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*      20      *      40      *      60      *      80      *      100     *      120     *      140     *      160     *      180
WT_env  : ATGAGAGTGAAGGAGAAATATCAGCACTTGTGGAGATGGGGTGGAGATGGGGCACCATGCTCTTGGGATGTTGATGATCTGTGATGCTACAGAAAAATTGTGGGTACAGCTCTATTATGGGTACCTGTGTGGGAAGGAAGCAACCACCACCTCTATTTTGTGCATCAGATGCTAAAGCA
Max     : .....C.....T.....G.C.....T.....T.....A.....
MaxCpG  : .....A.....T.....C.....T.....G.C.....T.....T.....A.....
Max-3'WT : .....T.....A.....C.....T.....G.C.....T.....T.....A.....
MaxCpG-3'WT : .....A.....T.....C.....T.....G.C.....T.....T.....A.....
Neu     : .....G.GC.....G.C.C.....A.....G.C.T.T.....T.C.....C.T.C.C.....T
NeuCpG  : .....G.GC.....G.C.C.....A.....G.C.T.T.....T.C.....C.T.C.C.....T
Neu-3'WT : .....G.GC.....G.C.C.....A.....G.C.T.T.....T.C.....C.T.C.C.....T
NeuCpG-3'WT : .....G.GC.....G.C.C.....A.....G.C.T.T.....T.C.....C.T.C.C.....T
Min     : .....G.....T.....C.....C.....A.....G.....T.A.G.....G.T.C.C.....C
MinCpG  : .....G.....T.....G.....G.A.C.....A.....G.....T.A.G.....G.T.C.C.....C
MinCpG.2 : .....G.....T.....G.....G.A.C.....A.....G.....T.A.G.....G.T.C.C.....C
Min-3'WT : .....G.....T.....C.....C.....A.....G.....T.A.G.....G.T.C.C.....C
MinCpG-3'WT : .....G.....T.....G.....T.....A.G.....T.A.G.....T.T.....A.G...

*      200     *      220     *      240     *      260     *      280     *      300     *      320     *      340     *      360
WT_env  : TATGATACAGAGGTACATAATGTTGGGCCACACATGCTGTGTACCCACAGACCCCAACCCACAAGAAGTAGTATTGGTAAATGTGACAGAAAAATTTAACATGTGGAAAAATGACATGGTAGAACAGATGCATGAGGATATAATCAGTTTATGGGATCAAAAGCCTAAAGCCATGTGTA
Max     : .....T.A.....A.....A.....C.....T.A.T.T.....A.....C.T.G.C.C.....G.G.....A.C.C.....CC.C.....C.G.....C.....C.....G
MaxCpG  : .....T.A.....A.....A.....C.....T.A.T.T.....A.....C.T.G.C.C.....G.G.....A.C.C.....CC.C.....C.G.....C.....C.....G
Max-3'WT : .....T.A.....A.....A.....C.....T.A.T.T.....A.....C.T.G.C.C.....G.G.....A.C.C.....CC.C.....C.G.....C.....C.....G
MaxCpG-3'WT : .....T.A.....A.....A.....C.....T.A.T.T.....A.....C.T.G.C.C.....G.G.....A.C.C.....CC.C.....C.G.....C.....C.....G
Neu     : .....C.T.....G.C.....G.....G.G.C.G.C.....G.....T.....T.....G.G.C.A.T.....T.T.G.C.....T.....G.....G.....A.....C.T.A.....C.T.....T.A.T.....G
NeuCpG  : .....C.T.....G.C.....G.....G.G.C.G.C.....G.....T.....T.....G.G.C.A.T.....T.T.G.C.....T.....G.....G.....A.....C.T.A.....C.T.....T.A.T.....G
Neu-3'WT : .....C.T.....G.C.....G.....G.G.C.G.C.....G.....T.....T.....G.G.C.A.T.....T.T.G.C.....T.....G.....G.....A.....C.T.A.....C.T.....T.A.T.....G
NeuCpG-3'WT : .....C.T.....G.C.....G.....G.....T.....T.....G.G.C.A.T.....T.T.G.C.....T.....G.....G.....A.....C.T.A.....C.T.....T.A.T.....G
Min     : .....C.T.....C.....G.....A.G.....G.C.G.A.C.....A.....T.G.....G.TC.....T.C.....G.....C.T.....C.....T.G.A.....C.....C.....ATCCC.....GTCA.G.A.T.C.G
MinCpG  : .....C.T.....C.....G.....A.C.....A.C.....G.A.C.....A.....T.G.....G.TC.....T.C.....G.....C.T.....C.....T.G.A.....C.....C.....ATCCC.....G.T.G.A.....G
MinCpG.2 : .....C.T.....C.....G.....A.C.....A.C.....G.A.G.T.A.....T.G.....G.TC.....T.C.....G.....C.T.....C.....T.G.A.....C.....C.....ATCCC.....GTCA.G.A.T.C.G
Min-3'WT : .....C.T.....C.....G.....A.C.....A.C.....G.A.C.....A.....T.G.....G.TC.....T.C.....G.....C.T.....C.....T.G.A.....C.....C.....ATCCC.....GTCA.G.A.T.C.G
MinCpG-3'WT : .....C.T.....C.....G.....A.C.....A.C.....G.A.C.....A.....T.G.....G.TC.....T.C.....G.....C.T.....C.....T.G.A.....C.....C.....ATCCC.....G.T.G.A.....G

