SUPPLEMENTARY FIGURES LEGENDS

Supplementary Figure S1

(A) Schematic structures of pC97ELsLuc and representative HPV16 early transcripts produced from pC97ELsLuc and spliced or not spliced at SD880. Plasmid pC97ELsLuc encodes all HPV16 genes. Early promoter P97 was replaced by CMV promoter. Secreted luciferase (sLuc) gene was integrated in the L1 gene following the poliovirus 2A internal ribosomal entry site (IRES) sequence. Numbers refer to the HPV16 reference strain GeneBank: K02718.1. Early and late genes are indicated. Black oval: splice donor. White oval: splice acceptor. pAE: HPV16 early polyadenylation site. pAL: HPV16 late polyadenylation site. Arrows indicate primer annealing positions. (B) Indicated hnRNP D isoformencoding plasmids were cotransfected with pC97ELsLuc into HeLa cells. RNA was extracted and subjected to RT-PCR with primers 97S and E1AS. This RT-PCR reaction detected mRNAs that were unspliced at SD880. The authenticity of intron-retained E6E7E1 mRNA band (intron-retained, IR) was determined by sequencing and confirmed by the reverse transcriptase negative control assay on the same RNA samples. (C-E) Dose-dependent effect of hnRNP D40 was monitored by cotransfecting pC97ELsLuc with serially diluted hnRNP D40 encoding plasmid. RNA was extracted and subjected to RT-PCR with HPV16 RT-PCR primers 97S+880AS (C), 773S+E2AS (D) or 773S+E4AS (E). (F) The four mRNAs isoforms of hnRNP D in indicated cell lines were analyzed by RT-PCR. (G) Exogeneous expression of hnRNP D40 (lane 3) was determined to compare with endogeneous hnRNP D (lane 1). (H) The exogenous expression of each isoform of hnRNP D protein in HeLa cells were analyzed by Western-blotting using anti-FLAG antibody.

Supplementary Figure S2

Determination of the consistent hnRNP D effect on HPV16 early mRNA splicing both from pC97ELsLuc and pBELsLuc. (A and B) Schematic representation of HPV16 subgenomic plasmid pC97ELsLuc, pBELsLuc and representative HPV16 transcripts investigated in (C) and (D) are shown. Plasmid pC97ELsLuc encodes all HPV16 genes. Early promoter P97 was replaced by human cytomegalovirus immediate early promoter (CMV). Plasmid pBELsLuc encodes all HPV16 genes except E6 and E7 and is driven by the CMV promoter. Secreted luciferase (sLuc) gene was integrated in the L1 gene following the poliovirus 2A internal ribosomal entry site (IRES) sequence. Early and late genes are indicated. Black oval: splice donor. White oval: splice acceptor. pAE: HPV16 early polyadenylation site. pAL: HPV16 late polyadenylation site. Numbers refer to the HPV16 reference strain GeneBank: K02718.1. Schematic representation of HPV16 alternatively spliced mRNAs produced from pBELsLuc are shown below pBELsLuc. Arrows indicate annealing positions of HPV16 RT-PCR primers. (C) hnRNP D37 or hnRNP D40 encoding plasmid was cotransfected with pC97ELsLuc or pBELsluc, RNA was extracted and HPV16 E1/E2 mRNA splicing or E4 mRNA splicing was determined by RT-PCR with primer pairs 773S+E2AS or 773S+E4AS, respectively. (D) Serially diluted hnRNP D40 plasmid was cotransfected with pC97ELsLuc or pBELsLuc. RNA was extracted and HPV16 E1/E2 mRNA splicing was determined by RT-PCR with primer pair 773S+E2AS. intron-retained (IR) E1 mRNAs and spliced 880^2709 mRNAs are indicated.

Supplementary Figure S3

Subcellular localization of hnRNP D40 and hnRNP D40-mutants fused to EGFP. (A) Higher magnifications of microscopic images adapted from Fig. 4C. A cell highlighted by white arrowhead in each image is the same cell that is highlighted in Fig. 4C. Enhanced green fluorescent protein gene was fused in frame with the entire hnRNP D40 open reading frame or mutants thereof as indicated. EGFP(-), plasmid expressing EGFP not fused to any protein. (B and C) Proportion of each alternatively spliced HPV16 E6E7 mRNA isoforms (intron-retained E6, 226^409, 226^526 and 226^742) or E1E2 mRNA isoforms (intron-retained E1, 880^2582 and 880^2709) over all spliced isoforms displayed in Fig. 3D or 3E. The proportion of a spliced isoform was calculated as a percentage of an isoform band intensity over the sum of all spliced isoform band intensities in each lane. Percentage bar graphs of all isoforms were built with mean values of three independent replicates. (D) Longer exposures of gel images of HPV16 E1E2 mRNA RT-PCR in Fig. 3D and E (773S+E2QAS) to enhance detection of the longer and inefficiently amplified cDNAs representing intron-retained E1 mRNAs.

Supplementary Figure S4

(A) hnRNP D40 and hnRNP D40 mutants had similar effect on HPV16 mRNA splicing in 293T cells (upper panel) and HeLa cells (lower panel). Plasmids expressing hnRNP D40 or the indicated hnRNP D40-mutants were individually cotransfected with pC97ELsLuc into 293T cells or HeLa cells, RNA was extracted and HPV16 E6E7 mRNA-splicing was analyzed by RT-PCR with HPV16 RT-PCR primers 97S+880AS. GAPDH, gapdh RT-PCR with primers GAPDHF and GAPDHR. (B) Subcellular localization of the EGFP-AGG mutant that in which "R" in the RG/RGG-motifs is replaced by "A" as described in **Fig. 5A**. Higher magnification image of EGFP-AGG was shown as "EGFP-AGG (H)". The same cells were highlighted with white arrowhead. (C) Proportion of the indicated spliced isoforms of HPV16 mRNAs quantitated from **Fig. 5I and J**. Percentage of the indicated spliced isoform over the sum of all spliced isoforms in each lane was calculated as described in **Fig. 4H-K**. Significance was calculated as described in Materials and Methods. (D) The coimmunoprecipitation of hnRNP D40 protein and SF3b or PABP-C1 analyzed as described in Figure 5K.

Supplementary Figure S5

(A) HPV16 subgenomic plasmid pC97ELsLuc encodes all HPV16 genes. Early promoter P97 was replaced by human cytomegalovirus immediate early promoter (CMV). Secreted luciferase (sLuc) gene was integrated in L1 gene following the poliovirus 2A internal ribosomal entry site (IRES) sequence. Early and late genes are indicated. Black opal: splice donor. White opal: splice acceptor. pAE: HPV16 early polyadenylation site. pAL: HPV16 late polyadenylation site. Numbers refer to the HPV16 reference strain GeneBank: K02718.1. "S" in red box represents a previously identified splicing silencer. (B-E) Schematic representations of HPV16 subgenomic expression plasmids pX656 (B), pX478 (C), pXH856F (D) and pXH856SDmF (E) used in Figure 6. HA-tags and FLAG-tags fused to HPV16 E6 and E7, respectively, in pXH856F and pX856SDmF are indicated. Wild type SD226 (GAG|GUAUAUGA : a

vertical line indicates 5' splice site) in pXH856F was changed to (GAG|G<u>CC</u>UAUGA: underline indicates changed nucleotide) for SD226 inactivation in pXH856SDmF. RT-PCR primers are indicated. The various alternatively spliced mRNAs produced by these plasmids are indicated. CMV: CMV promoter.

