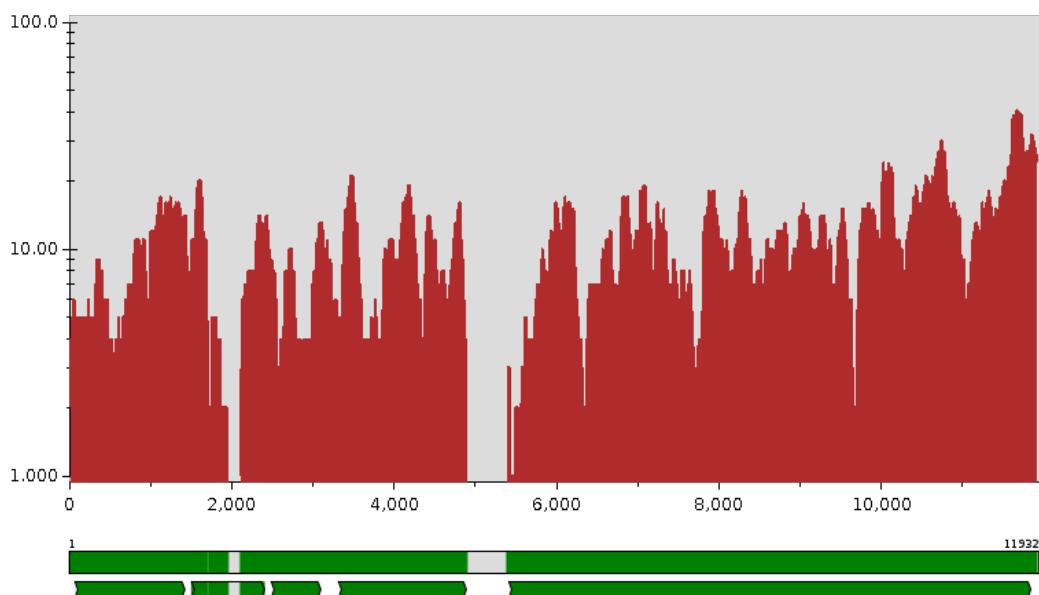


NGS Details (MG-3-RNASeq021-ZymoSeq): Lyssavirus rabies

Assembly

Coverage Length	11280 (3 contig(s))
Depth Of Coverage	10.2
Number Of Reads	916
Reads Per Million	8.31 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 (%)	81.1652
AA Identity (%)	91.2423
Number Of Stop Codons	7
Number Of CDS	5

Alignment

Alignment Score	14019.0 (NT) + 22967.0 (AA) = 36986.0
Concordance (%)	77.8784

Alignment Method

Global, seeded, nucleotide + amino acids (AGA)

Genome Region

Sequence starts at position 16 and ends at position 11918 relative to NC_001542.1 reference sequence.

Alignment Detailed Statistics

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	16	11918	94.5%	14019	62.2%	11276 (99.9%)	9153 (81.1%)	1/4	



	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	16	11918	94.5%	14019	62.2%	11276 (99.9%)	9153 (81.1%)	1/4	
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, 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, 678T>C, 685T>C, 691A>G, 697C>T, 724C>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, 842C>T, 847T>C, 874G>A, 889T>C, 895A>T, 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10742T>A, 10745C>A, 10750A>G, 10751A>G, 10760G>A, 10770A>G, 10778C>G, 10781C>T, 10787C>T, 10799C>T, 10801A>T, 10814A>G, 10817T>C, 10832T>A, 10841G>A, 10848C>T, 10851T>C, 10853A>G, 10859C>T, 10880T>C, 10883A>C, 10886A>G, 10890T>G, 10893T>C, 10898C>T, 10901T>C, 10913G>C, 10916T>C, 10922A>G, 10931A>G, 10932A>G, 10940G>A, 10952C>T, 10958A>T, 10964G>T, 10967C>T, 10970C>T, 10971T>G, 10972C>T, 10973G>A, 10979A>T, 10988C>A, 10991C>T, 10994A>G, 10997A>G, 11003G>A, C, 11015T>C, 11019C>T, 11021C>A, 11024C>T, 11028C>A, 11042A>G, 11051T>C, 11055A>C, 11063T>A, 11066G>A, 11069C>T, 11070T>C, 11075C>T, 11081C>T, 11082A>G, 11084C>T, 11087T>C, 11088C>A, 1105G>A, 11080A>G, 11141T>C, 11123C>T, 11132T>C, 11147T>C, 11150T>C, 11156G>A, 11159C>T, 11162T>C, 11180A>T, 11183T>A, 11186T>A, 11189A>G, 11192A>G, 11201A>C, 11207T>C, 11210C>T, 11228T>C, 11249A>G, 11258A>G, 11261C>T, 11282T>A, 11285G>A, 11292A>C, 11294G>A, 11297A>C, 11301C>T, 11303G>A, 11312G>T, 11313C>T, 11318C>T, 11327C>T, 11337G>A, 11339T>C, 11348C>T, 11354C>A, 11360C>T, 11363T>A, 11366C>G, 11369A>G, 11372C>G, 11375A>G, 11384C>T, 11387G>A, 11396A>T, 11399G>A, 11420G>A, 11435T>C, 11441T>C, 11444T>C, 11453T>C, 11454C>T, 11456A>G, 11459T>A, 11471T>G, 11474C>T, 11477C>T, 11486C>T, 11498C>T, 11501C>T, 11504G>A, 11507T>C, 11516T>C, 11528C>T, 11533G>T, 11534A>G, 11537G>A, 11544A>G, 11548T>G, 11549A>G, 11555C>T, 11556G>A, 11567T>C, 11579C>T, 11580A>G, 11582C>T, 11586A>G, 11589T>G, 11597C>T, 11600A>G, 11606A>G, C, 11612T>C, 11615T>C, 11622C>T, 11630G>A, 11649T>C, 11649T>G, 11654T>A, 11682G>A, 11683T>G, 11684T>A, 11687C>A, 11690C>T, 11693C>A, 11694A>G, 11702A>G, 11706G>A, 11707G>A, 11708A>G, 11711A>G, 11717A>G, 11719G>A, 11720A>G, 11723C>T, 11728A>G, 11729T>A, 11732G>A, 11753A>C, 11754G>A, 11756G>A, 11757A>G, 11759T>C, 11768G>C, 11777C>T, 11780A>G, 11781C>G, 11786C>T, 11789C>T, 11792C>T, 11796C>T, 11798G>A, 11800G>A, 11801C>A, 11803C>T, 11804C>A, 11805G>A, 11807A>G, 11809A>G, 11811C>G, 11816G>A, 11817A>T, 11820C>A, 11821C>A, 11823G>A, 11824C>T, 11825C>T, 11828T>G, 11829G>A, 11832A>G, 11839T>A, 11842T>G, 11843G>A, 11846A>G, 11849T>A, 11851T>C, 11852T>C, 11853T>C, 11864A>T, 11865A>G, 11870T>G, 11871T>G, 11874A>T, 11877T>C, 11886A>G, 11887G>T, 11889T>C, 11905defT, 11909T>C, 11913G>A

CDS

RABVgp1	1	451	100%	2971	95.6%	451 (100%)	430 (95.3%)	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 (480A>G, 514C>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), CCC32GCT (166C>G), GAT35GAC (175T>C), TTG36CTG (176T>C), AAA37AAG (181A>G), TGT40AGT (188T>A), ACT42AAC (1967>C), CTA437TTA (197C>T), CCC47CCT (211C>T), ATT50AGT (219A>G), AAAG5AAA (232G>A), GTT56ATA (236G>A), TCA58TCT (244A>T), TCG59GCC (245T>G), AGC61AAC (252G>A), GCC62GCA (256C>A), CTT65CTC (265T>C), GAT66GAC (268T>C), GAC68GAT (274C>T), TTG71TGC (283T>C), TCT72TGC (286C>G), TTG74CTG (290T>C), GCG76GCC (298G>C), TTT80TTC (310T>C), GAG82GGA (316G>A), GGG83GGA (319G>A), AAC84TCA (320A>C), CCG88CCT (328G>T), GAA87GAG (331A>G), GTC95GCT (353G>C), ATT96EATA (358T>A), GCA97GCT (361A>T), CGA98CGG (364A>G), AAA99AAG (367A>G), GGT106GAT (387G>A), TCT107TCC (391T>C), CTG108CTT (394G>A), TCT109GAT (395T>C), GAG110GAC (400G>C), AAA112AGA (405A>G), GTA116GTC (418A>G), CTC122CTA (436G>A), GGA124GGG (442A>G), GAA127GAG (451A>G), CTC128TGT (452C>T), AGA130AAG (460A>G), CCC132CTC (466C>T), GTC134GTT (472C>T), CTC135TCA (473C>T, 475T>A), GGG138GCA (484G>A), TCTC139TCT (487C>T), TTA140CTG (488T>C, 490A>G), GTC141GTT (493C>T), GGT142GCC (496T>C), CTG147TTG (509C>T), ATT153ATT (529A>T), TCC154TCT (532C>T), GGG155GGA (535G>A), GCA156CAG (538A>G), AGC157AAT (540G>A, 541C>T), ACT158AAC (544T>C), GGT159GGC (547T>C), AAC160AAT (550C>T), TAT161AC (553C>T), ATT165ATC (565T>C), GCA166GCC (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), ACA189AAG (637A>G), ACT190AAC (640T>C), ATT196AAC (667T>C), AAC202AAT (676C>T), TTT205TTC (687C>T), GCC209TCT (691C>T), ACC209ATC (697C>T), R252H (697C>T), GAG18VGA (724A>G), ACT209AAC (724G>A), CTA220CTG (730A>G), GCA223GCT (739A>T), ACT224ATT (742C>T), GTG226TGA (748G>A), GAA234GAG (752A>G), TCT239TTC (754G>A), ACT243AAC (797T>A), TTC245TT (798A>G), AAC247AAT (811A>G), ATC249AAT (817C>A), ACC252AC (826C>T), GTC253GCC (829T>G), GAG255GAA (835G>A), ATA257CTA (839A>C), CTA258TTA (842C>T), TAT259TAC (847T>C), GAG268GAA (874G>A), TTT273TTC (889T>C), CCA275CCT (895A>T), CAG277CCA (901G>A), ACA279ACT (907A>T), CAC283CAT (919C>T), TCT284TCC (927C>T), ACT287ATC (931C>T), AAC288CAT (934C>T), GGG299CCG (967T>G), TAT300TAC (970T>C), TCA302TC (972A>C), GCT304GCA (982T>A), CAC307ATC (991C>T), GTG308GTA (994G>A), ATT310AAC (1000T>C), GTA315GTT (1015A>T), TGC317TGT (1021C>T), CAA321CAG (1033A>G), GTC322GTC (1036C>G), TCC324TCT (1042C>T), CTAC325TTC (1043C>T, 1045A>G), AGC328AACA (1054G>A), GTT329GTC (1057T>G), GCT331GCA (1063T>A), GCA332ACA (1064G>A), GCT34GTC (1072T>C), CCT353CCG (1075T>G), GAA337GAG (1081A>G), CTA341CTT (1093A>T), GGG342GGA (1096G>A), CTG345TTC (1103C>T), GGA346GGA (1108A>G), GAA348GAA (1114A>G), TCC349TCT (1117C>T), GGG351GGA (1123G>A), ACA354ACT (1132A>T), AGA357AGG (1141A>G), AGA358AGG (1144A>G), GAA361AGG (1153A>G), GAT362GAC (1156T>A), GAG363GAA (1159G>A), CA367CAG (1171A>G), GAA368GAG (1184A>G), TAC369ATT (1177C>T), GCG371GCA (1183G>A), CTC374TTG (1190C>T), AAC376AAA (1198G>A), ACT377GCT (1199A>G), GAC378GAG (1204C>G), GTA379AGC (1205G>A, 1206T>A), GCA380GCC (1210A>C), CTG381TTG (1211C>T), GAT384GAC (1222T>C), ACT386AAC (1228T>A), AAC388AAT (1234C>T), GAC390GAT (1240C>T), GAC391GAT (1243C>T), TCA396TCC (1258A>C), GGT397AGT (1259G>A), AGA400AGG (1260A>G), CCG402CCA (1276G>A), GCT404GCA (1282T>A), TAT406TAC (1288T>C), ACT407ACA (1291T>A), ATT401ATG (1300A>G), CGA415AGA (1313C>A), AGA417AA (1321G>A), TCG419TCA (1327G>A), CGG422AGG (1334C>A), AGA423AGG (1339A>G), AGT284AGC (1354T>A), CTC429TCT (1357C>T), CCA435CTC (1358A>G), TCA437TCC (1359A>G), AAC438GAT (1381A>G), TCC438TTC (1382C>T), CAA442TTA (1394C>T), AAC443GAT (1402G>A), TAT446TAC (1408T>C), GAC449GAT (1417C>T), TCA450TCG (1420A>G), TAA451TGA (1422A>G)								
RABVgp2	1	298	84.6%	1442	85.7%	252 (100%)	216 (85.7%)	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), 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), 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:	AAAG3AAA (1522G>A), ATC44T (1525C>T), AAT7AAC (1534T>C), CCT87CCT (1537T>G), GCT106GG (1543T>G), ATT11ATC (1546T>C), AGA12AGG (1549A>G), GGT14GGC (1555T>C), CTG15TTG (1565C>T), GGC16GCT (1561C>T), CTC18TCA (1567T>A), GAA23GAG (1582A>G), GTT25GTA (1588T>C), CTG27CTC (1594G>C), AAT29GCT (1598A>G), AGA30AAG (1603A>G), AAT31AAC (1606T>C), GAA33GAG (1612A>G), GGG41GGA (1636G>A), GAA42GAT (1639A>T), GAA45GAG (1648A>G), AAT48AGT (1656A>G), CCT50UC (1663T>C), GAG51GAA (1666G>A), GAT52GAC (1669T>C), GGG54AGA (1673G>A, 1675G>A), CGA55GCC (1678A>G), CAC57CA (1684C>A), CTG58CTA (1687G>A), GGAG61GAC (1695G>A, 1696A>C), AAA62AAC (1699A>G), CGC63C3G (1700T>C), CCG63C3G (1700T>A), AAC646TCT (1703C>T), AAC646TCT (1705C>A), AGA71AAA (1726G>A), GTG72GCA (1728T>C, 1729G>A), GGC75AGC (1736G>A), AAC76AAA (1741G>A), CGA766GAC (1746G>A, 1747A>G), GAG79GAA (1750G>A, 1751G>A), GAA85GAG (1768A>G), GGA86GCC (1771A>G), GAA123GAG (1882A>G), ATC114TCT (1885G>C), CTC115CTG (1885C>T), AAC116AAA (1886G>A), TAA119TCT (1870A>T), GAA123GAG (1882A>G), ATT125AAC (1888A>C), GGC130AGG (1927A>G), TCT140TCC (1933T>C), TCA141TTA (1935C>T), GAG142AAA (1937G>A, 1939G>A), GAT143GAC (1942T>C), AAA144AAC (1945A>G), TCA145GCT (1946T>G, 1948A>T), ACC146ACT (1951C>T), ACC149GTT (1958A>G, 1959C>T), CGA151CCG (1966A>C), ATC201AT (2116C>T), GCT202GCG (2119T>G), CA2024AAC (2125G>A), GCA206GCC (2131A>C), GAA207GAA (2134A>G), AGT208GA (2137C>T), TCC209TT (2140C>A), TCC210CT (2143C>T), AAA211AAC (2146A>G), AAA226AAC (2149A>C), TCA229CTAC (2152T>C), AAC241AAA (2155G>A), CTC216CT (2161C>T), TCT217CTC (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), AAA239AAC (2230A>G), GCA241TCCG (2234G>A), GTC244GTC (2235G>A), GTC252CT (2263A>G), GGG254GGA (2275G>A), CCC258CT (2278C>T), TCA259CTG (2290A>G), GTA262GTC (2299A>G), GTG266GTT (2311C>T), TTG268CTA (2315T>C, 2317G>A), GCC269GCA (2320C>A), AAC270AAT (2323C>T), TCT271TCC (2326T>C), AAG272AAA (2329G>A), TTG276TTC (2339T>C), TTA277TTG (2344A>G), GTC278GTT (2347C>T), GAA279GAG (2350A>G), TCC280CCC (2351T>C), AAC281GAC (2354A>G), CTG283CTA (2362G>C), AAA285AG (2368A>G), ATC286ATA (2371C>A), TTG291CTG (2384T>C), AAC286ATA (2387C>A), TGT291CTG (2384T>C), AAC292AAC (2389T>C), CGC293CTG (2392C>T), AAC295GCC (2396A>G, 2398A>G), TGC297TCC (2402T>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), K154E (2955C>G), K160R (2974A>G), R165Q (2989G>A, 2990G>A), G178C (3027G>A), M184L (3045A>G), E192D (3012A>T), L199I (3090C>G)								
Codon mutations:	CTA44TAA (2505C>T), ATA7ATG (2516A>G), AAA9AAG (2522A>G), AAT10AAC (2525T>C), GTC11TGT (2528C>T), AGG12AGA (2531G>A), GAC13GAT (2534C>T), ACT16ACC (2543T>C), CAA17ACG (2546A>G), AAA18AAG (2549A>G), CCC21CTC (2557C>T), GTG22ATA (2559G>A, 2561G>A), TCA23TGC (2564A>G), GCC24GCA (2567C>A), CTG26CCA (2572T>C, 2573G>A), GAC30GAT (2585C>T), TTG31CTA (2586T>C, 2587G>A), CTT33TAA (2592C>T, 2594T>A), CCA34CCG (2597A>G), CCC35CCG (2600C>T), CCT36CCG (2603T>G), CTC38AT (2609C>T), GTG39GTT (2612C>T), CTA41TGT (2616C>T, 2618A>G), AAA42AAC (2621A>G), GAA43AG (2624A>G), CTT44CTC (2627T>C), ACA45ACG (2630A>G), AGC46GGC (2631A>G), AGG50ATG (2644G>A), AGG51AGA (2648G>A), AAC52AAAT (2651C>T), TGT54TGC (2657T>C), AAC56AAT (2663C>T), GGA57GGG (2666A>G), GGG58GAA (2668G>A), GTT59GCA (2672C>T), AGC63AGT (2684C>T), CTC64GCC (2687G>A), AAC65AAC (2690T>C), TGG66GTC (2693T>C), TCG68GTC (2699G>A), TTC69TTT (2702C>T), GGG70AGG (2703G>A), CTC707TCC (2705C>T), CTG71TGT (2707C>T), CTG72TGT (2709C>T), CTG73TGT (2709C>T), GGG91GAG (2708G>A), TTA92CTG (2769T>C, 2771A>G), AAA94AAC (2777A>G), GTC95GTT (2780A>T), ATT7GTT (2784A>G), CGT99GTT (2790C>T), GTC100GCG (2795T>C), GAA103GGG (2804A>G), GCT104GCC (2807T>C), GTC106GTT (2813C>T), GGC109GTT (2822C>T), AAC115AA (2840G>A), CTC120TA (2855T>A), ACT121AT (2858C>T), AGC123CAA (2864G>A), AGG128AGA (2867G>A), GTC99GTT (2879G>A), TCT131TCA (2887A>T), ATC138TAT (2909C>T), ATC142ATT (2921C>T), ACT143AC (2924T>C), AAC147GAT (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), CAG167GAG (2996A>G), ATC168ATT (2999C>T), TCG175								

