

SUPPLEMENTARY FIGURES AND TABLES

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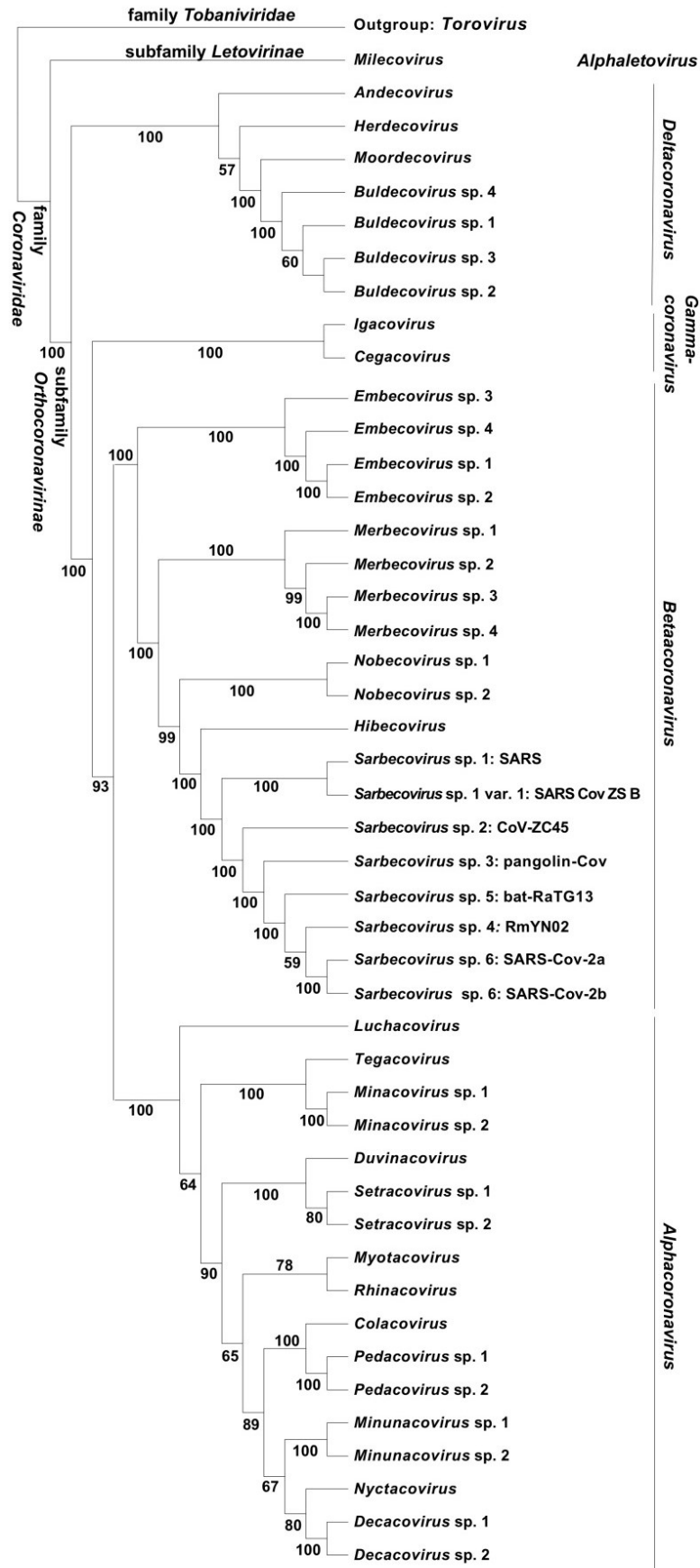


Fig. S1. Single most parsimonious tree recovered from the standard MP analysis (Fitch Parsimony) of the 22,489 bp genomic alignment of *Coronaviridae* + *Torovirus*. Tree was *a posteriori* rooted relative to *Torovirus* and drawn following suggested changes in the nomenclature of family *Coronaviridae*.

