

Supplementary Table 1. *Odontoglossum ringspot virus* isolates used in this study

Country	Isolate	Origin	Collection Year	Orchid variety	Accession number	Reference
China	1-1	Wuxi	2017	<i>Cymbidium goeringii</i>	MG869629	This study
	1-2	Wuxi	2017	<i>C. goeringii</i>	MG869630	This study
	1-3	Wuxi	2017	<i>C. goeringii</i>	MG869631	This study
	2-1	Wuxi	2017	<i>C. goeringii</i>	MG869632	This study
	2-2	Wuxi	2017	<i>C. goeringii</i>	MG869633	This study
	2-3	Wuxi	2017	<i>C. goeringii</i>	MG869634	This study
	3-1	Wuxi	2017	<i>C. goeringii</i>	MG869635	This study
	3-2	Wuxi	2017	<i>C. goeringii</i>	MG869636	This study
	3-3	Wuxi	2017	<i>C. goeringii</i>	MG869637	This study
	4-1	Wuxi	2017	<i>C. goeringii</i>	MG869638	This study
	4-2	Wuxi	2017	<i>C. goeringii</i>	MG869639	This study
	4-3	Wuxi	2017	<i>C. goeringii</i>	MG869640	This study
	5-1	Wuxi	2017	<i>C. goeringii</i>	MG869641	This study
	5-2	Wuxi	2017	<i>C. goeringii</i>	MG869642	This study
	5-3	Wuxi	2017	<i>C. goeringii</i>	MG869643	This study
	6-1	Wuxi	2017	<i>C. goeringii</i>	MG869644	This study
	6-2	Wuxi	2017	<i>C. goeringii</i>	MG869645	This study
	6-3	Wuxi	2017	<i>C. goeringii</i>	MG869646	This study
	7-1	Wuxi	2017	<i>C. goeringii</i>	MG869647	This study
	7-2	Wuxi	2017	<i>C. goeringii</i>	MG869648	This study
	7-3	Wuxi	2017	<i>C. goeringii</i>	MG869649	This study
	R4-1	Wuxi	2017	<i>C. goeringii</i>	MG773324	Unpublished
	R4-4	Wuxi	2017	<i>C. goeringii</i>	MG773325	Unpublished
	R7-1	Wuxi	2017	<i>C. goeringii</i>	MG773326	Unpublished
	R7-2	Wuxi	2017	<i>C. goeringii</i>	MG773327	Unpublished
	CH	Conghua	2010	<i>C. sinense</i>	KF836083	Unpublished
	FS1	Foshan	2013	<i>Oncidium</i> sp.	KF836064	Unpublished
	FS2	Foshan	2013	<i>Cattleya</i> sp.	KF836065	Unpublished
	FS3	Foshan	2013	<i>Phalaenopsis</i>	KF836066	Unpublished
	FS4	Foshan	2013	<i>Phalaenopsis</i>	KF836067	Unpublished
	FS5	Foshan	2013	<i>Phalaenopsis</i>	KF836068	Unpublished
	FS6	Foshan	2013	<i>Phalaenopsis</i>	KF836069	Unpublished
	FS7	Foshan	2013	<i>Dendrobium</i> sp.	KF836070	Unpublished
	FS8	Foshan	2013	<i>C. hybrid</i>	KF836071	Unpublished
	FS9	Foshan	2013	<i>Phalaenopsis</i>	KF836072	Unpublished
	FS10	Foshan	2013	<i>C. hybrid</i>	KF836073	Unpublished
	FS11	Foshan	2013	<i>D. sp.</i>	KF836074	Unpublished
	FS12	Foshan	2013	<i>Phalaenopsis</i>	KF836075	Unpublished
	Fujian	Fujian	2007	Unknown	EF632298	Unpublished
	GD	Guangdong	2013	<i>Phalaenopsis</i>	KF836084	Unpublished
	gd	Guangdong	2003	<i>C. sinense</i>	AY360407	Unpublished
	GZ1	Guangzhou	2013	<i>C. sinense</i>	KF836063	Unpublished
	GZ2	Guangzhou	2013	<i>Phalaenopsis</i>	KF836076	Unpublished
	GZ3	Guangzhou	2013	<i>C. hybrid</i>	KF836077	Unpublished
	GZ4	Guangzhou	2013	<i>Phalaenopsis</i>	KF836078	Unpublished
	GZ5	Guangzhou	2013	<i>Phalaenopsis</i>	KF836079	Unpublished

