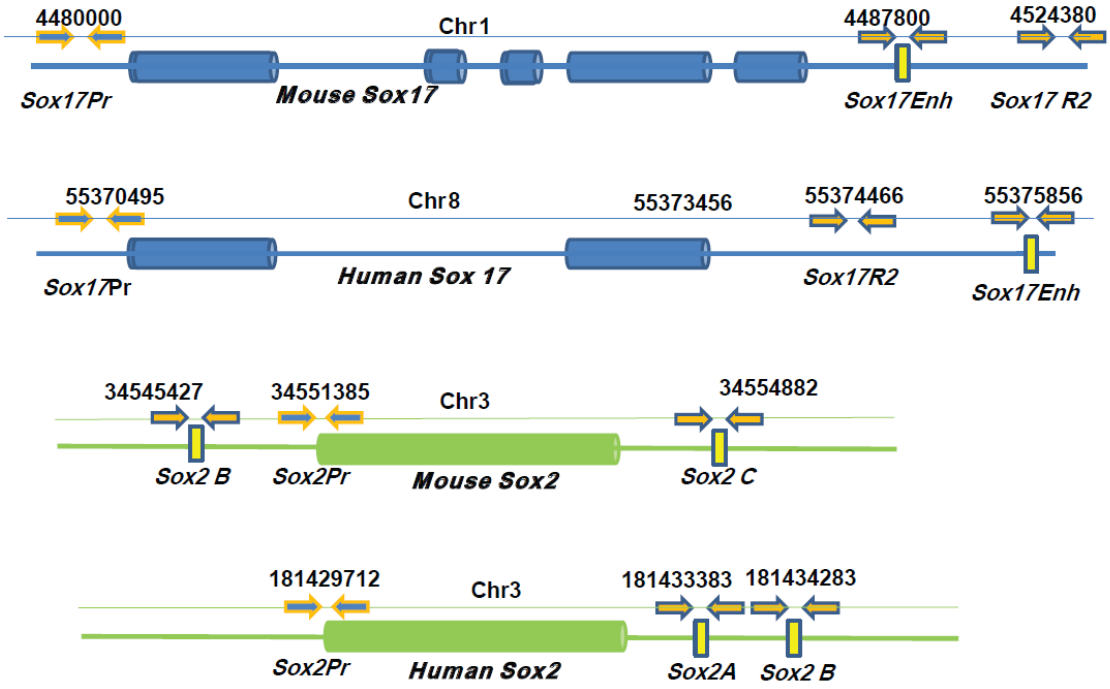
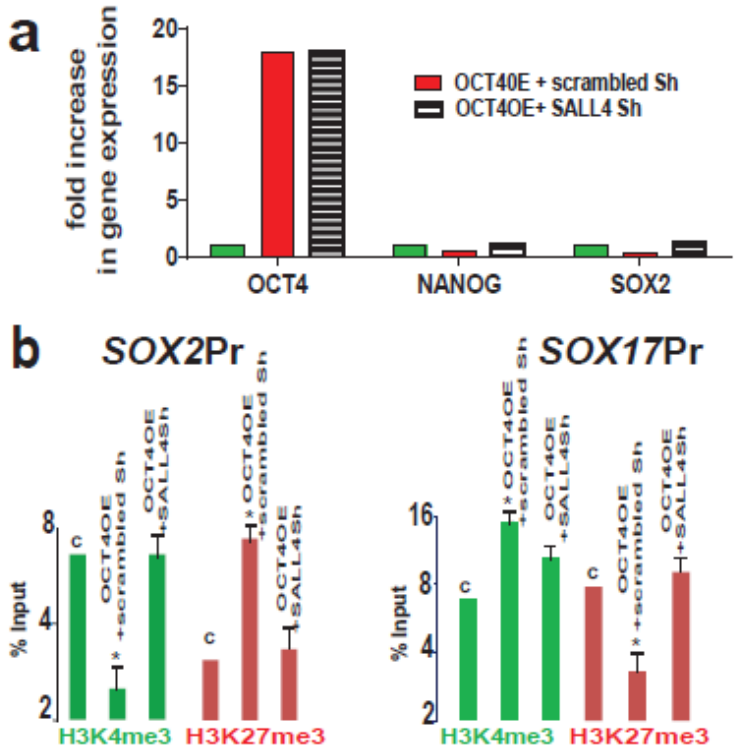