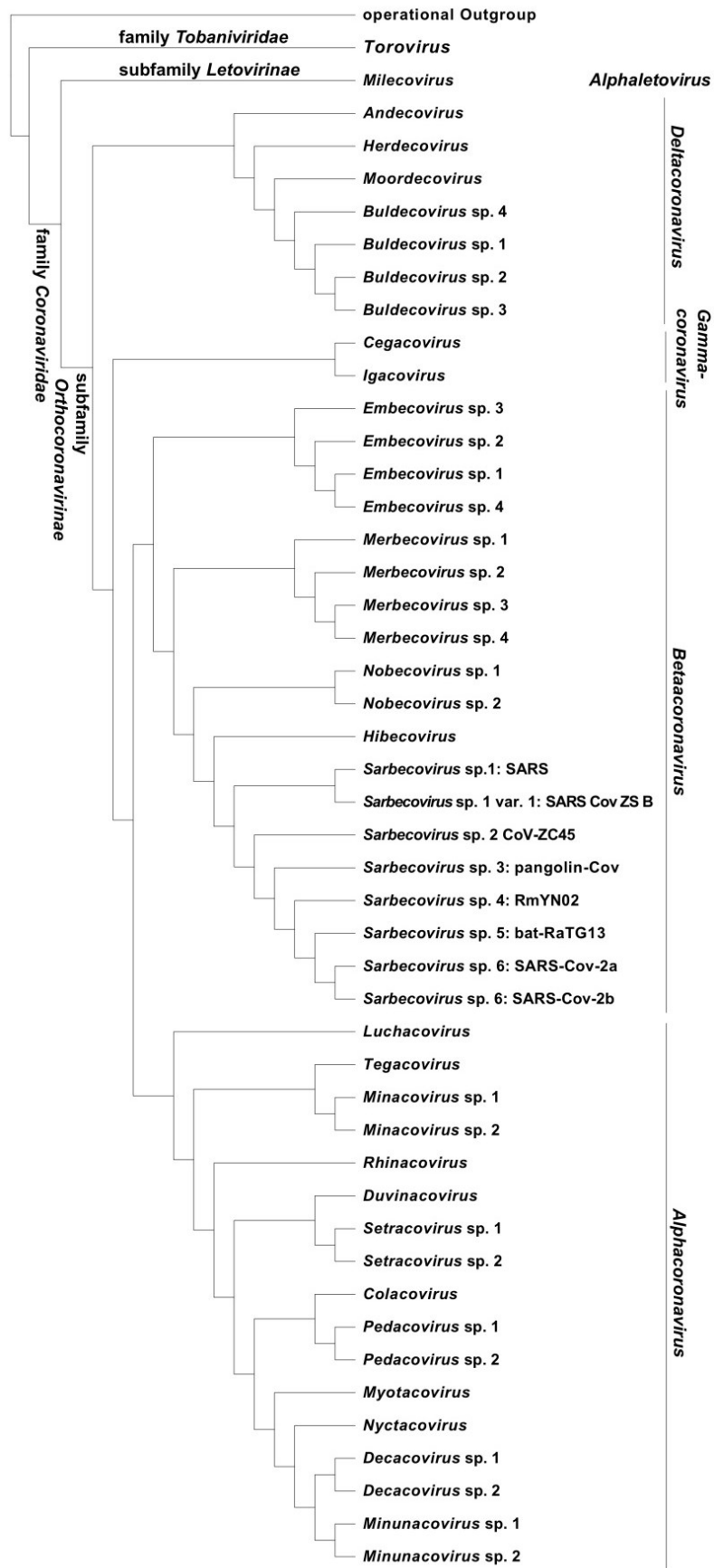


Fig. S2. Most parsimonious hierarchy of patterns recovered from MP analysis (Wagner parsimony) of 39,621,820 3TS WS representation of the 22,489 bp genomic alignment of *Coronaviridae* + *Torovirus*. The values of the operational outgroup were fixed as values of *Torovirus*. Cladogram drawn following suggested changes in the nomenclature of family *Coronaviridae*.