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	16	11918	94.5%	14019	62.2%	11276 (99.9%)	9153 (81.1%)	1/4	
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), ACG25ACAA (3392G>A), CCA27CCG (3398A>G), CCC32CCCT (3413C>T), CCC35CCC (3422G>C), ATT36ATC (3425T>C), GAC37GTG (3428C>T), TGCG43TGT (3446C>T), AAC45AT (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), AAA64AGA (3515A>G), GTT67GTG (3518T>G), TCA71TCT (3530A>T), AAA74AAG (3539A>G), ATG75GTG (3540A>G), TTC78TTT (3551C>T), TGC80TGT (3557C>T), ACA81ACC (3560A>C), CGC82GCT (3563C>T), TAC90TAT (3567A>C), ACT19ACCA (3590T>C), TTC93TTT (3596C>T), GTT94GTC (3599T>C), ACA98ACCA (3611A>C), ACG100ACA (3617G>A), AAA102AAG (3623A>G), AGA103AAG (3626A>G), AAC104AAA (3629G>A), CCA108CTC (3641A>T), ACA109ATA (3643C>T), CCA110CCG (3647A>G), TGT112TGC (3656G>A), GCA114AGG (3659A>G), GCC116GCA (3662C>T), GGC122GCT (3665C>T), GAC124GAT (3669C>T), CCC125CT (3692C>T), GAA128GAG (3701A>G), CTA131CTT (3710A>T), CAC132CAA (3713C>A), CCG134CAA (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), GAC152ATA (3771G>A 3773T>C), CGA156CCG (3785A>G), GCA159GCT (3794A>T), TTG161CTA (3798T>C 3800G>A), CCA163CCC (3806A>G), TAT164ATC (3809T>C), AGA166AAA (3814G>A), CAC169CAT (3824C>T), TCG170TCT (3827G>T), GTC172GTG (3833C>G), GGC175GTG (3842C>A), ATT177AAG (3848C>A), TGC178TGT (3851C>T), TCA179TGT (3853C>T 3854A>G), GTA181ATA (3858G>A), CGC182ACG (3861G>A), GTG183CTT (3868G>T), TCT185TCC (3868T>C), TCC189TCA (3884C>A), ACT190AAC (3887T>C), CAC192CAT (3893C>T), ATT196ATC (3905T>C), AAT201GAA (3918A>G 3920T>C), CCG202CCA (3923G>C), ATA204CTC (3929A>C), ATG206ACA (3934T>C 3935G>A), TGT208TGC (3941T>C), AAT213AGC (3955A>G 3956T>C), AGT214AGC (3959T>C), AGA215AA (3961G>A 3962A>G), AAC217AAA (3968G>A), AGA218AAC (3970G>A 3971A>G), TCC220TCT (3977C>T), AAA221AG (3980A>G), GGG222GGA (3983G>A), AGT223GCG (3984A>G 3986T>C), GAG224AG (3987G>A), GGC227GGA (3998C>A), GTA229GTG (4004A>G), AGA232AGG (4013A>G), CTA234TGC (4017C>T 4019A>G), ATT235TAC (4022T>C), TTA238CTA (4029T>C), GTC246CTG (4053T>C 4055A>G), TGT247TGC (4058T>C), CTA250CTC (4067A>C), ACA258ACC (4091A>C), GTC260GTT (4097C>A), GCG261TCA (4098G>T 4100G>A), ATG262AATT (4103G>T), ACA264AC (4109A>C), AAT266GAC (4113A>C 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), A1287ATA (41781A>C), GTT291TGT (41901T>C), GTC292GTG (4193A>G), AGA299AGG (4214A>G), GAG300GAA (4217G>A), CTG303TTC (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), TTA323TGG (4286A>G), CTC326CTA (4295T>A), AAC332AAC (4313A>G), ACC335ACT (4322C>T), ACC340ACT (4337C>T), GAA343GAG (4346A>G), CCC344GCT (4349C>T), GCT346GCC (4355T>C), GCT351GTT (4370C>T), AGA352CG (4371A>C 4373A>G), ATT355AAC (4382T>C), CCT359GCC (4394T>C), TTA364TTG (4049A>G), AGA365AAA (4411G>A), GTT366GTC (4415T>C), GGG367AGA (4416G>A 4418G>A), GGG368GAG (4420G>A), CAT373CCC (4435A>C 4436T>C), GTA374GTC (4439A>G), AAC375GAC (4440A>G), GGG376GGA (4445G>A), TA377GTT (4448A>G), TTT378TTC (4451T>C), GGT381GGC (4460T>A), ATA383ATT (4466A>C), 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), GTC408GAG (4540T>A 4541A>G), TCC409TCT (4544C>T), TCG410TCT (4547G>T), GTT411GTA (4550T>A), CTT414TTA (4557C>T 4559T>A), CAC416CAT (4565C>T), CTG418TTG (4569G>T), GCA419GCG (4574A>G), TCT422TCA (4583T>A), ACC423ACA (4586C>A), GTT424GTC (4589T>C), AAC427GAA (4596A>G 4598C>A), GG428GGG (4601T>G), GAC429GAT (4604C>T), GAG430GAA (4607G>A), GTC431GGG (4610T>G), CCT439CTC (4634T>C), CCC440CCA (4637C>A), GTG442GTT (4643G>T), GAA444AA (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), GGG465GTT (4712G>T), GGC466GTT (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 4765G>A), ATT484AAAG (4769T>G), TCG486ACA (4773T>A 4775G>A), GAA487GAG (4778A>G), CCT488TCA (4779C>T 4781A>C), AAC489AGA (4783C>G), CAA490AGA (4785C>A 4786A>G), CAC491CAG (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), AGG498AA (4810G>A 4811G>A), GAG499AAAG (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%	13941	93.5%	2143 (100%)	1987 (92.7%)	0/0/0/0	3
L1I (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), S136C (5823C>T 5824T>G), G139E (5833C>A 5834A>G), P147T (5907G>A 5908T>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 (6066G>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), S335G (6420A>G), E339G (6433A>C 6434G>A), D343P (6444T>C 6446C>T), C344S (6447T>A), R346K (6454G>A 6455A>G), R350K (6466G>A), F428L (6698T>C 6701C>T), A430S (6705G>T 6707T>A), R489K (6883G>A 6885G>A), R672W (7431C>T), A681M (7458G>A 7459C>G), I717T (7567T>C), V745R (7578G>A), Q745P (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>A 8825A>G), G1139R (8832G>A 8834A>G), V1144I (8847G>A 8849T>A), C1158S (8890G>C 8891C>A), T1159R (8892A>C 8893C>A 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>C 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 (9580A>G), Y1418D (9669T>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), M1557S (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 (10847G>A 10848G>C), N1839D (10932A>G), V1852V (10971T>G 10972C>T 10973G>A), T1889A (1082A>G 1084C>T), A1966S (11313G>T 11315T>C), V1974I (11337G>A 11339T>C), R2039M (11533G>T 11534A>G), L2043V (11544A>G), L2044R (11548T>G 11549A>G), V2047T (11556G>A 11557T>C), N2055D (11580A>G 11582C>G), T2057A (11586A>G), S2058A (11589T>G), V2089R (11682G>A 11683T>A), K2093E (11694A>G), G2097K (11706G>A 11707G>A 11708G>A), 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)									
Protein mutations:									

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	16	11918	94.5%	14019	62.2%	11276 (99.9%)	9153 (81.1%)	1/4	
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), ACC24ATT (5488C>A 5489C>T), ACT26AAC (5495T>C), GTC27ATC (5496G>A), AGG32AGA (5513G>A), TCA34TCG (5519T>C), AAT37AAC (5528T>C), TTG42CTG (5541T>C), GAT45GAC (5552T>C), CCT46TCG (5553C>T 5555T>G), GCT47GCC (5558T>C), AGA48AAA (5560G>A), CTAT49CTG (5564A>G), TTA51TTG (5570A>G), GAA52GAG (5573A>G), TTA54TTG (5579A>G), ACA56ACG (5585A>G), GGG57GGA (5588G>A), TAT61CTC (5598T>C), TCA65TCG (5612A>G), TCC70TCT (5627C>T), TTG73TC (5635T>A), AGA74AGA (5638G>A 5639A>G), GTT75TC (5642T>C), GAT86GAC (5669T>C), GCT86GGA (5675T>A), TCC78TCT (5678C>T), CTG88ATC (5679C>A), AAC89AAA (5684G>A), CGC91GGT (5690C>A), ATG93GCT (5694A>G 5695T>C), GCT94GCC (5699T>C), CA96GAA (5705G>A), TCA97TCT (5708A>T), ATT99ATC (5714T>C), TCT100TC (5717T>C), CTC101CTT (5720C>T), TTA103CTG (5724T>C 5726A>G), TAT104TAC (5729T>C), GCA106CGC (5710C>A),CAC107TAT (5736C>T 5738C>T), TCC110TCG (5747C>C), AGG112AGA (5753G>A), CGG114GCC (5759G>A), AGA115AG (5761G>A 5762A>G), TTG120TC (5757T>C), CAT122CAC (5783T>G), TAT124TAC (5789T>C), TCG122TCT (5798G>T), TCC128GCC (5797T>G), GAG131GAA (5810G>A), CTG133CTA (5811T>C), ATA135AC (5817T>C), CTC134CTA (5822T>C), CTC136TGC (5823C>T) 5824T>G), AGC137ACA (5828G>A), CTAT138CTC (5831A>C), GGA139GAG (5833G>A 5834A>G), ATC145ATT (5852C>T), CCA147ACA (5856C>A), GGA149GGG (5864A>G), GTG150TC (5867G>C), TTA151CTA (5868T>C), AGT152AGC (5873T>C), TCG153CT (5876C>T), AAT161AA (5900T>A), GA164AGG (5909A>G), AGG165CCG (5910A>C), CTT161TTG (5916C>T 5918T>G), GGC168GCT (5921C>T), ACG170ATA (5926C>T 5927G>A), TAC174TAT (5939C>T), TTG175TAT (5942G>A), TTG177TTT (5948C>T), CTC178AC (5951T>C), GTA179GTC (5954A>C), ATC180ATG (5957C>G), ACC181ATC (5960C>T), TTA182CTT (5961T>C 5963A>G), AAC185AA (5972C>T), CTA187TTG (5976C>T 5978A>G), GAC188GAT (5981C>T), GAA191GAG (5990A>G), GAA192GAC (5993A>G), TCA196TTA (6003C>T), TTA198CTC (6009T>C 6011A>G), AAC200AA (6017A>G), ACC203AC (6026C>A), GTG205ATT (6030G>C), TAC206GAT (6035C>T), ATC207GTT (6036A>G 6038C>T), AAC209AGG (6043A>G), GTA212GTC (6053A>C), TTC214TTT (6059C>T), CAA217AAA (6066C>A), GGA220GGG (6077A>G), CTG221TTG (6078C>A), TAC223ATT (6086C>A), AAC225AC (6092A>C), AAC226AAA (6095G>A), GAC227GAT (6098C>T), GTT229TGC (6104T>G), TAC230TAT (6107C>T), CTC234TCT (6119C>T), AAT235GTT (6120A>G 6121A>G), TGT236TGC (6125T>C), CTC237TC (6128T>C), TAC242TAT (6143C>T), CTA246TTA (6153C>T), GAT248GAC (6161T>C), TTC250TTT (6167C>T), CGC253CGG (6176C>G), TTA257ATA (6186T>A), GTC259ATT (6192G>A 6194C>T), TTA260CTT (6195C>T 6197A>T), CCA263CCT (6206C>T), CCA264CGC (6209A>G), GCA265GAA (6212G>A), CGA267GAA (6216C>A), TCA268TAT (6221C>T), TTG272CTG (6231T>C), CTA276CTG (6245A>G), TGC277TGT (6248C>T), CTC279CTA (6254G>A), TCA280TAT (6257C>T), 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AGT473AGC (6836T>C), TCA475TC (6842A>G), TTG478CTC (6849T>C 6851G>C), GAT479GAC (6854T>C), CAT483CAC (6866T>C), TCT484TCA (6869T>C), AGG488ACA (6881G>A), AGA489A (6883G>A), ATC490TTA (6885C>T), GCT491GCC (6890T>C), TGT492TCA (6893T>A), CTG494CTA (6899G>A), GAA496GAG (6905A>G), CGA498AGA (6909C>A), GGG499GGA (6914G>A), CCT501CCA (6920T>A), GTT502GTC (6923T>C), CCT503CCC (6926T>C), AGC504AGT (6929C>T), GAA505GAG (6932A>G), AAA506AAG (6935A>G), GTT507GTC (6938T>C), ATC509ATT (6944C>T), ACG510ACA (6947G>A), CTG512CTT (6953G>T), TCT513TC (6956T>C), CGC515CC (6962G>C), TGT517GTC (6968C>T), CGA521GAA (6980G>A), TTT522TTC (6983T>C), AAC524AAA (6989G>A), GAC527GAT (6998C>T), CTC528CTT (7001C>T), CCA532CTT (7013A>T), GAC535GAT (7022C>T), AAG541AA (7040G>A), CCA542CAG (7044T>C), AAC545CT (7052A>T), ATT449ATA (7064T>A), GTA540GTC (6767A>G), GGG545GGT (6779G>T), GAT455GAC (6782T>C), AAC554GAC (6785A>C), ATC458CAT (6791C>T), AGC463AAC (6806G>C), ATC465ATT (6812C>T), ATT468CAT (6821T>C), CCT469CCC 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(10671A>G), GAT1753GAC (10676T>C), ATC1754ATT (10679C>T), GTC1755ATC (10680G>A), AGA1757AGG (10688A>G), ATA1759ATT (10694A>T), GAT1760GAC (10697T>C), TCA1763TCT (10706A>T), CCG1768CTC (10721G>T), TCC1769TCT (10724C>T), GCT1775ACA (10740G>A 10742T>A), ACC1776ACA (10745C>A), GGG1778AGG (10750A>G 10751A>G), CAG1781CAA (10760G>A), AAG1785GAG (10770A>G), GTC1787CTG (10778C>G), AAC1788AAG (10781C>T), TCC1790TCT (10787C>T), ATT1794ATC (10799T>C), TCG1796TGT (10805C>T), CGA1798GCT (10811A>T), GAA1799GAG (10814A>G), GTT1800GTC (10817T>C), TCT1805TCA (10823T>A), CGG1808CGA (10841G>A), CTG1811TTG (10848C>T), ATT1812CTG (10851T>A), GAG1813GAC (10853A>G), GTC1814TAG (10880T>C), GCA1822GGC (10883A>C), CCTA1823CCA (10886A>G), ATT1825GAT (10890T>G), TTG1826CTG (10893T>C), GTC1827GTT (10898C>T), TAT1831TAC (10910T>C), GGG1832GCC (10913G>C), ACT1833AAC (10916T>C), CCTA1835CTA (10922A>G), CCA1838CCG (10931A>G), AAC1839GAC (10934A>G), AAC1845CAT (10952C>T), CCA1847TCT (10958A>T), CGC1849GCT (10964G>T), TTC1850TTT (10967C>T), CCC1851CTC (10970C>T), TCG1852GTA (10971T>G 10972C>T 10973G>A), ACA1854ACT (10979A>T), ATC1857ATA (10988C>A), ACC1858ACT (10991C>T), CAA1859CAG (10994A>G), GTA1860GTC (10997A>G), TCG1862TCA (11003G>A), TTT1864TTC (11009T>C), TCT1866TCC (11015T>C), CTC1868TCA (11019C>T), AAC1869TAT (11024C>T), CTT1870CTC (11027C>A), CGA1871AGA (11028C>A), CGA1875CGG (11042A>G), TTT1878TTC (11051T>C), AAC1880CGA (10955A>C), GCT1882GCA (11063T>A), GAG1883GAA (11066G>A), TAC1884AT (11069C>T), TTG1885CTG (11070T>C), ACC1886ACT (11075C>T), TCC1888TCT (11081C>T), ACC1889GCT (11082A>G 11084C>T), CCT1890CTC (11087C>T), CGA1891AGA (11088C>A), GTG1898GTC (11105G>A), TTA1897TTG (11108A>G), ATT1899AAC (11144T>C), AGC1902AGT (11123C>T), AGT1905AGC (11132C>T), GCT1910CGC (11147T>C), CGT1911CGG (11150T>C), TTG1913TTA (11156G>A), AAC1914AT (11159C>T), TAT1915TAC (11162T>C), GGA1921GGT (11180A>T), TTT1922TTC (11183T>C), CCT1923CCA (11186T>A), GAA1924AGG (11189A>G), GAA1925GAG (11192A>G), TCA1928TCC (11201A>C), CCT1930CCC (11207T>C), TAC1931TAT (11210C>T), ACT1937ACA (11228T>C), GAG1944GAG (11249A>G), CTG1947CTC (11258A>G), GTC1948GTT (11261C>T), CTT1955CTA (11282T>A), GAG1956GAA (11285G>A), AGG1959CGA (11292A>C 11294G>A), GGA1960GGC (11297A>C), CTG1962TTA (11301C>T 11303G>A), GTG1965GTC (11312G>T), GCT1966TCA (11312C>T), AAC1967ATT (11318C>T), GCT1967GTC (11327C>T), GTT1974ATC (11337G>A 11339T>C), AAC1977AAT (11348C>T), GTC1979GTA (11354C>A), AAC1981AAT (11360C>T), GTT1982CTA (11363T>A), TCC1983TCG (11366C>G), AAA1984AGG (11369A>G), CCC1985CCG (11372C>G), CTAA1988CTC (11375A>G), CCTC1989CTC (11384C>G), CCT1990TCA (11396A>G), AGG2001AGA (11420G>A), TGT2006TGC (11435T>C), AGT2008AGC (11441T>C), ACT2009ACC (11444T>C), TAT2012TAC (11453T>C), CTAA2013TTC (11454C>T 11456A>G), TCT2014TCA (11459T>A), GGT2018GG (11471T>G), GAC2019GAT (11474C>T), GTC2020GTT (11477C>T), TTC2023TTT (11486C>T), AAC2027CAT (11498C>T), GAC2028GAT (11501C>T), CTG2029CTA (11504G>A), TAT2030TAC (11507T>C), CCT2033CCC (11516T>C), TAC2037TAT (11528C>T), AGA2039ATG (11533G>T 11534A>G), AAC2040AAA (11537G>A), ATT2043GTT (11544A>G), CTA2044CGG (11548T>G 11549A>G), AAC2046AAT (11555C>T), GTT2047ACT (11556G>A 11557T>C), CTA2049CTC (11564A>G), TCT2050TCC (11567T>C), TCC2054TCT (11579C>T), AAC2055GAT (11580A>G 11582C>G), TCA2058GCA (11586A>G), TCA2058GTC (11589T>G), TTG2060TTT (11597C>T), GTC2063GTC (11606A>G), GCC2064GCT (11609C>T), TGT2065TGC (11612T>C), ATT2066AAC (11615T>C), CTG2069TTG (11622C>T), CTG2071CTT (11630G>T), TTG2078CTG (11649T>C), ATT2079ATA (11654T>A), AAC2081AAT (11660G>A), ACT2085ACC (11672T>C), TGT2088TCT (11681C>T), ATT2089AGA (11682G>A 11683T>A), GGC2090GGA (11687C>A), AGC2091AGT (11690C>T), AAC2093GAG (11694A>G), CCTA2095CTG (11702A>G), GG2097AAA (11706G>A 11707G>A 11708A>G), GAA2098GAG (11711A>G), GAA2100GAG (11717A>G), AGA2101AG (11719G>A 11720A>G), CAC2102CAT (11723C>T), CAT2104CGA (11728A>G 11729T>A), AGG2105AGA (11732G>A), CTA2112CTC (11753A>G), GAG2113AAA (11754G>A 11756G>A), ATT2114GAC (11757A>G 11759T>C), TCT2117TCC (11768T>C), TCC2120TCT (11777C>T), CTA2121CTG (11780A>G), CTA2122TAA (11781C>T), GAC2123GAT (11786C>T), TAC2124TAT (11789C>T), AGT2125AGC (11792T>C), CTG2127TTA (11796C>T 11798G>A), TGC2128TAA (11800G>A 11801C>T), ACT2129ACT (11803T>C 11804C>T), GGA2130AG (11806G>A 11806D>A 11807A>G), TAC2131TGC (11809A>G), TCC2132CCC (11811T>C), TGG2133TGA (11816G>A), AAG2134TAG (11817A>T), CCT2135ATA (11820C>A 11821C>A), GCC2136ATT (11823G>A 11824C>T 11825C>T), CAT2137CAG (11828T>G), GCT2143TGG (11842T>G), TGA2143TGG (11846A>G)

