Supplementary Material
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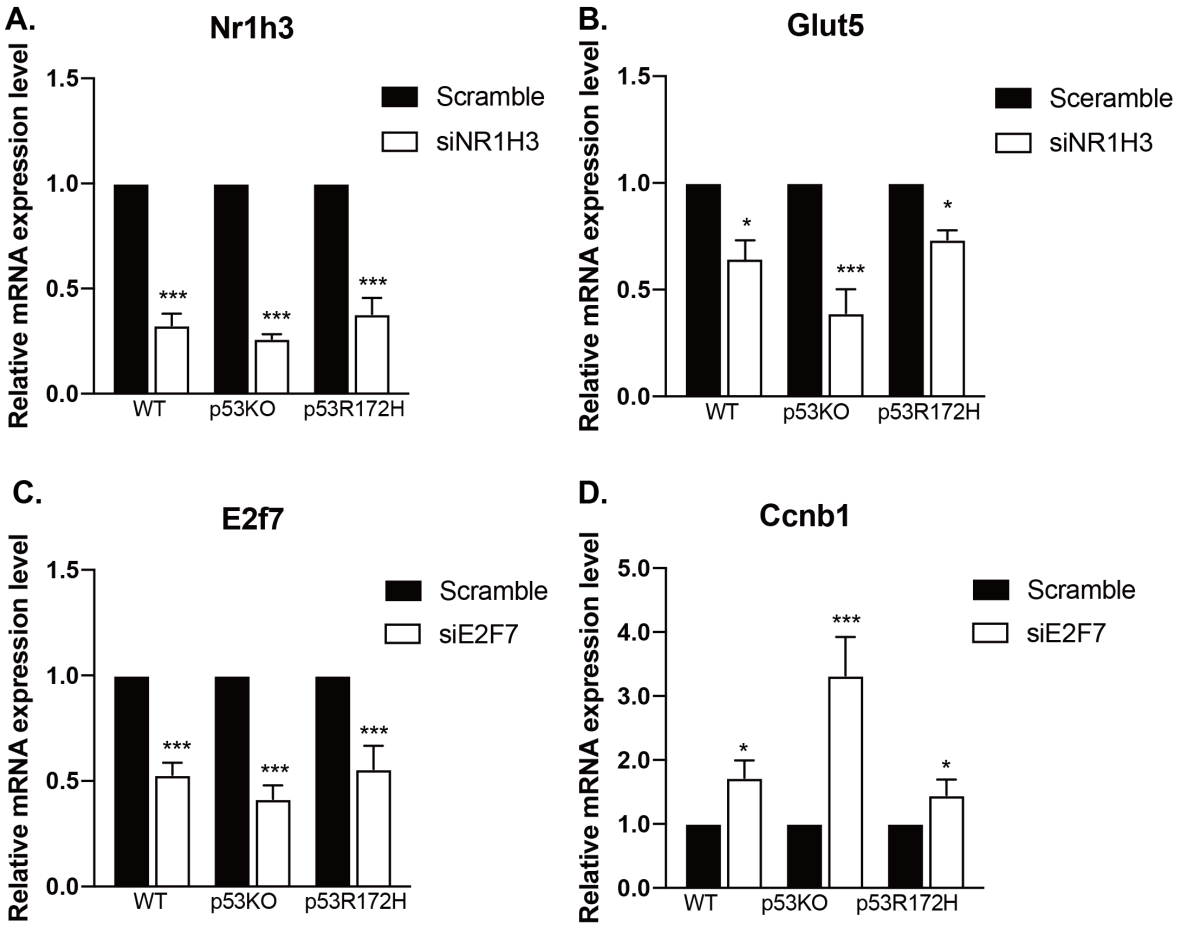
