

A. *Osblr8* expression by RNA-seq

Chromosome 3: 134,357,292-134,357,501

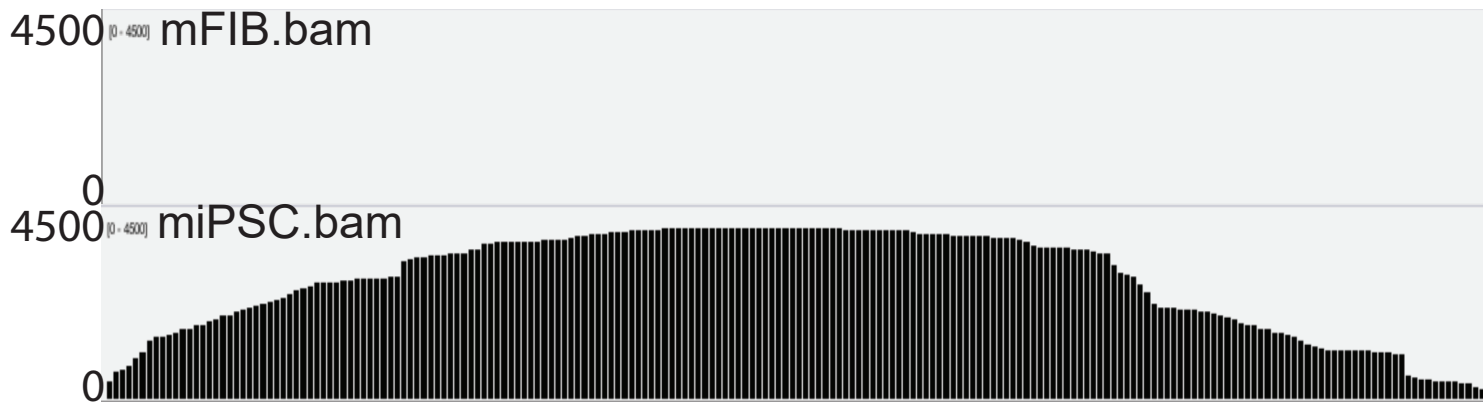
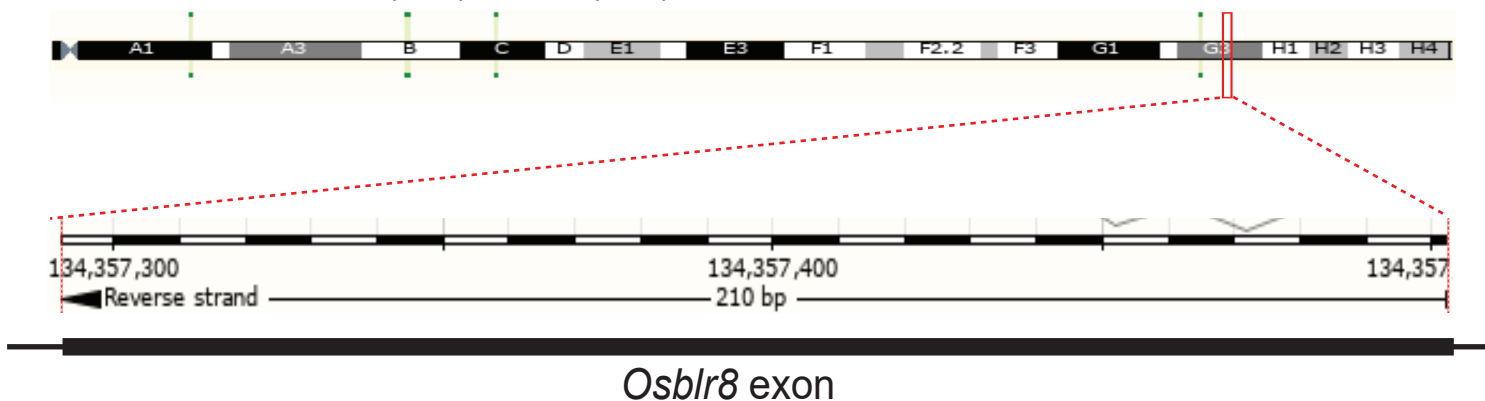
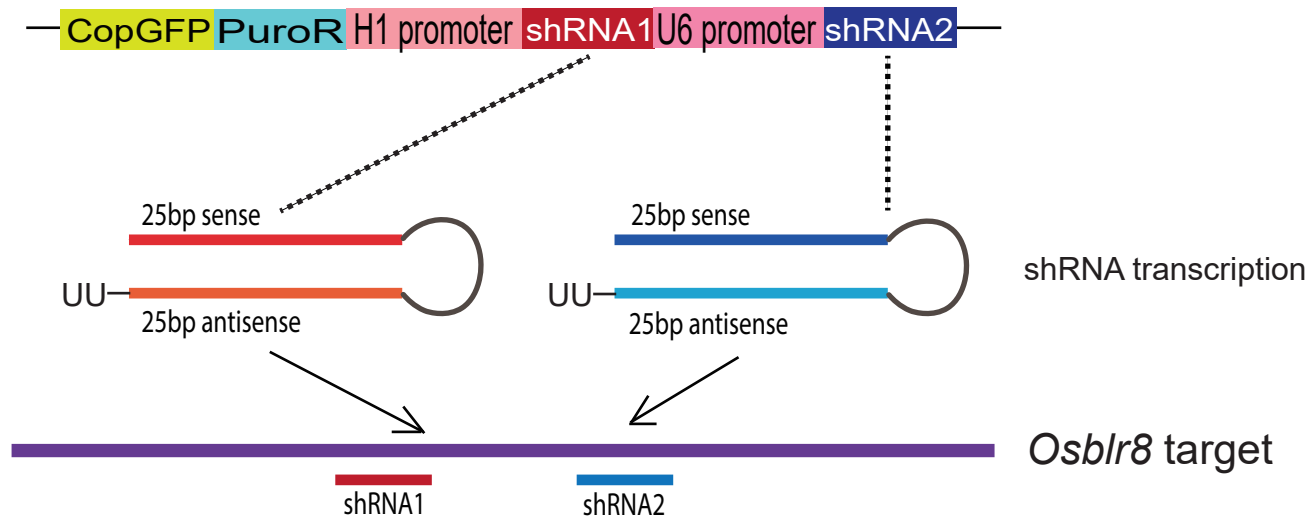


