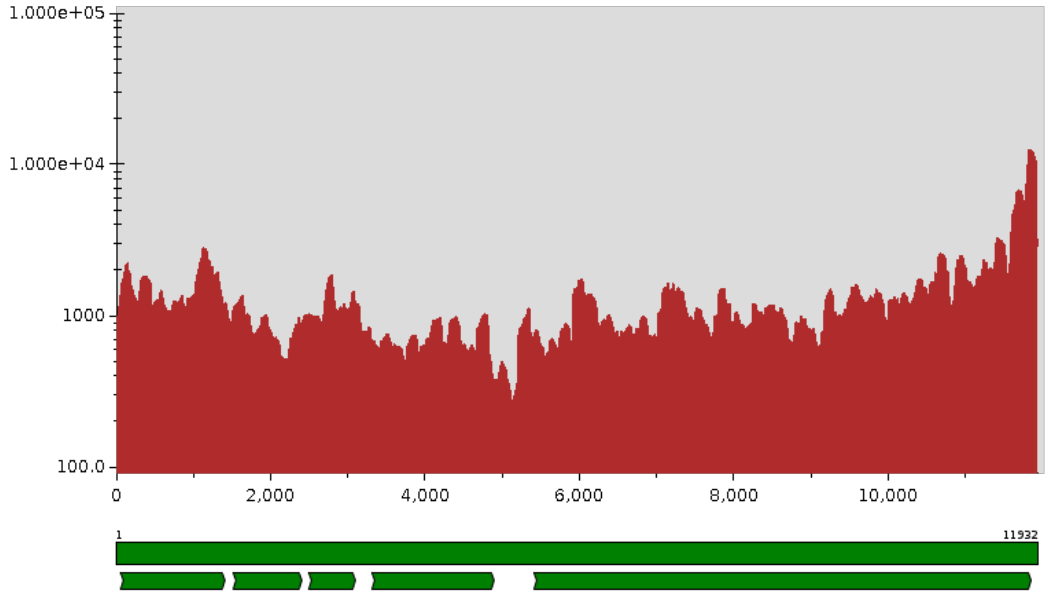
NGS Details (MG-1-RNASeq021-ZymoSeq): Lyssavirus rabies

Assembly

Coverage Length	11932 (1 contig(s))
Depth Of Coverage	1265.9
Number Of Reads	126615
Reads Per Million	634.99 rpm (after QC)
Ambiguities	0
Assembly Method	de novo + reference guided assembly
Consensus Caller	Bcf Tools

Coverage Map



Assignment

Type	Lyssavirus rabies (Taxonomy ID: 11292)
Reference Genome	NC_001542.1
NT Identity (%)	80.2382
AA Identity (%)	90.9116
Number Of Stop Codons	7
Number Of CDS	5

Alignment

Alignment Score	14365.0 (NT) + 23167.0 (AA) = 37532.0
Concordance (%)	76.4976

Alignment Method	Local, heuristic, nucleotide (BLASTN)

Genome Region

Sequence starts at position 1 and ends at position 11932 relative to NC_001542.1 reference sequence.

Alignment Detailed Statistics

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	**1**	**11932**	**100%**	**14365**	**60.4%**	**11921 (99.9%)**	**9566 (80.2%)**	**1/11**	

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	**1**	**11932**	**100%**	**14365**	**60.4%**	**11921 (99.9%)**	**9566 (80.2%)**	**1/11**	

Mutations:

13C>A, 15G>A, 20A>G, 25A>G, 28A>G, 29C>T, 36C>T, 37G>A, 40A>G, 41A>T, 42T>C, 43G>T, 44G>A, 45C>T, 47G>A, 65T>C, 97A>G, 115C>T, 119T>C, 121G>A, 130G>A, 133T>C, 142T>C, 154C>T, 160C>T, 163T>G, 166C>T, 175T>C, 176T>C, 181A>G, 188T>A, 196T>C, 197C>T, 211C>T, 219A>G, 232G>A, 236G>A, 244A>T, 245T>G, 252G>A, 256C>A, 265T>C, 268T>C, 274C>T, 283T>C, 286C>G, 290T>C, 298G>C, 310T>C, 316G>A, 319G>A, 320A>T, 328G>T, 331A>G, 353G>C, 358T>A, 361A>T, 364A>G, 367A>G, 387G>A, 391T>C, 394G>T, 400G>C, 405A>G, 418A>G, 436G>A, 442A>G, 451A>G, 452C>T, 460A>G, 466C>T, 472C>T, 473C>T, 475T>A, 484G>A, 487C>T, 488T>C, 490A>G, 493C>T, 496T>C, 509C>T, 529A>T, 532C>T, 535G>A, 538A>G, 540G>A, 541C>T, 544T>C, 547T>C, 550C>T, 553T>C, 565T>C, 568A>G, 571C>T, 574G>A, 601T>C, 606T>C, 607T>A, 610A>G, 616G>A, 622C>T, 629C>T, 631A>G, 637A>G, 640T>C, 658T>C, 667T>C, 676C>T, 685T>C, 691C>T, 697C>T, 724G>A, 730A>G, 739A>T, 742C>T, 748G>A, 772A>G, 778T>C, 785C>T, 799T>A, 805C>T, 811A>G, 817C>A, 826C>T, 829T>G, 835G>A, 839A>C, 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CDS

RABVgp1	1	451	100%	2971	95.6%	451 (100%)	430 (95.3%)	0/0/0/0	1
Protein mutations:	C40S (188T>A), N50S (219A>G), V56I (236G>A), C59G (245T>G), S61N (252G>A), T84S (320A>T), V95L (353G>C), G106D (387G>A), E110D (400G>C), K112R (405A>G), P135S (473C>T 475T>A), S157N (540G>A 541C>T), V179A (606T>C 607T>A), I257L (839A>C), A332T (1064G>A), T377A (1199A>G), D378E (1204C>G), V379T (1205G>A 1206T>C 1207A>G), G397S (1259G>A), I410M (1300A>G), A433T (1367G>A)								
Codon mutations:	AAA9AAG (97A>G), GTC15GTT (115C>T), TTG17CTA (119T>C 121G>A), GAG20GAA (130G>A), ATT21ATC (133T>C), GAT24GAC (142T>C), TAC28TAT (154C>T), TAC30TAT (160C>T), CCT31CCG (163T>G), GCC32GCT (166C>T), GAT35GAC (175T>C), TTG36CTG (176T>C), AAA37AAG (181A>G), TGT40AGT (188T>A), ACT42ACC (196T>C), CTA43TTA (197C>T), CCC47CCT (211C>T), AAT50AGT (219A>G), AAG54AAA (232G>A), GTT56ATT (236G>A), TCA58TCT (244A>T), TGC59GGC (245T>G), AGC61AAC (252G>A), GCC62GCA (256C>A), CTT65CTC (265T>C), GAT66GAC (268T>C), GAC68GAT (274C>T), TGT71TGC (283T>C), TCC72TCG (286C>G), TTG74CTG (290T>C), GCG76GCC (298G>C), TTT80TTC (310T>C), GAG82GAA (316G>A), GGG83GGA (319G>A), ACA84TCA (320A>T), CCG86CCT (328G>T), GAA87GAG (331A>G), GTG95CTG (353G>C), ATT96ATA (358T>A), GCA97GCT (361A>T), CGA98CGG (364A>G), AAA99AAG (367A>G), GGT106GAT (387G>A), TCT107TCC (391T>C), CTG108CTT (394G>T), GAG110GAC (400G>C), AAA112AGA (405A>G), GTA116GTG (418A>G), CTG122CTA (436G>A), GGA124GGG (442A>G), GAA127GAG (451A>G), CTG128TTG (452C>T), AGA130AGG (460A>G), CCC132CCT (466C>T), GTC134GTT (472C>T), CCT135TCA (473C>T 475T>A), GCG138GCA (484G>A), TCC139TCT (487C>T), TTA140CTG (488T>C 490A>G), GTC141GTT (493C>T), GGT142GGC (496T>C), CTG147TTG (509C>T), ATA153ATT (529A>T), TCC154TCT (532C>T), GGG155GGA (535G>A), CAA156CAG (538A>G), AGC157AAT (540G>A 541C>T), ACT158ACC (544T>C), GGT159GGC (547T>C), AAC160AAT (550C>T), TAT161TAC (553T>C), ATT165ATC (565T>C), GCA166GCG (568A>G), GAC167GAT (571C>T), AGG168AGA (574G>A), CCT177CCC (601T>C), GTT179GCA (606T>C 607T>A), AAA180AAG (610A>G), GTG182GTA (616G>A), CAC184CAT (622C>T), CTA187TTG (629C>T 631A>G), ACA189ACG (637A>G), ACT190ACC (640T>C), AAT196AAC (658T>C), ACT199ACC (667T>C), AAC202AAT (676C>T), TTT205TTC (685T>C), GCC207GCT (691C>T), ACC209ACT (697C>T), GAG218GAA (724G>A), CTA220CTG (730A>G), GCA223GCT (739A>T), ATC224ATT (742C>T), GTG226GTA (748G>A), GAA234GAG (772A>G), TGT236TGC (778T>C), CTG239TTG (785C>T), ACT243ACA (799T>A), TTC245TTT (805C>T), AAA247AAG (811A>G), ATC249ATA (817C>A), ACC252ACT (826C>T), GCT253GCG (829T>G), GAG255GAA (835G>A), ATA257CTA (839A>C), CTA258TTA (842C>T), TAT259TAC (847T>C), GAG268GAA (874G>A), TTT273TTC (889T>C), CCA275CCT (895A>T), CAG277CAA (901G>A), ACA279ACT (907A>T), CAC283CAT (919C>T), TCT284TCC (922T>C), ATC287ATT (931C>T), CAC288CAT (934C>T), TTC289TTT (937C>T), CTA292TTG (944C>T 946A>G), CCT299CCG (967T>G), TAT300TAC (970T>C), TCA302TCC (976A>C), GCT304GCA (982T>A), CAC307CAT (991C>T), GTG308GTA (994G>A), AAT310AAC (1000T>C), GTA315GTT (1015A>T), TGC317TGT (1021C>T), CAA321CAG (1033A>G), GTC322GTG (1036C>G), TCC324TCT (1042C>T), CTA325TTG (1043C>T 1045A>G), ACG328ACA (1054G>A), GTT329GTG (1057T>G), GCT331GCA (1063T>A), GCA332ACA (1064G>A), GCT334GCC (1072T>C), CCT335CCG (1075T>G), GAA337GAG (1081A>G), CTA341CTT (1093A>T), GGG342GGA (1096G>A), CTG345TTG (1103C>T), GGA346GGG (1108A>G), GAA348GAG (1114A>G), TTC349TTT (1117C>T), GGG351GGA (1123G>A), GGG353GGA (1129G>A), ACA354ACT (1132A>T), AGA357AGG (1141A>G), AGA358AGG (1144A>G), AGA361AGG (1153A>G), GAT362GAC (1156T>C), GAG363GAA (1159G>A), CAA367CAG (1171A>G), GAA368GAG (1174A>G), TAC369TAT (1177C>T), GCG371GCA (1183G>A), CTG374TTG (1190C>T), AAG376AAA (1198G>A), ACT377GCT (1199A>G), GAC378GAG (1204C>G), GTA379ACG (1205G>A 1206T>C 1207A>G), GCA380GCC (1210A>C), CTG381TTG (1211C>T), GAT384GAC (1222T>C), ACT386ACA (1228T>A), AAC388AAT (1234C>T), GAC390GAT (1240C>T), GAC391GAT (1243C>T), TCA396TCC (1258A>C), GGT397AGT (1259G>A), AGA400AGG (1270A>G), CCG402CCA (1276G>A), GCT404GCA (1282T>A), TAT406TAC (1288T>C), ACT407ACA (1291T>A), ATA410ATG (1300A>G), CGA415AGA (1313C>A), AAG417AAA (1321G>A), TCG419TCA (1327G>A), CGG422AGG (1334C>A), AGA423AGG (1339A>G), AGT428AGC (1354T>C), TCC429TCT (1357C>T), GCT433ACT (1367G>A), CGT434CGC (1372T>C), CCA435CCT (1375A>T), TCA437TCG (1381A>G), TTC438TTT (1384C>T), GCC439GCG (1387C>G), CTA442TTA (1394C>T), AAG444AAA (1402G>A), TAT446TAC (1408T>C), GAC449GAT (1417C>T), TCA450TCG (1420A>G), TAA451TGA (1422A>G)								
RABVgp2	1	298	100%	1632	83.0%	298 (100%)	245 (82.2%)	0/0/0/0	1
Protein mutations:	N29A (1598A>G 1599A>C), E42D (1639A>T), N48S (1656A>G), G54R (1673G>A 1675G>A), H57Q (1684C>A), G61D (1695G>A 1696A>C), S63P (1700T>C), P64S (1703C>T 1705C>T), N65G (1706A>G 1707A>G), G67S (1712G>A 1714T>C), E68S (1715G>A 1716A>G 1717G>T), M69T (1719T>C 1720G>A), V72A (1728T>C 1729G>A), G75S (1736G>A), R78Q (1746G>A 1747A>G), G86A (1770G>C), S90A (1781A>G 1782G>C), V102I (1817G>A 1819C>T), I108M (1837A>G), R109K (1839G>A), I126V (1888A>G), A130T (1901G>A 1903G>A), P134S (1913C>T 1915C>T), N135G (1916A>G 1917A>G 1918C>T), P136A (1919C>G 1921T>G), S141L (1935C>T), E142K (1937G>A 1939G>A), S145A (1946T>G 1948A>T), T149V (1958A>G 1959C>T 1960C>T), L153V (1970C>G), K154A (1973A>G 1974A>C 1975G>T), K155R (1977A>G), T158K (1986C>A 1987A>G), P159S (1988C>T 1990C>G), T160A (1991A>G 1993T>A), P161S (1994C>T), E165A (2007A>C), S168P (2015T>C), A171V (2025C>T 2026C>T), R172K (2028G>A 2029G>A), Q176R (2040A>G), A178V (2046C>T 2047T>C), A188V (2076C>T 2077C>T), T189A (2078A>G), L195P (2097T>C), L223F (2180C>T), A241S (2234G>T 2236A>G), R252H (2268G>A), S280P (2351T>C), N281D (2354A>G), S284N (2364G>A 2365T>C), T295A (2396A>G 2398A>G), C297P (2402T>C 2403G>C)								
Codon mutations:	AAG3AAA (1522G>A), ATC4ATT (1525C>T), AAT7AAC (1534T>C), CCT8CCA (1537T>A), GCT10GCG (1543T>G), ATT11ATC (1546T>C), AGA12AGG (1549A>G), GGT14GGC (1555T>C), CTG15TTG (1556C>T), GCC16GCT (1561C>T), CTT18CTA (1567T>A), GAA23GAG (1582A>G), GTT25GTA (1588T>A), CTG27CTC (1594G>C), AAT29GCT (1598A>G 1599A>C), AGA30AGG (1603A>G), AAT31AAC (1606T>C), GAA33GAG (1612A>G), GGG41GGA (1636G>A), GAA42GAT (1639A>T), GAA45GAG (1648A>G), AAT48AGT (1656A>G), CCT50CCC (1663T>C), GAG51GAA (1666G>A), GAT52GAC (1669T>C), GGG54AGA (1673G>A 1675G>A), CGA55CGG (1678A>G), CAC57CAA (1684C>A), CTG58CTA (1687G>A), GGA61GAC (1695G>A 1696A>C), AAA62AAG (1699A>G), TCG63CCG (1700T>C), CCC64TCT (1703C>T 1705C>T), AAC65GGC (1706A>G 1707A>G), GGT67AGC (1712G>A 1714T>C), GAG68AGT (1715G>A 1716A>G 1717G>T), ATG69ACA (1719T>C 1720G>A), AAG71AAA (1726G>A), GTG72GCA (1728T>C 1729G>A), GGC75AGC (1736G>A), AAG76AAA (1741G>A), CGA78CAG (1746G>A 1747A>G), GAG79GAA (1750G>A), GAA85GAG (1768A>G), GGA86GCA (1770G>C), AGC90GCC (1781A>G 1782G>C), CTG92TTG (1787C>T), TTC93TTT (1792C>T), GTC102ATT (1817G>A 1819C>T), ATA108ATG (1837A>G), AGG109AAG (1839G>A), GGA111GGG (1846A>G), TTT114TTC (1855T>C), CTC115CTG (1858C>G), AAG116AAA (1861G>A), TCA119TCT (1870A>T), GTA122GTT (1879A>T), GAA123GAG (1882A>G), ATT125ATC (1888T>C), ATA126GTA (1889A>G), GCG130ACA (1901G>A 1903G>A), CCC134TCT (1913C>T 1915C>T), AAC135GGT (1916A>G 1917A>G 1918C>T), CCT136GCG (1919C>G 1921T>G), GGA138GGG (1927A>G), TCT140TCC (1933T>C), TCA141TTA (1935C>T), GAG142AAA (1937G>A 1939G>A), GAT143GAC (1942T>C), AAA144AAG (1945A>G), TCA145GCT (1946T>G 1948A>T), ACC146ACT (1951C>T), ACC149GTT (1958A>G 1959C>T 1960C>T), CGA151CGC (1966A>C), GAG152GAA (1969G>A), CTC153GTC (1970C>G), AAG154GCT (1973A>G 1974A>C 1975G>T), AAG155AGG (1977A>G), ACA158AAG (1986C>A 1987A>G), CCC159TCG (1988C>T 1990C>G), ACT160GCA (1991A>G 1993T>A), CCT161TCT (1994C>T), AGA164CGA (2003A>C), GAA165GCA (2007A>C), AGC166AGT (2011C>T), TCC168CCC (2015T>C), TCG169TCA (2020G>A), GCC171GTT (2025C>T 2026C>T), AGG172AAA (2028G>A 2029G>A), GCG174GCA (2035G>A), CAA176CGA (2040A>G), GCT178GTC (2046C>T 2047T>C), GGC180GGT (2053C>T), CCA182CCT (2059A>T), GCC183GCA (2062C>A), CTT184TTA (2063C>T 2065T>A), TCG187TCT (2074G>T), GCC188GTT (2076C>T 2077C>T), ACC189GCC (2078A>G), AAT190AAC (2083T>C), GAT194GAC (2095T>C), CTA195CCA (2097T>C), TCA196TCT (2101A>T), GTG197GTC (2104G>C), ATC201ATT (2116C>T), GCT202GCG (2119T>G), CAG204CAA (2125G>A), GCA206GCC (2131A>C), GAA207GAG (2134A>G), AGT208AGC (2137T>C), TTC209TTT (2140C>T), TCC210TCT (2143C>T), AAA211AAG (2146A>G), AAA212AAG (2149A>G), TAT213TAC (2152T>C), AAG214AAA (2155G>A), CCC216CCT (2161C>T), TCT217TCC (2164T>C), TCC219TCA (2170C>A), CTC223TTC (2180C>T), AAT226AAC (2191T>C), CAA229CAG (2200A>G), TTG230CTG (2201T>C), GAT235GAC (2218T>C), GAT236GAC (2221T>C), GTT238GTC (2227T>C), AAA239AAG (2230A>G), GCA241TCG (2234G>T 2236A>G), GTA244GTG (2245A>G), ACC248ACT (2257C>T), TTA250TTG (2263A>G), CGT252CAT (2268G>A), GGG254GGA (2275G>A), CCC258CCT (2287C>T), CTA259CTG (2290A>G), GTA262GTG (2299A>G), GTC266GTT (2311C>T), TTG268CTA (2315T>C 2317G>A), GCC269GCA (2320C>A), AAC270AAT (2323C>T), TCT271TCC (2326T>C), AAG272AAA (2329G>A), TTG276CTG (2339T>C), TTA277TTG (2344A>G), GTC278GTT (2347C>T), GAA279GAG (2350A>G), TCC280CCC (2351T>C), AAC281GAC (2354A>G), CTG283CTA (2362G>A), AGT284AAC (2364G>A 2365T>C), AAA285AAG (2368A>G), ATC286ATA (2371C>A), TTG291CTG (2384T>C), AAT292AAC (2389T>C), CGC293CGT (2392C>T), ACA295GCG (2396A>G 2398A>G), TGC297CCC (2402T>C 2403G>C), TAA298TGA (2406A>G)								
RABVgp3	1	203	100%	1339	90.7%	203 (100%)	181 (89.2%)	0/0/0/0	1
Protein mutations:	I7M (2516A>G), P21L (2557C>T), V22I (2559G>A 2561G>A), L26P (2572T>C 2573G>A), S46G (2631A>G), R50M (2644G>T), G58E (2668G>A 2669G>A), G70R (2703G>A), D80N (2733G>A 2735C>T), I82L (2739A>C 2741A>C), H87Q (2756T>A), V90I (2763G>A 2765C>T), I97V (2784A>G), N147D (2934A>G), T148A (2937A>G 2939T>G), Q154E (2955C>G), K160R (2974A>G), R165Q (2989G>A 2990G>A), G178C (3027G>T), M184L (3045A>C 3047G>A), E192D (3071A>T), L199V (3090C>G)								

