

Sauerbrei A, Bohn-Wippert K, Kaspar M, Krumbholz A, Karrasch M, Zell R. 2015. Database on natural polymorphisms and resistance-related non-synonymous mutations in thymidine kinase and DNA polymerase genes of herpes simplex virus types 1 and 2. J Antimicrob Chemother 71:6-16, doi: 10.1093/jac/dkv285, PMID: 26433780

Supplementary Table 5: Natural polymorphisms in DNA pol gene of HSV-1 as aa changes including nt changes, their location, antivirals tested, methods for phenotypic testing and references.

Amino acid change	Nucleotide change	Domain	Antivirals tested	Test methods for phenotype	References
S3A	T7G	non-conserved region (pre NH ₂ -terminal domain)	Aciclovir (ACV), Foscarnet (FOS)	modified dye uptake assay including formazan test	22024514
G12E	C35A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	20733037
S15A	T43G	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
A17T	G49A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	24075863
A17V	C50T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
A20V	C59T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	14670581
F23I	T67A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	20733037
A25V	C74T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
A27T	G79A	non-conserved region (pre NH ₂ -terminal domain)	ACV, Brivudin (BVDU), FOS, Penciclovir (PCV), Cidofovir (CDV)	modified dye uptake assay including formazan test	20211650
P29H	C86A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
R30C	C88T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375

A32I	G94A/ C95T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	24075863
S33G	A97G	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay, plating efficiency assay, DNA pol functional assay	14670581 23687576
S33R	C99G/A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
Q42K	C124A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	20733037
K57N	G171C/T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
P61S	C181T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
E70D	A210T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	20733037
D72N	G214A	non-conserved region (pre NH ₂ -terminal domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	20211650
A78D	C233A	non-conserved region (pre NH ₂ -terminal domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	20211650
A78V	C233T	non-conserved region (pre NH ₂ -terminal domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	20211650
R80L	G239T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
K90R	A269G	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	24075863
H98N	C292A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375

A102T	G304A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	20733037
K104Q	A310C	non-conserved region (pre NH ₂ -terminal domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	21178503
G108R	G322A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
E111K	G331A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
R112H	G335A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	20211650
R116H	G347A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	20733037
S127L	C380T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
G132C	G394T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	20733037
P137G	C409G/C410G	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
P137Q	C410A	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	20733037
A138V	C413T	non-conserved region (pre NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	20733037
V144I	G430A	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
T145A	A433G	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514

V146I	G436A	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
N155T	A464C	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
A159V	C476T	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
A164T	G490A	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	24075863
F167L	T499C	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
F171S	T511A/ T512G	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	14670581
M207I	G621A/C/T	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
K209T	A626C	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
V212A	G635C	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
R219S	C655A	non-conserved region (NH ₂ -terminal domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	22155911
A220T	G658A	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
A229T	G685A	non-conserved region (NH ₂ -terminal domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	20211650
A230V	C689T	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375

S239L	C716T	non-conserved region (NH ₂ -terminal domain)	ACV, PCV, FOS, CDV	plaque reduction assay	27309375
I243T	T728C	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	24075863
F248L	T742C	non-conserved region (NH ₂ -terminal domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	20211650
R264H	G791A	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
L267M	C799A	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	26055375 20733037
S280A	T838G	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
C287Y	G860A	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
A289D	A866A	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
V297A	T890C	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
F303L	C909A/G	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
P320S	C958T	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
R322Q	G965A	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
A330R	G988C/ C989G	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay, plating efficiency assay, DNA pol functional assay	14670581 23687576

I352V	A1054G	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	22024514 20733037
G354V	G1061T	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
M356I	G1068A	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	26055375 24075863
E376D	G1128C/T	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
E376G	A1127G	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
V383L	G1147T	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
H386Y	C1156T	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	plaque reduction assay	24075863
E421D	A1263T	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	plaque reduction assay	20733037
N425T	A1274C	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	plaque reduction assay modified dye uptake assay including formazan test	20733037
A428V	C1283T	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
A429T	G1285A	non-conserved region (3'-5'-exonuclease domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	22155911
R430K	G1289A	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	plaque reduction assay	24075863
T434M	C1301T	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	plaque reduction assay	20733037

