Supplementary Information

Responsive hydrogel-based microneedle dressing for diabetic wound healing

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Supplementary figures

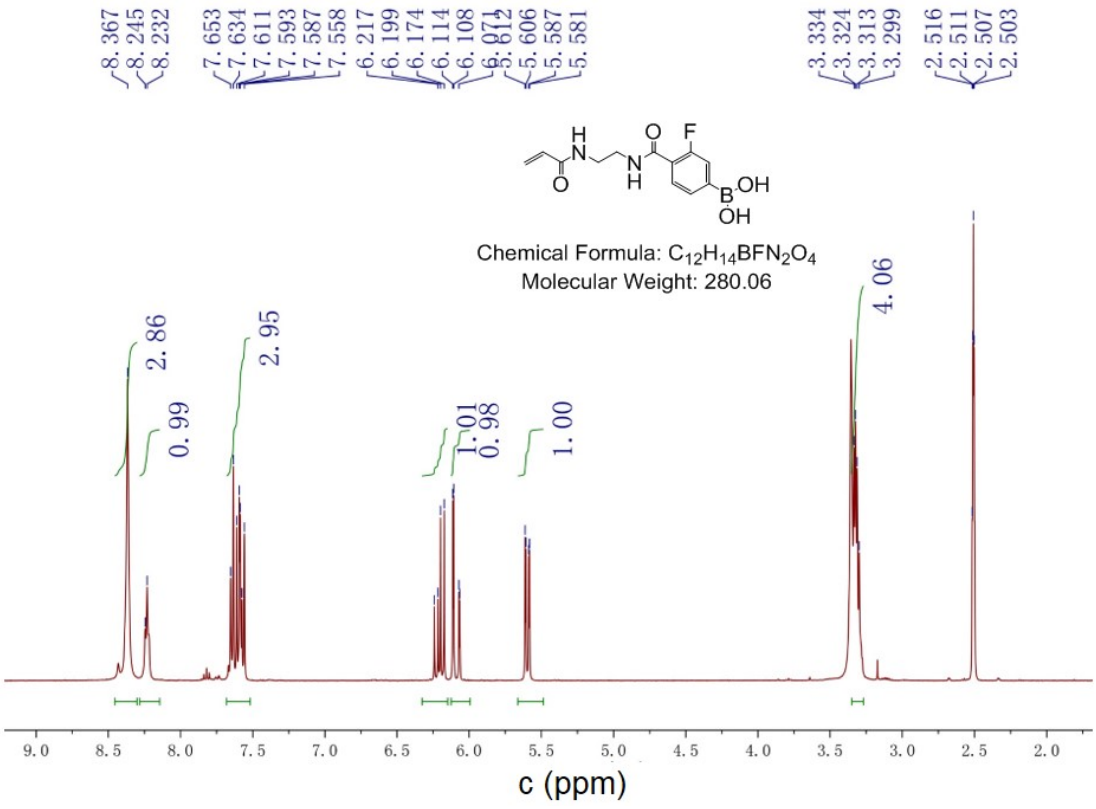


Figure S1. NMR spectrum of the synthesized AFPBA molecule.

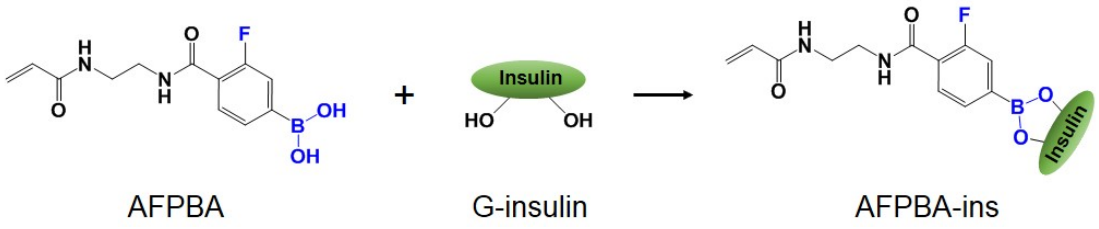


Figure S2. Schematic illustration of grafting G-insulin onto the AFPBA molecule to obtain AFPBA-ins complex.

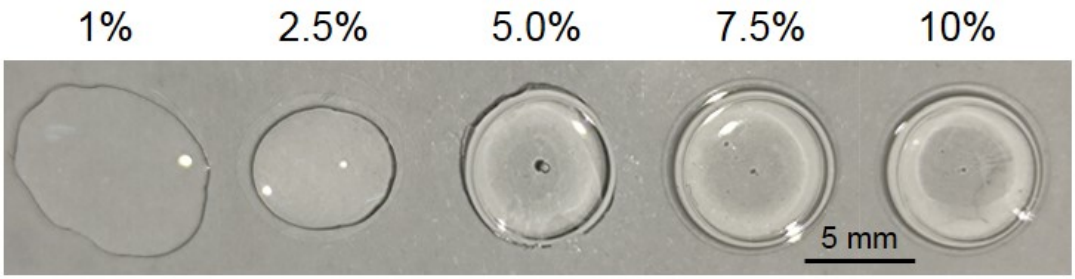


Figure S3. Morphology of GelMa hydrogels with different concentration.