GZ6	Guangzhou	2013	<i>C. dayanum</i>	KF836080	Unpublished	
GZ7	Guangzhou	2013	<i>Phalaenopsis</i>	KF836081	Unpublished	
CP01	Guizhou	2013	<i>Phalaenopsis</i>	KF225471	Unpublished	
HNZZ03	Henan	2016	<i>P. hybrid</i>	KU873002	Unpublished	
SMi1	Kunming	2005	Unknown	AM055643	Unpublished	
ST	Shantou	2011	<i>C. sinense</i>	KF836082	Unpublished	
SZ1	Suzhou	2013	<i>Phalaenopsis</i>	KF836087	Unpublished	
SZ2	Suzhou	2013	<i>Phalaenopsis</i>	KF836088	Unpublished	
SZ3	Shenzhen	2013	<i>Phalaenopsis</i>	KF836089	Unpublished	
SZ4	Suzhou	2013	<i>Phalaenopsis</i>	KF836089	Unpublished	
O-LZ02	Tibet	2014	<i>C. faberi</i>	KP137373	Unpublished	
O-LZ06	Tibet	2014	<i>C. faberi</i>	KP137374	Unpublished	
O-LZ07	Tibet	2014	<i>C. elegans</i>	KP137375	Unpublished	
O-LZ11	Tibet	2014	<i>C. lancifolium</i>	KP137376	Unpublished	
O-LZ14	Tibet	2014	<i>Bulbophyllum</i> sp.	KP137377	Unpublished	
O-LZ15	Tibet	2014	Orchid	KP162182	Unpublished	
O-LZ16	Tibet	2014	Orchid	KP162183	Unpublished	
O-LZ18	Tibet	2014	<i>Vanda cristata</i>	KP137378	Unpublished	
O-LZ20	Tibet	2014	<i>Cleisostoma racemiferum</i>	KP137379	Unpublished	
O-LZ22	Tibet	2014	<i>C. sp.</i>	KP137380	Unpublished	
ZH1	Zhuhai	2013	<i>C. sinense</i>	KF836085	Unpublished	
ZH2	Zhuhai	2013	<i>Phalaenopsis</i>	KF836086	Unpublished	
unknown	Hangzhou	2006	<i>Phalaenopsis</i>	DQ915440	Unpublished	
unknown	Hangzhou	2006	<i>Phalaenopsis</i>	AM398154	Unpublished	
unknown	Taiwan	2011	Orchid	JN584484	Unpublished	
unknown	Taiwan	2005	Unknown	DQ139262	Unpublished	
unknown	Taiwan	2004	Unknown	AY571290	Unpublished	
unknown	Taiwan	2001	<i>Cymbidium</i>	AF406775	Unpublished	
unknown	Tianjing	2008	<i>Phalaenopsis amabilis</i>	EU653020	Unpublished	
Korea	1	Unknown	2001	<i>C. ensifolium</i>	AF406772	Unpublished
	2	Unknown	2001	<i>C. goeringii</i>	AF406771	Unpublished
	2	Unknown	2001	<i>C. ensifolium</i>	AF406773	Unpublished
	CK1	Choong-Nam	2011	<i>C. virescens</i>	AB541474	Yoon et al. (2011)
	CK2	Choong-Nam	2011	<i>C. virescens</i>	AB541475	Yoon et al. (2011)
	CK3	Choong-Nam	2011	<i>C. virescens</i>	AB541476	Yoon et al. (2011)
	CK4	Choong-Nam	2011	<i>C. virescens</i>	AB541477	Yoon et al. (2011)
	CK5	Choong-Nam	2011	<i>C. virescens</i>	AB541479	Yoon et al. (2011)
	CK6	Choong-Nam	2011	<i>C. virescens</i>	AB541480	Yoon et al. (2011)
	CK7	Choong-Nam	2011	<i>C. virescens</i>	AB541481	Yoon et al. (2011)
	CK8	Choong-Nam	2011	<i>C. virescens</i>	AB541482	Yoon et al. (2011)
	CK9	Choong-Nam	2011	<i>C. virescens</i>	AB541483	Yoon et al. (2011)
	CK10	Choong-Nam	2011	<i>C. virescens</i>	AB541484	Yoon et al. (2011)
	CK11	Choong-Nam	2011	<i>C. virescens</i>	AB541485	Yoon et al. (2011)
	CK12	Choong-Nam	2011	<i>C. virescens</i>	AB541486	Yoon et al. (2011)
	CK13	Choong-Nam	2011	<i>C. virescens</i>	AB541478	Yoon et al. (2011)
Cy	Unknown	1995	<i>C. sp.</i>	X78966	Ryu and Park (1995)	
CYK1	Choong-Nam	2011	<i>C. sp.</i>	AB541487	Yoon et al. (2011)	
CYK2	Choong-Nam	2011	<i>C. sp.</i>	AB541488	Yoon et al. (2011)	
CYK3	Choong-Nam	2011	<i>C. sp.</i>	AB541489	Yoon et al. (2011)	
DEK1	Choong-Nam	2011	<i>D. sp.</i>	AB541490	Yoon et al. (2011)	