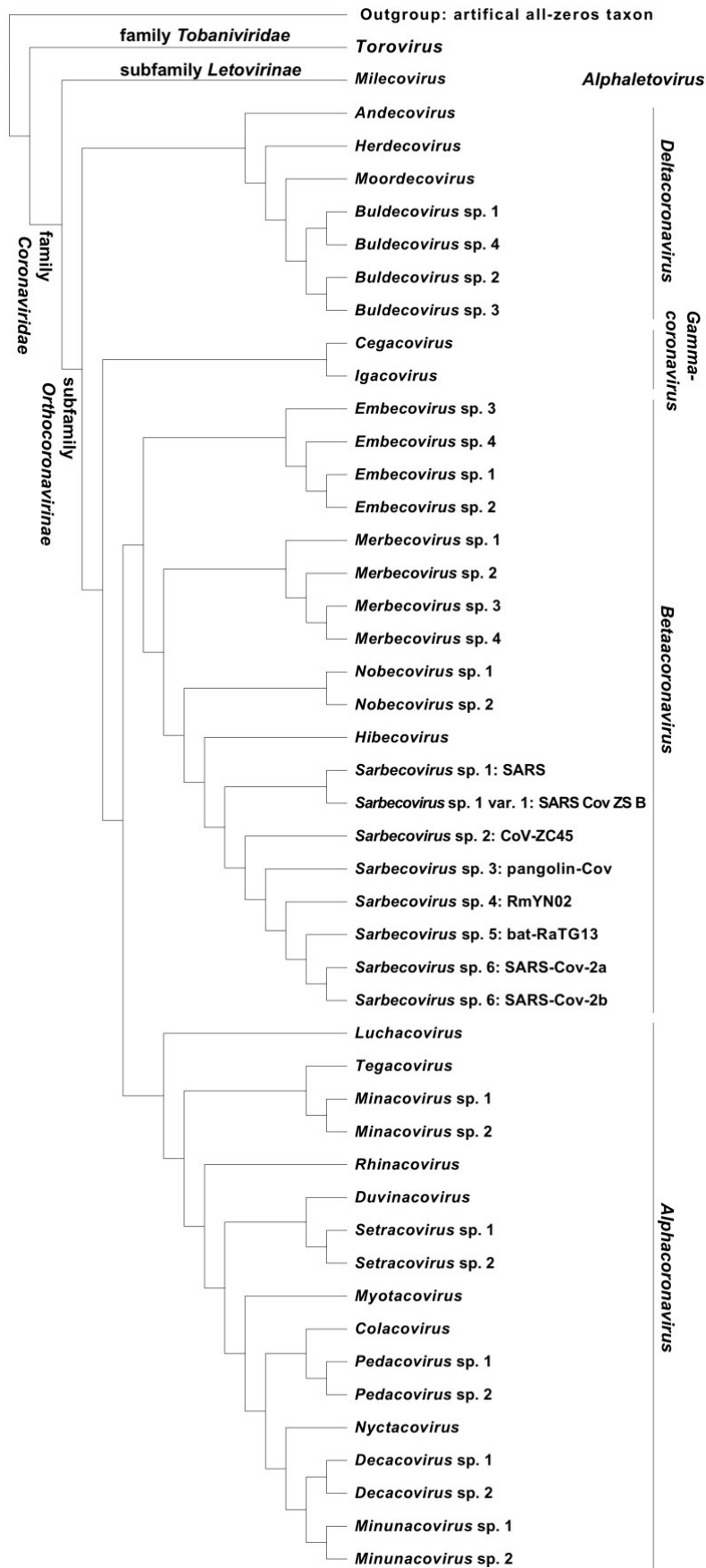


Fig. S3. The average consensus cladogram from the analysis of the forest of 65,435 rooted trees(maximal relationships) derived from the “presence-absence” representation of the original 22,489 bp genomic alignment of *Coronaviridae* + *Torovirus*. Cladogram drawn following suggested changes in the nomenclature of family *Coronaviridae*.

