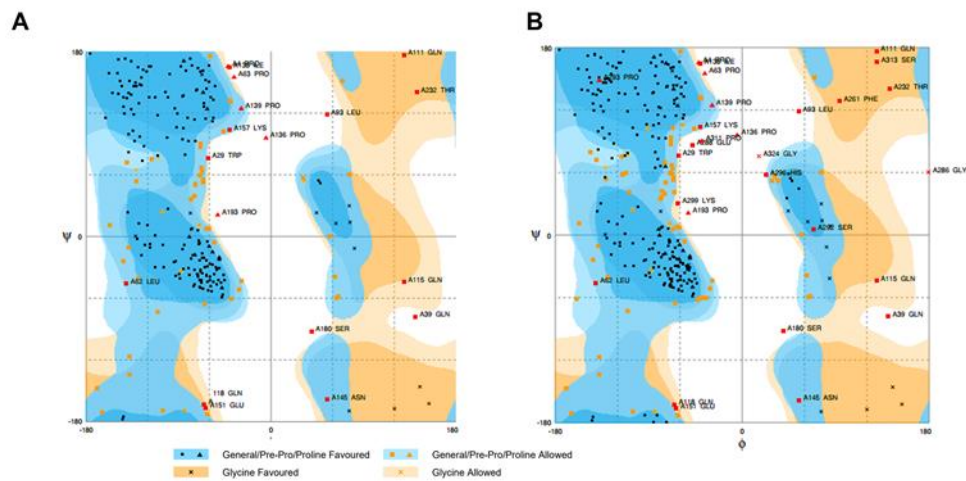
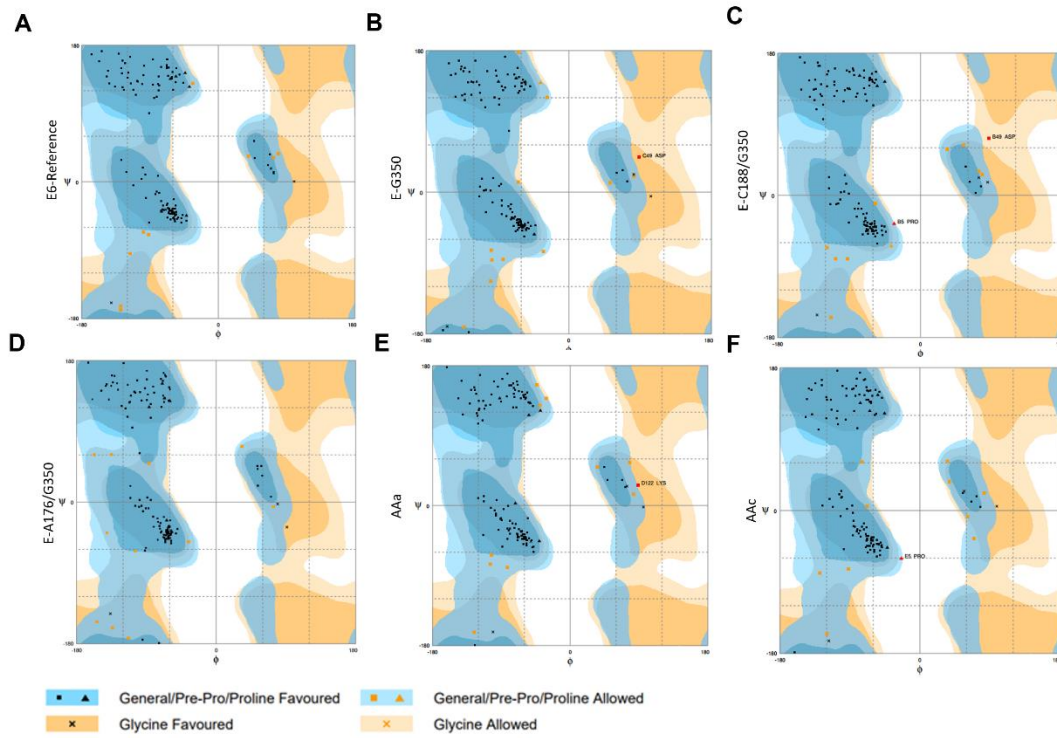


