

Bionic composite hydrogel with hybrid covalent/noncovalent network promoting phenotypic maintenance of hyaline cartilage

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Table S1. Primers used to amplify mRNAs encoding rabbit GAPDH.

Primer	Sequence (5'-3')
GAPDH-F	AGCGAGATCCCGCCAACA
GAPDH-R	TTCACGCCCATCACAAACAT
COL I-F	CGATGGCTTCCAGTTCGAGT
COL I-R	GCTACGCTGTTCTTGCAGTG
COL II-F	TTCTCCTCCTGCTCCCAG
COL II-R	TCCTTTCTGCCCCTTTGGTC
COL X-F	ACAGGCATAAAAGGCCCAACA
COL X-R	TGGTCCTCTCTCCCCTTGTT
AGG-F	ATGCCAGCGACTCTTTCACA
AGG-R	CTGTCATTCAGGCCGATCCA
Sox9-F	TCTACCGCTGTGAGGTGATGC
Sox9-R	TTCACCACGACCTCCAAGG

Table S2. The gelation time derived from rheological test and tube inversion method and gross view of each sample.

Mass ratio(HS/FFAB)	10/0	7/3	5/5	3/7	0/10
Visual Gel time (min)	10	15	8	17	7
Appearance					
Gel time (s)	35	482	352	433	8

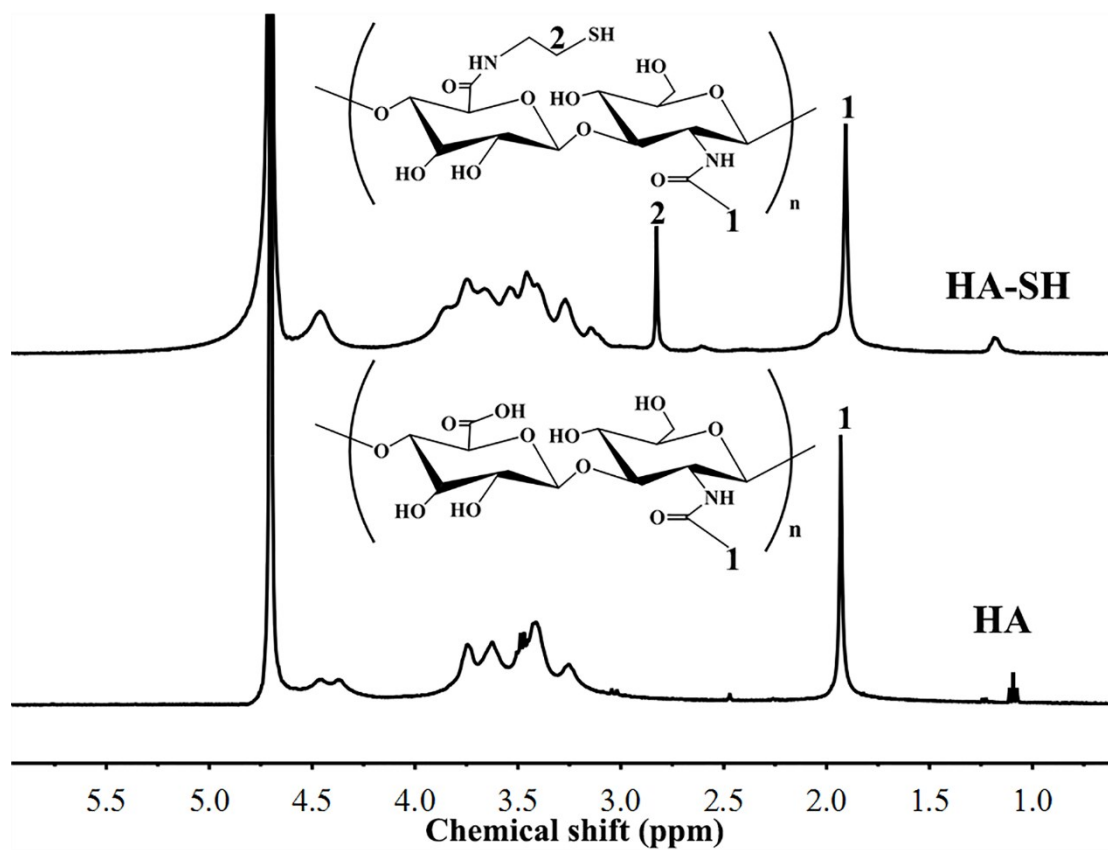


Figure S1. ¹H-NMR (D₂O) spectra of HA and HS.

