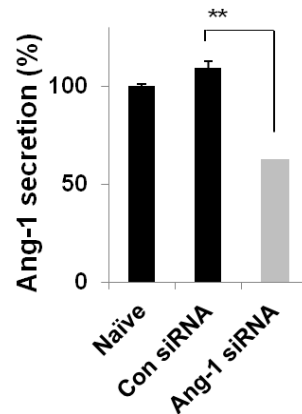


Supplementary Information

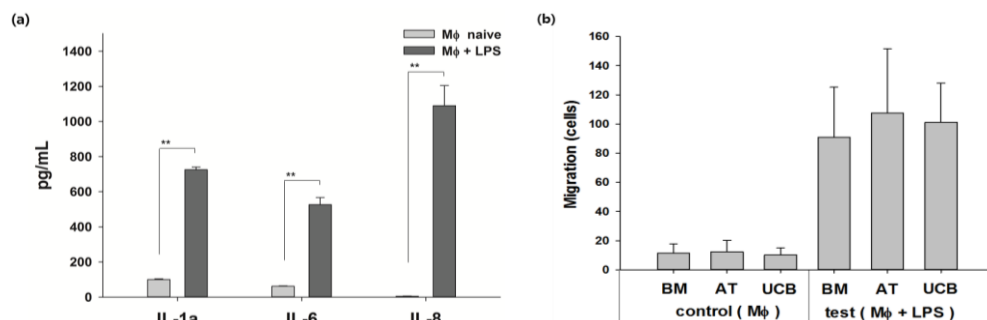
Figure S1. Inhibition of Ang-1 secretion by siRNA in UCB-MSCs. Reduced secretion of Ang-1 was measured by ELISA. Error bars represent the means $\pm$ SD, $n = 3$; ** $p < 0.01$ vs. control siRNA.



Migration Assays via a Transwell System

MSCs from three sources (BM, AT, UCB) were labeled with PKH26 (Sigma). Labeling was performed according to recommended protocol. In brief, cells were suspended in Diluent C at a density of 2×10^6 cells/mL and mixed with an equal volume of the PKH26 dye in Diluent C. Labeling was carried out at room temperature for 4 min. The labeling reaction was terminated by the addition of an equal volume of FBS. For inflammatory condition *in vitro*, we used LPS-exposed NR8383, as described in Expression section. MSCs migration was analyzed using transwell migration assays (FALCON). This permitted separation of the two plate chambers with a porous membrane (8.0 μ m size) was cultured. PKH26-labeled MSCs (1×10^4 in 500 μ L medium) were added to the upper chamber with NR8383 or LPS-exposed NR8383 (lower chamber). The chambers were incubated at 37 $^{\circ}$ C for 72 h. Then, the numbers of MSCs that had migrated into the lower chamber were counted.

Figure S2. Migration assay of MSCs from BM, AT, and UCB. (a) Analysis of ELISA revealed up-regulation of inflammatory cytokines IL-1 α , IL-6, and IL-8 in NR8383 after LPS stimulation. Error bars represent the means $\pm$ SD, $n = 3$; ** $p < 0.01$ vs. NR8383; and (b) MSCs from three sources and LPS exposed NR8383 were co-cultured in the upper and lower chambers respectively. After 72 h, migrated MSCs in a lower chamber were counted under the microscope.



Mixed Lymphocyte Reaction Assay (MLR)

To assess T-cell reactivity against allogeneic cell populations, human responder peripheral blood mononuclear cells (PBMCs) were co-cultured with inactivated allogeneic PBMCs or BM-, AT-, or UCB-MSCs in 96-well plates. PBMCs were purchased from Astarte Biologics, LLC (Bellevue, WA, USA). The stimulator PBMCs and other MSCs were inactivated by treatment with 10 μ g/mL mitomycin-C (Sigma) for 1 h at 37 $^{\circ}$ C. To assess suppression of T-cell proliferation, clustering of T-cells was assessed in bright field and BrdU ELISA (Roche, Mannheim, Germany) at 3 days' cultivation. Sample absorbance was measured at 370~492 nm.

Figure S3. Immunosuppression by MSCs from BM, AT, and UCB. Human responder PBMCs were cultured with inactivated allogeneic PBMCs (positive control; MLR). All MSCs significantly reduced the proliferation of alloreactive T-lymphocytes in comparison to MLR. The difference between MSCs was not statistically significant. Error bars represent the means $\pm$ SD, $n = 5$; ** $p < 0.01$ vs. MLR.

