

**S2 Table. Primer sequences used for APOT assay, ChIP-qPCR and generation of FISH probe**

Primer	Sequence (5'->3')	Purpose	Product length (bp)
Amplicon 1F	TAAACGAGGGCAGAGAGAGC	Probe against 20861 amplified cellular flanking sequence	2,184
Amplicon 1R	CAGGCCCTGTTCTAACACT		
Amplicon 2F	CCCAGAACCTGAGCCAAGCA	Probe against 20861 amplified cellular flanking sequence	2,191
Amplicon 2R	TCATCCCCGGGAATCTGACT		
Amplicon 3F	AAAACAGGCTGGTGGGAACA	Probe against 20861 amplified cellular flanking sequence	2,473
Amplicon 3R	TTTGCCCCACTGACAACCT		
Amplicon 4F	TGTTCCCATCCACGGTGC	Probe against 20861 amplified cellular flanking sequence	2,442
Amplicon 4R	GTGGGTGATGACTTGGAGG		
Amplicon 5F	CCGATGCTGTTGATTAGAGGC	Probe against 20861 amplified cellular flanking sequence	2,377
Amplicon 5R	ATGGGCAACCACATTTGC		
Amplicon 6F	ACCTGTCTCTCCCCATCC	Probe against 20861 amplified cellular flanking sequence	2,396
Amplicon 6R	CCTCTGCCCCAAACAGAG		
Amplicon 7F	GATCATTGAAACGAGGCACGC	Probe against 20861 amplified cellular flanking sequence	2,497
Amplicon 7R	TGCCTTGTAAATCAGGGCAG		
Amplicon 8F	CTGCGAGCTCTGAGAGAGAC	Probe against 20861 amplified cellular flanking sequence	2,035
Amplicon 8R	TGGTGGCTCTGTTATCTGCG		
Amplicon 9F	CTGTGTGCTTTAGGGCGT	Probe against 20861 amplified cellular flanking sequence	2,181
Amplicon 9R	TTGATGGGATTGCGTGGAC		
APOT 20861_P1	CGGACAGAGCCCATTACAAT	To determine viral-cellular junction transcript in 20861	
Linker sequence (P3)	GAATCGAGTCGACATCG	cells by amplification of papillomavirus oncogene	-
APOT 20861_P2	CCTTTTGTGCAAGTGTGACTCTAG	transcripts, APOT (see (30))	
Oligo(dT)17-P3	GAATCGAGTCGACATCGATTTTTTTTTTTT		
Flank seq F	TCGCCCCACCAGCCTTAGCA	To determine copy number of cellular flanking sequence at	114
Flank seq R	AATGCCAGCTGATAATGTAGAGTGAGTG	chr2 20861 integration site	
ACTB F	TCGTCCACCGCAAATGCG	Normalization gene; copy number analysis of cellular	76
ACTB R	CGCAAGTTAGGTTTGTCAAGAAA	flanking sequence at chr2 20861 integration site	
URR F	TTCGGTTGCATGCTTTGGCACAA	ChIP-qPCR	97
URR R	CACGCATGGCAAGCAGGAAACGTAC		
L1 F	GGCTGCCTAGTGAGGCCACTG	ChIP-qPCR	79
L1 R	GCGTGCACATATTGATCCGTGC		
E2 F	CGCCGCACCCATACCAAG	ChIP-qPCR	93
E2 R	GGGGTTCCGGTGTCTGGCT		
IGLL5 F	CTTGAGGATTGCAGATGGGC	ChIP-qPCR; negative control for super-enhancer	77
IGLL5 R	TGACCTGATCTGACCCCTA		
CCND2 F	CCTTCTGCTCCACCTCTCT	ChIP-qPCR; positive control for super-enhancer	76
CCND2 R	CTGACCTCCTCCCTGGCT		
FOSL1 F	AACGTCCTGTTCCCATTCT	ChIP-qPCR; positive control for super-enhancer	92
FOSL1 R	GGCAGAGCTAGAACCCACTT		
PP1A F	AGAACTTCATCTAAAGCATAACGG	RT-qPCR; normalization gene	121
PP1A R	TGCTTGCCATCCAACCACTC		
E6*I F	ACAGTTACTGCGACGTGAGGTG	RT-qPCR	56
E6*I R	TTCTTCAGGACACAGTGG		
20861 fusion F	TCTACCATGGCTGATCCTGCAGGTATGT	RT-qPCR; viral-host fusion mRNA at chr2 integration site in	105
20861 fusion R	GAGTCATCAAACGATGCTAAGGCTGGT	20861 cells	
20831/62 fusion F	GCTTGTAAATCAGATGGGATATTATG	RT-qPCR; viral-host fusion mRNA at chr3 integration site in	84
20831/62 fusion R	TTGTACATTGTATACTGCAGTGTGCGT	20831 and 20862 cells	