Proteins

	1	451	100%	2971	95.6%	451 (100%)	430 (95.3%)	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>P), 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), CGC32GCT (168C>T), GAT35GAC (175T>C), TTG36CTG (176T>C), AAA37AAG (181A>G), TG40AGT (188T>A), ACT42ACC (196T>C), CTA43TTA (197C>T), CCC47CTT (211C>T), AAT50AGT (219A>G), AA54AAA (232G>A), GTT56ATT (236G>A), TCA58TCT (244A>T), TCG59GGC (245T>G), AGC61AAC (252G>A), CGC62GCA (256C>A), CTT65CTC (265T>C), GAT66GAC (268T>C), GAC68GAT (274C>T), TTG71TGC (283T>C), TTG72TGC (286C>G), TTG74CTG (290T>C), GCG76GCC (298G>C), TCT80TTC (310T>C), GAG82GAA (316G>A), GGG83GGA (319G>A), ACA84TCA (320A>T), GAA87GAG (331A>G), GTG87GAG (331A>G), GTG88GTC (353G>C), ATT96ATA (358T>C), GCA97GCT (361A>T), CGA98CCG (364A>G), AAA99AAG (367A>G), GGT106GAT (387G>T), ATT107TCC (391T>C), CTG108TCT (394T>C), GAG110GAC (400G>C), AAA112AGA (405A>G), GTA116GTC (418A>G), CTG122CTA (436G>A), GGA124GGG (442A>G), GAA127GAG (451A>G), CTG128TTG (452C>T), AGA130AGG (460A>G), CCC132CT (466C>T), GTC134GTT (472C>T), CCT135CTA (473C>T 475T>A), GCG138GCA (484A>G), CCT139TCT (487C>T), TTAA140CTG (488T>C 490A>G), GTC141GTT (493C>T), GGT142GGC (496T>C), CTG147TTC (509C>T), ATT153ATA (529A>T), TCC154CT (532C>T), GGG155GGA (535G>A), CA156CAG (538A>G), AAC157AAT (540G>A 541C>T), ACT158ACC (544T>C), GGT159GGC (547T>C), AAC160AAT (550C>T), TAT161TAC (553T>C), ATT165AT (565T>C), GAC167GAT (571C>T), AGG168AGA (574G>A), CCT177CCC (601T>C), GGT179GCA (606T>C 607T>A), AAA180AAG (610A>G), GTG182GTA (616G>A), AAC184CAT (622C>T), CTG1827TTG (623C>T 631A>G), ACA189AAG (637A>G), ACT190ACC (640T>C), AAC1919AC (667T>C), AAC2020ATT (676C>T), TGT2057TTC (685T>C), GGC2077CTG (691C>T), ACC2094ACT (697C>T), GAG218GAA (724G>A), CTA220CTG (730A>G), GCA223GTC (739A>T), ATT224ATT (742C>T), GTG226TGA (748A>G), GAA234GAG (772A>G), TGT236TGC (778T>C), CTG239PTT (785C>T), ACT2434ACA (799T>A), TTC245TTT (805C>T), AAA247AAG (811A>G), ACT249ATA (817C>A), ACC252AAT (826C>T), GCT253GCG (829T>G), GAG255GAA (835G>A), ACT2A57CTA (839A>T), CCT258TAA (842C>T), TAT259TAC (847T>C), GAG268GAA (874G>A), CCT259TCT (887T>C), CCT260TCT (895A>T), CAG267TCA (901G>A), ACA279AAT (907A>T), AAC283CAT (919C>T), CCT284TCT (922C>T), ACT284TAT (931C>T), CCT288CAT (934C>T), CCT289TTC (937C>T), CTG292TTC (944C>T 946A>G), CCT299CCG (967T>G), TAT300TAC (970T>C), TCA302TC (976A>G), GCT304GCA (982T>A), CCT297TCA (991C>T), GTG308GTA (994G>A), AAC310AAC (1000T>C), GCA315GTT (1015A>T), GTC317TGT (1021C>T), CAA321CAG (1033A>G), GTC322GTC (1036C>G), TCC324TCT (1042C>T), CTG325TTC (1043C>T 1045A>G), ACG328ACA (1054G>A), GTT329GTC (1057G>A), GCT331GCA (1063T>A), GCA332ACA (1064G>A), GCT334GCA (1072T>C), CCT335CCG (1075T>G), GAA337GAG (1081A>G), GTC341CTT (1093A>T), GGG342GGA (1096G>A), CTG345TTC (1093C>T), GAG346GGG (1108A>G), GAA348GAG (1114A>G), CCT349TTC (1117C>T), GGG351GGA (1123G>A), GCA354AT (1132A>G), AGA357AGG (1141A>G), AGA358AGG (1144A>G), AGA361AGG (1153A>G), AGA363GAG (1156T>C), GAG363GAA (1159G>A), AAC363GAG (1171A>G), GAA368GAG (1174A>G), TAC369TAT (1177C>C), GCG371GCA (1183G>A), CTG374TTC (1190C>T), AAG376AAA (1198G>A), ACT377GCT (1199A>G), GTC378GAG (1204C>G), GTC379AGG (1205G>A 1206T>C 1207A>G), GCA380GCC (1210A>G), CTG381TTG (1211C>T), GAT384GAC (1222C>T), ACT386ACA (1228T>A), AAC388AT (1234C>T), GAC390GAT (1240C>T), GAC391GAT (1243C>T), TCA396TCC (1258A>C), GGT397AGT (1259G>A), AGA400AGG (1270A>G), CCG402CCA (1276G>A), GTC404GCA (1282T>A), TAT406TAC (1288T>C), ACT407ACA (1291T>A), ATA410ATC (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), TCA437TGC (1381A>G), TTC438TTT (1384C>T), GCG439GCG (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	84.6%	1442	85.7%	252 (100%)	216 (85.7%)	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), 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 1									

