

**Supplementary Table S1.** Selective pressure estimates in the genomic region that include E7 gene of HPV58 based on log-likelihood, calculated by PAML program. The model that best fits the data are in bold. \* means that values were determined from arithmetic mean.

ORF	Model	lnL	$\omega = \text{dN/dS}^*$	Parameters
<b>E7</b>	M0	-1442.267982	0.88348	$\omega = 0.88348$
	M1	-1433.929983	0.35105	$p_0 = 0.64895$ ( $p_1 = 0.35105$ ) $\omega_0 = 0.00000$ ; $\omega_1 = 1.00000$
	M2	-1417.952949	0.87940	$p_0 = 0.95986$ ; $p_1 = 0.00000$ ( $p_2 = 0.04014$ ) $\omega_0 = 0.31914$ ; $\omega_1 = 1.00000$ ; $\omega_2 = 14.27708$
	<b>M3</b>	<b>-1417.952637</b>	<b>0.87940</b>	<b><math>p_0 = 0.87683</math>; <math>p_1 = 0.08303</math> (<math>p_2 = 0.04014</math>) <math>\omega_0 = 0.31913</math>; <math>\omega_1 = 0.31917</math>; <math>\omega_2 = 14.27709</math></b>
	M7	-1434.108126	0.30000	$p = 0.00500$ ; $q = 0.01158$
	M8	-1417.953795	0.87960	$p_0 = 0.95989$ ( $p_1 = 0.04011$ ) $p = 46.49437$ ; $q = 99.00000$ ; $\omega_s = 14.28357$