Supplementary Figure S6

Quality controls of nuclear/cytoplasmic fractionation for Figure 7A by Western-blotting analysis using anti-Lamin B, anti-SRSF1 or anti-SRSF2 antibody.

Supplementary Figure S7

(A) HPV16 subgenomic plasmid pBELsLuc encodes all HPV16 genes except E6 and E7 and is driven by the CMV promoter. Numbers refer to the HPV16 reference strain GeneBank: K02718.1. Early and late genes are indicated. Black oval: splice donor. White oval: splice acceptor. pAE: HPV16 early polyadenylation site. pAL: HPV16 late polyadenylation site. Secreted luciferase (sLuc) gene was integrated in L1 gene following the poliovirus 2A internal ribosomal entry site (IRES) sequence. (B and C) Schematic drawings of HPV16 subgenomic plasmids pBELEN and pBELENdE1 of which the latter harbors a deletion inside the E1 gene (Δnt1150-2481). Arrows indicate RT-PCR primer annealing positions. (D) Effect of hnRNP D40 overexpression on HPV16 E1/E2 mRNA splicing using HPV16 reporter plasmid pBELEN. pBELEN was transfected into HeLa cells in the absence (-) or presence (+) of hnRNP D40 expression plasmid. RNA was extracted and RT-PCR was performed with HPV16 primers 773S+E2Xba. intron-retained E1 mRNAs and spliced 880^2709 mRNAs are indicated. (E) HPV16 subgenomic plasmid pBELEN was transfected into HeLa cells in the absence (-) or presence (+) of hnRNP D40 expression plasmid. The transfected cells were fractionated into nuclear and cytoplasmic fractions, RNA was extracted and RT-PCR was performed with HPV16 primers 773S+E2Xba. intron-retained E1 mRNAs and spliced 880^2709 mRNAs are indicated. Unspliced and spliced actin mRNAs were detected by RT-PCR to control for subcellular fractionation. N, nuclear fraction; C, cytoplasmic fraction. (F) Quantitation of the RT-PCR products. The percentage of cytoplasmic intron-retained E1 mRNA over the sum of cytoplasmic and nuclear levels were calculated as described in Fig. 6D. (G and H) Schematic representations of HPV16 subgenomic plasmids p16E1-3xF and p16E1SDm-3xF encoding HPV16 E1 tagged with three FLAG-tags. Wild type SD880 (CAG|GUACCA: a vertical line indicates 5' splice site) and SD1302 (CAG|GUAGAA) in p16E1-3xF were changed to (CAG|CUACCA: underline indicates a changed nucleotide) for SD880 inactivation or (CAG|CUAGAA) for SD1302 inactivation in p16E1SDm-3xF, respectively. Numbers refer to the HPV16 reference strain GeneBank: K02718.1. Black oval: splice donor. White oval: splice acceptor. "x" represents mutational inactivation of HPV16 5'-splice sites SD880 and SD1302.

Supplementary Figure S8

(A and B) Inhibitory effect of hnRNP D on HPV16 E6 or E1 mRNA translation was demonstrated by in vitro transcription and translation assay in the presence or absence of recombinant hnRNP D protein. T7 promoter driven tagged-HPV16 E6 expressing plasmid (A) or FLAG-E1 expressing plasmid (B) was added in vitro transcription and in vitro translation reaction mixture in the absence (-) or presence (+) of

recombinant hnRNP D protein or BSA. Resulted proteins were analyzed by Western-blotting using anti-E6 antibody (A) or anti-FLAG antibody (B). Splice donor sites of HPV16 E6 and E1 were mutated as pXH856SDmF or p16E1SDm-3xF, respectively. HPV16 E6 protein was fused with TrxA-6xHis-S-Tag-HA tag at the N-terminus to increase the molecular weight (predicted size is 36 kD), separating from the unspecific bands detected in Western-blotting. **(C)** Effect of hnRNP D on translation of luciferase control mRNA was analysed by luciferase assay. Instead of E6 or E1 expressing plasmid, luciferase expressing plasmid was used. **(D)** The protein amount of recombinant hnRNP D and BSA used for the reaction indicated in (A) and (B) was confirmed by Coomassie staining (final 0.5uM of proteins in a reaction). **(E)** The quality and identity of recombinant hnRNP D protein was confirmed by Westernblotting using anti-hnRNP D antibody.





