Storage modulus changes of hydrogels with thiol/ene ratio of 1:1, and it decreased from original 1.80 to 0.80 kPa after swelled 3 days and then increased to 0.87 kPa after swelling for 7days; B) Storage modulus of hydrogels with thiol/ene ratio of 2:1, and it decreased from original 0.23 to 0.16 kPa after swelled 3 days and then increased to 0.18 kPa after swelling for 7days

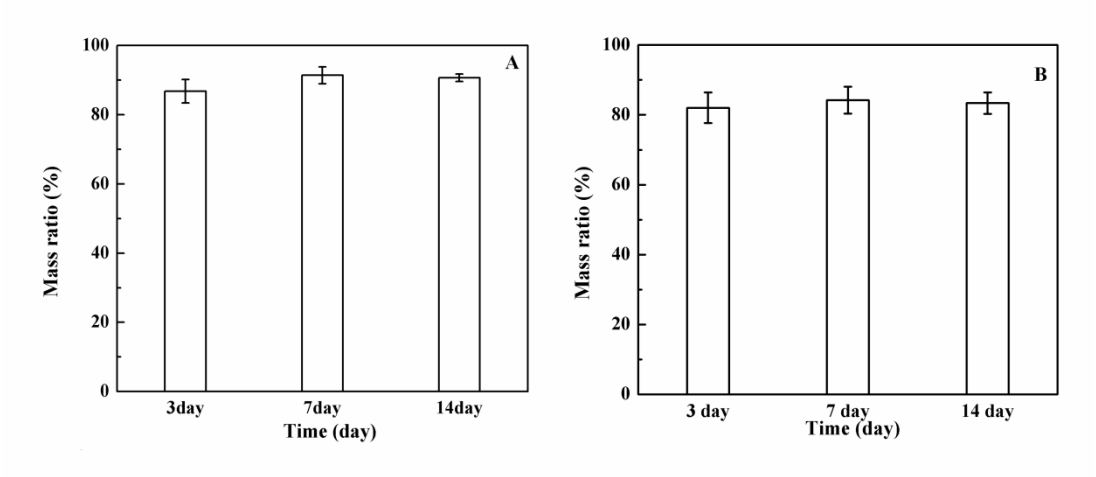


Fig. S3 Changes of dry mass of hydrogels during swelling. A) mass changes of hydrogels with thiol/ene ratio of 1:1, and dry mass was about 87, 91 and 91% of feeding amount after swelling for 3, 7 and 7days, respectively; B) dry mass changes of hydrogels with hiol/ene ratio of 2:1, and dry mass was about 82, 84 and 83 % of feeding amount after swelling for 3, 7 and 14 days, respectively