*      380     *      400     *      420     *      440     *      460     *      480     *      500     *      520     *      540
WT_env  : AAATTAACCCCACTCTGTGTTAGTTTAAAGTGCACTGATTGAAGAATGATACTAATACCAATAGTAGTACGGCGAGAATGATAATGGAGAAAGGAGAGATAAAAACTGCTCTTCAATATCAGCACAAGCATAAGAGGTAAGGTGCAGAAAGAATATGCATTTTTTTATAAACTTGAT
Max     : .....GC.G.G.....GTCC.G.A.T.....A.A.....C.C.C.A.....TCATCATCA.A.....C.....A.....G.....AGC.....C.TC.....GTC.....TC.....A.A.A.A.....T.....T.A...
MaxCpG  : .....GC.G.G.....GTCC.G.A.T.....A.A.....C.C.C.A.....TCATCATCA.A.....C.....A.....G.....AGC.....C.TC.....GTC.....TC.....A.A.A.A.....T.....T.A...
Max-3'WT : .....GC.G.G.....GTCC.G.A.T.....A.A.....C.C.C.A.....TCATCATCA.A.....C.....A.....G.....AGC.....C.TC.....GTC.....TC.....A.A.A.A.....T.....T.A...
MaxCpG-3'WT : .....GC.G.G.....GTCC.G.A.T.....A.A.....C.C.C.A.....TCATCATCA.A.....C.....A.....G.....AGC.....C.TC.....GTC.....TC.....A.A.A.A.....T.....T.A...
Neu     : .....GC.G.....T.A.....GTCCC.G.....T.....CC.T.A.....C.A.C.....TCA.TCT.C.G.....G.A.C.G.....T.....T.....ATCT.TTCT.....C.....G.G.....T.G.C
NeuCpG  : .....GC.G.....T.A.....GTCCC.G.....T.....CC.T.A.....C.A.C.....TCA.TCT.C.G.....G.A.C.G.....T.....T.....ATCT.TTCT.....C.....G.G.....T.G.C
Neu-3'WT : .....GC.G.....T.A.....GTCCC.G.....T.....CC.T.A.....C.A.C.....TCA.TCT.C.G.....G.A.C.G.....T.....T.....ATCT.TTCT.....C.....G.G.....T.G.C
NeuCpG-3'WT : .....GC.G.....T.A.....GTCCC.G.....T.....CC.T.A.....C.A.C.....TCA.TCT.C.G.....G.A.C.G.....T.....T.....ATCT.TTCT.....C.....G.G.....T.G.C
Min     : .....C.G.A.GT.G.C.GTCCAC.C.A.....C.A.....C.....A.CTC.TCGTCT.C.....C.....A.G.....G.T.T.C.T.C.ATCG.GTCA.T.....C.A.....A.G.....C.C.....C.....G...
MinCpG  : .....C.G.A.CT.G.....G.....C.G.A.....C.A.....C.....A.CTC.TCATCT.C.....C.....A.G.....G.T.T.C.T.C.ATCG.TCA.T.....G.G.A.....A.....G.....C.....C.....G...
MinCpG.2 : .....C.G.A.CT.G.....GTCAC.C.A.....C.A.....C.....A.CTC.TCT.C.....C.....A.G.....G.T.T.C.T.C.ATCG.TCA.T.....T.T.T.....C.A.....A.....G.....C.....C.....G...
Min-3'WT : .....C.G.A.GT.G.C.GTCCAC.C.A.....C.A.....C.....A.CTC.TCGTCT.C.....C.....A.G.....G.T.T.C.T.C.ATCG.GTCA.T.....C.A.....A.G.....C.C.....C.....G...
MinCpG-3'WT : .....C.G.A.CT.G.....G.....C.G.A.....C.A.....C.....A.CTC.TCATCT.C.....C.....A.G.....G.T.T.C.T.C.ATCG.TCA.T.....G.G.A.....A.....G.....C.....C.....G...

