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Supplemental Information

Repression of COUP-TFI Improves Bone Marrow-Derived Mesenchymal Stem Cell Differentiation into Insulin-Producing Cells

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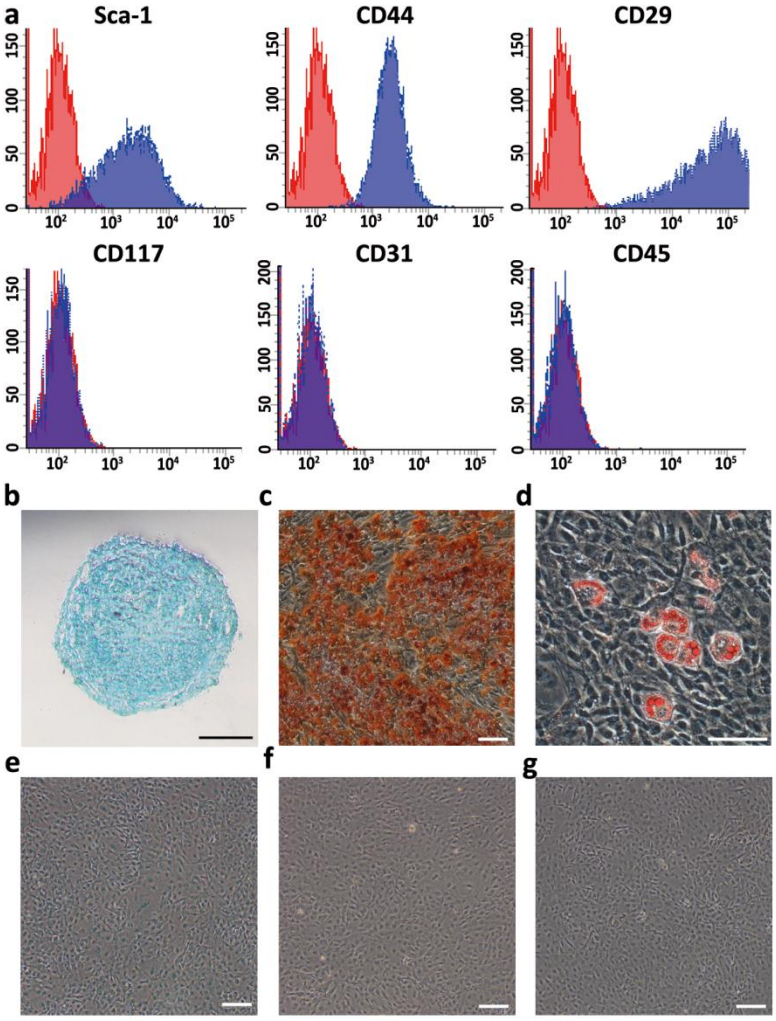
Supplementary Figure 1. Characterization of bmMSCs *in vitro*. (**a**) Phenotype of bmMSCs by flow cytometry analysis. bmMSCs were harvested and labeled with antibodies against Sca-1, CD44, CD29, CD31, CD117 and CD45. (**b**) bmMSCs were cultured in chondrogenic differentiation medium for 3 weeks. When cell pellet was formed, the pellet was fixed and sectioned at 8 μm with cryostat microtome. The slices were stained with alcian blue solution. Scale bar = 200 μm. (**c**) The bmMSCs were cultured in osteogenic differentiation medium for 3 weeks and stained with Alizarin red. Scale bar = 100 μm. (**d**) bmMSCs were cultured in adipogenic differentiation medium for 4 weeks and stained with Oil red O. Scale bar = 20 μm. (**e**) bmMSCs were cultured in normal medium for 3 weeks and stained with alcian blue solution. Scale bar = 100 μm. (**f**) bmMSCs were cultured in normal medium for 3 weeks and stained with Alizarin red. Scale bar = 100 μm. (**g**) bmMSCs were cultured in normal medium for 4 weeks and stained with Oil red O. Scale bar = 100 μm.


a
Sca-1
CD44
CD29
CD117
CD31
CD45
b
c
d
e
f
g

Supplementary Table 1. Primers sequences used in our research.