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	**1**	**11932**	**100%**	**14365**	**60.4%**	**11921 (99.9%)**	**9566 (80.2%)**	**1/11**	
Codon mutations:	CTA4TTA (2505C>T), ATA7ATG (2516A>G), AAA9AAG (2522A>G), AAT10AAC (2525T>C), TGC11TGT (2528C>T), AGG12AGA (2531G>A), GAC13GAT (2534C>T), ACT16ACC (2543T>C), CAA17CAG (2546A>G), AAA18AAG (2549A>G), CCC21CTC (2557C>T), GTG22ATA (2559G>A 2561G>A), TCA23TCG (2564A>G), GCC24GCA (2567C>A), CTG26CCA (2572T>C 2573G>A), GAC30GAT (2585C>T), TTG31CTA (2586T>C 2588G>A), CTT33TTA (2592C>T 2594T>A), CCA34CCC (2597A>C), CCC35CCT (2600C>T), CCT36CCG (2603T>G), TAC38TAT (2609C>T), GTC39GTT (2612C>T), CTA41TTG (2616C>T 2618A>G), AAA42AAG (2621A>G), GAA43GAG (2624A>G), CTT44CTC (2627T>C), ACA45ACG (2630A>G), AGC46GGC (2631A>G), AGG50ATG (2644G>T), AGG51AGA (2648G>A), AAC52AAT (2651C>T), TGT54TGC (2657T>C), AAC56AAT (2663C>T), GGA57GGG (2666A>G), GGG58GAA (2668G>A 2669G>A), GTT59GTC (2672T>C), AGC63AGT (2684C>T), CCG64CCC (2687G>C), AAT65AAC (2690T>C), GGT66GGC (2693T>C), TCG68TCA (2699G>A), TTC69TTT (2702C>T), GGG70AGG (2703G>A), CTG72TTG (2709C>T), CTG76TTG (2721C>T), GAC80AAT (2733G>A 2735C>T), ATA82CTC (2739A>C 2741A>C), TCT84TCC (2747T>C), GGG85GGA (2750G>A), CAT87CAA (2756T>A), AGG88AGA (2759G>A), GTC90ATT (2763G>A 2765C>T), GGG91GGA (2768G>A), TTA92CTG (2769T>C 2771A>G), AAA94AAG (2777A>G), GTA95GTT (2780A>T), ATT97GTT (2784A>G), CTG99TTG (2790C>T), GCT100GCG (2795T>G), GGA103GGG (2804A>G), GCT104GCC (2807T>C), GTC106GTT (2813C>T), GGC109GGT (2822C>T), AAG115AAA (2840G>A), CTT120CTA (2855T>A), ATC121ATT (2858C>T), CAG123CAA (2864G>A), AGG128AGA (2879G>A), CTT131CTA (2888T>A), TAC138TAT (2909C>T), ATC142ATT (2921C>T), ACT143ACC (2924T>C), AAT147GAT (2934A>G), ACT148GCG (2937A>G 2939T>G), TTC150TTT (2945C>T), GTC151GTT (2948C>T), CAA154GAA (2955C>G), AAA160AGA (2974A>G), CAG161CAA (2978G>A), TGT162TGC (2981T>C), ATC164ATT (2987C>T), CGG165CAA (2989G>A 2990G>A), AGA167AGG (2996A>G), ATC168ATT (2999C>T), TCG175TCT (3020G>T), AGA176CGA (3021A>C), GGT178TGT (3027G>T), CAA179CAG (3032A>G), ATG184CTA (3045A>C 3047G>A), TCT185TCC (3050T>C), CTT186CTC (3053T>C), CAG187CAA (3056G>A), TCC191TCT (3068C>T), GAA192GAT (3071A>T), GAC194GAT (3077C>T), AAA195AAG (3080A>G), TCC197TCT (3086C>T), TCT198TCA (3089T>A), CTG199GTG (3090C>G), CTA201CTG (3098A>G), TAA203TAG (3104A>G)								
RABVgp4	1	525	100%	3274	86.1%	525 (100%)	447 (85.1%)	0/0/0/0	1
Protein mutations:	V2I (3321G>A 3323T>C), P3L (3325C>T), L11F (3348C>T 3350T>C), V13I (3354G>A 3356T>C), F14S (3358T>C), P15S (3360C>T 3362A>G), F18L (3369T>C 3371T>C), N56S (3484A>G 3485C>T), M75V (3540A>G), T109I (3643C>T), H132Q (3713C>A), D137E (3728C>A), V152I (3771G>A 3773T>C), R166K (3814G>A), N177K (3848T>G), S179L (3853C>T 3854A>G), V181I (3858G>A), A182T (3861G>A), N201E (3918A>G 3920T>A), M206T (3934T>C 3935G>A), N213S (3955A>G 3956T>C), R215K (3961G>A 3962A>G), R218K (3970G>A 3971A>G), S223G (3984A>G 3986T>C), E224K (3987G>A), A261S (4098G>T 4100G>A), M262I (4103G>T), N266D (4113A>G 4115T>C), E267D (4118A>T), G274D (4138G>A), R283H (4165G>A), H322Y (4281C>T), R365K (4411G>A), G367R (4416G>A 4418G>A), G368E (4420G>A), H373P (4435A>C 4436T>C), N375D (4440A>G), V408E (4540T>A 4541A>G), N427E (4596A>G 4598C>A), E444K (4647G>A), R445Q (4651G>A), N455S (4681A>G 4682C>T), V460L (4695G>C 4697A>C), L462M (4701C>A), S463I (4705G>T), A466G (4714C>G 4715C>T), T468A (4719A>G 4721T>G), A469T (4722G>A 4724C>A), M471V (4728A>G 4730G>T), F475C (4741T>G), L476S (4743C>T 4744T>C 4745G>A), T478A (4749A>G), W480C (4757G>T), V483T (4764G>A 4765T>C), N484K (4769T>G), S486T (4773T>A 4775G>A), P488S (4779C>T 4781T>A), T489R (4783C>G), Q490R (4785C>A 4786A>G), H491R (4789A>G 4790C>A), N492G (4791A>G 4792A>G 4793T>C), L493S (4794C>T 4795T>C 4796C>T), R494G (4797A>G), G495E (4801G>A), T496L (4803A>T 4804C>T), R498K (4810G>A 4811G>A), E499K (4812G>A), S501T (4818T>A 4820A>G), V502A (4822T>C 4823C>A), S506T (4834G>C 4835C>T), G507R (4836G>A), I509V (4842A>G), I510V (4845A>G), S515L (4861C>T 4862A>G), G519E (4873G>A 4874G>A), E521D (4880G>T), T522A (4881A>G), G523R (4884G>A 4886A>G)								
Codon mutations:	GTT2ATC (3321G>A 3323T>C), CCT3CTT (3325C>T), CTC6CTT (3335C>T), GTA9GTG (3344A>G), CCC10CCT (3347C>T), CTT11TTC (3348C>T 3350T>C), CTG12CTA (3353G>A), GTT13ATC (3354G>A 3356T>C), TTT14TCT (3358T>C), CCA15TCG (3360C>T 3362A>G), TTT18CTC (3369T>C 3371T>C), CCT22CCC (3383T>C), ATT23ATC (3386T>C), ACG25ACA (3392G>A), CCA27CCG (3398A>G), CCC32CCT (3413C>T), CCG35CCC (3422G>C), ATT36ATC (3425T>C), GAC37GAT (3428C>T), TGC43TGT (3446C>T), AAC45AAT (3452C>T), TTG47TTA (3458G>A), GTA48GTT (3461A>T), GAA52GAG (3473A>G), GGA53GGG (3476A>G), AAC56AGT (3484A>G 3485C>T), CTG57CTA (3488G>A), TCC61TCT (3500C>T), CTT65CTA (3512T>A), AAA66AAG (3515A>G), GTT67GTG (3518T>G), TCA71TCT (3530A>T), AAA74AAG (3539A>G), ATG75GTG (3540A>G), TTC78TTT (3551C>T), TGC80TGT (3557C>T), ACA81ACC (3560A>C), GGC82GGT (3563C>T), TAC90TAT (3587C>T), ACT91ACC (3590T>C), TTC93TTT (3596C>T), GTT94GTC (3599T>C), ACA98ACC (3611A>C), ACG100ACA (3617G>A), AAA102AAG (3623A>G), AGA103AGG (3626A>G), AAG104AAA (3629G>A), CCA108CCT (3641A>T), ACA109ATA (3643C>T), CCA110CCG (3647A>G), TGT113TGC (3656T>C), AGA114AGG (3659A>G), GCC115GCT (3662C>T), GCG116GCA (3665G>A), GCC122GCT (3683C>T), GAC124GAT (3689C>T), CCC125CCT (3692C>T), GAA128GAG (3701A>G), CTA131CTT (3710A>T), CAC132CAA (3713C>A), CCG134CCT (3719G>T), TAC135TAT (3722C>T), GAC137GAA (3728C>A), CTT141CTA (3740T>A), CGA142CGG (3743A>G), ACT143ACA (3746T>A), AAA145AAG (3752A>G), ACC147ACT (3758C>T), CTC151CTT (3770C>T), GTT152ATC (3771G>A 3773T>C), CCA156CCG (3785A>G), GCA159GCT (3794A>T), TTG161CTA (3798T>C 3800G>A), CCA163CCG (3806A>G), TAT164TAC (3809T>C), AGA166AAA (3814G>A), CAC169CAT (3824C>T), TCG170TCT (3827G>T), GTC172GTG (3833C>G), GGC175GGT (3842C>T), GGG176GGA (3845G>A), AAT177AAG (3848T>G), TGC178TGT (3851C>T), TCA179TTG (3853C>T 3854A>G), GTA181ATA (3858G>A), GCG182ACG (3861G>A), GTG183GTT (3866G>T), TCT185TCC (3872T>C), TCC189TCA (3884C>A), ACT190ACC (3887T>C), CAC192CAT (3893C>T), ATT196ATC (3905T>C), AAT201GAA (3918A>G 3920T>A), CCG202CCA (3923G>A), CTA204CTC (3929A>C), ATG206ACA (3934T>C 3935G>A), TGT208TGC (3941T>C), AAT213AGC (3955A>G 3956T>C), AGT214AGC (3959T>C), AGA215AAG (3961G>A 3962A>G), AAG217AAA (3968G>A), AGA218AAG (3970G>A 3971A>G), TCC220TCT (3977C>T), AAA221AAG (3980A>G), GGG222GGA (3983G>A), AGT223GGC (3984A>G 3986T>C), GAG224AAG (3987G>A), GGC227GGA (3998C>A), GTA229GTG (4004A>G), AGA232AGG (4013A>G), CTA234TTG (4017C>T 4019A>G), TAT235TAC (4022T>C), TTA238CTA (4029T>C), TTA246CTG (4053T>C 4055A>G), TGT247TGC (4058T>C), CTA250CTC (4067A>C), ACA258ACC (4091A>C), GTC260GTT (4097C>T), GCG261TCA (4098G>T 4100G>A), ATG262ATT (4103G>T), ACA264ACC (4109A>C), AAT266GAC (4113A>G 4115T>C), GAA267GAT (4118A>T), CCC273CCG (4136C>G), GGT274GAT (4138G>A), CAG275CAA (4142G>A), TTG279CTA (4152T>C 4154G>A), CAC280CAT (4157C>T), CGC283CAC (4165G>A), ATT287ATA (4178T>A), CAC289CAT (4184C>T), CTT290CTC (4187T>C), GTT291GTC (4190T>C), GTA292GTG (4193A>G), AGA299AGG (4214A>G), GAG300GAA (4217G>A), CTG303TTG (4224C>T), GAT304GAC (4229T>C), CTA306TTG (4233C>T 4235A>G), AAG313AAA (4256G>A), TCA314TCT (4259A>T), GTG315GTA (4262G>A), AGT321AGC (4280T>C), CAT322TAT (4281C>T), TTA323TTG (4286A>G), CTT326CTA (4295T>A), AAA332AAG (4313A>G), TAT334TAC (4319T>C), ACC335ACT (4322C>T), ACC340ACT (4337C>T), GAA343GAG (4346A>G), GCC344GCT (4349C>T), GCT346GCC (4355T>C), GTC351GTT (4370C>T), AGA352CGG (4371A>C 4373A>G), AAT355AAC (4382T>C), CCT359CCC (4394T>C), TTA364TTG (4409A>G), AGA365AAA (4411G>A), GTT366GTC (4415T>C), GGG367AGA (4416G>A 4418G>A), GGG368GAG (4420G>A), CAT373CCC (4435A>C 4436T>C), GTA374GTG (4439A>G), AAC375GAC (4440A>G), GGG376GGA (4445G>A), GTA377GTG (4448A>G), TTT378TTC (4451T>C), GGT381GGC (4460T>C), ATA383ATT (4466A>T), TTA384TTG (4469A>G), GGA385GGT (4472A>T), CCT386CCA (4475T>A), GGC388GGG (4481C>G), TTA391CTG (4488T>C 4490A>G), ATC392ATA (4493C>A), TCC398TCT (4511C>T), CTC399CTA (4514C>A), CTC400CTT (4517C>T), CAG401CAA (4520G>A), TTG406CTG (4533T>C), GTA408GAG (4540T>A 4541A>G), TCC409TCT (4544C>T), TCG410TCT (4547G>T), GTT411GTA (4550T>A), CTT414TTA (4557C>T 4559T>A), CAC416CAT (4565C>T), CTG418TTG (4569C>T), GCA419GCG (4574A>G), TCT422TCA (4583T>A), ACC423ACA (4586C>A), GTT424GTC (4589T>C), AAC427GAA (4596A>G 4598C>A), GGT428GGG (4601T>G), GAC429GAT (4604C>T), GAG430GAA (4607G>A), GCT431GCG (4610T>G), CTT439CTC (4634T>C), CCC440CCA (4637C>A), GTG442GTT (4643G>T), GAA444AAA (4647G>A), CGG445CAG (4651G>A), GGA448GGG (4661A>G), TTG451CTT (4668T>C 4670G>T), AAC455AGT (4681A>G 4682C>T), AAG458AAA (4691G>A), GTA460CTC (4695G>C 4697A>C), TTA461CTG (4698T>C 4700A>G), CTG462ATG (4701C>A), AGT463ATT (4705G>T), GGG465GGT (4712G>T), GCC466GGT (4714C>G 4715C>T), ACT468GCG (4719A>G 4721T>G), GCC469ACA (4722G>A 4724C>A), TTG470CTA (4725T>C 4727G>A), ATG471GTT (4728A>G 4730G>T), TTG472CTG (4731T>C), ATT474ATC (4739T>C), TTC475TGC (4741T>G), CTG476TCA (4743C>T 4744T>C 4745G>A), ACA478GCA (4749A>G), TGG480TGT (4757G>T), AGA481AGG (4760A>G), GTC483ACC (4764G>A 4765T>C), AAT484AAG (4769T>G), TCG486ACA (4773T>A 4775G>A), GAA487GAG (4778A>G), CCT488TCA (4779C>T 4781T>A), ACA489AGA (4783C>G), CAA490AGA (4785C>A 4786A>G), CAC491CGA (4789A>G 4790C>A), AAT492GGC (4791A>G 4792A>G 4793T>C), CTC493TCT (4794C>T 4795T>C 4796C>T), AGA494GGA (4797A>G), GGG495GAG (4801G>A), ACA496TTA (4803A>T 4804C>T), AGG498AAA (4810G>A 4811G>A), GAG499AAG (4812G>A), GTG500GTA (4817G>A), TCA501ACG (4818T>A 4820A>G), GTC502GCA (4822T>C 4823C>A), ACT503ACC (4826T>C), CAA505CAG (4832A>G), AGC506ACT (4834G>C 4835C>T), GGG507AGG (4836G>A), AAG508AAA (4841G>A), ATC509GTC (4842A>G), ATA510GTA (4845A>G), GAA514GAG (4859A>G), TCA515TTG (4861C>T 4862A>G), AGC518AGT (4871C>T), GGG519GAA (4873G>A 4874G>A), GGT520GGC (4877T>C), GAG521GAT (4880G>T), ACC522GCC (4881A>G), GGA523AGG (4884G>A 4886A>G)								
RABVgp5	1	2143	100%	13951	93.5%	2143 (100%)	1988 (92.8%)	0/0/0/0	3
Protein mutations:	L2I (5421C>A 5423C>T), Y8F (5440A>T), L17S (5467T>C 5468A>G), P21S (5478C>T 5480C>G), T24N (5488C>A 5489C>T), V27I (5496G>A), P46S (5553C>T 5555T>G), R48K (5560G>A), Y61L (5598T>C 5599A>T 5600T>C), F73Y (5635T>A), R74K (5638G>A 5639A>G), L88I (5679C>A), M93A (5694A>G 5695T>C 5696G>T), H107Y (5736C>T 5738C>T), R115K (5761G>A 5762A>G), H122Q (5783T>G), S128A (5799T>G), L136C (5823C>T 5824T>G), G139E (5833G>A 5834A>G), P147T (5856C>A), N161K (5900T>A), T170I (5926C>T 5927G>A), I180M (5957C>G), V205I (6030G>A 6032G>T), I207V (6036A>G 6038C>T), K209R (6043A>G), Q217K (6066C>A), N235G (6120A>G 6121A>G), L257I (6186T>A), V259I (6192G>A 6194C>T), Q285H (6272A>C), M289V (6282A>G), K315R (6361A>G), V328A (6400T>C), K331R (6409A>G), S335G (6420A>G), E339G (6433A>G 6434G>A), S343P (6444T>C 6446C>T), C344S (6447T>A), R346K (6454G>A 6455A>G), R350K (6466G>A), F428L (6699T>C 6701C>T), A430S (6705G>T 6707C>A), R489K (6883G>A), R672W (7431C>T), A681M (7458G>A 7459C>T), N683G (7464A>G 7465A>G), I717T (7567T>C), V724I (7587G>A), Q745R (7650C>A 7651A>G), F760L (7695T>C 7697T>C), V766I (7713G>A), V815I (7860G>A), A879V (8053C>T 8054T>A), E882D (8063G>C), S883N (8065G>A), H933N (8214C>A 8216C>T), R970K (8326G>A), T1018K (8470C>A), K1059R (8593A>G), K1063R (8605A>G), S1078N (8650G>A 8651T>C), G1089R (8682G>A), P1092T (8691C>A 8693T>C), T1133S (8814A>T 8816T>C), A1136V (8824C>T 8825A>G), G1139R (8832G>A 8834A>G), V1144I (8847G>A 8849T>A), C1158S (8890G>C 8891C>A), T1159R (8892A>C 8893C>G 8894G>A), D1206N (9033G>A 9035T>C), I1214V (9057A>G), V1218I (9069G>A 9071G>A), S1255A (9180T>G 9182T>C), Q1276H (9245A>T), K1279R (9253A>G 9254G>A), R1302K (9322G>A), R1307K (9337G>A 9338A>G), Q1316R (9364A>G), N1318D (9369A>G), R1319K (9373G>A), V1321I (9378G>A 9380G>A), V1327I (9396G>A 9398G>T), I1334V (9417A>G), E1336D (9425G>T), K1342R (9442A>G), Q1356R (9484A>G 9485G>A), R1357K (9487G>A 9488G>A), R1374K (9538G>A), H1378R (9550A>G), F1476L (9843T>C), E1478G (9850A>G), I1487V (9876A>G 9878C>T), K1496R (9904A>G), V1516A (9964T>C 9965A>G), D1524E (9989C>A), A1535S (10020G>T 10022C>T), R1556K (10084G>A), N1557S (10087A>G 10088C>T), S1561G (10098A>G), D1564T (10107G>A 10108A>C 10109T>C), L1569M (10122T>A), D1589E (10184C>A), N1590D (10185A>G), T1617V (10266A>G 10267C>T 10268T>A), D1619C (10272G>T 10273A>G), N1623S (10285A>G), K1625R (10291A>G), V1626M (10293G>A), V1630A (10306T>C 10307A>C), V1653A (10375T>C), A1660T (10395G>A 10397C>T), K1663R (10405A>G 10406G>A), F1665L (10410T>C 10412C>T), R1749S (10664G>C), N1752D (10671A>G), V1755I (10680G>A), A1775T (10740G>A 10742T>A), K1778R (10750A>G 10751A>G), K1785E (10770A>G), Y1825D (10890T>G), N1839D (10932A>G), S1852V (10971T>G 10972C>T 10973G>A), T1889A (11082A>G 11084C>T), A1966S (11313G>T 11315T>C), V1974I (11337G>A 11339T>C), R2039M (11533G>T 11534A>G), I2043V (11544A>G), L2044R (11548T>G 11549A>G), V2047T (11556G>A 11557T>C), N2055D (11580A>G 11582C>T), T2057A (11586A>G), S2058A (11589T>G), V2089R (11682G>A 11683T>G 11684T>A), K2093E (11694A>G), G2097K (11706G>A 11707G>A 11708A>G), R2101K (11719G>A 11720A>G), H2104R (11728A>G 11729T>A), E2113K (11754G>A 11756G>A), N2114D (11757A>G 11759T>C), C2128* (11800G>A 11801C>A), I2129T (11803T>C 11804C>T), G2130K (11805G>A 11806G>A 11807A>G), Y2131C (11809A>G), S2132P (11811T>C), W2133* (11816G>A), K2134* (11817A>T), P2135N (11820C>A 11821C>A), A2136I (11823G>A 11824C>T 11825C>T), H2137Q (11828T>G), A2138T (11829G>A), K2139E (11832A>G), L2141H (11839T>A), V2142G (11842T>G 11843G>A), *2143W (11846A>G)								