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	16	11918	94.5%	14019	62.2%	11276 (99.9%)	9153 (81.1%)	1/4	
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), AGA30AAG (1603A>G), AAT31AAC (1606T>C), GAA33GAG (1612A>G), GGG14GAG (1636G>A), GA442GAT (1639A>T), GA45GAG (1648A>G), AAT48AGT (1656A>G), CCT50CCC (1663T>C), GAG51GAA (1666G>A), GAT52GAC (1669T>C), GGGS4AGA (1673G>A), CGA55CGG (1678A>G), CAC57CAA (1684C>A), CTG58CTA (1687G>A), GGA61GAC (1695G>A), AAC62AAG (1699A>G), TCG63CCG (1700T>C), CCC64CT (1703C>T), AAC65GCC (1706A>G), AAT70AG (1707A>G), AAG71AAA (1726G>A), GTG72CA (1728T>C) 1729G>A), GGC75AGC (1736G>A), AAC76AAA (1741G>A), CGA78CAG (1746G>A), AAC79GAA (1750G>A), GAA85AGG (1768A>G), GGA86GCA (1770G>C), AGC90GCC (1781A>G), CTG92TTG (1787C>T), TTC93TTT (1792C>T), GTC102ATT (1817G>A, 1819C>T), ATA108ATG (1837A>G), AGG109AAG (1839G>A), GGA111GGG (1846A>G), TTT114TCT (1855T>C), CTC115CTG (1858C>G), AAC116AAA (1861G>A), TCA117AT (1870A>G), TCA122TG (1879A>T), GAA123GAG (1882A>G), ATT125ATC (1888T>C), ATA126GTA (1889A>G), GCG130ACA (1901G>A), CCC134CT (1913C>T), AAC135GCT (1916A>G 1917A>C), CCT136CG (1919C>A), GGA138GGG (1921T>G), TGT140TCT (1933T>C), TCA141TTA (1935C>T), GAG142AAA (1937G>A), AAC143GAC (1942T>C), AAC144AAC (1945A>G), TCA145GCT (1946T>G), AAC146ACT (1951C>T), ACC149GTT (1958A>G 1959C>T) 1960C>T), CGA151GCC (1966A>C), ATC201ATC (2116C>T), GCT202GGG (2119T>G), CA2024CAA (2125G>A), GCA206GCC (2131A>C), GAA207GAG (2134A>G), AGT208AGC (2137C>T), TCC209TTT (2140C>T), TCC210TCT (2143C>T), AAC211AA (2146A>C), AAC212AA (2149A>G), TAT213TAC (2152C>T), AAC214AAA (2155G>A), CCC216CC (2161C>T), TCT217TCT (2164T>C), TCC219CTA (2170C>A), CTC223TC (2180C>T), AAC226AAC (2191T>C), CAA229CAC (2200A>G), TTG230CTG (2201T>C), GAT235GAC (2218T>C), GTT238GTC (2222T>C), AAC239AAC (2230A>G), GCA241TCC (2234G>T) 2236A>G), GTC244GTC (2245A>G), ACC248ACT (2257C>T), TTA250TCT (2263A>G), CGT252CT (2268G>A), GGG254GGA (2275G>A), CCG258CT (2287C>T), CT2A259CTG (2290A>G), GT262GTC (2299A>G), GTC266GTT (2311C>T), TTG268CTA (2315T>C) 2317G>A), GCG269GCA (2320A>C), AAC270ATA (2323C>T), TCT271TCC (2326T>C), AAC272AA (2329G>A), TTG276CTG (2339T>C), TTA277TGT (2344A>G), GTC278GTC (2347C>T), AAC279GAG (2350A>G), TCC280CCC (2351T>C), AAC281GAC (2354A>G), CTG283CTA (2362G>A), ATG284AAC (2364G>A), AAC285AA (2368A>G), ATC286ATA (2371C>A), TGT291CTG (2384T>C), AAC292AAC (2389T>C), CGC293CTG (2392C>T), ACA295GCG (2396A>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	1
Protein mutations:	I7M (2516A>G), P21L (2557C>T), V22I (2559G>A), L26P (2572T>C) 2573G>A), S46G (2631A>G), R50M (2644G>T), G58E (2668G>A), G70R (2703G>A), D80N (2733G>A), B182L (2739A>C) 2741A>C), H87Q (2756T>A), V90I (2763G>A), W95C (2765C>T), I97V (2784A>G), N147D (2934A>G), T148A (2937A>G), Q154E (2955C>G), K160R (2974A>G), R165Q (2989G>A), G178C (3027G>A), M184L (3045A>C) 3047G>A), E192D (3071A>T), L199V (3090C>G)								
Codon mutations:	CTA44TA (2505G>T), ATA7ATG (2516A>G), AAA9AAG (2522A>G), AAT10AAC (2525T>C), TGC11TGT (2528C>T), AGG12AGA (2531G>A), GAC13GAT (2534C>T), ACT16AAC (2543T>C), CAA17CAG (2546A>G), AA18AAG (2549A>G), CCC21CTC (2557C>T), GTG22ATA (2559G>A), CGC24GCA (2567C>A), CTG26CCA (2572T>C) 2573G>A), GAC30GAT (2585T>T), TTG31CTA (2586T>C) 2588G>A), CTC33TTA (2592C>T) 2594T>A), AAC34CCG (2597A>C), CCC35CCG (2600C>T), CCT36CCG (2603G>T), TAC38TAT (2609C>T), GTG39CTT (2612C>T), CTAA41TC (2616C>T) 2618A>G), AAC42AAC (2621A>G), AAC43GAG (2624A>G), CTT44CTC (2627T>C), AAC45ACG (2630A>G), AGC46GCG (2631A>G), AGG50ATA (2644G>A), AAC52AAT (2651C>T), TGT54TGC (2657T>C), AAC56AAAT (2663C>T), GGA57GGG (2666A>G), GGG58GAA (2668G>A), GGT59GCG (2672T>C), AGC63GAT (2684C>T), AAC646CCC (2687G>A), AT656AAC (2690C>T), GGT66GGC (2693T>C), TCG68TCA (2699G>A), TTC69TT (2702C>T), GGT69AGG (2703G>A), CTG72TGT (2707C>T), CTG76TGT (2712C>T), GAC80AAT (2733G>A), TCA75CTC (2739A>C) 2741A>G), TCT84TCC (2747C>C), GGG85GGA (2750G>A), CAT87TCAA (2756T>A), AGG88AGA (2759G>A), GTC90ATA (2763G>A), CGC91GGA (2768G>A), TTA92CTG (2769T>C), AAA94AAC (2777A>G), GT949GTT (2780A>T), ATT79GTT (2784A>G), CTG99HTT (2790C>T), GCT100CGC (2795T>G), GGA103GGG (2804A>G), GCT104GCC (2807T>C), GTC106GTT (2813C>T), GGC109GTT (2822C>T), AAC1515AA (2840G>A), CTT120TCA (2856T>A), ATC121ATT (2858C>T), GAC123GAA (2864G>A), AGG128AGA (2879G>A), CTT131CTA (2887A>T), TCA138TAT (2909C>T), ATC142ATT (2921C>T), ACT143AAC (2924T>C), AAC147ATG (2934A>G), AAC148GCC (2937A>G), AAC151GTT (2943C>T), AAC152GAA (2948C>T), AAC154GAA (2955C>G), AAC160AGA (2974A>G), AAC161AAC (2978G>A), AAC162GAA (2984A>G), AAC163GAA (2989G>A), AAC164GAA (2994A>G), AAC165GAA (2996A>G), ATC168ATT (2999C>T), AAC175TCT (3020G>T), AAC176GCA (3021A>C), GGT178TGT (3027G>T), AAC179CAG (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), AAC195AG (3080A>G), TCC197TCT (3086C>T), TCT198TCA (3089T>A), CTG199GTT (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	1
Protein mutations:	V21 (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 (3819A>G) 3920T>A), M206T (3934T>G) 3935G>A), N213 (3953G>A) 3956T>C), R215K (3961G>A) 3962G>A), C218K (3973G>A) 3974A>G), S223G (3984A>G) 3986T>C), E224K (3987G>A), A261S (4098G>A) 4100G>A), M262I (4103G>T), N266D (4113A>G) 4115T>C), E267D (4116A>G), Z274D (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 (4598A>G) 4598C>T), E44K (4647G>A), R445Q (4651G>A), N455S (4681A>G) 4682C>T), V460L (4695G>C) 4697A>C), L462M (4701C>A), S463I (4705G>A), A466G (4714G>C), G475 (4741T>G), L476S (4743C>T) 4744T>C) 4745G>A), T478A (4749G>A), W480C (4757G>T), V483I (4764G>A) 4765T>C), N484K (4769G>A), S486T (4773T>C) 4775G>A), P488S (4779C>T) 4781T>A), T489R (4783C>G), Q490R (4785C>A) 4786A>G), H491R (4789A>G) 4790C>A), N492G (4791A>G) 4792Z>C) 4793T>C), I493S (4794C>T) 4795T>C), 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), P507R (4836G>A), I509V (4842A>G), I510V (4845A>G), S515L (4861C>T) 4862A>G), G519E (4873G>A) 4874G>A), E521D (4886G>T), T522A (4881A>G), G523L (4884G>A) 4886A>G)								
Codon mutations:	GTT2ATC (3231G>A) 3323T>C), CCT3CT (3325C>T), CTG6CTT (3335C>T), GTAG9TG (3344A>G), CCC10CT (3347C>T), CTT11TTC (3348C>T) 3350T>C), CTG12CTA (3353G>A), GTT13ATC (3354G>A) 3356T>C), TTT14TCT (3358T>C), CCA15TCC (3360C>T) 3362A>G), TTT18CTC (3369T>C) 3371T>C), CTC22CCC (3383T>C), ATT23ATC (3386T>C), ACCG25ACA (3392G>A), CCA27CCG (3398A>G), CCC32CTC (3413C>T), CCG35CC (3422G>C), AT363ATC (3425T>C), GAC37GAT (3428C>T), TCG43TGT (3446C>T), AAC45AAAT (3452C>T), TTG47TTA (3458G>A), GTC48GTT (3461A>T), GAA56GAG (3473A>G), GGAG53GG (3476A>G), AAC56ACG (3484A>G) 3485C>T), CTG57CTA (3488G>A), CCT61CTC (3500C>T), CTC65CTA (3512T>A), AAC66AAG (3515A>G), GTC76TGT (3518T>C), TCA71TCT (3530A>T), AAC77AAG (3543A>G), AGT756GTC (3540A>G), TGT787TGT (3551C>T), TGCG80TGT (3557C>T), AAC81ACC (3560A>C), GGC82GGT (3563C>T), TCA90TAT (3587C>T), ACT91ACC (3590T>C), TTG93TTT (3596C>T), GTT94GTC (3599T>C), AAC98ACC (3611A>C), AC1010ACA (3617C>A), AAC102AAC (3623A>G), AGA103AGG (3626A>G), AAC104AAA (3629G>A), AAC105AATC (3641A>C), AAC109ATA (3643C>T), CCA110CCG (3647A>G), TGT113TCG (3656T>C), AGA114AGG (3659A>G), GGC115GCT (3662C>T), GCG116GCA (3665G>A), GGC122GCT (3683C>T), AAC125CCT (3692C>T), GAA128GAG (3701A>G), CTA131CTT (3710A>T), CAC132CA (3731A>C), CGC134CTT (3719G>A), TAC135TAT (3722C>T), GAC137GAA (3728C>A), CTT141CTA (3740T>C), CGA142CGG (3743A>G), ACT143ACA (3746T>C), AAC145AAC (3752A>G), AAC147ACT (3758C>T), CTC151CTT (3770C>T), GTT152TC (3771G>A) 3773T>C), AAC156CC (3785A>G), GCA159CT (3794A>T), TTG161CTA (3798T>C) 3800G>A), CCA163CCG (3806A>G), TAT164TAC (3809T>C), AAC166AA (3814A>G), AAC169CAT (3824C>T), TCG161TCT (3827G>T), GTC172GTC (3833C>G), GGC175MGT (3842C>T), GGG176GGA (3845G>A), AAC177AAG (3848T>C), AAC178TTC (3848T>C) 3849C>T), AAC179TGT (3851C>T), TCA179TGT (3853C>T), AAC180ATA (3856A>C), AAC181ATA (3858G>A), GCG182ACG (3861G>A), GTG183GTT (3866G>T), TCT185TCC (3872T>C), TCC189TCA (3884C>A), AAC190ACC (3887T>C), AAC192CAT (3893C>T), ATT196ATC (3905T>C), AAC201GAA (3918A>G) 3920T>C), CGG202CCA (3923G>C), CT2A04CTC (3929A>C), ATG206ACA (3934T>C) 3935G>A), TGT208TG (3941T>C), AAC213AGC (3955A>G) 3956T>C), AGT214AGC (3959T>C), AGA215AG (3961G>A) 3962G>A), AAC217AAG (3968G>A), AAC218AG (3970G>A) 3971A>G), TCC220CT (3977C>T), AAC221AA (3980A>G), GGG222GGA (3983G>A), ATG223GCG (3984A>G) 3986T>C), GAC224AAG (3987G>A), GGC227GGA (3988G>A), AAC225GTC (4002T>C), TTA238CTA (4029T>C), ATG262ATC (4103G>T), AAC264AAC (4109A>G), AAC266GAC (4113A>G) 4115T>C), AAC267GAT (4118A>T), CCC273CCG (4136C>G), GGT274GAT (4138G>A), CAG275CAA (4142G>A), TTG279CTA (4152T>C) 4154G>A), AAC280CAT (4157C>T), CGC283CAC (4165G>A), ATT287ATA (4178T>A), AAC289CTC (4184C>A), CTC290CTC (4187T>C), GTC291GTC (4190T>C), AAC292GTC (4193A>G), AAC293GAG (4214A>G), GAG300GAA (4217G>A), AAC294GTC (4220T>C), CCT292CTA (4224C>T), ATG304GAC (4229T>C), AAC306TTG (4233C>T) 4235A>G), AAC313AA (4256G>A), AAC314TAT (4257C>T), AAC314TCT (4259A>T), AAC314TGT (4259C>T), AAC315ATC 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	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons	
NT	16	11918	94.5%	14019	62.2%	11276 (99.9%)	9153 (81.1%)	1/4		
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 (6697T>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), Q745M (7650C>A 7651A>G), F760L (7695T>C 7697T>C), V766I (7713G>A), V815I (7860G>A), A879I (8053C>T 8054T>A), E882D (8063G>C), S883N (8065G>A), H933I (8214C>A 8216C>T), R937K (8326G>A), T1018K (8470C>A), K1059R (8605A>G), S1078N (8650G>A 8651T>C), G1089R (8682G>A), P1092T (8691C>A 8693T>C), T1135S (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), Y1418D (9669T>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 (11131G>T 11131T>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), H2137O (11828T>G), A2138T (11829G>A), K2139E (11832A>G), L2141H (11839T>A), V2142G (11842T>G 11843G>A), *2143W (11846A>G)	Protein mutations: 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 (6697T>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), Q745M (7650C>A 7651A>G), F760L (7695T>C 7697T>C), V766I (7713G>A), V815I (7860G>A), A879I (8053C>T 8054T>A), E882D (8063G>C), S883N (8065G>A), H933I (8214C>A 8216C>T), R937K (8326G>A), T1018K (8470C>A), K1059R (8605A>G), S1078N (8650G>A 8651T>C), G1089R (8682G>A), P1092T (8691C>A 8693T>C), T1135S (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), Y1418D (9669T>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 (11131G>T 11131T>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), H2137O (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	16	11918	94.5%	14019	62.2%	11276 (99.9%)	9153 (81.1%)	1/4	
CTC2ATT (5421C>A 5432C>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>T 5489C>T), ACT26AAC (5485T>C), GTC27ATC (5496G>A), AGG32AGA (5513G>A), TCT34TCG (5519T>C), ATA37AAC (5528T>C), TTG42CTG (5541T>C), GAT845GC (5552T>C), CTC46TCG (5583C>T), GCT74GCC (5585B>C), AGA48AAA (5606G>A), CTAC49CTG (5654A>G), TTA15TGG (5570A>G), GAA52AGG (5573A>G), TTAA54TTG (5579A>G), MAA65AGC (5585A>G), GGG57GGG (5588G>A), TAT61CTC (5598T>C) 5599A>T), CT656CTG (5612A>G), TCC70TCT (5627C>T), TTCT73CT (5633T>A), AGA74AG (5638G>A), GGT75GCC (5642T>C), GAT84GCC (5669T>C), GGT86GGG (5675T>C), TCC88ATC (5678C>A), AGA89AAA (5684A>A), GGC91GGT (5690C>A), ATG93GCT (5694A>C), GAG96CAA (5695T>C), GCT94GCC (5697T>C), CA979TCT (5705G>A), TCA97TCT (5708A>T), ATT99ATC (5714T>C), TCT100TC (5717C>C), CTC101CTT (5720C>T), TTA103CTG (5724T>C 5726A>G), TAT104TC (5729T>C), GCC106GCA (5735C>A),CAC107TAT (5736C>T 5738C>T), TCC110TCG (5747C>G), AGG112AGA (5753G>A), CGG114CGA (5759G>A), AGA115AG (5761G>A 5762A>G), TTG120CTG (5775T>C), CAT122CAG (5783T>G), TAT124TAC (5789T>C), TCG127TCT (5798G>T), TCC128GCC (5799T>C), GAG131GAA (5810G>A), CTG133CTA (5811G>A), TTA134CTA (5817T>C), ATT135AAC (5822T>C), CTG136TGC (5823C>T 5824T>G), AGC137ACA (5826G>A), CTAA138CTC (5831A>C), GGA139GAG (5833G>A 5834A>G), ATC145ATT (5852C>T), CCA147ACA (5856C>A), GGA149GGG (5864A>G), GTG150TG (5867G>C), ATG152AGC (5873T>C), ATT161AAA (5900T>A), GAA164GG (5909A>G), AGG165GGG (5910A>C), CTT167TTG (5916C>T 5917B>G), GGC168GCT (5921C>T), GAT84GCC (5969T>C), GTC175TAA (5942G>A), TTC177TT (5948C>T), CAT178CAC (5951T>C), GTA179GTG (5954A>G), ATC180ATG (5957C>G), ACC181ACT (5960C>T), TTA182CTT (5961T>C 5963A>T), AAC185AAAT (5972C>T), CTA187TTG (5976C>T 5978A>G), GAC188GAT (5981C>T), GAA191GAG (5990A>G), GAA192GAG (5993A>G), CTA196TTA (6003C>T), TTA198CTG (6009T>C 6011A>G), AAC200AAG (6017A>G), ACC203ACA (6026C>A), GTG205ATT (6030G>A 6032G>T), GAC206GAT (6035C>T), ATC207GTT (6036A>G 6038C>T), AAC209AGG (6043A>G), GTA212GTC (6053C>A), TCT214TT (6059C>T), CAA217AAA (6066C>A), GGA220GGG (6077A>G), CTG221TTG (6078C>T), ATC223ATA (6086C>T), AAC225ACA (6092A>C), AAC226AA (6095G>A), GAC227GAT (6098C>T), GTT229GTG (6104T>G), TCA230TAT (6107C>T), TCC234TCT (6119C>T), ATAA235GTT (6120A>G 6121A>G), TG236TGC (6125T>C), CTT237CT (6128T>C), TAC242TAT (6143C>T), TCA246TTA (6153C>T), GAT248AC (6161T>C), TCC250TTT (6167C>T), TTA251TAT (6168T>A), GTC259ATT (6192G>A 6194C>T), TTA260CTT (6195C>T 6197A>T), CTC263CTC (6206C>T), CCA264CGC (6209A>G), GAG265GAA (6212G>C), CGA267AGA (6216C>A), TAC268TAT (6221C>T), TTG272CTG (6231T>C), CTA276CTG (6245A>G), TGC277TGT (6248C>T), CTG279CTA (6254G>A), TAC280TAT (6257C>T), ATT281ATC (6260T>C), GCT282GCC (6263T>C), GGG283GG (6266G>A), CAA285AC (6272A>C), ATG289GTG (6282A>G), TGC290TGC (6287T>C), GGA291GGC (6290A>G), AAC292ATA (6293C>T), TCC293CT (6296C>T), CGG294AGC (6299C>A), GAA296GAA (6303M>A), TGT301TTA (6320G>A), GAG302GAA (6323G>A), CSAC303CT (6332C>T), AAT307AAC (6338T>C), AGT308AGC (6341T>C), AACG315AG (6361A>G), TTT316TTC (6365T>C), TTG323TAA (6366G>C), AACG325GAT (6392C>T), TTG326TTT (6395T>C), CCT327CCC (6398T>C), GTA328GC (6400T>C), AAA331AGA (6409A>G), GAC332GAT (6413C>T), GTA334GTC (6419A>G), AGT335GCT (6420A>G), CTG337CTT (6428C>T), GAA338GAG (6431A>G), GAG339GGA (6433A>G 6434G>A), ACG340ACA (6437G>A), TTC341TTT (6440C>T), TCC343CCT (6444C>T 6446C>G), TGT344AAT (6447T>A), AGA346AGA (6454G>A 6455A>G), TTT349TC (6464T>C), AGC350AA (6466G>A), AAC351AGA (6479A>G), TGC355TTT (6482C>T), AAC356ATA (6488C>T), GTC356TGC (6503T>C), TTT363TCT (6506T>C), CAT370CAC (6527T>C), GGG372GGA (6533G>A), CAC373CAT (6536C>T), CCA374CTC (6539A>T), TAT375TAC (6542T>C), CGA379AGA (6552C>A), CGT381GGG (6560T>G), CTG382TTC (6561C>T), AAA384AAG (6569A>G), CAG388VCA (6581G>C), GTT389GTC (6584T>C), AAC392AAC (6593A>G), AAA393AAC (6596A>G), CTG394TC (6599G>C), AGA397AA (6608G>A), TAC399TAT (6614C>T), CAG400CA (6617G>A), ATA403TTG (6626A>G), AAC404GCC (6629A>G), AGC405AGT (6632C>T), CT404TCTG (6638A>G), AAC409AGA (6644G>A), CTT412CTC (6653T>C), AAC413AGA (6656A>G), GGT415GCA (6662T>C), GAT417GAC (6668T>C), TCC420TCT (6677C>T), AAC421AA (6680G>A), CTG424CTT (6689G>T), TTC428CTT (6699T>C 6701C>T), CTAA429CTT (6704A>T), GCA430TCA (6705G>T 6707C>A), CGA431AGG (6708A>C 6710A>G), GAC432GAT (6713C>T), GTG435CTG (6720T>C), ACC441ACT (6740C>T), AAC442CAG (6743A>G), CCA445CCT (6752A>T), AAC456ATT (6752A>T), ATT449A (6764T>A), GTC450TG (6767A>G), AAC456GAC (6782T>C), AAC456AT (6785A>T), CAC458AT (6791C>T), AGC463AAC (6806G>C), ATC465ATT (6812C>T), ATT468ATC (6821T>C), CTC469CCG (6824T>C), GAT473GAC (6836T>C), TCA475TGC (6842A>C), GAT479GAC (6854T>C), CAT483CAC (6866T>C), TCT484TCA (6869T>C), AAC488AA (6873G>C), ATC490TAA (6885C>T), 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(10997A>G), TCG1862TCA (11003G>A), TTT1864TTC (11009T>C), TCT1866TCC (11015T>C), CTC1868TTA (11019C>T 11021C>A), TAC1869TAT (11024C>T), CTT1870CTC (11027T>C), CGA1871AGA (11028C>A), CGA1875CGG (11042A>G), TTT1878TTC (11051T>C), AAA1880CGA (11055A>C), GCT1882GCA (11063T>A), GAG1883GAA (11066G>A), TAC1884AT (11069C>T), TTG1885CTG (11070T>C), ACC1886ACT (11075C>T), TCC1888TCT (11081C>T), ACC1889GTC (11082A>G 11084C>T), CTT1890CTC (11087T>C), CGA1891AGA (11088C>A), GTG1896GTA (11105G>A), ATT1899AAC (11144T>C), AGC1902AGT (11123C>T), AGT1905AGC (11132T>C), GCT1910GCC (11147T>C), CGT1911CGG (11150T>C), TGT1913TTA (11156G>A), AAC1914AAT (11159A>T), TAT1915TAC (11162T>C), GGA1921GGT (11180A>T), TTT1922TTC (11183T>C), CCT1923CCA (11186T>A), GAA1924GAG (11189A>G), GAA1925GAG (11192A>G), TCA1928TCC (11201A>C), CCT1930CCC (11207T>C), TAC1931TAT (11210C>T), ACT1937ACC (11228T>C), GAG1944GAG (11249A>G), CTG1947CTG (11258A>G), GTC1948GTT (11261C>T), CTT1955CTA (11282T>A), GAG1956GAA (11285G>A), 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(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), CCT2135ATT (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)

*: Inserts / Deletes / Misaligned / FrameShifts

Analysis details

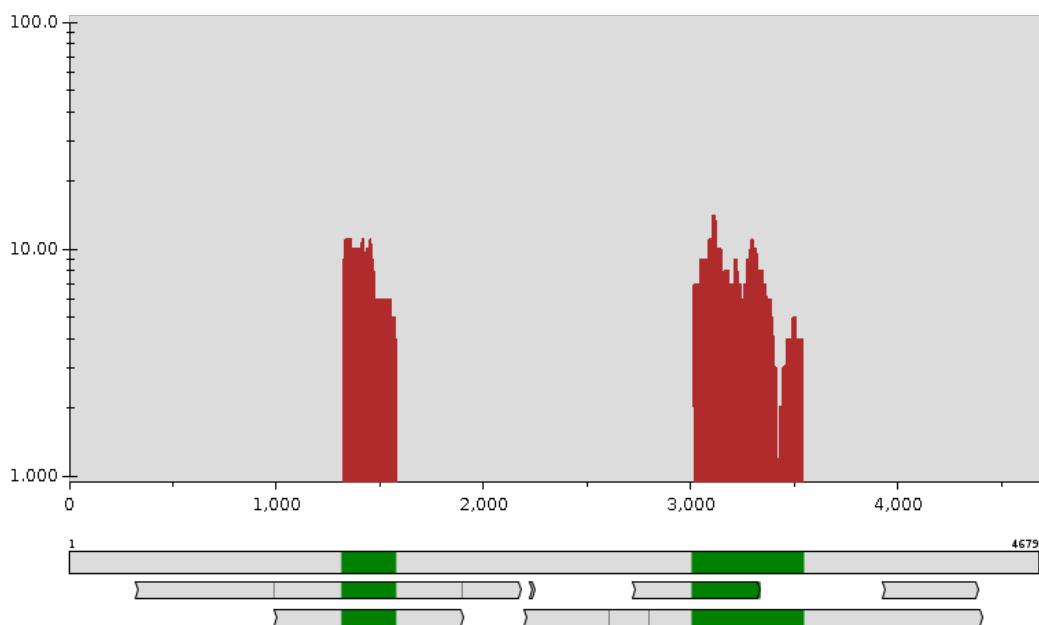
This analysis was performed with Pan-viral (2.14.6).

NGS Details (MG-3-RNASeq021-ZymoSeq): adeno-associated virus 2

Assembly

Coverage Length	797 (2 contig(s))
Depth Of Coverage	7.1
Number Of Reads	52
Reads Per Million	0.47 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 (%)	61.1867
AA Identity (%)	56.1508
Number Of Stop Codons	14
Number Of CDS	9

Alignment

Alignment Score	365.0 (NT) + 4051.0 (AA) = 4416.0
Concordance (%)	49.685

Alignment Method

Global, seeded, nucleotide + amino acids (AGA)

Genome Region

Sequence starts at position 1321 and ends at position 3544 relative to NC_001401.2 reference sequence.