G458S	G1372A	conserved region IV (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
L479M	C1435A	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
T480M	C1439T	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
G495V	G1484T	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
V498G	T1493G	non-conserved region (3'-5'-exonuclease domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	22155911
V498M	G1492A	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
G505D	G1514A	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
S507R	A1519C	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
V521M	G1561A	non-conserved region (3'-5'-exonuclease domain)	ACV, BVDU, PCV, FOS, CDV	modified dye uptake assay including formazan test	24747042
N522S	A1565G	non-conserved region (3'-5'-exonuclease domain)	ACV, FOS	plaque reduction assay	14670581
A562T	G1684A	conserved region delta-region C (3'-5'-exonuclease domain)	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test, DNA reduction assay	22024514 23026414
A566T	G1696A	conserved region delta-region C (3'-5'-exonuclease domain)	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	14670581 20211650
K591R	A1772G	conserved region VI (3'-5'-exonuclease domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375

D630A	A1889C	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
G633D	G1898A	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay	24075863
T639I	C1916T	non-conserved region (NH ₂ -terminal domain)	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	22155911 14670581
A646T	G1936A	non-conserved region	ACV, FOS	plaque reduction assay, yield reduction assay (enzyme linked virus inhibitory reporter assay - ELVIRA)	20211650 15456088
E649D	G1947T	non-conserved region	ACV, FOS	plaque reduction assay, DNA reduction assay	23026414
E659D	G1977C/T	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
D660E	C1980G/A	non-conserved region	ACV, FOS	plaque reduction assay	20733037
E661K	G1981A	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
E662D	G1986C/T	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
P664T	C1990A	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
E667deletion	deletion (GAG) nt 1999-2001	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
G668deletion	deletion (GGG) nt 2002-2004	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
G668E	G2003A	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375

E669D	G2007C/T	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
E669G	A2006G	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
E671K	G2011A	non-conserved region	ACV	dye uptake assay	25218782
E673K	G2017A	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
R674H	G2021A	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
E675A	A2024C	non-conserved region	ACV, FOS	plaque reduction assay	20733037
E675K	G2023A	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
E684A	A2051C	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	22024514
E684D	G2052T/C	non-conserved region	ACV, FOS	plaque reduction assay	14670581
E688K	G2062A	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	22024514
D703N	G2107A	conserved region II (palm domain)	ACV, FOS	plaque reduction assay	20733037
N711K	C2133G/A	conserved region II (palm domain)	ACV, FOS	plaque reduction assay	20733037
R739S	G2217C/T	non-conserved region (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375

A740S	G2218A/ C2219G	non-conserved region (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
V743M	G2227A	non-conserved region (palm domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	20211650
E747K	G2239A	non-conserved region (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
G749D	G2246A	non-conserved region (palm domain)	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	22024514 20733037
L753M	C2257A	non-conserved region (palm domain)	ACV, FOS	plaque reduction assay	20733037
Q794H	G2382C/T	non-conserved region (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
A857V	C2570T	non-conserved region (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
E860K	G2578A	non-conserved region (palm domain)	ACV, PCV, FOS, CDV	modified dye uptake assay including formazan test, plaque reduction assay	26055375 27309375
Q861R	A2582G	non-conserved region (palm domain)	ACV, FOS	plaque reduction assay	24075863
L862F	C2584T	non-conserved region (palm domain)	ACV, FOS	plaque reduction assay	24075863
E868G	A2603G	non-conserved region (fingers domain)	ACV, FOS	plaque reduction assay	24075863
A870G	G2609C	non-conserved region (palm domain)	ACV, FOS, CDV	plaque reduction assay, DNA pol functional assay	20733037 12829822
A870V	C2609A	non-conserved region (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375

D871N	G2611A	non-conserved region (palm domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	22155911
R873C	C2617T	non-conserved region (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
A874T	G2620A	non-conserved region (palm domain)	ACV	dye uptake assay	25218782
P875S	C2623T	non-conserved region (palm domain)	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	22024514 20733037
V905M	G2713A	non-conserved region (palm domain)	ACV, FOS	plaque reduction assay, dye uptake assay, structural analysis of protein, plating efficiency assay, DNA pol functional assay	18336925 20733037 24055837 23687576
K908R	A2723G	non-conserved region (palm domain)	ACV, FOS	plaque reduction assay	14670581
A910V*	C2729T	non-conserved region (palm domain)	ACV, FOS, CDV	plaque reduction assay	15673740
S911N	G2732A	non-conserved region (palm domain)	ACV, PCV, FOS, CDV	plaque reduction assay	27309375
S914L	C2741T	non-conserved region (palm domain)	ACV, PCV, FOS, CDV	plaque reduction assay	27309375
A916T	G2746A	non-conserved region (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
P920F	C2758T/ C2759T	non-conserved region (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
P920S	C2758T	non-conserved region (palm domain)	ACV, FOS, CDV	plaque reduction assay, dye uptake assay, DNA pol functional assay	10395866 18336925 12829822
I922T	T2765C	non-conserved region (palm domain)	ACV, FOS, PCV, CDV	plaque reduction assay	23315323

