Legends of Supplemental Figures

Figure S1. Methylation status of the -553/-441 region region of the hoxa2 promoter by bisulfite sequencing. Open circle:unmethylated, black circle: methylated

Figure S2. mMTAse activity of the recombinant proteins used.
mMTase activities were assessed by Dnmt Magnetic beads (DMB) assays and the measurement of ^{3}H-incorporation in eight double-strand hemi-methylated probes.

Figure S3. SDS-PAGE and SyproRuby staining (InVitrogen, France) illustrating the fusion protein purification.

Figure S4. Example of data obtained by using the transcription factor array with the Dnmt1 recombinant protein.
Interaction analysis was done for 10 min exposition. If no signal was observed, proteins were considered to not interact in our acellular system with the Dnmt1 recombinant protein. Thus, we here observed that Sp1 and YY1 interacted with the Dnmt1 recombinant protein, while Sp4 not interacted with the Dnmt1 recombinant protein Neg: negative control, Pos: Positive control.

Figure S5. Estimation of the Sp1 quantity interacting with Dnmt1.
Nucleus/DNA were stained by DAPI (Blue), and Sp1 or Dnmt1/Sp1 interactions were visualized by red fluorescence.

Figure S6. Identification of several molecular actors implicated in the DNA methylation of ZNF215.
Chromatin ImmunoPrecipitation (ChIP) experiments was performed to determine the presence of Dnmt1, Dnmt3a or Dnmt3b on the -801/-693 region of the ZNF215 promoter. Re-Chromatin ImmunoPrecipitation (Re-ChIP) experiments was performed to determine the presence of the considered proteins on indicated genes.

Figure S7. Identification of several molecular actors implicated in the DNA methylation of several DNA repeat elements.

Chromatin ImmunoPrecipitation (ChIP) and Re-Chromatin ImmunoPrecipitation (Re-ChIP) experiments were performed to determine the presence of the considered proteins on indicated genes.

Sequences of probes used in DMB assays.

Each probes are composed by the repetition (ten fold) of the sequence indicated in table below. Biotin-tag is added in 5' extremity.

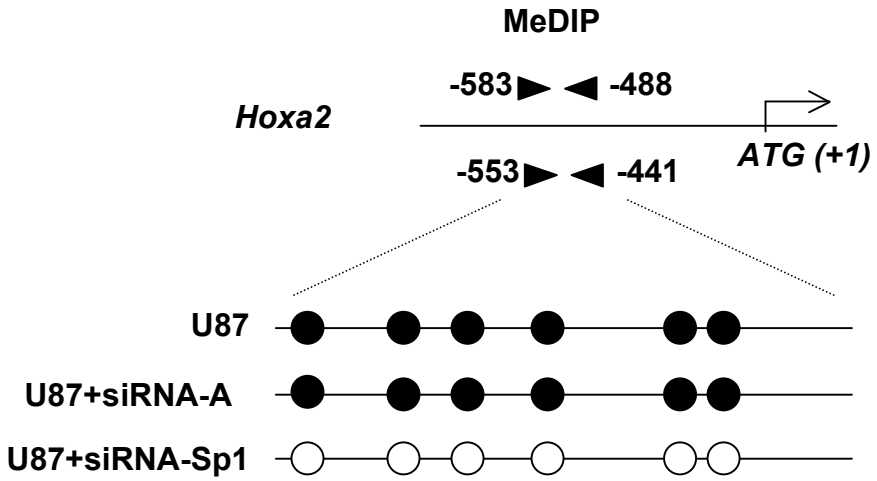
Probe	sequence
#1	attcgagt
#2	tgacgtaa
#3	aaccggtt
#4	ggccgccca
#4^{mut}	ggc**a**gccca
#5	actcgtca
#6	tagcgttc
#7	gtacgaca
#8	cttcggag

List of antibodies.

antibody	reference
Dnmt1	Abcam#ab16632
Dnmt3a	Abcam#ab13888
Dnmt3b	Tebu-Bio#sc20704
PCNA	Abcam#Ab18197
UHRF1	Tebu-Bio#sc100606
SP1	Tebu-Bio#sc59
GFP	Tebu-Bio#sc9996
p53	Tebu-Bio#sc71817X
YY1	Tebu-Bio#sc9996
C-EBPα	Tebu-Bio#sc9314
GATA1	Tebu-Bio#sc265
ISGF3	Tebu-Bio#sc10793X
c-ETS2	Tebu-Bio#sc22803X
AP2α	Tebu-Bio#sc55485