Alignment Detailed Statistics

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	1321	3544	17.0%	365	22.9%	797 (98.5%)	495 (61.2%)	12/0	
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, 1382C>T, 1385G>C, 1388C>T, 1390T>G, 1391A>T, 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>A, 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, 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, 3014A>C, 3017A>C, 3019T>A, 3024C>A, 3027C>T, 3028A>G, 3032C>T, 3033C>T, 3036T>A, 3039G>T, 3041G>C, 3042G>C, 3045T>C, 3046T>C, 3057C>T, 3066C>G, 3069C>T, 3074T>G, 3075T>G, 3076T>A, 3077C>G, 3078A>C, 3081A>T, 3083G>A, 3084T>A, 3088T>C, 3089G>A, 3094A>T, 3096A>C, 3110A>G, 3114G>A, 3137A>G, 3138C>A, 3139T>A, 3144G>C, 3145C>A, 3147C>A, 3150T>C, 3153C>T, 3154G>A, 3155T>C, 3162C>T, 3165A>G, 3168G>A, 3174G>A, 3175C>G, 3178A>G, 3179A>C, 3180T>A, 3182A>T, 3183C>G, 3186T>A, 3189G>A, 3191C>A, 3192G>A, 3195G>A, 3199G>A, 3204T>C, 3207C>T, 3208C>T, 3210T>A, 3213C>A, 3214A>C, 3215G>C, 3216C>T, 3220G>A, 3222T>C, 3226G>A, 3228G>C, 3234T>A, 3237C>G, 3239C>A, 3240G>C, 3241G>A, 3242A>C, 3243G>A, 3246C>T, 3247C>T, 3252C>G, 3255G>T, 3258G>T, 3262C>A, 3264C>T, 3267C>T, 3269C>A, 3270G>T, 3273G>C, 3275A>C, 3276T>A, 3277C>G, 3286C>T, 3288C>G, 3292C>A, 3294G>C, 3297C>T, 3302C>G, 3303A>T, 3306C>T, 3308T>C, 3312C>T, 3316G>A, 3318G>T, 3321A>C, 3322C>T, 3324G>A, 3325T>C, 3330A>T, 3331T>C, 3333C>T, 3334C>T, 3335G>C, 3336C>T, 3339C>T, 3342G>C, 3343A>C, 3345C>T, 3345G>C, 3346G>C, GTTCACTCAGGA, 3347A>C, 3349G>A, 3350G>C, 3351G>C, 3353G>C, 3354T>C, 3355C>A, 3356A>T, 3358G>C, 3360A>T, 3361G>A, 3362T>C, 3363A>T, 3365G>C, 3366A>T, 3367C>A, 3369G>A, 3373T>G, 3376A>T, 3384C>T, 3387G>A, 3390G>A, 3395T>C, 3399T>C, 3400T>A, 3401C>G, 3405G>A, 3411G>T, 3412C>T, 3414T>C, 3417C>A, 3420A>C, 3430A>G, 3432C>T, 3436A>C, 3437G>T, 3438C>T, 3441C>A, 3443C>A, 3450G>A, 3451G>A, 3453C>T, 3454G>T, 3456T>G, 3457C>T, 3459T>A, 3462C>T, 3465C>T, 3466A>T, 3467G>C, 3469A>T, 3470G>A, 3473A>T, 3474C>T, 3475G>T, 3480C>A, 3482G>A, 3483C>T, 3489T>A, 3490C>A, 3491T>G, 3492G>T, 3493G>A, 3494A>C, 3495C>T, 3497G>A, 3500T>A, 3501C>G, 3502A>T, 3503T>C, 3504G>C, 3507T>C, 3511C>T, 3513C>G, 3516C>T, 3517G>T, 3519C>T, 3522G>A, 3525C>T, 3532T>G, 3533A>C, 3534C>T, 3537G>C, 3542G>A								
CDS									
AAV2gp01	335	422	16.4%	458	72.0%	88 (100%)	62 (70.5%)	0/0/0/0	0
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), 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)								
Codon mutations:									
	CCT335CGT (1324C>G), GCA336TCA (1326G>T), ACT337ACA (1331T>A), AAG340GAA (1338A>G 1404G>A), ACC341GAC (1341A>G 1342C>A), GCG344ACA (1350G>A 1352G>A), GCC346GAT (1357C>A 1358C>T), ATA347ATA (1361A>T),CAC349CGT (1366A>G 1367C>T), ACT350GCT (1368A>G), GTG351GGG (1372T>G), CCC352CT (1376C>A), TAC354TAT (1382C>T), GGG355GGC (1385G>C), TGCG356GT (1388C>T), GTA357GT (1390T>G 1391A>T), ACC360A (1400C>A), GAG362GGA (1405A>G 1406G>A), AAC363GAC (1407A>G), TTC366TT (1418C>T), AAC367ATA (1421C>T), GTCT370GT (1430C>G), AAG372AA (1436G>A), ATG373GAG (1437A>G 1438T>A), GTG374GTA (1442G>A), ATC375ATA (1445C>T), GGG380GGT (1460G>T), ACC383ACT (1469C>T), GCG384AAT (1470G>A 1471C>A 1472C>T), AAC385AAA (1475G>A), GTC386GTT (1478C>T), TCG389TCT (1487G>T), CGC390GCC (1490C>G), ATT393ATA (1499T>A), CTC394TTG (1500C>T 1502C>G), GGA396AAG (1506G>A 1508A>G), AGC397CT (1509A>T 1510G>C 1511C>T), AAG398GCC (1512A>G 1513A>C 1514G>C), V399I (1515G>A 1517G>C), R400Q (1519G>A 1520C>G), C405Y (1534G>A 1535C>T), TCG408TCT (1544G>T), GGC409GTA (1546C>T 1547C>A), CAG410CCA (1549A>C 1550G>A), ATA411GCA (1551A>G 1552T>C), GAC412GAA (1556C>A), CGC413CC (1559G>C), ACT414ACA (1562T>A), CCC415CCT (1565C>T), GTG416GTA (1568G>A), GTC418ATA (1572G>A 1574C>A)								
AAV2gp02	335	422	14.1%	458	72.0%	88 (100%)	62 (70.5%)	0/0/0/0	0
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), 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)								
Codon mutations:									
	CCT335CGT (1324C>G), GCA112TCA (1326G>T), ACT337ACA (1331T>A), AAG340GAA (1338A>G 1404G>A), ACC341GAC (1341A>G 1342C>A), GCG344ACA (1350G>A 1352G>A), GCC346GAT (1357C>A 1358C>T), ATA347ATA (1361A>T),CAC349CGT (1366A>G 1367C>T), ACT350GCT (1368A>G), GTG351GGG (1372T>G), CCC352CT (1376C>A), TAC354TAT (1382C>T), GGG355GGC (1385G>C), TGCG356GT (1388C>T), GTA357GT (1390T>G 1391A>T), ACC360A (1400C>A), GAG362GGA (1405A>G 1406G>A), AAC363GAC (1407A>G), TTC366TT (1418C>T), AAC367ATA (1421C>T), GTCT370GT (1430C>G), AAG372AA (1436G>A), ATG373GAG (1437A>G 1438T>A), GTG374GTA (1442G>A), ATC375ATT (1445C>T), GGG380GGT (1460G>T), ACC383ACT (1469C>T), GCG384AAT (1470G>A 1471C>A 1472C>T), AAC385AAA (1475G>A), GTC386GTT (1478C>T), TCG389TCT (1487G>T), CGC390GCC (1490C>G), ATT393ATA (1499T>A), CTC394TTG (1500C>T 1502C>G), GGA396AAG (1506G>A 1508A>G), AGC397CT (1509A>T 1510G>C 1511C>T), AAG398GCC (1512A>G 1513A>C 1514G>C), V399I (1515G>A 1517G>C), R400Q (1519G>A 1520C>G), C405Y (1534G>A 1535C>T), TCG408TCT (1544G>T), GGC409GTA (1546C>T 1547C>A), CAG410CCA (1549A>C 1550G>A), ATA411GCA (1551A>G 1552T>C), GAC412GAA (1556C>A), CGC413CC (1559G>C), ACT414ACA (1562T>A), CCC415CCT (1565C>T), GTG416GTA (1568G>A), GTC418ATA (1572G>A 1574C>A)								
AAV2gp03	111	198	28.1%	458	72.0%	88 (100%)	62 (70.5%)	0/0/0/0	0
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), 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)								
Codon mutations:									
	CCT111CGT (1324C>G), GCA112TCA (1326G>T), ACT113ACA (1331T>A), AAG116GAA (1338A>G 1404G>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), CCC128CT (1376C>A), TAC130TAT (1382C>T), GGG131GGC (1385G>C), TGCT132GT (1388C>T), GTA133GCT (1390T>G 1391A>T), ACC136ACA (1400C>A), GAG138GGA (1405A>G 1406G>A), AAC139GAC (1407A>G), TTC142TTT (1418C>T), AAC143AA (1421C>T), GTCT146GT (1430C>G), AAG148AA (1436G>A), ATG149GAG (1437A>G 1438T>A), GTG150GTA (1442G>A), ATC151ATT (1445C>T), GGG156GGT (1460G>T), ACC159ACT (1469C>T), GCG160ATT (1470G>A 1471C>A 1472C>T), AAG161AAA (1475G>A), GTC162GTT (1478C>T), CGC165GTT (1487G>T), GGA166GCG (1490C>G), ATT169ATA (1499T>A), CTC170TTG (1500C>T 1502C>G), GGA172AGG (1506G>A 1508A>G), AGC173TCT (1509A>T 1510G>C 1511C>T), AAG174GAC (1512A>G 1513A>C 1514G>C), V175I (1515G>A 1517G>C), R176Q (1519G>A 1520C>G), C181Y (1534G>A 1535C>T), TCG184TCT (1544G>T), GGC185GTA (1546C>T 1547C>A), CAG186CCA (1549A>C 1550G>A), ATA187GCA (1551A>G 1552T>C), GAC188GAA (1556C>A), CGC189CCC (1559G>C), ACT190ACA (1562T>A), CCC191CCT (1565C>T), GTG192GTA (1568G>A), GTC194ATA (1572G>A 1574C>A)								
AAV2gp04	111	198	22.1%	458	72.0%	88 (100%)	62 (70.5%)	0/0/0/0	0
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), 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)								
Codon mutations:									
	CCT111CGT (1324C>G), GCA112TCA (1326G>T), ACT113ACA (1331T>A), AAG116GAA (1338A>G 1404G>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), CCC128CT (1376C>A), TAC130TAT (1382C>T), GGG131GGC (1385G>C), TGCT132GT (1388C>T), GTA133GCT (1390T>G 1391A>T), ACC136ACA (1400C>A), GAG138GGA (1405A>G 1406G>A), AAC139GAC (1407A>G), TTC142TTT (1418C>T), AAC143AA (1421C>T), GTCT146GT (1430C>G), AAG148AA (1436G>A), ATG149GAG (1437A>G 1438T>A), GTG150GTA (1442G>A), ATC151ATT (1445C>T), GGG156GGT (1460G>T), ACC159ACT (1469C>T), GCG160ATT (1470G>A 1471C>A 1472C>T), AAG161AAA (1475G>A), GTC162GTT (1478C>T), CGC165GTT (1487G>T), GGA166GCG (1490C>G), ATT169ATA (1499T>A), CTC170TTG (1500C>T 1502C>G), GGA172AGG (1506G>A 1508A>G), AGC173TCT (1509A>T 1510G>C 1511C>T), AAG174GAC (1512A>G 1513A>C 1514G>C), V175I (1515G>A 1517G>C), R176Q (1519G>A 1520C>G), C181Y (1534G>A 1535C>T), TCG184TCT (1544G>T), GGC185GTA (1546C>T 1547C>A), CAG186CCA (1549A>C 1550G>A), ATA187GCA (1551A>G 1552T>C), GAC188GAA (1556C>A), CGC189CCC (1559G>C), ACT190ACA (1562T>A), CCC191CCT (1565C>T), GTG192GTA (1568G>A), GTC194ATA (1572G>A 1574C>A)								
AAV2gp05	271	448	24.2%	711	52.0%	178 (97.8%)	96 (52.7%)	4/0/0/0	4