Supplementary figure 1: ChIP primers map

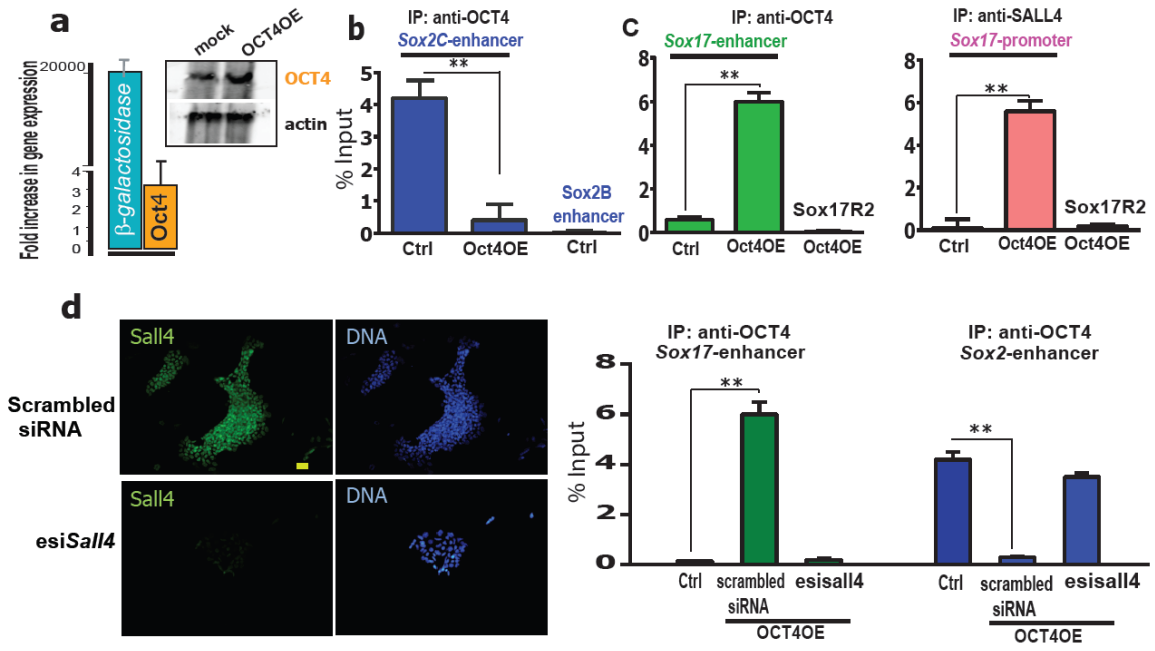
The cartoon show the location of primers used in ChIP experiments on mouse and human chromosomes



Supplementary figure 2: SALL4 is not required for *Nanog, or Sox2* expression in pluripotent cells but mediates changes in epigenetic marks on Sox loci in mesendodermal cells.