Primers list

	MSP	MSRA	ChIP/MeDIP
SLIT2	Us:GTGAGTAGAGTTTAGAGTTGTGTGT Uas:TCTCAATAAATATTATAACCCCAAT Ms:GAGTGAGTAGAGTTTAGAGTCGTGCG Mas:TCTCAATAAATATTATAACCCCGAT MSPabcd-S:AAGTGTATGTGTGTTTGTAAAT MSPaUAS:TCCAAAAACTAAAAAACACAAAAA MSPaMas:TCCgAAAACTAAAAAACgCgAAAA MSPbUas: CCCAATCAAAATAAACTCC MSPbMas: CCCgATCAAAATAAACTCC MSPcUas:ATCCAATACCAATAACAAAA MSPcMas: ATCCgATACCAATAACgAAA	BstUI S: TCTGCTACGGGCCCGCT AS: CCACGCACGCTTCTGC DpnI S: CCAGAACTGCGCGTCC AS: CAATAGGTATTATGGCCCC	S: GGCTTCCGCGCCTTCTA AS: CCACGCACGCTTCTGC
HOXA2	Ms: ATAGAATTTATGTGGTTGGGACGT Us: AATAGAATTTATGTGGTTGGGATGT Mas: TACGCGAATATAAACCCTACTATCG Uas: CACAAATATAAACCCTACTATCAAT		S: CCGACAGTCCCAAACAAT AS: GTGTGAATGTGCGCGAGT
TNFSF10	Ms: TAAGAGGATTATTTGAGGTTAGGAGTTC Us: TAAGAGGATTATTTGAGGTTAGGAGTTT Mas: CAATAATACAATAACACAATCT**CG**AC Uas: CAATAATACAATAACACAATCTCAAC		S: GAATCTGGGAGGTGGAG AS: TTTGACAGAATCTCACTTT
LINE-1			S: AGTGCTTAAAGGAGCTGA AS: TTGCTGATACCCTTTCTTC



Primers for bisulfite sequencing are designed by using the MethPrimer program: S: GGGGGAGGTAGAGGGTAGTTAT and AS: CCTCCTAATCTACAAAAATCTATCTAATAT

Figure S1

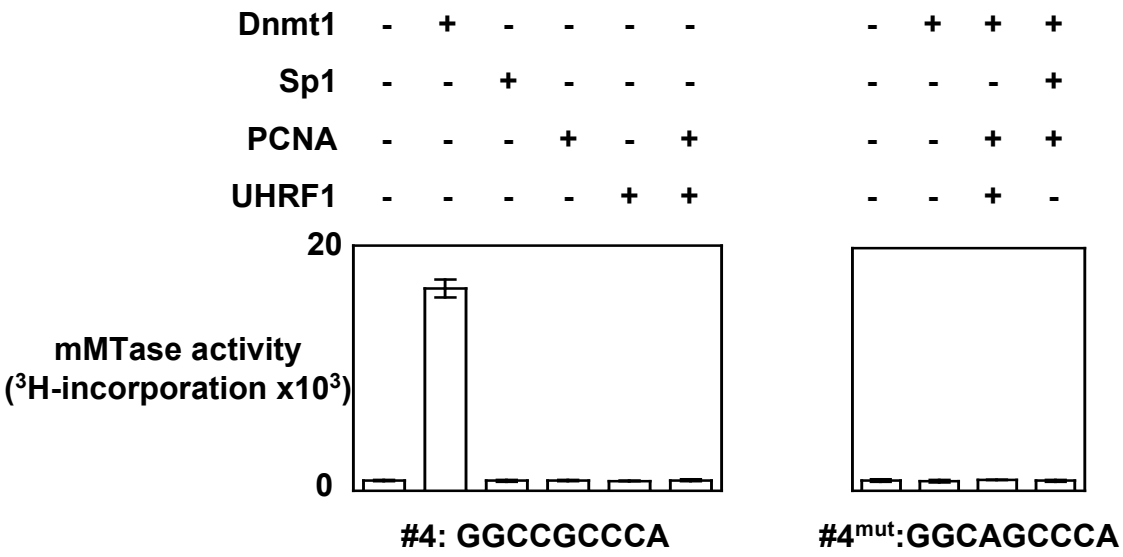

Dnmt1 - + - - - - - + + +
Sp1 - - + - - - - - - +
PCNA - - - + - + - - + +
UHRF1 - - - - + + - - + -
20
mMTase activity
(^{3}H-incorporation x10^3)
0
#4: GGCCGCCCA
#4^{mut}:GGCAGCCCA