	DEK2	Choong-Nam	2011	<i>D.</i> sp.	AB541491	Yoon et al. (2011)
	DEK3	Choong-Nam	2011	<i>D.</i> sp.	AB541492	Yoon et al. (2011)
	DEK4	Choong-Nam	2011	<i>D.</i> sp.	AB541493	Yoon et al. (2011)
	DEK5	Choong-Nam	2011	<i>D.</i> sp.	AB541494	Yoon et al. (2011)
	DEK6	Choong-Nam	2011	<i>D.</i> sp.	AB541495	Yoon et al. (2011)
	DEK7	Choong-Nam	2011	<i>D.</i> sp.	AB541496	Yoon et al. (2011)
	DEK8	Choong-Nam	2011	<i>D.</i> sp.	AB541497	Yoon et al. (2011)
	DEK9	Choong-Nam	2011	<i>D.</i> sp.	AB541498	Yoon et al. (2011)
	DEK10	Choong-Nam	2011	<i>D.</i> sp.	AB541499	Yoon et al. (2011)
	DEK11	Choong-Nam	2011	<i>D.</i> sp.	AB541500	Yoon et al. (2011)
	DEK12	Choong-Nam	2011	<i>D.</i> sp.	AB541501	Yoon et al. (2011)
	DEK13	Choong-Nam	2011	<i>D.</i> sp.	AB541502	Yoon et al. (2011)
	DEK14	Choong-Nam	2011	<i>D.</i> sp.	AB541503	Yoon et al. (2011)
	DEK15	Choong-Nam	2011	<i>D.</i> sp.	AB541504	Yoon et al. (2011)
	KO-1	Unknown	2003	<i>Phalaenopsis</i>	AJ606105	Unpublished
	KO-3	Unknown	2003	<i>Phalaenopsis</i>	AJ606106	Unpublished
	KO-31	Unknown	2003	<i>Phalaenopsis</i>	AJ606107	Unpublished
	NHRIK1	Unknown	2008	<i>C.</i> sp.	EU683879	Unpublished
	NIHHSK2	Unknown	2010	<i>P.</i> sp.	HQ644131	Unpublished
	ONK1	Choong-Nam	2011	<i>O.</i> sp.	AB541505	Yoon et al. (2011)
	ONK2	Choong-Nam	2011	<i>O.</i> sp.	AB541506	Yoon et al. (2011)
	ONK3	Choong-Nam	2011	<i>O.</i> sp.	AB541507	Yoon et al. (2011)
	ONK4	Choong-Nam	2011	<i>O.</i> sp.	AB541508	Yoon et al. (2011)
	ONK5	Choong-Nam	2011	<i>O.</i> sp.	AB541509	Yoon et al. (2011)
	ONK6	Choong-Nam	2011	<i>O.</i> sp.	AB541510	Yoon et al. (2011)
	ONK7	Choong-Nam	2011	<i>O.</i> sp.	AB541511	Yoon et al. (2011)
	ONK8	Choong-Nam	2011	<i>O.</i> sp.	AB541512	Yoon et al. (2011)
	ONK9	Choong-Nam	2011	<i>O.</i> sp.	AB541513	Yoon et al. (2011)
	ONK10	Choong-Nam	2011	<i>O.</i> sp.	AB541514	Yoon et al. (2011)
	ONK11	Choong-Nam	2011	<i>O.</i> sp.	AB541515	Yoon et al. (2011)
	ONK12	Choong-Nam	2011	<i>O.</i> sp.	AB541516	Yoon et al. (2011)
	ONK13	Choong-Nam	2011	<i>O.</i> sp.	AB541517	Yoon et al. (2011)
	ONK14	Choong-Nam	2011	<i>O.</i> sp.	AB541518	Yoon et al. (2011)
	ONK15	Choong-Nam	2011	<i>O.</i> sp.	AB541519	Yoon et al. (2011)
	ONK16	Choong-Nam	2011	<i>O.</i> sp.	AB541520	Yoon et al. (2011)
	ONK17	Choong-Nam	2011	<i>O.</i> sp.	AB541521	Yoon et al. (2011)
	Ph	Unknown	2017	<i>Phalaenopsis</i>	LC217742	Unpublished
	Unknown	Unknown	2001	<i>C. goeringii</i>	AF406770	Unpublished
	Unknown	Unknown	2001	<i>Cattleya</i>	AF406769	Unpublished
	Unknown	Unknown	2001	<i>C. kanran</i>	AF406768	Unpublished
	Unknown	Unknown	1995	Unknown	NC001728	Ryu and Park (1995)
	Unknown	Unknown	1995	Unknown	X82130	Ryu and Park (1995)
	Unknown	Unknown	1997	Unknown	AF033848	Unpublished
	Unknown	Unknown	2012	<i>C. discolor</i>	AB753720	Unpublished
Germany	DSMZ PV-130	Unknown	2002	Unknown	AJ429091	Letschert et al. (2002)
	Le 98-745	Unknown	2002	Unknown	AJ429092	Letschert et al. (2002)
	2243a	Unknown	2002	Unknown	AJ429093	Letschert et al. (2002)
	853	Unknown	2002	Unknown	AJ429094	Letschert et al. (2002)
Japan	Cy-1	Unknown	1995	Unknown	S83257	Ikegami et al. (1995)
	Unknown	Unknown	1993	Unknown	E04305	Unpublished

