



**Supplementary information, Figure S2** *AP2γ* knockdown doesn't affect the pluripotency of ESCs and the expression of other germ layers markers during differentiation.

(A) The knockdown efficiency of *AP2γ* siRNAs expressing ESCs was checked by immunoblot.

(B) qRT-PCR analysis of pluripotency markers (*Oct4*, *Nanog*, *Rex1*) and

differentiation markers in control and AP2 $\gamma$  knockdown ESCs.

(C-D) Double immunostaining of Oct4 (green, artificial color) and Sox (red) for EBs derived from control or AP2 $\gamma$  shRNAs expressing ESCs at day 0, 2, 4, 6, respectively in KSR medium. The day 4 EB staining was shown in (C) and the percentage of Oct4/Sox<sup>+</sup> cells at indicated days is shown in (D).

(E-F) Immunostaining of Tuj1 (red) proteins for EBs under the above conditions. The day 6 EB staining was shown in (E) and the percentage of Tuj1<sup>+</sup> cells at indicated days is shown in (F).

(G-H) qRT-PCR analysis of *CK1* and *CK14* expression in control and AP2 $\gamma$  knockdown ESCs and EBs derived those ESCs at day 2-8 during differentiation in KSR medium.