Mechanically Tunable Fiber-Based Hydrogel Activates PIEZO1–Integrin Axis for Enhanced Bone Repair

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Table S1 Primer sequences of mouse-derived genes

Gene	Forward (5’-3’)	Reverse (5’-3’)
GAPDH	GCCTCCTCCAATTCAACCCT	CCCAATACGGCCAAATCCGT
IL-6	TGATGGATGCTACCAAACTGGA	GTGACTCCAGCTTATCTCTTGG
TNF-α	CCCTCACACTCACAAACCAC	ACAAGGTACAACCCATCGGC
ARG1	TTCTCAAAAGGACAGCCTCG	CAGACCGTGGGTTCTTCACA
IL-10	GTAGAAGTGATGCCCCAGGC	CACCTTGGTCTTGGAGCTTATT
OSX	GTGGGAACAAGAGTGAGCTGG	CCATAGTGAGCTTCTTCCTGGGTA
Runx2	GGGAACCAAGAAGGCACAGA	ACTTGGTGCAGAGTTCAGGG
OPN	GAAGCATCCTTGCTTGGGTTT	GGTCGTAGTTAGTCCCTCAGAA
Col1	GGGTCTAGACATGTTCAGCTTTGTG	ACCCTTAGGCCATTGTGTATGC
Itgα5	GGCTTGGAAAGAAAGAGTCAGTG	CACTGGATAGGACTGGTGCC
Tns1	CGTGAGCCTGGTGTGCT	TCCAGGTCTTCTGGCTGA
Rhoa	GTCGCTTCCTCTCAGGGTTG	CTCAGATGCAAGGCTAGTCCA
Rock2	TCCAGCTCCAGACCCTTTTG	TAGAAGGCAGTTAGCTTGGC
Id3	ATCTCCCGATCCAGACAGC	CAGGATTTCCCATGCAAGCC

Table S2 The normalized signal density list of inflammation

(with background subtraction)

	Control		OHADN fiber@Yoda1 hydrogel	
POS		54		105
IL1-α	41.3925	41.1025	52.16	57.48
IL1-β	7.0325	7.8325	11.81	13.14
IL2	18.5425	17.4125	30.42	36.67
IL3	13.6625	13.6925	25.32	25.59
IL4	57.8525	56.1625	122.38	119.13
IL6	9.8425	9.7725	11.3075	13.5175
IL9	19.5725	22.7225	46.35	49.35
IL10	9.8825	12.8125	27.72	35.53
IL12-p40/p70	12.0325	20.7525	14.6675	18.4075
IL12-p70	63.3825	70.7025	129.33	129.88
IL13	11.2425	10.3325	24.8225	23.5525
IL17	6.5325	5.8325	12.2525	11.6225
M-CSF	55.7225	57.0525	101.9025	101.5325
G-CSF	3.1925	7.6225	8.1725	12.0125
GM-CSF	20.7825	26.1225	48.04	50.3
IFN-γ	11.1725	10.2125	20.6925	19.5625
TNF-α	10.5125	12.6925	22.95	22.5

The simple algorithm below can be used to calculate and determine the signal fold expression between like analytes:

$X(Ny) = X(y) * P1/P(y)$

Where:

P1=mean signal density of Positive Control spots on reference array

P(y)=mean signal density of Positive Control spots on Array "y"

X(y)= X(Ny)=normalized signal intensity for spot "X" on Array "y"

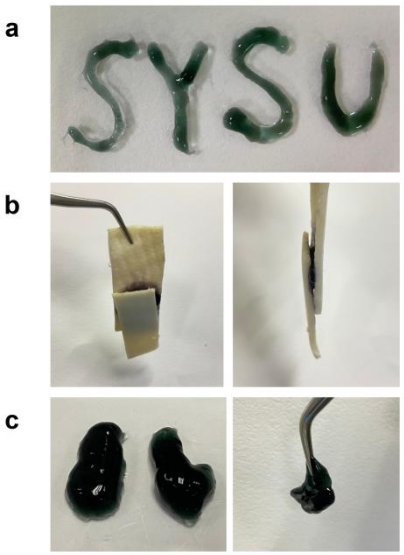

Fig. S1 OHADN fiber@Yoda1 hydrogel has injectable (a), adhesive (b), and self-healing (c) properties.