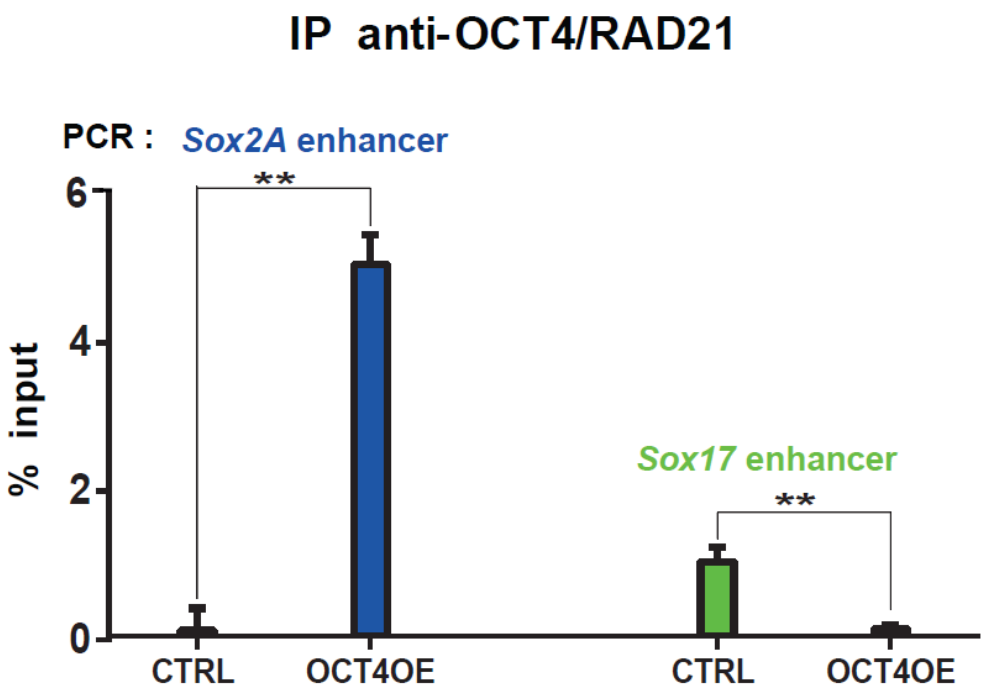
(a) Real time PCR of *Oct4*, *Nanog* and *Sox-2* in control, OCT4OE cells (transfected with a scrambled Sh) and SALL4 knock-down cells (SALL4Sh)

(b) ChIP anti- H3K4m3 and -H3K27me3 reveals the presence of these marks on *Sox2* and *Sox17* promoters in control (C) or OCT4 overexpressing (OCT4OE) cells in the presence or absence of SALL4 (SALL4Sh). (* significantly different from control cells, n=3 mean± SEM, T-student test $p \leq 0.01$)