*      560     *      580     *      600     *      620     *      640     *      660     *      680     *      700     *      720
WT_env  : ATAATACCAATAGATAATGATACTACCAGCTATAAGTTGACAAGTTGTAACACCTCAGTCATTACACAGGCGCTGCCAAAGGTATCCTTTGAGCCAATTCCCATACATTATTGTGCCCGCGTGGTTTTGCGATTCTAAAATGTAATAAAGACGTTCAATGGAACAGGACCATGTACA
Max     : .....T.T.T.....C.C.....TTCA.....A.A.....TCA.....T.T.....A.A.T.A.....C.C.A.....T.....C.C.....C.C.....T.A.A.A.....C.C.C.G.....A.A.T.....C.G.C.C.....C
MaxCpG  : .....T.T.T.....C.C.....TTCA.....A.A.....TCA.....T.T.....A.A.T.A.....C.C.A.....T.....C.C.....C.C.....T.A.A.A.....C.C.C.G.....A.A.T.....C.C.....C
Max-3'WT : .....T.T.T.....C.C.....TTCA.....A.A.....TCA.....T.T.....A.A.T.A.....C.C.A.....T.....C.C.....C.C.....T.A.A.A.....C.C.C.G.....A.A.T.....C.G.C.C.....C
MaxCpG-3'WT : .....T.T.T.....C.C.....TTCA.....A.A.....TCA.....T.T.....A.A.T.A.....C.C.A.....T.....C.C.....C.C.....T.A.A.A.....C.C.C.G.....A.A.T.....C.C.....C
Neu     : .....T.T.T.....C.C.A.ATCA.....A.....TTCC.C.....A.....A.....T.A.C.T.....T.A.T.....C.....G.T.A.C.....C.ATG.G.G.....A.T.T.....G.G.T.C.....T
NeuCpG  : .....T.T.T.....C.C.A.ATCA.....A.....TTCC.C.....A.....A.....T.A.C.T.....T.A.T.....C.....G.T.A.C.....C.ATG.G.G.....A.T.T.....G.T.C.....T
Neu-3'WT : .....T.T.T.....C.C.A.ATCA.....A.....TTCC.C.....A.....A.....T.A.C.T.....T.A.T.....C.....G.T.A.C.....C.ATG.G.G.....A.T.T.....G.G.T.C.....T
NeuCpG-3'WT : .....T.T.T.....C.C.A.ATCA.....A.....TTCC.C.....A.....A.....T.A.C.T.....T.A.T.....C.....G.T.A.C.....C.ATG.G.G.....A.T.T.....G.T.C.....T
Min     : .....C.....T.C.C.....C.....ATCG.C.AC.....TCG.....T.A.C.G.....A.....T.A.G.A.C.....C.....G.T.G.A.C.....C.....C.....T.T.C.G.T.C.....C
MinCpG  : .....C.....T.T.C.....C.....ATCA.C.AC.....TCA.....T.A.G.G.....A.C.T.....AG.....C.....A.T.A.A.....G.....G.....C.....T.T.C.T.C.....C
MinCpG.2 : .....C.....T.C.....C.....A.....T.....A.....A.C.A.....T.A.G.A.....C.....A.....C.....C.....C.....T.T.C.C.T.C.....C
Min-3'WT : .....C.....T.C.....C.....ATCG.C.AC.....TCG.....T.A.C.G.....A.....T.A.G.A.C.....C.....G.T.G.A.C.....C.....C.....T.T.C.G.T.C.....C
MinCpG-3'WT : .....T.....T.T.C.....C.....ATCA.C.AC.....TCA.....T.A.G.G.....A.C.T.....AG.....C.....A.T.A.A.....G.....C.....T.T.C.T.C.....C
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WT_env : AATGTCAGCAGTAGTACACATGGAATTAGGCCAGTAGTATCAACTCAACTGCTGTTAAATGGAGCTCTAGCAGAGAAGAGGAGTAAATAGATCTGTCAATTTACGGACAAGTCTAAACCATATAAGTACAGCTGAACACATCTGTAGAATTAATTTGACAAGACCCCAAC