Figure S1. *Osblr8* is highly expressed in pluripotent stem cells

A. *Osblr8* shRNA vector

lenti-pGreen-*Osblr8*shRNA plasmid



B. *Osblr8* overexpression vector



Figure S2. *Osblr8* knockdown and overexpression

A. Identification *Oct4/Sox2* promoter binding lncRNA *Osblr8* by CRIST-seq

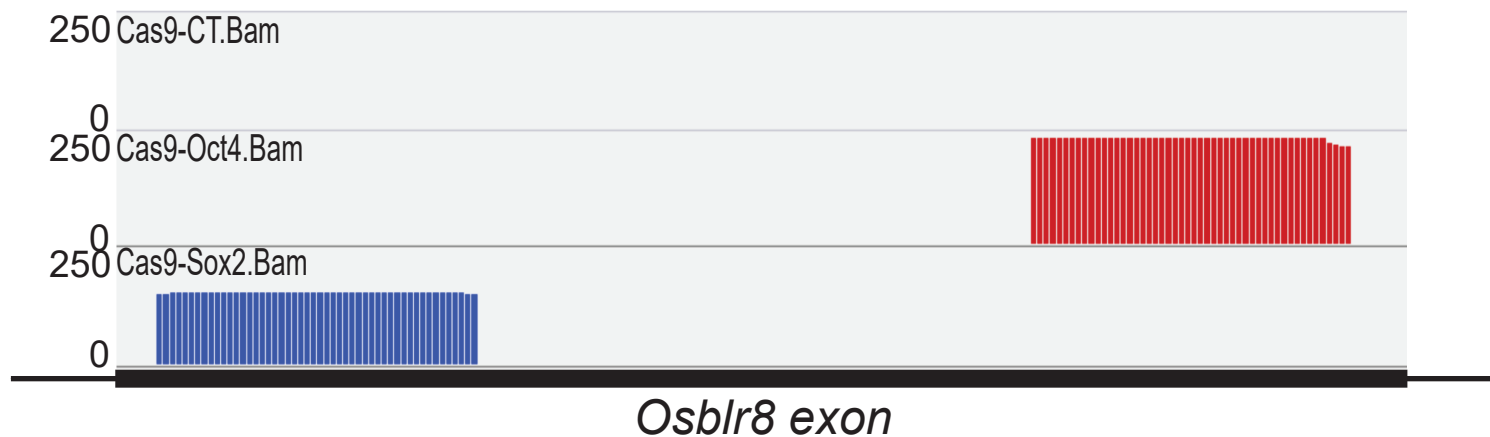


Figure S3. CRIST-seq identifies the *Osblr8*-*Oct4*-*Sox2* interaction

16 SUPPLEMENTAL TABLES

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18 Table S1. Oligonucleotide primers used for PCR

ID	Oligo Name	Oligo sequence	Product size
<i>RT-PCR</i>			
<i>Osblr8</i>	JH5158	CAGCCTGAAACCTGCTTGCT	131bp
	JH5159	GACCCGATTCCCGCCGAAT	
<i>Oct4</i>	JH116	CAATGCCGTGAAGTTGGAGAAG	179bp
	JH117	GGCTGAACACCTTTCCAAAGAGA	
<i>Sox2</i>	JH118	GGTTACCTCTTCCTCCCCTCCAG	193bp
	JH119	TCACATGTGCGACAGGGGCAG	
<i>Nanog</i>	JH120	TCTCCTCCATTCTGAACCTGAGC	150bp
	JH121	TGCTGGGATACTCCACTGGTGCT	
β -Actin	J880	CAGGTCATCACCATTGGCAATGAGC	135bp
	J881	CGGATGTCCACGTCACACTTCATGA	
TET1	JH6031	GAACAGCCAYCAGATCTGTAAG	170bp
	JH6032	CTGAYTTGGGGCCATTTACTG	
TET2	JH6033	GTCCTYATGTGGCAGCTATTAG	129bp
	JH6034	TAGCAATAGGACATCCCTGAG	
TET3	JH6035	CYAAGAGTCTGCTGGACACAC	154bp
	JH6036	TCCTCCATGAGTTCCCGGATA	
<i>RAT Oct4 binding</i>			
5'-CT	JH4348	CTGAGTCCTCTGCAAGATGC	137bp