E927D	A2781T/C	non-conserved region (palm domain)	ACV, FOS	plaque reduction assay	24075863
T931A	A2971G	non-conserved region (palm domain)	ACV	dye uptake assay	18336925
T931I	C2792T	non-conserved region (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
I942L	A2824C	conserved region VII (palm domain)	ACV, FOS	plaque reduction assay	24075863
Y946F	A2837T	conserved region VII (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
G948C	G2842T	non-conserved region (palm domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	22155911
K949T	A2846C	non-conserved region (palm domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
G985E	G2954A	non-conserved region (thumb domain)	ACV, PCV, FOS, CDV	plaque reduction assay	27309375
E992K	G2974A	non-conserved region (thumb domain)	ACV, PCV, FOS, CDV	plaque reduction assay	27309375
R993L	G2978T	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	24075863
A995T	G2983A	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	20733037
E1005K	G3013A	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test, yield reduction assay (ELVIRA)	22024514 15456088
A1012V	C3035T	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514

R1019G	C3055G	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
R1020C	C3058T	non-conserved region (thumb domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	22155911
R1020H	G3059A	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	24075863
T1022A	A3064G	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
V1077L	G3229C	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	22024514 20733037
Q1079K	C3235A	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	24075863
E1082K	G3244A	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	20733037
E1084A	A3251C	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	24075863
E1084K	G3250A	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	24075863
E1085D	G3255C/T	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514 26055375
E1085K	G3253A	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514 26055375
T1086M	C3257T	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
A1099T	G3295A	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	20733037

A1100T	G3298A	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
D1103H	G3307C	non-conserved region (thumb domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	20211650
E1104D	G3312T	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	22024514 20733037
E1104K	G3310A	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
A1109T	G3325A	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
P1112L	C3335T	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	24075863
S1113C	C3338G	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	20733037
P1114A	C3340G	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
P1114L	C3341T	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
R1117I	C3349A/ G3350T	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	24075863
R1117L	G3350T	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
R1117S	C3349A	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	24075863
T1121M	C3362T	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375

S1123A	T3367G	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
S1123L	C3368T	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	22024514 20733037
P1124H	C3371A	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay, structural analysis of protein	14670581 24055837
P1128L	C3383T	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
G1129R	G3385A	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
G1129V	G3386T	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	20733037
A1147T	G3439A	non-conserved region (thumb domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	22155911
A1147V	C3440T	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
H1152N	C3454A	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
D1159A	A3476C	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	26055375
L1166W	T3497G	non-conserved region (thumb domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	20211650
A1168V	C3503T	non-conserved region (thumb domain)	ACV, BVDU, FOS, PCV, CDV	modified dye uptake assay including formazan test	21178503
A1175D	C3524A	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	21178503

A1181T	C3541A	non-conserved region (thumb domain)	ACV, FOS	modified dye uptake assay including formazan test	22024514
E1194D	A3582C/T	non-conserved region (thumb domain)	ACV, FOS	plaque reduction assay	20733037
P1199L	C3596T	non-conserved region	ACV, FOS	plaque reduction assay, plating efficiency assay, DNA pol functional assay	23687576
P1199Q	C3596A	non-conserved region	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	22024514 20733037
V1202M	G3604A	non-conserved region	ACV, FOS	plaque reduction assay	24075863
A1203T	G3607A	non-conserved region	ACV, FOS	plaque reduction assay	14670581
A1204T	G3610A	non-conserved region	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	22024514 20733037
T1208A	G3622G	non-conserved region	ACV, FOS	plaque reduction assay, structural analysis of protein, DNA pol functional assay	14670581 24055837
A1209T	G3625A	non-conserved region	ACV, FOS	plaque reduction assay	20733037
A1218S	G3652T	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
T1219M	C3656T	non-conserved region	ACV, FOS	plaque reduction assay	20733037
A1220V	C3659T	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375
M1226I	G3678A/C/T	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375

R1229I	G3686T	non-conserved region	ACV, FOS	plaque reduction assay, modified dye uptake assay including formazan test	22024514 20733037
L1234I	C3700A	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	22024514
A1235T	G3703A	non-conserved region	ACV, FOS	modified dye uptake assay including formazan test	26055375