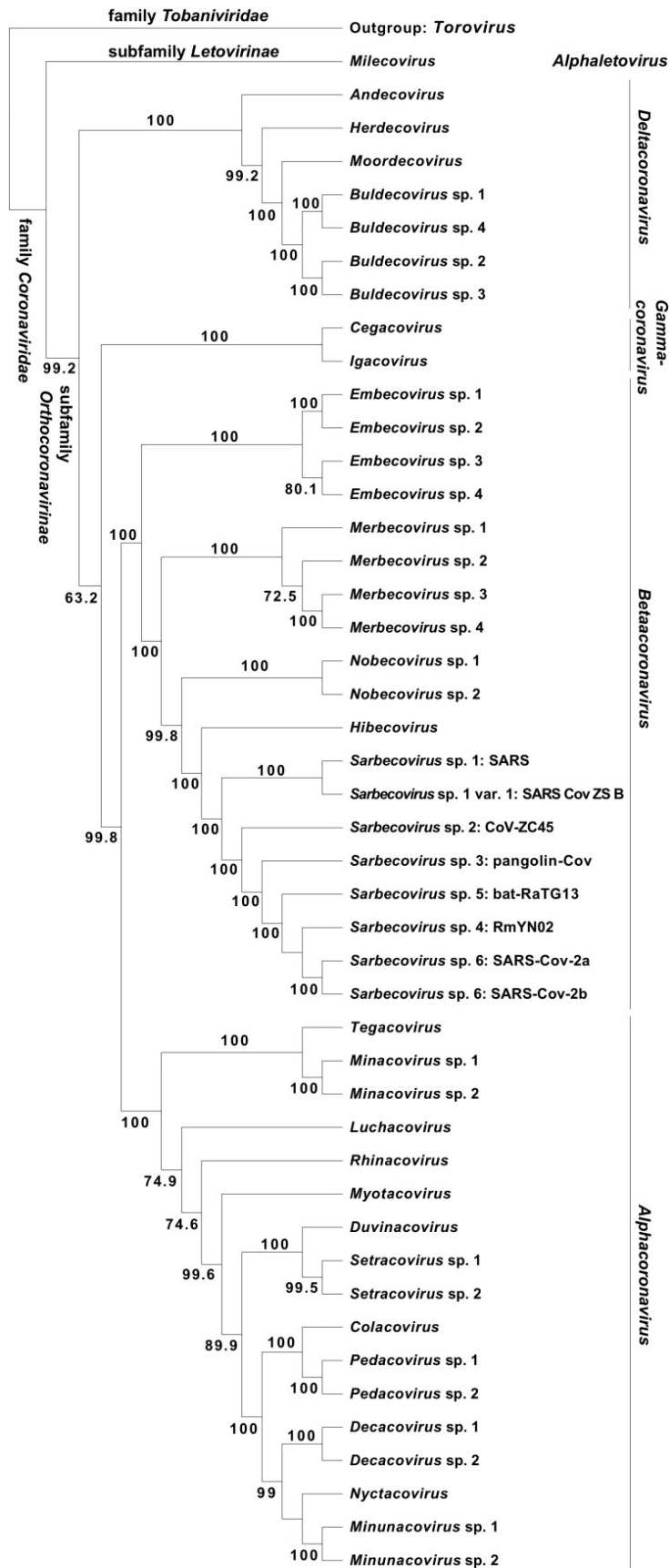


Fig. S4. Most probable tree recovered from the ML analysis of the 22,489 bp genomic alignment of *Coronaviridae* + *Torovirus*. Tree was a posteriori rooted relative to *Torovirus* and drawn following suggested changes in the nomenclature of family *Coronaviridae*.

