

Supplementary Table S1 Clinico-demographic information of OSCC specimens.

Characteristic	Number with each characteristic	HPV positive (%)
Gender		
Male, M	53	29 (54.7%)
Female, F	95	55 (57.9%)
Age, year		
≤ 50	25	14 (56.0%)
51-64	34	18 (52.9%)
≥ 65	89	52 (58.4%)
Histology grading		
Well	97	58 (59.8%)
Moderately	38	18 (47.4%)
Poorly	5	2 (40.0%)
Other	8	6 (75.0%)
Anatomical subsite		
Buccal mucosa	70	39 (55.7%)
Tongue	20	17 (85.0%)
Lip	16	13 (81.2%)
Palate	18	7 (38.8%)
Others	24	8 (33.3%)

Supplementary Table S2 List of human tongue keratinocytes (HTK) and OSCC cells lines.

Name	Origin	Refs.
HTK1 K4DT-pCLXSN-18E6E7	Human tongue keratinocyte	Zushi et. al., 2011
HTK1 K4DT-pCLXSN-16E6E7	Human tongue keratinocyte	
HTK1 K4DT-pCLXSN-16E6SD	Human tongue keratinocyte	
HTK1 K4DT-pCLXSN-16E7	Human tongue keratinocyte	
HTK1 K4DT-pCLXSN	Human tongue keratinocyte	
HTK1K4DT-pSI-MSCV-CLXPpuro-H1R-p53Ri	Human tongue keratinocyte	Kondo et. al., 1981
HSC1	Oral cavity	
HSC2	Oral cavity: floor of mouth	
HSC3	Tongue	
SCCKN	Tongue	
SCC90 (HPV16 ⁺ cells)	Tongue	Momose et. al., 1989
SCC25	Tongue	Momose et. al., 1989
SCCTH	Oral cavity	Urade et. al., 1992
UM-SCC-14A	Oral cavity: floor of mouth	White et. al., 2007
		Rheinwald et. al., 1981
		White et. al., 2007
		Baker et. al., 1985

References:

1. Zushi, Y., Narisawa-Saito, M., Noguchi, K., Yoshimatsu, Y., Yugawa, T., Egawa, N., Fujita, M., Urade, M., & Kiyono, T. (2011). An in vitro multistep carcinogenesis model for both HPV-positive and -negative human oral squamous cell carcinomas. *American journal of cancer research*, 1(7), 869–881.
2. Kondo, S., & Aso, K. (1981). Establishment of a cell line of human skin squamous cell carcinoma in vitro. *The British journal of dermatology*, 105(2), 125–132. <https://doi.org/10.1111/j.1365-2133.1981.tb01196.x>

3. Momose, F., Araida, T., Negishi, A., Ichijo, H., Shioda, S., & Sasaki, S. (1989). Variant sublines with different metastatic potentials selected in nude mice from human oral squamous cell carcinomas. *Journal of oral pathology & medicine : official publication of the International Association of Oral Pathologists and the American Academy of Oral Pathology*, 18(7), 391–395.
<https://doi.org/10.1111/j.1600-0714.1989.tb01570.x>
4. Urade, M., Ogura, T., Mima, T., & Matsuya, T. (1992). Establishment of human squamous carcinoma cell lines highly and minimally sensitive to bleomycin and analysis of factors involved in the sensitivity. *Cancer*, 69(10), 2589–2597.
[https://doi.org/10.1002/1097-0142\(19920515\)69:10<2589::aid-cncr2820691032>3.0.co;2-y](https://doi.org/10.1002/1097-0142(19920515)69:10<2589::aid-cncr2820691032>3.0.co;2-y)
5. White, J. S., Weissfeld, J. L., Ragin, C. C., Rossie, K. M., Martin, C. L., Shuster, M., Ishwad, C. S., Law, J. C., Myers, E. N., Johnson, J. T., & Gollin, S. M. (2007). The influence of clinical and demographic risk factors on the establishment of head and neck squamous cell carcinoma cell lines. *Oral oncology*, 43(7), 701–712. <https://doi.org/10.1016/j.oraloncology.2006.09.001>
6. Rheinwald, J. G., & Beckett, M. A. (1981). Tumorigenic keratinocyte lines requiring anchorage and fibroblast support cultured from human squamous cell carcinomas. *Cancer research*, 41(5), 1657–1663.
7. Baker S. R. (1985). An in vivo model for squamous cell carcinoma of the head and neck. *The Laryngoscope*, 95(1), 43–56.
<https://doi.org/10.1288/00005537-198501000-00012>

Supplementary Table S3 Oligonucleotides used for PCR and qRT-PCR detection.