Max : T T C T T C C C . G . G . C . C A . A C T T C . T A A . A G T . T . T A A . A T . T G . G . C . C . C G C . G

MaxCpG : T T C T T C . C C . G . C . C A . A C T T C . T A A . A A . A A . A T . T G . G . C . C . C T . G

Max-3'WT : T T C T T C . C C . C . G . G . C . C A . A C T T C . T A A . A G T . T . T A A . A T . T G . G . C . C . C G C . G

MaxCpG-3'WT : T T C T T C . C . C C . G . C . C A . A C T T C . T A A . A G T . T . T A A . A T . T G . G . C . C . C T . G

Neu : G T C G . G . C . T C . G . C G G . A . T C . C T C A T G C . T . G T . T C T T . G A T . C . G T C . T T

NeuCpG : G T C G . G . C . T C . G . C G G . A . T C . C T C A T G C . T . G T . T C T T . G A T . C . G T C . T T

Neu-3'WT : G T C G . G . C . T C . G . C G G . A . T C . C T C A T G C . T . G T . T C T T . G A T . C . G T C . T T

NeuCpG-3'WT : G T C G . G . C . T C . G . C G G . A . T C . C T C A T G C . T . G T . T C T T . G A T . C . G T C . T T

Min : G T C A C . G C . C . A C . A . G . T . G C C T . A C . G . C . T C A C . G G . C . G . C . G T . C G . G . T . T C . A . C . T G . T . G C C . T . G T

MinCpG : G T C A T . G C . A . A . G . T . G C T . A C . T T C A T . G G . C . G . G T . A C . G . T . T G . A T . G C C T

MinCpG.2 : G T C C . A G . T A G T C C T . A C . G T C A G G . A . G . T . C . G . A T . T C . A . C . T A G G C T

Min-3'WT : G T C A C . G C . C . A C . A . G . T . G C C T . A C . G . C . T C A C . G G . C . G . C . G T . C G . G . T . T C . A . C . T G . T . G C C . T . G T

MinCpG-3'WT : G T C A T . G C . A . A . G . T . G C T . A C . T T C A T . G G . C . G T . A C . G . T . T G . A T . G C C T

WT_env : AACAAATACAAGAAAAAGAATCCGTATCCAGAGAGGACCAGGGAGAGCAATTTGTTACAATAGGAAAAATAGGAAATATGAGACAAGCACATTGTAACATTAGTAGAGCAAAATGGAATAACACTTTAAAAACAGATAGCTAGCAAAATTAAGAGAACAATTTGGAATAATAAAACAATAATC

Max : C . T C A A . A . A T . T C . C . C . G . G . C . G . C T A . T A . T C T C T G . C . C G . C . C A

MaxCpG : C . T A A . A . A . A T . T G C . C . T . G . G . C . G . C G . G . G . C T . A T C A T A . T C T C T G . C . C A

Max-3'WT : C . T C A A . A . A . A T . T C . C C . C . G . C . G . C G . G . G . C T . A T C A T A . T C T C T G . C . C A

MaxCpG-3'WT : C . T A A . A . A . A T . T G C . C . T . G . G . C . G . C G . G . G . C T . A T C A T A . T C T C T G . C . C A

Neu : T T C . G . G C . G . A . A G G . C G . C . T . C . G . T . C . C G . G . C T . A . C . T T . C G . A . T . C . T T . G G . G C . C T T

NeuCpG : T T . G . G . G . A . A G G . C G . C . T . C . G . T . C . C G . G . C T . A G T . C G . A . T . C . T T . G G . G C . C T T

Neu-3'WT : T T C . G . G C . G . A . A G G . C G . C . T . C . G . T . C . C G . G . C T . A . C . T T . C G . A . T . C . T T . G G . G C . C T T