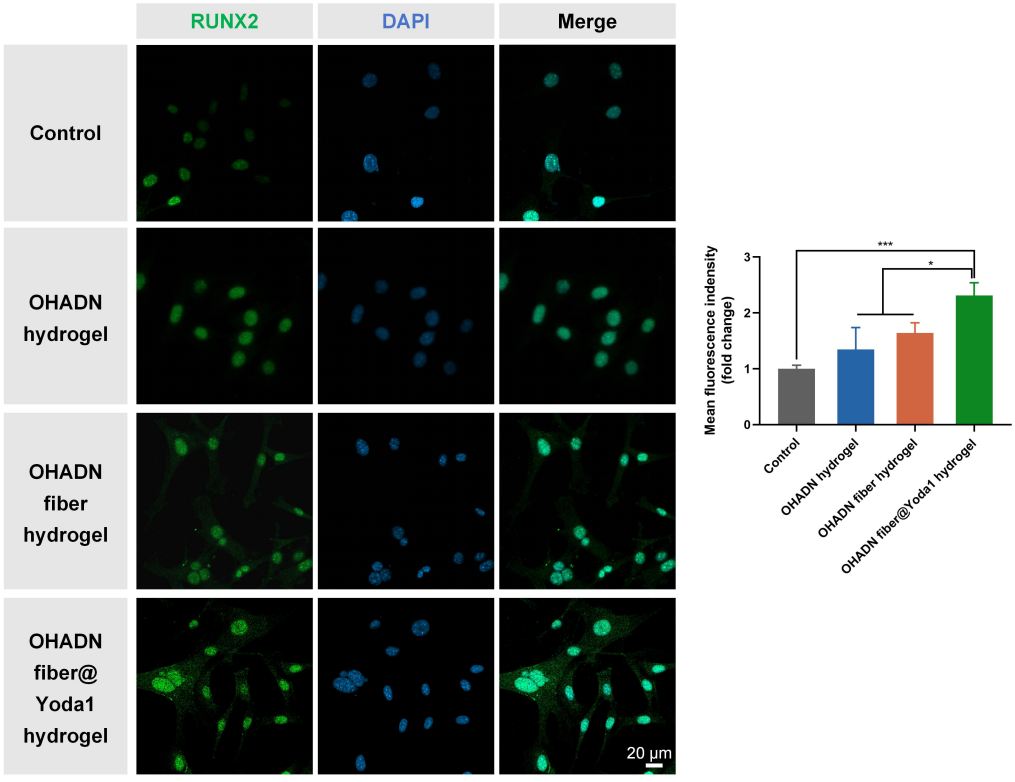

Fig. S2 Immunofluorescence staining images and semi-quantitative analysis of RUNX2. (*$P < 0.05$, ***$P < 0.001$, analyzed by one-way ANOVA, followed by the LSD test.)

