

**Table S1** Other Coronavirus isolate sequences used in this study.

No.	Sequence	Collection date	Strain	Accession No.
1	genome	Nov-2016	HLJ/HRB/2016/13	KY566211.1
2	genome	Nov-2016	HLJ/HRB/2016/10	KY566209.1
3	genome	Oct-2016	HLJ/DQ/2016/01	KY292377.1
4	genome	Nov-2016	HLJ/HRB/2016/11	KY566210.1
5	genome	2013	Cat2_day84	KU215426.1
6	genome	2013	Cat3_day9	KU215423.1
7	genome	2013	Cat1_day7	KU215420.1
8	genome	Jan-2013	26M	KP143512.1
9	genome	Jan-2013	80F	KP143511.1
10	genome	Jan-2013	67F	KP143510.1
11	genome	Jan-2013	65F	KP143509.1
12	genome	Jan-2013	28O	KP143508.1
13	genome	-	C1Je	DQ848678.1
14	genome	Aug-2010	Felis	KF530123.1
			catus/NLD/UU88/2010	
15	genome	Jul-2010	UU47	JN183882.1
16	genome	Sep-2007	UU34	HQ012372.1
17	genome	Sep-2007	UU21	HQ012369.1
18	genome	Sep-2007	UU23	GU553362.1
19	genome	Mar-1998	UU3	FJ938061.1
20	genome	Mar-1993	UU2	FJ938060.1
21	genome	Mar-2007	UU5	FJ938056.1
22	genome	-	TN-449	JQ404410.1
23	genome	1971	171	KC175339.1

“-” represents no definite collection date of the strain.

**Table S2** Accession numbers of the Coronavirus isolate sequences obtained in this study.

No.	Sequence	Collection date	Strain	Accession No.
1	nsp12	Oct-2017	LNS/2017/7I	MN049959
2	nsp13	Oct-2017	LNS/2017/7I	MN049962
3	nsp14	Oct-2017	LNS/2017/7I	MN049965
4	S	Oct-2017	LNS/2017/7I	MN049968
5	7b	Oct-2017	LNS/2017/7I	MN049974
6	N	Oct-2017	LNS/2017/7I	MN049971
7	nsp12	Dec-2017	LNS/2017/15I	MN049960
8	nsp13	Dec-2017	LNS/2017/15I	MN049963
9	nsp14	Dec-2017	LNS/2017/15I	MN049966
10	S	Dec-2017	LNS/2017/15I	MN049969
11	7b	Dec-2017	LNS/2017/15I	MN049975
12	N	Dec-2017	LNS/2017/15I	MN049972
13	nsp12	Apr-2018	LNS/2018/3E	MN049961
14	nsp13	Apr-2018	LNS/2018/3E	MN049964
15	nsp14	Apr-2018	LNS/2018/3E	MN049967
16	S	Apr-2018	LNS/2018/3E	MN049970
17	7b	Apr-2018	LNS/2018/3E	MN049976
18	N	Apr-2018	LNS/2018/3E	MN049973

**Table S3** Negative selection sites for the nsp12, nsp13, and nsp14 genes based on REL analysis.

Codon	E[dS]	E[dN]	E[dN-dS]	Posterior Pr{dN>dS}	Bayes Factor {dN>dS}	Posterior Pr{dN<dS}	Bayes Factor {dN<dS}
17	1.7262	0.014921	-1.71128	0.000364243	0.010153	0.999636	98.4932
21	4.17433	0.153977	-4.02035	0.000104159	0.0029026	0.999896	344.519
23	2.31418	0.018321	-2.29586	0.000216034	0.0060209	0.999784	166.088
27	1.18117	0.016013	-1.16516	7.49E-05	0.00208711	0.999925	479.13
28	3.32347	0.018396	-3.30507	8.39E-05	0.00233729	0.999916	427.846
29	1.79067	0.017631	-1.77304	4.45E-05	0.00123878	0.999956	807.245
37	2.86812	0.014243	-2.85387	1.03E-05	0.000287868	0.99999	3473.82
47	2.12518	0.016012	-2.10917	0.0002954	0.00823347	0.999705	121.455
65	4.4206	0.014072	-4.40653	3.33E-08	9.27E-07	1	1079260
67	3.67002	0.01792	-3.6521	3.77E-05	0.00105136	0.999962	951.153
70	2.0747	0.018602	-2.0561	8.75E-05	0.00243742	0.999913	410.269
76	4.48	0.01601	-4.46399	1.68E-08	4.69E-07	1	2133470
88	2.0334	0.018349	-2.01506	0.000305249	0.00850806	0.999695	117.536
91	3.58377	0.016008	-3.56776	1.62E-05	0.000451848	0.999984	2213.13

101	1.30468	0.013745	-1.29093	0.000411464	0.0114698	0.999589	87.1856
107	2.67194	0.101979	-2.56997	0.000365691	0.0101934	0.999634	98.1032
112	1.82932	0.017631	-1.81169	0.000284618	0.00793286	0.999715	126.058
114	3.53179	0.012398	-3.5194	8.21E-06	0.000228656	0.999992	4373.38
116	2.14649	0.012391	-2.1341	8.95E-05	0.00249446	0.99991	400.889
118	1.80026	0.012398	-1.78786	0.000128531	0.00358187	0.999871	279.184
134	1.74528	0.013734	-1.73154	0.000162182	0.00451978	0.999838	221.25
135	1.37698	0.018455	-1.35852	0.000259236	0.00722525	0.999741	138.403
145	1.24204	0.0132	-1.22884	0.000460566	0.0128392	0.999539	77.8867
153	1.17501	0.014038	-1.16098	0.000526735	0.0146847	0.999473	68.0981
157	2.20598	0.0124	-2.19358	0.00015652	0.00436195	0.999843	229.255
168	1.17516	0.017071	-1.15809	0.000547059	0.0152516	0.999453	65.5668
169	1.98923	0.014518	-1.97471	0.000295698	0.00824177	0.999704	121.333
186	2.35515	0.013506	-2.34164	0.000233213	0.00649978	0.999767	153.851
189	1.05294	0.016013	-1.03693	0.000635349	0.0177147	0.999365	56.4505
192	1.42391	0.018458	-1.40546	0.000168247	0.00468882	0.999832	213.273
198	3.20658	0.017799	-3.18878	8.83E-05	0.00246123	0.999912	406.301
204	1.11787	0.014319	-1.10355	0.000312723	0.00871646	0.999687	114.725
214	2.76452	0.016013	-2.7485	3.20E-05	0.000890948	0.999968	1122.4
216	3.34601	0.022016	-3.32399	0.00011163	0.00311082	0.999888	321.458
229	4.00268	0.016015	-3.98666	1.38E-06	3.83E-05	0.999999	26089.4
237	2.07739	0.016205	-2.06119	0.000199736	0.00556658	0.9998	179.644
239	2.03868	0.012401	-2.02628	0.000127533	0.00355404	0.999872	281.37
240	1.63929	0.013736	-1.62555	5.38E-05	0.00149978	0.999946	666.765
241	1.3623	0.018494	-1.3438	0.000174018	0.00484969	0.999826	206.199
243	3.58406	0.013732	-3.57033	1.21E-05	0.0003365	0.999988	2971.77
244	2.64029	0.018014	-2.62228	0.000157799	0.00439763	0.999842	227.395
247	1.10964	0.017631	-1.09201	0.00052389	0.0146053	0.999476	68.4681
263	2.93232	0.012388	-2.91993	1.10E-05	0.000306235	0.999989	3265.47
290	3.41781	0.018385	-3.39942	7.57E-05	0.00210959	0.999924	474.026
298	1.43173	0.012394	-1.41933	0.000558224	0.0155631	0.999442	64.2547
307	2.64983	0.017411	-2.63242	3.11E-05	0.000866439	0.999969	1154.15
313	2.44216	0.014072	-2.42808	0.000106794	0.00297604	0.999893	336.017
317	3.13847	0.018415	-3.12006	0.000100181	0.00279172	0.9999	358.203
328	1.85645	0.013695	-1.84275	0.000147666	0.00411518	0.999852	243.002
334	3.83673	0.180961	-3.65577	0.000655757	0.018284	0.999344	54.6925
336	2.22717	0.017631	-2.20954	8.61E-05	0.00240026	0.999914	416.621
341	2.09574	0.019862	-2.07587	8.73E-05	0.00243174	0.999913	411.228
373	2.24239	0.018022	-2.22437	0.000293815	0.00818928	0.999706	122.111
390	2.97647	0.014098	-2.96237	1.77E-05	0.000493571	0.999982	2026.05
399	2.82222	0.015629	-2.80659	9.66E-05	0.00269287	0.999903	371.35
459	1.93134	0.016197	-1.91514	0.000392935	0.0109531	0.999607	91.2986
477	1.54641	0.019894	-1.52652	0.000153244	0.00427066	0.999847	234.156
485	4.38957	0.015989	-4.37358	2.30E-07	6.40E-06	1	156284
486	2.47102	0.016126	-2.45489	0.000172204	0.00479912	0.999828	208.372
495	3.67074	0.019833	-3.65091	5.78E-05	0.00161189	0.999942	620.388
502	3.16559	0.019656	-3.14593	0.000188436	0.00525158	0.999812	190.419
503	1.8901	0.019914	-1.87019	3.89E-05	0.00108475	0.999961	921.871
507	2.32599	0.019656	-2.30633	0.000349803	0.00975034	0.99965	102.561
508	3.83514	0.018022	-3.81712	7.31E-06	0.000203704	0.999993	4909.08
515	1.18443	0.02106	-1.16337	0.000218531	0.0060905	0.999781	164.19
517	3.71706	0.015629	-3.70143	7.33E-06	0.000204137	0.999993	4898.67
523	4.36853	0.015989	-4.35254	3.11E-07	8.66E-06	1	115430
532	3.35344	0.017311	-3.33613	2.75E-05	0.000766947	0.999972	1303.87
536	4.07073	0.01563	-4.05511	4.37E-06	0.000121777	0.999996	8211.73
537	1.24723	0.015073	-1.23216	0.000426639	0.011893	0.999573	84.0832
558	2.86745	0.019365	-2.84808	2.69E-05	0.000748563	0.999973	1335.89
560	1.29248	0.015861	-1.27662	0.000130885	0.00364747	0.999869	274.162
590	4.51704	0.313235	-4.2038	5.73E-08	1.60E-06	1	626543
601	4.03324	0.31741	-3.71583	0.000255432	0.00711919	0.999745	140.465
606	3.9941	0.014088	-3.98001	3.88E-06	0.000108156	0.999996	9245.86
607	2.7211	0.015989	-2.70511	0.000107769	0.00300321	0.999892	332.977
610	4.25908	0.313695	-3.94539	2.38E-05	0.000662502	0.999976	1509.43