NeuCpG-3'WT : T T . G . G . G . A . A G G . C G . C . T . C . G . T . C . C G . G . C T . A G T . C G . A . T . C . T T . G G . G C . C T T

Min : C . G C . T . T . G . A C . C . G C G . C . G . G . C C . C . G G A T C C C . T . G . G C . T . A C . G T . G T C T C . G C . T G . C . G G G

MinCpG : T . G T A . G . A G . G C C . G C A T C C . G G C . T . A C . C T . A . T . C . G G C . C . C C

MinCpG.2 : T T . G A . G . T G C . C . G . G . T . C T . C G A C . T . A C . G C T C T C . G G C . C . C C

Min-3'WT : C . G C . T . T . G . A C . C . G C . G . C . G . G . C C . C . G C . C A T C C C . T . G . G C . T . A C . G T . G T C T C . G C . T G . C . G G

MinCpG-3'WT : T . G T A . G . A G . G C C . G C A T C C . G G C . T . A C . C T . A . T . C . G G C . C . C C

WT_env : TTTAAGCAATCCTCAGGAGGGGACCCAGAAATGTAAOCGCACAGTTTAAATTTGGAGGGGAATTTTCTACTGTAAATCAACACAACCTGTTTAATAGTACTTGGTTTAAATAGTACTTGGAGTACTGAAGGTCAAAATAACACTGAAGGAAGTGACACAATCACCCCTCCCATGCAGAATA

Max : A A G T T C . C C . C . C A . G . C T . C . C . C . G C . C . C . G A A G T T C G . G . C C

MaxCpG : A A G T T C . C . C . C . C . C A . G . C T . C . C . C . A C . C . C . G A A G T T C G . C C

Max-3'WT : A A G T T C . C . C . C . C . C A . G . C T . C . C . C . G C . C . C . G A A G T T C G . G . C C

MaxCpG-3'WT : A A G T T C . C . C . C . C . C A . G . C T . C . C . C . A C . C . C . G A A G T T C G . C C

Neu : A A G G . T T . T G . C T C C C . C . G . C . T . T A T C A . A T C A . A T C A G . C A G T T G . C T C T . A . A . A . T . T C

NeuCpG : A A G T . T T . T G . C T C C C . A . G . C . T . T A T C A . A T C A . A T C A G . C A G T T G . C T C T . A . A . A . T . T C

Neu-3'WT : A A G G . T T . T G . C T C C C . C . G . C . T . T A T C A . A T C A . A T C A G . C A G T T G . C T C T . A . A . A . T . T C

NeuCpG-3'WT : A A G T . T T . T G . C T C C C . A . G . C . T . T A T C A . A T C A . A T C A G . C A G T T G . C T C T . A . A . A . T . T C

Min : G T . C T . C . G . A . C . A . T C C . C . C . C . G T C . T . C C T C A T C C T C G C C . T . C . G T C T . T . A . G T C . T . T

MinCpG : G T . G T . T . G . A . C . A . T C C G T C . T . C C T C A C . T C C T C G . A . G . A C . T . G T C T . T . A . G T . T . T

MinCpG.2 : G T . C T . T . G . A . C . A . T C C C C . T C . T . C C T C A T C C T C A . G . A C . T . G T C T . T . A . G T . G . C

Min-3'WT : G T . C T . C . G . A . C . A . T C C . C . C . C . G T C . T . C C T C A C . T C C T C G C C . T . C . G T C T . T . A . G T C . T . T

MinCpG-3'WT : G T . G T . T . G . A . C . A . T C C G T C . T . C C T C A C . T C C T C G . A . G . A C . T . G T C T . T . A . G T . T . T

WT_env : AAACAAATTTATAAACATGTGGCAGAAAGTAGGAAAAGCAATGTATGCCCTCCCATCAGTGGACAAATTAGATGTTTCATCAAATATTACAGGGCTGCTATTAAACAAGAGATGGTGGTAATAGCAACAATAGTCCGAGATCTTCAGACCTGGAGGAGGAGATATGAGGGACAATTTGGAGA

Max : G . G C . C G . G . C . G . C G T T C A T A . T . T T . A T A . A T C A A A G T T T . C C G

MaxCpG : G . G C . C G . G . C . G . C G T T C A T A . T . T T . A T A . A T C A A A G T T T . C C G

Max-3'WT : G . G C . C G . G . C . G . C G T T C A T A . T . T T . A T A . A T C A A A G T T T . C C G

MaxCpG-3'WT : G . G C . C G . G . C . G . C C T T C A T A . T . T T . A T A . A T C A A A G T T T . C C G

Neu : G . G G . T . C . G G T . A T C G . T C . T T . C . C T . C T T C G . C C . T C . C . C T . A G T G . G C A C . C . T

