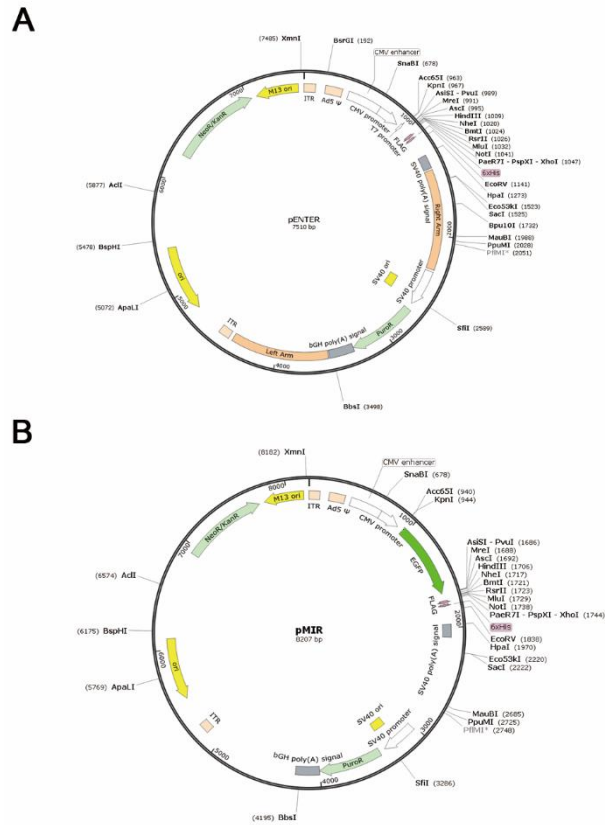


**OMTN, Volume 22**

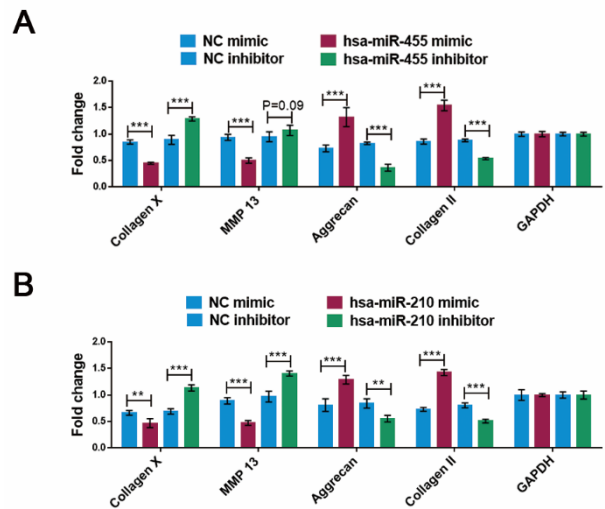
**Supplemental Information**

**The Synovium Attenuates Cartilage Degeneration  
in KOA through Activation of the Smad2/3-Runx1  
Cascade and Chondrogenesis-related miRNAs**

**Xiaoyi Zhao, Fangang Meng, Shu Hu, Zibo Yang, Hao Huang, Rui Pang, Xingzhao Wen, Yan Kang, and Zhiqi Zhang**



**Figure S1. Illustration of the plasmid vectors.** Properties of the hsa-RUNX1 overexpression plasmid (A). Properties of the hsa-miR-455 and hsa-miR-210 overexpression plasmid (B)



**Figure S2. The grayscale values of the blots were quantitated and statistically analyzed.** The expression patterns of chondrogenic genes and hypertrophic genes in chondrocytes after transfection with the mimic NC, miRNA mimic, inhibitor NC or miRNA inhibitor for miR-455 (A) and miR-210 (B).

**Table S1.** The specific siRNA sequences used in the present study.

Gene name		siRNA sequence 5'-3'
<b>hsa-RUNX1</b>	Sense	CCTCGAAGACATCGGCAGAAA
	Anti-sense	TTTCTGCCGATGTCTTCGAGG
<b>hsa-SMAD2</b>	Sense	CGATTAGATGAGCTTGAGAAA
	Anti-sense	TTTCTCAAGCTCATCTAATCG
<b>hsa-SMAD3</b>	Sense	GAGCCTGGTCAAGAAACTCAA
	Anti-sense	TTGAGTTTCTTGACCAGGCTC

**Table S2.** The primer sequences of putative Runx1 binding sites in the promoter regions of miR-455 and miR-210.

Gene name		primer sequence 5'-3'
<b>Promoter region of hsa-miR-210</b>	Sense	CCCCATGGAGGCTCAAGTTCA
	Anti-sense	CATGTGTGTGCCACTTCCCCTA
<b>Promoter region of hsa-miR-455-01</b>	Sense	TGCAAGCTCCAGGTGGAAAAAT
	Anti-sense	GGAAGGCCTGTATGACTGGA
<b>Promoter region of hsa-miR-455-02</b>	Sense	CTCCCCAATGCCGTGTTCT
	Anti-sense	TGTGAATGTACCTAACGCTATCGAA
<b>Promoter region of hsa-miR-455-03</b>	Sense	AGTGTGGGTGGTGACAATCTG
	Anti-sense	CATTAACCTAACAGCGGCTGCG
<b>Promoter region of hsa-miR-455-04</b>	Sense	TCCAGAGGAAAGCTTGGTCC
	Anti-sense	TAGCCTGCTCGTAGAGACCC
<b>Promoter region of hsa-miR-455-05</b>	Sense	ACAGAGATCCCCTCAGCCAT
	Anti-sense	GAGGTAAGCGTGGAAGCTGT
<b>Promoter region of hsa-miR-455-06</b>	Sense	CAGCCCCCTGTAGAGGTAA
	Anti-sense	TGCTTGTTTGAGGAGAGGCAG