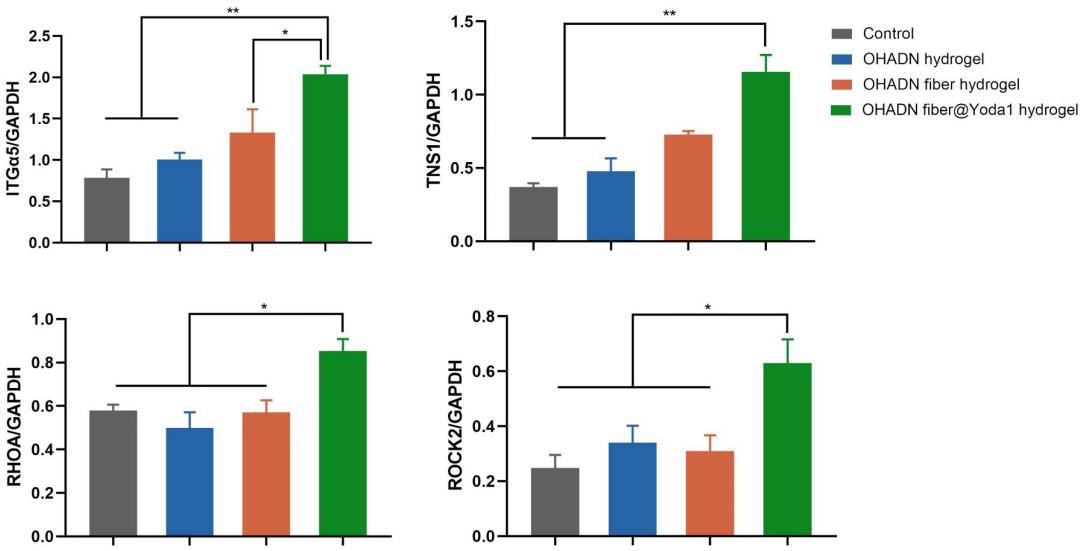

Fig. S3 Western blot analysis of ITGα5, TNS1, RHOA, and ROCK2. (*P＜0.05, **P ＜0.01, analyzed by one-way ANOVA, followed by the LSD test.)

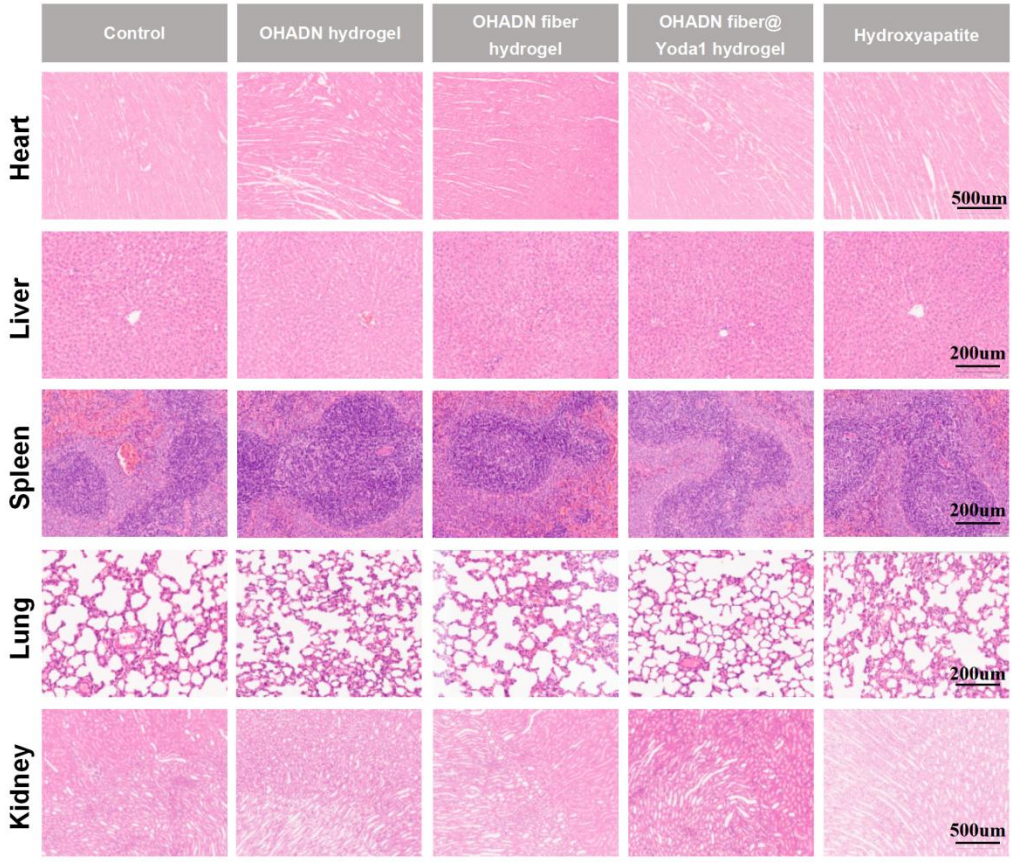

Fig. S4 H&E staining images of heart, liver, spleen, lung and kidney of rats in each group.