NeuCpG : G . G G . T . C . G G T . A T C G . T C . T T . C . C T . C T T C G . C C . G A . C . C T . A G T G . G C A C . A C . C . T

Neu-3'WT : G . G G . T . C . G G T . A T C G . T C . T T . C . C T . C T T C G . C C . T A . C . C T . A G T G . G C A C . A C . C . T

NeuCpG-3'WT : G . G G . T . C . G G T . A T C G . T C . T T . C . C T . C T T C G . C C . G A . C . C T . A G T G . G C A C . A C . C . T

Min : G . G T . T A . G C . G G G . A . C . C C . G . C . C C T . A T . G C . G C . C . C . C . G T . C A A G . A . C . C . G C . C C . .

MinCpG : G . G T . T A . G C . T T . A . C A T C A C . G . C . C C T . A T . G C . G G . G . G . G T C T A A G . A . G . G . G C

MinCpG.2 : G T . T A . G G . T A A T C A C . C . G . C . C C T . A T . G C . G G . G . G . G T C T A A G . A . G . G . G A

Min-3'WT : G . G T . T A . G C . T T . G G G . A . C . C C . G . C . C C T . A T . G C . G C . C . C . C . G T C T . C A A G . A . C . C . G C . C C . .

MinCpG-3'WT : G . G T . T A . G C . T T . G G A . C A T C A C . G . C . C C T . A T . G C . G G . G . G . G T C T A A G . A . G . G . G C

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*      1460      *      1480      *      1500      *      1520      *      1540      *      1560      *      1580      *      1600      *      1620
WT_env   : AGTGAATTATATAAATATAAAGTAGTAAAAATTGAACCATTAAGAGTAGCAGCCACCAAGGCCAAAGAGAAAGAGTGGTGCAGAGAGAAAAAGAGCAGTGGGAATAGGAGCTTTGTTCCCTGGGTTCTTGGGAGCAGCAGGAAGCACTATGGGCGCAGCCTCAATGACGCTGACGGTACAG
Max      : .....GC.C.....A..G..GC.G.....
MaxCpG   : .....GC.C.....A..G..C.G.....
Max-3'WT : .....GC.C.....A..G..GC.G.....
MaxCpG-3'WT : .....GC.C.....A..G..C.G.....
Neu      : TCG.....G.....G..T.....G.....
NeuCpG   : TCG.....G.....G..T.....G.....
Neu-3'WT : TCG.....G.....G..T.....G.....
NeuCpG-3'WT : TCG.....G.....G..T.....G.....
Min      : ..C..G..G..C.....C.....G..T.....C..G..C.C.....
MinCpG   : .....G..G..C.....C.....G..T.....A..G..C.T.....
MinCpG.2 : TC.....G..G..C.....C.....G..T..G..A..G..C.G.....
Min-3'WT : ..C..G..G..C.....C.....G..T.....C..G..C.C.....
MinCpG-3'WT : .....G..G..C.....C.....G..T.....A..G..C.T.....

*      1640      *      1660      *      1680      *      1700      *      1720      *      1740      *      1760      *      1780      *      1800
WT_env   : GCCAGACAATTATTTGCTCTGGTATAGTGCAGCAGCAGACAATTGCTGAGGGCTATTGAGGCGCAACAGCATCTGTTGCAACTCACAGTCTGGGGCATCAAGCAGCTCCAGGCAAGAATCCTGGCTGGAAAGATACCTAAAGGATCAACAGCTCCTGGGGATTGGGGTTGCTCTGGA
Max      : .....
MaxCpG   : .....
Max-3'WT : .....
MaxCpG-3'WT : .....
Neu      : .....
NeuCpG   : .....
Neu-3'WT : .....
NeuCpG-3'WT : .....
Min      : .....
MinCpG   : .....
MinCpG.2 : .....
Min-3'WT : .....
MinCpG-3'WT : .....

