

Figure S1. Establishment of *KDM2B* Knockout hESC Lines with CRISPR/ Cas9 system.

(A-B) Targeting strategy of *KDM2B* knockout in hESC with the designated guide RNA (gRNA) and the resulting deleted sequences.

(C) Schematic representation of different truncated *KDM2B* mutant proteins.

Figure S2. *KDM2B* KO hESCs maintain pluripotent characteristics.

(A) Immunofluorescence analysis of pluripotency markers in WT and *KDM2B* KO #5 hESCs. Scale bars, 20 μ m. In all panels, One representative experiment is shown out of the three replicate experiments.

(B) Relative mRNA levels of pluripotency marker genes in WT and *KDM2B* KO #5, #8 and #18 hESCs. Error bars indicate mean \pm SD from three independent biological replicates. Ns refer to non-significant.

(C) HE staining of the teratoma sections derived from WT or *KDM2B* KO #5 hESCs. The teratoma tissues contained glandular epithelium (g, endoderm), cartilage (c, mesoderm) and neural epithelium (n.e., ectoderm). Scale bars, 20 μ m.

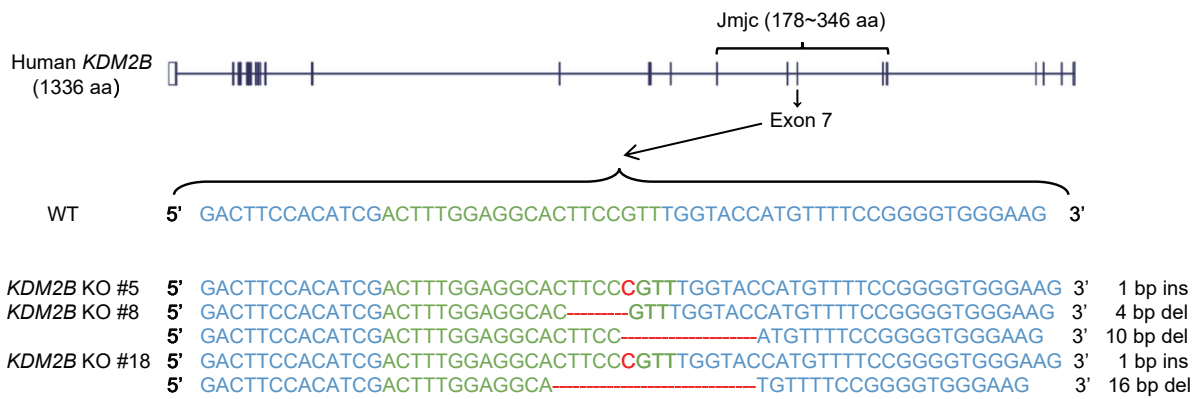
A

Table of efficiency

	Sequenced	KO	Others WT or 3n frameshift	Heterozygous
<i>KDM2B</i>	17	7 (41%)	8 (47%)	2 (11.8%)

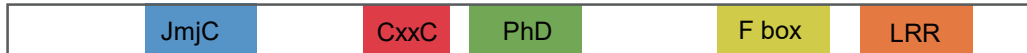
B

CRISPR targets and resulting frameshift mutation



C

KDM2B WT (1~1336AA)



KO #5 ΔJmjC (1~284AA)



KO #8 ΔJmjC (1~259AA)



KO #18 ΔJmjC (1~257AA)