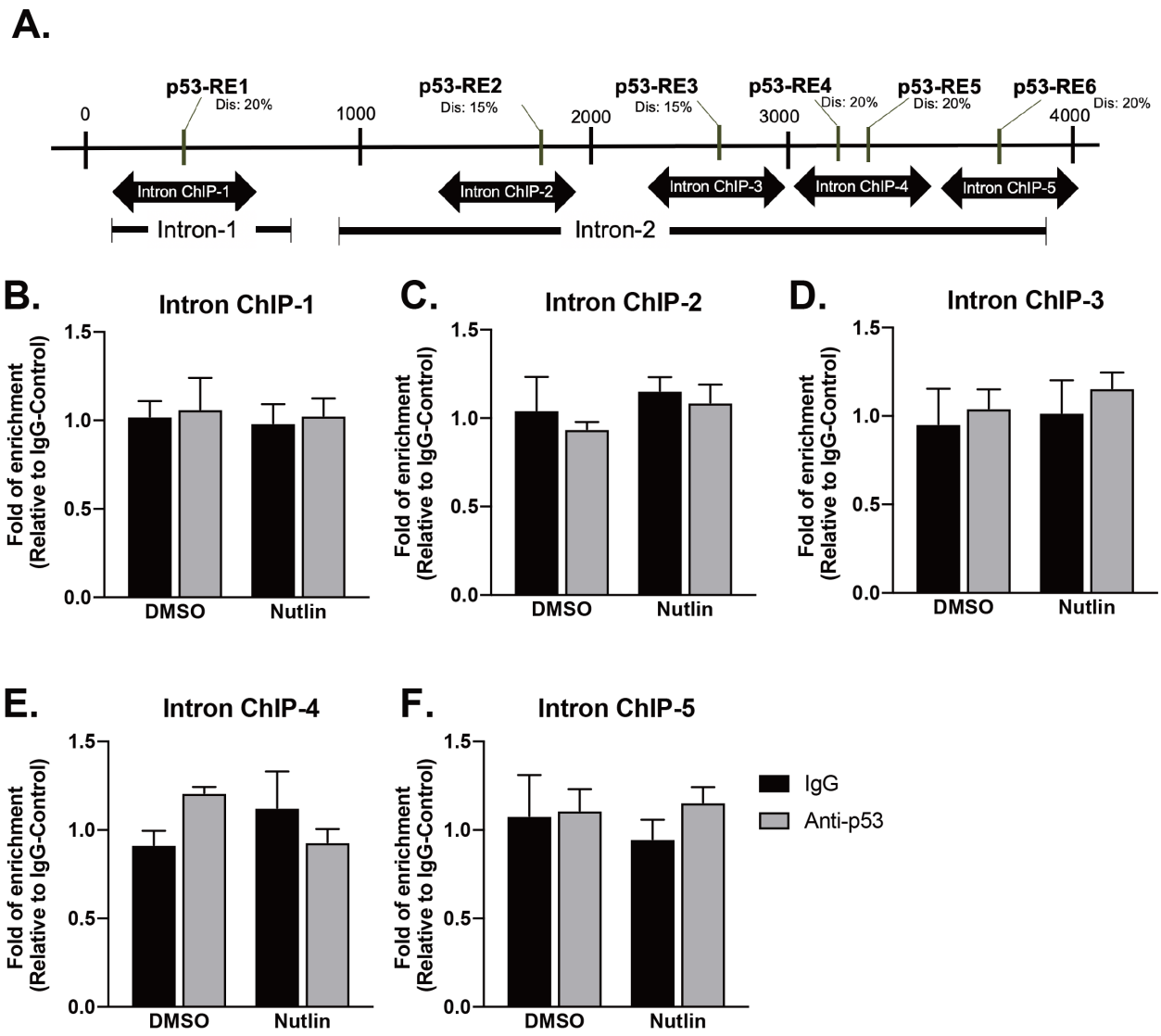
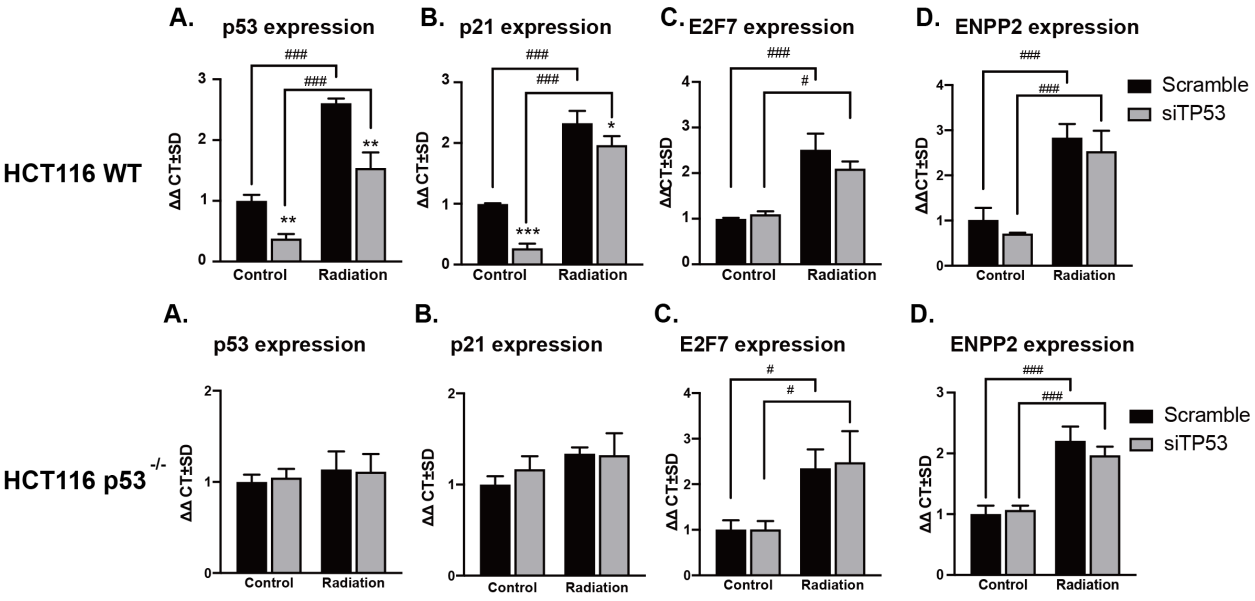