*      1820      *      1840      *      1860      *      1880      *      1900      *      1920      *      1940      *      1960      *      1980
WT_env   : AAACCTCATTTGCACCACTGCTGTGCCTTGGAAATGCTAGTTGGAGTAATAAATCTCTGGAACAGATTTGGAATCACACGACCTGGATGGAGTGGGACAGAGAAATTAACAATTACACAAGCTTAATACACTCCTTAATTGAAGAATCGCAAAACCAGCAAGAAAAGAATGAACAAGAATTA
Max      : .....AT.A.....A.A.....C..C..G.....A.....C.....GTCGC.C..T..T..A.....G..GAGC..G.....A.....A.....
MaxCpG   : .....AT.A.....A.A.....C..C..A.....A.....C.....CTC.C.C..T..T..A.....G..GAGC..G.....A.....A.....
Max-3'WT : .....AT.A.....A.A.....C..C..A.....A.....C.....CTC.C.C..T..T..A.....G..GAGC..G.....A.....A.....
MaxCpG-3'WT : .....TCA.....A..G.....A.....C.....A..A.....TC.....T.....T..TTCTC...T..T..AC.T..A..G..GAGT...T..A.....G.....G..G..GC..
Neu      : .....TCA.....A..G.....A.....C.....A..A.....T.....T.....T..TTCTC...T..T..AC.T..A..G..GAGT...T..A.....G.....G..G..GC..
NeuCpG   : .....TCA.....A..G.....A.....C.....A..A.....T.....T.....T..TTCTC...T..T..AC.T..A..G..GAGT...T..A.....G.....G..G..GC..
Neu-3'WT : .....TCA.....A..G.....A.....C.....A..A.....T.....T.....T..TTCTC...T..T..AC.T..A..G..GAGT...T..A.....G.....G..G..GC..
NeuCpG-3'WT : .....TCG...G.....C..T..A..T.....A.....T.....G..A.....TTCG..G..C..TAGTC.C..A..G.....C.....G..A..C..G.....G..G..G
Min      : .....TCC...GAG.....C..T..A..T.....A.....T.....G..A.....TTC..G..C..TAGTC.G..A..G.....C.....A..G.....G..G..C.G
MinCpG   : .....TC..C..G.....C..T..A..T.....A.....T.....G..A.....TTC...C..TAGTC.C..A..G.....C.....A..G.....G..G..G
MinCpG.2 : .....TC..C..G.....C..T..A..T.....A.....T.....G..A.....TTC...C..TAGTC.C..A..G.....C.....A..G.....G..G..G
Min-3'WT : .....
MinCpG-3'WT : .....