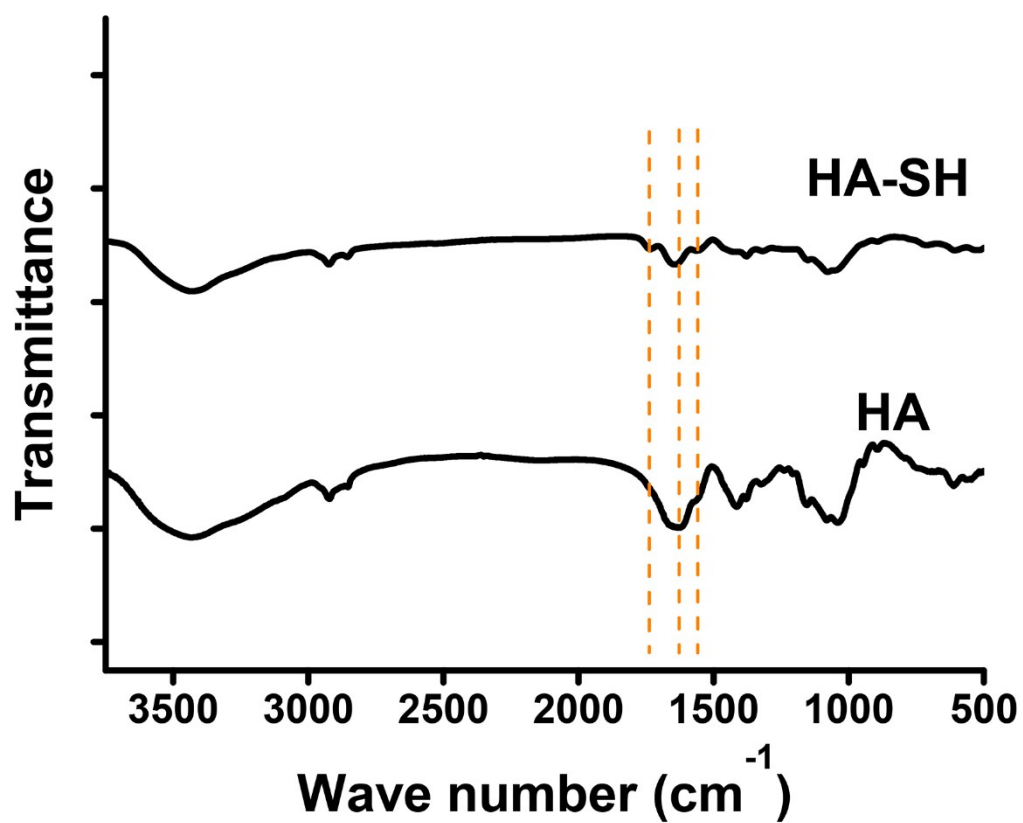


Figure S2. FT-IR spectra of HA and HS.

