

Supporting Information

Highly Interweaved HA-ss-nHAp/Collagen Hybrid Fibered Hydrogel Enhanced Osteoinductivity and Mineralization

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Table S1. Primers used to amplify mRNAs encoding rabbit β -Actin.

Primer	Sequence (5'-3')
β -Actin-F	TGGCTCTAACAGTCCGCCTAG
β -Actin-R	AGTGCGACGTGGACATCCG
Runx2-F	TGGCGGGTAATGATGAAAAT
Runx2-R	GAGGCGGTCAGAGAACAAA
OCN-F	GACACCATGAGGACCCTCTC
OCN-R	GCCTGGTAGTTGTTGTGAGC
OPN-F	CGCCGTGATTTGCTTTTGTC
OPN-R	GCATCCGGGTGTTTGTGGTA

Table S2. Atomic percentages of N, Si, C and N/Ca ratio observed from XPS survey scans

Sample	N(%)	Si(%)	C(%)	N/Ca
HAp	0	0	12.13 ± 1.2	0
HAp-A alcohol solution	3.25 ± 0.3	3.80 ± 0.5	24.02 ± 1.3	0.23 ± 0.02
HAp-A anhydrous toluene	4.03 ± 0.4	4.87 ± 0.3	23.84 ± 1.0	0.26 ± 0.03
HAp-T-A	4.35 ± 0.2	16.42 ± 0.2	22.26 ± 1.4	0.61 ± 0.01
HAp-NH ₂	4.69 ± 0.1	12.61 ± 0.1	34.17 ± 1.0	0.63 ± 0.01

Table S3. The results of surface grafting reaction.

Sample	Weight retention (%)	Total grafting content (%)
HAp	93.09	0
HAp-A alcohol solution	91.91	1.18
HAp-A anhydrous toluene	91.60	1.49
HAp-T-A	85.74	7.35
HAp-NH ₂	81.30	11.79

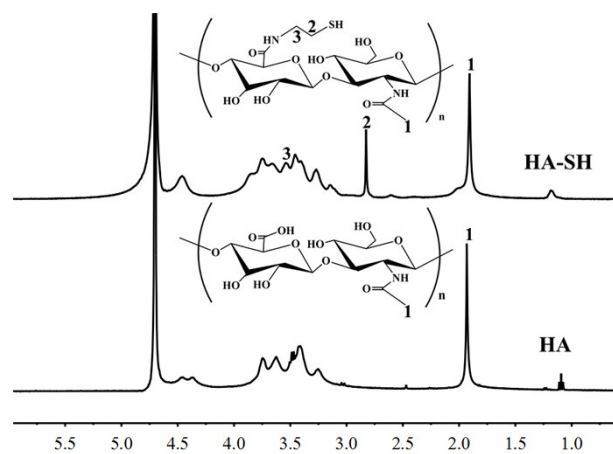


Figure S1. ¹H-NMR (D₂O) spectra of HA and HA-SH.