	Unknown	Unknown	1991	Unknown	X55295	Isomura et al. (1991)
	Unknown	Unknown	1992	Unknown	E03624	Isomura et al. (1991)
Singapore 1	Unknown	Unknown	2001	Aranda Nasreen Gayoon	AF406776	Unpublished
	Unknown	Unknown	2001	Rhyncovanda Herbert	AF406777	Unpublished
	2	Unknown	2001	Aranda Nasreen Gayoon	AF406778	Unpublished
	Unknown	Unknown	2001	<i>Epidendrum</i>	AF405727	Unpublished
	Unknown	Unknown	2001	<i>Phalaenopsis</i>	AF455274	Unpublished
	Unknown	Unknown	2001	<i>Oncidium</i>	AF455273	Unpublished
	Unknown	Unknown	1995	Unknown	U34586	Chng et al. (1995)
Indonesia	Kebun Raya Bogor	Unknown	2012	<i>C. sp.</i>	AB693989	Unpublished
	Cipanas Cianjur	Unknown	2012	<i>S. sp.</i>	AB693991	Unpublished
	Gunung Sindur	Unknown	2012	<i>D. sp.</i>	AB693988	Unpublished
	TAIP Jakarta	Unknown	2012	<i>O. sp.</i>	AB693990	Unpublished
India	Sikkim	Unknown	2008	<i>C. hookerianum</i>	FJ372909	Rani et al. (2010)
	Unknown	Himachal Pradesh	2003	<i>C. sp.</i>	AJ564563	Unpublished
USA	Unknown	Unknown	1993	<i>C. sp.</i>	U89894	Hilf and Dawson (1993)
	Unknown	Unknown	1999	Unknown	AF141927	Unpublished
Thailand	Unknown	Unknown	2003	<i>O. orchid</i>	AY376394	Unpublished
Australia	SW8	Unknown	2013	<i>C. sp.</i>	KF855954	Unpublished
Brazil	Unknown	Unknown	2002	Unknown	AF515606	Seabra et al. (2002)