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	**1**	**11932**	**100%**	**14365**	**60.4%**	**11921 (99.9%)**	**9566 (80.2%)**	**1/11**	

Codon mutations:

CTC2ATT (5421C>A 5423C>T), GTC7GTT (5438C>T), TAT8TTT (5440A>T), CCT11CCC (5450T>C), ATT12ATC (5453T>C), GAC13GAT (5456C>T), CCA14CCG (5459A>G), ATC15ATT (5462C>T), TTA17TCG (5467T>C 5468A>G), GAG18GAA (5471G>A), GCT19GCC (5474T>C), GAA20GAG (5477A>G), CCC21TCG (5478C>T 5480C>G), GGA23GGG (5486A>G), ACC24AAT (5488C>A 5489C>T), ACT26ACC (5495T>C), GTC27ATC (5496G>A), AGG32AGA (5513G>A), TCT34TCC (5519T>C), AAT37AAC (5528T>C), TTG42CTG (5541T>C), GAT45GAC (5552T>C), CCT46TCG (5553C>T 5555T>G), GCT47GCC (5558T>C), AGA48AAA (5560G>A), CTA49CTG (5564A>G), TTA51TTG (5570A>G), GAA52GAG (5573A>G), TTA54TTG (5579A>G), ACA56ACG (5585A>G), GGG57GGA (5588G>A), TAT61CTC (5598T>C 5599A>T 5600T>C), CTA65CTG (5612A>G), TCC70TCT (5627C>T), TTC73TAC (5635T>A), AGA74AAG (5638G>A 5639A>G), GTT75GTC (5642T>C), GAT84GAC (5669T>C), GGT86GGA (5675T>A), TCC87TCT (5678C>T), CTC88ATC (5679C>A), AAG89AAA (5684G>A), GGC91GGT (5690C>T), ATG93GCT (5694A>G 5695T>C 5696G>T), GCT94GCC (5699T>C), CAG96CAA (5705G>A), 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	(9911C>T), TCA1501TCC (9920A>C), ATC1502ATT (9923C>T), TAT1505TAC (9932T>C), CTA1510TTG (9945C>T 9947A>G), GAG1513GAA (9956G>A), GTA1516GCG (9964T>C 9965A>G), ATC1517ATA (9968C>A), ACG1518ACA (9971G>A), GCG1519GCA (9974G>A), TCT1520TCA (9977T>A), CCA1521CCG (9980A>G), GAC1524GAA (9989C>A), CTA1526TTG (9993C>T 9995A>G), ATC1528ATA (10001C>A), TTT1529TTC (10004T>C), AGT1534AGC (10019T>C), GCC1535TCT (10020G>T 10022C>T), AAA1536AAG (10025A>G), TAC1539TAT (10034C>T), CTA1540CTG (10037A>G), ACC1541ACT (10040C>T), CTC1542CTT (10043C>T), ATT1543ATC (10046T>C), CAG1546CAA (10055G>A), CTA1550TTG (10065C>T 10067A>G), CTC1551CTT (10070C>T), AGG1553AGA (10076G>A), GTT1554GTC (10079T>C), AGA1556AAA (10084G>A), AAC1557AGT (10087A>G 10088C>T), CTA1558CTC (10091A>C), TCT1559TCC (10094T>C), AAG1560AAA (10097G>A), AGT1561GGT (10098A>G), GAT1564ACC (10107G>A 10108A>C 10109T>C), CTG1566TTG (10113C>T), TTG1569ATG (10122T>A), AGT1570AGC (10127T>C), TCC1571TCT (10130C>T), TTG1572CTA (10131T>C 10133G>A), 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GAA2100GAG (11717A>G), AGA2101AAG (11719G>A 11720A>G), CAC2102CAT (11723C>T), CAT2104CGA (11728A>G 11729T>A), AGG2105AGA (11732G>A), CTA2112CTC (11753A>C), GAG2113AAA (11754G>A 11756G>A), AAT2114GAC (11757A>G 11759T>C), TCT2117TCC (11768T>C), TCC2120TCT (11777C>T), CTA2121CTG (11780A>G), CTA2122TTA (11781C>T), GAC2123GAT (11786C>T), TAC2124TAT (11789C>T), AGT2125AGC (11792T>C), CTG2127TTA (11796C>T 11798G>A), TGC2128TAA (11800G>A 11801C>A), ATC2129ACT (11803T>C 11804C>T), GGA2130AAG (11805G>A 11806G>A 11807A>G), TAC2131TGC (11809A>G), TCC2132CCC (11811T>C), TGG2133TGA (11816G>A), AAG2134TAG (11817A>T), CCT2135AAT (11820C>A 11821C>A), GCC2136ATT (11823G>A 11824C>T 11825C>T), CAT2137CAG (11828T>G), GCT2138ACT (11829G>A), AAG2139GAG (11832A>G), CTT2141CAT (11839T>A), GTG2142GGA (11842T>G 11843G>A), TGA2143TGG (11846A>G)

Proteins

nucleoprotein N (NP_056793.1)	1	451	100%	2971	95.6%	451 (100%)	430 (95.3%)	0/0/0/0	1
Protein mutations:	C40S (188T>A), N50S (219A>G), V56I (236G>A), C59G (245T>G), S61N (252G>A), T84S (320A>T), V95L (353G>C), G106D (387G>A), E110D (400G>C), K112R (405A>G), P135S (473C>T 475T>A), S157N (540G>A 541C>T), V179A (606T>C 607T>A), I257L (839A>C), A332T (1064G>A), T377A (1199A>G), D378E (1204C>G), V379T (1205G>A 1206T>C 1207A>G), G397S (1259G>A), I410M (1300A>G), A433T (1367G>A)								
Codon mutations:	AAA9AAG (97A>G), GTC15GTT (115C>T), TTG17CTA (119T>C 121G>A), GAG20GAA (130G>A), ATT21ATC (133T>C), GAT24GAC (142T>C), TAC28TAT (154C>T), TAC30TAT (160C>T), CCT31CCG (163T>G), GCC32GCT (166C>T), GAT35GAC (175T>C), TTG36CTG (176T>C), AAA37AAG (181A>G), TGT40AGT (188T>A), ACT42ACC (196T>C), CTA43TTA (197C>T), CCC47CCT (211C>T), AAT50AGT (219A>G), AAG54AAA (232G>A), GTT56ATT (236G>A), TCA58TCT (244A>T), TGC59GGC (245T>G), AGC61AAC (252G>A), GCC62GCA (256C>A), CTT65CTC (265T>C), GAT66GAC (268T>C), GAC68GAT (274C>T), TGT71TGC (283T>C), TCC72TCG (286C>G), TTG74CTG (290T>C), GCG76GCC (298G>C), TTT80TTC (310T>C), GAG82GAA (316G>A), GGG83GGA (319G>A), ACA84TCA (320A>T), CCG86CCT (328G>T), GAA87GAG (331A>G), GTG95CTG (353G>C), ATT96ATA (358T>A), GCA97GCT (361A>T), CGA98CGG (364A>G), AAA99AAG (367A>G), GGT106GAT (387G>A), TCT107TCC (391T>C), CTG108CTT (394G>T), GAG110GAC (400G>C), AAA112AGA (405A>G), GTA116GTG (418A>G), CTG122CTA (436G>A), GGA124GGG (442A>G), GAA127GAG (451A>G), CTG128TTG (452C>T), AGA130AGG (460A>G), CCC132CCT (466C>T), GTC134GTT (472C>T), CCT135TCA (473C>T 475T>A), GCG138GCA (484G>A), TCC139TCT (487C>T), TTA140CTG (488T>C 490A>G), GTC141GTT (493C>T), GGT142GGC (496T>C), CTG147TTG (509C>T), ATA153ATT (529A>T), TCC154TCT (532C>T), GGG155GGA (535G>A), CAA156CAG (538A>G), AGC157AAT (540G>A 541C>T), ACT158ACC (544T>C), GGT159GGC (547T>C), AAC160AAT (550C>T), TAT161TAC (553T>C), ATT165ATC (565T>C), GCA166GCG (568A>G), GAC167GAT (571C>T), AGG168AGA (574G>A), CCT177CCC (601T>C), GTT179GCA (606T>C 607T>A), AAA180AAG (610A>G), GTG182GTA (616G>A), CAC184CAT (622C>T), CTA187TTG (629C>T 631A>G), ACA189ACG (637A>G), ACT190ACC (640T>C), AAT196AAC (658T>C), ACT199ACC (667T>C), AAC202AAT (676C>T), TTT205TTC (685T>C), GCC207GCT (691C>T), ACC209ACT (697C>T), GAG218GAA (724G>A), CTA220CTG (730A>G), GCA223GCT (739A>T), ATC224ATT (742C>T), GTG226GTA (748G>A), GAA234GAG (772A>G), TGT236TGC (778T>C), CTG239TTG (785C>T), ACT243ACA (799T>A), TTC245TTT (805C>T), AAA247AAG (811A>G), ATC249ATA (817C>A), ACC252ACT (826C>T), GCT253GCG (829T>G), GAG255GAA (835G>A), ATA257CTA (839A>C), CTA258TTA (842C>T), TAT259TAC (847T>C), GAG268GAA (874G>A), TTT273TTC (889T>C), CCA275CCT (895A>T), CAG277CAA (901G>A), ACA279ACT (907A>T), CAC283CAT (919C>T), TCT284TCC (922T>C), ATC287ATT (931C>T), CAC288CAT (934C>T), TTC289TTT (937C>T), CTA292TTG (944C>T 946A>G), CCT299CCG (967T>G), TAT300TAC (970T>C), TCA302TCC (976A>C), GCT304GCA (982T>A), CAC307CAT (991C>T), GTG308GTA (994G>A), AAT310AAC (1000T>C), GTA315GTT (1015A>T), TGC317TGT (1021C>T), CAA321CAG (1033A>G), GTC322GTG (1036C>G), TCC324TCT (1042C>T), CTA325TTG (1043C>T 1045A>G), ACG328ACA (1054G>A), GTT329GTG (1057T>G), GCT331GCA (1063T>A), GCA332ACA (1064G>A), GCT334GCC (1072T>C), CCT335CCG (1075T>G), GAA337GAG (1081A>G), CTA341CTT (1093A>T), GGG342GGA (1096G>A), CTG345TTG (1103C>T), GGA346GGG (1108A>G), GAA348GAG (1114A>G), TTC349TTT (1117C>T), GGG351GGA (1123G>A), GGG353GGA (1129G>A), ACA354ACT (1132A>T), AGA357AGG (1141A>G), AGA358AGG (1144A>G), AGA361AGG (1153A>G), GAT362GAC (1156T>C), GAG363GAA (1159G>A), CAA367CAG (1171A>G), GAA368GAG (1174A>G), TAC369TAT (1177C>T), GCG371GCA (1183G>A), CTG374TTG (1190C>T), AAG376AAA (1198G>A), ACT377GCT (1199A>G), GAC378GAG (1204C>G), GTA379ACG (1205G>A 1206T>C 1207A>G), GCA380GCC (1210A>C), CTG381TTG (1211C>T), GAT384GAC (1222T>C), ACT386ACA (1228T>A), AAC388AAT (1234C>T), GAC390GAT (1240C>T), GAC391GAT (1243C>T), TCA396TCC (1258A>C), GGT397AGT (1259G>A), AGA400AGG (1270A>G), CCG402CCA (1276G>A), GCT404GCA (1282T>A), TAT406TAC (1288T>C), ACT407ACA (1291T>A), ATA410ATG (1300A>G), CGA415AGA (1313C>A), AAG417AAA (1321G>A), TCG419TCA (1327G>A), CGG422AGG (1334C>A), AGA423AGG (1339A>G), AGT428AGC (1354T>C), TCC429TCT (1357C>T), GCT433ACT (1367G>A), CGT434CGC (1372T>C), CCA435CCT (1375A>T), TCA437TCG (1381A>G), TTC438TTT (1384C>T), GCC439GCG (1387C>G), CTA442TTA (1394C>T), AAG444AAA (1402G>A), TAT446TAC (1408T>C), GAC449GAT (1417C>T), TCA450TCG (1420A>G), TAA451TGA (1422A>G)								
phosphoprotein M1 (NP_056794.1)	1	298	100%	1632	83.0%	298 (100%)	245 (82.2%)	0/0/0/0	1
Protein mutations:	N29A (1598A>G 1599A>C), E42D (1639A>T), N48S (1656A>G), G54R (1673G>A 1675G>A), H57Q (1684C>A), G61D (1695G>A 1696A>C), S63P (1700T>C), P64S (1703C>T 1705C>T), N65G (1706A>G 1707A>G), G67S (1712G>A 1714T>C), E68S (1715G>A 1716A>G 1717G>T), M69T (1719T>C 1720G>A), V72A (1728T>C 1729G>A), G75S (1736G>A), R78Q (1746G>A 1747A>G), G86A (1770G>C), S90A (1781A>G 1782G>C), V102I (1817G>A 1819C>T), I108M (1837A>G), R109K (1839G>A), I126V (1889A>G), A130T (1901G>A 1903G>A), P134S (1913C>T 1915C>T), N135G (1916A>G 1917A>G 1918C>T), P136A (1919C>G 1921T>G), S141L (1935C>T), E142K (1937G>A 1939G>A), S145A (1946T>G 1948A>T), T149V (1958A>G 1959C>T 1960C>T), L153V (1970C>G), K154A (1973A>G 1974A>C 1975G>T), K155R (1977A>G), T158K (1986C>A 1987A>G), P159S (1988C>T 1990C>G), T160A (1991A>G 1993T>A), P161S (1994C>T), E165A (2007A>C), S168P (2015T>C), A171V (2025C>T 2026C>T), R172K (2028G>A 2029G>A), Q176R (2040A>G), A178V (2046C>T 2047T>C), A188V (2076C>T 2077C>T), T189A (2078A>G), L195P (2097T>C), L223F (2180C>T), A241S (2234G>T 2236A>G), R252H (2268G>A), S280P (2351T>C), N281D (2354A>G), S284N (2364G>A 2365T>C), T295A (2396A>G 2398A>G), C297P (2402T>C 2403G>C)								