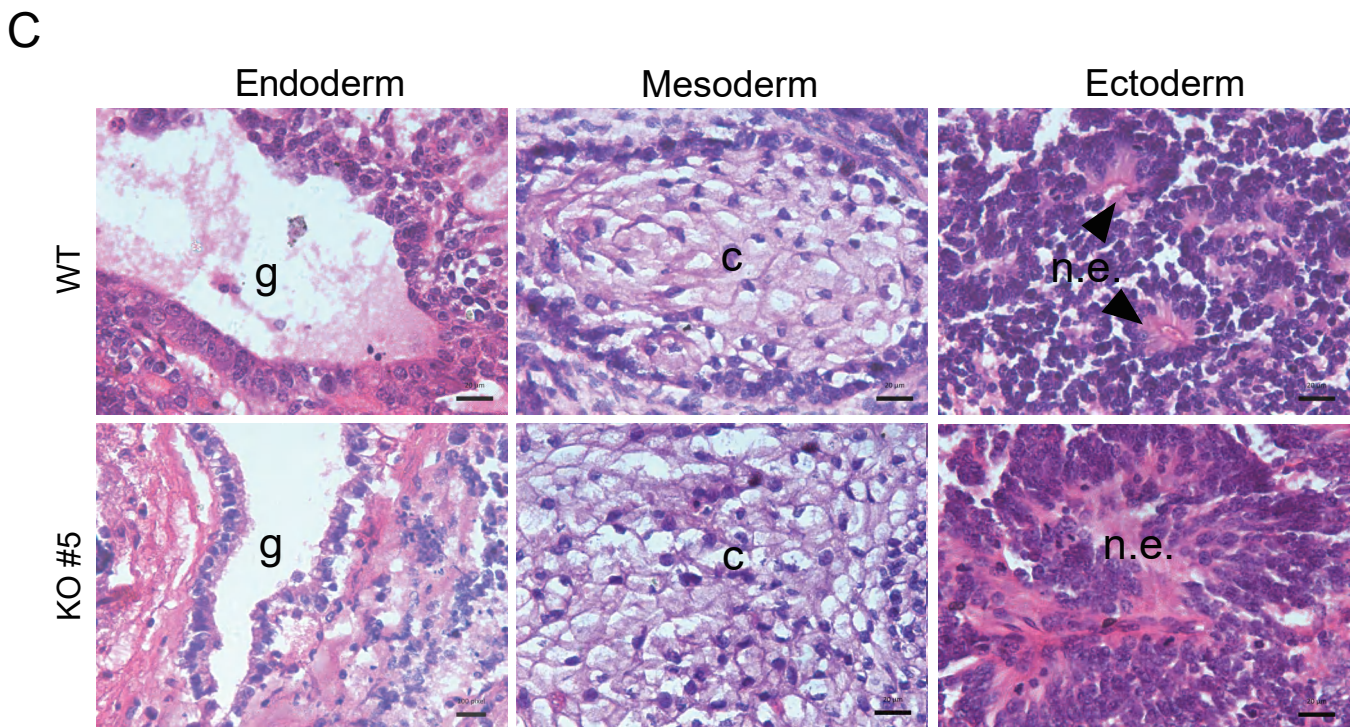
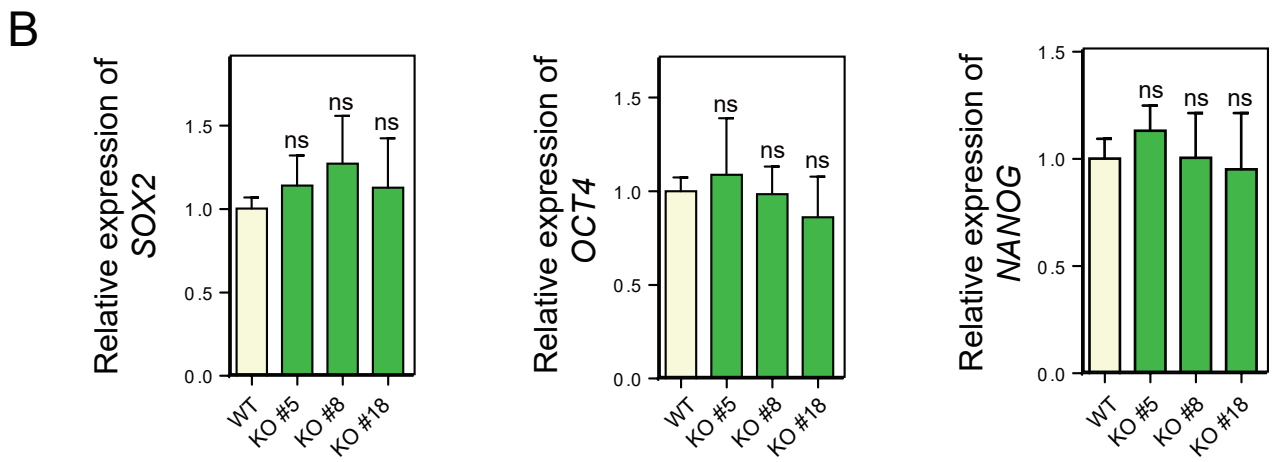
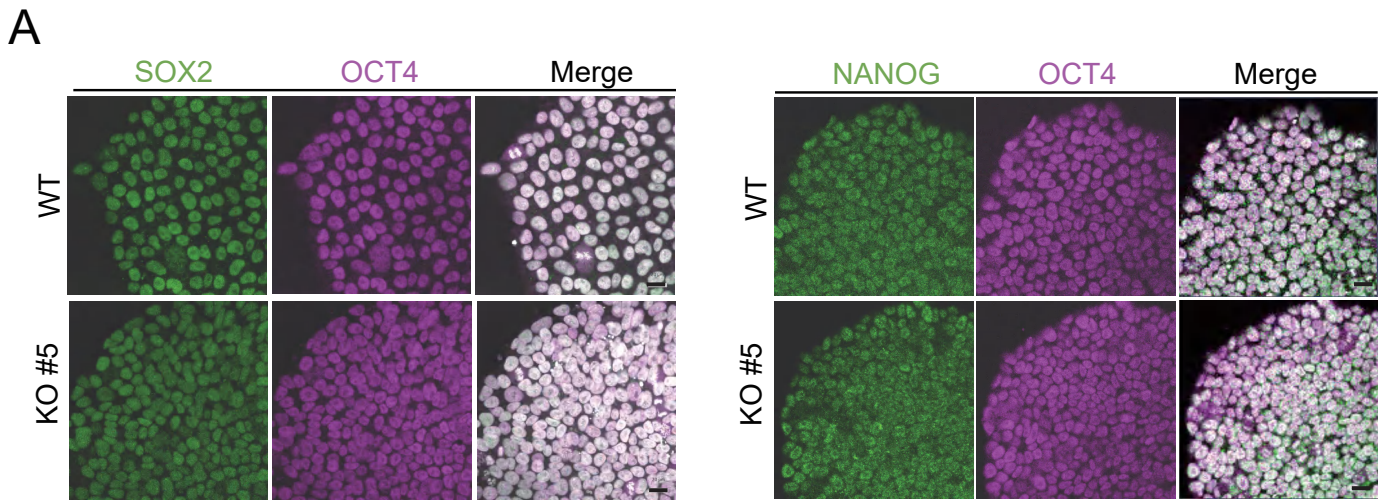