	Name	Sequence (5'→3')	Amplicon size (bp)
<i>HPV L1</i>	GP5+	TTTGTTACTGTGGTAGATACTAC	150
	GP6+	GAAAAATAAACTGTAAATCATATTC	
<i>HPV16E6</i>	Forward	GTTACTGCGACGTGAGGTATATG	94
	Reverse	ATTTATCACATACAGCATATGGATTC	
<i>HPV18E6</i>	Forward	CAGAGGTATTTGAATTTGCATT	85
	Reverse	AATCTATACATTTATGGCATGCAG	
<i>LT$\alpha_1\beta_2$</i>	Forward	AGCCACTTCTCTGGTGACCT	106
	Reverse	GTCGGCCGTCTCCGTTAC	
<i>TAP1</i>	Forward	CGTCCACCCTGAGTGATTCT	103
	Reverse	GCACTGATCCCCAGAGCAT	
<i>TAP2</i>	Forward	AGGAGGCTGCTTCACCTACA	124
	Reverse	TGAGTTCAGCTCCCCTGTCT	
<i>GAPDH</i>	Forward	TCATCAGCAATGCCTCCTGCA	117
	Reverse	TGGGTGGCAGTGATGGCA	

Supplementary Table S4 The information of antibodies.

Targets	Host	React with	REF.
MHC I W6/32 (HLA IA, B, C)	Mouse monoclonal	Human	Santa Cruz Biotechnology (sc-32235)
LT $\alpha_1\beta_2$	Rabbit polyclonal	Human	Abcam (ab64835)
LT β R	Rabbit polyclonal	Human	Abcam (ab70063)
TAP1(B-8)	Mouse monoclonal	Human	Santa Cruz Biotechnology (sc-376796)
TAP2 (2.17)	Mouse monoclonal	Human	MBL Life science
HPV16 E6 (46A4)	Mouse monoclonal	Human	In house production
TP53	Mouse monoclonal	Human	Calbiochem (OP-43)

Supplementary Table S5 Oligonucleotide sequences for shRNAs

Target	Sequence (5'→3')
shLTβR	
3913_LTBRRi2_S	GATCCCCGCCCAAGGAACCAATTTATTTCAAGAGAATAAATTGGTTCCTTGGGCTTTTTGGAAA
3914_LTBRRi2_AS	AGCTTTTCCAAAAAGCCCAAGGAACCAATTTATTCTCTTGAAATAAATTGGTTCCTTGGGCGGG
3915_LTBRRi3_S	GATCCCCGCAGGGCACTTCCAGAATATTCAAGAGATATTCTGGAAGTGCCCTGCTTTTTGGAAA
3916_LTBRRi3_AS	AGCTTTTCCAAAAAGCAGGGCACTTCCAGAATATCTCTTGAATATTCTGGAAGTGCCCTGCGGG
3917_LTBRRi4_S	GATCCCCGGCACAGAAGCCGAGGTCACATTCAAGAGATGTGACCTCGGCTTCTGTGCCTTTTTGGAAA
3918_LTBRRi4_AS	AGCTTTTCCAAAAAGGCACAGAAGCCGAGGTCACATCTCTTGAATGTGACCTCGGCTTCTGTGCCGGG
shLTα₁β₂	
3919_LTBRI1_S	GATCCCCGGCCTCTATTACCTCTACTTTCAAGAGAAGTAGAGGTAATAGAGGCCTTTTTGGAAA
3920_LTBRI1_AS	AGCTTTTCCAAAAAGGCCTCTATTACCTCTACTTCTCTTGAAAGTAGAGGTAATAGAGGCCGGG
3921_LTBRI2_S	GATCCCCGCCTCTATTACCTCTACTGTTCAAGAGACAGTAGAGGTAATAGAGGCTTTTTGGAAA
3922_LTBRI2_AS	AGCTTTTCCAAAAAGCCTCTATTACCTCTACTGTCTCTTGAAACAGTAGAGGTAATAGAGGCCGGG
3923_LTBRI3_S	GATCCCCGAGAGGGAAGACCTTCTTTTCAAGAGAAAAGAAGGTCTTCCCTCTCTTTTTGGAAA
3924_LTBRI3_AS	AGCTTTTCCAAAAAGAGAGGGAAGACCTTCTTTTCTCTTGAAAAAGAAGGTCTTCCCTCTCGGG
siHPV16E6	
#1_16E6 (211-236) _S	GAUAAAUGUUUAAAGUUUUAUUCTA
#1_16E6 (211-236) _AS	UAGAAUAAAACUUUAAACAUUUUAUCAC
#2_16E6 (432-457) _S	GUCUUGUUGCAGAUCAUCAAGAACA
#2_16E6 (432-457) _AS	UGUUCUUGAUGAUCUGCAACAAGACAU