



### Supplementary information Figure 3 RNAseq analysis of AFSCs and ASCs.

**(A)** Heatmap showing Pearson correlation coefficient ( $r$ ) of whole-genome transcriptome between samples and UHC with  $1-r$  as a distance measure. **(B)** PCA of transposable element expression. **(C)** Heatmap showing expression of differentially expressed transposable elements. **(D)** UHC of gene expression of *in vitro* pluripotent stem cells and that of E2.5 to E5.5 embryos [37]. The analysis was based on 1 685 dynamically expressed genes between E2.5 to E5.5 embryos. **(E)** Mesoderm gene expression in ESCs and ASCs. **(F)** Immunofluorescence (IF) staining for T (Bra) and Cdx1 in ESCs and ASCs, 20  $\mu$ m. **(G)** *Haunt/Halr1* and a set of *Hoxa* gene expression in ESCs and ASCs.