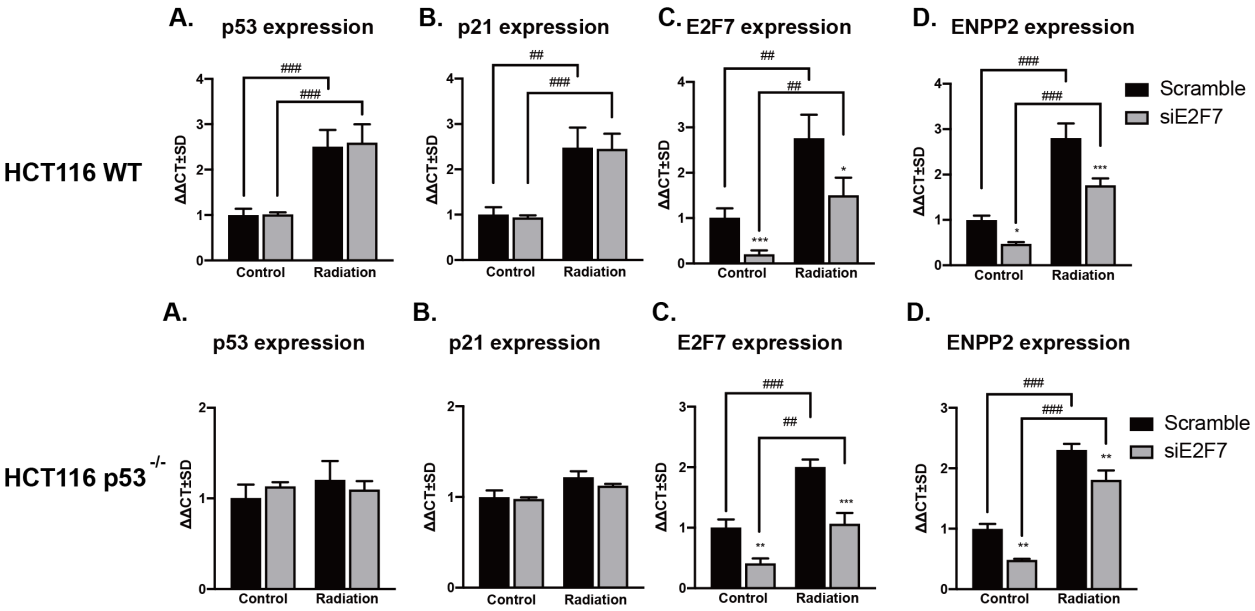
Supplementary Figure 1. KD efficiency of siRNA targeting NR1H3 and E2F7 in MEF cells. The mRNA expression level of (A) NR1H3, (B) GLUT5, (C) E2F7, and (D) CCNB1 was measured using RT-qPCR. 100 nM of NR1H3 siRNA and 150 nM of E2F7 siRNA was transfected in WT, p53-KO, $p53^{R172H}$ MEF cells. Total RNA was extracted and reverse transcribed to cDNA. Fold changes in mRNA ($\Delta\Delta$Ct) were calculated and the data represent the mean ± SD of three independent experiments. *$p<0.05$ and ***$p < 0.001$ indicate significant differences between scramble and siRNA transfected cells.