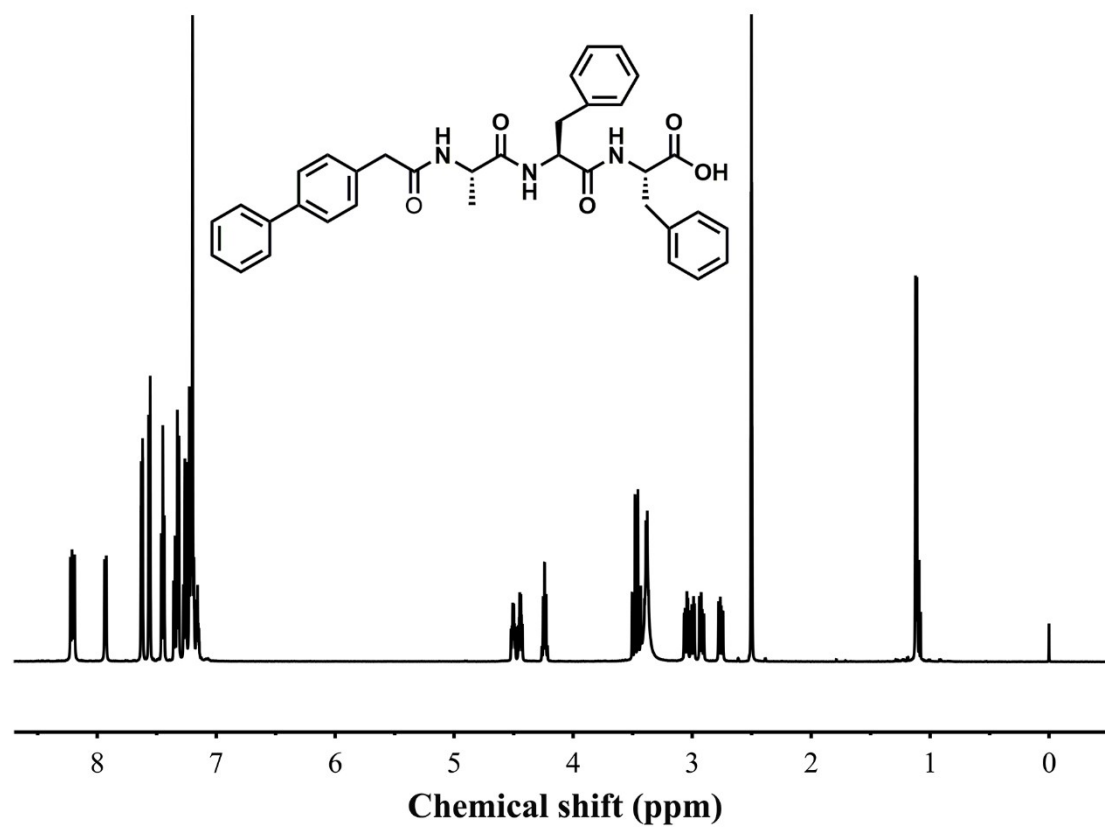


Figure S3. $^1\text{H-NMR}$ (D_2O) spectra of FFAB.

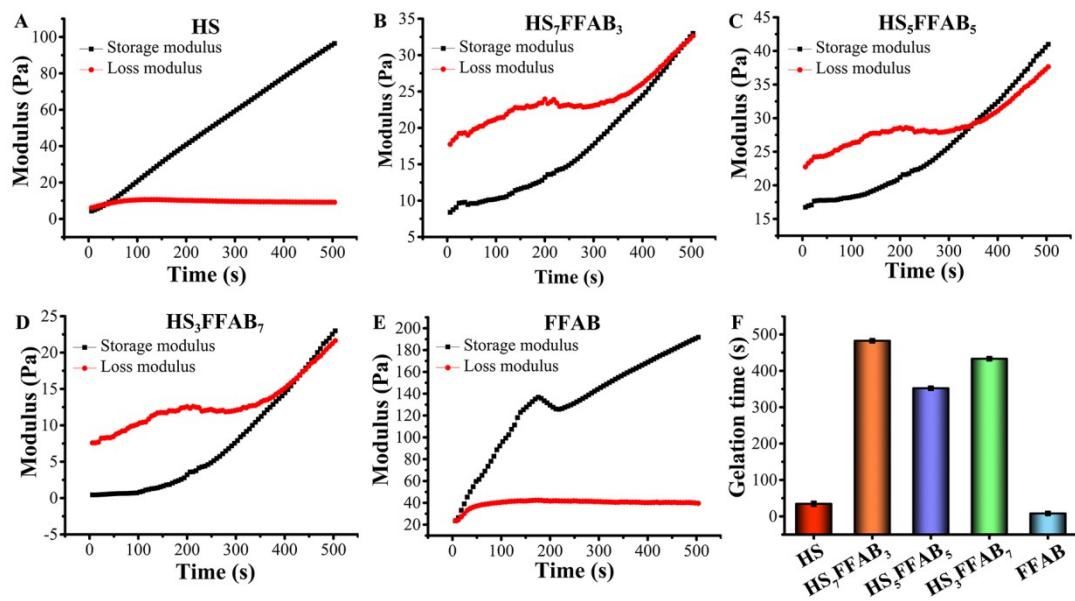


Figure S4. The gelation time by rheological test. (A) pure HS, (B) HS₇FFAB₃, (C) HS₅FFAB₅, (D) HS₃FFAB₇, (E) pure FFAB. (F) Gel time summary diagram.