618	2.4364	0.019755	-2.41665	0.000319878	0.00891596	0.99968	112.158
619	3.26911	0.016145	-3.25297	1.92E-05	0.000535655	0.999981	1866.87
624	3.84708	0.019366	-3.82771	3.60E-06	0.000100408	0.999996	9959.33
630	2.55584	0.019365	-2.53647	5.11E-05	0.00142386	0.999949	702.317
639	1.39766	0.018023	-1.37963	0.000200221	0.0055801	0.9998	179.208
657	3.38112	0.020701	-3.36042	2.51E-05	0.000699779	0.999975	1429.02
668	4.35324	0.018023	-4.33522	4.57E-07	1.27E-05	1	78470.8
673	2.54402	0.019366	-2.52466	0.000259166	0.00722329	0.999741	138.441
685	2.09369	0.019819	-2.07388	0.000547155	0.0152543	0.999453	65.5553
688	2.44196	0.01563	-2.42633	0.000194146	0.00541074	0.999806	184.817
692	1.61587	0.021154	-1.59472	3.67E-05	0.00102355	0.999963	976.989
696	4.07522	0.016144	-4.05907	5.30E-06	0.000147631	0.999995	6773.62
702	1.32563	0.0162	-1.30943	0.000419704	0.0116996	0.99958	85.4732
718	4.39676	0.01715	-4.37961	3.47E-07	9.67E-06	1	103385
722	3.73658	0.019836	-3.71674	5.20E-05	0.0014494	0.999948	689.939
724	3.41094	0.018348	-3.39259	7.38E-05	0.00205547	0.999926	486.506
733	2.59714	0.017338	-2.5798	0.00019042	0.0053069	0.99981	188.434
735	2.92824	0.016394	-2.91184	0.000417608	0.0116411	0.999582	85.9024
736	2.60064	0.01409	-2.58655	8.92E-05	0.00248571	0.999911	402.299
739	4.37908	0.176515	-4.20256	5.98E-06	0.000166623	0.999994	6001.57
743	2.54942	0.015059	-2.53436	6.25E-06	0.000174263	0.999994	5738.45
748	4.04869	0.018208	-4.03048	5.56E-06	0.000154952	0.999994	6453.61
760	1.21984	0.020522	-1.19932	0.000374903	0.0104502	0.999625	95.6917
763	2.87498	0.015503	-2.85948	9.07E-05	0.00252708	0.999909	395.713
765	1.10017	0.017441	-1.08273	0.00032991	0.00919567	0.99967	108.747
767	3.15093	0.017312	-3.13362	2.40E-05	0.000668997	0.999976	1494.78
799	2.85545	0.01563	-2.83982	2.91E-05	0.00081181	0.999971	1231.81
800	1.57836	0.017741	-1.56062	0.000246894	0.00688118	0.999753	145.324
804	4.39822	0.01546	-4.38276	1.81E-07	5.04E-06	1	198528
819	1.12866	0.019656	-1.109	0.000344291	0.00959665	0.999656	104.203
823	3.32754	0.014098	-3.31344	1.57E-05	0.000438429	0.999984	2280.87
840	1.97504	0.01979	-1.95525	0.000466517	0.0130051	0.999533	76.8927
853	4.51019	0.018019	-4.49218	8.93E-09	2.49E-07	1	4016780
863	3.64559	0.017743	-3.62785	1.80E-06	5.00E-05	0.999998	19982.8
874	3.69043	0.018024	-3.67241	1.16E-05	0.000323113	0.999988	3094.89
881	3.0451	0.014094	-3.031	1.85E-05	0.000514889	0.999982	1942.16
887	4.2864	0.020402	-4.266	2.98E-06	8.30E-05	0.999997	12042.6
896	2.67655	0.018024	-2.65853	0.000146953	0.00409532	0.999853	244.181
930	2.57223	0.01409	-2.55814	9.20E-05	0.00256284	0.999908	390.192
935	3.32876	0.020351	-3.3084	2.52E-05	0.000701087	0.999975	1426.36
941	1.14984	0.019953	-1.12989	0.000378628	0.0105541	0.999621	94.75

**Table S4** Negative selection sites for the S gene based on REL analysis.

Codon	E[dS]	E[dN]	E[dN-dS]	Posterior Pr {dN>dS}	Bayes Factor {dN>dS}	Posterior Pr {dN<dS}	Bayes Factor {dN<dS}
3	1.82163	0.037776	-1.78385	1.83E-05	0.000662	0.999982	1510.97
5	2.08896	0.026028	-2.06293	2.06E-07	7.48E-06	1	133712
16	1.70057	0.234387	-1.46619	0.000434	0.015752	0.999566	63.4849
19	1.55866	0.026727	-1.53194	1.59E-05	0.000575	0.999984	1738.83
20	1.02738	0.026189	-1.00119	0.000114	0.004138	0.999886	241.69
23	1.44976	0.02666	-1.4231	6.36E-06	0.00023	0.999994	4340.65
24	2.58184	0.044951	-2.53688	1.07E-08	3.89E-07	1	2571410
25	1.44259	0.028758	-1.41383	7.57E-05	0.002745	0.999924	364.342
29	1.97955	0.026082	-1.95347	1.42E-06	5.13E-05	0.999999	19486.5
35	1.4163	0.028413	-1.38789	0.000155	0.005617	0.999845	178.025
42	1.27239	0.026187	-1.2462	2.83E-05	0.001025	0.999972	975.607
52	2.07501	0.027498	-2.04752	1.89E-06	6.86E-05	0.999998	14581.6
63	1.99412	0.202817	-1.7913	1.57E-05	0.00057	0.999984	1753.14
66	1.43695	0.028766	-1.40819	0.000164	0.005939	0.999836	168.379
69	1.83303	0.026188	-1.80684	2.34E-06	8.49E-05	0.999998	11779.4
70	1.0653	0.026713	-1.03859	6.49E-05	0.002353	0.999935	424.911
71	0.985939	0.026082	-0.95986	0.000117	0.004255	0.999883	235.033
72	2.16642	0.026712	-2.13971	2.60E-07	9.43E-06	1	106058
73	2.3002	0.031413	-2.26879	2.35E-06	8.52E-05	0.999998	11731.6