*      2000      *      2020      *      2040      *      2060      *      2080      *      2100      *      2120      *      2140      *      2160
WT_env   : TTGGAATTAGATAAAATGGGCAAGTTTGTGGAATTGGTTTAACATAACAAATTTGGCTGTGGTATATAAAATATTATTCATATGATAGTAGGAGGCTTGGTAGGTTTAAGAATAGTTTTCGTGTACTTTCATATAGTGAATAGAGTTAGGCAGGGATATTCACCATTATCGTTTCAGACCCAC
Max      : .....A.....GTCGC.....C.....C.....C..C..C.....C.....C..C..C..T.....C.....T.....A..A.....A.....A.....G..C..C..T..A.....A..A..A..T.....A.....A.....
MaxCpG   : .....A.....CTCAC.....C.....C.....C..C..C.....C.....C..C..C..T.....C.....T.....A..A.....A.....A.....G..C..C..T..A.....A..A..A..T.....A.....A.....
Max-3'WT : .....A.....CTCAC.....C.....C.....C..C..C.....C.....C..C..C..T.....C.....T.....A..A.....A.....A.....G..C..C..T..A.....A..A..A..T.....A.....A.....
MaxCpG-3'WT : .....C.T.....G..C..G.....TC.C.A.....C.....T.....C.....C..T.....G..T.....T..G..G..C..T..G..C..CC.G..C..C.....G..C..AAG.....C.....GC.....C.....AGT.....
Neu      : .....C.T.....G..C..G.....TC.C.A.....C.....T.....C.....C..T.....G..T.....T..G..G..C..T..G..C..CC.G..C..C.....G..C..AAG.....C.....GC.....C.....AGT.....
NeuCpG   : .....C.T.....G..C..G.....TC.C.A.....C.....T.....C.....C..T.....G..T.....T..G..G..C..T..G..C..CC.G..C..C.....G..C..AAG.....C.....GC.....C.....AGT.....
Neu-3'WT : .....A..G..G..C.....CTCA.....C..T..T..T.....T.....C..C.G..T.....C..G.....G.....C..G..GC.T..T..G..C..G..T..G.....T.....GC.A.....C..T..G..G.....
NeuCpG-3'WT : .....A..G..G..C.....CTCA.....C..T..T..T.....T.....C..C.G..T.....C..G.....G.....C..G..GC.T..T..G..C..G..T..G.....T.....GC.A.....C..T..G..G.....
Min      : .....A..G..G..C.....CTCA.....C..T..T..T.....T.....C..C.G..T.....C..G.....G.....C..G..GC.T..T..G..C..G..T..G.....T.....GC.A.....C..T..G..G.....
MinCpG   : .....A..G..G..C.....CTCA.....C..T..T..T.....T.....C..C.G..T.....C..G.....G.....C..G..GC.T..T..G..C..G..T..G.....T.....GC.A.....C..T..G..G.....
MinCpG.2 : .....A..G..G..C.....CTCA.....C..T..T..T.....T.....C..C.G..T.....C..G.....G.....C..G..GC.T..T..G..C..G..T..G.....T.....GC.A.....C..T..G..G.....
Min-3'WT : .....A..G..G..C.....CTCA.....C..T..T..T.....T.....C..C.G..T.....C..G.....G.....C..G..GC.T..T..G..C..G..T..G.....T.....GC.A.....C..T..G..G.....
MinCpG-3'WT : .....A..G..G..C.....CTCA.....C..T..T..T.....T.....C..C.G..T.....C..G.....G.....C..G..GC.T..T..G..C..G..T..G.....T.....GC.A.....C..T..G..G.....
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      *      2180      *      2200      *      2220      *      2240      *      2260      *      2280      *      2300      *      2320      *      2340
WT_env   : CTCCCAACCCCGAGGGGACCCGACAGGCCCGAAGGAATAGAAGAAGGTGGAGAGAGAGACAGAGACAGATCCATTTCGATTAGTGAACGGATCCTTAGCACTTATCTGGGACGATCTGCGGAGCCTGTGCCTCTTCAGCTACCACCGCTTGAGAGACTTACTCTTGATTGTAACGAGG
Max      : .....
MaxCpG   : .....
Max-3'WT : .....
MaxCpG-3'WT : .....
Neu      : .....
NeuCpG   : .....
Neu-3'WT : .....
NeuCpG-3'WT : .....
Min      : .....
MinCpG   : .....
MinCpG.2 : .....
Min-3'WT : .....
MinCpG-3'WT : .....

      *      2360      *      2380      *      2400      *      2420      *      2440      *      2460      *      2480      *      2500      *      2520
WT_env   : ATTGTGGAACCTCTGGGACGCAGGGGGTGGGAAGCCCTCAAATATTGGTGAATCTCCTACAGTATTGGAGTCAGGAACATAAGAATAGTGTGTTAACTTGCTCAATGCCACAGCCATAGCAGTAGCTGAGGGGACAGATAGGGTTATAGAAGTATTACAAGCAGCTTATAGAGCTATT
Max      : .....
MaxCpG   : .....
Max-3'WT : .....
MaxCpG-3'WT : .....
Neu      : .....
NeuCpG   : .....
Neu-3'WT : .....
NeuCpG-3'WT : .....
Min      : .....
MinCpG   : .....
MinCpG.2 : .....
Min-3'WT : .....
MinCpG-3'WT : .....

      *      2540      *      2560
WT_env   : CGCCACATACCTAGAAGAATAAGACAGGGCTTGGAAGGATTTTGCTA
Max      : .....
MaxCpG   : .....
Max-3'WT : .....
MaxCpG-3'WT : .....
Neu      : .....
NeuCpG   : .....
Neu-3'WT : .....
NeuCpG-3'WT : .....
Min      : .....
MinCpG   : .....
MinCpG.2 : .....
Min-3'WT : .....
MinCpG-3'WT : .....

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Figure S1. Nucleotide sequence of CPB recoded HIV-1 *env* sequences designed and explored in this study. HIV-1 *env* regions that were not mutated in any variant are shown in blue. Substitutions for each variant are compared to the HIV-1 *env* HXB2 WT sequence.