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons								
NT	1321	3544	17.0%	365	22.9%	797 (98.5%)	495 (61.2%)	12/0									
Protein mutations:	H27P (3014A>C), Y272S (3017A>C), F273V (3019T>G), S276G (3028A>G), T277I (3032C>T), W279C (3039G>T), G280A (3041G>C), F282L (3046T>C), H288Y (3066C>G), F291W (3074T>G), R294Q (3083G>A), W296E (3088T>C), R298C (3094A>T), S303S (3110A>G), W304* (3114G>A), G305S (3115G>A), S317A>C), T306I (3118T>C), R307T (3121C>T), R310S (3123A>C), L311C (3133C>T), S314T>C), F313M (3139T>A), S314C>G), L315I (3145C>A), I317A>C), I318A (3154A>C), S315T>C), O336E (3175C>G), N326D (3178A>G), S317A>C), F318D (3178A>G), T330K (3191C>A), S319G>A), A333T (3199G>A), V340I (3220G>A), S322T>C), V342I (3226G>A), S322G>A), T344A (3232A>G), S346D (3238T>G), G3239C>A), S3240G>C), E347T (3241G>A), S3242A>C), S3243G>C), Q349* (3247C>T), L354I (3246C>A), S356N (3268T>A), S3269C>A), R3270G>T), H358A (3274C>G), S3275A>C), S3276T>A), O359E (3277C>G), P364T (3292C>A), S3294G>C), A367G (3302C>G), S3303A>T), V369A (3308T>C), V372L (3316G>C), S3318G>T), Q374* (3322C>T), S3324G>A), Y375H (3325T>C), Y377H (3331T>C), S3333C>T), L378C (3334C>T), S3335C>T), N381H (3343A>C), S3345C>T), N381N (3343G>A), S3346insGTTCACTCAGGA (3345-3346insGTTCACTCAGGA), N382I (3347A>C), G383I (3349G>A), S3350G>C), S3351G>C), S384T (3353G>C), S3354T>C), O385M (3355C>A), S3356A>T), A386P (3358G>C), S3360A>T), S387T (3361G>A), S3362C>T), C3363A>T), G3365G>C), S3366A>T), S391A (3373T>G), S3375A>T), F398S (3395T>C), S3396T>C), R404C (3412C>T), S414T>C), N408S (3425A>G), T410A (3430A>G), G3432C>T), S412L (3436A>C), S3437G>T), S3438C>G), T414N (3443C>A), D417N (3451G>A), P418L (3454G>T), P419S (3457C>T), S4349T>A), S4349Y (3469A>T), Y424F (3473A>T), A425S (3475G>T), H426Q (3480C>A), S427N (3482G>A), S428S>C), T429R (3489T>A), L430S (3490C>A), S4391T>G), S4392G>T), D431T (3493G>A), S4394A>C), S4395C>T), R432H (3497G>A), L433Q (3500T>A), M434S (3502A>T), S3503T>C), S3504G>C), D439Y (3517G>T), Y444A (3532T>G), S3533A>C), S3534C>T), L445F (3537G>C), S446N (3539G>A), R447K (3542G>A)	CAC271CCC (3014A>C), TAC272TCC (3017A>C), TTT273GTT (3019T>G), GGC274GGA (3024C>A), TAC275TAT (3027C>T), AGC276GGC (3028A>G), ACC277ATT (3032C>T), 3033C>T), CCT278CCA (3036T>G), TGG279TGT (3039G>T), GGG280GCC (3041G>C), TAT281T (3045T>C), TTT282CTT (3046T>C), AAC285AT (3057C>T), CAC288CAC (3066C>G), TGC289TGT (3069C>T), TTT291TGG (3074T>G), TCA292AAC (3076T>A), CCA293CT (3081A>T), CGT294CAA (3083G>A), S3084T>A), TGG296CAG (3088T>C), S3089G>A), AGA298TGC (3094A>T), S3096A>T), AAC303AGC (3110A>G), TGG304TG (3114G>A), GGA305AGT (3115G>A), S3117A>C), TTC306CTA (3118T>C), CGA307TGA (3121C>T), CCC308CCA (3126C>A), AGA310AGC (3132A>C), CTC311TGC (3133C>T), S3134T>C), GAC312AGA (3137A>G), S3138C>A), TTC313ATG (3139T>A), A3141C>G), AGA314AA (3144G>A), CTC315ATA (3145C>A), S3147C>A), TTT316TCT (3150T>C), AAC317ATA (3153C>T), ATT318GCC (3154A>G), S3155T>C), S3156T>C), GTC320GTT (3162C>T), AAC321AA (3165G>A), GAG322GAA (3168G>A), AGC324AA (3174G>A), CAG325GAG (3175G>A), GAT326GCA (3178A>G), S3179A>C), S3180T>A), GAC327GT (3182A>T), S3183C>G), GGT328GGC (3186T>C), ACG329ACA (3189G>A), AGC330AA (3191C>A), S3192G>A), AGC331AA (3195G>A), GCC333AAC (3199G>A), ATT334AAC (3204T>C), AAC335ATA (3207C>T), CTT336TA (3208C>T), S3310T (3210T>A), ACC337AAC (3213C>A), AGC338TCT (3214A>T), S3315G>C), S3316G>C), S3317G>C), TAC338AT (3215C>T), CGC339AT (3216C>T), TCG340AT (3217C>T), CGC341AT (3218C>T), CGC342AT (3219C>T), CGC343AT (3220C>T), CGC344AT (3221C>T), CGC345AT (3223C>T), CGC346GAC (3238T>G), S3239C>A), S3240G>C), GAG347ATCA (3241G>A), S3242A>C), S3243G>A), TAC348TBT (3246C>T), CTC350CTG (3252C>T), CGC351CC (3255G>T), TAC352TAT (3258C>T), CTC354AT (3262C>A), S3264C>T), GGC355GT (3267C>T), TCG356AAT (3268T>A), S3269A>C), S3270G>T), CGC357GCT (3273G>T), CAT358GCA (3274C>G), S3275A>C), S3276T>A), CAA359GAA (3277C>G), CTC362DTG (3286C>T), S3288G>C), CGC364ACC (3292C>A), S3294G>C), TTC365TT (3297C>T), GCA367GGT (3302C>G), S3303A>T), GAC368GAT (3306C>T), GTC369GCC (3308T>C), TCC370TTT (3312C>T), GTG372CTT (3316G>C), S3318G>T), CAA373CCC (3321A>C), CAG374TAA (3322C>T), S3324G>A), TAT375CAT (3325T>C), GGA376GTC (3330A>T), TAC377CAT (3331T>C), S3333C>T), C3335G>C), S3336G>T), ACC379ACT (3339C>T), CTG380RC (3342G>C), AAC381CAT (3343A>C), S3345C>T), AAC381_AAC381insGTTCACTCAGGA (3343-3346insGTTCACTCAGGA), AAC382AAC (3345G>A), GGG383AAC (3349G>A), S3350G>C), S3351G>C), AAC384AAC (3345C>A), S3354T>C), CAG385TAG (3355C>A), S3356A>T), AGC386CTC (3358G>C), S3360A>T), JAG387ACT (3361G>A), S3362T>C), S3363A>T), GGA388GCT (3365C>A), S3366A>T), CGC389GAA (3367A>C), S3368A>C), TCA391GCT (3367T>G), S3375A>C), TGC349TGT (3374A>C), AGC3496TAC (3375G>A), TCG395CTA (3378G>A), GAG396GAA (3390G>A), TTT398TCC (3395T>C), S3396T>C), CCT398GCC (3397T>C), TCT400AGT (3400T>A), S3401C>G), CAG394CAA (3405G>A), TCG403CT (3411G>T), C7G404TGC (3412C>T), S3414T>C), ACC405ACA (3417C>A), GGA406GGC (3420A>C), AAC408AGC (3425A>G), ACC410GCT (3430A>G), S3432C>T), TTC411TTT (3435C>T), AGC412CTG (3436A>C), S3437G>C), TAC413ATA (3441C>A), GAG416GAA (3450G>A), GAC417ATA (3451G>A), S3453C>T), GTC4181T (3454G>T), S3456T>G), CTC419TCA (3457C>T), S3459T>A), TTC420TTT (3462C>T), CAC421CAT (3465C>T), AGC422TC (3466A>T), S3467G>C), AGC423TAC (3469A>T), TAC424TT (3473A>T), S3474C>T), GCT425TCT (3475G>T), S3426C>A), AAC427AT (3482G>A), S3483C>T), ATG429AGA (3489A>C), TCT430AGT (3490A>C), S3491T>G), S3492G>T), GAC431ATA (3493G>A), S3494A>C), S3495C>T), CGC432AT (3497G>A), CTC433ACG (3500T>A), S3501C>G), ATG434TC (3502A>T), S3503T (3503C>T), AAC435AA (3507C>C), CCT436CCC (3510T>C), CTC437TTG (3511C>T), S3513C>G), ATC438ATT (3516C>T), GA439TAT (3517G>T), S3519C>T), CAG440CAA (3522G>A), TAC441TAT (3525C>T), TAC444GCT (3532T>G), S3533A>C), S3534C>T), TTG445TTC (3537G>C), AGC446AAC (3539G>A), AGA447AAA (3542G>A)	Codon mutations:	H134P (3014A>C), Y135S (3017A>C), F136V (3019T>G), S139G (3028A>G), T140I (3032C>T), S142C (3039G>T), W142C (3042G>C), F145L (3046T>C), H151Q (3066C>G), F154W (3074T>G), R157Q (3083G>A), W159Q (3088T>C), S160G (3089G>A), R161C (3094A>T), S165G (3100A>G), W167* (3114G>A), G168S (3115G>A), S3117A>T), F169L (3118T>C), S3120C>A), R170* (3121C>T), R173S (3132A>C), L174C (3133C>T), S3134T>G), N175R (3137A>G), S3138C>A), L178I (3145C>A), S3147C>A), I181A (3154A>G), S3155T>C), S3156T>C), Q188E (3175C>G), N189A (3178A>G), S3179A>C), S3180C>A), V189T (3199G>A), W203I (3220G>A), S222T>C), V205I (3226G>A), S228G>T), A207A (3232A>G), S209D (3238T>G), S3239C>A), E210T (3241G>A), S3242A>C), S3243G>A), Q212* (3247C>T), L2171 (3262C>A), S3264C>T), S219N (3268T>A), S3269C>G), S3270G>T), H221A (3274C>G), S3275A>C), S3276T>A), O222E (3277C>G), P222T (3292C>A), S3294G>C), A230G (3203C>G), S3303A>T), V232A (3208T>C), V235T (3211G>C), S3316G>C), S3318G>T), C237* (3222C>T), S3242G>A), Y238H (3235T>C), Y240H (3311T>C), Protein mutations:	L141C (3133T>C), T241C (3343C>T), S3345T>C), N244 (3343A>C), S3345C>T), N244_25 (3445insGVS) (3345-3346insGTTCACTCAGGA), N245T (3347A>C), G246T (3349G>A), S3350G>C), S3351G>C), S247T (3353G>C), S3354T>C), Q248M (3355C>A), S3356A>T), A249P (3358G>C), S3360A>T), V250T (3361G>A), S3362T>C), S3363A>T), S254A (3373T>G), S3375A>T), F261S (3395T>C), S3396T>C), R267C (3412C>T), N271S (3425A>G), T273A (3430A>G), S3432C>T), S275L (3436A>C), S3437G>T), S3438C>G), T277M (3443C>A), D280N (3451G>A), S3453C>T), V281L (3454G>T), S3456T>G), P282S (3463T>C), S3457T>G), S286Y (3469A>T), Y287F (3473A>T), S3474C>T), A288S (3475G>T), H289Q (3480C>A), S290N (3482G>A), S3483C>T), S292R (3489T>A), K293E (3490C>A), S3491T>G), S3492G>T), D294T (3493G>A), S3494A>C), S3495C>T), R295H (3497G>A), L296Q (3500T>A), M297S (3502A>T), S3503T>C), D302Y (3517G>T), Y307A (3532T>G), S3533A>C), S3534C>T), L308F (3537G>C), S309N (3539G>A), R310K (3542G>A)	Codon mutations:	CAC134CCC (3014A>C), TAC135TCC (3017A>C), TTT136GTT (3019T>G), GGC137GGA (3024C>A), TAC138TAT (3027C>T), AGC139GGC (3028A>G), ACC140ATT (3032C>T), 3033C>T), CCT141TCA (3036T>G), TGG142GTT (3039G>T), GGG143GCC (3041G>C), TAT144T (3045C>T), CCT145CTT (3046T>C), AAC148ATA (3057C>T), CAC151CAC (3066C>G), TGC152TGT (3069C>T), TTT154TGG (3074T>G), TCA155AGC (3076T>A), S3078A>C), TCG157CAA (3083G>A), S3084T>A), TGG159CAG (3088T>C), S3089G>A), AGA161TGC (3094A>T), S3096A>C), AAC166AGC (3110A>G), TGG167TG (3114G>A), GGA168AGT (3115G>A), S3117A>C), TTC169CTA (3118T>C), CGA170TGA (3121C>T), CCC171CCA (3126C>A), AGA173AGC (3132A>C), CTC174TGC (3133C>T), S3134T>G), AAC175AGA (3137A>G), S3138C>A), LTC176ATG (3139T>A), AAC177AAA (3144G>A), CTC178ATA (3145C>A), S3147C>A), TTT179TCT (3150T>C), AAC180ATA (3153C>A), TATT181GCC (3154A>G), S3155T>C), S3156T>C), GTC183GTT (3162C>T), AAA184AAC (3165G>A), GAG185GAA (3168G>A), AGC187GAA (3174G>A), AAC178GAG (3175G>A), AAC179A>C), S3180T>A), GAC190TGT (3182A>T), S3183C>G), GGT191GGC (3186T>C), AGC192AAC (3189G>A), AGC193AAA (3191A>C), S3192G>A), AGC196AAC (3199G>A), ATT197AAT (3204T>C), AAC198ATA (3207C>T), CTT199TTA (3208C>T), S3205A>T), ACC200AAC (3213C>A), AGC201TCT (3214A>T), S3215G>C), S3216G>C), S3217G>C), TAC202AAC (3219G>A), TGT203ATC (3220G>A), S3222T>C), GTG205ATA (3226G>A), S3228G>C), ACT207GCA (3232A>G), S3234T>A), GAC208GAT (3237C>T), CGC209GAC (3237G>C), S3235A>T), GAC210TAT (3246C>T), CAG212TAG (3247C>T), CTC213CTG (3252C>G), CGC214CTC (3255G>T), TAC215TAT (3258C>T), CTC217AT (3262C>A), S3264G>T), TCG219ATA (3268T>A), S3269G>C), S3270G>T), CA122GCA (3274C>G), S3275A>T), CAA222GAA (3277C>G), CCT225TTC (3286C>T), S3288G>C), CGC227AAC (3292C>A), S3294G>C), TCT228TTT (3297C>T), CGA230GGT (3302C>G), S3303A>T), GAC231GAT (3306C>T), GTC232GCC (3308T>C), TCC233TTT (3312C>T), GTG235CTT (3316G>C), S3318G>T), AAC235CAT (3325T>C), GGA239GTC (3330A>T), TAC240CAT (3331C>T), S3333C>T), CTC241GTT (3343C>T), S3335G>C), S3336G>T), ACC242AC (3349C>T), AAC244CAT (3343A>C), S3345C>T), AAC244>AAC245insGTTCACTCAGGA (3345-3346insGTTCACTCAGGA), AAC245AAC (3347A>C), GGG246AAC (3349G>A), S3350G>C), S3351G>C), AAC247AAC (3345G>A), S3354T>C), CAG248ATG (3355C>A), S3356A>T), GCA249CTC (3358G>C), S3360A>T), GTA250ACT (3361G>A), S3362T>C), S3363A>T), GGA251GCT (3365G>C), S3366A>T), CGC252AGA (3367C>A), S3369A>C), TCA254GCT (3373T>A), GTC257GTA (3384G>A), AAC258GAA (3390G>A), TTT261TCC (3395T>C), CCT262GAG (3397G>C), TCT263GAT (3400T>A), S3401C>G), CGA264AAC (3405G>A), CTG266CTT (3411G>C), TCG267TC (3412C>T), AAC268AAC (3417C>A), GGA269GTC (3420A>C), AAC271ATA (3424C>A), F143P (3355T>C), S3356T>C), AAC273GCT (3430A>C), S3432C>T), CCT274TTT (3435C>T), AGC275GTC (3436A>C), S3437C>T), GTC278TCT (3437G>T), S3438C>T), GTC278TCT (3437G>T), S3439C>T), GTC279TAT (3441C>T), ACT277ATA (3443C>A), GAG279GAA (3450G>A), GAC280AT (3451G>A), S3453C>T), GTC281TTG (3454G>T), S3456T>G), CCT282TCA (3457C>T), S3459T>A), TTC283TTT (3462C>T), CAC284AT (3465C>T), AGC285BCT (3466A>C), S3467G>C), AGC286TAC (3469A>T), S3470G>A), TCG287TTT (3473A>T), S3474C>T), GTC288TCT (3475G>T), CAC289CAA (3480C>A), AGC290ATA (3482G>A), S3483C>T), AGT292AGA (3489T>A), TCT293AGT (3490C>A), S3491T>G), S3492G>T), GAC294ATA (3493G>A), S3494A>C), S3495C>T), CGT295AGT (3497G>A), CTC296CAG (3500A>C), ATG297TCC (3502A>T), S3503C>T), AAC298AAC (3507C>C), CCT299CCC (3510T>C), CTC300TTA (3511C>T), GAC302AT (3516C>T), S3517G>T), S3519C>T), GAC303CAA (3522G>A), TAC304TAT (3525C>T), TAC307GCT (3532T>G), S3533A>C), S3534C>T), TTG308TTC (3537G>C), AGC309AAC (3539G>A), AGA310AAA (3542G>A)	AAV2gp06_1	134	311	29.7%	711	52.0%	178 (97.8%)	96 (52.7%)	4/0/0/0	4
Protein mutations:	H134P (3014A>C), Y135S (3017A>C), A99D (3024C>A), T100M (3027C>T), L103H (3036T>A), G104V (3039G>T), G105P (3041G>C), S3042G>C), I106T (3045T>C), S3046T>C), T110I (3057C>T), T113S (3066G>C), A114V (3069G>C), F116G (3074T>G), S3075T>G), G3076T>A), H117A (3077C>G), S3078A>C), L118L (3081A>T), V119K (3083G>A), S3084T>A), G121S (3089G>A), K122N (3094A>T), D123A (3096A>C), T128A (3101A>G), B129E (3102A>G), G129F (3103A>G), D130V (3104A>G), S3105A>T), S3117T (3105C>A), P133A (3120C>A), T134S (3121C>A), D135A (3132A>C), S3134T>C), S3136A (3134T>C), F137E (3136A>G), S3137A>C), S3138G>A), S3140Y (3147C>A), L141S (3150T>C), T142M (3153C>A), T144A>G), F143P (3155T>C), S3156T>C), S3145L (3162C>T), K146R (3165A>G), R147K (3168G>A), R149Q (3174G>A), S3175C>A), M151Q (3179A>C), T152W (3182A>C), S3183C>T), V153A (3187G>A), R154Q (3189G>A), R155K (3191C>A), S3192G>A), L160G (3202C>T), L161* (3210T>A), P162H (3213C>A), S3144T>C), A163L (3215G>C), S3126C>T), R164O (3216G>C), S3127G>A), F165S (3222T>C), C167Y (3228G>A), L169Q (3234T>A), T170M (3237C>T), R171T (3239C>A), S3240G>C), S3241G>A), S172H (3242A>C), S3243G>A), T173I (3246C>T), S3247C>T), S175C (3252C>G), R176I (3204T>C), T176I (3207C>T), S3208C>T), A176H (3213C>A), S3214T>A), I1763L (3215G>C), S3216G>A), F1765S (3222T>C), C167Y (3228G>A), L169Q (3234T>A), T170M (3237C>T), R171T (3239C>A), S3240G>C), S3241G>A), S172H (3242A>C), S3243G>A), T173I (3246C>T), S3247C>T), S175C (3252C>G), R1761 (3220T>C), S3227C>T), R1762 (3221C>T), A1763L (3215G>C), S3226G>A), F1765S (3222T>C), C167Y (3228G>A), L169Q (3234T>A), T170M (3237C>T), R171T (3239C>A), S3240G>C), S3241G>A), S172H (3242A>C), S3243G>A), T173I (3246C>T), S3247C>T), S175C (3252C>G), R1761 (3220T>C), S3227C>T), R1762 (3221C>T), A1763L (3215G>C), S3226G>A), F1765S (3222T>C), C167Y (3228G>A), L169Q (3234T>A), T170M (3237C>T), R171T (3239C>A), S3240G>C), S3241G>A), S172H (3242A>C), S3243G>A), T173I (3246C>T), S3247C>T), S175C (3252C>G), R1761 (3220T>C), S3227C>T), R1762 (3221C>T), A1763L (3215G>C), S3226G>A), F1765S (3222T>C), C167Y (3228G>A), L169Q (3234T>A), T170M (3237C>T), R171T (3239C>A), S3240G>C), S3241G>A), S172H (3242A>C), S3243G>A), T173I (3246C>T), S3247C>T), S175C (3252C>G), R1761 (3220T>C), S3227C>T), R1762 (3221C>T), A1763L (3215G>C), S3226G>A), F1765S (3222T>C), C167Y (3228G>A), L169Q (3234T>A), T170M (3237C>T), R171T (3239C>A), S3240G>C), S3241G>A), S172H (3242A>C), S3243G>A), T173I (3246C>T), S3247C>T), S175C (3252C>G), R1761 (3220T>C), S3227C>T), R1762 (3221C>T), A1763L (3215G>C), S3226G>A), F176																

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	1321	3544	17.0%	365	22.9%	797 (98.5%)	495 (61.2%)	12/0	
Codon mutations:									
	ACT96CCT (3014A>C), ACT97CCG (3017A>C, 3019T>G), GCT99GAT (3024C>A), ACA100ATG (3027C>T 3028A>G), CCC102TTC (3032C>T 3033C>T), CTT103CAT (3036T>A), GGG104GT (3039G>T), GGT105CCT (3041G>C 3042G>C), ATT106ACC (3045T>C 3046T>C), ACA110ATA (3057C>T), ACT113AGT (3066C>G), GCC114GTC (3069C>T), TTT116GGA (3074T>G 3075T>G 3076T>A),CAC117GCC (3077C>T 3078A>C),CAC118GTC (3081A>T), CTG119AGA (3083G>A 3084T>A), ACT120ACC (3088T>C), CGC121AGC (3089G>A), AAA122AAAT (3094A>T), GAC123GCC (3096A>C), ACT128GCT (3110A>G), GGG129GAA (3114G>A 3115G>C), GAT130TCG (3117A>T 3118T>C), CTC131TAT (3120C>A 3121C>T), CCA133CAA (3126C>A), GAC135GCT (3132A>T 3133C>T), TCA136GCA (3134T>G), ACT137GAA (3137A>G 3138C>A 3139T>C), TCA138GTA (3141C>G), AGC139AAA (3144G>A 3145C>A), TCT140AT (3147C>A), TTA141TC (3150C>T), ACA142ATG (3153C>T 3154G>C), TTC143CCC (3155T>C 3156T>C), TCA145TTA (3162C>T), AAG146AGG (3165A>G), AGG147AAG (3168G>A), CGC149CG (3174G>A 3175C>G), AGA150AGA (3178A>G), ATG151CAC (3179A>C 3180T>A), ACC152TGG (3182A>T 3183C>G), GTA153GCA (3187G>C), CGA154CAA (3189G>A), CGA155AAA (3191C>A 3192G>A), CGA156GAA (3195G>A), TTG157TTA (3199G>A), ATA159ACA (3204T>C), ACC160ATT (3207C>T 3208B>T), TTA161ATA (3210T>A), CCA162CAT (3213C>A 3214A>T), GCA163CTA (3215G>C 3216C>T), CGG164CAA (3219G>A 3220G>C), TTC165TCC (3222C>T), AGG166AGA (3226G>A), TGT167ATT (3228G>A), CTG169GCA (3234T>C), ACT170ATA (3237C>T 3238T>G), CGG171TCA (3239C>A 3240G>C 3241G>A), AGT172TCT (3242A>C 3243G>A), ACC173ATT (3246C>T 3247C>T), TCC175TG (3252C>G), CGG176CTT (3255G>C), ACC177ATG (3258C>T), TCC178TCA (3262C>A), TGCT179TG (3264C>T), GCT180TAG (3267C>T 3268T>A), CGG181ATG (3269C>A 3270G>C), CGC182CTG (3273G>C 3274C>G), ATC183CAG (3275A>C 3276T>A 3277C>G), GGC186GCT (3286C>T), TCC187TGC (3288G>C), CGC188GA (3292C>A), CGT189CT (3294G>C), TCC190TTC (3297C>T), CGA192GTG (3302C>G 3303A>T), ACC193ATC (3306C>T), TCT194 CCT (3308T>C), TCA195TTA (3312C>T), TGG196TGC (3316C>C), TGC197TTC (3318G>T), CAC198CCT (3321A>C 3322C>T), AGT199AAC (3324G>A 3325T>C), GAT201GTC (3330A>T 3331T>C), ACC202ATT (3333C>T 3334C>T), TCA203GTA (3335T>G 3336C>T), CCC204CTC (3339C>T), TGA205TCC (3342G>C 3343A>C)								
AAV2gp07	69	246	33.3%	711	52.0%	178 (97.8%)	96 (52.7%)	4/0/0/0	4
Protein mutations:									
	H69P (3014A>C), Y70S (3017A>C), F71V (3019T>G), S74G (3028A>G), T75I (3032C>T 3033C>T), W77C (3039G>T), G78A (3041G>C 3042G>C), F80L (3046T>C), H86Q (3066C>G), F89W (3074T>G 3075T>G), R92Q (3083G>A 3084T>A), W94Q (3088T>C 3089G>A), R96C (3094A>T 3096A>C), N101S (3101A>G), W102^R (3114G>A), G103S (3115G>A 3117A>T), F104L (3118T>C 3120A>T), R105F (3121C>T), R108S (3132A>C), L109C (3133C>T 3134T>G), N110R (3137A>G 3138C>A), F111M (3139T>C 3141C>G), L113I (3145C>A 3147C>A), I116A (3154A>G 3155T>C 3156T>C), Q123E (3175C>G), N124A (3178A>G 3179A>C 3180T>A), D125V (3182A>T 3183C>G), T128K (3191C>A 3192G>A), A131T (3199G>A), V138I (3220G>A 3222T>C), K140I (3226G>A 3228G>A), T142A (3232G>A 3234T>A), S144D (3238T>G 3239C>A 3240G>C), E145T (3241G>A 3242A>C 3243G>A), Q147^R (3247C>T), L152I (3262C>A 3264C>T), S154N (3268T>A 3269C>A 3270G>T), H156A (3274C>G 3275A>C 3276T>A), Q157E (3277C>G), P162T (3292C>A 3294G>C), A165C (3302C>A 3303A>T), V167A (3308T>C), V170L (3311G>C 3318G>T), Q172^R (3322C>T 3324G>A), Y173H (3325T>C 3327G>A), Y175H (3331T>C 3333C>T), L176C (3334C>T 3335G>C 3336C>T), N179H (3343A>C 3345C>T), N179R (3343A>C 3345C>T), N179W (3345C>T 3346G>C), V180T (3347A>C), G181T (3349G>C 3350G>C), S351G>C), S182T (3353G>C 3354T>C), Q183M (3355G>C 3356A>T), A184P (3358G>C 3360A>T), V185T (3361G>A 3362T>C 3363A>T), G186A (3365G>C 3366A>T), S189A (3373T>G 3375A>T), F196S (3395T>C 3396T>C), R202C (3412C>T 3414T>C), N206S (3425A>G), T208A (3430A>G 3432C>T), S210L (3436A>G 3437G>C), T212N (3443C>A), D215N (3451G>A 3453C>T), V216L (3454G>T 3456T>G), P217S (3457C>T 3459T>A), S221Y (3469A>T 3470G>C), Y222F (3473A>T 3474C>T), A223S (3475G>T), H224O (3480C>A), S225M (3482G>A 3483C>T), S227R (3489T>A), L228S (3490C>A 3491T>G 3492G>T), D229T (3493G>A 3494A>C 3495C>T), R230H (3497G>A), L231Q (3500T>A 3501C>G), M232S (3502A>T 3503T>C 3504G>C), D237Y (3517G>T 3519C>T), Y242A (3532T>G 3533A>C 3534C>T), L243F (3537G>C), S244N (3539G>A), R245K (3542G>A)								
Codon mutations:									
	CAC69GCC (3014A>C), TAC70TCC (3017A>C), TTT71GTT (3019T>G), GGC72GGA (3024C>A), TAC73TAT (3027C>T), AGC74GTC (3028A>G), ACC75ATT (3032C>T 3033C>T), CCT76CCA (3036T>A), TGG77TGT (3039G>T), GGG78GCC (3041G>C 3042G>C), TAT79TAC (3045T>C), TTT80CTT (3046T>C), AAC83AAT (3057C>T), CAC86G (3066G>C), TGC87TGT (3069C>T), TTT89TGG (3074T>G 3075T>G), TCA90AGC (3076T>A 3077C>G 3078A>C), CCA91CCT (3081A>T), CGT92CAA (3083G>A 3084T>A), TGG94CAG (3088T>C 3089G>A), AGA96TGC (3094A>T) 3096A>C), AAC101AGC (3110A>G), TGG102TGA (3114G>A), GGA103AGT (3115G>A 3117A>T), TTC104CTA (3118T>C 3120C>A), CGA105TGA (3121C>T), CCC106CCA (3126C>A), AGA108AGC (3132A>C), CTC109TGC (3133C>T 3134T>G), AAC110AGA (3137A>G 3138C>A), TTC111ATG (3139T>A 3141C>G), AAC111AG (3144A>C), CTC113ATA (3145C>A 3147C>A), TTT114TTC (3150T>C), AAC115AAT (3153C>T), ATT116GCC (3154A>G 3155T>C 3156T>C), CGC118GTT (3162C>T), AAC119AG (3165A>G), GAG120GAA (3168G>A), ACC122ACA (3174G>A), CAG123GAG (3175C>G), ATT124GCA (3178A>G 3179A>C 3180T>A), GAC125GTC (3182A>T 3183C>G), GGT126GCC (3187G>C), ACC127ACA (3189G>A), ACGL128AA (3191C>A 3192G>A), ACGL129ACA (3195G>A), GGC131ACC (3199G>A), AAC132AAC (3204T>C), AAC133AAT (3207C>T), CTT134ATA (3208C>T 3210T>A), ACC135CA (3213C>A), AGC136TCT (3214A>T 3215G>C 3216C>T), CGG137ACA (3219G>A), GTT138ATC (3220G>A 3222T>C), GTG140ATA (3226G>A 3228G>A), ACT142GCA (3232A>G 3234T>A), GAC143GAT (3237C>T), TCG144GAC (3238T>G 3239C>A 3240G>C), GAG145ACA (3241G>A 3242A>C 3243G>C), TAC146AT (3246C>T), CAG147TAG (3247C>T), CTC148CTG (3252G>C), CGC149CT (3255G>C), TCT150ATT (3258C>T), CTC152ATT (3262C>A 3264C>T), CGG153GTT (3267C>T), TCG154ATA (3268T>A 3269C>A 3270G>T), GCG155CT (3273G>T), CAT156GCA (3274C>G 3275A>C 3276T>A), AAC157GAA (3277C>G), CTC160TTA (3286C>T 3288C>G), CCG162AAC (3292C>A 3294G>C), TTC163TTT (3297C>T), GCA165GGT (3302C>T 3303A>T), GAC166GAT (3306C>T), GTC167GCC (3308T>C), TTC168TTT (3312C>T), GTG170CTT (3316G>C 3318G>C), TCA171CCC (3321A>C), CAG172TAA (3322C>T 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(3724C>T), AAC551GAT (3725C>T), AAC552GAT (3726C>T), AAC553GAT (37								

