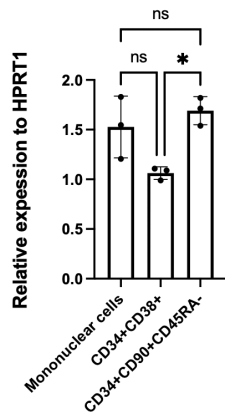
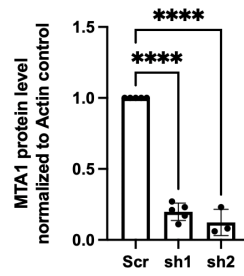
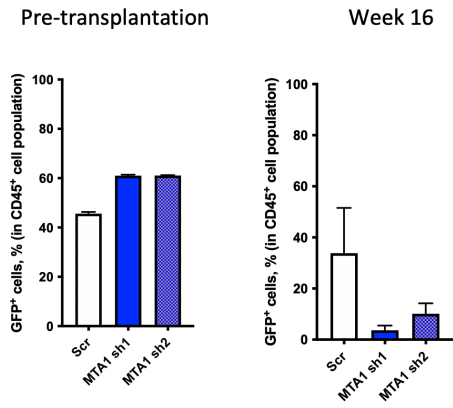


**Supplementary figure 1.** Distribution of STAG1, STAG2 and RPS12 shRNAs in the library.

**A****B**

**Supplementary figure 2. (A)** mRNA levels of MTA1 relative to HPRT expression measured by RT-qPCR in primary human HSPC populations. **(B)** MTA1 KD quantification measures by Western blot in CD34<sup>+</sup> cells



**Supplementary figure 3.** Frequency of transduced, GFP positive, cells in the hCD45<sup>+</sup> population before transplantation and in peripheral blood 16 weeks after transplantation.