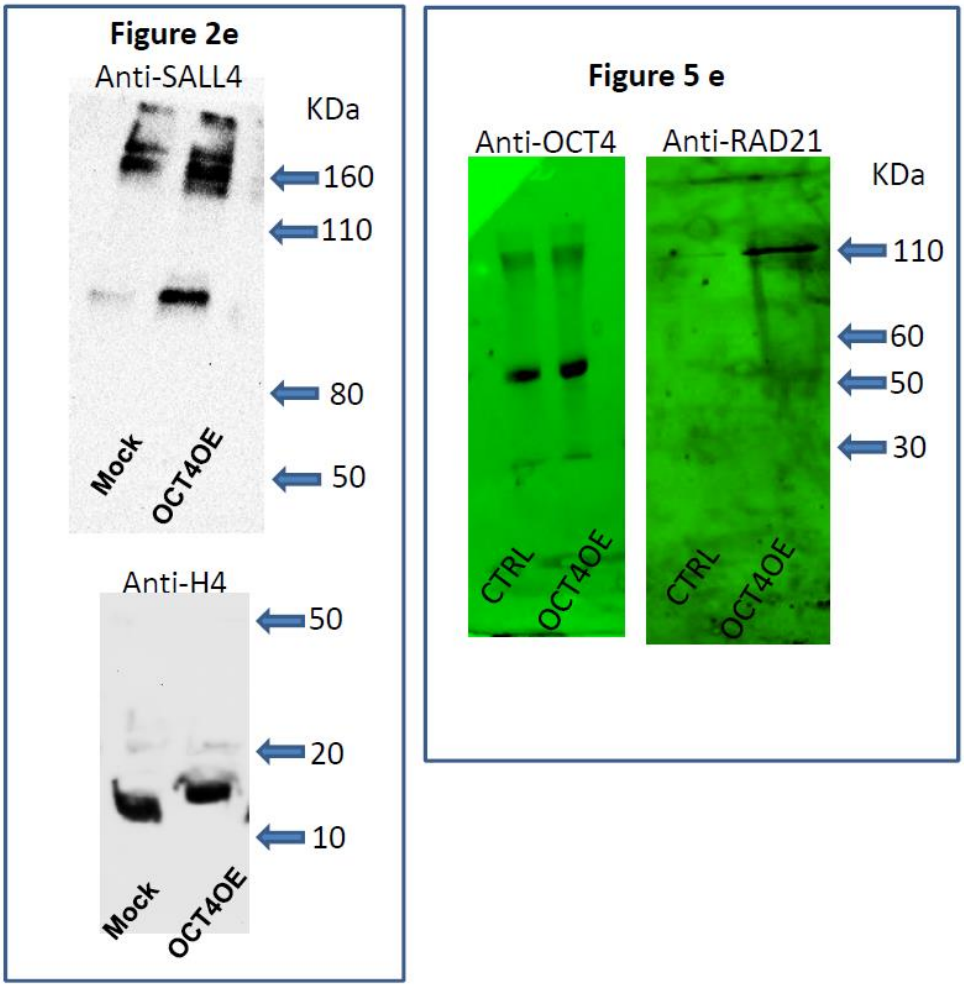


Supplementary figure 3: OCT4 and SALL4 switch from *Sox2 to Sox17* regulatory regions in mouse ESC.

ZhTc6 mouse ES cells were cultured without tetracycline for 48 hrs to induce expression of OCT4 as monitored by PCR of both OCT4 and β-galactosidase and western Blot (inset) (**a**). 48hrs induction was then used prior to crosslink the cells for ChIP assay. Chromatin was immunoprecipitated with an anti-OCT4 (**b**) or anti-SALL4 (**c**) antibody. A real time PCR was then carried out using primers amplifying *Sox2B*, *Sox2C*, *Sox17*enhancers (Enh) or a *Sox17*R2 3' region or promoters (Pr). (**d**) SALL4 was downregulated in Zhtc6 cells using a siRNA (esiSall4) and cells immunostained with an anti-SALL4 antibody. The bar indicates 50 μm (left panel). Anti-OCT4 ChIP was then performed from chromatin of Zhtc6 non-induced (ctrl) or induced (OCT4-OE transfected with a scrambled siRNA) cells or induced in the absence of SALL4 (OCT4-OE+esi*SAll4*). Sox*17* promoter and *Sox2* enhancer were interrogated (graphs on the right). (* significantly different from control cells, n=3 mean± SEM, T-student test $p \leq 0.01$).



Supplementary figure 4: OCT4 targets cohesin in HUES cells. Sequential ChIP anti-OCT4 and then anti-RAD21 were performed from chromatin of control human ES cells (CTRL) or OCT4 overexpressing mesendodermal cells (Oct4OE). Both *Sox2A* and *Sox17* enhancers were investigated in real time PCR. (* significantly different from control cells, n=3 mean± SEM, T-student test $p \leq 0.01$).



Supplementary figure 5: main western blots Figures 2e and 5e

Supplementary table 1: Human ChIP primers, 5' to 3'

ChIP	GENE promoters	Sequences Forward and Reverse
Anti-OCT4	*SOX-17* enhancer	CCTTCCTCCTCCTGTTCCTC GGGGACTGGGTAGGAACATC
Anti-OCT4	*SOX-17Region 2*	AAAGTACAGGGATGTGGGCC GGGAGGTCTGTTCACTTGGT
Anti- OCT4	*SOX-2A* enhancer	ATTAGTCTGCTCTTCCTCGGAATGGTTGG TGATGCTTGTTAAAAACGCTTCGCTCC
Anti-OCT4	*SOX-2B enhancer*	CCTCGGGATATTATTCTGCTCAATGA TAACGCTCTTTATTTAAAGTATGTGGTGGG.
Anti-modified histones	*SOX-2 promoter*	CACCCCACCCTTTGTAGTCA TCCCATTGTCCCGACGTAAA
Anti-SALL4 Anti-modified histones	*SOX-17* promoter	CCCTGGGTACGCTGTAGACC GTCTGGCTCTGGTCGTCACT