Proteins

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	1321	3544	17.0%	365	22.9%	797 (98.5%)	495 (61.2%)	12/0	
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), GTA133GTT (1390T>G 1391A>T), 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>A), GCC166GGC (1490C>G), ATT169ATA (1499T>A), CTC170TTG (1500C>T 1502C>G), GGA172AGG (1506G>A 1508A>G), AGC173TCT (1509A>T 1510G>C), AAG174GCC (1512A>G 1513A>C 1514G>C), GTG175ATA (1515G>A 1517G>C), CGC176CAG (1519G>A 1520C>G), GTG177GTT (1523G>T), GAC178GAT (1526C>T), CAG179CAA (1529G>A), TGC181TT (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)									
Rep 52 protein (YP_680425.1)	111	198	22.1%	458	72.0%	88 (100%)	62 (70.5%)	0/0/0/0	0
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), E138D (1405A>G 1406G>A), A140N (1407A>G), M149E (1437A>G 1438T>A), A160N (1470G>A 1471C>A 1472C>T), J172R (1506G>A 1508A>G), K174A (1512A>C 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 (1556G>A), V194I (1572G>A 1574C>A)									
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), E138D (1405A>G 1406G>A), A140N (1407A>G), M149E (1437A>G 1438T>A), A160N (1470G>A 1471C>A 1472C>T), J172R (1506G>A 1508A>G), K174A (1512A>C 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 (1556G>A), V194I (1572G>A 1574C>A)									
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), GTA133GTT (1390T>G 1391A>T), 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>A), ATT169ATA (1499T>A), CTC170TTG (1500C>T 1502C>G), GGA172AGG (1506G>A 1508A>G), AGC173TCT (1509A>T 1510G>C), AAG174GCC (1512A>G 1513A>C 1514G>C), GTG175ATA (1515G>A 1517G>C), CGC176CAG (1519G>A 1520C>G), GTG177GTT (1523G>T), GAC178GAT (1526C>T), CAG179CAA (1529G>A), TGC181TT (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)									
major coat protein VP1 (YP_680426.1)	271	448	24.2%	711	52.0%	178 (97.8%)	96 (52.7%)	4/0/0/0	4
H271P (3014A>C), Y272S (3017A>C), F273V (3019T>G), S276G (3028A>G), T277I (3032C>T 3033C>T), W279C (3039G>T), G280A (3041G>C 3042G>C), F282L (3046T>C), H288D (3066C>G), F291W (3074T>G), R294Q (3083G>A 3084T>A), W296Q (3088T>C 3089G>A), R298E (3094A>C 3096A>G), N303S (3110A>G), W304* (3114G>A), G305S (3115G>A 3117A>T), F306L (3118T>C 3120C>A), R307* (3121C>T), R310S (3132A>C), L311C (3133C>T 3134T>G), N312R (3137A>G 3138C>A), F313M (3139T>A 3141C>G), L315I (3145C>A 3147C>A), I318A (3154A>G 3155T>C 3156T>G), N326A (3178A>G 3179A>C 3180T>A), D327V (3182A>T 3183C>G), T330K (3191C>A 3192G>A), A333T (3199G>A), V340I (3220G>A 3222C>T), V342I (3226G>A 3228G>A), T344A (3232A>G 3234T>A), S346D (3238T>G 3239C>A), E347T (3241G>A 3242A>C 3243G>A), Q349* (3247C>T), L354I (3262C>A 3264C>T), S356N (3268T>A 3269C>A 3270G>T), H358A (3274C>G 3275A>C 3276T>A), Q359E (3277C>G), P364T (3292C>A 3294G>C), A367G (3302G>C 3303A>T), V369A (3308T>C), V372L (3316G>C 3318G>T), Q374* (3322C>T 3324G>A), Y375H (3325T>C), Y377H (3331T>C 3333C>T), L378C (3334C>T 3335T>C), N381H (3343A>C 3345C>T), N381I (3348A>C 3349C>T), N382R (3347A>C), G383T (3349A>C 3350G>A), A384T (3351G>C), S384T (3352G>C), R385M (3355C>A 3356A>G), N386A (3362A>T 3363A>G), C388A (3365G>C 3366A>T), S391A (3373T>C 3375A>T), F398S (3395T>C 3396T>C), R404C (3412C>T 3414T>C), N408S (3425A>G), T410A (3430A>G 3432C>T), S412L (3436A>C 3437G>T 3438C>G), T414N (3434C>A), D417N (3451G>A 3453C>T), V418L (3454G>T 3456T>G), S423Y (3457C>A 3459T>A), Y424F (3473A>T 3474C>A), Y425S (3475G>T), H426Q (3480C>A), S427N (3482G>A 3483C>T), S429R (3489T>A), L430S (3490C>A 3491T>G 3492G>T), D431T (3493G>A 3494A>C 3495C>T), R442H (3497G>A), L443O (3500T>A 3501C>G), M434S (3502A>T 3503T>C 3504G>C), D439Y (3517G>T 3519C>T), Y444A (3532T>G 3533A>C 3534C>T), L445F (3537G>C), S446N (3539G>A), R447K (3542G>A)									
Protein mutations: H271P (3014A>C), Y272S (3017A>C), F273V (3019T>G), S276G (3028A>G), T277I (3032C>T 3033C>T), W279C (3039G>T), G280A (3041G>C 3042G>C), F282L (3046T>C), H288D (3066C>G), F291W (3074T>G), R294Q (3083G>A 3084T>A), W296Q (3088T>C 3089G>A), R298E (3094A>C 3096A>G), N303S (3110A>G), W304* (3114G>A), G305S (3115G>A 3117A>T), F306L (3118T>C 3120C>A), R307* (3121C>T), R310S (3132A>C), L311C (3133C>T 3134T>G), N312R (3137A>G 3138C>A), F313M (3139T>A 3141C>G), L315I (3145C>A 3147C>A), I318A (3154A>G 3155T>C 3156T>G), N326A (3178A>G 3179A>C 3180T>A), D327V (3182A>T 3183C>G), T330K (3191C>A 3192G>A), A333T (3199G>A), V340I (3220G>A 3222C>T), V342I (3226G>A 3228G>A), T344A (3232A>G 3234T>A), S346D (3238T>G 3239C>A), E347T (3241G>A 3242A>C 3243G>A), Q349* (3247C>T), L354I (3262C>A 3264C>T), S356N (3268T>A 3269C>A 3270G>T), H358A (3274C>G 3275A>C 3276T>A), Q359E (3277C>G), P364T (3292C>A 3294G>C), A367G (3302G>C 3303A>T), V369A (3308T>C), V372L (3316G>C 3318G>T), Q374* (3322C>T 3324G>A), Y375H (3325T>C), Y377H (3331T>C 3333C>T), L378C (3334C>T 3335T>C), N381H (3343A>C 3345C>T), N381I (3348A>C 3349C>T), N382R (3347A>C), G383T (3349A>C 3350G>A), A384T (3351G>C), S384T (3352G>C), R385M (3355C>A 3356A>G), N386A (3362A>T 3363A>G), C388A (3365G>C 3366A>T), S391A (3373T>C 3375A>T), F398S (3395T>C 3396T>C), R404C (3412C>T 3414T>C), N408S (3425A>G), T410A (3430A>G 3432C>T), S412L (3436A>C 3437G>T 3438C>G), T414N (3434C>A), D417N (3451G>A 3453C>T), V418L (3454G>T 3456T>G), S423Y (3457C>A 3459T>A), Y424F (3473A>T 3474C>A), Y425S (3475G>T), H426Q (3480C>A), S427N (3482G>A 3483C>T), S429R (3489T>A), L430S (3490C>A 3491T>G 3492G>T), D431T (3493G>A 3494A>C 3495C>T), R442H (3497G>A), L443O (3500T>A 3501C>G), M434S (3502A>T 3503T>C 3504G>C), D439Y (3517G>T 3519C>T), Y444A (3532T>G 3533A>C 3534C>T), L445F (3537G>C), S446N (3539G>A), R447K (3542G>A)									
Codon mutations: CCT271CCC (3014A>C), TTT273GTT (3019T>G), GGC274GGA (3024C>A), TAC275TAT (3027C>T), AGC276GGC (3028A>G), ACC277ATT (3032C>T 3033C>T), CCT278CCA (3036T>A), TGG279TGT (3039G>T), GGG280GCC (3041G>C 3042G>C), TAT281TAC (3045T>C), TTT282CTT (3046T>C), AAC285MAT (3057C>T), CTC283TCT (3046T>C 3047C>T), AAC286CCT (3057C>T 3058C>T), GAC288CAC (3066C>G), TGC289TGT (3069G>T), TTT291TGG (3074T>G 3075T>G), TCA292AGC (3076T>G 3077G>A), CCA293CTT (3081A>T), CGT294CAA (3084A>T), GTC295TCA (3088T>C 3089G>A), AGA296TGC (3094A>T 3096A>G), AAC303AGC (3110A>G), TGG304TGA (3114G>A), GGA305AGT (3115G>A 3117A>T), TCC306CTA (3118T>C 3120C>A), CGA307TGA (3121C>T), CCC308CCA (3126C>A), AGA310AAG (3132A>G), ACC312AGA (3137A>G 3138C>A), TCC309CTA (3138T>C 3139C>T), AGA313AGC (3141A>G 3142C>A), AAC314AAA (3144A>G), AAC315TAT (3145C>A 3147C>A), AAC316ATT (3146C>A 3148C>T), AAC317ATA (3145C>A 3147C>A), AAC318ATA (3146C>A 3148C>T), AAC319ATA (3147C>A 3149C>T), AAC320ATA (3148C>A 3150C>T), AAC321ATA (3149C>A 3151C>T), AAC322ATA (3150C>A 3152C>T), AAC323ATA (3151C>A 3153C>T), AAC324ATA (3152C>A 3154C>T), AAC325ATA (3153C>A 3155C>T), AAC326ATA (3154C>A 3156C>T), AAC327ATA (3155C>A 3157C>T), AAC328ATA (3156C>A 3158C>T), AAC329ATA (3157C>A 3159C>T), AAC330ATA (3158C>A 3160C>T), AAC331ATA (3159C>A 3161C>T), AAC332ATA (3160C>A 3162C>T), AAC333ATA (3161C>A 3163C>T), AAC334ATA (3162C>A 3164C>T), AAC335ATA (3163C>A 3165C>T), AAC336ATA (3164C>A 3166C>T), AAC337ATA (3165C>A 3167C>T), AAC338ATA (3166C>A 3168C>T), AAC339ATA (3167C>A 3169C>T), AAC340ATA (3168C>A 3170C>T), AAC341ATA (3169C>A 3171C>T), AAC342ATA (3170C>A 3172C>T), AAC343ATA (3171C>A 3173C>T), AAC344ATA (3172C>A 3174C>T), AAC345ATA (3173C>A 3175C>T), AAC346ATA (3174C>A 3176C>T), AAC347ATA (3175C>A 3177C>T), AAC348ATA (3176C>A 3178C>T), AAC349ATA (3177C>A 3179C>T), AAC350ATA (3178C>A 3180C>T), AAC351ATA (3179C>A 3181C>T), AAC352ATA (3180C>A 3182C>T), AAC353ATA (3181C>A 3183C>T), AAC354ATA (3182C>A 3184C>T), AAC355ATA (3183C>A 3185C>T), AAC356ATA (3184C>A 3186C>T), AAC357ATA (3185C>A 3187C>T), AAC358ATA (3186C>A 3188C>T), AAC359ATA (3187C>A 3189C>T), AAC360ATA (3188C>A 3190C>T), AAC361ATA (3189C>A 3191C>T), AAC362ATA (3190C>A 3192C>T), AAC363ATA (3191C>A 3193C>T), AAC364ATA (3192C>A 3194C>T), AAC365ATA (3193C>A 3195C>T), AAC366ATA (3194C>A 3196C>T), AAC367ATA (3195C>A 3197C>T), AAC368ATA (3196C>A 3198C>T), AAC369ATA (3197C>A 3199C>T), AAC370ATA (3198C>A 3200C>T), AAC371ATA (3199C>A 3201C>T), AAC372ATA (3200C>A 3202C>T), AAC373ATA (3201C>A 3203C>T), AAC374ATA (3202C>A 3204C>T), AAC375ATA (3203C>A 3205C>T), AAC376ATA (3204C>A 3206C>T), AAC377ATA (3205C>A 3207C>T), AAC378ATA (3206C>A 3208C>T), AAC379ATA (3207C>A 3209C>T), AAC380ATA (3208C>A 3210C>T), AAC381ATA (3209C>A 3211C>T), AAC382ATA (3210C>A 3212C>T), AAC383ATA (3211C>A 3213C>T), AAC384ATA (3212C>A 3214C>T), AAC385ATA (3213C>A 3215C>T), AAC386ATA (3214C>A 3216C>T), AAC387ATA (3215C>A 3217C>T), AAC388ATA (3216C>A 3218C>T), AAC389ATA (3217C>A 3219C>T), AAC390ATA (3218C>A 3220C>T), AAC391ATA (3219C>A 3221C>T), AAC392ATA (3220C>A 3222C>T), AAC393ATA (3221C>A 3223C>T), AAC394ATA (3222C>A 3224C>T), AAC395ATA (3223C>A 3225C>T), AAC396ATA (3224C>A 3226C>T), AAC397ATA (3225C>A 3227C>T), AAC398ATA (3226C>A 3228C>T), AAC399ATA (3227C>A 3229C>T), AAC400ATA (3228C>A 3230C>T), AAC401ATA (3229C>A 3231C>T), AAC402ATA (3230C>A 3232C>T), AAC403CTT (3401G>A 3									

