

## Supplementary Table 2

Backgrounds of references IBV strains used in this study.

Strain	country	year	Genotype/lineage	GenBank accession number
Gray	USA	1962	GI-3	L14069
JMK	USA	1964	GI-3	L14070
L613	USA	1965	GI-8	JQ964066
SE17	USA	1991	GI-8	M99484
Holte	USA	1954	GI-2	GU393336
SDW	China	2004	GI-2	DQ070840
Ark DPI	USA	1981	GI-9	AF006624
CAL99	USA	1999	GI-9	DQ912831
Qu16	Canada	1996	GI-20	AF349620
Qu mv	Canada	1999	GI-20	AF349621
GX2-98	China	1998	GI-4	AY251816
Holte	USA	1962	GI-4	L18988
K87	New Zealand	1998	GI-10	AF151959
T6	New Zealand	1998	GI-10	AF151960
J9	China		GI-6	DQ515802
Vic S	Australia	1962	GI-6	U29519
N1/62	Australia	1962	GI-5	U29522
V2-02	Australia	2002	GI-5	DQ490215
53XJ-99II	China	1999	GI-18	KC577391
JP8127	Japan	1993	GI-18	AY296744
K210-02	Korea	2002	GI-15	AY257068
K620/02	Korea	2002	GI-15	FJ807944
AL/6609/98	USA	1998	GI-17	AF510656

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CV-56b	USA	1991	GI-17	AF027509
GA/12341/2012	USA	2012	GI-27	KM660634
Georgia 08	USA	2008	GI-27	GU301925
IBV/Brasil/351/1984	Brazil	1984	GI-11	GU393339
UFMG/1141	Brazil	2009	GI-11	JX182783
D207	The Netherlands	1979	GI-12	M21969
D274	The Netherlands	1979	GI-12	X15832
CK/CH/LDL/97I	China	1997	GI-16	EF030995
Q1	China	1996	GI-16	AF286302
IS/1494/06	Israel	2006	GI-23	EU780077
variant 2	Israel		GI-23	AF093796
H120	The Netherlands	1960	GI-1	FJ888351
M41	USA	1956	GI-1	AY561711
IBV506	India	2013	GI-24	KF809796
V13	India	1998	GI-24	KF757447
GA/10216/2010	USA	2010	GI-25	KM660636
GA/12274/2012	USA	2012	GI-25	KP085595
GX-G	China	1988	GI-7	JQ764816
TP/64	China	1964	GI-7	AY606320
CK/CH/LSC/99I	China	1999	GI-22	DQ167147
HN08	China	2008	GI-22	GQ265940
I0114/14	China	2014	GI-29	KY407556
I0118/14	China	2014	GI-29	KY407558
ck/CH/LGX/111119	China	2011	GI-28	KX640829
GX-NN-13	China	2011	GI-28	JX291989
LX4	China	1999	GI-19	AY189157

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QXIBV	China	1997	GI-19	AF193423
NGA/BP61/2007	Nigeria	2007	GI-26	FN182268
NGA/N545/2006	Nigeria	2006	GI-26	FN182270
Belgian isolate B1648	Belgium	1984	GI-14	X87238
NGA/324/2006	Nigeria	2006	GI-14	FN182277
Italy-02	Italy	1999	GI-21	AJ457137
Spain/98/313	Spain	1998	GI-21	DQ064808
Moroccan-G/83	Morocco	1983	GI-13	EU914938
UK/7/91	United Kingdom	1991	GI-13	Z83975
GX-NN130021	China	2013	GVII-1	KM365468
I0636/16	China	2016	GVII-1	MH924835
018	Australia	2008	GV-1	JX018208
N1/03	Australia	2003	GV-1	FJ235194
N1/88	Australia	1988	GIII-1	U29450
V18/91	Australia	1991	GIII-1	U29521
CK/CH/GX/YL1501-2	China	2015	GVI-1	KX107732
CK/CH/HuB/HC1402-1	China	2014	GVI-1	KX107753
CK/CH/GX/NN16-11	China	2016	GVI-1	MF447733
GX-QZ130064	China	2013	GVI-1	KJ999801
GX-QZ130065	China	2013	GVI-1	KT149876
CK/CH/GD/NC10	China	2010	GVI-1	HQ018903
VNUA11	Viet Nam	2015	GVI-1	KY992865
GX-NN120084	China	2012	GVI-1	KJ999804
GX-NN120089	China	2012	GVI-1	KJ999805
CK/CH/GX/NN16-2	China	2016	GVI-1	MF447729
GXNanningHuangdajiu2016.8	China	2016	GVI-1	MF375896

