



Supplementary information, Figure S1 *Zscan4* greatly promotes iPS cell formation. (A) The kinetics of reprogramming induced by OSKM or OSKMZ virus infection. Oct4-EGFP-positive colonies were scored from day 8 to day 14 ($n=3$). Error bars, s.d. (B) The kinetics of reprogramming induced by OSK or OSKZ virus infection. The percentage of Oct4-EGFP-positive cells was scored from day 6 to day 20 ($n=3$). Error bars, s.d. (C) The kinetics of reprogramming induced by OSK or OSKZ virus infection. The percentage of Oct4-EGFP-positive cells was scored from day 6 to day 20 ($n=3$). Error bars, s.d. (D) Phase-contrast and Oct4-EGFP images of reprogramming day 8. (E) Oct4-EGFP+ cells % derived from 8,000 cells. (F) Relative level of Zscan4. (G) No. of Oct4-EGFP+ colonies derived from 2,000 cells and Oct4-EGFP+ cells % derived from 2,000 cells. Western blot analysis of Zscan4 knockdown.

(C) The kinetics of reprogramming induced by OSK or OSKZ virus infection. The percentage of Oct4-EGFP-positive colonies was scored from day 6 to day 20 ($n=3$). Error bars, s.d.

(D) Representative images of OSKM, OSKMZ, OSK or OSKZ virus-infected MEFs on day 8 post-infection. Oct4-EGFP-positive colonies were already detected in OSKMZ and OSKZ virus-infected MEFs. Scale bars, 100 μm .

(E) *Zscan4c* promoted reprogramming efficiency. The percentage of Oct4-GFP-positive cells induced by OSKM, OSKMZc or OSKMZf virus infection was scored on day 12 ($n=3$).

(F) Quantitative RT-PCR for endogenous *Zscan4* during reprogramming. Relative expression levels were normalized against the average expression in OSKM virus-infected MEFs at day 3 post-infection. The data are presented as the mean \pm s.d. ($n=3$).

(G) Knockdown of endogenous *Zscan4* decreased the reprogramming efficiency. Left, the percentage of Oct4-GFP-positive colonies was scored on day 12 after MEFs were infected with OSKM, OSKMZ, OSKM plus control shRNA, OSKM plus *Zscan4* (Z) shRNA1, or OSKM plus Z shRNA2 virus ($n=3$). Middle, the percentage of Oct4-GFP-positive cells was scored ($n=3$). Error bars, s.d. Right, the expression of *Zscan4* as examined by Western blot. β -actin was used as a loading control.