

Table S1. Primers

Mouse HD F (P1)	AAGCAGAAGATGCGGACTGT	RT-PCR to detect mNanog HD
Mouse HD R (P2)	GCTTGCACTTCATCCTTTGG	
Mouse Full F (P3)	ATGAAGTGCAAGCGGTGGCAGAAA	RT-PCR to detect full-length mNanog
Mouse Full R (P4)	CCTGGTGGAGTCACAGAGTAGTTC	
Zebrafish HD F (P5)	ACGCCTGCAGAGATGAAAAC	RT-PCR to detect zNanog HD
Zebrafish HD R (P6)	TTGGGTACAGCATTGACAACA	
Zebrafish Full F (P7)	CAAAGATGCAGAGCAGACCA	RT-PCR to detect full-length zNanog
Zebrafish Full R (P8)	ACCGATTGACCAAAGCATT	
Retr. Oct4-F	TGGTACGGGAAATCACAAAGTTTGT	Custom TaqMan gene expression assay for retroviral transgene
Retr. Oct4-R	GGTGAGAAGGCGAAGTCTGAAG	
Retr. Oct4-probe	FAM-CACCTTCCCCATGGCTG-MGB	
Retr. Klf4-F	TGGTACGGGAAATCACAAAGTTTGT	Custom TaqMan gene expression assay for retroviral transgene
Retr. Klf4-R	GAGCAGAGCGTCGCTGA	
Retr. Klf4-probe	FAM-CCCTTCACCATGGCTG-MGB	
Retr. cMyc-F	TGGTACGGGAAATCACAAAGTTTGT	Custom TaqMan gene expression assay for retroviral transgene
Retr. cMyc-R	GGTCATAGTTCCTGTTGGTGAAGTT	
Retr. Myc-probe	FAM-CCCTTCACCATGGCTG-MGB	
Retr. Sox2-F	TGGTACGGGAAATCACAAAGTTTGT	Custom TaqMan gene expression assay for retroviral transgene
Retr. Sox2-R	GCCCGCGGCTTCA	
Retr. Sox2-probe	FAM-CTCCGTCTCCATCATGTTAT-MGB	
End. Oct4-F	TTCACCAAGGCCCC	Custom TaqMan gene expression assay for endogenous transcript
End. Oct4-R	GGTGAGAAGGCGAAGTCTGAAG	
End. Oct4-probe	FAM-CCCACCTTCCCCATGGCT-MGB	
hNanog-F	AGCATCCGACTGTAAAGAATCTTCAC	Custom TaqMan gene expression assay for hNanog transcript
hNanog-R	CAGAAGACATTTGCAAGGATGGATAG	
hNanog-probe	FAM-TTCAGGCCCAAAATC-MGB	
cNanog-F	CGTTCATGGCTGTGGAGGAT	Custom TaqMan gene expression assay for cNanog transcript
cNanog-R	GGGCGTTGCGACTTGT	
cNanog-probe	FAM-CCACCTTTTCAAAGAAG-MGB	
zNanog-F	ACGCTCCCCAACACAGG	Custom TaqMan gene expression assay for zNanog transcript
zNanog-R	GGGAACTCATAGTGCGTCACA	
zNanog-probe	FAM-ACCTGGCCTCTGCCCC-MGB	
piggyBac-F	GTGCTGTCTCATTTTTGGCAAA	Custom TaqMan gene expression assay for piggyBac transcript
piggyBac-R	TTGTACAAACTGTGATAGCTTATCG	
piggyBac-probe	FAM-ATACCCGCGAGGAATTC-MGB	
aBsx-F	CCTCTTCGGCAGACGATGTT	Custom TaqMan gene expression assay for amphioxus Bsx transcript
aBsx-R	ACTCGCACAGATGTCTAGTTTGT	
aBsx-probe	FAM-CAGGCGACGATCCAT-MGB	
aVent1-F	TGCGGCCTCACATGCT	Custom TaqMan gene expression assay for amphioxus Vent1 transcript
aVent1-R	CGGGTACGGTGAGTATCTGTT	
aVent1-probe	FAM-CCTCAGCCCGCAACA-MGB	
Msx1	Applied Biosystems ID: Mm00440330_m1	TaqMan gene expression assay
Nkx2.5	Applied Biosystems ID: Mm00657783_m1	TaqMan gene expression assay
Nr0b1	Applied Biosystems ID: Mm00431729_m1	TaqMan gene expression assay
Nanog	Applied Biosystems ID: Mm02384862_g1	TaqMan gene expression assay
Rex1	Applied Biosystems ID: Mm03053975_g1	TaqMan gene expression assay
Klf2	Applied Biosystems ID: Mm01244979_g1	TaqMan gene expression assay
Fgf5	Applied Biosystems ID: Mm00438919_m1	TaqMan gene expression assay
Gata6	Applied Biosystems ID: Mm00802636_m1	TaqMan gene expression assay
GAPDH	Applied Biosystems ID: 4352339E	TaqMan gene expression assay
Xist-F	GGTTCTCTCCAGAAGCTAGGAAG	SYBR Green real time PCR
Xist-R	TGGTAGATGGCATTGTGATTATATGG	
GAPDH-F	AGGTCGGTGTGAACGGATTTG	SYBR green real time PCR
GAPDH-R	TGTAGACCATGTAGTTGAGGTCA	
Oct4-DE F	GGTTTTAGAGGTTGGTTTTGGG	Bisulfite methylation analysis of <i>Oct4</i> distal enhancer
Oct4-DE R	CATCTCTAAACCCTCCATAAATC	
Oct4-Promoter F1	GGTTTTTAGAGGATGGTTGAGTG	Round 1 primers for bisulfite methylation analysis of <i>Oct4</i> promoter
Oct4-Promoter R1	TCCAACCCTACTAACCCATCACC	
Oct4-P F2	GGTTAGAGGTTAAGGTTAGAGGGTG	Round 2 (nested) primers for bisulfite methylation analysis of <i>Oct4</i> promoter
Oct4-P R2	CCCCACCTAATAAAAAAATAAAAAA	Taqman assay for ChIP analysis of mouse Oct4 distal enhancer (CR4 element)
ChIP CR4 F	GCATAACAAAGGTGCATGATAGCT	
ChIP CR4 R	AAATAAAGGCAGCGACTTGAA	
ChIP CR4 probe	TAGCCCTTCTTAATCTGCTA	
ChIP Xist F	AGTCCACTGTAATTCCTTCGACG	Taqman assay for ChIP analysis of Xist intron 1
ChIP Xist R	GCGATTACTTGTACAACAATGGTC	
ChIP Xist probe	AGAGCCAGACAATGCTAAGCCT	
ChIP desert F	GATTGCAGAGTAAGATCCCTTGAT	Taqman assay for ChIP analysis of gene desert region on chromosome 5
ChIP desert R	GCGTAAGTTCTACATGCTGCTTA	
ChIP desert probe	CACCTGAAAGAATGACAGTGCAATTCA	