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	**1**	**11932**	**100%**	**14365**	**60.4%**	**11921 (99.9%)**	**9566 (80.2%)**	**1/11**	
Codon mutations:	AAG3AAA (1522G>A), ATC4ATT (1525C>T), AAT7AAC (1534T>C), CCT8CCA (1537T>A), GCT10GCG (1543T>G), ATT11ATC (1546T>C), AGA12AGG (1549A>G), GGT14GGC (1555T>C), CTG15TTG (1556C>T), GCC16GCT (1561C>T), CTT18CTA (1567T>A), GAA23GAG (1582A>G), GTT25GTA (1588T>A), CTG27CTC (1594G>C), AAT29GCT (1598A>G 1599A>C), AGA30AGG (1603A>G), AAT31AAC (1606T>C), GAA33GAG (1612A>G), GGG41GGA (1636G>A), GAA42GAT (1639A>T), GAA45GAG (1648A>G), AAT48AGT (1656A>G), CCT50CCC (1663T>C), GAG51GAA (1666G>A), GAT52GAC (1669T>C), GGG54AGA (1673G>A 1675G>A), CGA55CGG (1678A>G), CAC57CAA (1684C>A), CTG58CTA (1687G>A), GGA61GAC (1695G>A 1696A>C), AAA62AAG (1699A>G), TCG63CCG (1700T>C), CCC64TCT (1703C>T 1705C>T), AAC65GGC (1706A>G 1707A>G), GGT67AGC (1712G>A 1714T>C), GAG68AGT (1715G>A 1716A>G 1717G>T), ATG69ACA (1719T>C 1720G>A), AAG71AAA (1726G>A), GTG72GCA (1728T>C 1729G>A), GGC75AGC (1736G>A), AAG76AAA (1741G>A), CGA78CAG (1746G>A 1747A>G), GAG79GAA (1750G>A), GAA85GAG (1768A>G), GGA86GCA (1770G>C), AGC90GCC (1781A>G 1782G>C), CTG92TTG (1787C>T), TTC93TTT (1792C>T), GTC102ATT (1817G>A 1819C>T), ATA108ATG (1837A>G), AGG109AAG (1839G>A), GGA111GGG (1846A>G), TTT114TTC (1855T>C), CTC115CTG (1858C>G), AAG116AAA (1861G>A), TCA119TCT (1870A>T), GTA122GTT (1879A>T), GAA123GAG (1882A>G), ATT125ATC (1888T>C), ATA126GTA (1889A>G), GCG130ACA (1901G>A 1903G>A), CCC134TCT (1913C>T 1915C>T), AAC135GGT (1916A>G 1917A>G 1918C>T), CCT136GCG (1919C>G 1921T>G), GGA138GGG (1927A>G), TCT140TCC (1933T>C), TCA141TTA (1935C>T), GAG142AAA (1937G>A 1939G>A), GAT143GAC (1942T>C), AAA144AAG (1945A>G), TCA145GCT (1946T>G 1948A>T), ACC146ACT (1951C>T), ACC149GTT (1958A>G 1959C>T 1960C>T), CGA151CGC (1966A>C), GAG152GAA (1969G>A), CTC153GTC (1970C>G), AAG154GCT (1973A>G 1974A>C 1975G>T), AAG155AGG (1977A>G), ACA158AAG (1986C>A 1987A>G), CCC159TCG (1988C>T 1990C>G), ACT160GCA (1991A>G 1993T>A), CCT161TCT (1994C>T), AGA164CGA (2003A>C), GAA165GCA (2007A>C), AGC166AGT (2011C>T), TCC168CCC (2015T>C), TCG169TCA (2020G>A), GCC171GTT (2025C>T 2026C>T), AGG172AAA (2028G>A 2029G>A), GCG174GCA (2035G>A), CAA176CGA (2040A>G), GCT178GTC (2046C>T 2047T>C), GGC180GGT (2053C>T), CCA182CCT (2059A>T), GCC183GCA (2062C>A), CTT184TTA (2063C>T 2065T>A), TCG187TCT (2074G>T), GCC188GTT (2076C>T 2077C>T), ACC189GCC (2078A>G), AAT190AAC (2083T>C), GAT194GAC (2095T>C), CTA195CCA (2097T>C), TCA196TCT (2101A>T), GTG197GTC (2104G>C), ATC201ATT (2116C>T), GCT202GCG (2119T>G), CAG204CAA (2125G>A), GCA206GCC (2131A>C), GAA207GAG (2134A>G), AGT208AGC (2137T>C), TTC209TTT (2140C>T), TCC210TCT (2143C>T), AAA211AAG (2146A>G), AAA212AAG (2149A>G), TAT213TAC (2152T>C), AAG214AAA (2155G>A), CCC216CCT (2161C>T), TCT217TCC (2164T>C), TCC219TCA (2170C>A), CTC223TTC (2180C>T), AAT226AAC (2191T>C), CAA229CAG (2200A>G), TTG230CTG (2201T>C), GAT235GAC (2218T>C), GAT236GAC (2221T>C), GTT238GTC (2227T>C), AAA239AAG (2230A>G), GCA241TCG (2234G>T 2236A>G), GTA244GTG (2245A>G), ACC248ACT (2257C>T), TTA250TTG (2263A>G), CGT252CAT (2268G>A), GGG254GGA (2275G>A), CCC258CCT (2287C>T), CTA259CTG (2290A>G), GTA262GTG (2299A>G), GTC266GTT (2311C>T), TTG268CTA (2315T>C 2317G>A), GCC269GCA (2320C>A), AAC270AAT (2323C>T), TCT271TCC (2326T>C), AAG272AAA (2329G>A), TTG276CTG (2339T>C), TTA277TTG (2344A>G), GTC278GTT (2347C>T), GAA279GAG (2350A>G), TCC280CCC (2351T>C), AAC281GAC (2354A>G), CTG283CTA (2362G>A), AGT284AAC (2364G>A 2365T>C), AAA285AAG (2368A>G), ATC286ATA (2371C>A), TTG291CTG (2384T>C), AAT292AAC (2389T>C), CGC293CGT (2392C>T), ACA295GCG (2396A>G 2398A>G), TGC297CCC (2402T>C 2403G>C), TAA298TGA (2406A>G)							
M2 protein (NP_056795.1)	1	203	100%	1339	90.7%	203 (100%)	181 (89.2%)	0/0/0/0	1
Protein mutations:	I7M (2516A>G), P21L (2557C>T), V22I (2559G>A 2561G>A), L26P (2572T>C 2573G>A), S46G (2631A>G), R50M (2644G>T), G58E (2668G>A 2669G>A), G70R (2703G>A), D80N (2733G>A 2735C>T), I82L (2739A>C 2741A>C), H87Q (2756T>A), V90I (2763G>A 2765C>T), I97V (2784A>G), N147D (2934A>G), T148A (2937A>G 2939T>G), Q154E (2955C>G), K160R (2974A>G), R165Q (2989G>A 2990G>A), G178C (3027G>T), M184L (3045A>C 3047G>A), E192D (3071A>T), L199V (3090C>G)							
Codon mutations:	CTA4TTA (2505C>T), ATA7ATG (2516A>G), AAA9AAG (2522A>G), AAT10AAC (2525T>C), TGC11TGT (2528C>T), AGG12AGA (2531G>A), GAC13GAT (2534C>T), ACT16ACC (2543T>C), CAA17CAG (2546A>G), AAA18AAG (2549A>G), CCC21CTC (2557C>T), GTG22ATA (2559G>A 2561G>A), TCA23TCG (2564A>G), GCC24GCA (2567C>A), CTG26CCA (2572T>C 2573G>A), GAC30GAT (2585C>T), TTG31CTA (2586T>C 2588G>A), CTT33TTA (2592C>T 2594T>A), CCA34CCC (2597A>C), CCC35CCT (2600C>T), CCT36CCG (2603T>G), TAC38TAT (2609C>T), GTC39GTT (2612C>T), CTA41TTG (2616C>T 2618A>G), AAA42AAG (2621A>G), GAA43GAG (2624A>G), CTT44CTC (2627T>C), ACA45ACG (2630A>G), AGC46GGC (2631A>G), AGG50ATG (2644G>T), AGG51AGA (2648G>A), AAC52AAT (2651C>T), TGT54TGC (2657T>C), AAC56AAT (2663C>T), GGA57GGG (2666A>G), GGG58GAA (2668G>A 2669G>A), GTT59GTC (2672T>C), AGC63AGT (2684C>T), CCG64CCC (2687G>C), AAT65AAC (2690T>C), GGT66GGC (2693T>C), TCG68TCA (2699G>A), TTC69TTT (2702C>T), GGG70AGG (2703G>A), CTG72TTG (2709C>T), CTG76TTG (2721C>T), GAC80AAT (2733G>A 2735C>T), ATA82CTC (2739A>C 2741A>C), TCT84TCC (2747T>C), GGG85GGA (2750G>A), CAT87CAA (2756T>A), AGG88AGA (2759G>A), GTC90ATT (2763G>A 2765C>T), GGG91GGA (2768G>A), TTA92CTG (2769T>C 2771A>G), AAA94AAG (2777A>G), GTA95GTT (2780A>T), ATT97GTT (2784A>G), CTG99TTG (2790C>T), GCT100GCG (2795T>G), GGA103GGG (2804A>G), GCT104GCC (2807T>C), GTC106GTT (2813C>T), GGC109GGT (2822C>T), AAG115AAA (2840G>A), CTT120CTA (2855T>A), ATC121ATT (2858C>T), CAG123CAA (2864G>A), AGG128AGA (2879G>A), CTT131CTA (2888T>A), TAC138TAT (2909C>T), ATC142ATT (2921C>T), ACT143ACC (2924T>C), AAT147GAT (2934A>G), ACT148GCG (2937A>G 2939T>G), TTC150TTT (2945C>T), GTC151GTT (2948C>T), CAA154GAA (2955C>G), AAA160AGA (2974A>G), CAG161CAA (2978G>A), TGT162TGC (2981T>C), ATC164ATT (2987C>T), CGG165CAA (2989G>A 2990G>A), AGA167AGG (2996A>G), ATC168ATT (2999C>T), TCG175TCT (3020G>T), AGA176CGA (3021A>C), GGT178TGT (3027G>T), CAA179CAG (3032A>G), ATG184CTA (3045A>C 3047G>A), TCT185TCC (3050T>C), CTT186CTC (3053T>C), CAG187CAA (3056G>A), TCC191TCT (3068C>T), GAA192GAT (3071A>T), GAC194GAT (3077C>T), AAA195AAG (3080A>G), TCC197TCT (3086C>T), TCT198TCA (3089T>A), CTG199GTG (3090C>G), CTA201CTG (3098A>G), TAA203TAG (3104A>G)							
transmembrane glycoprotein G (NP_056796.1)	1	525	100%	3274	86.1%	525 (100%)	447 (85.1%)	0/0/0/0	1
Protein mutations:	V2I (3321G>A 3323T>C), P3L (3325C>T), L11F (3348C>T 3350T>C), V13I (3354G>A 3356T>C), F14S (3358T>C), P15S (3360C>T 3362A>G), F18L (3369T>C 3371T>C), N56S (3484A>G 3485C>T), M75V (3540A>G), T109I (3643C>T), H132Q (3713C>A), D137E (3728C>A), V152I (3771G>A 3773T>C), R166K (3814G>A), N177K (3848T>G), S179L (3853C>T 3854A>G), V181I (3858G>A), A182T (3861G>A), N201E (3918A>G 3920T>A), M206T (3934T>C 3935G>A), N213S (3955A>G 3956T>C), R215K (3961G>A 3962A>G), R218K (3970G>A 3971A>G), S223G (3984A>G 3986T>C), E224K (3987G>A), A261S (4098G>T 4100G>A), M262I (4103G>T), N266D (4113A>G 4115T>C), E267D (4118A>T), G274D (4138G>A), R283H (4165G>A), H322Y (4281C>T), R365K (4411G>A), G367R (4416G>A 4418G>A), G368E (4420G>A), H373P (4435A>C 4436T>C), N375D (4440A>G), V408E (4540T>A 4541A>G), N427E (4596A>G 4598C>A), E444K (4647G>A), R445Q (4651G>A), N455S (4681A>G 4682C>T), V460L (4695G>C 4697A>C), L462M (4701C>A), S463I (4705G>T), A466G (4714C>G 4715C>T), T468A (4719A>G 4721T>G), A469T (4722G>A 4724C>A), M471V (4728A>G 4730G>T), F475C (4741T>G), L476S (4743C>T 4744T>C 4745G>A), T478A (4749A>G), W480C (4757G>T), V483T (4764G>A 4765T>C), N484K (4769T>G), S486T (4773T>A 4775G>A), P488S (4779C>T 4781T>A), T489R (4783C>G), Q490R (4785C>A 4786A>G), H491R (4789A>G 4790C>A), N492G (4791A>G 4792A>G 4793T>C), L493S (4794C>T 4795T>C 4796C>T), R494G (4797A>G), G495E (4801G>A), T496L (4803A>T 4804C>T), R498K (4810G>A 4811G>A), E499K (4812G>A), S501T (4818T>A 4820A>G), V502A (4822T>C 4823C>A), S506T (4834G>C 4835C>T), G507R (4836G>A), I509V (4842A>G), I510V (4845A>G), S515L (4861C>T 4862A>G), G519E (4873G>A 4874G>A), E521D (4880G>T), T522A (4881A>G), G523R (4884G>A 4886A>G)							
Codon mutations:	GTT2ATC (3321G>A 3323T>C), CCT3CTT (3325C>T), CTC6CTT (3335C>T), GTA9GTG (3344A>G), CCC10CCT (3347C>T), CTT11TTC (3348C>T 3350T>C), CTG12CTA (3353G>A), GTT13ATC (3354G>A 3356T>C), TTT14TCT (3358T>C), CCA15TCG (3360C>T 3362A>G), TTT18CTC (3369T>C 3371T>C), CCT22CCC (3383T>C), ATT23ATC (3386T>C), ACG25ACA (3392G>A), CCA27CCG (3398A>G), CCC32CCT (3413C>T), CCG35CCC (3422G>C), ATT36ATC (3425T>C), GAC37GAT (3428C>T), TGC43TGT (3446C>T), AAC45AAT (3452C>T), TTG47TTA (3458G>A), GTA48GTT (3461A>T), GAA52GAG (3473A>G), GGA53GGG (3476A>G), AAC56AGT (3484A>G 3485C>T), CTG57CTA (3488G>A), TCC61TCT (3500C>T), CTT65CTA (3512T>A), AAA66AAG (3515A>G), GTT67GTG (3518T>G), TCA71TCT (3530A>T), AAA74AAG (3539A>G), ATG75GTG (3540A>G), TTC78TTT (3551C>T), TGC80TGT (3557C>T), ACA81ACC (3560A>C), GGC82GGT (3563C>T), TAC90TAT (3587C>T), ACT91ACC (3590T>C), TTC93TTT (3596C>T), GTT94GTC (3599T>C), ACA98ACC (3611A>C), ACG100ACA (3617G>A), AAA102AAG (3623A>G), AGA103AGG (3626A>G), AAG104AAA (3629G>A), CCA108CCT (3641A>T), ACA109ATA (3643C>T), CCA110CCG (3647A>G), TGT113TGC (3656T>C), AGA114AGG (3659A>G), GCC115GCT (3662C>T), GCG116GCA (3665G>A), GCC122GCT (3683C>T), GAC124GAT (3689C>T), CCC125CCT (3692C>T), GAA128GAG (3701A>G), CTA131CTT (3710A>T), CAC132CAA (3713C>A), CCG134CCT (3719G>T), TAC135TAT (3722C>T), GAC137GAA (3728C>A), CTT141CTA (3740T>A), CGA142CGG (3743A>G), ACT143ACA (3746T>A), AAA145AAG (3752A>G), ACC147ACT (3758C>T), CTC151CTT (3770C>T), GTT152ATC (3771G>A 3773T>C), CCA156CCG (3785A>G), GCA159GCT (3794A>T), TTG161CTA (3798T>C 3800G>A), CCA163CCG (3806A>G), TAT164TAC (3809T>C), AGA166AAA (3814G>A), CAC169CAT (3824C>T), TCG170TCT (3827G>T), GTC172GTG (3833C>G), GGC175GGT (3842C>T), GGG176GGA (3845G>A), AAT177AAG (3848T>G), TGC178TGT (3851C>T), TCA179TTG (3853C>T 3854A>G), GTA181ATA (3858G>A), GCG182ACG (3861G>A), GTG183GTT (3866G>T), TCT185TCC (3872T>C), TCC189TCA (3884C>A), ACT190ACC (3887T>C), CAC192CAT (3893C>T), ATT196ATC (3905T>C), AAT201GAA (3918A>G 3920T>A), CCG202CCA (3923G>A), CTA204CTC (3929A>C), ATG206ACA (3934T>C 3935G>A), TGT208TGC (3941T>C), AAT213AGC (3955A>G 3956T>C), AGT214AGC (3959T>C), AGA215AAG (3961G>A 3962A>G), AAG217AAA (3968G>A), AGA218AAG (3970G>A 3971A>G), TCC220TCT (3977C>T), AAA221AAG (3980A>G), GGG222GGA (3983G>A), AGT223GGC (3984A>G 3986T>C), GAG224AAG (3987G>A), GGC227GGA (3998C>A), GTA229GTG (4004A>G), AGA232AGG (4013A>G), CTA234TTG (4017C>T 4019A>G), TAT235TAC (4022T>C), TTA238CTA (4029T>C), TTA246CTG (4053T>C 4055A>G), TGT247TGC (4058T>C), CTA250CTC (4067A>C), ACA258ACC (4091A>C), GTC260GTT (4097C>T), GCG261TCA (4098G>T 4100G>A), ATG262ATT (4103G>T), ACA264ACC (4109A>C), AAT266GAC (4113A>G 4115T>C), GAA267GAT (4118A>T), CCC273CCG (4136C>G), GGT274GAT (4138G>A), CAG275CAA (4142G>A), TTG279CTA (4152T>C 4154G>A), CAC280CAT (4157C>T), CGC283CAC (4165G>A), ATT287ATA (4178T>A), CAC289CAT (4184C>T), CTT290CTC (4187T>C), GTT291GTC (4190T>C), GTA292GTG (4193A>G), AGA299AGG (4214A>G), GAG300GAA (4217G>A), CTG303TTG (4224C>T), GAT304GAC (4229T>C), CTA306TTG (4233C>T 4235A>G), AAG313AAA (4256G>A), TCA314TCT (4259A>T), GTG315GTA (4262G>A), AGT321AGC (4280T>C), CAT322TAT (4281C>T), TTA323TTG (4286A>G), CTT326CTA (4295T>A), AAA332AAG (4313A>G), TAT334TAC (4319T>C), ACC335ACT (4322C>T), ACC340ACT (4337C>T), GAA343GAG (4346A>G), GCC344GCT (4349C>T), GCT346GCC (4355T>C), GTC351GTT (4370C>T), AGA352CGG (4371A>C 4373A>G), AAT355AAC (4382T>C), CCT359CCC (4394T>C), TTA364TTG (4409A>G), AGA365AAA (4411G>A), GTT366GTC (4415T>C), GGG367AGA (4416G>A 4418G>A), GGG368GAG (4420G>A), CAT373CCC (4435A>C 4436T>C), GTA374GTG (4439A>G), AAC375GAC (4440A>G), GGG376GGA (4445G>A), GTA377GTG (4448A>G), TTT378TTC (4451T>C), GGT381GGC (4460T>C), ATA383ATT (4466A>T), TTA384TTG (4469A>G), GGA385GGT (4472A>T), CCT386CCA (4475T>A), GGC388GGG (4481C>G), TTA391CTG (4488T>C 4490A>G), ATC392ATA (4493C>A), TCC398TCT (4511C>T), CTC399CTA (4514C>A), CTC400CTT (4517C>T), CAG401CAA (4520G>A), TTG406CTG (4533T>C), GTA408GAG (4540T>A 4541A>G), TCC409TCT (4544C>T), TCG410TCT (4547G>T), GTT411GTA (4550T>A), CTT414TTA (4557C>T 4559T>A), CAC416CAT (4565C>T), CTG418TTG (4569C>T), GCA419GCG (4574A>G), TCT422TCA (4583T>A), ACC423ACA (4586C>A), GTT424GTC (4589T>C), AAC427GAA (4596A>G 4598C>A), GGT428GGG (4601T>G), GAC429GAT (4604C>T), GAG430GAA (4607G>A), GCT431GCG (4610T>G), CTT439CTC (4634T>C), CCC440CCA (4637C>A), GTG442GTT (4643G>T), GAA444AAA (4647G>A), CGG445CAG (4651G>A), GGA448GGG (4661A>G), TTG451CTT (4668T>C 4670G>T), AAC455AGT (4681A>G 4682C>T), AAG458AAA (4691G>A), GTA460CTC (4695G>C 4697A>C), TTA461CTG (4698T>C 4700A>G), CTG462ATG (4701C>A), AGT463ATT (4705G>T), GGG465GGT (4712G>T), GCC466GGT (4714C>G 4715C>T), ACT468GCG (4719A>G 4721T>G), GCC469ACA (4722G>A 4724C>A), TTG470CTA (4725T>C 4727G>A), ATG471GTT (4728A>G 4730G>T), TTG472CTG (4731T>C), ATT474ATC (4739T>C), TTC475TGC (4741T>G), CTG476TCA (4743C>T 4744T>C 4745G>A), ACA478GCA (4749A>G), TGG480TGT (4757G>T), AGA481AGG (4760A>G), GTC483ACC (4764G>A 4765T>C), AAT484AAG (4769T>G), TCG486ACA (4773T>A 4775G>A), GAA487GAG (4778A>G), CCT488TCA (4779C>T 4781T>A), ACA489AGA (4783C>G), CAA490AGA (4785C>A 4786A>G), CAC491CGA (4789A>G 4790C>A), AAT492GGC (4791A>G 4792A>G 4793T>C), CTC493TCT (4794C>T 4795T>C 4796C>T), AGA494GGA (4797A>G), GGG495GAG (4801G>A), ACA496TTA (4803A>T 4804C>T), AGG498AAA (4810G>A 4811G>A), GAG499AAG (4812G>A), GTG500GTA (4817G>A), TCA501ACG (4818T>A 4820A>G), GTC502GCA (4822T>C 4823C>A), ACT503ACC (4826T>C), CAA505CAG (4832A>G), AGC506ACT (4834G>C 4835C>T), GGG507AGG (4836G>A), AAG508AAA (4841G>A), ATC509GTC (4842A>G), ATA510GTA (4845A>G), GAA514GAG (4859A>G), TCA515TTG (4861C>T 4862A>G), AGC518AGT (4871C>T), GGG519GAA (4873G>A 4874G>A), GGT520GGC (4877T>C), GAG521GAT (4880G>T), ACC522GCC (4881A>G), GGA523AGG (4884G>A 4886A>G)							
L protein (NP_056797.1)	1	2143	100%	13951	93.5%	2143 (100%)	1988 (92.8%)	0/0/0/0	3