Figure S2

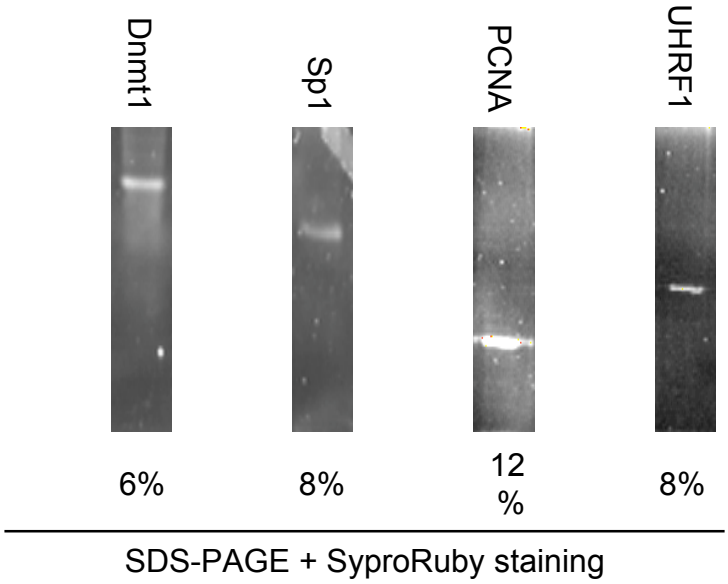
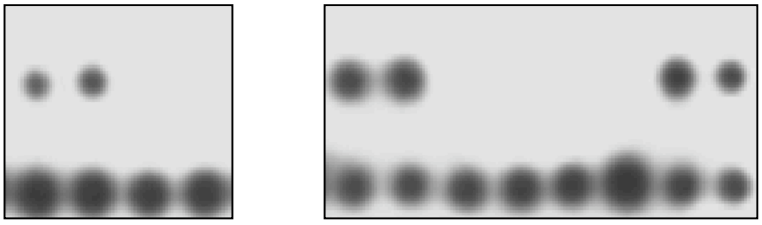


Figure S3



Sp1	Sp4
Pos	Pos

YY1	Neg	Neg	Pos
Pos	Pos	Pos	Pos

Figure S4

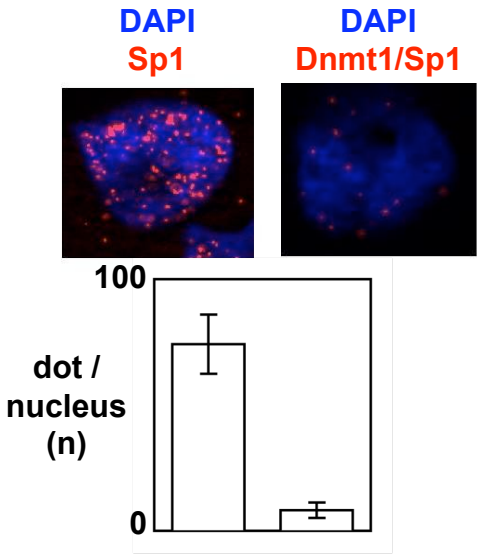
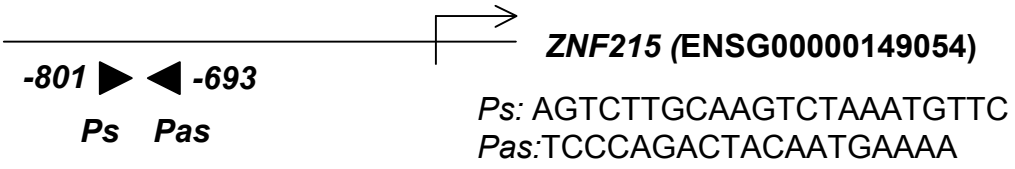
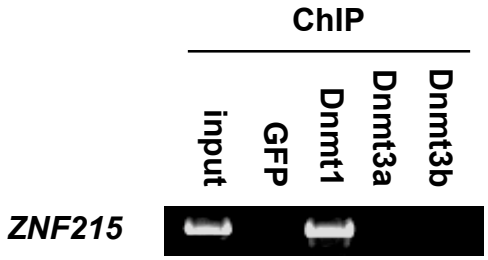


