

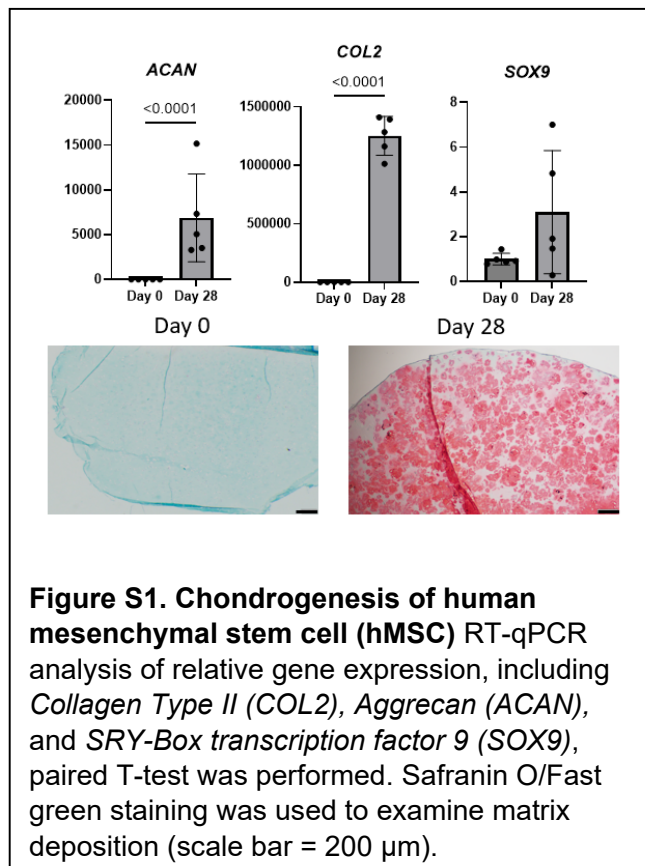
Table S1. Primer sequences for qRT-PCR

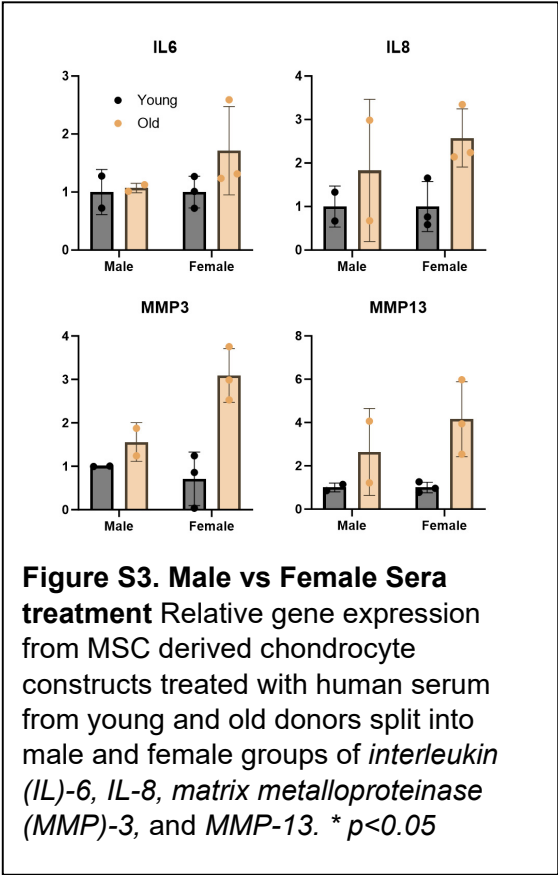
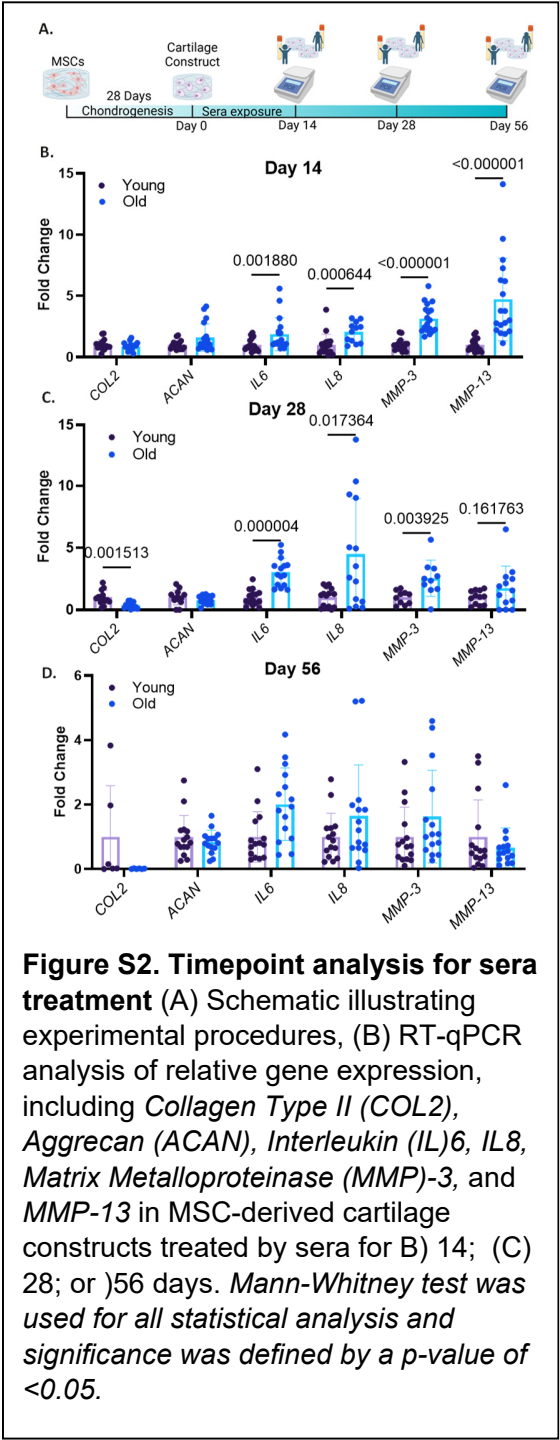
Gene	Forward Primer (5'->3')	Reverse Primer (5'->3')
<i>RPL13a</i>	GCCATCGTGGCTAAACAGGTA	GTTGGTGTTTCATCCGCTTGC
<i>SOX9</i>	GGCGGAGGAAGTCGGTGAAGAA	GCTCATGCCGGAGGAGGAGTGT
<i>COL1</i>	GAGGGCCAAGACGAGGACATC	CAGATCACGTCATCGCACAAAC
<i>COL2</i>	GGATGGCTGCACGAAACATACCGG	CAAGAAGAGACCGGCCCTATG
<i>ACAN</i>	AGTCACACCTGAGCAGCATC	AGTTCTCAAATTGCATGGGGTGTC
<i>VCAN</i>	TGGAATGATGTTCCCTGCAA	AAGGTCTTGGCATTCTTCTACAACAG
<i>IL-6</i>	ACTCACCTCTTCAGAACGAATTG	CCATCTTTGGAAGGTTTCAGGTTG
<i>IL-8</i>	TTTTGCCAAGGAGTGCTAAAGA	AACCCTCTGCACCCAGTTTTC
<i>MMP-3</i>	CGGTTCCGCCTGTCTCAAG	CGCCAAAAGTGCCTGTCTT
<i>MMP-13</i>	ACTGAGAGGCTCCGAGAAATG	GAACCCCGCATCTTGGCTT
<i>CDKNA1</i>	AGTGGAATTAGCCCTCAGCA	CATGGTCCCTGGGTTCTTC
<i>GATA4</i>	CAGTCTACGTGCCACACC	TCCCGCCTGGCTCCAT

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Table S2. All antibodies used in this study.