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	**1**	**11932**	**100%**	**14365**	**60.4%**	**11921 (99.9%)**	**9566 (80.2%)**	**1/11**	

Protein mutations:	L2I (5421C>A 5423C>T), Y8F (5440A>T), L17S (5467T>C 5468A>G), P21S (5478C>T 5480C>G), T24N (5488C>A 5489C>T), V27I (5496G>A), P46S (5553C>T 5555T>G), R48K (5560G>A), Y61L (5598T>C 5599A>T 5600T>C), F73Y (5635T>A), R74K (5638G>A 5639A>G), L88I (5679C>A), M93A (5694A>G 5695T>C 5696G>T), H107Y (5736C>T 5738C>T), R115K (5761G>A 5762A>G), H122Q (5783T>G), S128A (5799T>G), L136C (5823C>T 5824T>G), G139E (5833G>A 5834A>G), P147T (5856C>A), N161K (5900T>A), T170I (5926C>T 5927G>A), I180M (5957C>G), V205I (6030G>A 6032G>T), I207V (6036A>G 6038C>T), K209R (6043A>G), Q217K (6066C>A), N235G (6120A>G 6121A>G), L257I (6186T>A), V259I (6192G>A 6194C>T), Q285H (6272A>C), M289V (6282A>G), K315R (6361A>G), V328A (6400T>C), K331R (6409A>G), S335G (6420A>G), E339G (6433A>G 6434G>A), S343P (6444T>C 6446C>T), C344S (6447T>A), R346K (6454G>A 6455A>G), R350K (6466G>A), F428L (6699T>C 6701C>T), A430S (6705G>T 6707C>A), R489K (6883G>A), R672W (7431C>T), A681M (7458G>A 7459C>T), N683G (7464A>G 7465A>G), I717T (7567T>C), V724I (7587G>A), Q745R (7650C>A 7651A>G), F760L (7695T>C 7697T>C), V766I (7713G>A), V815I (7860G>A), A879V (8053C>T 8054T>A), E882D (8063G>C), S883N (8065G>A), H933N (8214C>A 8216C>T), R970K (8326G>A), T1018K (8470C>A), K1059R (8593A>G), K1063R (8605A>G), S1078N (8650G>A 8651T>C), G1089R (8682G>A), P1092T (8691C>A 8693T>C), T1133S (8814A>T 8816T>C), A1136V (8824C>T 8825A>G), G1139R (8832G>A 8834A>G), V1144I (8847G>A 8849T>A), C1158S (8890G>C 8891C>A), T1159R (8892A>C 8893C>G 8894G>A), D1206N (9033G>A 9035T>C), I1214V (9057A>G), V1218I (9069G>A 9071G>A), S1255A (9180T>G 9182T>C), Q1276H (9245A>T), K1279R (9253A>G 9254G>A), R1302K (9322G>A), R1307K (9337G>A 9338A>G), Q1316R (9364A>G), N1318D (9369A>G), R1319K (9373G>A), V1321I (9378G>A 9380G>A), V1327I (9396G>A 9398G>T), I1334V (9417A>G), E1336D (9425G>T), K1342R (9442A>G), Q1356R (9484A>G 9485G>A), R1357K (9487G>A 9488G>A), R1374K (9538G>A), H1378R (9550A>G), F1476L (9843T>C), E1478G (9850A>G), I1487V (9876A>G 9878C>T), K1496R (9904A>G), V1516A (9964T>C 9965A>G), D1524E (9989C>A), A1535S (10020G>T 10022C>T), R1556K (10084G>A), N1557S (10087A>G 10088C>T), S1561G (10098A>G), D1564T (10107G>A 10108A>C 10109T>C), L1569M (10122T>A), D1589E (10184C>A), N1590D (10185A>G), T1617V (10266A>G 10267C>T 10268T>A), D1619C (10272G>T 10273A>G), N1623S (10285A>G), K1625R (10291A>G), V1626M (10293G>A), V1630A (10306T>C 10307A>C), V1653A (10375T>C), A1660T (10395G>A 10397C>T), K1663R (10405A>G 10406G>A), F1665L (10410T>C 10412C>T), R1749S (10664G>C), N1752D (10671A>G), V1755I (10680G>A), A1775T (10740G>A 10742T>A), K1778R (10750A>G 10751A>G), K1785E (10770A>G), Y1825D (10890T>G), N1839D (10932A>G), S1852V (10971T>G 10972C>T 10973G>A), T1889A (11082A>G 11084C>T), A1966S (11313G>T 11315T>C), V1974I (11337G>A 11339T>C), R2039M (11533G>T 11534A>G), I2043V (11544A>G), L2044R (11548T>G 11549A>G), V2047T (11556G>A 11557T>C), N2055D (11580A>G 11582C>T), T2057A (11586A>G), S2058A (11589T>G), V2089R (11682G>A 11683T>G 11684T>A), K2093E (11694A>G), G2097K (11706G>A 11707G>A 11708A>G), R2101K (11719G>A 11720A>G), H2104R (11728A>G 11729T>A), E2113K (11754G>A 11756G>A), N2114D (11757A>G 11759T>C), C2128* (11800G>A 11801C>A), I2129T (11803T>C 11804C>T), G2130K (11805G>A 11806G>A 11807A>G), Y2131C (11809A>G), S2132P (11811T>C), W2133* (11816G>A), K2134* (11817A>T), P2135N (11820C>A 11821C>A), A2136I (11823G>A 11824C>T 11825C>T), H2137Q (11828T>G), A2138T (11829G>A), K2139E (11832A>G), L2141H (11839T>A), V2142G (11842T>G 11843G>A), *2143W (11846A>G)

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	1	11932	100%	14365	60.4%	11921 (99.9%)	9566 (80.2%)	1/11	

Codon mutations:

CTC2ATT (5421C>A 5423C>T), GTC7GTT (5438C>T), TAT8TTT (5440A>T), CCT11CCC (5450T>C), ATT12ATC (5453T>C), GAC13GAT (5456C>T), CCA14CCG (5459A>G), ATC15ATT (5462C>T), TTA17TCG (5467T>C 5468A>G), GAG18GAA (5471G>A), GCT19GCC (5474T>C), GAA20GAG (5477A>G), CCC21TCG (5478C>T 5480C>G), GGA23GGG (5486A>G), ACC24AAT (5488C>A 5489C>T), ACT26ACC (5495T>C), GTC27ATC (5496G>A), AGG32AGA (5513G>A), TCT34TCC (5519T>C), AAT37AAC (5528T>C), TTG42CTG (5541T>C), GAT45GAC (5552T>C), CCT46TCG (5553C>T 5555T>G), GCT47GCC (5558T>C), AGA48AAA (5560G>A), CTA49CTG (5564A>G), TTA51TTG (5570A>G), GAA52GAG (5573A>G), TTA54TTG (5579A>G), ACA56ACG (5585A>G), GGG57GGA (5588G>A), TAT61CTC (5598T>C 5599A>T 5600T>C), CTA65CTG (5612A>G), TCC70TCT (5627C>T), TTC73TAC (5635T>A), AGA74AAG (5638G>A 5639A>G), GTT75GTC (5642T>C), GAT84GAC (5669T>C), GGT86GGA (5675T>A), TCC87TCT (5678C>T), CTC88ATC (5679C>A), AAG89AAA (5684G>A), GGC91GGT (5690C>T), ATG93GCT (5694A>G 5695T>C 5696G>T), GCT94GCC (5699T>C), CAG96CAA (5705G>A), TCA97TCT (5708A>T), ATT99ATC (5714T>C), TCT100TCC (5717T>C), CTC101CTT (5720C>T), TTA103CTG (5724T>C 5726A>G), TAT104TAC (5729T>C), GCC106GCA (5735C>A), CAC107TAT (5736C>T 5738C>T), TCC110TCG (5747C>G), AGG112AGA (5753G>A), CGG114CGA (5759G>A), AGA115AAG (5761G>A 5762A>G), TTG120CTG (5775T>C), CAT122CAG (5783T>G), TAT124TAC (5789T>C), TCG127TCT (5798G>T), TCC128GCC (5799T>G), GAG131GAA (5810G>A), CTG133CTA (5816G>A), TTA134CTA (5817T>C), AAT135AAC (5822T>C), CTC136TGC (5823C>T 5824T>G), ACG137ACA (5828G>A), CTA138CTC (5831A>C), GGA139GAG (5833G>A 5834A>G), ATC145ATT (5852C>T), CCA147ACA (5856C>A), GGA149GGG (5864A>G), GTG150GTC (5867G>C), TTA151CTA (5868T>C), AGT152AGC (5873T>C), TGC153TGT (5876C>T), AAT161AAA (5900T>A), GGA164GGG (5909A>G), AGG165CGG (5910A>C), CTT167TTG (5916C>T 5918T>G), GCC168GCT (5921C>T), ACG170ATA (5926C>T 5927G>A), TAC174TAT (5939C>T), TTG175TTA (5942G>A), TTC177TTT (5948C>T), CAT178CAC (5951T>C), GTA179GTG (5954A>G), ATC180ATG (5957C>G), ACC181ACT (5960C>T), 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*: Inserts / Deletes / Misaligned / Frameshifts

Analysis details

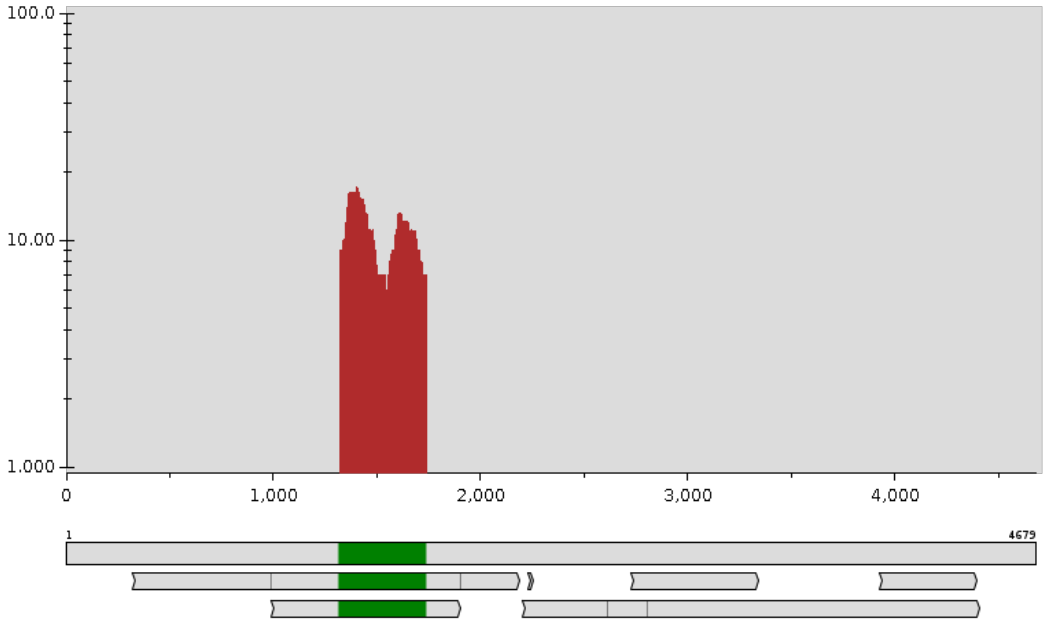
This analysis was performed with Pan-viral (2.14.6)

NGS Details (MG-1-RNASeq021-ZymoSeq): adeno-associated virus 2

Assembly

Coverage Length	425 (1 contig(s))
Depth Of Coverage	10.1
Number Of Reads	42
Reads Per Million	0.21 rpm (after QC)
Ambiguities	0
Assembly Method	de novo + reference guided assembly
Consensus Caller	Bcf Tools

Coverage Map



Assignment

Type	adeno-associated virus 2 (Taxonomy ID: 10804)
Reference Genome	NC_001401.2
NT Identity (%)	64.5238
AA Identity (%)	63.5714
Number Of Stop Codons	4
Number Of CDS	9

Alignment

Alignment Score	212.0 (NT) + 1684.0 (AA) = 1896.0
Concordance (%)	49.6468

Alignment Method	Global, seeded, nucleotide + amino acids (AGA)

Genome Region

Sequence starts at position 1318 and ends at position 1742 relative to NC_001401.2 reference sequence.