Table S1. Taxonomic sampling of the study and related data

Family	Subfamily	Genus	Subgenus	Species	Virus name	Abbreviation	Name in the Trees	Host	Accession
Coronaviridae	Letovirinae	Alphaletovirus	Milecovirus	Microhyla letovirus 1	Microhyla letovirus 1	MLeV	Milecovirus	Amphibia	n/a
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Colacovirus	Bat coronavirus CDPHE15	bat coronavirus CDPHE15	BtCoV CDPHE15	Colacovirus	Mammals	KF430219
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Decacovirus	Bat coronavirus HKU10	rousettus bat coronavirus HKU10	BtCoV HKU10	Decacovirus sp. 1	Mammals	JQ989270
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Decacovirus	Rhinolophus ferrumequinum alphacoronavirus HuB-2013	BtRf-AlphaCoV/HuB2013	BtRf-AlphaCoV	Decacovirus sp. 2	Mammals	KJ473807
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Duvinacovirus	Human coronavirus 229E	human coronavirus 229E	HCoV-229E	Duvinacovirus	Mammals	AF304460
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Luchacovirus	Lucheng Rn rat coronavirus	Lucheng Rn rat coronavirus	LRNV	Luchacovirus	Mammals	KF294380
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Minacovirus	Ferret coronavirus	ferret coronavirus	FRCoV	Minacovirus sp. 1	Mammals	LC119077
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Minacovirus	Mink coronavirus 1	mink coronavirus	MCoV	Minacovirus sp. 2	Mammals	HM245925
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Minunacovirus	Miniopterus bat coronavirus 1	miniopterus bat coronavirus 1	Mi-BatCoV-1A	Minunacovirus sp. 1	Mammals	EU420138
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Minunacovirus	Miniopterus bat coronavirus HKU8	miniopterus bat coronavirus HKU8	Mi-BatCoV-HKU8	Minunacovirus sp. 2	Mammals	EU420139
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Myotacovirus	Myotis ricketti alphacoronavirus Sax-2011	BtMr-AlphaCoV/SAX2011	BtMr-AlphaCoV	Myotacovirus	Mammals	KJ473806
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Nyctacovirus	Nyctalus velutinus alphacoronavirus SC-2013	BtNv-AlphaCoV/SC2013	BtNv-AlphaCoV	Nyctacovirus	Mammals	KJ473809
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Pedacovirus	Porcine epidemic diarrhea virus	porcine epidemic diarrhea virus	PEDV	Pedacovirus sp. 1	Mammals	AF353511
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Pedacovirus	Scotophilus bat coronavirus 512	scotophilus bat coronavirus 512	Sc-BatCoV-512	Pedacovirus sp. 2	Mammals	DQ648858
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Rhinacovirus	Rhinolophus bat coronavirus HKU2	rhinolophus bat coronavirus HKU2	Rh-BatCoV-HKU2	Rhinacovirus	Mammals	EF203064
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Setracovirus	Human coronavirus NL63	human coronavirus NL63	HCoV-NL63	Setracovirus sp. 1	Mammals	AY567487
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Setracovirus	NL63-related bat coronavirus strain BtKYNL63-9b	NL63-related bat coronavirus	BtKYNL63	Setracovirus sp. 2	Mammals	KY073745
Coronaviridae	Orthocoronavirinae	Alphacoronavirus	Tegacovirus	Alphacoronavirus 1	transmissible gastroenteritis virus	TGEV	Tegacovirus	Mammals	AJ271965
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Embecovirus	Betacoronavirus 1	human coronavirus OC43	HCoV-OC43	Embecovirus sp. 1	Mammals	AY585228
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Embecovirus	China Rattus coronavirus HKU24	betacoronavirus HKU24	ChRCoV-HKU24	Embecovirus sp. 2	Mammals	KM349742
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Embecovirus	Human coronavirus HKU1	human coronavirus HKU1	HCoV-HKU1	Embecovirus sp. 3	Mammals	AY597011
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Embecovirus	Murine coronavirus	murine hepatitis virus	MHV	Embecovirus sp. 4	Mammals	AY700211
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Hibecovirus	Bat Hp-betacoronavirus Zhejiang2013	bat Hp-betacoronavirus/Zhejiang2013	Bat-Hp-BetaCoV	Hibecovirus	Mammals	KF636752
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Merbecovirus	Hedgehog coronavirus 1	hedgehog coronavirus 1	EriCoV	Merbecovirus sp. 1	Mammals	KC545383
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Merbecovirus	Middle East respiratory syndrome-related coronavirus	Middle East respiratory syndrome-related coronavirus	MERS-CoV	Merbecovirus sp. 2	Mammals	JX869059
