

## **Description of Additional Supplementary Files:**

**Supplementary Data 1:** RNA-Seq FPKM of LepR+ MSCs and BMECs in mice with conditional deletion of NTN1 in MSCs (LepR-NTN1 mice) and BMECs (CDH5-NTN1).

**Supplementary Data 2:** RNA-Seq Pathway Analysis of LepR+ MSCs in mice with conditional deletion of NTN1 in MSCs (LepR-NTN1 mice) and BMECs (CDH5-NTN1).

**Supplementary Data 3:** RNA-Seq Pathway Analysis of BMECs in mice with conditional deletion of NTN1 in MSCs (LepR-NTN1 mice) and BMECs (CDH5-NTN1).

**Supplementary Data 4:** RNA-Seq FPKM of LepR+ MSCs derived from young (3 month old) and aged (18 month old) C57BL6 mice.

**Supplementary Data 5:** RNA-Seq Pathway Analysis of LepR+ MSCs derived from young (3 month old) and aged (18 month old) C57BL6 mice.

**Supplementary Data 6:** RNA-Seq FPKM of BMECs derived from young (3 month old) and aged (18 month old) C57BL6 mice.

**Supplementary Data 7:** RNA-Seq Pathway Analysis of BMECs derived from young (3 month old) and aged (18 month old) C57BL6 mice.

**Supplementary Data 8:** RNA-Seq FPKM of LepR+ MSCs and BMECs derived from aged (18 month old) C57BL6 mice treated with PBS or recombinant Netrin-1.

**Supplementary Data 9:** RNA-Seq Pathway Analysis of LepR+ MSCs and BMECs derived from aged (18 month old) C57BL6 mice treated with PBS or recombinant Netrin-1.

**Supplementary Data 10:** RNA-Seq FPKM of HSCs derived from young (3 month old) and PBS/NTN1 treated aged (18 month old) C57BL6 mice.

**Supplementary Data 11:** RNA-Seq Pathway Analysis of HSCs derived from young (3 month old) and PBS/NTN1 treated aged (18 month old) C57BL6 mice.

**Supplementary Data 12:** RNA-Seq Pathway Analysis of a published meta-analysis of HSC Aging transcriptomic datasets (Svendsen et al).

**Supplementary Data 13:** Antibodies and Reagents