74	0.922949	0.026082	-0.89687	1.84E-05	0.000666	0.999982	1501.08
81	0.953071	0.026713	-0.92636	1.41E-05	0.000509	0.999986	1963.55
88	1.25861	0.026728	-1.23188	0.000145	0.005264	0.999855	189.972
89	1.10888	0.026082	-1.0828	9.72E-06	0.000352	0.99999	2837.26
95	2.15268	0.027427	-2.12525	4.25E-07	1.54E-05	1	64894.2
100	1.07798	0.026123	-1.05186	3.82E-05	0.001384	0.999962	722.761
102	1.50233	0.028197	-1.47413	2.57E-06	9.30E-05	0.999997	10752.8
103	1.85958	0.027987	-1.8316	5.87E-07	2.13E-05	0.999999	46985.1
107	1.82359	0.026189	-1.7974	1.38E-07	4.99E-06	1	200268
108	1.90854	0.026132	-1.8824	1.45E-06	5.27E-05	0.999999	18967.6
111	1.91413	0.117894	-1.79624	0.000454	0.016469	0.999546	60.7221
113	1.50095	0.026653	-1.4743	2.96E-05	0.001074	0.99997	931.357
118	1.99894	0.028685	-1.97026	1.01E-06	3.66E-05	0.999999	27306
122	1.33199	0.034853	-1.29714	0.000314	0.01139	0.999686	87.7961
124	1.23629	0.02633	-1.20996	9.26E-05	0.003356	0.999907	297.967
125	1.40434	0.025297	-1.37905	6.14E-06	0.000222	0.999994	4494.7
126	1.05422	0.052601	-1.00161	0.000132	0.004798	0.999868	208.399
132	1.49859	0.033475	-1.46512	1.56E-05	0.000564	0.999984	1772.69
133	1.01492	0.025363	-0.98955	1.06E-05	0.000385	0.999989	2598.17
137	0.955784	0.025478	-0.93031	2.42E-05	0.000876	0.999976	1141.27
139	1.88951	0.052758	-1.83675	4.06E-06	0.000147	0.999996	6799.7
145	1.27384	0.026327	-1.24751	8.60E-05	0.003116	0.999914	320.896
150	1.79738	0.025364	-1.77202	6.00E-07	2.17E-05	0.999999	46002.6
155	1.31262	0.026327	-1.2863	8.08E-05	0.002929	0.999919	341.433
157	0.995633	0.047497	-0.94814	0.000142	0.005148	0.999858	194.235
162	1.44454	0.025308	-1.41923	2.22E-05	0.000805	0.999978	1242.93
163	1.57592	0.026293	-1.54963	1.94E-05	0.000704	0.999981	1420.99
165	0.967217	0.04479	-0.92243	2.94E-05	0.001065	0.999971	938.817
168	1.0302	0.026354	-1.00385	7.65E-06	0.000277	0.999992	3604.25
169	0.942055	0.026386	-0.91567	2.96E-05	0.001073	0.99997	931.861
170	1.03371	0.02521	-1.0085	4.64E-06	0.000168	0.999995	5941.29
176	1.52238	0.035388	-1.48699	4.06E-05	0.001473	0.999959	678.726
177	1.40999	0.025283	-1.38471	5.74E-06	0.000208	0.999994	4804.12
182	0.953657	0.026472	-0.92718	7.61E-06	0.000276	0.999992	3623.85
185	1.81446	0.048979	-1.76548	1.76E-05	0.000637	0.999982	1569.38
186	2.00172	0.026518	-1.9752	5.43E-06	0.000197	0.999995	5080.62
187	0.917326	0.025566	-0.89176	2.65E-05	0.000961	0.999973	1040.9
189	0.881004	0.025364	-0.85564	3.42E-05	0.001239	0.999966	807.269
191	1.03911	0.025824	-1.01329	1.45E-05	0.000526	0.999985	1901.23
192	1.15607	0.025525	-1.13054	0.000163	0.005899	0.999837	169.523
195	1.65393	0.027084	-1.62684	1.72E-05	0.000623	0.999983	1603.88
199	1.36842	0.029374	-1.33905	8.68E-05	0.003146	0.999913	317.906
202	1.41863	0.027114	-1.39152	2.68E-05	0.000973	0.999973	1028.2
203	2.40444	0.026418	-2.37802	7.45E-08	2.70E-06	1	370196
205	1.70027	0.027896	-1.67237	5.32E-06	0.000193	0.999995	5181.44
206	2.00698	0.026477	-1.9805	1.31E-06	4.74E-05	0.999999	21082.6
207	1.48847	0.028921	-1.45955	6.12E-05	0.002218	0.999939	450.758
208	2.2098	0.027081	-2.18272	8.33E-07	3.02E-05	0.999999	33117
209	1.60052	0.026351	-1.57417	1.57E-05	0.000568	0.999984	1761.88
210	1.28434	0.028922	-1.25541	2.50E-05	0.000906	0.999975	1103.65
211	2.44975	0.02843	-2.42132	7.87E-08	2.85E-06	1	350387
225	1.10375	0.027879	-1.07587	1.51E-05	0.000546	0.999985	1832.82
226	1.78179	0.059486	-1.7223	7.68E-05	0.002783	0.999923	359.307
227	1.32935	0.027083	-1.30227	2.81E-05	0.001019	0.999972	980.894
228	1.30601	0.02892	-1.2771	4.65E-05	0.001687	0.999953	592.673
230	1.65262	0.029297	-1.62332	1.00E-05	0.000364	0.99999	2750.42
235	1.52746	0.029374	-1.49809	4.08E-06	0.000148	0.999996	6762.88
236	2.0808	0.026477	-2.05432	3.56E-07	1.29E-05	1	77564.8
238	2.59857	0.026264	-2.57231	1.77E-09	6.40E-08	1	15621300
241	2.63753	0.028091	-2.60944	3.85E-10	1.40E-08	1	71684300
244	1.22348	0.026351	-1.19713	2.85E-05	0.001031	0.999972	969.576
246	1.40743	0.027896	-1.37954	5.11E-05	0.001853	0.999949	539.589
249	1.42097	0.026478	-1.3945	1.66E-05	0.000603	0.999983	1657.59

