Table S1: Primers used for PCR.

	Forward	Reverse
Dll4	CAGTGGGCAGCGAAGCTACA	ACAGGCAGTGGTAGCCATCCTC
Ephrin B2	CTCCTCAACTGTGCCAAACCA	GGTTATCCAGGCCCTCCAAA
Notch1	CATCACCTGCCTGTTAGGAG	ACACATGGCAACATCTAACCC
Hey2	TTCAAGGCAGCTCGGTAACTGAC	CATACTGATGCACTGCTGGATGG
SUMO1	CAGGAGGCAAAACCTTCAAC	CTCCATTCCCAGTTCTTTCG
SUMO2	ACGAGAAACCCAAGGAAGGA	CTCCATTTCCAACTGTGCAG
SENP1	TTGGCCAGAGTGCAAATGG	TCGGCTGTTTCTTGATTTTTGTAA
SENP2	AGCCTGGTGGTGATTGACCTAAGA	AGCTGTTGAGGAATCTCGTGTGGT
CCN1	AGCAGCGTTTCCCTTCTAC	TGAGTCCCATCACCCACA
GAPDH	GAGCTGAACGGGAAGCTCACTG	TGGTGCTCAGTGTAGCCCAGGA
shSENP1	TCGAGCGCCAGATTGAAGAACTCGAG TTCTGTTCTTCAATCTGGCGCTTTTTG	GATCCAAAAAGCGCCAGATTGAAGAA CAGAACTCGAGTTCTGTTCTTCAATCT GGCGC

Table S2: Primers used for PCR during ChIP analysis.

	Forward	Reverse
CCN1	CAGGTTGCGTAGCCATCC	TGGTAGCCACCTGCCTCT

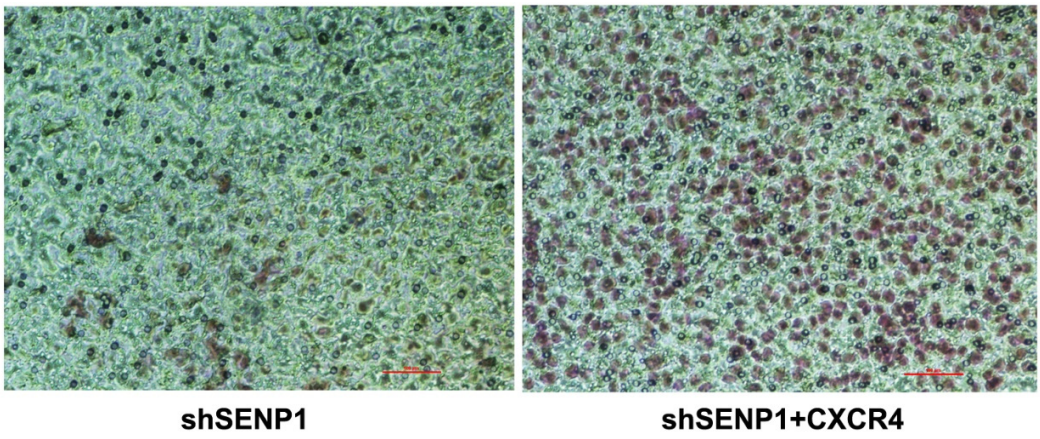

Figure S1: Overexpression of CXCR4 restored the cell invasion capacity. The migration capabilities of $MSCs^{shSENP1}$ group and $MSCs^{shSENP1}$ with CXCR4 overexpression group were analysed using a Transwell assay with 1.0×10^4 cells in 200 μL of a 1% FBS-containing medium. The lower chamber was filled with 600 μL of medium containing 10% FBS. Twenty-four hours later, cells that had migrated to the lower side of the membrane were fixed in 4% paraformaldehyde and stained with crystal violet.

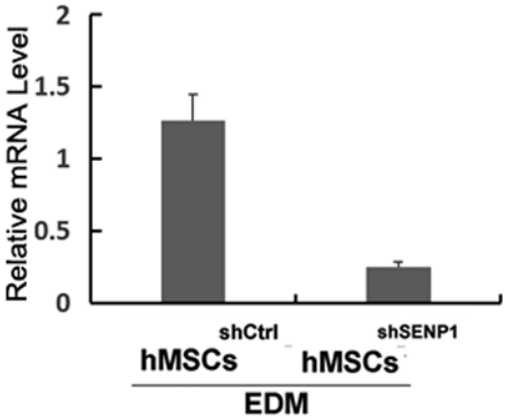

Figure S2: Knockdown of SENP1 suppressed the mRNA level of SDF-1 as determined by RT-PCR.