А

Supplementary Figure S3





Supplementary Figure S4



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Supplementary Figure S6







Supplementary Table 1. Sequences of PCR primers

	nrimore	Sequence 5'-3'
Amplified region	primers	
E0/E/	9/8	
	880AS	GAAACCATAATCTACCATGGCTGATC
	100110	
	438AS	[GCTCGAGGGAATCTTTGCTTTTGTCCAGATGTCT
	757AS	CGTGTGTGTCTTTGTACGCACAACCG
	TOTALEOF	IGTITCAGGACCCACAGGAG
	TotalE6R	TTGCTTGCAGTACACACTTC
	234AS	TGCATAAATCCCGAAAAGCAAAGT
	204710	
E2	773S	IGCACACGTAGACATTCGTACTTTG
	E046	
	EZAS	IGTCCAGATTAAGTTIGCACGAGGAC
	E2QAS	CAGCCAGCGTTGGCACCACCT
E4	773S	[GCACACACGIAGACATICGIACTIIG
	E4AS	ICCTCTCCTGAAATTATTAGGCAGCA
E1	773S	GCACACACGIAGACAIICGIACIIIG
	F1AS	ICCATCCATTACATCCCGTACC
	12020	
	13025	
	2293AS	TAATGATTTACCTGTGTTAGCTGCACC
	8805	GAAACCATAATCTACCATGGCTGATC
	5555	
	F-E1-1	AGTAGAGCTGCAAAAAGGAGATTA
	Pstl-SD880mE1-F	GATCCTGCAGCTACCAATGGGGAAGAGGGTAC
	E2Xba	
	LZAUA	
LoxP	16S	TATGTATGGTATAATAAACACGTGTGTGTGTG
	164	CCACTCCACCTCACCAAAACACCCCATTCCC
	IUA	
hnRNPD isoforms	28	GAAGATTGACGCCAGTAAGAACG
	7	
	/A	
p¥478	B075	CCCCCCTCCAATCTTCACCACCC
P7410	0910	
	X478A	GCTCGAGGGAATCTTTGCTTTTGTCCAGATGTCT
¥050	5070	
pX656	B97S	IGCGCGCTGCAATGTTTCAGGACCC
	X656A	
pXH856F	sense	GACAGCGCGCACCATGTACCCATACGATGTTCCAGATTACGCTATGTTTCAGGACCCACAG
•	anti sense	
pXH856SDmF	sense	CTGCGACGTGAGGCCTATGACTTTGC
	anti sense	GCAAAGTCATAGGCCTCACGTCGCAG
	anu sense	GCAAGTCATAGGCCTCACGTCGCAG
p16F1-3xF	sense	
p16E1-3xF	sense	
p16E1-3xF	sense anti sense	TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG
p16E1-3xF	sense anti sense anti sense	TAATCGATGTCATGATCHTGATCCTCGAGGTAC TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC
p16E1-3xF	sense anti sense anti sense	TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCGTCATCGTATCGATGTCATGATC
p16E1-3xF	sense anti sense anti sense	TATCGAGCGCGCCACCATGGCTGATCCTGCAGGTAC TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC
p16E1-3xF p16E1SDm-3xF	sense anti sense anti sense sense	TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCATGGGGAAGAGGGTAC
p16E1-3xF p16E1SDm-3xF	sense anti sense anti sense sense anti sense	TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTIGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT
p16E1-3xF 	sense anti sense anti sense sense anti sense anti sense	TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCGTCATCGTCATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCCCCTTCTAGCTGCAACATCTGCTGAGT TACAGCTAGCAGCGCCCCATGAGACTG
p16E1-3xF p16E1SDm-3xF	sense anti sense sense anti sense anti sense anti sense	TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCCCCATGAGACTG
p16E1-3xF p16E1SDm-3xF	sense anti sense sense anti sense anti sense anti sense	TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTIGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG
p16E1-3xF p16E1SDm-3xF pfag-D40	sense anti sense anti sense anti sense anti sense sense	TAATCGATGTCATGATCHTGATCCTGACGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAGACGATGACGACGACAAG
p16E1-3xF p16E1SDm-3xF pflag-D40	sense anti sense anti sense sense anti sense anti sense sense	TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCCAGTTAGTATCATGGTTTGTAGCTATCTCATCACCAACG
p16E1-3xF p16E1SDm-3xF p1ag-D40	sense anti sense anti sense anti sense anti sense sense anti sense	TAATCGATGTCATGGCTGATCCTGCAGGTAC TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTIGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A	sense anti sense anti sense sense anti sense sense anti sense sense sense sense	ATCAGEGEGEGECACEATEGETEGTECTEGAGETAGE TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCCCCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A	sense anti sense anti sense sense anti sense sense anti sense sense anti sense anti sense anti sense	TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCCCCCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A	sense anti sense anti sense anti sense anti sense anti sense sense anti sense sense anti sense	TAATCGATGTCATGGTCTTGATCCTGCAGGTACC TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGGAAGAGGGTAC GGCGCCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A	sense anti sense anti sense anti sense anti sense sense anti sense sense anti sense sense anti sense	TAATCGATGGCATGATCHTGATCCTGCAGGTAGC TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCCGCGCTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A	sense anti sense anti sense anti sense anti sense sense anti sense sense anti sense sense anti sense anti sense anti sense anti sense	TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACGACAAG CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCCCCCCATCGACTACAAAGACGATGACCGACAAGATGTTTATAGGAGGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCCCCCCACCATGGACTACAAAGACGATGACCGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCCGCCCCCCCCACGACTACAAAGACGATGACCGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A	sense anti sense anti sense anti sense anti sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense	ATCAGEGEGEGECACCATGGETTGTAGTCCTGAGEGEAGGTGTCTTGTAGTCTAATGTGTTAGTATTTTG TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCAATGGGGAAGAGGGTAC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCCACCATGGACTACAAAGACGATGACCGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCCACCATGGACTACAAAGACGATGACCGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GCCGCGCGCCACCATGGACTACAAAGACGATGACCGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCCC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5	sense anti sense anti sense anti sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense	TAATCGATGGCATGATCHTGATCCTGCAGGTAGC TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCAACC GGCGCGCCCCACCATGGACTACAAAGACGATGACCGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCAACC GGCGCGCCCCCCATGGACTACAAAGACGATGACCGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCAACC GGCGCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCCACC GGCGCGCCCCCCCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCCACC GTTGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAGCCGGGAC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC
p16E1-3xF p16E1SDm-3xF p16g-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5	sense anti sense anti sense anti sense anti sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense	TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACGACAAG CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCCCCCCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCCCCCCATGGACTACAAAGACGATGACCGACAAGATGGTTAAAAAAATTTTTGTTGGTGGGCC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCCGCCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCCC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCGCCACCATGGACTACAAAGACGATGACCGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCCC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3	sense anti sense anti sense sense anti sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense sense sense sense sense	TAATCGATGGCGGCGCCACCATGGCTATGTCTGATCCTGCAGGTGCTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTGTCATCGTCATCCTGCTGACCGGCGTGCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCCCCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCGTTATCATGGACTACAAAGACGATGACGACAAGGAGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCGTTATCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCGCCACCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCCACCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAAGCGGAGCCGGGAC
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3	sense anti sense anti sense anti sense anti sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense	TAATCGATGGCGCGCACCATGGCTACGACGACGACGACGACGACGACGACGACGACGACGACGA
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3	sense anti sense anti sense anti sense anti sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense	TAATCGATGGCGCGCGCACCATGGCTGCTGCATGGTCTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCCCCCATGGACTACAAAGACGATGACCAACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCCCCCCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCCGCCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCGTATCATGGACTACAAAGACGATGACGACAAGGGAAGCGGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGGAAGCGGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAAGGCGAGGGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAAGGCACAAGGGGAAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4	sense anti sense anti sense anti sense anti sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense	TAATCGATGGCGGCGCACCATGGACTACAAGACGATGACGACGACAAG TAATCGATGTCATGGTTTGTATCATCCCGTCATCCTTGTAATCGATGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCGTTATCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCGCCACCATGGACTACAAAGACGATGACGACAAGGCGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTGTAGCTATTTTGATGACCACC GTTGCGCCGCCACCATGGACTACAAAGACGATGACGACAAGG CCGCTCGAGTTAGGCTTGTGACCACCAAGGACGACGACAAG CCGCTCGAGTTAGGCTTTGGACCTACAAAGACGATGACGACAAG CCGCTCGAGTTAGGCTTTGGACCTACAAAGACGATGACGACAAG CCGCTCGAGTTAGGCTTTGGACCTACAAAGACGATGACGACAAG CCGCTCGAGTTAGGCTTTGGCCCTTTTAGGACCACC GTTGCGCCGCCACCATGGACTACAAAGACGATGACGACAAG CCGCTCGAGTTAGGCCTTTGGCCCTTTTAGGACCACC
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4	sense anti sense anti sense anti sense anti sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense	TAATCGATGGCACGACGATGGCTGTGTAGTCCTGGACGTGCTTGTAGTCTTAGTGTTAGTATTTTG TCCCCTCGAGCTACCTGTCATCGTCATCCCTGTGATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCTTACCATGGACTACAAAGACGATGACGACAAGGATGGCTAAAAAAATTTTTGTTGGTGGCC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCTACCATGGACTACAAAGACGATGACGACAAGGGAAGCCGGAGCCGGGAC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGCGAGGCGGGGAC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGCACAAGG CCGCTCGAGTTAGGCTTTGGACCTACAAAGACGATGACGACAAG CCGCTCGAGTTAGGCTTTGGCCCTTTAGGATC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACGACAAGG CCGCTCGAGTTAGCACTTGGACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTAGCACTGGACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTAGCACTTGGACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACGACAAGG CCGCTCGAGTTACATGGCCACTTGGACTACAAAGACGATGACGACAAGCGACAAGG CCGCTCGAGTTACATGGCCACTGGACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCACTTGGACTACAAAGACGATGACGACAACG
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4	sense anti sense anti sense anti sense anti sense anti sense sense anti sense	TAATCGATGGCGCGCCACCATGGCTACGACGACGACGACGACGACGACGACGCGCGCACCATCGCTACTTTGATGCCCGCCGCCACCATGGCTACTTTGATGCCGCGCGCCACCATGGCCACCATCGCCATCGCGCGCCACCATGGCCACCACGACGACGACGACGACGACGACGACGACGACG
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7	sense anti sense anti sense anti sense anti sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense sense anti sense	TAATCGATGGCATGATCHTGATCCTGCACGTGCTGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCTTGTAGTCTAGTGTTAGTATTTTG TCCCCTCGAGCTACCAATGGGGAAGAGGGTAC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCCCCCACGAGCAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCTACCATGGACTACAAAGACGATGACGACAAGGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGCGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAG CCGCTCGAGTTAGGCTTTGGCCCTTTTAGTGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTAGGCTTTGGCCCTTTTAGGACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTAGGCTACAAAGACCGATGACGACGACAAG CCGCTCGAGTTACAATGGCTACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACAATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACAATGGCTACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACATGGCTACAAAGACCGATGACGACGACAAG
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7	sense anti sense anti sense anti sense anti sense anti sense sense anti sense	TAATCGATGGCACGACGATGGCTGTCATCGTCATGGTCTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCAATGGGGAAGAGGGTAC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGGC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCCCCCACGAGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGAGGGAAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGAGGGAAGCGGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTACTAAAGACGATGACGACAAGGCGAGGCGGGGAC CCTCGAGTTAGTATGGTTTGTAGCTACTAAAGACGATGACGACAAGG CCTCCGAGTTAGTATGGTTTGTAGCTACTAAAGACGATGACGACAAGG CCCCCGCGCCACCATGGACTACAAAGACGATGACGACAAGG CCGCTCGAGTTAGGCTTTGGACCTACAAAGACGATGACGACAAG CCGCTCGAGTTAGGCTTTGGACCTACAAAGACGATGACGACAAGG CCGCTCGAGTTACATGGCTTTGAGCCTTTAGGATC GTTGCGCCGCCACCATGGACTACAAAGACGATGACGACGACAAGG CCGCTCGAGTTACATGGCTACCAAAGACGATGACGACGACAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACGACAAGG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACAAAGACGATGACGACGACAAGG CCGCTCGAGTTACATGGCTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACATGGCACTTCACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCACCTTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACATGGCACCACCACGACAACGACGACGACGACAAG CCGCTCGAGTTACATGGCACATCACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCACCTTCACAAAGACGATGACGACAAAG CTTCTCGAGTTACATGGACTACCACCACTGTTGCTGATATTG
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8	sense anti sense anti sense anti sense anti sense anti sense anti sense anti sense sense	TAATCGATGGCATGATCHTGATCCTGCATCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCTGTCATCGTCATCCTTGTAATCGATGTCTTGTAGTCTAGTGTTAGTATTTTG TCCCCTCGAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGAGTGGTGAGAGACGACGACAAG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCTACCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCGTATCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCCACCATGGACTACAAAGACGATGACGACAAAG CCGCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCCACCATGGACTACAAAGACGATGACGACAAAG CCGCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCCCACCATGGACTACAAAGACGATGACGACAAAG CCGCTCGAGTTAGGCTTTGGCCCTTTTAGGATC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACAAGGCCACCACTGGACTACAAAGACCGATGACGACAAGG CCGCCGCCCACCATGGACTACAAAGACCGATGACGACAAAG CTTCTCGAGTTACAAGGCCACCACCAGGACCACCACGACGACGACGACAAGG CTTCTCGAGTTACAAGACCACTGCTACTGTTGCTGGTTGCTGGATATTG GGCGCCGCCCACCATGGACTACCAAAGACCGATGACGACAAAG
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8	sense anti sense anti sense anti sense anti sense anti sense anti sense sense anti sense anti sense sense	TAATCGATGGCATGATCHTGATCCTGTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGAGTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCTACCATGGACTACAAAGACGATGACGACAAGGAGAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCACCATGGACTACAAAGACGATGACGACAAGGGAAGCCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGCGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAAG CCGCTCGAGTTAGGCTTTGGCCTTTTAGGATC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACAATGGCTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACAATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACAATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACATGGCTACAAAGACGATGACGACGACAAG CTTCTCGAGTTACATGGCTACAAAGACGATGACGACGACAAAG CTTCTCGAGTTACATGGCTACAAAGACGATGACGACGACAAG CTTCTCGAGTTACATGGCTACAAAGACCGATGACGACAAAG CTTCTCGAGTTACATGGCTACAAAGACGATGACGACGACAAGG CTTCTCGAGTTACATGGCTACAAAGACGATGACGACGACGACGACGACGACGACGACGACGACGACGACG