Supplementary table 2 : Mouse ChIP, **numbered 3 C primers 5'to 3', and FISH primers**

DpnIIS1F **DpnIIS1R** **DpnIIS2F** **DpnIIS2R** **DpnIIS3F** **DpnIIS3R**	**CTTAGCTCTGCGTTGTGCAG** **CATGATTCCATCGCAAACAC** **TACACGCTACGGATTTGCTG** **CCAAGACTAGTCCCCCTTCC** **TGAAATATGGCCCACTCACA** **CTCGGGGATGTAAAGGTGAA**
1 *Sox-2C* 3'enhancer F	**TTTTCGTTTTTAGGGTAAGGTACTGGGAAG**
Sox-2C 3'enhancer R	CCACGTGAATAATCCTATATGCATCACAAT
SOX-17 3'- Region2 F	AAGTTGCGTCACTCCTGAGC
SOX-17 3'- Region2 *R*	TGGAGATCTGACTGTCCCAG
2 *Sox-17* Promoter F	**CTTAGCTCTGCGTTGTGCAG**
Sox-17 Promoter R	CTCGGGGATGTAAAGGTGAA
3 Exon5 *SOX-17*	**CTCAAGTGTTCAAGTGGG**
4 *Sox-17* 3'enhancer R	**GGCTTCCTTGGAGAAAGGCAAT**
5 *Sox17* 10 Kb R	**CTGAGCACCAGCTAATAGAGA**
6 *Sox-17* 3'enhancer F	**ACTTTCACAGTCCAGG**
7 *Sox-17* 10 kb-F	**TCTCTATTAGCTGGTGCTCAG**
8 *Sox-17* 20 kb-F	**GGAGATGCACACAAGTTACTG**
9 *Sox-17* 40 kb-F	**AGCAAAGCTCAGACCTCATATG**
10 *Sox-17* 60 kb-F	**AATAAGTATACAGGCCTT**
11 *Sox-17* 110kb -F	**TGCCTTTAATCCCAGCACT**
Sox-2-Promoter F	CCCATTTATTCCCTGACAGC
***12 Sox-2*-Promoter R**	**GGGCTCCAAACTTCTCTCCT**
***13 Sox-2c* enhancer R**	**CCACGTGAATAATCCTATATGCATCACAAT**
14 *Sox2-3' 10 kb*	**AGGGGCAGAAGTAACAGAA**
15 *Sox2-3' 20 kb*	**AAACTCCCCAAAGCTGCCTC**
16 *Sox2-5' 10kb*	**CTGGGTGACAACTGCCGGTA**
Sox-2B 5'enhancer -F	CCCTGTTCCAAGTCTCTTTCTGCTAGTCA
17 *Sox-2B* 5'enhancer -R	**CACCGATTTCAATCCAACACCATCATAG**

Sox-2A 5'enhancer -F	ATTAGTCTGCTCTTCCTCGGAATGGTTGG
18 *Sox-2A* 5'enhancer -R **3C-GAPDH-F** **3C-GAPDH-R**	**TGATGCTTGTTAAAAACGCTTCGCTCCT** **AAGACAGAATGGAAGAAATGTGC** **GAGCCAAAAGGGTCATCAT**
*Sox2*FISH-F	AGAGCGGCTTGCAAAATTCCCT
*Sox2*FISH-R	TGAAATGGGTAGCGCTGCAGTT
*Sox17*FISH-F	CTAAAATACGTGCCTCAGAGTCTGCC
*Sox17*FISH-R	AGTGCTGTCAGGAGTGGCAAGT