Antibody	Company	Catalog No.	Dilution
Collagen Type II	Abcam	AB34712	1:500
Ki67 (Kiel-67)	Abcam	AB92742	1:250
p21 (cyclin-dependent kinase inhibitor 1)	Novus	NB100-1941	1:500





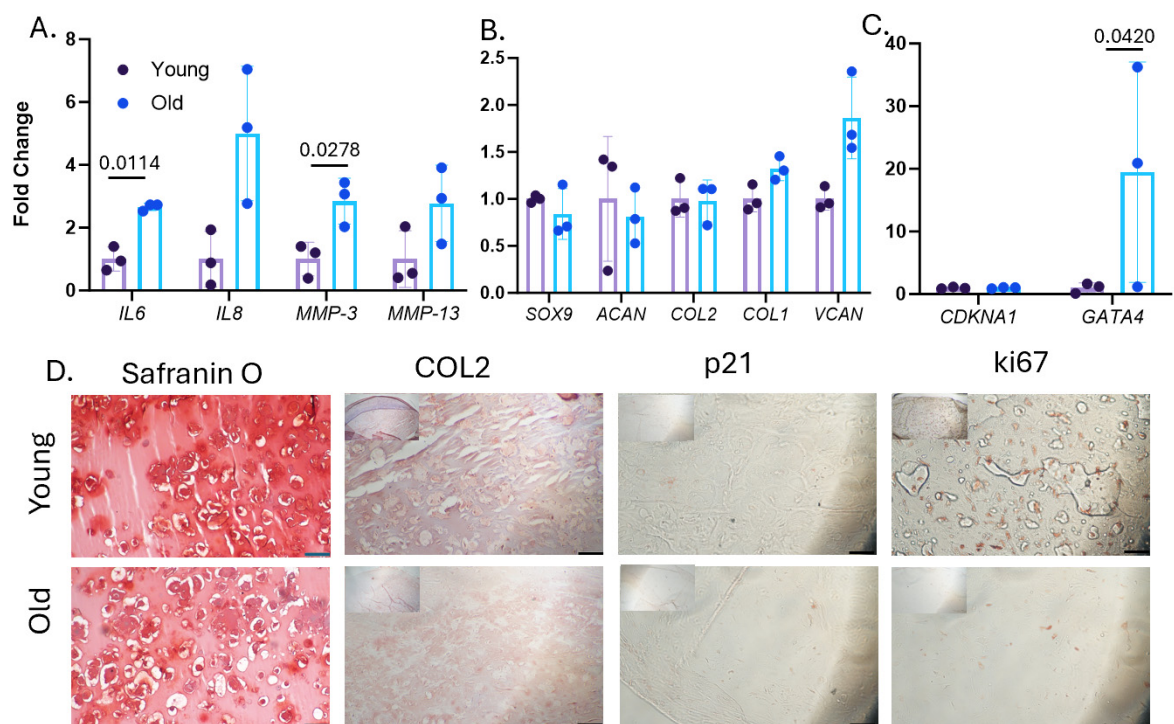


Figure S4. Validation in the second MSC pool. (A)Relative gene expression of inflammatory genes, interleukin (IL-6), IL-8, matrix metalloproteinase (MMP)– 3, and MMP-13. (B) Relative gene expression of chondrogenic genes, SRY-Box transcription factor (SOX)9, aggrecan (ACAN), and collagen type 2 (COL2), COL1, and versican (VCAN). (C)Relative gene expression of age-related genes, p21 and GATA4. (D)Safranin O staining, collagen 2 (COL2) immunohistochemistry (IHC) (Scalebar = 100 μ m), p21 IHC and Ki67 IHC (Scalebar = 50 μ m). The donor information was shown below.

Age	31	26	17	19	31	25	72	71	78	77	77	84
Sex	F	F	F	M	M	M	F	F	F	M	M	M