Table S1. Primers for CRISPR/ Cas9.

TARGET		5' → 3'
<i>hKDM2B</i>	Forward	CACCGACTTTGGAGGCACTTCCGTT
<i>hKDM2B</i>	Reverse	AAACAACGGAAGTGCCTCCAAAGTC

Table S2. List of primers for qPCR.

TARGET		5' → 3'
<i>hGAPDH</i>	Forward	CGCTTCGCTCTCTGCTCCTCCTGT
<i>hGAPDH</i>	Reverse	GGTGACCAGGCGCCCAATACGA
<i>hACTIN</i>	Forward	ATAGCAACGTACATGGCTGG
<i>hACTIN</i>	Reverse	CACCTTCTACAATGAGCTGC
<i>hARBP</i>	Forward	GAAACTCTGCATTCTCGCTTCC
<i>hARBP</i>	Reverse	ACTCGTTTGTACCCGTTGATGA
<i>hSOX2</i>	Forward	ACACCAATCCCATCCACACT
<i>hSOX2</i>	Reverse	CCTCCCCAGGTTTTCTCTGT
<i>hNANOG</i>	Forward	TGCTGAGATGCCTCACACGGA
<i>hNANOG</i>	Reverse	TGACCGGGACCTTGTCTTCCTT
<i>hOCT4</i>	Forward	GCTGGAGCAAAACCCGGAGG
<i>hOCT4</i>	Reverse	TCGGCCTGTGTATATCCCAGGGTG
<i>hKDM2B</i>	Forward	TTCCGGGGTGGGAAGATTT
<i>hKDM2B</i>	Reverse	GGCATGGATCCAACCGGAA

Table S3. List of antibodies used in the study.

REAGENT or RESOURCE	SOURCE	IDENTIFIER
Rabbit anti-Sox2	Abcam	Cat#Ab97959
Goat anti-Nanog	R&D Systems	Cat#AF1997
Goat anti-Oct4	Santa Cruz, Dallas	Cat#sc-5279
Goat anti-Sox17	R&D Systems	Cat#AF1924
Rabbit anti-TFAP2C	Santa Cruz, Dallas	Cat# sc-8977
Rabbit anti- β -Actin	Proteintech	Cat#20536-1-AP
Rabbit anti-H3K4me3	Millipore	Cat#07-473
Rabbit anti-H3K36me2	Abcam	Cat# ab9049
Rabbit anti-Flag	Sigma	Cat# F1804
Rabbit anti-KDM2B	Merck Millipore	Cat#09-864
Goat Alexa Fluor 647 anti-mouse IgG	Jackson ImmunoResearch	Cat #115-545-003
Goat Alexa Fluor 594 anti-rabbit IgG	Jackson ImmunoResearch	Cat #111-585-003
Goat Alexa Fluor 488 anti-mouse IgG	Jackson ImmunoResearch	Cat #115-545-003
Donkey Cy2 anti-goat IgG	Jackson ImmunoResearch	Cat #705-225-147
Anti-rabbit HRP	ZSJB-BIO	Cat #zb2301
Anti-mouse HRP	ZSJB-BIO	Cat #zb2305