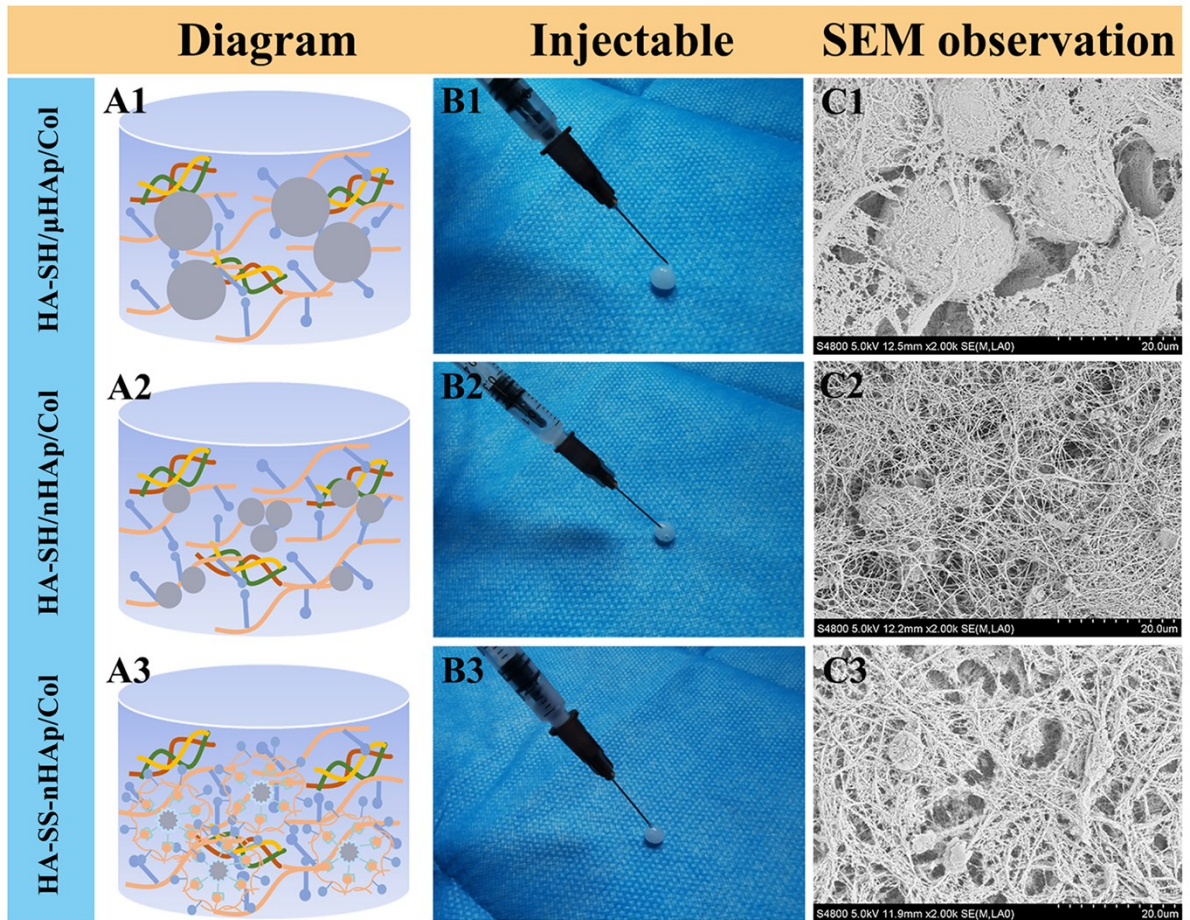


Figure S2. (A1-A3) The schematic diagram for inner structure of three hybrid hydrogels. (B1-B3) Injection images of hybrid hydrogels. (C1-C3) SEM images of three hybrid hydrogels.

The disintegration performance of hydrogels in type I collagenase was tested under following condition: The prepared disc-shaped hydrogels were freeze-dried and weighed (W_o). And then, they were immersed in deionized water containing 100 $\mu\text{g}/\text{mL}$ type I collagenase in a constant temperature shaker at 90 rpm at 37 °C. At a certain time interval, the hydrogels were taken out and washed in distilled water, freeze-dried and weighed again (W_r). Every sample was measured in three replicates. The disintegration performance of hydrogels was expressed as percentage of weight loss and was calculated as follows: $\text{Weight loss percentage} = (W_o - W_r) / W_o \times 100\%$.

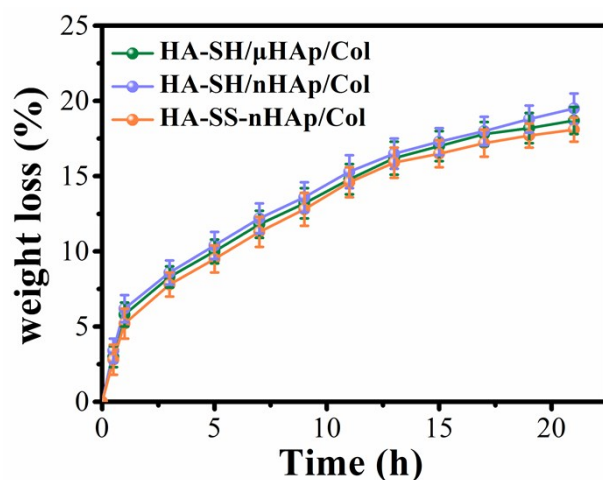


Figure S3. Disintegration behaviour for hybrid hydrogels in type I collagenase.

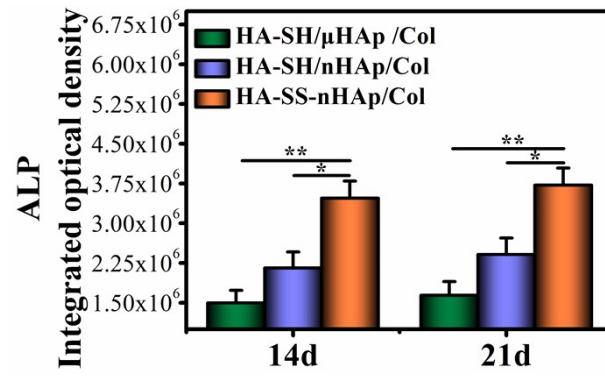


Figure S4. The semi-quantitative results for ALP staining. The data were presented as mean \pm standard deviations (SD) from 3 independent experiments (n= 3). *p < 0.05, **p < 0.01 and ***p < 0.001.