Alignment Detailed Statistics

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	**1318**	**1742**	**9.1%**	**212**	**26.2%**	**420 (98.8%)**	**271 (63.8%)**	**0/5**	
Mutations:	1324C>G, 1326G>T, 1331T>A, 1338A>G, 1340G>A, 1341A>G, 1342C>A, 1350G>A, 1352G>A, 1357C>A, 1358C>T, 1361A>T, 1366A>G, 1367C>T, 1368A>G, 1372T>G, 1376C>T, 1382C>T, 1385G>C, 1388C>T, 1390T>G, 1391A>T, 1396G>A, 1400C>A, 1405A>G, 1406G>A, 1407A>G, 1418C>T, 1421C>T, 1430C>G, 1436G>A, 1437A>G, 1438T>A, 1442G>A, 1445C>T, 1460G>T, 1469C>T, 1470G>A, 1471C>A, 1472C>T, 1475G>A, 1478C>T, 1487G>T, 1490C>G, 1499T>A, 1500C>T, 1502C>G, 1506G>A, 1508A>G, 1509A>T, 1510G>C, 1511C>T, 1512A>G, 1513A>C, 1514G>C, 1515G>A, 1517G>C, 1519G>A, 1520C>G, 1523G>T, 1526C>T, 1529G>A, 1534G>A, 1535C>T, 1538G>A, 1539T>G, 1540C>T, 1541C>A, 1544G>T, 1546C>T, 1547C>A, 1549A>C, 1550G>A, 1551A>G, 1552T>C, 1556C>A, 1559G>C, 1562T>A, 1565C>T, 1568G>A, 1572G>A, 1574C>A, 1578delT, 1579C>T, 1580C>G, 1583C>G, 1586C>T, 1587_1589delAAC, 1595C>T, 1596G>T, 1598C>A, 1601G>A, 1602A>G, 1604T>A, 1606A>G, 1607C>T, 1610G>C, 1614T>A, 1615C>G, 1616A>C, 1620delA, 1621C>G, 1625C>T, 1628A>G, 1632C>A, 1635C>G, 1640G>T, 1641T>C, 1643G>T, 1644C>G, 1646A>G, 1649C>G, 1650C>A, 1652G>A, 1658C>T, 1659A>C, 1660A>T, 1661A>G, 1664T>G, 1665G>A, 1666A>G, 1667A>G, 1668C>T, 1670C>T, 1672C>A, 1673C>T, 1674C>A, 1675G>T, 1676C>A, 1677C>A, 1678G>A, 1679T>A, 1680C>T, 1683G>C, 1685T>G, 1688T>A, 1691C>T, 1697G>A, 1703C>A, 1704A>T, 1706C>T, 1709G>A, 1710C>T, 1711A>G, 1716G>A, 1718C>T, 1720A>T, 1721A>G, 1724C>A, 1730C>T, 1732G>A, 1733G>C							

CDS

AAV2gp01	334	474	26.3%	421	41.1%	140 (99.3%)	89 (63.1%)	0/1/2/2	1
Protein mutations:	P335R (1324C>G), A336S (1326G>T), K340E (1338A>G 1340G>A), T341D (1341A>G 1342C>A), A344T (1350G>A 1352G>A), A346D (1357C>A 1358C>T), H349R (1366A>G 1367C>T), T350A (1368A>G), V351G (1372T>G), V357G (1390T>G 1391A>T), W359* (1396G>A), E362G (1405A>G 1406G>A), N363D (1407A>G), M373E (1437A>G 1438T>A), A384N (1470G>A 1471C>A 1472C>T), G396R (1506G>A 1508A>G), K398A (1512A>G 1513A>C 1514G>C), V399I (1515G>A 1517G>C), R400Q (1519G>A 1520C>G), C405Y (1534G>A 1535C>T), S407V (1539T>G 1540C>T 1541C>A), A409V (1546C>T 1547C>A), Q410P (1549A>C 1550G>A), I411A (1551A>G 1552T>C), D412E (1556C>A), V418I (1572G>A 1574C>A), N421K (1583C>G), N423del (1587_1589delAAC), A426S (1596G>T 1598C>A), I428V (1602A>G 1604T>A), D429G (1606A>G 1607C>T), Q438K (1632C>A), Q439E (1635C>G), Q442E (1644C>G 1646A>G), D443E (1649C>G), K447L (1659A>C 1660A>T 1661A>G), F448L (1664T>G), E449R (1665G>A 1666A>G 1667A>G), L450F (1668C>T 1670C>T), T451N (1672C>A 1673C>T), R452I (1674C>A 1675G>T 1676C>A), R453K (1677C>A 1678G>A 1679T>A), D455Q (1683G>C 1685T>G), H456Q (1688T>A), T462S (1704A>T 1706C>T), Q464W (1710C>T 1711A>G), V466I (1716G>A 1718C>T), K467M (1720A>T 1721A>G), D468E (1724C>A), R471H (1732G>A 1733G>C)								
Codon mutations:	CCT335CGT (1324C>G), GCA336TCA (1326G>T), ACT337ACA (1331T>A), AAG340GAA (1338A>G 1340G>A), ACC341GAC (1341A>G 1342C>A), GCG344ACA (1350G>A 1352G>A), GCC346GAT (1357C>A 1358C>T), ATA347ATT (1361A>T), CAC349CGT (1366A>G 1367C>T), ACT350GCT (1368A>G), GTG351GGG (1372T>G), CCC352CCT (1376C>T), TAC354TAT (1382C>T), GGG355GGC (1385G>C), TGC356TGT (1388C>T), GTA357GGT (1390T>G 1391A>T), TGG359TAG (1396G>A), ACC360ACA (1400C>A), GAG362GGA (1405A>G 1406G>A), AAC363GAC (1407A>G), TTC366TTT (1418C>T), AAC367AAT (1421C>T), GTC370GTG (1430C>G), AAG372AAA (1436G>A), ATG373GAG (1437A>G 1438T>A), GTG374GTA (1442G>A), ATC375ATT (1445C>T), GGG380GGT (1460G>T), ACC383ACT (1469C>T), GCC384AAT (1470G>A 1471C>A 1472C>T), AAG385AAA (1475G>A), GTC386GTT (1478C>T), TCG389TCT (1487G>T), GCC390GCG (1490C>G), ATT393ATA (1499T>A), CTC394TTG (1500C>T 1502C>G), GGA396AGG (1506G>A 1508A>G), AGC397TCT (1509A>T 1510G>C 1511C>T), AAG398GCC (1512A>G 1513A>C 1514G>C), GTG399ATC (1515G>A 1517G>C), CGC400CAG (1519G>A 1520C>G), GTG401GTT (1523G>T), GAC402GAT (1526C>T), CAG403CAA (1529G>A), TGC405TAT (1534G>A 1535C>T), AAG406AAA (1538G>A), TCC407GTA (1539T>G 1540C>T 1541C>A), TCG408TCT (1544G>T), GCC409GTA (1546C>T 1547C>A), CAG410CCA (1549A>C 1550G>A), ATA411GCA (1551A>G 1552T>C), GAC412GAA (1556C>A), CCG413CCC (1559G>C), ACT414ACA (1562T>A), CCC415CCT (1565C>T), GTG416GTA (1568G>A), GTC418ATA (1572G>A 1574C>A), TCC420-TG (1578delT 1579C>T 1580C>G), AAC421AAG (1583C>G), ACC422ACT (1586C>T), AAC423del (1587_1589delAAC), TGC425TGT (1595C>T), GCC426TCA (1596G>T 1598C>A), GTG427GTA (1601G>A), ATT428GTA (1602A>G 1604T>A), GAC429GGT (1606A>G 1607C>T), GGG430GGC (1610G>C), TCA432AGC (1614T>A 1615C>G 1616A>C), ACC434-GC (1620delA 1621C>G), TTC435TTT (1625C>T), GAA436GAG (1628A>G), CAG438AAG (1632C>A), CAG439GAG (1635C>G), CCG440CCT (1640G>T), TTG441CTT (1641T>C 1643G>T), CAA442GAG (1644C>G 1646A>G), GAC443GAG (1649C>G), CGG444AGA (1650C>A 1652G>A), TTC446TTT (1658C>T), AAA447CTG (1659A>C 1660A>T 1661A>G), TTT448TTG (1664T>G), GAA449AGG (1665G>A 1666A>G 1667A>G), CTC450TTT (1668C>T 1670C>T), ACC451AAT (1672C>A 1673C>T), CGC452ATA (1674C>A 1675G>T 1676C>A), CGT453AAA (1677C>A 1678G>A 1679T>A), CTG454TTG (1680C>T), GAT455CAG (1683G>C 1685T>G), CAT456CAA (1688T>A), GAC457GAT (1691C>T), GGG459GGA (1697G>A), GTC461GTA (1703C>A), ACC462TCT (1704A>T 1706C>T), AAG463AAA (1709G>A), CAG464TGG (1710C>T 1711A>G), GTC466ATT (1716G>A 1718C>T), AAA467ATG (1720A>T 1721A>G), GAC468GAA (1724C>A), TTC470TTT (1730C>T), CGG471CAC (1732G>A 1733G>C)								
AAV2gp02	334	474	22.7%	421	41.1%	140 (99.3%)	89 (63.1%)	0/1/2/2	1
Protein mutations:	P335R (1324C>G), A336S (1326G>T), K340E (1338A>G 1340G>A), T341D (1341A>G 1342C>A), A344T (1350G>A 1352G>A), A346D (1357C>A 1358C>T), H349R (1366A>G 1367C>T), T350A (1368A>G), V351G (1372T>G), V357G (1390T>G 1391A>T), W359* (1396G>A), E362G (1405A>G 1406G>A), N363D (1407A>G), M373E (1437A>G 1438T>A), A384N (1470G>A 1471C>A 1472C>T), G396R (1506G>A 1508A>G), K398A (1512A>G 1513A>C 1514G>C), V399I (1515G>A 1517G>C), R400Q (1519G>A 1520C>G), C405Y (1534G>A 1535C>T), S407V (1539T>G 1540C>T 1541C>A), A409V (1546C>T 1547C>A), Q410P (1549A>C 1550G>A), I411A (1551A>G 1552T>C), D412E (1556C>A), V418I (1572G>A 1574C>A), N421K (1583C>G), N423del (1587_1589delAAC), A426S (1596G>T 1598C>A), I428V (1602A>G 1604T>A), D429G (1606A>G 1607C>T), Q438K (1632C>A), Q439E (1635C>G), Q442E (1644C>G 1646A>G), D443E (1649C>G), K447L (1659A>C 1660A>T 1661A>G), F448L (1664T>G), E449R (1665G>A 1666A>G 1667A>G), L450F (1668C>T 1670C>T), T451N (1672C>A 1673C>T), R452I (1674C>A 1675G>T 1676C>A), R453K (1677C>A 1678G>A 1679T>A), D455Q (1683G>C 1685T>G), H456Q (1688T>A), T462S (1704A>T 1706C>T), Q464W (1710C>T 1711A>G), V466I (1716G>A 1718C>T), K467M (1720A>T 1721A>G), D468E (1724C>A), R471H (1732G>A 1733G>C)								
Codon mutations:	CCT335CGT (1324C>G), GCA336TCA (1326G>T), ACT337ACA (1331T>A), AAG340GAA (1338A>G 1340G>A), ACC341GAC (1341A>G 1342C>A), GCG344ACA (1350G>A 1352G>A), GCC346GAT (1357C>A 1358C>T), ATA347ATT (1361A>T), CAC349CGT (1366A>G 1367C>T), ACT350GCT (1368A>G), GTG351GGG (1372T>G), CCC352CCT (1376C>T), TAC354TAT (1382C>T), GGG355GGC (1385G>C), TGC356TGT (1388C>T), GTA357GGT (1390T>G 1391A>T), TGG359TAG (1396G>A), ACC360ACA (1400C>A), GAG362GGA (1405A>G 1406G>A), AAC363GAC (1407A>G), TTC366TTT (1418C>T), AAC367AAT (1421C>T), GTC370GTG (1430C>G), AAG372AAA (1436G>A), ATG373GAG (1437A>G 1438T>A), GTG374GTA (1442G>A), ATC375ATT (1445C>T), GGG380GGT (1460G>T), ACC383ACT (1469C>T), GCC384AAT (1470G>A 1471C>A 1472C>T), AAG385AAA (1475G>A), GTC386GTT (1478C>T), TCG389TCT (1487G>T), GCC390GCG (1490C>G), ATT393ATA (1499T>A), CTC394TTG (1500C>T 1502C>G), GGA396AGG (1506G>A 1508A>G), AGC397TCT (1509A>T 1510G>C 1511C>T), AAG398GCC (1512A>G 1513A>C 1514G>C), GTG399ATC (1515G>A 1517G>C), CGC400CAG (1519G>A 1520C>G), GTG401GTT (1523G>T), GAC402GAT (1526C>T), CAG403CAA (1529G>A), TGC405TAT (1534G>A 1535C>T), AAG406AAA (1538G>A), TCC407GTA (1539T>G 1540C>T 1541C>A), TCG408TCT (1544G>T), GCC409GTA (1546C>T 1547C>A), CAG410CCA (1549A>C 1550G>A), ATA411GCA (1551A>G 1552T>C), GAC412GAA (1556C>A), CCG413CCC (1559G>C), ACT414ACA (1562T>A), CCC415CCT (1565C>T), GTG416GTA (1568G>A), GTC418ATA (1572G>A 1574C>A), TCC420-TG (1578delT 1579C>T 1580C>G), AAC421AAG (1583C>G), ACC422ACT (1586C>T), AAC423del (1587_1589delAAC), TGC425TGT (1595C>T), GCC426TCA (1596G>T 1598C>A), GTG427GTA (1601G>A), ATT428GTA (1602A>G 1604T>A), GAC429GGT (1606A>G 1607C>T), GGG430GGC (1610G>C), TCA432AGC (1614T>A 1615C>G 1616A>C), ACC434-GC (1620delA 1621C>G), TTC435TTT (1625C>T), GAA436GAG (1628A>G), CAG438AAG (1632C>A), CAG439GAG (1635C>G), CCG440CCT (1640G>T), TTG441CTT (1641T>C 1643G>T), CAA442GAG (1644C>G 1646A>G), GAC443GAG (1649C>G), CGG444AGA (1650C>A 1652G>A), TTC446TTT (1658C>T), AAA447CTG (1659A>C 1660A>T 1661A>G), TTT448TTG (1664T>G), GAA449AGG (1665G>A 1666A>G 1667A>G), CTC450TTT (1668C>T 1670C>T), ACC451AAT (1672C>A 1673C>T), CGC452ATA (1674C>A 1675G>T 1676C>A), CGT453AAA (1677C>A 1678G>A 1679T>A), CTG454TTG (1680C>T), GAT455CAG (1683G>C 1685T>G), CAT456CAA (1688T>A), GAC457GAT (1691C>T), GGG459GGA (1697G>A), GTC461GTA (1703C>A), ACC462TCT (1704A>T 1706C>T), AAG463AAA (1709G>A), CAG464TGG (1710C>T 1711A>G), GTC466ATT (1716G>A 1718C>T), AAA467ATG (1720A>T 1721A>G), GAC468GAA (1724C>A), TTC470TTT (1730C>T), CGG471CAC (1732G>A 1733G>C)								
AAV2gp03	110	250	45.0%	421	41.1%	140 (99.3%)	89 (63.1%)	0/1/2/2	1
Protein mutations:	P111R (1324C>G), A112S (1326G>T), K116E (1338A>G 1340G>A), T117D (1341A>G 1342C>A), A120T (1350G>A 1352G>A), A122D (1357C>A 1358C>T), H125R (1366A>G 1367C>T), T126A (1368A>G), V127G (1372T>G), V133G (1390T>G 1391A>T), W135* (1396G>A), E138G (1405A>G 1406G>A), N139D (1407A>G), M149E (1437A>G 1438T>A), A160N (1470G>A 1471C>A 1472C>T), G172R (1506G>A 1508A>G), K174A (1512A>G 1513A>C 1514G>C), V175I (1515G>A 1517G>C), R176Q (1519G>A 1520C>G), C181Y (1534G>A 1535C>T), S183V (1539T>G 1540C>T 1541C>A), A185V (1546C>T 1547C>A), Q186P (1549A>C 1550G>A), I187A (1551A>G 1552T>C), D188E (1556C>A), V194I (1572G>A 1574C>A), N197K (1583C>G), N199del (1587_1589delAAC), A202S (1596G>T 1598C>A), I204V (1602A>G 1604T>A), D205G (1606A>G 1607C>T), Q214K (1632C>A), Q215E (1635C>G), Q218E (1644C>G 1646A>G), D219E (1649C>G), K223L (1659A>C 1660A>T 1661A>G), F224L (1664T>G), E225R (1665G>A 1666A>G 1667A>G), L226F (1668C>T 1670C>T), T227N (1672C>A 1673C>T), R228I (1674C>A 1675G>T 1676C>A), R229K (1677C>A 1678G>A 1679T>A), D231Q (1683G>C 1685T>G), H232Q (1688T>A), T238S (1704A>T 1706C>T), Q240W (1710C>T 1711A>G), V242I (1716G>A 1718C>T), K243M (1720A>T 1721A>G), D244E (1724C>A), R247H (1732G>A 1733G>C)								
Codon mutations:	CCT111CGT (1324C>G), GCA112TCA (1326G>T), ACT113ACA (1331T>A), AAG116GAA (1338A>G 1340G>A), ACC117GAC (1341A>G 1342C>A), GCG120ACA (1350G>A 1352G>A), GCC122GAT (1357C>A 1358C>T), ATA123ATT (1361A>T), CAC125CGT (1366A>G 1367C>T), ACT126GCT (1368A>G), GTG127GGG (1372T>G), CCC128CCT (1376C>T), TAC130TAT (1382C>T), GGG131GGC (1385G>C), TGC132TGT (1388C>T), GTA133GGT (1390T>G 1391A>T), TGG135TAG (1396G>A), ACC136ACA (1400C>A), GAG138GGA (1405A>G 1406G>A), AAC139GAC (1407A>G), TTC142TTT (1418C>T), AAC143AAT (1421C>T), GTC146GTG (1430C>G), AAG148AAA (1436G>A), ATG149GAG (1437A>G 1438T>A), GTG150GTA (1442G>A), ATC151ATT (1445C>T), GGG156GGT (1460G>T), ACC159ACT (1469C>T), GCC160AAT (1470G>A 1471C>A 1472C>T), AAG161AAA (1475G>A), GTC162GTT (1478C>T), TCG165TCT (1487G>T), GCC166GCG (1490C>G), ATT169ATA (1499T>A), CTC170TTG (1500C>T 1502C>G), GGA172AGG (1506G>A 1508A>G), AGC173TCT (1509A>T 1510G>C 1511C>T), AAG174GCC (1512A>G 1513A>C 1514G>C), GTG175ATC (1515G>A 1517G>C), CGC176CAG (1519G>A 1520C>G), GTG177GTT (1523G>T), GAC178GAT (1526C>T), CAG179CAA (1529G>A), TGC181TAT (1534G>A 1535C>T), AAG182AAA (1538G>A), TCC183GTA (1539T>G 1540C>T 1541C>A), TCG184TCT (1544G>T), GCC185GTA (1546C>T 1547C>A), CAG186CCA (1549A>C 1550G>A), ATA187GCA (1551A>G 1552T>C), GAC188GAA (1556C>A), CCG189CCC (1559G>C), ACT190ACA (1562T>A), CCC191CCT (1565C>T), GTG192GTA (1568G>A), GTC194ATA (1572G>A 1574C>A), TCC196-TG (1578delT 1579C>T 1580C>G), AAC197AAG (1583C>G), ACC198ACT (1586C>T), AAC199del (1587_1589delAAC), TGC201TGT (1595C>T), GCC202TCA (1596G>T 1598C>A), GTG203GTA (1601G>A), ATT204GTA (1602A>G 1604T>A), GAC205GGT (1606A>G 1607C>T), GGG206GGC (1610G>C), TCA208AGC (1614T>A 1615C>G 1616A>C), ACC210-GC (1620delA 1621C>G), TTC211TTT (1625C>T), GAA212GAG (1628A>G), CAG214AAG (1632C>A), CAG215GAG (1635C>G), CCG216CCT (1640G>T), TTG217CTT (1641T>C 1643G>T), CAA218GAG (1644C>G 1646A>G), GAC219GAG (1649C>G), CGG220AGA (1650C>A 1652G>A), TTC222TTT (1658C>T), AAA223CTG (1659A>C 1660A>T 1661A>G), TTT224TTG (1664T>G), GAA225AGG (1665G>A 1666A>G 1667A>G), CTC226TTT (1668C>T 1670C>T), ACC227AAT (1672C>A 1673C>T), CGC228ATA (1674C>A 1675G>T 1676C>A), CGT229AAA (1677C>A 1678G>A 1679T>A), CTG230TTG (1680C>T), GAT231CAG (1683G>C 1685T>G), CAT232CAA (1688T>A), GAC233GAT (1691C>T), GGG235GGA (1697G>A), GTC237GTA (1703C>A), ACC238TCT (1704A>T 1706C>T), AAG239AAA (1709G>A), CAG240TGG (1710C>T 1711A>G), GTC242ATT (1716G>A 1718C>T), AAA243ATG (1720A>T 1721A>G), GAC244GAA (1724C>A), TTC246TTT (1730C>T), CGG247CAC (1732G>A 1733G>C)								