Supplementary Figure 2. p53 does not bind to intronic p53-RE in human ENPP2. Human WT HCT116 cells were starved in serum-free medium for 2 h followed by incubation with 20 μM Nutlin-3A for 24 h. Cells were further subjected to ChIP-qPCR analysis using anti-p53 or non-specific control IgG antibodies. The primers targeting (A) p53-RE1, (B) p53-RE2, (C) p53-RE3, (E) p53-RE4 & p53-RE5, and (F) p53-RE6 in the second intron were used to quantify the p53-bound DNA. Enrichment of p53-binding was normalized to non-specific control IgG. Analyses represent the mean of three independent experiments. One-way ANOVA was performed to compare the data from multiple experiments to determine the significance of p53 binding at a given site.



Supplementary Figure 3. Human HCT116 WT and HCT116 p53$^{-/-}$ cells were transfected with 150 nM TP53 siRNA for 24 h. TP53-KD cells were irradiated at 15 Gy and incubated for 24 h. Total RNA was extracted and 500 ng of total RNA was used for reverse transcription using random primers. mRNA expression of (A & E) p53, (B & F) p21, (C & G) E2F7, and (D & G) ENPP2 were detected by RT-qPCR. Fold changes in mRNA (ΔΔCt) were calculated and the data represent the mean ± SD of three independent experiments. *#p<0.05, ** ###p<0.01, and ***, ###p < 0.001 indicate significant differences between scramble and siTP53 transfected cells. # indicates the comparison between control and radiation.



Supplementary Figure 4. Human HCT116 WT and HCT116 p53$^{-/-}$ cells were transfected with 150 nM E2F7 siRNA for 24 h. E2F7-KD cells were irradiated at 15 Gy and incubated for 24 h. Total RNA was extracted and 500 ng of total RNA was used for reverse transcription using random primers. mRNA expression of (A & E) p53, (B & F) p21, (C & G) E2F7, and (D & G) ENPP2 were detected by RT-qPCR. Fold changes in mRNA (ΔΔCt) were calculated and the data represent the mean ± SD of three independent experiments. *#p<0.05, ** ###p<0.01, and ***, ###p < 0.001 indicate significant differences between scramble and siE2F7 transfected cells. # indicates the comparison between control (non-irradiated) versus irradiated cells.

