Fig. S1. Confocal microscopy image of CFDA-SE tracked MSC at Day 7 and Day 28 after SCI. 1×10^4 NP-MSCs was labeled with the green fluorescence dye CFDA-SE tracker and applied at epicenter of spinal cord. At Day 7 (D+7) and Day 28 (D+28) after SCI, the surviving green-labeled MSCs was visualized compared with SCI alone group by confocal microscopy (Olympus FLUOVIEW - FV300). DAPI stained nuclei. Representative image showed the merged image with DAPI (blue) and CFDA-SE (green) with high resolution. Yellow circle means co-localization of NP-MSCs in epicenter of SCI rat. The image was chosen by repeated 3 different experiments at ×600 magnification Scale bar=20 μm.
Fig. S2. The mRNA levels of cytokines/chemokine in acute SCI transplanted with MSC-CM or MSCs. After SCI induction with MSC or MSC-CM transplantation, the spine homogenates were isolated at 1 to 7d. (A) RT-qPCR detected gene expression of neuron-inflamatory-related cytokine/chemokine including IL1α, TNFα, Tgfβ, Il10, Cxcl2 and Cxcl10 in indicated time point after SCI. The relative expression was calculated with $2^{-\Delta\Delta CT}$ method and normalized with GADPH. The mRNA levels of IL1α, TNFα, and Tgfβ were significantly decreased in MSC transplanted SCI rats compared with MSC-CM transplanted SCI rats. *p < 0.05, **p < 0.01 and ***p < 0.001 for MSC-SCI compared with MSC-CM-SCI at indicated time point. (B) ELISA analysis evaluated the protein level of TNF-α in rat spine. Each value was calculated along with regression analysis of corresponding standard curve. MSC treatment decreased the level of TNF-α in SCI rat. *p < 0.05 MSC-CM-SCI or MSC-SCI compared with SCI at indicated time point. Data are presented as the mean ± SD of three animals for MSC-SCI or SCI, and two animals for MSC-CM-SCI.
Fig. S3. The expression level of MMPs in MSC. The mRNA expression level of MMP1, 2, 3, 7, 8 and 9 was analyzed by real-time qRT-PCR in MSC. GADPH was used to internal control. The production of MMP2 was increased compared with other MMP expression with statistically significance in MSC upon neuronal induction. Data are presented as the mean±SD. *p<0.05, **p<0.01 and ***p<0.001 for MSC in neuronal induction compared with MSC without neuronal induction. NS: no significant.