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	**1318**	**1742**	**9.1%**	**212**	**26.2%**	**420 (98.8%)**	**271 (63.8%)**	**0/5**	
AAV2gp04	110	250	35.4%	421	41.1%	140 (99.3%)	89 (63.1%)	0/1/2/2	1
Protein mutations:	P111R (1324C>G), A112S (1326G>T), K116E (1338A>G 1340G>A), T117D (1341A>G 1342C>A), A120T (1350G>A 1352G>A), A122D (1357C>A 1358C>T), H125R (1366A>G 1367C>T), T126A (1368A>G), V127G (1372T>G), V133G (1390T>G 1391A>T), W135* (1396G>A), E138G (1405A>G 1406G>A), N139D (1407A>G), M149E (1437A>G 1438T>A), A160N (1470G>A 1471C>A 1472C>T), G172R (1506G>A 1508A>G), K174A (1512A>G 1513A>C 1514G>C), V175I (1515G>A 1517G>C), R176Q (1519G>A 1520C>G), C181Y (1534G>A 1535C>T), S183V (1539T>G 1540C>T 1541C>A), A185V (1546C>T 1547C>A), Q186P (1549A>C 1550G>A), I187A (1551A>G 1552T>C), D188E (1556C>A), V194I (1572G>A 1574C>A), N197K (1583C>G), N199del (1587_1589delAAC), A202S (1596G>T 1598C>A), I204V (1602A>G 1604T>A), D205G (1606A>G 1607C>T), Q214K (1632C>A), Q215E (1635C>G), Q218E (1644C>G 1646A>G), D219E (1649C>G), K223L (1659A>C 1660A>T 1661A>G), F224L (1664T>G), E225R (1665G>A 1666A>G 1667A>G), L226F (1668C>T 1670C>T), T227N (1672C>A 1673C>T), R228I (1674C>A 1675G>T 1676C>A), R229K (1677C>A 1678G>A 1679T>A), D231Q (1683G>C 1685T>G), H232Q (1688T>A), T238S (1704A>T 1706C>T), Q240W (1710C>T 1711A>G), V242I (1716G>A 1718C>T), K243M (1720A>T 1721A>G), D244E (1724C>A), R247H (1732G>A 1733G>C)								
Codon mutations:	CCT111CGT (1324C>G), GCA112TCA (1326G>T), ACT113ACA (1331T>A), AAG116GAA (1338A>G 1340G>A), ACC117GAC (1341A>G 1342C>A), GCG120ACA (1350G>A 1352G>A), GCC122GAT (1357C>A 1358C>T), ATA123ATT (1361A>T), CAC125CGT (1366A>G 1367C>T), ACT126GCT (1368A>G), GTG127GGG (1372T>G), CCC128CCT (1376C>T), TAC130TAT (1382C>T), GGG131GGC (1385G>C), TGC132TGT (1388C>T), GTA133GGT (1390T>G 1391A>T), TGG135TAG (1396G>A), ACC136ACA (1400C>A), GAG138GGA (1405A>G 1406G>A), AAC139GAC (1407A>G), TTC142TTT (1418C>T), AAC143AAT (1421C>T), GTC146GTG (1430C>G), AAG148AAA (1436G>A), ATG149GAG (1437A>G 1438T>A), GTG150GTA (1442G>A), ATC151ATT (1445C>T), GGG156GGT (1460G>T), ACC159ACT (1469C>T), GCC160AAT (1470G>A 1471C>A 1472C>T), AAG161AAA (1475G>A), GTC162GTT (1478C>T), TCG165TCT (1487G>T), GCC166GCG (1490C>G), ATT169ATA (1499T>A), CTC170TTG (1500C>T 1502C>G), GGA172AGG (1506G>A 1508A>G), AGC173TCT (1509A>T 1510G>C 1511C>T), AAG174GCC (1512A>G 1513A>C 1514G>C), GTG175ATC (1515G>A 1517G>C), CGC176CAG (1519G>A 1520C>G), GTG177GTT (1523G>T), GAC178GAT (1526C>T), CAG179CAA (1529G>A), TGC181TAT (1534G>A 1535C>T), AAG182AAA (1538G>A), TCC183GTA (1539T>G 1540C>T 1541C>A), TCG184TCT (1544G>T), GCC185GTA (1546C>T 1547C>A), CAG186CCA (1549A>C 1550G>A), ATA187GCA (1551A>G 1552T>C), GAC188GAA (1556C>A), CCG189CCC (1559G>C), ACT190ACA (1562T>A), CCC191CCT (1565C>T), GTG192GTA (1568G>A), GTC194ATA (1572G>A 1574C>A), TCC196-TG (1578delT 1579C>T 1580C>G), AAC197AAG (1583C>G), ACC198ACT (1586C>T), AAC199del (1587_1589delAAC), TGC201TGT (1595C>T), GCC202TCA (1596G>T 1598C>A), GTG203GTA (1601G>A), ATT204GTA (1602A>G 1604T>A), GAC205GGT (1606A>G 1607C>T), GGG206GGC (1610G>C), TCA208AGC (1614T>A 1615C>G 1616A>C), ACC210-GC (1620delA 1621C>G), TTC211TTT (1625C>T), GAA212GAG (1628A>G), CAG214AAG (1632C>A), CAG215GAG (1635C>G), CCG216CCT (1640G>T), TTG217CTT (1641T>C 1643G>T), CAA218GAG (1644C>G 1646A>G), GAC219GAG (1649C>G), CGG220AGA (1650C>A 1652G>A), TTC222TTT (1658C>T), AAA223CTG (1659A>C 1660A>T 1661A>G), TTT224TTG (1664T>G), GAA225AGG (1665G>A 1666A>G 1667A>G), CTC226TTT (1668C>T 1670C>T), ACC227AAT (1672C>A 1673C>T), CGC228ATA (1674C>A 1675G>T 1676C>A), CGT229AAA (1677C>A 1678G>A 1679T>A), CTG230TTG (1680C>T), GAT231CAG (1683G>C 1685T>G), CAT232CAA (1688T>A), GAC233GAT (1691C>T), GGG235GGA (1697G>A), GTC237GTA (1703C>A), ACC238TCT (1704A>T 1706C>T), AAG239AAA (1709G>A), CAG240TGG (1710C>T 1711A>G), GTC242ATT (1716G>A 1718C>T), AAA243ATG (1720A>T 1721A>G), GAC244GAA (1724C>A), TTC246TTT (1730C>T), CGG247CAC (1732G>A 1733G>C)								
Proteins									
Rep 68 protein (YP_680422.1)	334	474	26.3%	421	41.1%	140 (99.3%)	89 (63.1%)	0/1/2/2	1
Protein mutations:	P335R (1324C>G), A336S (1326G>T), K340E (1338A>G 1340G>A), T341D (1341A>G 1342C>A), A344T (1350G>A 1352G>A), A346D (1357C>A 1358C>T), H349R (1366A>G 1367C>T), T350A (1368A>G), V351G (1372T>G), V357G (1390T>G 1391A>T), W359* (1396G>A), E362G (1405A>G 1406G>A), N363D (1407A>G), M373E (1437A>G 1438T>A), A384N (1470G>A 1471C>A 1472C>T), G396R (1506G>A 1508A>G), K398A (1512A>G 1513A>C 1514G>C), V399I (1515G>A 1517G>C), R400Q (1519G>A 1520C>G), C405Y (1534G>A 1535C>T), S407V (1539T>G 1540C>T 1541C>A), A409V (1546C>T 1547C>A), Q410P (1549A>C 1550G>A), I411A (1551A>G 1552T>C), D412E (1556C>A), V418I (1572G>A 1574C>A), N421K (1583C>G), N423del (1587_1589delAAC), A426S (1596G>T 1598C>A), I428V (1602A>G 1604T>A), D429G (1606A>G 1607C>T), Q438K (1632C>A), Q439E (1635C>G), Q442E (1644C>G 1646A>G), D443E (1649C>G), K447L (1659A>C 1660A>T 1661A>G), F448L (1664T>G), E449R (1665G>A 1666A>G 1667A>G), L450F (1668C>T 1670C>T), T451N (1672C>A 1673C>T), R452I (1674C>A 1675G>T 1676C>A), R453K (1677C>A 1678G>A 1679T>A), D455Q (1683G>C 1685T>G), H456Q (1688T>A), T462S (1704A>T 1706C>T), Q464W (1710C>T 1711A>G), V466I (1716G>A 1718C>T), K467M (1720A>T 1721A>G), D468E (1724C>A), R471H (1732G>A 1733G>C)								
Codon mutations:	CCT335CGT (1324C>G), GCA336TCA (1326G>T), ACT337ACA (1331T>A), AAG340GAA (1338A>G 1340G>A), ACC341GAC (1341A>G 1342C>A), GCG344ACA (1350G>A 1352G>A), GCC346GAT (1357C>A 1358C>T), ATA347ATT (1361A>T), CAC349CGT (1366A>G 1367C>T), ACT350GCT (1368A>G), GTG351GGG (1372T>G), CCC352CCT (1376C>T), TAC354TAT (1382C>T), GGG355GGC (1385G>C), TGC356TGT (1388C>T), GTA357GGT (1390T>G 1391A>T), TGG359TAG (1396G>A), ACC360ACA (1400C>A), GAG362GGA (1405A>G 1406G>A), AAC363GAC (1407A>G), TTC366TTT (1418C>T), AAC367AAT (1421C>T), GTC370GTG (1430C>G), AAG372AAA (1436G>A), ATG373GAG (1437A>G 1438T>A), GTG374GTA (1442G>A), ATC375ATT (1445C>T), GGG380GGT (1460G>T), ACC383ACT (1469C>T), GCC384AAT (1470G>A 1471C>A 1472C>T), AAG385AAA (1475G>A), GTC386GTT (1478C>T), TCG389TCT (1487G>T), GCC390GCG (1490C>G), ATT393ATA (1499T>A), CTC394TTG (1500C>T 1502C>G), GGA396AGG (1506G>A 1508A>G), AGC397TCT (1509A>T 1510G>C 1511C>T), AAG398GCC (1512A>G 1513A>C 1514G>C), GTG399ATC (1515G>A 1517G>C), CGC400CAG (1519G>A 1520C>G), GTG401GTT (1523G>T), GAC402GAT (1526C>T), CAG403CAA (1529G>A), TGC405TAT (1534G>A 1535C>T), AAG406AAA (1538G>A), TCC407GTA (1539T>G 1540C>T 1541C>A), TCG408TCT (1544G>T), GCC409GTA (1546C>T 1547C>A), CAG410CCA (1549A>C 1550G>A), ATA411GCA (1551A>G 1552T>C), GAC412GAA (1556C>A), CCG413CCC (1559G>C), ACT414ACA (1562T>A), CCC415CCT (1565C>T), GTG416GTA (1568G>A), GTC418ATA (1572G>A 1574C>A), TCC420-TG (1578delT 1579C>T 1580C>G), AAC421AAG (1583C>G), ACC422ACT (1586C>T), AAC423del (1587_1589delAAC), TGC425TGT (1595C>T), GCC426TCA (1596G>T 1598C>A), GTG427GTA (1601G>A), ATT428GTA (1602A>G 1604T>A), GAC429GGT (1606A>G 1607C>T), GGG430GGC (1610G>C), TCA432AGC (1614T>A 1615C>G 1616A>C), ACC434-GC (1620delA 1621C>G), TTC435TTT (1625C>T), GAA436GAG (1628A>G), CAG438AAG (1632C>A), CAG439GAG (1635C>G), CCG440CCT (1640G>T), TTG441CTT (1641T>C 1643G>T), CAA442GAG (1644C>G 1646A>G), GAC443GAG (1649C>G), CGG444AGA (1650C>A 1652G>A), TTC446TTT (1658C>T), AAA447CTG (1659A>C 1660A>T 1661A>G), TTT448TTG (1664T>G), GAA449AGG (1665G>A 1666A>G 1667A>G), CTC450TTT (1668C>T 1670C>T), ACC451AAT (1672C>A 1673C>T), CGC452ATA (1674C>A 1675G>T 1676C>A), CGT453AAA (1677C>A 1678G>A 1679T>A), CTG454TTG (1680C>T), GAT455CAG (1683G>C 1685T>G), CAT456CAA (1688T>A), GAC457GAT (1691C>T), GGG459GGA (1697G>A), GTC461GTA (1703C>A), ACC462TCT (1704A>T 1706C>T), AAG463AAA (1709G>A), CAG464TGG (1710C>T 1711A>G), GTC466ATT (1716G>A 1718C>T), AAA467ATG (1720A>T 1721A>G), GAC468GAA (1724C>A), TTC470TTT (1730C>T), CGG471CAC (1732G>A 1733G>C)								
Rep 78 protein (YP_680423.1)	334	474	22.7%	421	41.1%	140 (99.3%)	89 (63.1%)	0/1/2/2	1
Protein mutations:	P335R (1324C>G), A336S (1326G>T), K340E (1338A>G 1340G>A), T341D (1341A>G 1342C>A), A344T (1350G>A 1352G>A), A346D (1357C>A 1358C>T), H349R (1366A>G 1367C>T), T350A (1368A>G), V351G (1372T>G), V357G (1390T>G 1391A>T), W359* (1396G>A), E362G (1405A>G 1406G>A), N363D (1407A>G), M373E (1437A>G 1438T>A), A384N (1470G>A 1471C>A 1472C>T), G396R (1506G>A 1508A>G), K398A (1512A>G 1513A>C 1514G>C), V399I (1515G>A 1517G>C), R400Q (1519G>A 1520C>G), C405Y (1534G>A 1535C>T), S407V (1539T>G 1540C>T 1541C>A), A409V (1546C>T 1547C>A), Q410P (1549A>C 1550G>A), I411A (1551A>G 1552T>C), D412E (1556C>A), V418I (1572G>A 1574C>A), N421K (1583C>G), N423del (1587_1589delAAC), A426S (1596G>T 1598C>A), I428V (1602A>G 1604T>A), D429G (1606A>G 1607C>T), Q438K (1632C>A), Q439E (1635C>G), Q442E (1644C>G 1646A>G), D443E (1649C>G), K447L (1659A>C 1660A>T 1661A>G), F448L (1664T>G), E449R (1665G>A 1666A>G 1667A>G), L450F (1668C>T 1670C>T), T451N (1672C>A 1673C>T), R452I (1674C>A 1675G>T 1676C>A), R453K (1677C>A 1678G>A 1679T>A), D455Q (1683G>C 1685T>G), H456Q (1688T>A), T462S (1704A>T 1706C>T), Q464W (1710C>T 1711A>G), V466I (1716G>A 1718C>T), K467M (1720A>T 1721A>G), D468E (1724C>A), R471H (1732G>A 1733G>C)								
Codon mutations:	CCT335CGT (1324C>G), GCA336TCA (1326G>T), ACT337ACA (1331T>A), AAG340GAA (1338A>G 1340G>A), ACC341GAC (1341A>G 1342C>A), GCG344ACA (1350G>A 1352G>A), GCC346GAT (1357C>A 1358C>T), ATA347ATT (1361A>T), CAC349CGT (1366A>G 1367C>T), ACT350GCT (1368A>G), GTG351GGG (1372T>G), CCC352CCT (1376C>T), TAC354TAT (1382C>T), GGG355GGC (1385G>C), TGC356TGT (1388C>T), GTA357GGT (1390T>G 1391A>T), TGG359TAG (1396G>A), ACC360ACA (1400C>A), GAG362GGA (1405A>G 1406G>A), AAC363GAC (1407A>G), TTC366TTT (1418C>T), AAC367AAT (1421C>T), GTC370GTG (1430C>G), AAG372AAA (1436G>A), ATG373GAG (1437A>G 1438T>A), GTG374GTA (1442G>A), ATC375ATT (1445C>T), GGG380GGT (1460G>T), ACC383ACT (1469C>T), GCC384AAT (1470G>A 1471C>A 1472C>T), AAG385AAA (1475G>A), GTC386GTT (1478C>T), TCG389TCT (1487G>T), GCC390GCG (1490C>G), ATT393ATA (1499T>A), CTC394TTG (1500C>T 1502C>G), GGA396AGG (1506G>A 1508A>G), AGC397TCT (1509A>T 1510G>C 1511C>T), AAG398GCC (1512A>G 1513A>C 1514G>C), GTG399ATC (1515G>A 1517G>C), CGC400CAG (1519G>A 1520C>G), GTG401GTT (1523G>T), GAC402GAT (1526C>T), CAG403CAA (1529G>A), TGC405TAT (1534G>A 1535C>T), AAG406AAA (1538G>A), TCC407GTA (1539T>G 1540C>T 1541C>A), TCG408TCT (1544G>T), GCC409GTA (1546C>T 1547C>A), CAG410CCA (1549A>C 1550G>A), ATA411GCA (1551A>G 1552T>C), GAC412GAA (1556C>A), CCG413CCC (1559G>C), ACT414ACA (1562T>A), CCC415CCT (1565C>T), GTG416GTA (1568G>A), GTC418ATA (1572G>A 1574C>A), TCC420-TG (1578delT 1579C>T 1580C>G), AAC421AAG (1583C>G), ACC422ACT (1586C>T), AAC423del (1587_1589delAAC), TGC425TGT (1595C>T), GCC426TCA (1596G>T 1598C>A), GTG427GTA (1601G>A), ATT428GTA (1602A>G 1604T>A), GAC429GGT (1606A>G 1607C>T), GGG430GGC (1610G>C), TCA432AGC (1614T>A 1615C>G 1616A>C), ACC434-GC (1620delA 1621C>G), TTC435TTT (1625C>T), GAA436GAG (1628A>G), CAG438AAG (1632C>A), CAG439GAG (1635C>G), CCG440CCT (1640G>T), TTG441CTT (1641T>C 1643G>T), CAA442GAG (1644C>G 1646A>G), GAC443GAG (1649C>G), CGG444AGA (1650C>A 1652G>A), TTC446TTT (1658C>T), AAA447CTG (1659A>C 1660A>T 1661A>G), TTT448TTG (1664T>G), GAA449AGG (1665G>A 1666A>G 1667A>G), CTC450TTT (1668C>T 1670C>T), ACC451AAT (1672C>A 1673C>T), CGC452ATA (1674C>A 1675G>T 1676C>A), CGT453AAA (1677C>A 1678G>A 1679T>A), CTG454TTG (1680C>T), GAT455CAG (1683G>C 1685T>G), CAT456CAA (1688T>A), GAC457GAT (1691C>T), GGG459GGA (1697G>A), GTC461GTA (1703C>A), ACC462TCT (1704A>T 1706C>T), AAG463AAA (1709G>A), CAG464TGG (1710C>T 1711A>G), GTC466ATT (1716G>A 1718C>T), AAA467ATG (1720A>T 1721A>G), GAC468GAA (1724C>A), TTC470TTT (1730C>T), CGG471CAC (1732G>A 1733G>C)								
Rep 40 protein (YP_680424.1)	110	250	45.0%	421	41.1%	140 (99.3%)	89 (63.1%)	0/1/2/2	1
Protein mutations:	P111R (1324C>G), A112S (1326G>T), K116E (1338A>G 1340G>A), T117D (1341A>G 1342C>A), A120T (1350G>A 1352G>A), A122D (1357C>A 1358C>T), H125R (1366A>G 1367C>T), T126A (1368A>G), V127G (1372T>G), V133G (1390T>G 1391A>T), W135* (1396G>A), E138G (1405A>G 1406G>A), N139D (1407A>G), M149E (1437A>G 1438T>A), A160N (1470G>A 1471C>A 1472C>T), G172R (1506G>A 1508A>G), K174A (1512A>G 1513A>C 1514G>C), V175I (1515G>A 1517G>C), R176Q (1519G>A 1520C>G), C181Y (1534G>A 1535C>T), S183V (1539T>G 1540C>T 1541C>A), A185V (1546C>T 1547C>A), Q186P (1549A>C 1550G>A), I187A (1551A>G 1552T>C), D188E (1556C>A), V194I (1572G>A 1574C>A), N197K (1583C>G), N199del (1587_1589delAAC), A202S (1596G>T 1598C>A), I204V (1602A>G 1604T>A), D205G (1606A>G 1607C>T), Q214K (1632C>A), Q215E (1635C>G), Q218E (1644C>G 1646A>G), D219E (1649C>G), K223L (1659A>C 1660A>T 1661A>G), F224L (1664T>G), E225R (1665G>A 1666A>G 1667A>G), L226F (1668C>T 1670C>T), T227N (1672C>A 1673C>T), R228I (1674C>A 1675G>T 1676C>A), R229K (1677C>A 1678G>A 1679T>A), D231Q (1683G>C 1685T>G), H232Q (1688T>A), T238S (1704A>T 1706C>T), Q240W (1710C>T 1711A>G), V242I (1716G>A 1718C>T), K243M (1720A>T 1721A>G), D244E (1724C>A), R247H (1732G>A 1733G>C)								