References

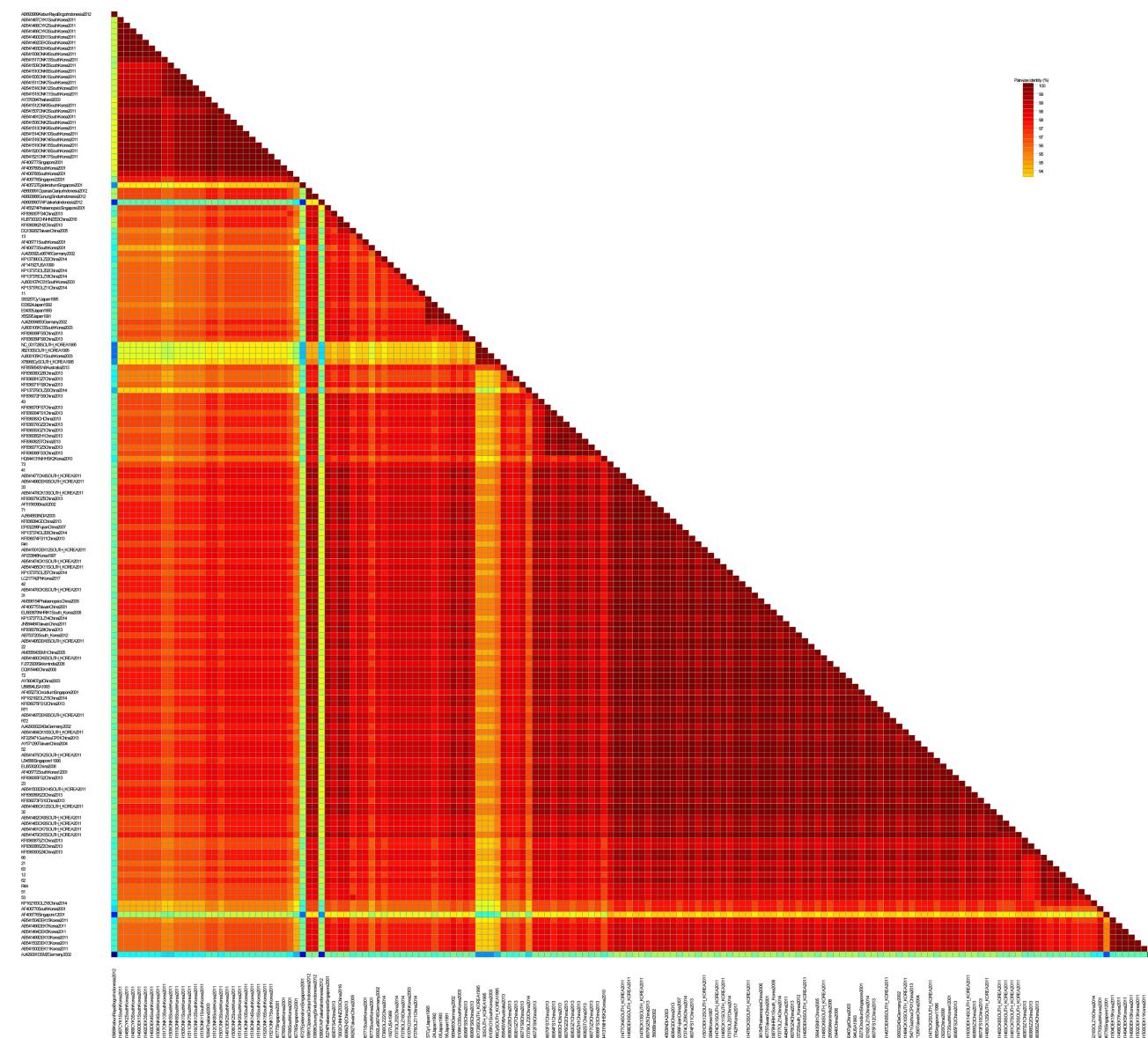
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Supplementary Table 2. Statistically supported migration rates of *Odontoglossum ringspot virus* based on CP gene