251	1.34188	0.026351	-1.31553	2.60E-05	0.000943	0.999974	1060.66
252	2.50037	0.027081	-2.47329	1.38E-08	5.00E-07	1	1999120
253	1.78987	0.026351	-1.76352	2.20E-06	7.96E-05	0.999998	12563.9
254	2.08795	0.027083	-2.06087	5.03E-07	1.82E-05	0.999999	54874.6
255	1.44529	0.025915	-1.41937	1.27E-05	0.00046	0.999987	2175.06
260	1.44618	0.027083	-1.4191	5.80E-06	0.00021	0.999994	4754.29
262	2.27212	0.026351	-2.24577	1.55E-07	5.63E-06	1	177648
263	1.61265	0.027426	-1.58522	1.97E-05	0.000714	0.99998	1401.32
265	1.9882	0.029298	-1.95891	1.75E-06	6.34E-05	0.999998	15775.8
266	1.76011	0.029374	-1.73073	3.71E-05	0.001346	0.999963	743.105
267	1.40472	0.027084	-1.37764	3.51E-05	0.001271	0.999965	786.773
269	2.40049	0.02891	-2.37158	7.31E-08	2.65E-06	1	377331
270	1.64568	0.032234	-1.61345	0.000198	0.007174	0.999802	139.4
271	1.47383	0.026473	-1.44736	2.12E-05	0.000767	0.999979	1303.88
273	1.53273	0.027084	-1.50565	7.67E-06	0.000278	0.999992	3596.3
274	1.99067	0.029107	-1.96156	5.09E-07	1.85E-05	0.999999	54182.5
284	1.14292	0.026351	-1.11657	9.71E-06	0.000352	0.99999	2841.6
292	1.22885	0.027024	-1.20183	4.59E-05	0.001665	0.999954	600.714
295	1.56015	0.026352	-1.5338	2.91E-06	0.000106	0.999997	9471.41
298	1.92056	0.029378	-1.89118	1.98E-05	0.000719	0.99998	1390.91
299	1.14001	0.027084	-1.11293	6.65E-05	0.002411	0.999933	414.838
309	2.12154	0.028127	-2.09341	2.44E-06	8.84E-05	0.999998	11314.3
311	1.66744	0.029297	-1.63815	4.01E-05	0.001452	0.99996	688.72
317	2.45446	0.028386	-2.42608	3.28E-07	1.19E-05	1	84068
319	2.13352	0.029383	-2.10413	2.82E-06	0.000102	0.999997	9776.1
323	1.84293	0.027082	-1.81585	2.58E-06	9.36E-05	0.999997	10684.1
330	1.24601	0.026351	-1.21966	2.12E-05	0.000768	0.999979	1301.28
340	2.05655	0.092423	-1.96413	0.000213	0.007717	0.999787	129.588
341	1.44896	0.029295	-1.41967	0.000281	0.010192	0.999719	98.121
348	1.39914	0.026128	-1.37301	4.20E-06	0.000152	0.999996	6572.7
350	1.47662	0.047551	-1.42907	0.000355	0.012885	0.999645	77.6107
352	0.978867	0.027024	-0.95184	3.79E-05	0.001375	0.999962	727.454
358	1.95576	0.029382	-1.92638	1.74E-05	0.00063	0.999983	1586.53
359	1.57418	0.05854	-1.51564	0.000346	0.012548	0.999654	79.6914
363	2.02392	0.026351	-1.99757	1.68E-06	6.07E-05	0.999998	16466.9
367	1.45348	0.026942	-1.42653	6.70E-07	2.43E-05	0.999999	41195.6
371	2.45919	0.02791	-2.43128	3.07E-08	1.11E-06	1	899759
372	2.4796	0.027738	-2.45186	9.17E-08	3.33E-06	1	300749
373	1.38004	0.028717	-1.35133	4.34E-06	0.000157	0.999996	6362.23
378	1.44066	0.026351	-1.41431	5.08E-06	0.000184	0.999995	5435.64
392	1.31518	0.026351	-1.28883	2.93E-05	0.001061	0.999971	942.863
393	1.45508	0.027338	-1.42774	0.000132	0.004781	0.999868	209.143
394	2.27369	0.027467	-2.24622	9.14E-07	3.31E-05	0.999999	30194.3
396	2.13747	0.028915	-2.10855	1.72E-07	6.22E-06	1	160671
397	1.06587	0.026351	-1.03952	0.000117	0.004236	0.999883	236.093
399	1.72763	0.028996	-1.69863	2.61E-05	0.000948	0.999974	1055.33
405	2.3747	0.027084	-2.34761	3.74E-08	1.35E-06	1	738373
408	1.83015	0.03223	-1.79792	3.74E-05	0.001355	0.999963	738.149
409	1.83522	0.026353	-1.80887	1.79E-06	6.47E-05	0.999998	15450.2
416	1.84776	0.028242	-1.81952	4.23E-06	0.000153	0.999996	6527.24
419	2.37625	0.026477	-2.34978	3.53E-08	1.28E-06	1	782354
423	1.72087	0.02644	-1.69443	7.50E-06	0.000272	0.999992	3678.12
424	1.86619	0.02651	-1.83968	2.80E-06	0.000102	0.999997	9848.18
432	2.16508	0.028907	-2.13617	2.85E-07	1.03E-05	1	96937.6
437	1.38092	0.026476	-1.35445	1.79E-05	0.000649	0.999982	1540.12
438	2.5834	0.02708	-2.55632	1.96E-09	7.09E-08	1	14096400
439	2.58907	0.028889	-2.56018	7.28E-08	2.64E-06	1	378729
441	1.49046	0.025916	-1.46455	2.92E-06	0.000106	0.999997	9445.58
442	1.3272	0.026476	-1.30072	2.03E-05	0.000734	0.99998	1361.68
446	2.59214	0.089518	-2.50263	6.66E-07	2.41E-05	0.999999	41417
458	2.33482	0.026475	-2.30835	1.02E-07	3.71E-06	1	269717
465	1.93318	0.028921	-1.90426	4.00E-07	1.45E-05	1	69020.5
469	1.48108	0.026128	-1.45495	3.58E-06	0.00013	0.999996	7697.57

471	1.59831	0.026289	-1.57202	1.33E-05	0.000481	0.999987	2077.67
474	1.31023	0.09499	-1.21524	0.000169	0.00612	0.999831	163.389
479	2.20177	0.316551	-1.88522	0.000167	0.006058	0.999833	165.078
480	1.61566	0.026477	-1.58918	1.68E-05	0.000609	0.999983	1641.44
483	1.85419	0.029297	-1.82489	8.12E-06	0.000294	0.999992	3398.04
487	1.42667	0.025916	-1.40075	1.55E-05	0.00056	0.999985	1785.44
496	1.59323	0.027084	-1.56615	4.44E-06	0.000161	0.999996	6219.28
500	1.3376	0.027338	-1.31026	0.000175	0.006354	0.999825	157.375
505	1.3277	0.026289	-1.30141	0.0001	0.003634	0.9999	275.145
529	1.64204	0.028921	-1.61312	4.66E-05	0.001688	0.999953	592.465
531	1.86455	0.027023	-1.83753	0.000326	0.011829	0.999674	84.5375
533	2.02256	0.128209	-1.89435	0.000401	0.014528	0.999599	68.8337
547	1.59031	0.089367	-1.50094	2.95E-05	0.001069	0.999971	935.693
550	2.1004	0.026287	-2.07412	8.72E-07	3.16E-05	0.999999	31651.3
564	2.63921	0.028852	-2.61036	1.90E-08	6.90E-07	1	1450040
565	2.08242	0.028995	-2.05342	1.11E-05	0.000404	0.999989	2478.16
566	2.56839	0.032228	-2.53617	1.66E-07	6.02E-06	1	166222
568	2.21409	0.026351	-2.18774	9.62E-07	3.49E-05	0.999999	28672.3
571	1.15766	0.026399	-1.13126	9.54E-07	3.46E-05	0.999999	28917.3
574	2.4711	0.056727	-2.41438	1.75E-06	6.34E-05	0.999998	15784.3
577	2.16139	0.087272	-2.07412	0.000139	0.005056	0.999861	197.804
578	1.06906	0.029287	-1.03977	1.11E-05	0.000404	0.999989	2475.86
579	1.87363	0.032224	-1.8414	3.37E-05	0.001222	0.999966	818.21

**Table S5** Negative selection sites for the N gene based on REL analysis.

Codon	E[dS]	E[dN]	E[dN-dS]	Posterior Pr{dN>dS}	Bayes Factor {dN>dS}	Posterior Pr{dN<dS}	Bayes Factor {dN<dS}
12	2.0865	0.066751	-2.01975	1.12E-05	0.000371	0.999989	2694.72
27	2.09613	0.252606	-1.84352	0.000307	0.010133	0.999693	98.6898
40	1.76896	0.068472	-1.70049	4.43E-05	0.001463	0.999956	683.474
51	2.13794	0.082036	-2.0559	2.93E-05	0.000968	0.999971	1033.57
53	2.18592	0.067497	-2.11843	9.06E-07	2.99E-05	0.999999	33417.6
59	2.14994	0.070723	-2.07922	5.96E-06	0.000197	0.999994	5085.6
63	2.17091	0.251353	-1.91955	7.27E-05	0.0024	0.999927	416.585
67	2.09921	0.069689	-2.02952	1.21E-05	0.000399	0.999988	2504.81
78	2.17466	0.354745	-1.81992	0.000361	0.011935	0.999639	83.784
83	2.13353	0.052564	-2.08096	5.82E-07	1.92E-05	0.999999	52012.6
86	2.16872	0.275502	-1.89322	0.000432	0.014269	0.999568	70.0832
88	2.08449	0.066949	-2.01754	9.49E-06	0.000313	0.999991	3192
95	2.19103	0.25893	-1.9321	2.31E-05	0.000761	0.999977	1313.86
97	2.19306	0.072132	-2.12093	5.47E-07	1.80E-05	0.999999	55423
100	2.15146	0.255905	-1.89556	0.000159	0.005252	0.999841	190.406
102	2.07872	0.06532	-2.0134	8.71E-06	0.000288	0.999991	3477.96
105	2.14759	0.064871	-2.08272	7.51E-05	0.002479	0.999925	403.445
125	2.16213	0.234356	-1.92777	4.07E-05	0.001343	0.999959	744.597
127	1.77259	0.046391	-1.7262	1.11E-06	3.67E-05	0.999999	27236.7
142	2.18234	0.225612	-1.95673	9.28E-06	0.000306	0.999991	3264.53
187	1.77722	0.05387	-1.72335	3.44E-05	0.001136	0.999966	879.984
190	1.74326	0.045741	-1.69752	2.13E-06	7.02E-05	0.999998	14241.6
192	2.17192	0.046444	-2.12548	1.58E-07	5.22E-06	1	191682
198	1.93619	0.045821	-1.89037	1.26E-06	4.16E-05	0.999999	24030.7
206	1.86426	0.220063	-1.6442	0.000271	0.008956	0.999729	111.655