**Table S3.** The specific primer sequences of mRNA used in the present study.

Gene name		mRNA primer sequence 5'-3'
<b>hsa-ADAMTS4</b>	Sense	GGTCAAGGTCCCATGTGCAAC
	Anti-sense	GAATGCGGCCATCTTGTCATC
<b>hsa-ANCA</b>	Sense	GTGCCTATCAGGACAAGGTCT
	Anti-sense	GATGCCTTTCCACCACGACTTC
<b>hsa-AR</b>	Sense	ATGGTGAGCAGAGTGCCCTATC
	Anti-sense	ATGGTCCCTGGCAGTCTCCAAA
<b>hsa-COL1A1</b>	Sense	GTGGAAACCCGAGCCCTGCC
	Anti-sense	TCCCTTGGGTCCCTCGACGC
<b>hsa-COL2A1</b>	Sense	GCACCTGCAGAGACCTGAAAC
	Anti-sense	GCAAGTCTCGCCAGTCTCCA
<b>hsa-COL5A1</b>	Sense	GCCCGGATGTCGCTTACAG
	Anti-sense	AAATGCAGACGCAGGGTACAG
<b>hsa-COL10A1</b>	Sense	CATAAAAGGCCCACTACCCAAC
	Anti-sense	ACCTTGCTCTCCTCTTACTGC

<b>hsa-IRF7</b>	Sense	CCACGCTATACCATCTACCTGG
	Anti-sense	GCTGCTATCCAGGGAAGACACA
<b>hsa-JUN</b>	Sense	CCTGAAAGCTCAGAACTCGGAG
	Anti-sense	TGCTGCGTTAGCATGAGTTGGC
<b>hsa-LOX</b>	Sense	GTGGCCGACCCCTACTACATCC
	Anti-sense	AGCAGCACCCCTGTGATCATAATCTC
<b>hsa-MEF2C</b>	Sense	TCCACCAGGCAGCAAGAATACG
	Anti-sense	GGAGTTGCTACGGAAACCACTG
<b>hsa-MMP13</b>	Sense	TCCTGATGTGGGTGAATACAATG
	Anti-sense	GCCATCGTGAAGTCTGGTAAAAT
<b>hsa-MYC</b>	Sense	CCTGGTGCTCCATGAGGAGAC
	Anti-sense	CAGACTCTGACCTTTTGCCAGG
<b>hsa-PLOD2b</b>	Sense	TTAAAGGAAAGACACTCCGATCAGAGATGA
	Anti-sense	AATGTTTCCGGAGTAGGGGAGTCTTTTT
<b>hsa-RUNX1</b>	Sense	CCACCTACCACAGAGCCATCAA
	Anti-sense	TTCACTGAGCCGCTCGGAAAAG
<b>hsa- RUNX2</b>	Sense	CCCAGTATGAGAGTAGGTGTCC
	Anti-sense	GGGTAAGACTGGTCATAGGACC
<b>hsa- RUNX3</b>	Sense	GGCAATGACGAGAACTACTCCG
	Anti-sense	GATGGTCAGGGTGAAACTCTTCC
<b>hsa-SMAD2</b>	Sense	GGGTTTTGAAGCCGTCTATCAGC
	Anti-sense	CCAACCACTGTAGAGGTCCATTC
<b>hsa-SMAD3</b>	Sense	TGAGGCTGTCTACCAGTTGACC
	Anti-sense	GTGAGGACCTTGTC AAGCCACT
<b>hsa-SOX9</b>	Sense	AGCGAACGCACATCAAGAC
	Anti-sense	CTGTAGGCGATCTGTTGGGG
<b>hsa-VDR</b>	Sense	CGCATCATTGCCATACTGCTGG
	Anti-sense	CCACCATCATTCACACGAACTGG
<b>hsa-GAPDH</b>	Sense	GCACCGTCAAGGCTGAGAAC
	Anti-sense	ATGGTGGTGAAGACGCCAGT

**Table S4.** The specific primer sequences of miRNA used in the present study.

Gene name		miRNA primer sequence 5'-3'
<b>hsa-miR-193b</b>	Sense	AACUGGCCCUCAAAGUCCCGCU
<b>hsa-miR-199a</b>	Sense	ACAGUAGUCUGCACAUUGGUUA
<b>hsa-miR-455</b>	Sense	GCAGUCCAUGGGCAUUAACAC
<b>hsa-miR-210</b>	Sense	AGCCCCUGCCCACCGCACACUG
<b>hsa-miR-381</b>	Sense	AGCGAGGUUGCCCUUUGUAUUAU
<b>hsa-miR-92a</b>	Sense	UAUUGCACUUGUCCCGGCCUGU
<b>hsa-miR-320c</b>	Sense	AAAAGCUGGGUUGAGAGGGU
<b>hsa-miR-136</b>	Sense	ACUCCAUUUGUUUUGAUGAUGGA
<b>cel-miR-39</b>	Sense	UCACCGGGUGUAAAUCAGCUUG
<b>hsa-U6</b>	Sense	CTCGCTTCGGCAGCACA
	Anti-sense	AACGCTTCACGAATTGCGT

**Table S5.** miRNA-specific probes for in situ hybridization analysis

<b>Gene name</b>		<b>miRNA probe sequence 5`-3`</b>
<b>hsa/mmu-miR-455</b>	Probe	DIG-GTGTATATGCCCATGGACTGC-DIG
<b>hsa/mmu-miR-210</b>	Probe	DIG-TCAGCCGCTGTCACACGCACA-DIG
<b>hsa-miR-320c</b>	Probe	DIG-ACCCTCTCAACCCAGCTTTT-DIG