Primer used for RT-qPCR		
Gene symbol	Forward primer (5’-3’)	Reverse primer (5’-3’)
GAPDH	TTCACCACCATGGAGAAGGC	CCCTTTTGGCTCCACCCT
Ins1	GAAGCGTGGCATTGTGGAT	TGGGCCTTAGTTGCAGTAGTTCT
Ins2	AGCCCTAAGTGATCCGCTACAA	CATGTTGAAACAATAACCTGGAAGA
Pdx1	CCCCAGTTTACAAGCTCGCT	CTCGGTTCCATTCGGGAAAGG
Isl1	ATGATGGTGGTTTACAGGCTAAC	TCGATGCTACTTCACTGCCAG
Pax6	CCCTCACCAACACGTACAG	TCATAACTCCGCCCATTCAC
Glut2	ACTTGGAAGGATCAAAGCAATGT	CAGTCCTGAAATTAGCCCACAA
Glucagon	TTACTTTGTGGCTGGATTGCTT	AGTGGCGTTTGTCTTCATTCA
Crabp1	CGCACCACGGAGATCAACTT	TGTCTCCTCCTCGAAGCCCT
Casq1	GACGCGGACAGCATATGGAT	AGAAGGCAGGTCCTCCTCGT
Ehhadh	ATGGCTGAGTATCTGAGGCTG	GGTCCAAACTAGCTTTCTGGAG
Camk4	GAGAACCTCGTCCCGGATTAC	ACACAATGGATGTAGCACCCC
Sod1	GTGCAGGGAACCATCCACTT	CACAACTGGTTCACCGCTTG

Myog	GAGACATCCCCCTATTTCTACCA	GCTCAGTCCGCTCATAGCC
Foxo3a	CTCAAAGTCTGGGTACCAGGC	GCCCATTTCCCCTTTCCTC
Fabp7	GGACACAATGCACATTCAAGAAC	CCGAACCACAGACTTACAGTTT
Pck1	CTGCATAACGGTCTGGACTTC	CAGCAACTGCCCGTACTCC
MR1	CCTACCAGAGAATGATTGGCTG	GCAACTCATGCAGGTTGGC
BMP4	TTCCTGGTAACCGAATGCTGA	CCTGAATCTCGGCGACTTTTT
HGF	ATGTGGGGGACCAAACTTCTG	GGATGGCGACATGAAGCAG
MTTP	CTCTTGGCAGTGCTTTTTCTCT	GAGCTTGTATAGCCGCTCATT
OCT4	AGAGGATCACCTTGGGGTACA	CGAAGCGACAGATGGTGGTC
Aldh2	GACGCCGTCAGCAGGAAAA	CGCCAATCGGTACAACAGC
Primer used for Semi-quantitative PCR		
Gene symbol	Forward primer (5’-3’)	Reverse primer (5’-3’)
COUP-TFI	CCTCCTCTGTCATCGAGCAA	TCCATCATACCAGCATCCCC
GAPDH	ACCACAGTCCATGCCATCAC	TCCACCACCCTGTTGCTGTA
Primer used for ChIP		

Gene symbol	Forward primer (5’-3’)	Reverse primer (5’-3’)
ChIP DR1 site	GGACTAAGTAGAGGTGTTGACG	CTGGACTTTGCTGTTTGACC
ChIP Negative Control	CTTGAACCTAACTGCTTGG	AGGCACTCTGTTGAGATT
Primers used for vectors construction		
Gene symbol	Forward primer (5’-3’)	Reverse primer (5’-3’)
pMD-1000	ACACTGCCCTGATCTTCTTACC	GCTTGCTGATGGTTTTTGATTGT
pCDH-COUP-TFI	CGGAATTCGCCACCATGGCAATGGTAGTTAGCAGCTG	ATAAGAATGCGGCCGCGGAACACTGGATGGACATGTAAG
pCDH-MafA	GCTCTAGAGCCACCATGGCCGCGGAGCTGGCGATG	CGCGGATCCCAGAAAGAAGTCGGGTGCGCC
pGL3-Ins2	CGACGCGTGGAGGGACCATTAAGTGCCT	CCGCTCGAGCGGATCACTTAGGGCTGGTG
Primers used for DNA affinity precipitation assay		
Gene	Forward primer (5’-3’)	Reverse primer (5’-3’)

symbol		
Biotinylated primers	GGAGGGACCATTAAGTGCCTTG	CGGATCACTTAGGGCTGGTGG