Figure S5


ZNF215 (ENSG00000149054)
-801
-693
Ps
Pas
Ps: AGTCTTGCAAGTCTAAATGTTC
Pas:TCCCAGACTACAATGAAAA


ChIP
input
GFP
Dnmt1
Dnmt3a
Dnmt3b
ZNF215

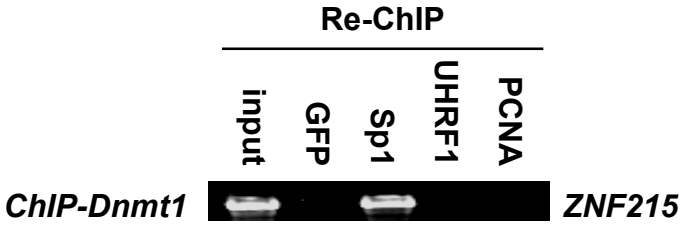

Re-ChIP
input
GFP
Sp1
UHRF1
PCNA
ChIP-Dnmt1
ZNF215

Figure S6

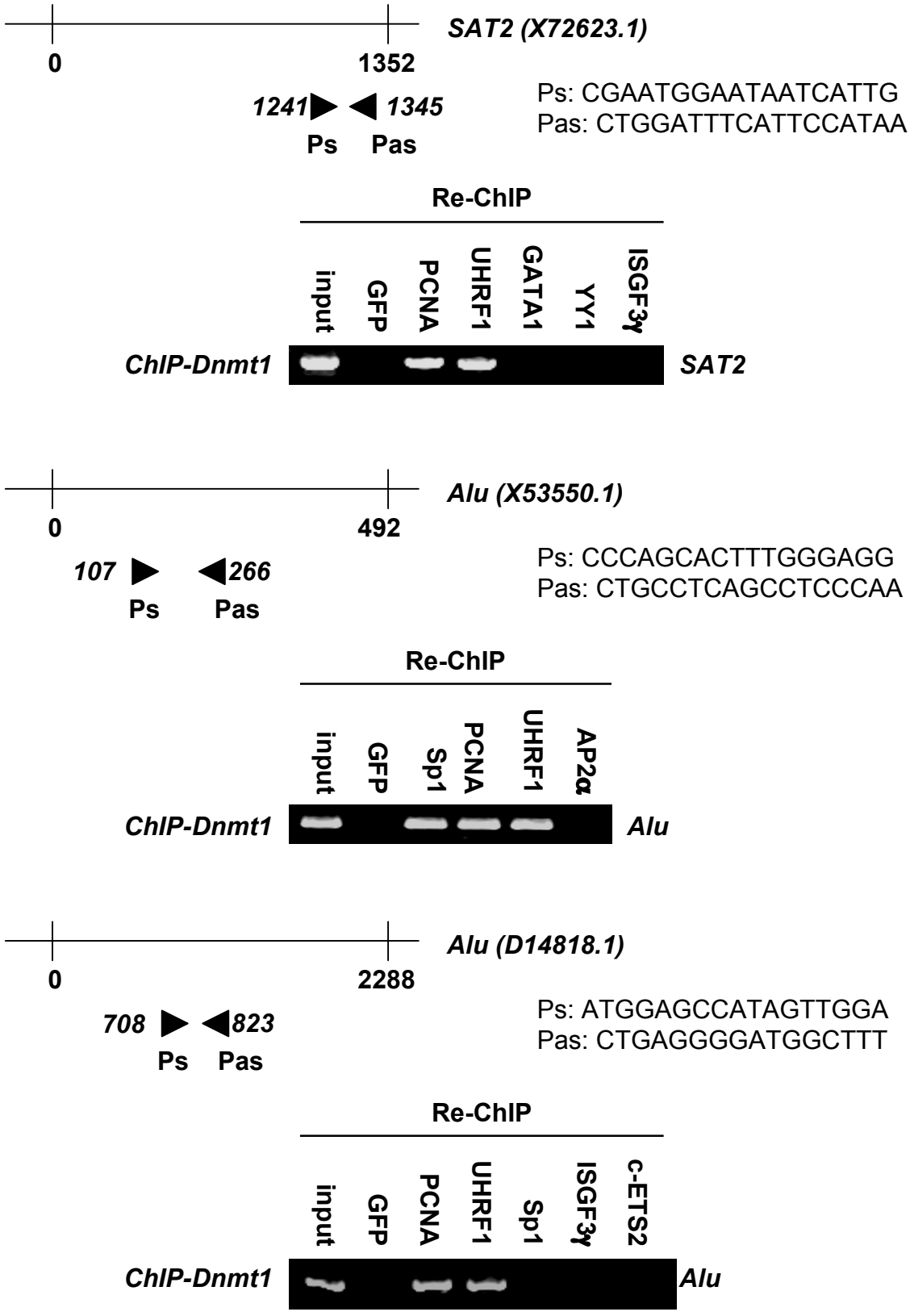

SAT2 (X72623.1)
0
1352
1241
1345
Ps
Pas
Ps: CGAATGGAATAATCATTG
Pas: CTGGATTTCATTCCATAA
Re-ChIP
input
GFP
PCNA
UHRF1
GATA1
YY1
ISGF3γ
ChIP-Dnmt1
SAT2
Alu (X53550.1)
0
492
107
266
Ps
Pas
Ps: CCCAGCACTTTGGGAGG
Pas: CTGCCTCAGCCTCCCAA
Re-ChIP
input
GFP
Sp1
PCNA
UHRF1
AP2α
ChIP-Dnmt1
Alu
Alu (D14818.1)
0
2288
708
823
Ps
Pas
Ps: ATGGAGCCATAGTTGGA
Pas: CTGAGGGGATGGCTTT
Re-ChIP
input
GFP
PCNA
UHRF1
Sp1
ISGF3γ
c-ETS2
ChIP-Dnmt1
Alu

Figure S7