**Table S6** Negative selection sites for the 7b gene based on REL analysis.

Codon	E[dS]	E[dN]	E[dN-dS]	Posterior Pr{dN>dS}	Bayes Factor {dN>dS}	Posterior Pr{dN<dS}	Bayes Factor {dN<dS}
18	2.85236	0.274583	-2.57778	0.005708	0.014717	0.994292	67.9499
31	2.77147	0.106709	-2.66476	0.000161	0.000412	0.999839	2424.88
35	2.82677	0.13741	-2.68936	0.004111	0.010583	0.995889	94.4899
38	1.76589	0.111773	-1.65411	0.002621	0.006737	0.997379	148.43
48	2.81801	0.112317	-2.70569	0.000309	0.000793	0.999691	1260.27
51	2.84076	0.136994	-2.70377	0.004168	0.010732	0.995832	93.184
56	2.52257	0.150482	-2.37209	0.007436	0.019206	0.992564	52.0667
57	2.9287	0.262381	-2.66632	0.001347	0.003457	0.998653	289.245
63	2.71157	0.139316	-2.57226	0.003012	0.007744	0.996988	129.129

72	2.2328	0.125927	-2.10687	0.005087	0.013108	0.994913	76.2911
81	2.93572	0.139484	-2.79624	0.000145	0.000373	0.999855	2680.8
90	2.49364	0.148409	-2.34523	0.007554	0.019514	0.992446	51.2449
109	2.81808	0.147907	-2.67017	0.002115	0.005433	0.997885	184.067
111	2.72739	0.142309	-2.58508	0.003062	0.007874	0.996938	126.997
132	2.57992	0.13315	-2.44677	0.003689	0.009493	0.996311	105.344
141	2.63907	0.142332	-2.49673	0.004336	0.011165	0.995664	89.5646
168	2.22101	0.115292	-2.10572	0.002373	0.006099	0.997627	163.961

**Table S7** Negative selection sites for the nsp12, nsp13, and nsp14 genes based on FEL analysis.

Codon	dS	dN	dN Leaves	dN/dS	Normalized dN-dS	dS (when dN=dS)	Log(L)	LRT	P value
17	3.80295	0	0	0	-7.68616	1.23139	-13.1625	4.92463	0.026477
21	29.175	0.871957	0	0.03	-57.2034	3.94255	-20.0692	9.58784	0.001959
23	5.49586	0	0	0	-11.1077	1.9232	-9.63202	5.17807	0.022874
27	2.40463	0	0	0	-4.86	1.48359	-12.794	4.2082	0.040229
28	10.4752	0	0	0	-21.1716	2.38519	-10.1301	7.36015	0.006669
29	3.41701	0	0	0	-6.90613	1.81562	-12.58	4.49809	0.033933
37	5.75732	0	0	0	-11.6362	1.99952	-11.6144	8.05862	0.004529
47	5.36919	0	0	0	-10.8517	1.4668	-13.61	5.5392	0.018595
65	11.6527	0	0	0	-23.5514	3.1196	-18.4733	13.9653	0.000186
67	9.51868	0	0	0	-19.2383	2.61886	-10.8	8.27736	0.004014
70	4.4065	0	0	0	-8.90599	2.12115	-16.7142	4.77257	0.028917
76	14.3658	0	0	0	-29.0349	4.31164	-20.5747	13.5286	0.000235
88	4.68708	0	0	0	-9.47308	1.74044	-10.6614	4.58603	0.032234
91	10.7706	0	0	0	-21.7685	2.28985	-14.924	8.99482	0.002707
101	2.51973	0	0	0	-5.09264	1.05925	-18.574	4.69325	0.030281
107	5.24137	0.553082	0	0.106	-9.47553	2.04201	-26.1877	4.90429	0.02679
112	3.821	0	0	0	-7.72264	1.78554	-10.9459	4.74274	0.029422
114	15.3754	0	0	0	-31.0754	1.58672	-16.6588	11.6419	0.000645
116	4.8195	0	0	0	-9.74071	1.22698	-14.1048	7.84572	0.005094
118	3.93061	0	0	0	-7.94418	1.13965	-13.3437	6.85185	0.008855
134	4.00879	0	0	0	-8.10219	1.33811	-13.4315	6.48963	0.010851
145	2.36569	0	0	0	-4.7813	0.966826	-11.4419	4.61772	0.031643
153	2.41391	0	0	0	-4.87877	1.03251	-14.902	4.58117	0.032325
157	10.3359	0	0	0	-20.8899	1.04107	-15.3557	7.20964	0.007251
169	5.58928	0	0	0	-11.2965	1.2985	-15.7562	5.28038	0.021567
186	8.68031	0	0	0	-17.5438	1.09357	-21.3992	6.86435	0.008793
192	3.1534	0	0	0	-6.37336	1.78215	-15.63	3.96408	0.046481
198	9.00342	0	0	0	-18.1969	2.21658	-13.3865	7.28092	0.006969
204	1.89732	0	0	0	-3.83469	1.10023	-12.2152	3.9504	0.04686
214	14.385	0	0	0	-29.0736	2.05059	-19.5336	7.14636	0.007512
216	11.3811	0	0	0	-23.0023	3.08298	-11.4461	5.95342	0.014689
229	8.99039	0	0	0	-18.1705	2.88099	-18.0036	9.59835	0.001948
237	4.65076	0	0	0	-9.39967	1.62043	-15.1865	5.92253	0.014948
239	4.68468	0	0	0	-9.46823	1.12623	-12.1855	7.37774	0.006604
240	3.57956	0	0	0	-7.23466	1.48564	-12.8483	6.40364	0.011389
241	3.08936	0	0	0	-6.24392	1.77412	-16.1086	3.91776	0.047779
243	15.2815	0	0	0	-30.8856	1.77033	-18.6021	10.7106	0.001065
244	6.20815	0	0	0	-12.5473	2.03269	-11.422	5.97697	0.014494
263	5.68928	0	0	0	-11.4986	1.62462	-15.8515	9.76301	0.001781
290	15.8478	0	0	0	-32.0301	2.40676	-10.5512	7.94153	0.004831
298	3.42332	0	0	0	-6.91889	0.844523	-13.8648	5.66243	0.017332
307	6.174	0	0	0	-12.4783	2.07173	-16.9172	6.12128	0.013356
313	5.54221	0	0	0	-11.2014	1.48665	-15.8726	7.38591	0.006574
317	8.04785	0	0	0	-16.2656	2.32391	-9.45089	6.77488	0.009245
328	4.21547	0	0	0	-8.51991	1.36771	-12.5625	6.66143	0.009852
334	19.8412	1.13361	0	0.057	-37.8099	3.88558	-17.0196	5.22653	0.022245
336	4.98591	0	0	0	-10.077	1.90125	-10.9474	5.24366	0.022027
341	4.23825	0	0	0	-8.56595	2.23521	-12.2692	4.26397	0.038929
373	14.0363	0	0	0	-28.3689	1.80305	-15.1214	4.92688	0.026442
390	5.76221	0	0	0	-11.646	1.95123	-13.6841	8.38581	0.003782
399	6.54983	0	0	0	-13.2379	1.85061	-14.7686	7.18411	0.007355
459	4.49196	0	0	0	-9.07873	1.45223	-12.9764	4.93999	0.026242