	Begin	End	Coverage	Score	Concordance	Matches	Identities	I/D/M/F*	Stop Codons
NT	1321	3544	17.0%	365	22.9%	797 (98.5%)	495 (61.2%)	12/0	
Codon mutations:									
	CAC1340CCC (3014A>C), TAC1357CC (3017A>C), TTT136GTT (3019T>G), GGC137GGA (3024C>A), TAC138TAT (3027C>T), AGC139GGC (3028A>G), ACC140ATT (3032C>T 3033C>T), CCT141CCA (3036T>A), TGG142TGT (3039G>T), GGG143GCC (3041G>C 3042G>C), TAT144TAC (3045T>C), TTT145CTT (3046T>C), AAC148AAT (3057C>T), CAC151CAC (3066C>G), TGC152TGT (3069C>T), TTT154TGG (3074T>G), TCA155AGC (3076T>A 3077C>A), CCA156CCG (3081A>T), AAC166AGC (3110A>C), TG2167TG (3114G>A), GG168AGT (3115G>A 3117A>T), TTC169CTA (3118T>C 3120C>A), CGA170TAG (3121C>T), CCC171CCA (3126C>A), AGA173AGC (3132A>C), CTC174TCG (3133C>T 3134T>G), AAC175AGA (3137A>G 3138C>A), TTC176ATG (3139T>A 3141C>G), AAG177AAA (3144G>A), CTC178ATA (3145C>A 3147C>A), TTT179TTC (3150T>C), AAC180AAT (3153C>A), ATT181GCC (3154A>G 3155C>T 3156T>C), GTC183CTT (3162C>A), AAC184AGA (3165A>G), GAG185GAA (3168G>A), AGC187AAC (3174G>A), CAG188GAA (3175C>G), ATT189GCA (3178A>G 3179A>C 3180T>A), GAC190GTG (3182A>T 3183C>G), GGT191GGC (3186T>C), AGC192ACA (3189G>A), AGC193AAA (3191C>A 3192G>A), AGC194ACA (3195G>A), GCC196AAC (3199G>A), ATT197AAC (3204T>C), AAC198AAT (3207C>T), CTT199TA (3208C>T 3210T>A), AAC200AAC (3213C>A), AGC201TCT (3214A>T 3215C>G 3216C>T), ACC202AAC (3219A>G), TGT203ATC (3220G>A 3222T>C), GTG205ACT (3226G>A 3228G>A), ACT207GCA (3232A>G 3234T>A), AGC208AT (3237C>T), CTG209GAC (3238T>G 3239C>A 3240G>C), GAG210ACA (3241A>G 3242A>C 3243G>C), TAC211TAT (3246C>T), CAG212TAG (3247C>T), CTC213CTG (3252C>G), CCG214CCT (3255G>T), TAC215TAT (3258C>T), CTC217ATT (3262C>A 3264C>T), GGC218GGT (3267C>T), TCG219AAT (3268T>A 3269C>A 3270G>T), GCG220GCT (3273G>T), CAT221GCA (3274C>G 3275A>C 3276T>G), AAC222GAA (3277C>G), CTC225TTG (3286C>T 3288C>G), CCG227ACC (3292C>A 3294G>A), TCC228TT (3297C>T), GCA230GTT (3302C>G 3303A>T), GAC231GAT (3306C>T), GTC232GTC (3308T>C), TCC233TTT (3312C>T), GTG235CT (3316G>C 3318G>T), CCA236CCC (3321A>C), CAG237TAA (3322C>T 3324G>A), TAT238ATC (3325T>C), GGA239GGT (3330A>T), TAC240CAT (3331T>C 3333C>T), CTC241TGT (3334C>T 3335C>G 3336C>T), ACC242AAT (3339C>T), CTG243CTC (3342G>C), AAC244CAT (3343A>C 3345C>T), AAC244A (AAC245insGTTCTACCTAGGA (3343C>A), 3346insGTTCTACCTAGGA (3343A>C), GGG246AAC (3349G>A 3350G>C 3351G>C), AGT247AAC (3353G>C 3354T>C), CAG248ATG (3355C>A 3356A>T), GCA249CCT (3358G>C 3360A>T), GTA250AAT (3361G>A 3362T>C 3363A>T), GGA251GCT (3365G>C 3366A>T), CGC252AGA (3367G>C 3369A>T), CTA254GCT (3373T>G 3375A>T), TGC257TGT (3384G>A), CTG258CTA (3387G>A), GAG259GA (3390G>A), TTT261TCC (3395T>C 3396T>C), CCT262CC (3399T>C), TCT263AGT (3400T>A 3401C>G), CAG264CAA (3405G>A), CTG266CTT (3411G>T), CTC267TGC (3412C>T 3414T>C), ACC268AAC (3417C>A), GGA269GGC (3420A>C), AAC271AGC (3425A>G), ACC273GCT (3430A>G 3432C>T), TTC274TTT (3435C>T), AGC275CTG (3436A>C 3437G>T 3438C>G), TAC276TAT (3441C>T), ACT277AAT (3443C>A), GAG279GAA (3450G>A), GAC280AAT (3451G>A 3453C>T), GTG281TGT (3454G>A 3456C>T), GCT282TCA (3457C>T 3459T>A), TTC283TTT (3462C>T), CAC284CAT (3465C>T), AGC285TCC (3466A>C 3467G>C), ACC286TAC (3469A>T 3470G>A), TAC287TTT (3473A>T 3474C>T), GCT288TCT (3475G>T), CAP289CAA (3480C>A), AGC290AAT (3482G>A 3483C>T), AGT292AGA (3489T>A), CTG293AGT (3490C>A 3491T>G 3492G>T), GAC294ACT (3493G>A 3494A>C 3495C>T), CGT295CAT (3497G>A), CTC296CAG (3500T>A 3501C>G), ATG297TCC (3502A>T 3503T>C 3504G>C), ATT298AAC (3507T>C), CTC299CC (3510T>C), CTC300TTG (3511C>T 3513C>G), ATC301ATT (3516C>T), GAC302ATT (3517G>T 3519C>T), CAG303CAA (3522G>A), TAC304TAT (3525C>T), TAC307GCT (3532T>G 3533A>C), AGC309AAC (3539G>A), AGA310AAA (3542G>A)								
assembly activating protein AAP (YP_004030758.1)	96	205	53.7%	86	12.0%	110 (100%)	30 (27.3%)	0/0/0/0	2
Protein mutations:									
	T96P (3014A>C), T97P (3017A>C 3019T>G), A99D (3024C>A), T100M (3027C>T 3028A>G), P102F (3032C>T 3033C>T), L103H (3036T>A), G104V (3039G>T), G105P (3041G>C 3042G>C), I106T (3045T>C 3046T>C), T110I (3057C>T), T113S (3060C>T), G114V (3069C>T), F116G (3074T>G 3075T>G 3076T>A), H117A (3081A>T), V119P (3083G>A 3084T>A), G121S (3089G>A), K122N (3094A>T), D123A (3096A>C), T128A (3101A>G), G129E (3114G>A 3115G>A), D130V (3117A>T 3118T>C), S131Y (3120C>A 3121C>A), P133D (3126C>A), D135A (3132A>C 3133C>T), S136A (3134T>A), T137E (3137A>G 3138C>A 3139T>A), S138* (3141C>G), S139K (3144G>A 3145C>A), S140Y (3147C>A), L141S (3150T>C), T142M (3153C>T 3154A>G), F143P (3155T>C 3156T>C), S145L (3162C>T), K146R (3165A>G), R149Q (3174G>A 3175C>G), M151Q (3179A>C 3180T>A), T152W (3182A>T 3183C>G), V153A (3186T>C), R154Q (3189G>A), R155K (3191C>A 3192G>A), R156Q (3195G>A), I159T (3204T>C), T160I (3207C>T 3208C>T), L161* (3210T>A), P162H (3213C>A 3214T>A), A163L (3215C>A 3216C>T), R164Q (3219G>A 3220G>T), F165S (3222T>C), C167Y (3228G>A), L169Q (3234T>A), T170M (3237C>T 3238T>G), R171T (3239C>A 3240G>C 3241G>A), S172H (3242A>C 3243G>A), T173I (3246C>T 3247C>T), S175C (3252C>G), R176L (3255G>T), T177M (3258C>T), S179L (3264C>T), A180V (3267C>T 3268T>A), R181M (3269C>A 3270G>T), R182L (3273G>T 3274C>G), I183Q (3275A>C 3276T>A), R187P (3294G>A), S190F (3297C>T), Q192V (3302C>G 3303A>T), T193M (3306C>T), S194P (3308T>C), S195L (3312C>T), W196G (3316G>C), C197F (3318G>T), H198P (3321A>C 3322C>T), S199N (3324G>A 3325T>C), D201V (3330A>T 3331T>C), T202I (3333C>T 3334C>T), S203V (3335T>G 3336C>T), P204L (3339C>T), T205 (3342G>C 3343A>C)								
Codon mutations:									
	ACT96CCT (3014A>C), ACT97CCG (3017A>C 3019T>G), GCT99GAT (3024C>A), ACA100ATG (3027C>T 3028A>G), CCC102TTC (3032C>T 3033C>T), CTT103CAT (3036T>A), GGG104GTG (3039G>T), GGT105CCT (3041G>C 3042G>C), ATT106ACC (3045T>C 3046T>C), ACA110ATA (3057C>T), ACT113AGT (3066C>G), GCC114GTC (3069C>T), TTT116GGA (3074T>G 3075T>G 3076T>A), CAC117GCC (3077C>A 3078C>A), CAC118CTC (3081A>T), CTG119AG (3083G>A 3084T>A), ACT120ACC (3088T>C), GGC121AGC (3089G>A), AAA122AAT (3094A>T), GAC123GCC (3096A>C), ACT128CTT (3110A>G), GGG129GAA (3114G>A 3115G>A), TAA130GTC (3117A>T 3118T>C), TCC131AT (3120C>A 3121C>A), CCA133CAA (3126C>A), GAC135GCT (3132A>C 3133C>T), TCA136GCA (3134T>A), TCA137GAA (3137A>G 3138C>A 3139T>A), TCA138GTA (3141C>G), AGC139AAA (3144G>A 3145C>A), TCT140AT (3147C>A), TTA141TCA (3150T>C), ACA142ATG (3153C>A 3154C>A), TTC143CCC (3155C>A 3156T>C), TCA145TAA (3162C>T), AGC146AGG (3165A>G), AGG147AAG (3168G>A), CGC149AG (3174G>A 3175C>G), AGA150AGG (3178A>G), ATG151CAG (3179A>C 3180T>A), AGC152TGG (3182A>T 3183C>G), GTA153GCA (3187C>A), CGA154CAA (3189G>A), CGA155AAA (3191C>A 3192G>A), CGA156GAA (3195G>A), TCA157GAA (3204A>T), ACC160ATT (3207C>T 3208C>T), TTA161TAA (3210T>A), CCA162CAT (3213C>A 3214A>T), GCA163CTA (3215G>C 3216C>T), CGG164CAA (3219G>A 3220G>A), TTC165TCC (3222T>C), TCA166AGA (3226G>A), TGT167TAT (3228G>A), CTG169AG (3234T>A), ACT170ATG (3237C>T 3238T>G), CGG171GAA (3239C>A 3240G>C 3241G>A), AGT172ATC (3242A>C 3243G>A), ACC173ATT (3246C>T 3247C>T), CTC175TGT (3252C>G 3253G>T), CGC176TT (3255G>T), ACC177ATG (3258C>T), TCC178TCA (3262C>A), TCG179TGT (3264C>T), GCT180GTA (3267C>T 3268T>A), CGG181ATG (3269C>A 3270G>T), CGC182CTG (3282C>A), CTC187GAA (3288C>G), CGC188GCA (3292C>A), CGT189CT (3294G>C), TCC190TTC (3302C>T), CAG191GTC (3316G>C), TCC197TTC (3318G>C), TCA198CCT (3321A>C 3322C>T), AGT199AAC (3324G>A 3325T>C), GAT201GTC (3330A>T 3331T>C), ACC202ATT (3333C>T 3334C>T), TCA203GTA (3335T>G 3336C>T), CCC204CTC (3339C>T), TGA205TCC (3342G>C 3343A>C)								
Protein mutations:									
	H69P (3014A>C), Y70S (3017A>C), F71V (3019T>G), S74G (3028A>G), T75I (3032C>T 3033C>T), W77C (3039G>T), G78A (3041G>C 3042G>C), F80L (3046T>C), H86Q (3066C>G), F89W (3074T>G 3075T>G), R92Q (3083G>A 3084T>A), W94Q (3088T>C 3089G>A), R96C (3094A>T 3096A>C), N101S (3101A>G), W102* (3114G>A), G103S (3115G>A 3117A>T), F104L (3118T>C 3120C>A), R105* (3121C>T), R108S (3132A>C), L109C (3133C>T 3134T>G), N110R (3137A>G 3138C>A), F111M (3139T>A 3141C>G), L113I (3145C>A 3147C>A), N116A (3154A>G 3155T>C 3156T>C), Q123E (3175C>G), N124A (3178A>G 3179A>C 3180T>A), D125V (3182A>T 3183C>G), T128K (3191C>A 3192G>A), A131T (3199G>A), V138I (3220G>A 3222T>C), V140I (3226G>A 3228G>A), T142A (3232A>G 3234T>A), S144D (3238T>G 3239C>A 3240G>C), E145T (3241G>A 3242C>A 3243G>A), Q147* (3247C>T), L152I (3262C>A 3264C>T), S154N (3268T>A 3269C>A 3270G>T), M156A (3267C>G 3275A>C 3276T>A), Q157E (3277C>G 3278C>G), P162T (3292C>A 3294C>G), A165G (3302C>A 3303A>T), V167A (3308C>T), V170L (3311G>C 3318G>A), Y172H (3327C>T 3324G>C), Y175H (3331C>T 3333C>T), L176C (3334C>T 3335G>C 3336C>T), N179H (3343A>C 3345C>T), N179P (3343A>C 3345C>T), N180insVHSG (3345C 3346insGTTCACTCAGGA), N180T (3347A>C), G181T (3349C>A 3350G>C 3351G>C), S182T (3353G>C 3354T>C), Q183M (3355C>A 3356A>T), A184P (3358G>C 3360A>T), V185T (3361G>A 3362T>C 3363A>T), G186A (3365G>C 3366A>T), S189A (3373T>G 3375A>T), F196S (3395T>C 3396T>C), R202C (3412C>T 3413T>C), N206S (3425A>G), T208A (3430A>G 3432C>G), S210L (3436A>C 3437G>T 3438C>G), T212N (3443C>A), D215N (3451G>A 3453C>T), V216L (3454G>T 3456T>G), P217S (3457C>T 3459T>A), S221Y (3469A>T 3470G>A), Y222F (3473A>T 3474C>T), A223S (3475G>T), H224Q (3480C>A), S225N (3482G>A 3483C>T), S227R (3489T>A), L228S (3490C>A 3491T>G 3492G>T), D229T (3493G>A 3494A>C 3495C>T), R230H (3497G>A), L231Q (3500T>A 3501C>G), M232S (3502A>T 3503T>C 3504G>C), D237Y (3517G>T 3519C>T), Y242A (3532T>G 3533A>C 3534C>T), L243F (3537G>C), S244N (3539G>A), R245K (3542G>A)								
Protein mutations:									
	H469C (3014A>C), TAC70CTC (3017A>C), TTT71GTT (3019T>G), GGC72GGA (3024C>A), ACT73TAT (3027C>T), AGC74GTC (3028A>G), ACC75ATT (3032C>T 3033C>T), CTC76CCA (3036T>A), TGG77TGT (3039G>T), GGG78GTC (3041G>C 3042G>C), TAT79TAC (3040T>C), TTT80CTT (3046T>C), AAC83ATA (3057C>T), CAC86CAG (3066C>G), TGC87TGT (3069G>T), TTT89TGG (3074T>G 3075T>G), TCA90GAC (3076T>A 3077C>G 3078A>C), CCA91CCT (3081A>T), CGT92CAA (3083G>A 3084T>A), TGG94CAG (3088T>C 3089G>A), AGA96TGC (3094A>T 3096A>C), AAC101AGC (3110A>G), TGG102TA (3114G>A), GGA103AGT (3130AGT 3131G>A 3137A>T), TCA109TGC (3133C>T 3134T>G), AAC110AGA (3137A>G 3138C>A 3139C>T), CTC110TGC (3135C>T 3136C>T), AAC111AGG (3141G>A 3142C>A), AAC113ATA (3145C>A 3147C>A), TTT114TCT (3150T>C), AAC115AAC (3153C>A 3155C>A), AAC116GAC (3154G>A 3155T>C 3156T>C), AAC117GAG (3156G>A 3157C>A 3158T>C), AAC118AG (3157G>A 3158C>A 3159T>C), AAC119AG (3165A>G), AGG120GAG (3168G>A), AGC122ACA (3171G>A), CAG123AGA (3175G>C), AAC124GAA (3178A>G), AAC125GAA (3179A>C 3180A>T), AAC126GAA (3181A>G 3182C>A 3183C>T), AAC127ACA (3189G>A), ACB128AA (3191C>A 3192G>A), ACB129ACA (3195G>A), GCC131AC (3199G>A), AAC132AAC (3204T>C), AAC133ATA (3207C>T), CTC134TTA (3208C>T 3210T>C), AAC135ACA (3213C>A), AGC136TCT (3214T>C 3215G>C 3216C>T), AGC137ACA (3219G>A), TGT138ATC (3220G>A 3222T>C), GTG140ATA (3226G>A 3228G>A), ACT142GCA (3232A>C 3234T>A), GAC143GAT (3237C>T), TCG144GAC (3238T>G 3239C>A 3240G>C), GAG145ACA (3241G>A 3242A>C 3243G>A), TAC146TAT (3246C>T), CAG147TAG (3247C>T), CTC148TCT (3248C>T 3250G>C), CGC149CCT (3255G>T), TAC150TAT (3258C>T), CTC152ATT (3262C>A 3264C>T), GGC153GTT (3267C>T), TCG154AT (3268T>A 3269C>A 3270G>T), CGC155GTC (3273G>T), CAT156GCA (3274C>G 3275A>C 3276T>A), AAC157GAA (3277C>T), CTC160TTG (3286C>G), CGC162AAC (3292C>A 3294G>C), TTC163TTT (3297C>T), GCA165GGT (3302C>G 3303A>T), AAC166GAT (3306C>T), AAC167GAT (3307C>T), AAC168GGT (3308C>T), AAC169GGT (3309C>T), AAC170GTC (3310C>T), AAC171TCC (3311C>T 3333C>T), AAC172ATA (3312C>T), AAC173CAT (3313C>T 3333C>T), AAC174GTC (3314C>T 3335T>G 3336C>T), AAC175ATT (3315C>T), AAC176GTC (3316C>T 3335C>T), AAC177ACT (3317C>T), AAC178GTC (3318C>T), AAC179GTC (3319C>T), AAC180GTC (3320C>T), AAC181GTC (3321C>T), AAC182GTC (3322C>T), AAC183GTC (3323C>T), AAC184GTC (3324C>T), AAC185GTC (3325C>T), AAC186GTC (3326C>T), AAC187GTC (3327C>T), AAC188GTC (3328C>T), AAC189GTC (3329C>T), AAC190GTC (3330C>T), AAC191GTC (3331C>T), AAC192GTC (3332C>T), AAC193GTC (3333C>T), AAC194GTC (3334C>T), AAC195GTC (3335C>T), AAC196GTC (3336C>T), AAC197GTC (3337C>T), AAC198GTC (3338C>T), AAC199GTC (3339C>T), AAC200GTC (3340C>T), AAC201GTC (3341C>T), AAC202GTC (3342C>T), AAC203GTC (3343C>T), AAC204GTC (3344C>T), AAC205GTC (3345C>T), AAC206GTC (3346C>T), AAC207GTC (3347C>T), AAC208GTC (3348C>T), AAC209GTC (3349C>T), AAC210GTC (3346A>C 3347G>C 3348G>C), AAC211GTC (3349A>C 3350G>C 3351G>C), AAC212GTC (3352C>T), AAC213GTC (3353C>T), AAC214GTC (3354C>T), AAC215GTC (3355C>T), AAC216GTC (3356C>T), AAC217GTC (3357C>T), AAC218GTC (3358C>T), AAC219GTC (3359C>T), AAC220GTC (3360C>T), AAC221GTC (3361C>T), AAC222GTC (3362C>T), AAC223GTC (3363C>T), AAC224GTC (3364C>T), AAC225GTC (3365C>T), AAC226GTC (3366C>T), AAC227GTC (3367C>T), AAC228GTC (3368C>T), AAC229GTC (3369C>T), AAC230GTC (3370C>T), AAC231GTC (3371C>T), AAC232GTC (3372C>T), AAC233GTC (3373C>T), AAC234GTC (3374C>T), AAC235GTC (3375C>T), AAC236GTC (3376C>T), AAC237GTC (3377C>T), AAC238GTC (3378C>T), AAC239GTC (3379C>T), AAC240GTC (3380C>T), AAC241GTC (3381C>T), AAC242GTC (3382C>T), AAC243GTC (3383C>T), AAC244GTC (3384C>T), AAC245GTC (3385C>T), AAC246GTC (3386C>T), AAC247GTC (3387C>T), AAC248GTC (3388C>T), AAC249GTC (3389C>T), AAC250GTC (3390C>T), AAC251GTC (3391C>T), AAC252GTC (3392C>T), AAC253GTC (3393C>T), AAC254GTC (3394C>T), AAC255GTC (3395C>T), AAC256GTC (3396C>T), AAC257GTC (3397C>T), AAC258GTC (3398C>T), AAC259GTC (3399C>T), AAC260GTC (3390C>T), AAC261GTC (3391C>T), AAC262GTC (3392C>T), AAC263GTC (3393C>T), AAC264GTC (3394C>T), AAC265GTC (3395C>T), AAC266GTC (3396C>T), AAC267GTC (3397C>T), AAC268GTC (3398C>T), AAC269GTC (3399C>T), AAC270GTC (3390C>T), AAC271GTC (3391C>T), AAC272GTC (3392C>T), AAC273GTC (3393C>T), AAC274GTC (3394C>T), AAC275GTC (

*: Inserts / Deletes / Misaligned / Frameshifts

Analysis details



This analysis was performed with Pan-viral (2.14.6)