	JH4349	CCAAGGCACCTGCCTAGGATT	
P1	JH4352	AGTTGTCCCCAGGGGAGCCAT	140bp
	JH4353	AAGGGGCCTGGGAGGGACTG	
P2	J648	CAGAGGATGGCTGAGTGGGCTGTA	123bp
	JH4354	CACCCCTGCCTTGGGTCACCG	
5'-Enh	JH4350	CAGATGAGCCAACAGGTCTG	125bp
	JH4351	CAGCAACTTTGTCTGAAGTCC	
3'-Enh	JH4407	GTGGAGCAGGCGAAACTTGC	123bp
	JH4408	ATTCCATCGGCAGCCTCAGC	
Exon1	JH4664	TCAGGTTGGACTGGGCCTAG	121bp
	JH4665	GCGGTCGGCACAGGGCTCAG	
Exon4	JH4668	GCAAATCGGAGACCCTGGTGCA	110bp
	JH4669	TAGGGAGGGCTTCGGGCACT	
3'-CT	JH4357	CGCCCTACTCTGATGTTCGA	121bp
	JH4358	TGAGCCATCTCTCCAGCATC	

Osblr8 shRNAs

1	CTGGAACCTGAGGAGCCACACACGT
2	TGCACCTTTCTACTGGACCAGAGAT
shCT	GCAGCAACTGGACACGTGATCTTA

Osblr8 overexpression primers

JH6195	TCGGGCGCCAGATATCTGTAGTCTCCCCTCCCCAGCCT
JH6196	CAGAATCGAAGAATTCGTTACTCTGATCAAGGCTCAAATT

CRIST Cas9 gRNA

<i>Oct4-1</i>	GAACATTCAATGGATGTTTT
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<i>Oct4-2</i>	GTGTGAGGGGATTGGGGCTC
<i>Sox2-1</i>	GGGGTTGAGGACACGTGCTG
<i>Sox2-2</i>	GAGCCAATATTCCGTAGCAT
Control (gCT)	GAAGTGGGATGATCCTCTGA

RAT primers

Osblr8

JH5159	GACCCGATTCCCGCCGAAT
JH6193	TTCCAGCAGTGGGCGTGGCA
JH6194	GTTACTCTGATCAAGGCTCAAAT

RAT control

JH5849	ATGGACTGATGATCTTATGC
JH5850	TACATAGTAGATCAGATACT

3C primers

Oct4 functional loop

P780	ACCATCTCTGGCTGGGGACGTG
P783	GCAGACAGGCACTCTGAGGGC
P785	GGACACCTGGCTTCAGACTTCG
P790	ACTGACTGCTCTGCCAGAGGTC

Erc3 ligation control

JH6286	TGGAGCAGTGGAAAGCCCAGT
JH6282	CTTCATAAGTGTCTTAGCAGAGCT

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24 **Supplement Figure Legends**

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26 **Figure S1. *Osblr8* is highly expressed in pluripotent stem cells**

27 A. *Osblr8* is located in chromosome 3. The total length of *Osblr8* is 210 bp. Differential
28 expression of *Osblr8* in iPSCs and fibroblasts (RNA-seq IGV). The expression value
29 between iPSC and fibroblasts of *Osblr8* is 4164 vs 34.

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31 **Figure S2. *Osblr8* knockdown and overexpression**

32 A. *Osblr8* shRNA vector: Two shRNAs were designed from two sites of *Osblr8* lncRNA.
33 shRNAs were cloned into one lentiviral plasmid vector and were controlled by H1 and
34 U6 promoters, respectively. U6: RNA polymerase III U6 promoter; H1: human H1 RNA
35 polymerase III promoter; PuroR: puromycin resistance. CopGFP: Green Fluorescent
36 Protein reporter.

37 B. *Osblr8* overexpression vector. *Osblr8* was cloned in a lentiviral vector and was controlled
38 by CMV promoter. DsRed: the fluorescent marker gene; PuroR: puromycin selection
39 marker.

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41 **Figure S3. CRIST-seq identifies the *Osblr8-Oct4-Sox2* interaction.**

42 A. The *Osblr8-Oct4-Sox2* interaction by CRIST-seq. The CRIST-seq data was analyzed by
43 IGV software. The *Oct4* and *Sox2* promoter binding value are 253 and 167, respectively.
44 The Cas9 random (gCT) CRIST-seq control did not show any interaction signals with
45 *Osblr8* lncRNA. The predominant binding sites for *Oct4* and *Sox2* are two 50 bp elements.

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