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF p16g-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8	sense anti sense anti sense anti sense anti sense anti sense sense anti sense	ATCAGEGEGEGECACGATGGETGATCE IGLAGGIAC TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCAATGGGGAAGAGGGTAC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGGCAGAGGGGCCATGACAATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGAGTGCTGAGGT TACAGCTAGAAGGGCGCCATGAGAGTGCTGAGGT GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACGACAAG CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCCCCCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGTGCGCGCCACCATGGACTACAAAGACGATGACGACAACGATGGTTAAAAAAATTTTTGTTGGTGGGCC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCTACCATGGACTACAAAGACGATGACGACAACGACGACAAGGGGAAGCCGGGAC CCTCCGAGTTAGTATGATTGAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACCGACAACG CCTCCGAGTTAGGCTTTGGACCTACAAAGACGATGACCGACAAG CCGCTCGAGTTAGGCTTTGGCCCTTTTAGGACT GTTGCGCGCGCCCACCATGGACTACAAAGACGATGACGACGACAAGG CCGCTCGAGTTAAGGCTACTACAAAGACGATGACGACGACAAGG CCGCTCGAGTTAACATGGCTACTACAAAGACGATGACGACAAAG CTTCCGAGTTAAAGACTACCAACGACGATGACGACAAAG GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACGACAAGG CTTCCCGAGTTAACATGGCTACTACAAAGACGATGACGACGACAAGG CTTCTCGAGTTAAAGACTACCAACGACGATGACGACGACAAGG
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8	sense anti sense anti sense sense anti sense anti sense sense anti sense	TAATCGATGCCATGATCTTGCATCGCCAGGTAC TAATCGATGTCATGATCTTTATAATCACCGCGCAGGTAC GATCCTGCAGCTACCTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGTAC GGCGCCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGAGTGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCGTATCATGGACTACAAAGACGATGACGACAACGACGACGAGGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCCACCATGGACTACAAAGACGATGACGACAACG CCGCTCGAGTTAGGCTTTGGCCCTTTTAGGATC GTTGCGCCGCCCACCATGGACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTTTTAGGATC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTTTTATTTCACATTTAC GTTGCGCCGCCCACCATGGACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTTACAAAGACGATGACGACAAGG CTTCTCGAGTTACATGGCTACTTTACAATGCTGTGCTGATATTG GGCGCCCCCCACCATGGACTACAAAGACGATGACGACAAGACGATGACGACAAG CTTCTCGAGTTAAGATCCCCACTGTTGCTGCTGCTGATATTG GGCGCCCCCCACCATGGACTACAAAGACGATGACGACAAGACGATGACGACAAGG CTTCTCGAGTTAAGATCCCCACTGTTGCTGCTGCTGATATTG GGCGCCCCCCCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCGCTCGAGTTACATGGCTACTTTATTTTTTTTTTTACCATTTAC
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pD8	sense anti sense anti sense sen	TAATCGATGCCATGATCTTATAATCACCGCAGGAGAGCGCACAAG TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCTATGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACCGACAAGA CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCGCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGAGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCTATCATGGACTACAAAGACGATGACGACAAGGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGG CCGCTCGAGTTAGGCTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGG CCGCTCGAGTTAGGCTTTGGCCCTTTTAGGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAG CCGCTCGAGTTACATGGCTACTTTATTTCACAATGACGACGACAAG CCGCTCGAGTTACATGGCTACTTTATTTCACATTTAC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGG CCGCTCGAGTTAAGTACCCCACTGGACTACAAAGACGATGACGACAAGG CTTCTCGAGTTAACATGGCTACTTTATTTCACATTTAC GTTCCGAGGTACATGGACTACAAAGACGATGACGACAAGACGATGACGACAAG CCGCTCGAGTTAACATGGCTACTACAAAGACGATGACGACAAGACGATGACGACAAGG CTTCTCGAGTTAACATGGCTACTTTATTTCACATTTAC
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF p16g-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40	sense anti sense anti sense anti sense anti sense anti sense sense anti sense	ATCAGEGEGECACCATIGATION CONCENTION AND A CONCENTRATION AND A CONCENTRATION AND A CONCENTARY AND A CONCENTRAL A CONCENTRATION AND A CONCENTRAL A CONCENTRAL A CONCENTRATION AND A CONCENTRAL A CONCENTR
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p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1	sense anti sense anti sense anti sense anti sense anti sense anti sense	ATCAGEGEGECACCATIGATEGETGATECTICAGEGTECTIGAGETCATAGEGETAGETAGETAGETAGETAGETAGETAGETAGET
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF p1ag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1	sense anti sense anti sense anti sense anti sense anti sense sense anti sense	ATEAGCAGGUCACCATGACTGGCTICTIGCCGCCCCCGCACGGCCCCCCCCACGAGCTACCAAGACCGCCCCCTCTAGCTGCATCCCCCCCGCCCCCCACGAGCACAAGACGGCGCCCCTCTAGCTGCACCCCCCCC
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1	sense anti sense sense	ATCAGGAGGCACCATGGACTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTAGTCTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGGTAC GGCGCCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTGCG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACGACAAGG CCGCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTAGATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACATGGCTTACTAGGACTACAAAGACGATGACGACAAG CCGCTCGAGTTAAGATCCCACTGGACTACAAAGACGATGACGACAAG CCGCTCGAGTTAAGATCCCACTGGACTACAAAGACGATGACGACAAG CCGCTCGAGTTAAGATCCCACATGGACTACAAAGACGATGACGACAAG CTTCCGAGTTAAGATCCCCACTGTGCTGTTGCTGATATTG GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAAGACGATGACGACAAG CTTCCGAGTTAAGATCCCCACTGTGCTGTTGCTGTATTG GTTAAGCTTGTAACATGGCTACTTTTATTTCACATTTAC GTTAAGCTTGTAACATGGCTACTACAAAGACGATGACGACAAAG CTTGGATCCTAAGTACCCACTGGACTACAAAGACGATGACGACAAG CTTGGATCCTAAGTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTAGTATACATGGCTACTTTTTTTCACATTTAC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGGTTGTGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGGACCACC GTTAAGCTTGTTACTAGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTGTAGCTATTTTGATGGCCACCC
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2	sense anti sense anti sense anti sense anti sense anti sense anti sense	ATCAGGGGCCACCATGGCTATCATTAATCACCGTCATGGTCTTTGTAGTCTAATGGTTTAGTATTTTG TCCCCTCGAGGTACTTGTCATCGTCATCGTCATCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCAATGGGGAAGAGGGGTAC GGCGCCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTGGAGGCGCCATGACAATCGCTGAGT TACAGCTGGAGGCGCCATGAGACTGC GTTGCGCGCGCGCCACCATGGACTACAAAGACGATGACCGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACGACAAGATGTTTATAGGAGGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAAGCCGGGAC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGCACAAGGCGGGAGCCGGGAC CCGCCCGAGTTAGGCTATCGACAACAACGACGATGACGACAAG CCGCCCGACCACGGGCTACCAAAGACGATGACGACAAG CCGCCCGACCACGGCCACCATGGACTACAAAGACGATGACGACAAG CCGCCCGCGCCACCATGGACTACAAAGACGATGACGACAAG CCGCTCGAGTTAGGCTACTACAAAGACGATGACGACGACAAG CCGCCCGCGCCACCATGGACTACAAAGACGATGACGACAAG CTTCCGAGTTAGGCTACCAACGACGACTGACGACAAG CTTCCGAGTTAAGATCCCCACTGGCTACCAAAGACGATGACGACAAG CTTCCGAGTTACATGGCTACCAACAAAGACGATGACGACAAGA CTTCCGAGTTACATGGCTACCAAAGACGATGACGACAAGA CTTGGATCCTTAGCATGGCTACCAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTATTTCACATTTAC GTTAAGCTTGTTACATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTGAGGACGACGACAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTGAGGACGACAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTGAGCACACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTGTAGCTATTTGAGCTACTTTGAGCTACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTGTAGCTATTTGAGCTACTTTGAGCTACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAACG CTTGGATCCTTAGTATGGTTGAGCTACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTGAGCTACTTTTGAGCTACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAACG
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2	sense anti sense anti sense sense sense anti sense	ATCAGGGGGCACCATGGGCTATTTAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGGTACTTGTCATCGTCATCGTCATCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCAATGGGGAAGAGGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCTATCATGGACTACAAAGACGATGACGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCCACCATGGACTACAAAGACGATGACGACGACAAGATGTTTATAGGAGGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACGACGAAGATGGTTAAAAAAAA
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2 pEGFP-D2	sense anti	ATCAGGGCGCCACCATGGACTACAAAGACGATGACGACAAG GATCCTGCAGGTACCATGGCATCATTTTGATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTG TCCCCTCGAGGTACCACTGGCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGGCTACCAATGGGGGAAGAGGGGTAC GCGCCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCCATGAGACTG GTTGCGCGCGGTTATCATGGGACTACAAAGACGATGACGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCCCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCCCCACCATGGACTACAAAGACGATGACGACAAGAGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCCCCCACCATGGACTACAAAGACGATGACGACAAGGCACAAG CCGCTCGAGTTAGGCTTTGGACCTATCAAAGACGATGACGACAAG CCGCTCGAGTTAGGCTTTGGACCATTTTGAGCACCACC GTTGCGCGCCCCCCATGGACTACAAAGACGATGACGACAAG CCGCTCGAGTTAGGCTTTGGACTACTAAAGACGATGACGACAAG CCGCTCGAGTTAGGACTACCAAAGACGATGACGACAAG CCGCTCGAGTTAGAGCCACTGGACTACAAAGACGATGACGACAAG CCGCTCGAGTTACATGGACTACAAAGACGATGACGACGACAAG CTTCTGGAGTTACATGGACTACAAAGACGATGACGACAAGA CTTGCGCGCCCACCATGGACTACAAAGACGATGACGACAAGA CTTGCGCGCCCACCATGGACTACAAAGACGATGACGACAAGA CTTGCGCGCCCACCATGGACTACAAAGACGATGACGACAAGACGATGACGACAAG CTTGCGCGCCCACCATGGACTACAAAGACGATGACGACAAGACGATGACGACAAG CTTGGATTACATGGCTACTACAAAGACGATGACGACAACGACGACAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAGA CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAGA CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAACG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAACG CTTGGATCCTTAGTATGGACTACAAAGACGATGACGACAACG CTTGGATCCTTAGTATGGATTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAACG CTTGGATCCTTAGTATGGACTACAAAGACGATGACGACCACCC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACCACCC GTTAAGCTTGTTAG
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF p16g-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D1 pEGFP-D2 pEGFP-D5	sense anti sense anti sense anti sense anti sense anti sense anti sense sense anti sense sense	ATCAGGAGECACCATGGACTACAAAGACGATGACGACGACAAGG TAATCGATGCTACCACATGGACTACAAAGACGATGACGACAAG GATCCTGCAGCTACCTACTTTATATCACCCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCAATGGGGAAGAGGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCCATGAGACTG GTTGCGCGCGCTACCAATGGGACTACAAAGACGATGACGACAAG CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCCCCCCCACGAGCACCACGACGACGACGACGACGA
p16E1-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2 pEGFP-D5	sense anti sense anti sense sense anti sense an	ATCRAGGECACCATEGACTACTITATAATCACCGTCATGGTCTTTGTAGTCTAATGGTTAGTATTTG TAATCGATGTCATGATCTTTATAATCACCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGGTAC GGCGCCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAACGAGGGAAGCGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAACAG CCGCTCGAGTTAGGCTTTGGCCCTTTTAGGACT GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAACG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CTTCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CTTCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAAG CTTCTGGATCCTTAGTATGGCTACTTTTATTTCACATTTAC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2 pEGFP-D5 pEGFP-D3	sense anti	ATCRAGGECACCATGGACTACAAAGACGATGACGACAAG TAATCGATGTCATCATGGTCATCGTCATGGTCTTTGTAGTCTAATGTGTTAGTATTTG TCCCCTCGAGCTACTTGTCATCGTCATCGTCATGGTCTTTGTAGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGGTAC GGCGCCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCCACCATGGACTACAAAGACGATGACGACAAGGTGTTAATAGGAGGCCTTAGCTGGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCGCCCCCACCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAAGCGGGACCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCCACCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAAGCGGGACCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGGAAGCGGAAGCGGGACCGGGAC CCGCTCGAGTTAGCATGGACTACAAAGACGATGACGACAAGG CCGCTCGAGTTAGCACTACAAAGACGATGACGACAACG GTTGCGCGCCCACCATGGACTACAAAGACGATGACGACAAAG CCGCTCGAGTTAGCACTACAAAGACGATGACGACAACG CCGCTCGAGTTAGCACTACAAAGACGATGACGACAACG CCGCTCGAGTTAGGCTACTTTGACTACAAAGACGATGACGACAAGG CCGCTCGAGTTAGCACTACCAAAGACGATGACGACAACG CCGCTCGAGTTACATGGCTACTTTGCTGTTGCTGTTATC GTTGGCGCGCCCACCATGGACTACAAAGACGATGACGACAAAG CTTCCGAGTTACATGGCTACCTTGCTGTTGCTGTTGCTGTATTG GGCGCCGCCCCCCCACGACGACTACAAAGACGATGACGACAAAG CTTCGGATCCTTAGTATGGCTACTTTGACTATTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTGAGCACGACAAGG CTTGGATCCTTAGTATGGTTGTGACTACTAAAGACGATGACGACAAGG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAGG CTTGGATCCTTAGTATGGTTGTGGCTACTTTGTAGCTATTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAGG CTTGGATCCTTAGTATGGTTGTAGCTACTTTGACGACGACAAGG CTTGGATCCTTAGTATGGTTGTAGCTACTTTGAGCACTTTGACGACGACAAG CTTGGATCCTTAGTATGGTTGTAGCTACTTTGAGCACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAGG CTTGGATCCTTAGTATGGTTGTAGCTACTTTGACGACGACAAGG CTTGGATCCTTAGTATGGTTGTAGCTACTTTGACGACGACAAGG CTTGGATCCTTAGTATGGTTGTAGCTACTATTTGAGCACTGTGACGACAAGG
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF p1ag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2 pEGFP-D5 pEGFP-D3	sense anti sense anti sense sense anti sense anti sense anti sense sense anti sense	ATCAGGGTGCCATCGATCTTTGTAATCACCGTCATGGTCTTTGTAGTCTAATGGTTAGTATTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCTACCAATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTACTTTGATGACCACC GGCGCCCCCCCATGGACTACAAAGACGATGACGACGACAAG CCTCCAGCTTAGTATGGTTTGTAGCTATTTGATGACCACC GGCGCGCCCCCCCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCCAGCTTAGTATGGTTTGTAGCTATTTGATGACCACC GGCGCGCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCCC CCTCGAGTTAGTATGGTTTGTAGCTATTTGATGACCACC GTTGCGCGCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCCGCCCCCCCATGGACTACAAAGACGATGACGACAAGGGGAAGCGGGAGCCGGGAC CCCCCGAGTTAGTATGGTTGTAGCTATTTGATGACCACC GTTGCGCCGCCCCCCCATGGACTACAAAGACGATGACGACAAGG CCGCCCGCGCCCCCCACTGGACTACAAAGACGATGACGACAAG CCGCCCGCGCCCCCCCATGGACTACAAAGACGATGACGACAAGG CCGCCCGCGCCCCCCCATGGACTACAAAGACGATGACGACGACAAG CCGCCCGCGCCCCCCCACTGGACTACAAAGACGATGACGACGACAAG CCGCTCGAGTTACATGGCTACTTAGGATC GTTGCGCGCGCCCCCCCCTGGACTACAAAGACGATGACGACGACAAG CCGCCCGCGCCCCCCCACGAGGACTACAAAGACGATGACGACGACAAG CCGCCCGAGTTACATGGCTACTAAAGACGATGACGACGACAAG CCGCCCGACCATGGACTACAAAGACGATGACGACGACAAG CCGCCCGCGCCCCCCCCCC
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2 pEGFP-D5 pEGFP-D3	sense anti sense anti sense sense anti s	ATCAGGGGCGCCACCATGGACTACTAAATCACCGTCATGGTCTTTGTAGTCTAATGGTTAGTATTTG TCCCCTCGAGGTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGAGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTGC GTTGCGCGCGCTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTGATGACCACC GGCGCCGCCCACCATGGACTACAAAGACGATGACGACAAGACGTTATATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTGATGACCACC GGCGCCGCCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTGATGACCACC GTTGCGCCGCCCACCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAAA
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF p16g-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2 pEGFP-D5 pEGFP-D3 pEGFP-D4	sense anti sense	AICASCSCUCACCATOGATCTITICATAATCACCGTCATGGTCTTITGTAGTCTAATGGTTAGTATTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCAATGGGGAAGAGGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGTTATCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTTGTAGCTATTTGATGACCACC GGCGCGCCCCCCATGGACTACAAAGACGATGACGACAAGACGATGATTATAGGAGGCCTTAGCTGGG CCTCGAGTTAGTATGGTTTGTAGCTATTTGATGACCACC GGCGCGCCCCCCCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCTTAGCTGGG CCTCCAGTTAGTATGGTTTGTAGCTATTTGATGACCACC GGCGCGCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCGAGTTAGTATGGTTTGTAGCTATTTGATGACCACC GTTGCGCGCGCCCCCCATGGACTACAAAGACGATGACGACAAGGGGAAGCGGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTGATGACCACC GTTGCGCCGCCCCCCATGGACTACAAAGACGATGACGACAAGGGGAAGCGGGAGCCGGGAC CCTCGAGTTAGTATGGTTGTAGCTATTTGATGACCACC GTTGCGCCGCCCCCCCATGGACTACAAAGACGATGACGACAAGG CCGCTCGAGTTACATGGACTACAAAGACGATGACGACAACG CCGCTCGAGTTACATGGCCTTTTAGGATC GTTGCGCCGCCCCCCCATGGACTACAAAGACGATGACGACAAGG CCGCTCGAGTTACATGGCCTACTAAAGACGATGACGACAAGG CCGCTCGAGTTACATGGCCATCTAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCCATCTAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACCAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACCAAAGACGATGACGACAAAG CCGCTCGAGTTACATGGCTACCAAAGACCGATGACGACAAAG CCTGCAGCTTACATGGCTACCAAAGACCGATGACGACAAAG CCTGCGACCACCATGGACTACAAAGACGATGACGACAACGACGACGACGACGACGGCCTTAGCTGGG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAACGACGACGACGACGACG CCGCTCGAGTTACATGGCTACTACAAAGACCATGACGACAACG CTTGGATCCTTAGTATGGACTACAAAGACCATGACGACGACAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACGACGACGACGACGACGACGACGC CTTGGATCCTTAGTATGGACTACAAAGACGATGACGACGACGACGACGACGACGACGACGACGC CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACGACGACGACGACGACGACGACGACGC CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACGACGACGACGACGACGACGACGACGACGACGACG
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2 pEGFP-D2 pEGFP-D3 pEGFP-D4	sense anti sense anti sense sense anti sens	ATCASCSC GUARCA TOSCIGATOCITICADA TO A A CONTROL OF A CON
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2 pEGFP-D3 pEGFP-D4 	sense anti sense sense anti sense anti sense anti sense sense anti sense an	ATCARGCGGCCACCATGGACTITTATAATCACCGTCATGGTCTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCTTGTCATCGTCATCCTTGTAATCGATGTCATGGATC GATCCTGCAGCTACCATGGGGAAGAGGGGTAC GGCGCCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGACATCGCTGAGT TACAGCTAGAAGGGCGCCATGACATCGCTGAGT TACAGCTTAGTAGGTTGTAACATCTGCTGAGT TACAGCTTAGAGGCGCCCATGACATCGCAGAGACGACGACGACGACGACGCCCCCCCTGGACTACCATGGACGACAAGACGATGACGACAAG GTTGCCGCGCCCCCCTGGACTACAAGACGATGACGACGACGACGACGAGGGCCTTAGCTGGG CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCCGCCCCCCCCCTGGACTACAAGACGATGACGACGACGACGAGGGCGGGACCCCCCCC
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF p16g-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2 pEGFP-D3 pEGFP-D4 pEGFP-D4 pEGFP-D7	sense anti	ATCARGCGGCCACCATGGACTACTATTATCACCGTCATGGTCTTGTAGTCTAATGTGTTAGTATTTTG TCCCCTCGAGCTACCTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GATCCTGCAGCTACCATGGGGAAGAGGGGTAC GGCGCCCTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGAGACTG GTTGCGCGCGCGCCATGAGACTACCAAGAGCGATGACGACAAG CCTCCAGGTTAGTATGGTTTGTAGCTATTTGATGACCACC GGCGCGCCCACCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGGCCTTAGCTGGG CCTCCAGGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCACCATGGACTACAAAGACGATGACCAACAAGATGGTTAAAAAAATTTTTGTGGTGGCCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCACCATGGACTACAAAGACGATGACCAACAAGAGGGTAAAAAAATTTTTGTGGTGGCCC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCCGCGCGTTATCATGGACTACAAAGACGATGACCACAAGAGGGAAGCGGGACCCGGGAC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCCGCCGCTACCATGGACTACAAAGACGATGACGACAAGAGGGAAGCGGGACCCGGGAC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCCGCGCCACCATGGACTACAAAGACGATGACGACAAGGCGGAGCCGGGAC CCGCTCGAGTTAGCATTGCACTACAAAGACGATGACGACAAGG CCGCTCGAGTTAGCACTACCAAAGACGATGACGACAAGG CCGCTCGAGTTAGCACTGCCACTGTTAGACTACTAAAGACGATGACGACAAG CTTCCGAGTTAAGATCCCCACTGTGCTGTTGCTGTTGCTGTAGCACAAG CTTCCGAGTTAAGATCCCCACTGTGCTGTTGCTGTTGCTGTAGCACAACG CTTCCGAGTTAAGATCCCCACTGTGCTGTTGCTGTTGCGTGACGACAAG CTTCCGAGTTAAGATCCCCACTGTGACTACAAAGACGATGACGACAAGG CTTGGACCCTTAGTATGGCTTACTTATTTCACATTTAC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAGG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAGG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTGTAGCTATTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTGTAGCTATTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTGTAGCTATTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTGTACAATGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGGACTACAAAGACGATGACGACCACG GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGGACTACAAAGACGATGACGACCACG CTTGGATC
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2 pEGFP-D2 pEGFP-D3 pEGFP-D4 pEGFP-D4	sense anti sense anti sense sense anti	ATCARGCGGCCACCATGGACTACCATGGACGACGACGACGACGACGACGACGACGACGACGACGAC
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF pflag-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D2 pEGFP-D2 pEGFP-D3 pEGFP-D4 pEGFP-D4	sense anti	ATCARGEGGGCACCATEGACTITATATCACCGTCATEGTCATEGTCATATGTGTTAGTATTTTG TCCCCTCGAGCTACTTGTCATCGTCATCCTTGTAATCGATGTCATGATC GCCCCTCGAGCTACCATGGGGAAGAGGGGTAC GGCGCCCTTCTAGCTGTAACATCTGCTGAGT TACAGCTAGAAGGGCGCCATGGACTACATGTGCAGAGT GTCGCGCGCGCCATGGACTACATGGGACTG GTTGCGCCGCCACCATGGACTACAAAGACGATGACGACAAG CCTCGAGTTAGTATGGTTGTAGCTATTTTGATGACCACC GGCGCCGCCCCCATGGACTACAAAGACGATGACGACAAGATGTTTATAGGAGGCCCTAGCTGGG CCTCCAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCCCCCATGGACTACAAAGACGATGACGACAAGATGGTTAAAAAAATTTTTGTTGGTGGCC CCTCCAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GGCGCCGCCCCCCATGGACTACAAAGACGATGACGACAAGAGGGAAGCGGGAGCCGGGAC CCTCCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAAGGGAAGCGGGAGCCGGGAC CCTCGAGTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTGCGCGCGCCACCATGGACTACAAAGACGATGACGACAACGACGACAAG CCGCTCGAGTTAGCATGGCTTTTGAGCTATTTTGATGACCACC GTTGCGCGCCCCCCCATGGACTACAAAGACGATGACGACAACG CCGCTCGAGTTAGCATGGCTACTAAAGACGATGACGACAACG CCGCTCGAGTTAGGCTTTGGCCCTTTTAGGATC GTTGCGCGCCCCCCCATGGACTACAAAGACGATGACGACAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAG CCGCTCGAGTTACATGGCTACTACAAAGACGATGACGACAAG CTTCTCGAGTTACATGGCCACTGCAAAGACCGATGACGACAAG CTTCTCGAGTTACATGGCTACTTTTATTTCACATTTAC GTTAGCCTGTTATCATGGACTACAAAGACGATGACGACAAG CTTCGGACCCCACCGTGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGCTACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTGTAGCTATTTTGATGACCACC GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGTATGGTTGTAGCATATTTGAGGACGACAAG CTTGGATCCTTAGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGGACTACAAAGACGATGACGACAAG CTTGGATCCTTAGGACTACAAAGACGATG
p16E1-3xF p16E1SDm-3xF p16E1SDm-3xF p16g-D40 pD1,pD1-AGG and pD1-Q6A pD2,pD2-AGG and pD2-Q6A pD5 pD3 pD4 pD7 pD8 pEGFP-D40 pEGFP-D1 pEGFP-D1 pEGFP-D2 pEGFP-D3 pEGFP-D4 pEGFP-D4 pEGFP-D7 pEGFP-D8	sense anti sense anti sense anti sense anti sense anti sense anti sense sense anti sense sense	ATCARGEGUEACEACEACEACEACEACEACEACEACEACEACEACEACE