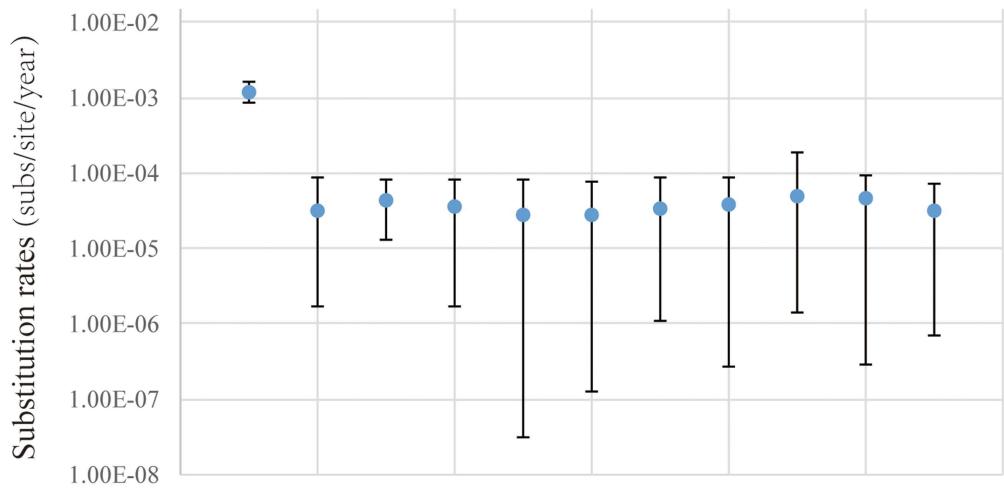
From	To	Bayes factor	Posterior probability
China	Korea	19	0.65
Korea	Taiwan	54	0.84
China	Australia	125	0.92
Korea	China	18	0.63
Singapore	Germany	10	0.50
Korea	Indonesia	199	0.95
Singapore	Korea	41	0.80

CP, coat protein.

Dissemination routes are only shown when supported by a Bayes factor > 10 and mean indicator of > 0.5.



Supplementary Fig. 1. The distribution of pairwise identity scores of the coat protein gene of *Odontoglossum ringspot virus* are determined using MUSCLE multiple sequence alignment program in SDT software.



Supplementary Fig. 2. Estimates of nucleotide substitution rates. Mean estimates and 95% credibility intervals are shown. These were estimated from 166 coat proteins (Table 1). In the set of estimates, the first is based on the original data, whereas the remaining ten values are from date-randomized replicates. The 95% credibility intervals of the estimates from the date-randomized replicates do not overlap with the mean posterior estimate from the original data set. In addition, the lower tails of the credibility intervals are long and tend towards zero. These features suggest that there is sufficient temporal structure in the original data sets for rate estimation.