485	14.9142	0	0	0	-30.1433	3.55195	-18.6649	12.7486	0.000356
486	7.45578	0	0	0	-15.0689	1.70953	-10.2581	6.11307	0.013419
495	13.5154	0	0	0	-27.316	3.02532	-11.2985	7.69428	0.00554
502	105.889	0	0	0	-214.013	2.2373	-12.4934	10.6755	0.001086
503	3.70132	0	0	0	-7.48076	2.16918	-14.6954	3.93641	0.047252
507	7.07987	0	0	0	-14.3092	1.96679	-10.1718	4.58103	0.032328
508	7.85727	0	0	0	-15.8804	3.2006	-17.2924	7.71049	0.00549
517	7.59197	0	0	0	-15.3442	2.51294	-17.8716	8.95682	0.002764
523	14.3169	0	0	0	-28.936	3.46232	-19.9278	12.4973	0.000408
532	8.83182	0	0	0	-17.85	2.4244	-12.595	7.4752	0.006255
536	13.8924	0	0	0	-28.078	2.64593	-17.0823	11.1214	0.000853
537	2.65043	0	0	0	-5.35679	1.25639	-16.9031	4.36146	0.036761
558	5.33628	0	0	0	-10.7852	2.70017	-12.5707	5.54149	0.018571
560	2.77355	0	0	0	-5.60564	1.51082	-19.8736	4.55263	0.032868
590	26.7669	0.902817	0.718612	0.034	-52.274	5.77643	-32.7358	10.6015	0.00113
606	11.4567	0	0	0	-23.1552	2.27228	-17.6468	11.4041	0.000733
607	6.13424	0	0	0	-12.3979	1.89917	-14.4007	6.83668	0.00893
610	9.91743	0	1.57786	0	-20.0442	3.90417	-26.4713	10.1096	0.001475
618	8.41444	0	0	0	-17.0065	1.99296	-9.85601	4.84437	0.027737
619	8.07092	0	0	0	-16.3122	2.29694	-11.7161	7.69868	0.005526
624	9.12584	0	0	0	-18.4443	3.20953	-16.1972	7.30111	0.006891
630	5.16527	0	0	0	-10.4396	2.44342	-12.6044	5.17459	0.02292
639	3.16432	0	0	0	-6.39542	1.8214	-16.4567	4.07147	0.043613
657	6.09628	0	0	0	-12.3212	3.23152	-20.2154	4.06824	0.043697
668	37.7353	0	0	0	-76.267	4.12968	-19.4373	13.7902	0.000204
673	11.2469	0	0	0	-22.7312	2.0238	-15.1599	5.28234	0.021543
685	5.9525	0	0	0	-12.0306	1.7468	-10.9158	4.04893	0.044199
688	6.01187	0	0	0	-12.1506	1.5579	-12.1842	6.39007	0.011476
696	20.5445	0	0	0	-41.5226	2.95672	-13.5213	10.7428	0.001047
702	2.8218	0	0	0	-5.70315	1.40635	-11.3965	4.12644	0.042218
718	42.371	0	0	0	-85.6362	4.11627	-15.3103	14.3538	0.000151
722	16.1123	0	0	0	-32.5646	3.09033	-11.0541	8.09562	0.004437
724	10.7749	0	0	0	-21.7772	2.45065	-12.8261	7.50968	0.006137
733	7.25486	0	0	0	-14.6628	1.86627	-11.3754	5.99025	0.014385
735	10.7001	0	0	0	-21.6261	1.59293	-11.2056	7.35207	0.006699
736	5.86055	0	0	0	-11.8448	1.58397	-14.6648	7.53119	0.006064
739	12.0838	0	0.971258	0	-24.4227	4.21842	-22.1686	9.91479	0.00164
743	4.61247	0	0	0	-9.32229	2.16559	-22.488	7.1659	0.00743
748	10.7079	0	0	0	-21.6419	3.16341	-13.5994	8.97602	0.002735
763	6.82407	0	0	0	-13.7922	1.87424	-17.0733	7.29562	0.006912
767	6.63923	0	0	0	-13.4186	2.48797	-11.8398	6.83528	0.008937
799	6.3887	0	0	0	-12.9122	2.0125	-15.0351	7.17483	0.007393
800	3.49344	0	0	0	-7.06062	1.79868	-12.5421	4.46056	0.034686
804	13.6506	0	0	0	-27.5894	3.58426	-21.608	12.6631	0.000373
823	8.8512	0	0	0	-17.8892	1.86092	-15.6805	9.13772	0.002504
840	4.63951	0	0	0	-9.37694	1.81684	-10.5595	3.88897	0.048604
853	32.0055	0	0	0	-64.6865	5.99112	-20.7986	14.7775	0.000121
863	19.3601	0	0	0	-39.1288	2.61644	-15.2728	8.43667	0.003677
874	8.24063	0	0	0	-16.6552	2.99853	-15.8874	7.5277	0.006076
881	6.90857	0	0	0	-13.963	1.85491	-14.9269	8.40234	0.003747
887	70.1445	0	0	0	-141.77	4.41226	-11.8751	12.4168	0.000425
896	6.12674	0	0	0	-12.3828	2.21045	-15.2315	5.82281	0.01582
930	5.77156	0	0	0	-11.6649	1.57679	-15.7991	7.49127	0.0062
935	8.80705	0	0	0	-17.8	2.95065	-10.8045	5.90536	0.015095

**Table S8** Negative selection sites for the S gene based on FEL analysis.

Codon	dS	dN	dN Leaves	dN/dS	Normalize dN-dS	dS (when dN=dS)	Log(L)	LRT	P value
3	3.5841	0	0.2697	0	-4.18161	1.69829	-24.6954	6.73196	0.00947
5	5.45648	0	0	0	-6.36615	1.34146	-12.9895	9.90628	0.001647
16	3.2305	0	0.676593	0	-3.76906	1.13899	-26.2815	7.74379	0.00539
19	3.38701	0	0	0	-3.95167	0.971781	-12.3616	6.17448	0.012961
20	1.58071	0	0	0	-1.84423	0.568044	-12.9585	4.02465	0.04484
23	2.65069	0	0	0	-3.09259	1.06369	-11.9515	6.13227	0.013274



24	9.19026	0	0.314907	0	-10.7224	2.16664	-29.5063	14.7696	0.000121
25	2.96788	0	0	0	-3.46266	0.989204	-11.2814	4.46538	0.034588
29	7.10802	0	0	0	-8.29303	1.1185	-16.5097	9.50679	0.002047
35	2.92972	0	0	0	-3.41814	0.87744	-9.31782	4.48125	0.034269
42	2.15958	0	0	0	-2.51961	0.753145	-13.5157	5.18232	0.022818
52	7.00299	0	0	0	-8.17048	1.44138	-18.1958	8.63317	0.003301
63	3.8025	0	0.62108	0	-4.43643	1.35725	-28.6217	9.51786	0.002035
66	3.02854	0	0	0	-3.53344	0.913673	-8.94106	4.46961	0.034503
69	4.49128	0	0	0	-5.24004	1.08461	-15.0431	8.18466	0.004225
70	1.61113	0	0	0	-1.87972	0.744638	-11.9003	4.15711	0.04146
71	1.45992	0	0	0	-1.70331	0.541464	-12.6659	3.90076	0.048264
72	4.30306	0	0	0	-5.02044	1.58615	-17.7997	9.18709	0.002437
73	8.42824	0	0	0	-9.83335	2.22102	-13.5059	8.0093	0.004654
74	1.36231	0	0	0	-1.58943	0.767158	-13.1008	4.57302	0.032479
81	1.37391	0	0	0	-1.60296	0.859013	-15.0975	4.20376	0.040335
88	2.06169	0	0	0	-2.4054	0.605564	-10.2809	3.91936	0.047733
89	1.86485	0	0	0	-2.17574	0.858914	-13.2155	5.51818	0.01882
95	4.63592	0	0	0	-5.40879	1.62185	-17.8958	8.55185	0.003452
100	1.66327	0	0	0	-1.94056	0.704732	-12.658	4.66499	0.030784
102	2.66113	0	0	0	-3.10478	1.43987	-21.053	5.74392	0.016546
103	3.47683	0	0	0	-4.05646	1.64154	-23.2584	6.47874	0.010917
107	3.28321	0	0	0	-3.83057	1.35486	-16.1683	8.35868	0.003839
108	4.15656	0	0	0	-4.84952	1.1659	-17.0062	8.68092	0.003216
111	5.2961	0	0.607981	0	-6.17903	1.82036	-17.6679	5.58568	0.018108
113	3.8444	0	0	0	-4.48531	0.842549	-12.712	5.64751	0.01748
118	5.68957	0	0	0	-6.63809	1.63367	-11.944	7.09431	0.007733
122	2.40139	0	0.259888	0	-2.80174	0.627515	-20.2872	5.54336	0.018551
124	2.13545	0	0	0	-2.49145	0.642188	-9.18799	4.38359	0.036287
125	2.95788	0	0	0	-3.451	0.58165	-18.8078	6.49712	0.010805
126	1.81437	0	0.349754	0	-2.11685	1.01322	-21.4159	5.17542	0.022909
132	2.80182	0	0.235798	0	-3.26892	0.965439	-18.9221	7.47296	0.006263
133	1.60566	0	0	0	-1.87334	0.612622	-14.5858	5.57389	0.01823
137	1.23011	0	0	0	-1.43519	0.579787	-13.4807	4.42192	0.03548
139	3.0989	0	0.35088	0	-3.61553	1.52633	-25.2236	8.13364	0.004345
145	2.26972	0	0	0	-2.64811	0.64966	-9.97292	4.48383	0.034217
150	3.97691	0	0	0	-4.63992	0.911851	-17.0693	9.42897	0.002136
155	2.43934	0	0	0	-2.84601	0.655095	-10.0239	4.6087	0.03181
157	1.68259	0	0.315545	0	-1.9631	0.959033	-24.9871	4.95774	0.025974
162	16.1621	0	0	0	-18.8566	0.410124	-10.0458	6.48025	0.010908
163	4.5913	0	0	0	-5.35673	0.840844	-10.122	6.17009	0.012993
165	1.68497	0	0.28893	0	-1.96588	1.06129	-24.498	5.11078	0.023778
168	1.59859	0	0	0	-1.86509	0.909511	-21.0274	4.76227	0.02909
169	1.41157	0	0	0	-1.6469	0.798349	-14.8912	4.19771	0.040479
170	1.64132	0	0	0	-1.91495	0.559178	-15.1482	6.16237	0.01305
176	2.81726	0	0.249662	0	-3.28693	1.00066	-22.2325	7.38557	0.006575
177	3.18845	0	0	0	-3.72001	0.583651	-15.5988	6.60752	0.010155
182	1.54818	0	0	0	-1.80628	0.952901	-17.0461	4.63989	0.031237
185	4.91586	0	0.318472	0	-5.7354	1.26347	-15.2934	7.51254	0.006127
186	7.75014	0	0	0	-9.04219	1.1785	-12.0102	8.8176	0.002983
187	1.35066	0	0	0	-1.57583	0.618491	-12.5345	4.66554	0.030774
189	0.995219	0	0	0	-1.16114	0.495618	-13.3499	4.06499	0.043781
191	1.62225	0	0	0	-1.8927	0.776865	-13.7356	5.06471	0.024418
192	1.73143	0	0	0	-2.02008	0.554088	-13.1736	5.31378	0.021157
195	3.43314	0	0	0	-4.00549	1.10167	-16.5151	6.31815	0.011951
199	2.53117	0	0	0	-2.95315	1.06911	-11.925	4.04469	0.044311
202	2.62954	0	0	0	-3.06792	0.995874	-13.4014	5.32794	0.020986
203	6.81377	0	0	0	-7.94972	1.76529	-18.7734	11.5065	0.000694
205	3.12995	0	0	0	-3.65176	1.40833	-16.3713	6.22419	0.012602
206	4.38935	0	0	0	-5.12111	1.34396	-16.7541	8.53315	0.003487
207	3.17575	0	0	0	-3.70518	1.08355	-10.2103	4.53603	0.033188
208	5.09669	0	0	0	-5.94637	1.65468	-17.0542	9.03411	0.00265
209	5.64663	0	0	0	-6.588	0.898688	-15.068	6.44217	0.011144
210	2.25703	0	0	0	-2.63331	1.18538	-12.068	4.32392	0.03758