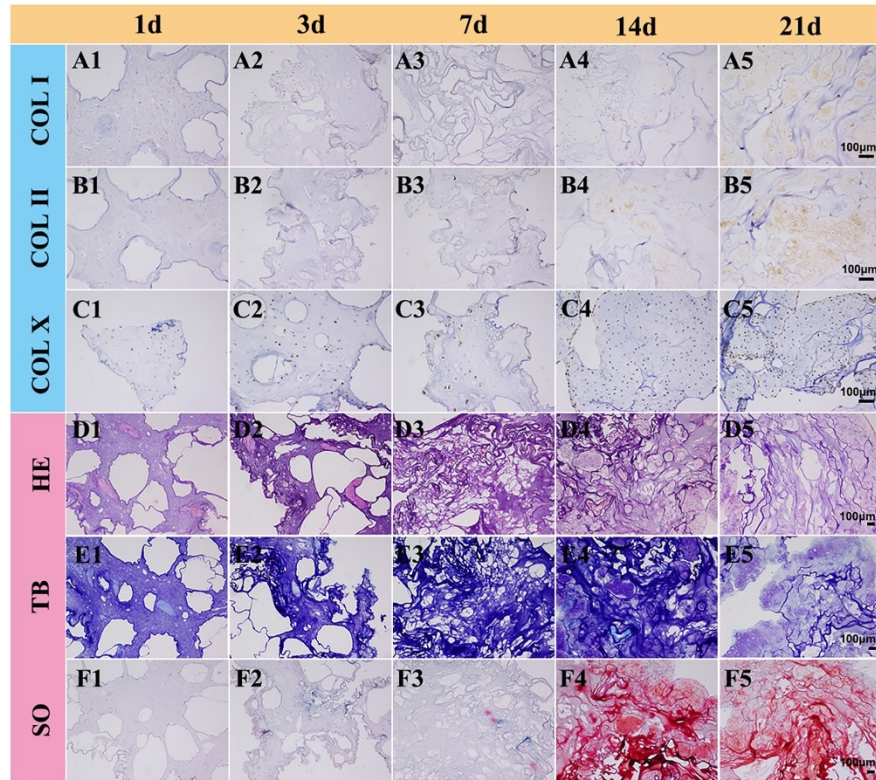


Figure S5. Immunohistochemistry staining for Col I, Col II, Col X (A1-A5, B1-B5, C1-C5) and photomicrographs of H&E, TB, SO staining (D1-D5, E1-E5, F1-F5) of hydrogel/chondrocytes constructs after cultured in vitro for 1, 3, 7, 14 and 21 days.

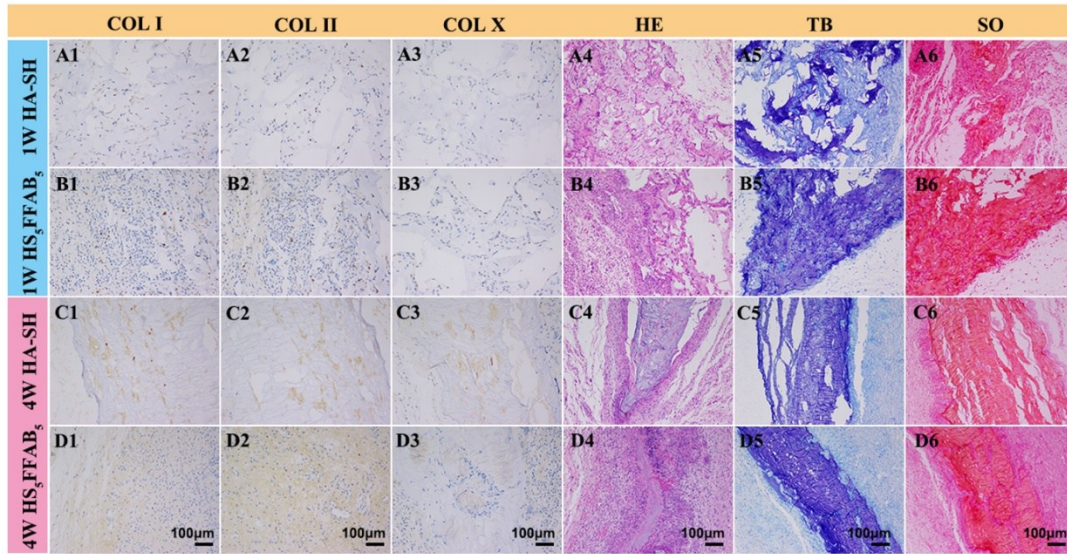


Figure S6. Immunohistochemistry staining for Col I, Col II, Col X (A1-D1, A2-D2, A3-D3) and photomicrographs of H&E, TB, SO staining (A4-D4, A5-D5, A6-D6) of hydrogel/chondrocytes constructs after implanted in vitro for 1 week and 4 weeks.