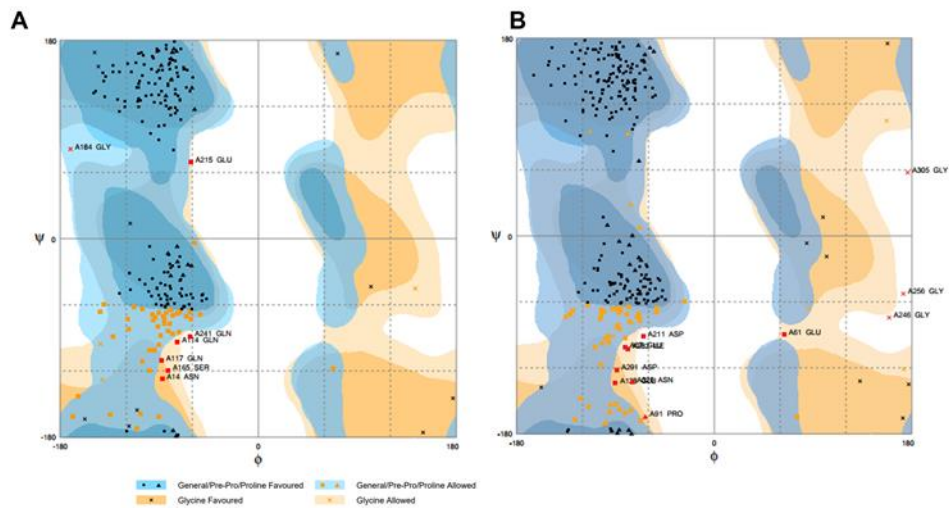
S1 Figure. Ramachandran plot analysis of E6 and its variants from HPV-16. (A) E6-reference. (B) E-G350. (C) E-C188/G350. (D) E-A176/G350. (E) E6-AAa. (F) E6-AAc.



S2 Figure. Ramachandran plot of MAGI-I. (A) Ramachandran plot of MAGI-1 255 model from I-TASSER. (B) Ramachandran plot of I-TASSER model of MAGI-1 329.



S3 Figure. Ramachandran plot analysis of E6-reference and its variants after MD simulation. (A) E6-reference (B) E-G350. (C) E-C188/G350. (D) E-A176/G350 (E) AAa (F) AAC.



S4 Figure. Ramachandran plot analysis after 200 ns of MD simulation. (A) MAGI-I 255. (B) MAGI-I 329.

Table S1. Comparison of types and number of interactions between E6, its variants and our models of MAGI-1. Hydrogen bonds, Salt bridges, Non-bonded contacts.

Complexes	Hydrogen bonds	Salt bridges	Non-bonded contacts
E6R/MAGI-1 255	9	3	156
E-G350/MAGI-1 255	14	9	156
E-C188/G350 /MAGI-1 255	25	7	231
E-A176/G350/ MAGI-1 255	23	10	382
AAa/MAGI-1 255	17	3	239
AAc/MAGI-1 255	13	2	199
Complexes	Hydrogen bonds	Salt bridges	Non-bonded contacts
E6R/MAGI-1 329	11	6	156
E-G350/MAGI-1 329	18	4	220
E-C188/G350 /MAGI-1 329	23	8	298
E-A176/G350/ MAGI-1 329	18	5	212
AAa/MAGI-1 329	24	8	242
AAc/MAGI-1 329	12	6	189

Table S2. Detailed results of amino acidic interaction between E6, its variants and our two MAGI-1 models.