211	5.34976	0	0	0	-6.24164	2.3553	-24.7629	8.6128	0.003338
225	1.92727	0	0	0	-2.24857	1.11994	-14.6949	4.48436	0.034206
226	3.571	0	0.365845	0	-4.16634	1.3605	-19.4543	6.75579	0.009344
227	2.44259	0	0	0	-2.8498	1.00445	-13.6829	5.23478	0.02214
228	2.2208	0	0	0	-2.59104	1.13483	-12.7697	4.16735	0.04121
230	3.1607	0	0	0	-3.68763	1.45462	-11.8975	5.27179	0.021674
235	2.69599	0	0	0	-3.14544	1.44717	-13.3582	4.85216	0.027612
236	4.37981	0	0	0	-5.10998	1.46048	-16.8802	8.86274	0.002911
238	15.0849	0	0	0	-17.5998	2.2971	-20.4162	18.2718	1.92E-05
241	13.2458	0	0	0	-15.454	3.3337	-23.0837	16.3283	5.33E-05
244	2.13967	0	0	0	-2.49638	0.836436	-13.9062	5.20967	0.022462
246	2.73194	0	0	0	-3.18739	0.984805	-15.2813	4.79818	0.02849
249	2.67226	0	0	0	-3.11776	0.959283	-14.5343	5.93046	0.014881
251	2.41115	0	0	0	-2.81312	0.825653	-13.6096	5.23172	0.022179
252	5.7123	0	0	0	-6.66461	2.20839	-19.1388	10.9087	0.000957
253	3.5043	0	0	0	-4.08851	1.22017	-15.6894	7.68208	0.005577
254	4.53262	0	0	0	-5.28826	1.59054	-18.912	8.25339	0.004068
255	2.83915	0	0	0	-3.31247	0.811718	-15.8364	6.13541	0.01325
260	2.63499	0	0	0	-3.07428	1.22961	-15.257	6.0081	0.01424
262	6.61098	0	0	0	-7.71312	1.55468	-18.8804	10.5661	0.001152
263	3.26794	0	0	0	-3.81275	1.12582	-13.7399	5.98004	0.014469
265	3.85814	0	0	0	-4.50135	1.79151	-12.1859	6.31698	0.011959
266	4.9894	0	0	0	-5.82119	1.29653	-11.1075	5.71841	0.016788
267	2.69183	0	0	0	-3.14059	0.930538	-12.796	5.03827	0.024793
269	4.65968	0	0	0	-5.43651	2.30997	-21.212	7.92552	0.004874
270	4.2376	0	0	0	-4.94407	1.34546	-10.8387	4.39676	0.036007
271	3.03661	0	0	0	-3.54285	0.890916	-15.0103	5.6938	0.017025
273	2.93852	0	0	0	-3.42842	1.14761	-14.7119	5.91154	0.015042
274	3.42648	0	0	0	-3.99772	1.88727	-20.003	6.2549	0.012385
284	1.86678	0	0	0	-2.178	0.931271	-14.515	5.14118	0.023365
292	2.06189	0	0	0	-2.40564	0.87563	-11.7277	4.51403	0.033618
295	2.85455	0	0	0	-3.33044	1.16907	-15.6782	6.98837	0.008204
298	6.01578	0	0	0	-7.01869	1.49505	-11.9677	6.53836	0.010557
299	1.79496	0	0	0	-2.09421	0.814989	-16.2157	4.06695	0.04373
309	7.7692	0	0	0	-9.06443	1.5959	-19.3644	8.35269	0.003851
311	4.11673	0	0	0	-4.80304	1.26464	-10.1271	5.2582	0.021844
317	4.60992	0	0	0	-5.37846	2.27223	-22.3982	7.87242	0.005019
319	4.93989	0	0	0	-5.76343	1.84477	-12.1573	7.16894	0.007418
323	3.53742	0	0	0	-4.12716	1.39933	-15.7657	7.22227	0.0072
330	2.25343	0	0	0	-2.62911	0.887168	-14.2278	5.47754	0.019262
340	7.26147	0	0.496887	0	-8.47206	1.63362	-19.905	7.42543	0.006431
341	3.76489	0	0	0	-4.39255	0.812701	-10.3109	3.94794	0.046929
348	2.53284	0	0	0	-2.9551	1.02767	-13.7595	6.5254	0.010635
350	3.12884	0	0.315571	0	-3.65046	0.891162	-19.6825	5.67051	0.017252
352	1.52526	0	0	0	-1.77954	0.876725	-13.0124	4.03413	0.044589
358	5.3755	0	0	0	-6.27167	1.54269	-10.4054	6.63404	0.010005
359	3.21552	0	0.361634	0	-3.75159	1.06728	-20.4529	5.93013	0.014884
363	7.16114	0	0	0	-8.355	1.21581	-18.6332	9.2439	0.002363
367	2.50468	0	0	0	-2.92225	1.32174	-18.6615	6.29035	0.01214
371	6.01537	0	0	0	-7.01821	2.14953	-19.0597	9.97666	0.001585
372	8.0589	0	0	0	-9.40243	2.20146	-16.7846	11.0065	0.000908
373	2.4633	0	0	0	-2.87396	1.41146	-18.3387	5.01197	0.025173
378	2.63586	0	0	0	-3.0753	1.04598	-15.7717	6.25505	0.012384
392	2.4304	0	0	0	-2.83558	0.804555	-12.302	5.18585	0.022772
393	4.08339	0	0	0	-4.76414	0.727332	-11.2416	4.61463	0.0317
394	6.14237	0	0	0	-7.16639	1.69403	-15.1982	9.4572	0.002103
396	3.61535	0	0	0	-4.21807	2.03763	-24.7056	6.53096	0.010601
397	1.69733	0	0	0	-1.9803	0.615091	-12.4686	3.98334	0.045952
399	3.74756	0	0	0	-4.37233	1.35197	-11.973	5.64238	0.017531
405	4.91448	0	0	0	-5.73379	1.96054	-27.7642	9.64313	0.001901
408	4.15037	0	0	0	-4.84229	1.70098	-12.7237	4.99898	0.025362
409	3.52972	0	0	0	-4.11817	1.25509	-18.5167	7.93673	0.004844
416	3.6295	0	0	0	-4.23458	1.49327	-21.4744	6.49129	0.01084