Supplementary table 1. Primers for cloning

Primer name	sequence
Full promoter to Dual luciferase vector-F	GTTTTTCGAACCTAGGATTTGCATCTCGAGATGGAAT
Full promoter to Dual luciferase vector-R	TGGCTGCTAGCCTAGGCTGAGGGCTGAGGCATT
Partial promoter to Dual luciferase vector-F	GTTTTTCGAACCTAGGATCTTCAGTTTCTGAGCTGTATT
Partial promoter to Dual luciferase vector-R	TGGCTGCTAGCCTAGGCCGAGGGATTCTTGGAAAACC
E2F7 to pEYFP-C1-F	CGAGCTCAAGCTTCGAAAGAGGTGAATTGTTTAACACTAAAA
E2F7 to pEYFP-C1-R	CTGGACTAGTGGATC TACGATTCATCTGCAGC
E2F7-R185A-F	GGAAAGGAGAGCCATCTATGACATCGTAAACGTGCTGGAGTC
E2F7-R185A-R	ACGCCGAGACTGACGGCG
E2F7-R334A-F	AAAGGTACGGGCCCTCTATGACATAG
E2F7-R334A-R	GTTTTGAATTTGCTGTGGTCCGGGG
E2F7-DD-del-1-F	TCGCTGCATCTGGTCAGC
E2F7-DD-del-1-R	TACGATGTCATAGATGCGTCTCCTTT
E2F7-DD-del-2-F	ACCAGCCTGGCTCTGATA
E2F7-DD-del-2-R	GGCTATGTCATAGAGCCTCCG
ATX promoter-E2F7RE-1-del-F	ACGCCGAGACTGACGGCG
ATX promoter E2F7RE-1-del-R	AAAGGTACGGGCCCTCTATGACATAG
ATX promoter E2F7RE-2-del-F	ACGCCGAGACTGACGGCG
ATX promoter E2F7RE-2-del-R	AAAGGTACGGGCCCTCTATGACATAG
ATX promoter-p53RE-del-F	GGGTTGTTAGGGTCATCTG
ATX promoter-p53RE-del-R	TCGGAAAGGCATTCTCAG
Bach2 to pGADT7-F	GCATGTCTGTGGATGAGAAGC
Bach2 to pGADT7-R	GGCAGAAGAACACCCAGATGA
Cebpβ to pGADT7-F	ACTACGGTTACGTGAGCCTC
Cebpβ to pGADT7-R	TTGCATCAAGTCCCGAAACC
Fos to pGADT7-F	CCCAAACTTCGACCATGATG
Fos to pGADT7-R	CTCCTCTCTGTAATGCACCA
Nr1h3 to pGADT7-F	AATGTCCAGGGCTCCAGGAA
Nr1h3to pGADT7-R	AGCAGTCAGTGAGCCTTCGC
E2F7 to pGADT7-F	CGACAATGGAGGTGAATTGTTTAAC
E2F7 to pGADT7-R	TAGATGACTCATGATATCGGGAAGT
ATX promoter to pABAi-F	AAGGTACC TGGCTTTTGTGCTATCGGGT
ATX promoter to pABAi-R	AAAGTCGAC ACTGTGTGGTGCCCTAAAACT

Supplementary table 2. siRNA sequence

Target gene	sequence
mNr1h3 J-040649-09	GGGAUCUACUAACGUUGUA
mNr1h3 J-040649-10	GCUCAAGCCACUUCGGUGU
mNr1h3 J-040649-11	GAGAGAGCCUUGCGUAGCA
mNr1h3 J-040649-12	CGUCCACAAAAGCGGAAAA
mE2f7 J-054889-25	CCACCUACUUGGAACGCUA
mE2f7 J-054889-26	GAUAAAGAAAGUUCACGUA
mE2f7 J-054889-27	GCAUCUAUGACAUCGUAAA
mE2f7 J-054889-28	GGGUAAGUGUCGGCGAUAU
hE2F7 J-026897-05	GCACACAUCGUGAGACGUU
hE2F7 J-026897-06	UGACUAACCUGCCGCUUUG
hE2F7 J-026897-07	CAAGGACGAUGCAUUUACA
hE2F7 J-026897-08	GCACUAUUCCGACCCAUUG
Non-targeting siRNA	UGGUUUACAUGUCGACUAA

