

S1 Table. Mutations identified in the genome of the S gene mutants

Region	Gene	Variant type	Reference*	Allele	del1	del2	del3	R685H
2482	ORF1a	Synonymous SNV	C	T	74.9			
3547	ORF1a	Synonymous SNV	A	G	77.0			
4548	ORF1a	Nonsynonymous SNV	C	T		91.8		
8183	ORF1a	Nonsynonymous SNV	T	C	77.4			
9518	ORF1a	Nonsynonymous SNV	C	A		99.8		
18093	ORF1b	Synonymous SNV	T	C	91.7			
20230	ORF1b	Nonsynonymous SNV	C	T			99.5	
22203	S	Nonsynonymous SNV	A	G			99.7	99.8
22298	S	Nonsynonymous SNV	A	C	93.1			
23594..23623	S	Deletion	AATTCTCCTCGGCGGGCACGTAGTGTAGCT	-	99.4			
23606..23626	S	Deletion	CGGGCACGTAGTGTAGCTAGT	-		99.5		
23624..23632	S	Deletion	AGTCAATCC	-			99.4	
23613	S	Nonsynonymous SNV	G	A				99.7
26963	M	Nonsynonymous SNV	T	G			99.8	99.9
27379..27381	ORF6	Nonsynonymous MNV	GAT	CTC				70.5

*Sequence of wk-521 (GenBank accession no. LC522975) is used as a reference