419	16.4588	0	0	0	-19.2027	1.637	-25.3227	15.1846	9.75E-05
423	3.45181	0	0	0	-4.02727	1.11469	-15.4653	7.20988	0.00725
424	4.46152	0	0	0	-5.20531	1.18539	-17.6491	7.76891	0.005315
432	4.0907	0	0	0	-4.77267	1.9813	-20.9717	7.00961	0.008107
437	2.56825	0	0	0	-2.99641	0.948239	-13.8763	5.80833	0.01595
438	11.6484	0	0	0	-13.5904	2.53209	-24.1889	13.1119	0.000293
439	7.32208	0	0	0	-8.54277	2.8696	-23.9462	9.37149	0.002204
441	2.75639	0	0	0	-3.21591	1.00664	-14.1662	7.07256	0.007827
442	2.43141	0	0	0	-2.83676	0.92639	-14.4408	5.60865	0.017872
446	14.1636	0.767609	0	0.054	-15.6293	3.67913	-18.916	8.1329	0.004347
458	5.11642	0	0	0	-5.9694	1.71445	-18.1394	10.3823	0.001272
465	3.96484	0	0	0	-4.62583	1.70797	-13.6646	6.27439	0.01225
469	2.73052	0	0	0	-3.18573	1.04779	-13.9871	6.76036	0.00932
471	3.90025	0	0	0	-4.55047	0.921989	-10.8707	6.4906	0.010845
474	2.12742	0	0.518036	0	-2.48208	1.24266	-21.3758	4.0894	0.043153
479	4.28427	0	0.864453	0	-4.99851	1.73259	-28.9757	8.29179	0.003982
480	5.66189	0	0	0	-6.60581	0.917161	-15.4668	6.44745	0.011111
483	5.66562	0	0	0	-6.61015	1.49161	-11.2052	6.15701	0.013089
487	2.86717	0	0	0	-3.34517	0.774695	-15.7144	5.86704	0.015427
496	2.92905	0	0	0	-3.41737	1.28306	-19.9601	6.4001	0.011411
500	2.90431	0	0	0	-3.3885	0.679256	-10.1297	3.84751	0.04982
505	2.72973	0	0	0	-3.18481	0.587906	-11.2014	4.20364	0.040337
529	4.13961	0	0	0	-4.82973	1.1489	-10.6521	5.24949	0.021953
531	6.98014	0	0	0	-8.14382	1.21E-16	-17.1888	7.60396	0.005824
533	12.9124	0	0.652744	0	-15.0651	1.87491	-17.8773	6.38464	0.011511
547	2.70397	0	0.497279	0	-3.15476	1.68443	-32.6017	5.40066	0.020129
550	9.14258	0	0	0	-10.6668	1.34291	-13.6707	9.7576	0.001786
564	7.65588	0	0	0	-8.93222	3.51266	-24.4179	11.7754	0.0006
565	6.96159	0	0	0	-8.12218	1.60932	-11.3823	7.72821	0.005436
566	17.015	0	0	0	-19.8516	3.46801	-13.2832	12.0227	0.000526
568	22.6775	0	0	0	-26.4581	1.30309	-18.8398	13.3975	0.000252
571	2.03008	0	0	0	-2.36853	1.14057	-15.8894	5.87312	0.015374
574	22.0727	0	0.350623	0	-25.7525	2.32731	-20.9033	14.1677	0.000167
577	10.0944	0	0.475827	0	-11.7773	1.68954	-21.9156	8.73107	0.003128
578	1.8942	0	0	0	-2.20999	1.23929	-20.3047	3.90851	0.048042
579	4.45519	0	0	0	-5.19793	1.74175	-13.2622	5.17459	0.02292

**Table S9** Negative selection sites for the N gene based on FEL analysis.

Codon	dS	dN	dN Leaves	dN/dS	Normalize dN-dS	dS (when dN=dS)	Log(L)	LRT	P value
12	4.17546	0	0	0	-6.79425	1.82333	-15.1062	4.62258	0.031554
27	9.23733	0	0.596667	0	-15.0309	1.88208	-15.5064	5.27656	0.021614
40	15.1261	0	0	0	-24.6131	1.20623	-8.82357	4.06481	0.043786
51	8.34415	0	0	0	-13.5775	2.70208	-12.0468	5.343	0.020806
53	3.77345	0	0	0	-6.14011	2.25096	-14.5155	5.01297	0.025158
59	3.50725	0	0	0	-5.70696	1.98818	-14.2683	4.26081	0.039001
63	31.9659	1.19105	0	0.037	-50.0765	4.0125	-14.0284	5.86068	0.015483
67	5.00607	0	0	0	-8.14582	1.92171	-13.1325	4.87395	0.027265
78	9.02098	0	1.09915	0	-14.6788	3.1453	-20.7008	6.15029	0.013139
83	4.94794	0	0	0	-8.05123	1.56487	-13.8078	5.97564	0.014505
86	6.09347	0	0.715115	0	-9.91523	2.50798	-18.6943	5.74064	0.016577
88	15.2044	0	0	0	-24.7405	1.77652	-9.91385	6.06861	0.013761
95	6.89381	0	0.595592	0	-11.2175	3.27499	-20.5155	6.25804	0.012363
97	26.4993	0	0	0	-43.1194	3.58116	-17.3611	9.77725	0.001767
100	5.27271	0	0.614496	0	-8.57969	2.08862	-17.3401	4.93021	0.026391
102	3.9478	0	0	0	-6.42381	1.73007	-13.6829	4.65231	0.031012
105	5.93287	0	0	0	-9.6539	1.89893	-16.9065	5.86511	0.015444
125	6.22325	0	0.422375	0	-10.1264	2.37976	-22.7647	5.33564	0.020894
127	5.0986	0	0	0	-8.29639	1.08173	-10.2751	3.99354	0.045675
142	5.22845	0	0.383734	0	-8.50767	2.41015	-23.3554	5.34289	0.020807
187	2.12989	0	0	0	-3.46574	1.01754	-15.0495	4.13977	0.041887
190	2.29851	0	0	0	-3.7401	0.87253	-12.1307	4.53171	0.033272
192	14.374	0	0	0	-23.3892	1.67381	-14.8026	11.5439	0.00068
198	2.10075	0	0	0	-3.41832	1.07663	-14.9748	4.93342	0.026342

206	4.38981	0	0.452736	0	-7.14305	1.0201	-15.1539	5.04573	0.024687
-----	---------	---	----------	---	----------	--------	----------	---------	----------

**Table S10** Negative selection sites for the 7b gene based on FEL analysis.

Codon	dS	dN	dN Leaves	dN/dS	Normalized dN-dS dS (when dN=dS)	Log(L)	LRT	p value	
18	4.32222	0.54684	0.568281	0.127	-5.34823	1.87589	-21.8218	4.22918	0.039735
31	8.61168	0	0	0	-12.1994	1.1671	-16.1834	9.53625	0.002015
35	3.7082	0	0	0	-5.25307	2.25648	-20.8911	4.24847	0.039286
38	2.63499	0	0	0	-3.73275	0.80128	-10.598	4.01758	0.045028
48	15.1646	0	0	0	-21.4823	1.59602	-10.726	8.69746	0.003187
51	3.90024	0	0	0	-5.52511	2.28983	-18.6977	4.49845	0.033926
56	5.95925	0	0	0	-8.44192	2.18816	-12.483	3.88362	0.048759
57	24.6266	0	1.29625	0	-34.8862	3.19798	-22.3248	11.8525	0.000576
63	12.3311	0	0	0	-17.4684	2.2831	-9.25505	6.24571	0.012449
72	4.0724	0	0	0	-5.76899	1.25042	-10.8357	4.18348	0.04082
81	7.81155	0	0	0	-11.0659	3.48565	-11.0632	6.89682	0.008635
90	11.001	0	0	0	-15.5841	2.05727	-8.65598	4.42292	0.035459
109	9.14246	0	0	0	-12.9513	2.91767	-10.923	5.47904	0.019246
111	5.317	0	0	0	-7.5321	2.30418	-12.7114	4.41152	0.035697
132	8.30444	0	0	0	-11.7641	1.76574	-11.1725	5.53135	0.018679
141	9.24906	0	0	0	-13.1023	2.2522	-12.6529	5.4615	0.01944
168	5.51604	0	0	0	-7.81407	1.24005	-9.58977	4.17216	0.041094