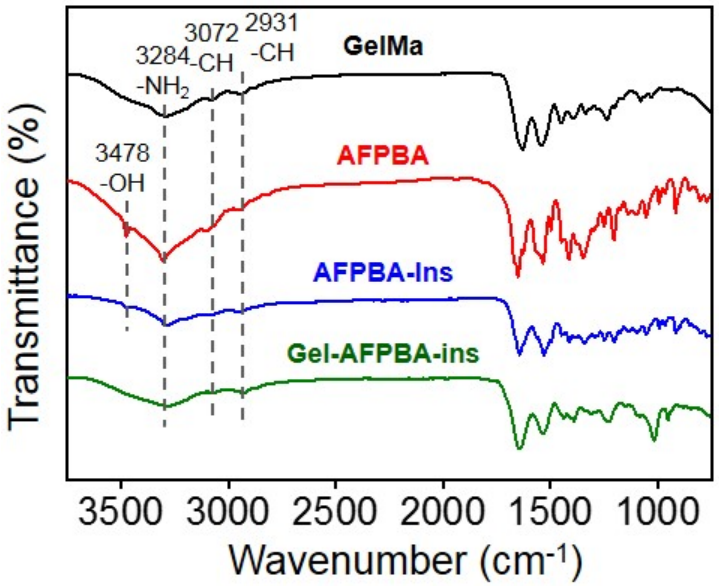
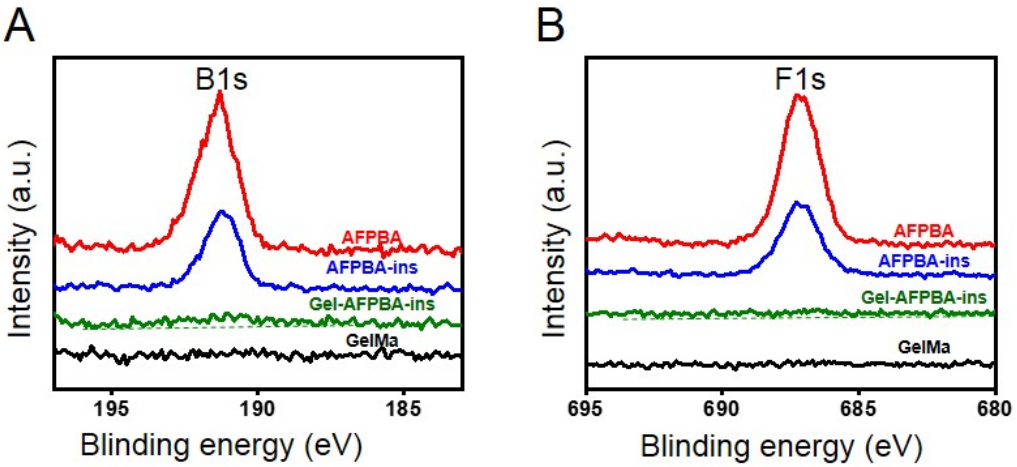


Figure S4. FTIR wide spectra during the preparation of Gel-AFPBA-ins hydrogels.



C

Samples	B (%)
GelMa	0.74
AFPBA	6.81
AFPBA-ins	6.33
Gel-AFPBA-ins	0.85

D

Samples	F (%)
GelMa	0.24
AFPBA	5.42
AFPBA-ins	5.35
Gel-AFPBA-ins	0.35

Figure S5. XPS analysis of the hydrogels. (A-B) High-resolution XPS spectra of B1s (A) and F1s (B). (C-D) Elemental analysis during the preparation of hydrogels, including B element (C) and F element (D).

Supplementary Tables

Table S1. BG levels in diabetic mice with different treatments

Group / Time	Control	Gel-blk	Gel-ins	Gel-AFPBA-ins
0 day	16.6 ± 2.1	16.3 ± 1.6	15.4 ± 1.2	15.7 ± 3.8
1 day	20.5 ± 1.2	17.1 ± 2.3	13.3 ± 2.0	14.4 ± 3.8
2 days	21.1 ± 4.1	18.5 ± 1.6	16.6 ± 4.7	15.9 ± 2.6
3 days	21.9 ± 3.9	19.2 ± 3.6	19.9 ± 2.3	16.2 ± 2.9
4 days	21.8 ± 0.8	18.8 ± 0.2	18.9 ± 3.9	18.5 ± 4.2
5 days	21.0 ± 3.1	21.9 ± 2.8	19.6 ± 4.8	18.4 ± 3.1
6 days	21.9 ± 3.0	19.7 ± 3.9	19.1 ± 4.9	18.1 ± 4.2
7 days	22.1 ± 1.9	19.9 ± 2.4	17.8 ± 3.2	17.5 ± 1.3
8 days	21.5 ± 1.9	20.5 ± 4.9	17.8 ± 1.4	16.8 ± 4.0