Supplementary table 3. Primers for qPCR and ChIP-qPCR

Primer name	sequence
mE2F7-F	TCCGAAGCCGACTACCCCTCTT
mE2F7-R	TTTGGCAGCTACATCCAGGGTG
mNr1h3-F	TGGACACCTACATGCGGCGGAA
mNr1h3-R	CACCGAAGTGGCTTGAGCCTGT
mCcnb1-F	AAAGGGAAGCAAAAACGCTAGG
mCcnb1-R	TGTTCAAGTTCAGGTTCAGGCTC
mGLUT5-F	CGAAAAACCTACGAGGGGCT
mGLUT5-R	CTGGCCAGCCATCCTCATTT
mChIP-1-F	ACACTGAAATAACAGTGCAG
mChIP-1-R	GAGATGCAAATCTGCTGTTC
mChIP-2-F	ATCAGTTTAGCTTGGCATAC
mChIP-2-R	CTCTTAGCTTTGGACTCTCG
mChIP-3-F	CTATCGGGTTTTATGCGAGC
mChIP-3-R	TTCAAATGAGGGGAGGCTTG
mChIP-4-F	TTAAGCTGGCAGCCCCAGTA
mChIP-4-R	CCAAAATTGCAACTCACACG
mChIP-5-F	ATACAGGGTCATTCCAACTG
mChIP-5-R	AGTTATTTGATGCCCTCAAC
mChIP-6-F	ACGCTTCGAGCTGATGGGAA
mChIP-6-R	TTCTTGTGTAGCTGTGGCCA
mChIP-7-F	GGTCTTAAGCAATGGCTTGG
mChIP-7-R	TTGGTGTTTCTCTGTGTTTC
m-intron-ChIP-1-F	AAATGAGGCATAGTGGAATA
m-intron-ChIP-1-R	TCTGTTTTCACATTCTTTCT
m-intron-ChIP-2-F	AGGAACCAATTTTCTGCTTT
m-intron-ChIP-2-R	TGAGGCATTACAAGTGACTT
hChIP-1-F	GAGTTAACATCTTTTATAAG
hChIP-1-R	AAAAGAAAATACACATACTG
hChIP-2-F	CACTACTCTGTTACTAATTT
hChIP-2-R	GAAAAAGATTTGTTTTTGGC
hChIP-3-F	AGTGTGCTGGTTGCCAAATT
hChIP-3-R	GCTTTATTAGCAATTGAATT
hChIP-4-F	TCCGCCCCGCCCGAAACAAG
hChIP-4-R	AGATAACATTATTTTCCCCA
hChIP-5-F	TGGAAAGCCCTTGCACAGCC
hChIP-5-R	AACAGGAGGGTTTGTTACAT
hChIP-6-F	TAGGGGAGGGACCTGTAAGG
hChIP-6-R	GGGTTTAGTCTATTAACTAT
hChIP-7-F	TTCTGACCATTAGAAAAGCC
hChIP-7-R	CCTTTGTGTTCCTTCTATTT
h-intron-ChIP-1-F	AGTCGTGTCAGGTGGGAGAA
h-intron-ChIP-1-R	TACACAAAGGTGATTCAAATGGCTT
h-intron-ChIP-2-F	AGTCATTAAAATCCTAGGCT
h-intron-ChIP-2-R	TCAAGAGGCAATGAAACAGA
h-intron-ChIP-3-F	AACAATAGCTGAGAATGTTC
h-intron-ChIP-3-R	TTATGACAGTCTGTTTGCAC
h-intron-ChIP-4-F	ACTTATAATTCTGTTGGGTA
h-intron-ChIP-4-R	TAAATCACAGTTATGGCTTA
h-intron-ChIP-5-F	ATCTTTTTCTCATATGTCTG
h-intron-ChIP-5-R	TGCATAACACCACAAACATA
hp21-F	AGGTGGACCTGGAGACTCTCAG
hp21-R	TCCTCTTGGAGAAGATCAGCCG

mp21-F	TCGCTGTCTTGCACTCTGGTGT
mp21-R	CCAATCTGCGCTTGGAGTGATAG
hE2F7-F	TCTGAACCCGACTGTCCCTCTT
hE2F7-R	TTTGGCAGCCACATCCAGAGTG
hENPP2-F	TATGCTGCGGAAACTCGTCAGG
hENPP2-R	GACGTTGACACACCGATGCAGT
hmGAPDH-F	CTGCACCACCAACTGCTTAG
hmGAPDH-R	GGGCCATCCACAGTCTTCT

Supplementary table 4. Primers for 3C-qPCR

Primer name	sequence
mPrimer#1	AGTTTCTGAGCTGTATTTTT
mPrimer#2	TACACTGAAATAACAGTGCA
mPrimer#3	AAGAGGCTTGTAGATAAATT
mPrimer#4	TCTCTTCTTCTTTTCAATGA
mPrimer#5	TTTTGTGCTATCGGGTTTTA
mPrimer#6	GGGGCCCGGTAGGGGAAAGC
mPrimer#7	TACTGTCCTTTATGCCTGCG
mAnchor-1	CAAACACAACTAGATTAGAT
mAnchor-2	ACACAGAGAAACACCAAATT
hPrimer#1	TGTTTTTGTTTTTAGAACAT
hPrimer#2	TCTCGTATTTGTTTACGCAC
hPrimer#3	AAACAATTCTTGACATTTCA
hPrimer#4	GACTGAAGTTATTTTGTCCG
hPrimer#5	GTATTTTGATAAAAGTTACT
hPrimer#6	ACTGCCAGCAAAATAAATAG
hPrimer#7	TTCTTTTTGACAAACCATGT
hAnchor-H	ATATCAATACCCTTTGTGTT