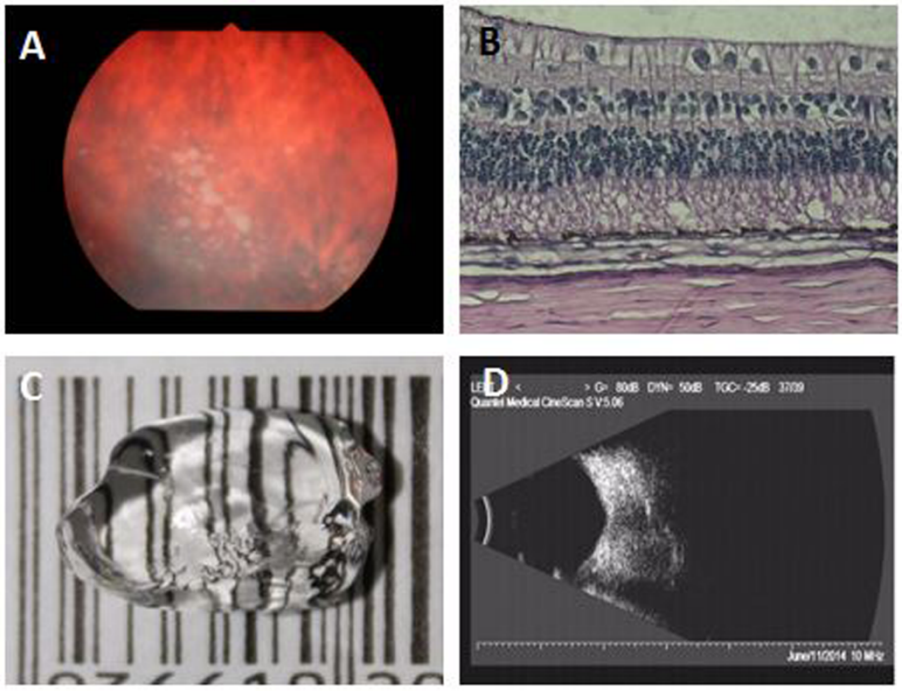
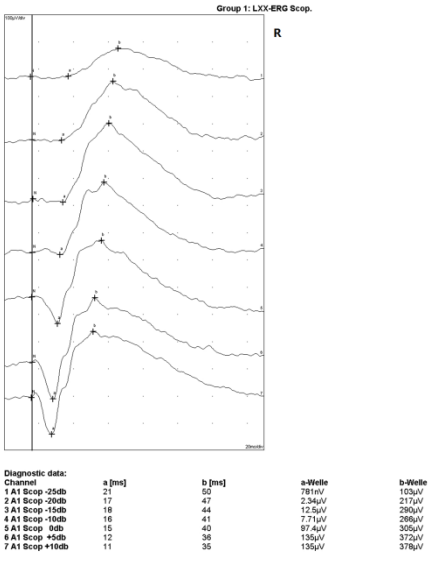
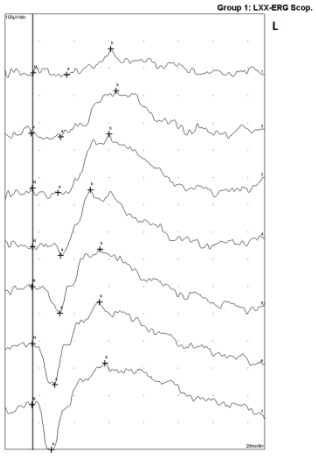


Fig. S4 Photographs of the rabbit eyes with zwitterionic hydrogels of thiol/ene ratio 1:1. (A) Photograph of fundus of one rabbit one month after implanting the zwitterionic hydrogel containing 1:1 of thiol/ene ratio, and several white dots of opacity were observed in the peripheral vitreous; (B) Histopathological examination of rabbit after implanting the zwitterionic hydrogel containing 1:1 of thiol/ene ratio for 1 month; (C) Photograph of the hydrogel containing 1:1 of thiol/ene ratio removed from the vitreous cavity two month after the implantation; (D) Photograph of B-scan ultrasound, the left control eye without surgery.



Diagnostic data:

Channel	a [ms]	b [ms]	a-Welle	b-Welle
1 A1 Scop -25db	21	50	781nV	103µV
2 A1 Scop -20db	17	47	2.34µV	217µV
3 A1 Scop -15db	18	44	12.5µV	290µV
4 A1 Scop -10db	16	41	7.71µV	266µV
5 A1 Scop 0db	15	40	97.4µV	305µV
6 A1 Scop +5db	12	36	135µV	372µV
7 A1 Scop +10db	11	35	135µV	378µV



Diagnostic data:

Channel	a [ms]	b [ms]	a-Welle	b-Welle
1 A1 Scop -25db	20	45	6.35µV	94.5µV
2 A1 Scop -20db	16	48	13.6µV	169µV
3 A1 Scop -15db	15	44	16.6µV	214µV
4 A1 Scop -10db	16	33	32.7µV	242µV
5 A1 Scop 0db	16	39	97.3µV	236µV
6 A1 Scop +5db	13	38	150µV	303µV
7 A1 Scop +10db	11	42	169µV	321µV

Fig. S5 The ERG of rabbit after implanting the zwitterionic hydrogel containing 1:1 of thiol/ene ratio for 1 month. R was the right eye (novel hydrogel eye), L was the left eye (control eye)