pEGFP-D9	sense	GTTAAGCTTGTTATCATGGACTACAAAGACGATGACGACAAG	
	anti sense	CTTGGATCCTTACCTCCTATAAACATTTTCC	
GAPDH	GAPDHF	ACCCAGAAGACTGTGGATGG	
	GAPDHR	TTCTAGACGGCAGGTCAGGT	
spliced actin	actin-s	TGAGCTGCG TGTGGCTCC	
	actin-a	GGCATGGGGGGGGGCATACC	
unspliced actin	actin-s1	CCAGT GGCTTCCCCAGTG	
	actin-a	GGCATGGGGGGGGGCATACC	
Involucrin	INV_S	CTCTGCCTCAGCCTTACTGTGA	
	INV_R	GCTCCTGATGGGTATTGACTGG	
pET32a-HA-E6SDm	sense	TATGAATTCATGTACCCATACGATGTTCCAGAT	
	anti sense	TTACTCGAGCTATGGTTTCTGAGAACAGATGGGG	

Supplementary Table 2. Antibodies used in WB, CLIP, RIP and Co-IP

	Cat.	Company
AUF1/hnRNPD	12382S	Cell Signaling
hnRNPM	ab177957	abcam
hnRNPU	ab10297	abcam
Flag,M2	F3165/F1804	Sigma Aldrich
U1 70K	ab83306	abcam
U2AF65	sc-53942	Santa Cruz
U2AF35	ab172614	abcam
HPV16 E6	GTX132686	Genetex
HPV16 E7	GTX133411	Genetex
β-actin	A5441	Sigma Aldrich
Tubulin	T9026	Sigma Aldrich
Histone	4620S	CST
involucrin	sc-21748	Santa Cruz
HA	sc-7392	Santa Cruz
Lamin B	ab16048	abcam
SRSF1	ab38017	abcam
SRSF2	ab204916	abcam
SF3b	ab172634	abcam
PABP-C1	ab6125	abcam
veriblot	ab131366	abcam
Normal Rabbit IgG	2729S	Cell Signaling
Normal Mouse IgG	12-371	Millipore
anti-Mouse IgG-HRP	A9044	Sigma Aldrich
anti-Rabbit IgG-HRP	A9169	Sigma Aldrich

Supplementary Table 3. Sequences of oligos for pull down assay

HPV16 pull down region	Sequence 5'-3'
1, 178-214	UAUAAUAUUAGAAUGUGUGUACUGCAAGCAACAGUUA
2, 196-233	AGUUACUGCGACGUGAGGUAUAUGACUUUGCUUUUCGG
3, 229-266	UUCGGGAUUUAUGCAUAGUAUAUAGAGAUGGGAAUCCA
4, 276-313	AUCCAUAUGCUGUAUGUGAUAAAUGUUUAAAGUUUUAU
5, 309-346	UUUAUUCUAAAAUUAGUGAGUAUAGACAUUAUUGUUAU
6, 342-379	GUUAUAGUUUGUAUGGAACAACAUUAGAACAGCAAUAC
7, 375-412	AAUACAACAAACCGUUGUGUGAUUUGUUAAUUAGGUGU
8,408-445	GGUGUAUUAACUGUCAAAAGCCACUGUGUCCUGAAGAA
9,441-478	AAGAAAAGCAAAGACAUCUGGACAAAAAGCAAAGAUUC
10, 474-498	GAUUCCAUAAUAUAAGGGGUCGGUG
11, 492-516	GUCGGUGGACCGGUCGAUGUAUGUC
12, 506-530	CGAUGUAUGUCUUGUUGCAGAUCAU
13, 521-545	UGCAGAUCAUCAAGAACACGUAGAG
14, 536-560	ACACGUAGAGAAACCCAGCUGUAAU
15, 549-573	CCCAGCUGUAAUCAUGCAUGGAGAU
16, 564-588	GCAUGGAGAUACACCUACAUUGCAU
17, 579-604	UACAUUGCAUGAAUAUAUGUUAGAUU
18, 594-620	UAUGUUAGAUUUGCAACCAGAGACAAC
19, 611-635	CAGAGACAACUGAUCUCUACUGUUA
20, 631-665	UGUUAUGAGCAAUUAAAUGACAGCUCAGAGGAGGA
21,661-695	GAGGAGGAUGAAAUAGAUGGUCCAGCUGGACAAGC
22, 691-725	CAAGCAGAACCGGACAGAGCCCAUUACAAUAUUGU
23, 721-755	AUUGUAACCUUUUGUUGCAAGUGUGACUCUACGCU
24, 751-785	ACGCUUCGGUUGUGCGUACAAAGCACACGUAGA
25, 781-815	GUAGACAUUCGUACUUUGGAAGACCUGUUAAUGGG
26, 811-845	AUGGGCACACUAGGAAUUGUGUGCCCCAUCUGUUC
27, 841-875	UGUUCUCAGAAACCAUAAUCUACCAUGGCUGAUCC
28, BSD+GGG	CUGAUCCUGCAGGUACCAAUGGGGAAGAGGGUACGGGAUGUA

Supplementary Table 4. Primer pair information

Amplified region	Sense primer	Antisense primer	Primer location	Shown in following Figures:
E6/E7	97S	880AS	Fig. 1C	Fig. 2A, 3B, 4D, 4F, 5B, 5I, 6C, 8B, 8F, 8K
	97S	438AS	Fig. 1C, 5L, S5B, S5C	Fig. 5L, 6C, 6I, 6M, 8I, 8J
	TotalE6F	Total E6R	Fig. 1C, Fig 5L	Fig. 5L
	TotalE6F	757AS	Fig. 1C, S5D, S5E	Fig. 6C
E1/E2	773S	E2AS	Fig. 1E, 3E	Fig. 2A, 3C, 3F, 7A, 8D, 8G
	773S	E2QAS	Fig. 1E	Fig. 4E, 4G, 5C, 5J
	773S	E2Xba	Fig. 1E, S7C	Fig. 7D
	F-E1-1	E2Xba	Fig. 1E, S7H	Fig. 7G
	Pstl-SD880mE1-F	E2Xba	Fig. 1E, S7H	Fig. 7G
	1302S	2293AS	Fig. 1E, 3E	Fig. 3G
	773S	E1AS	Fig. 1E, 3E	Fig. 3H, 7J, 8E, 8K, 8L
E4(880^3358)	773S	E4AS	Fig. 1C	Fig. 2B, 8C, 8I

Amplified region	Sense primer	Antisense primer	Primer location	Shown in following Figures:
Spliced E2 mRNA	773S	E2AS	Fig. 1E, 3E	Fig. 3D, 3J
IR E1 mRNA	773S	E1AS	Fig. 1E, 3E	Fig. 3D, 3J
IR E6 mRNA	TotalE6F	234AS	Fig. 1C, Fig S5	Fig. 6H