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Merbecovirus	Pipistrellus bat coronavirus HKU5	pipistrellus bat coronavirus HKU5	Pi-BatCoV-HKU5	Merbecovirus sp. 3	Mammals	EF065509
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Merbecovirus	Tyonycteris bat coronavirus HKU4	tyonycteris bat coronavirus HKU4	Ty-BatCoV-HKU4	Merbecovirus sp. 4	Mammals	EF065505
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Nobecovirus	Rousettus bat coronavirus GCCDC1	rousettus bat coronavirus	Ro-BatCoV-GCCDC1	Nobecovirus sp. 1	Mammals	KU762338
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Nobecovirus	Rousettus bat coronavirus HKU9	rousettus bat coronavirus HKU9	Ro-BatCoV-HKU9	Nobecovirus sp. 2	Mammals	EF065513
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Sarbecovirus	Severe acute respiratory syndrome-related coronavirus	severe acute respiratory syndrome-related coronavirus	SARS-CoV	Sarbecovirus sp. 1	Mammals	AY274119
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Sarbecovirus	Severe acute respiratory syndrome-related coronavirus	SARS coronavirus ZS B	SARS-CoV ZS B	Sarbecovirus sp. 1 var. 1:	Mammals	AY394996
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Sarbecovirus	Severe acute respiratory syndrome-related coronavirus	bat SARS-like coronavirus	Bat-SL-CoV-ZC45	Sarbecovirus sp. 2	Mammals	MG772933
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Sarbecovirus	Severe acute respiratory syndrome-related coronavirus	pangolin coronavirus	Pangolin-Cov	Sarbecovirus sp. 3	Mammals	MT121216
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Sarbecovirus	Severe acute respiratory syndrome-related coronavirus	bat coronavirus RmYN02	RmYN02	Sarbecovirus sp. 4	Mammals	EPI_ISL_412977
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Sarbecovirus	Severe acute respiratory syndrome-related coronavirus	bat coronavirus RaTG13	Bat-Cov-RaTG13	Sarbecovirus sp. 5	Mammals	MN996532
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Sarbecovirus	Severe acute respiratory syndrome-related coronavirus	severe acute respiratory syndrome-related coronavirus 2	SARS-CoV2	Sarbecovirus sp. 6	Mammals	MN908947
Coronaviridae	Orthocoronavirinae	Betacoronavirus	Sarbecovirus	Severe acute respiratory syndrome-related coronavirus	severe acute respiratory syndrome-related coronavirus 2	SARS-CoV2	Sarbecovirus sp. 6	Mammals	MN988713
Coronaviridae	Orthocoronavirinae	Deltacoronavirus	Andecovirus	Wigeon coronavirus HKU20	wigeon coronavirus HKU20	WiCoV-HKU20	Andecovirus	Birds	JQ065048
Coronaviridae	Orthocoronavirinae	Deltacoronavirus	Buldecovirus	Bulbul coronavirus HKU11	bulbul coronavirus HKU11	BulCV-HKU11	Buldecovirus sp. 1	Birds	FJ376619
Coronaviridae	Orthocoronavirinae	Deltacoronavirus	Buldecovirus	Coronavirus HKU15	porcine coronavirus HKU15	PoCoV-HKU15	Buldecovirus sp. 2	Mammals	JQ065043
Coronaviridae	Orthocoronavirinae	Deltacoronavirus	Buldecovirus	Munia coronavirus HKU13	munia coronavirus HKU13	MunCV-HKU13	Buldecovirus sp. 3	Birds	FJ376622
Coronaviridae	Orthocoronavirinae	Deltacoronavirus	Buldecovirus	White-eye coronavirus HKU16	white-eye coronavirus HKU16	WECoV-HKU16	Buldecovirus sp. 4	Birds	JQ065044
Coronaviridae	Orthocoronavirinae	Deltacoronavirus	Herdecovirus	Night heron coronavirus HKU19	night heron coronavirus HKU19	NHCoV-HKU19	Herdecovirus	Birds	JQ065047
Coronaviridae	Orthocoronavirinae	Deltacoronavirus	Moordecovirus	Common moorhen coronavirus HKU21	common moorhen coronavirus HKU21	CMCoV-HKU21	Moordecovirus	Birds	JQ065049
Coronaviridae	Orthocoronavirinae	Gammacoronavirus	Cegacovirus	Beluga whale coronavirus SW1	beluga whale coronavirus	BWCoV	Cegacovirus	Mammals	EU111742
Coronaviridae	Orthocoronavirinae	Gammacoronavirus	Igacovirus	Avian coronavirus	infectious bronchitis virus	IBV	Igacovirus	Birds	M95169
Tobnaviridae	Torovirinae	Torovirus	Renitovirus	Bovine torovirus	bovine torovirus	BRV	Torovirus	Mammals	AY427798

Table S3. Total character differences between the aligned genomes of severe acute respiratory syndrome related coronavirus 2 (SARS-CoV-2) (MN908947) and bat coronaviruses RmYN02 and RaTG13

# of taxon	Genus	Subgenus\Name in the Tree	1	2	3
1	<i>Betacoronavirus</i>	<i>Sarbecovirus</i> sp. 6: SARS Cov 2a	-		
2	<i>Betacoronavirus</i>	<i>Sarbecovirus</i> sp. 5: Bat RaTG13	1138	-	
3	<i>Betacoronavirus</i>	<i>Sarbecovirus</i> sp. 4: RmYN02	1803	2032	-