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	**1318**	**1742**	**9.1%**	**212**	**26.2%**	**420 (98.8%)**	**271 (63.8%)**	**0/5**	
Codon mutations:	CCT111CGT (1324C>G), GCA112TCA (1326G>T), ACT113ACA (1331T>A), AAG116GAA (1338A>G 1340G>A), ACC117GAC (1341A>G 1342C>A), GCG120ACA (1350G>A 1352G>A), GCC122GAT (1357C>A 1358C>T), ATA123ATT (1361A>T), CAC125CGT (1366A>G 1367C>T), ACT126GCT (1368A>G), GTG127GGG (1372T>G), CCC128CCT (1376C>T), TAC130TAT (1382C>T), GGG131GGC (1385G>C), TGC132TGT (1388C>T), GTA133GGT (1390T>G 1391A>T), TGG135TAG (1396G>A), ACC136ACA (1400C>A), GAG138GGA (1405A>G 1406G>A), AAC139GAC (1407A>G), TTC142TTT (1418C>T), AAC143AAT (1421C>T), GTC146GTG (1430C>G), AAG148AAA (1436G>A), ATG149GAG (1437A>G 1438T>A), GTG150GTA (1442G>A), ATC151ATT (1445C>T), GGG156GGT (1460G>T), ACC159ACT (1469C>T), GCC160AAT (1470G>A 1471C>A 1472C>T), AAG161AAA (1475G>A), GTC162GTT (1478C>T), TCG165TCT (1487G>T), GCC166GCG (1490C>G), ATT169ATA (1499T>A), CTC170TTG (1500C>T 1502C>G), GGA172AGG (1506G>A 1508A>G), AGC173TCT (1509A>T 1510G>C 1511C>T), AAG174GCC (1512A>G 1513A>C 1514G>C), GTG175ATC (1515G>A 1517G>C), CGC176CAG (1519G>A 1520C>G), GTG177GTT (1523G>T), GAC178GAT (1526C>T), CAG179CAA (1529G>A), TGC181TAT (1534G>A 1535C>T), AAG182AAA (1538G>A), TCC183GTA (1539T>G 1540C>T 1541C>A), TCG184TCT (1544G>T), GCC185GTA (1546C>T 1547C>A), CAG186CCA (1549A>C 1550G>A), ATA187GCA (1551A>G 1552T>C), GAC188GAA (1556C>A), CCG189CCC (1559G>C), ACT190ACA (1562T>A), CCC191CCT (1565C>T), GTG192GTA (1568G>A), GTC194ATA (1572G>A 1574C>A), TCC196-TG (1578delT 1579C>T 1580C>G), AAC197AAG (1583C>G), ACC198ACT (1586C>T), AAC199del (1587_1589delAAC), TGC201TGT (1595C>T), GCC202TCA (1596G>T 1598C>A), GTG203GTA (1601G>A), ATT204GTA (1602A>G 1604T>A), GAC205GGT (1606A>G 1607C>T), GGG206GGC (1610G>C), TCA208AGC (1614T>A 1615C>G 1616A>C), ACC210-GC (1620delA 1621C>G), TTC211TTT (1625C>T), GAA212GAG (1628A>G), CAG214AAG (1632C>A), CAG215GAG (1635C>G), CCG216CCT (1640G>T), TTG217CTT (1641T>C 1643G>T), CAA218GAG (1644C>G 1646A>G), GAC219GAG (1649C>G), CGG220AGA (1650C>A 1652G>A), TTC222TTT (1658C>T), AAA223CTG (1659A>C 1660A>T 1661A>G), TTT224TTG (1664T>G), GAA225AGG (1665G>A 1666A>G 1667A>G), CTC226TTT (1668C>T 1670C>T), ACC227AAT (1672C>A 1673C>T), CGC228ATA (1674C>A 1675G>T 1676C>A), CGT229AAA (1677C>A 1678G>A 1679T>A), CTG230TTG (1680C>T), GAT231CAG (1683G>C 1685T>G), CAT232CAA (1688T>A), GAC233GAT (1691C>T), GGG235GGA (1697G>A), GTC237GTA (1703C>A), ACC238TCT (1704A>T 1706C>T), AAG239AAA (1709G>A), CAG240TGG (1710C>T 1711A>G), GTC242ATT (1716G>A 1718C>T), AAA243ATG (1720A>T 1721A>G), GAC244GAA (1724C>A), TTC246TTT (1730C>T), CGG247CAC (1732G>A 1733G>C)							
Rep 52 protein (YP_680425.1)	110	250	35.4%	421	41.1%	140 (99.3%)	89 (63.1%)	0/1/2/2	1
Protein mutations:	P111R (1324C>G), A112S (1326G>T), K116E (1338A>G 1340G>A), T117D (1341A>G 1342C>A), A120T (1350G>A 1352G>A), A122D (1357C>A 1358C>T), H125R (1366A>G 1367C>T), T126A (1368A>G), V127G (1372T>G), V133G (1390T>G 1391A>T), W135* (1396G>A), E138G (1405A>G 1406G>A), N139D (1407A>G), M149E (1437A>G 1438T>A), A160N (1470G>A 1471C>A 1472C>T), G172R (1506G>A 1508A>G), K174A (1512A>G 1513A>C 1514G>C), V175I (1515G>A 1517G>C), R176Q (1519G>A 1520C>G), C181Y (1534G>A 1535C>T), S183V (1539T>G 1540C>T 1541C>A), A185V (1546C>T 1547C>A), Q186P (1549A>C 1550G>A), I187A (1551A>G 1552T>C), D188E (1556C>A), V194I (1572G>A 1574C>A), N197K (1583C>G), N199del (1587_1589delAAC), A202S (1596G>T 1598C>A), I204V (1602A>G 1604T>A), D205G (1606A>G 1607C>T), Q214K (1632C>A), Q215E (1635C>G), Q218E (1644C>G 1646A>G), D219E (1649C>G), K223L (1659A>C 1660A>T 1661A>G), F224L (1664T>G), E225R (1665G>A 1666A>G 1667A>G), L226F (1668C>T 1670C>T), T227N (1672C>A 1673C>T), R228I (1674C>A 1675G>T 1676C>A), R229K (1677C>A 1678G>A 1679T>A), D231Q (1683G>C 1685T>G), H232Q (1688T>A), T238S (1704A>T 1706C>T), Q240W (1710C>T 1711A>G), V242I (1716G>A 1718C>T), K243M (1720A>T 1721A>G), D244E (1724C>A), R247H (1732G>A 1733G>C)							
Codon mutations:	CCT111CGT (1324C>G), GCA112TCA (1326G>T), ACT113ACA (1331T>A), AAG116GAA (1338A>G 1340G>A), ACC117GAC (1341A>G 1342C>A), GCG120ACA (1350G>A 1352G>A), GCC122GAT (1357C>A 1358C>T), ATA123ATT (1361A>T), CAC125CGT (1366A>G 1367C>T), ACT126GCT (1368A>G), GTG127GGG (1372T>G), CCC128CCT (1376C>T), TAC130TAT (1382C>T), GGG131GGC (1385G>C), TGC132TGT (1388C>T), GTA133GGT (1390T>G 1391A>T), TGG135TAG (1396G>A), ACC136ACA (1400C>A), GAG138GGA (1405A>G 1406G>A), AAC139GAC (1407A>G), TTC142TTT (1418C>T), AAC143AAT (1421C>T), GTC146GTG (1430C>G), AAG148AAA (1436G>A), ATG149GAG (1437A>G 1438T>A), GTG150GTA (1442G>A), ATC151ATT (1445C>T), GGG156GGT (1460G>T), ACC159ACT (1469C>T), GCC160AAT (1470G>A 1471C>A 1472C>T), AAG161AAA (1475G>A), GTC162GTT (1478C>T), TCG165TCT (1487G>T), GCC166GCG (1490C>G), ATT169ATA (1499T>A), CTC170TTG (1500C>T 1502C>G), GGA172AGG (1506G>A 1508A>G), AGC173TCT (1509A>T 1510G>C 1511C>T), AAG174GCC (1512A>G 1513A>C 1514G>C), GTG175ATC (1515G>A 1517G>C), CGC176CAG (1519G>A 1520C>G), GTG177GTT (1523G>T), GAC178GAT (1526C>T), CAG179CAA (1529G>A), TGC181TAT (1534G>A 1535C>T), AAG182AAA (1538G>A), TCC183GTA (1539T>G 1540C>T 1541C>A), TCG184TCT (1544G>T), GCC185GTA (1546C>T 1547C>A), CAG186CCA (1549A>C 1550G>A), ATA187GCA (1551A>G 1552T>C), GAC188GAA (1556C>A), CCG189CCC (1559G>C), ACT190ACA (1562T>A), CCC191CCT (1565C>T), GTG192GTA (1568G>A), GTC194ATA (1572G>A 1574C>A), TCC196-TG (1578delT 1579C>T 1580C>G), AAC197AAG (1583C>G), ACC198ACT (1586C>T), AAC199del (1587_1589delAAC), TGC201TGT (1595C>T), GCC202TCA (1596G>T 1598C>A), GTG203GTA (1601G>A), ATT204GTA (1602A>G 1604T>A), GAC205GGT (1606A>G 1607C>T), GGG206GGC (1610G>C), TCA208AGC (1614T>A 1615C>G 1616A>C), ACC210-GC (1620delA 1621C>G), TTC211TTT (1625C>T), GAA212GAG (1628A>G), CAG214AAG (1632C>A), CAG215GAG (1635C>G), CCG216CCT (1640G>T), TTG217CTT (1641T>C 1643G>T), CAA218GAG (1644C>G 1646A>G), GAC219GAG (1649C>G), CGG220AGA (1650C>A 1652G>A), TTC222TTT (1658C>T), AAA223CTG (1659A>C 1660A>T 1661A>G), TTT224TTG (1664T>G), GAA225AGG (1665G>A 1666A>G 1667A>G), CTC226TTT (1668C>T 1670C>T), ACC227AAT (1672C>A 1673C>T), CGC228ATA (1674C>A 1675G>T 1676C>A), CGT229AAA (1677C>A 1678G>A 1679T>A), CTG230TTG (1680C>T), GAT231CAG (1683G>C 1685T>G), CAT232CAA (1688T>A), GAC233GAT (1691C>T), GGG235GGA (1697G>A), GTC237GTA (1703C>A), ACC238TCT (1704A>T 1706C>T), AAG239AAA (1709G>A), CAG240TGG (1710C>T 1711A>G), GTC242ATT (1716G>A 1718C>T), AAA243ATG (1720A>T 1721A>G), GAC244GAA (1724C>A), TTC246TTT (1730C>T), CGG247CAC (1732G>A 1733G>C)							

*: Inserts / Deletes / Misaligned / Frameshifts

Analysis details

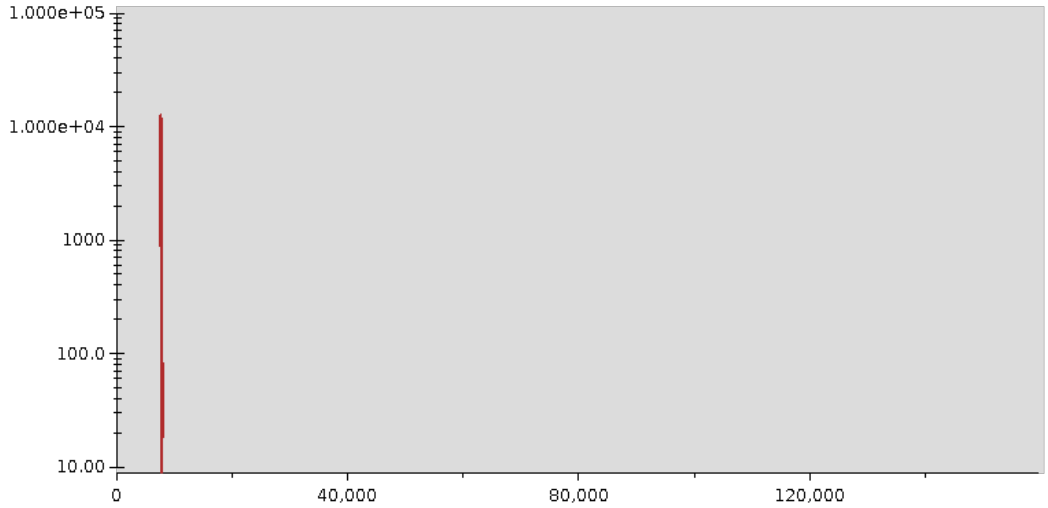
This analysis was performed with Pan-viral (2.14.6)

NGS Details (MG-1-RNASeq021-ZymoSeq): Roseolovirus humanbeta6a

Assembly

Coverage Length	357 (1 contig(s))
Depth Of Coverage	4740.6
Number Of Reads	24623
Reads Per Million	123.49 rpm (after QC)
Ambiguities	0
Assembly Method	de novo + reference guided assembly
Consensus Caller	Bcf Tools

Coverage Map



Assignment

Type	Roseolovirus humanbeta6a (Taxonomy ID: 3050296)
Reference Genome	NC_001664.4
NT Identity (%)	86.1582
AA Identity (%)	0.0
Number Of Stop Codons	0
Number Of CDS	88

Alignment

Alignment Score	491.0 (NT) + 0.0 (AA) = 491.0
Concordance (%)	71.4702
Alignment Method	Local, heuristic, nucleotide (BLASTN)

Genome Region

Sequence starts at position 7664 and ends at position 8020 relative to NC_001664.4 reference sequence.

Alignment Detailed Statistics

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	**7664**	**8020**	**0.2%**	**491**	**71.5%**	**354 (99.2%)**	**305 (85.4%)**	**0/3**	

Mutations: 7677A>G, 7684C>A, 7691C>T, 7698C>T, 7705T>C, 7707A>G, 7734C>G, 7737A>G, 7742A>G, 7743A>C, 7745C>A, 7761A>G, 7768C>A, 7781C>T, 7785A>G, 7788C>A, 7789T>G, 7791A>G, 7806C>G, 7809A>G, 7813T>A, 7828C>A, 7833A>C, 7847C>T, 7848C>G, 7876C>A, 7877C>G, 7887A>G, 7888C>A, 7893A>G, 7902delC, 7906C>A, 7912C>A, 7914C>T, 7923A>G, 7933T>A, 7936C>A, 7947A>T, 7952A>C, 7955C>A, 7972C>A, 7975T>A, 7977A>C, 7978C>T, 7980_7981delCT, 7983A>G, 7986C>T, 7987T>G, 7989A>G, 7996C>A, 8001A>T

*: Inserts / Deletes / Misaligned / Frameshifts

Analysis details

This analysis was performed with Pan-viral (2.14.6)