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CK/CH/GD/XX1412-2	China	2014	GVI-1	KX107683
CK/CH/GX/GL1404	China	2014	GVI-1	KX107711
CK/CH/GD/XX16-9	China	2016	GVI-1	MF447700
CK CH HB HC1104	China	2011	GVI-1	KC692310
CK CH GX GL12-1	China	2012	GVI-1	KC692273
CK/CH/GX/GL12-4	China	2012	GVI-1	KJ524635
CK/CH/GX/GL1511	China	2015	GVI-1	KX107715
CK/CH/GX/NN11-4	China	2011	GVI-1	KJ524602
GX-NN120079	China	2012	GVI-1	KJ999803
CK CH GD YX1101	China	2011	GVI-1	KC692282
CK/CH/HB/2016	China	2016	GVI-1	MF882923
CK/CH/GX/GL16-2	China	2016	GVI-1	MF447745
CK/CH/GX/LC17-5	China	2017	GVI-1	MG734765
GX-NN09032	China	2009	GVI-1	JX292013
CK/CH/SD09/005	China	2009	GVI-1	HM230749
CK/CH/GD/KP10	China	2010	GVI-1	HQ018919
CK/CH/2014/QL1403	China	2014	GVI-1	KU361198
TC07-2	China	2007	GVI-1	GQ265948
ck/CH/IBTZ2012	China	2012	GVI-1	KF663559
SDIB781/2012	China	2012	GVI-1	KF007209
K26/10	South Korea	2010	GVI-1	JF804678
K273/09	South Korea	2009	GVI-1	JF804687
KrD1515	South Korea	2015	GVI-1	MF176212
CK CH HN1005	China	2010	GVI-1	KC692307
K308/09	South Korea	2009	GVI-1	JF804689
K23/10	South Korea	2010	GVI-1	JF804677

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K46/10	South Korea	2010	GVI-1	JF804679
K119/09	South Korea	2009	GVI-1	JF804680
AR/6386/97	USA	1997	GIV-1	AF274436
DE/072/92	USA	1992	GIV-1	U77298
D1466	The Netherlands	1979	GII-1	M21971
V1397	The Netherlands	1984	GII-1	M21968

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Supplementary Table 2

Putative genes/genomic regions of viruses of GVI-1 lineage<sup>a</sup>.

Strain	5'	Gene 1		S	Gene 3			M	Gene 5		N	3' UTR
	UTR	ORF1a	ORF1ab		3a	3b	3c		5a	5b		
LHB/110615	1-525 (525)	526-12384 (11859)	526-20417 (19892)	20368-23883 (3516)	23883-24056 (174)	24056-24244 (189)	24225-24536 (312)	24526-25206 (681)	25567-25764 (198)	25761-26009 (249)	25952-27169 (1218)	27170-27673 (504)
LHB/110617	1-525 (525)	526-12384 (11859)	526-20417 (19892)	20368-23883 (3516)	23883-24056 (174)	24056-24244 (189)	24225-24536 (312)	24526-25206 (681)	25567-25764 (198)	25761-26009 (249)	25952-27169 (1218)	27170-27673 (504)
I0916/16	1-525 (525)	526-12387 (11862)	526-20420 (19895)	20371-23883 (3513)	23883-24056 (174)	24056-24244 (189)	24225-24536 (312)	24526-25206 (681)	25568-25765 (198)	25762-26010 (249)	25953-27179 (1227)	27180-27683 (504)
I1209/16	1-528 (528)	529-12354 (11826)	529-20387 (19859)	20338-23853 (3516)	23853-24026 (174)	24026-24214 (189)	24198-24506 (309)	24496-25176 (681)	25530-25727 (198)	25724-25996 (273)	25915-27144 (1230)	27145-27648 (504)
I0221/17	1-525 (525)	526-12387 (11862)	526-20420 (19895)	20371-23886 (3516)	23886-23984 (99)	23984-24172 (189)	24156-24464 (309)	24454-25134 (681)	25488-25685 (198)	25682-25930 (249)	25873-27102 (1230)	27103-27606 (504)
I0725/17	1-525 (525)	526-12381 (11856)	526-20426 (19901)	20377-23892 (3516)	23892-24065 (174)	24065-24253 (189)	24234-24545 (312)	24535-25215 (681)	25578-25775 (198)	25772-26020 (249)	25963-27192 (1230)	27193-27696 (504)
CK/CH/2014/ QL1403	1-525 (525)	526-12375 (11850)	526-20408 (19883)	20359-23874 (3516)	23874-24047 (174)	24047-24235 (189)	24219-24527 (309)	24517-25197 (681)	25561-25758 (198)	25755-26003 (249)	25946-27175 (1230)	27176-27679 (504)
CK/CH/HB/2 016	1-525 (525)	526-12387 (11862)	526-20420 (19895)	20371-23883 (3513)	23883-24056 (174)	24056-24244 (189)	24225-24536 (312)	24526-25206 (681)	25570-25767 (198)	25764-26012 (249)	25955-27181 (1227)	27182-27685 (504)
ck/CH/IBTZ/ 2012	1-525 (525)	526-12387 (11862)	526-20420 (19895)	20371-23886 (3516)	23886-24059 (174)	24059-24247 (189)	24228-24539 (312)	24529-25209 (681)	25572-25769 (198)	25766-26014 (249)	25957-27186 (1230)	27187-27690 (504)
CK/CH/SD09 /005	1-525 (525)	526-12387 (11862)	526-20420 (19895)	20371-23886 (3516)	23886-24059 (174)	24059-24247 (189)	24231-24539 (309)	24529-25209 (681)	25572-25769 (198)	25766-26014 (249)	25957-27186 (1230)	27187-27691 (505)
GX-NN0903 2	1-525 (525)	526-12387 (11862)	526-20423 (19898)	20374-23889 (3516)	23889-24062 (174)	24062-24250 (189)	24234-24542 (309)	24532-25212 (681)	25575-25772 (198)	25769-26017 (249)	25960-27189 (1230)	27190-27672 (483)

<sup>a</sup> Sizes of the putative genes/genomic regions are shown in parentheses. IBV, infectious bronchitis virus; M, membrane protein; N, nucleocapsid protein; ORF, open reading frame; S, spike protein; UTR, untranslated region.