E6 VPH-16	Residues	Residues MAGI1-1 255
E6-referece	Y81, R10, C30, R77, V31, Y32, R55, Y76, C66, A61, F69, K65, V62, V53, L67, N127, C51, C80, R131, G130, Q107, I73, R129 and Y70.	G75, A234, Y74, T161, N163, V79, D80, W66, G65, A64, Y78, I76, H231, G230, Y77, E61, G70, K68 and E67.
E-G350	L72, R146, K68, N105, S143, E75, R135, S142, C139, S138, R144, C106, D44, E114, E113, M137, K121, R117, R141 and C140.	D57, S58, E59, L60, E61, P63, E55, L56, L62, A64, G65, Y78, K68, W66, D80, V79, E67 and H81.
E-C188/G350	R146, T145, K72, R144, R141, E150, S82, R147, E75, R124, R135, Y84, E148, Y79, H78, R77, Y76, F69, C82, R129, Y70, Y81, G130, N127, Y92 and R131.	S58, D57, L62, E67, L60, E59, P63, R162, A64, E61, L56, E54, E55, L167, S165, P164, N163, F160, K230, P193, F196, L229, D194, E70, K68, V221, N224, Q235, S222, C227, F171 and D225.
E-A176/G350	R146, Y84, N105, R124, R147, E148, S82, Y81, Q90, Q91, C33, T145, S143, R131, R129, S142, C80, G130, R77, I73, Y79, Y76, E75, K72, S74, S71, K68, D64, P69, K34, L67, K65, C66, C63, Y70, V62, R55, D56, Y32 and V53.	E55, A64, L167, N163, E54, P164, S165, R162, C227, D225, K85, T226, L229, L60, E61, P63, E70, E59, H231, P193, G230, D194, F159, F196, K68, F160, E67, V79, I69, Y78, H81, D80, R84, Y77, E151, N83, Y88, Y74, I82, E89, Q87, T86, E94, N90, P91 and R150.
AAa	R131, R29, S143, R10, Y32, Y70, F69, S74, R55, I73, Y76, Y78, R77, G130, Y92, K72, W132, N127, Y81, L151, E148, E75, Y79, R144, R124, S82, R147 and H126.	E67, W66, K238, E166, L62, P164, R162, L167, N163, F171, E59, S165, D194, T161, F196, F160, E195, I82, F159, K157, K68, C227, E70, I243, L229, P244, Q241, Q122, S242, G230, H231 and Q119.

AAc	C80, R129, R135, H126, Y81, G130, Y79, Y78, Y76, R124, E75, S82, R77, Y84, V83, Y32, Y70, F69, Q91, K72 and K65.	V221, C227, N163, H231, F171, E252, L229, T161, P164, G230, R162, S165, F160, F196, D194, F159, I76, I82, L167, E70, K168, K68 and E67.
	Residues	Residues MAGI-1 329
E6-referece	D64, K72, K68, K65, Y76, R147, F69, I73, L50, R77, Y70, R129, H78, V62, Q17, L67, R131, C66, V31, D56, Y32, R55 and V53.	D57, E54, S58, K157, A64, L62, E65, T53, G65, W66, V79, Y78, H81, I82, E67, D80, V92, E94, N83, R97, P91, N90 and E89.
E-G350	R77, I73, R129, Y76, D56, H78, I128, Y70, S71, N105, R48, C66, L67, I104, Q107, D74, L50, R131, Y32, F69, K72, R55, V31, V53 and K34.	A64, W66, G65, Q106, Y78, I69, K68, E61, E67, V79, T86, R84, H81, I82, D80, L93, E94, V92, T53, E54, D57, E102, R97, Q105, L101 and Q110.
E-C188/G350	K72, E75, R77, Y76, S142, R144, M137, R117, S143, R141, C140, K68, K65, F69, D64, E148, R147, T145, T149, R146, L151 and Q150.	S269, L270, V284, N285, G286, E55, E59, V51, Q39, F261, D262, L60, V317, D316, T272, T26, N23, T24, R33, E280, P263, N36, D265, P41, H22, D264, L35, L42, N145, D21, E43, E151, T12, L25, Y11, A10, E13, E8, M9 and I20.
E-A176/G350	R147, Y32, R55, G57, Y70, I73, K72, F69, S71, S74, Q91, E75, I128, Y79, H126, Y76, H78, R77, V83, R129, R131, C80, S82, R124 and Y81.	E89, L62, Q87, D316, E61, K157, A64, Y78, T86, W66, G65, V79, E67, D80, D57, Q106, H81, N83, I82, R84, P91, T53, H52, E94, N90, E54, L93, V92, and R97.
AAa	R77, Y76, K72, E75, Y79, R135, S138, S143, R141, S142, L151, K121, R144, T145, Q150, R147, E148, T149 and R146.	L277, E321, D278, V317, A318, D316, A315, N320, L6, L154, S58, E61, E59, L60, P260, K200, L259, P153, V51, V188, D262, F261, D264, L35, P263, Q39, K40, C34, P41, L42, E43, H52, G50 and E55.
AAc	K65, K68, F69, Y78, R129, S74, R77, L50, V62, Y70, I73, R102, Q107, F45, L67, V53, Y32, Y76, Y60, K72, D56, C33, V31, K34 and R55.	T53, E54, S58, D57, L56, Y78, D80, I69, K68, E67, V79, H81, I82, E94, W66, A64, G65, N83, L62, R84, R97, K157, E61, L93, V92, L101, N90 and E89.