

Genetic diversity of avian leukosis virus subgroup J (ALV-J): Toward a unified phylogenetic classification and nomenclature system

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Supplementary Table S1. Details of strains obtained from our group and used in the study

No.	Strains	Accession no.	Host	Location	Time	Method ¹	Method ²	Sample
1	GX13LT02	KY983559	Y	Guangxi, China	2013	1.1	1.1	
2	GX14YYA1	MF461280	V	Guangxi, China	2014	1.1	1.1	
3	GX14YYD2	KU937324	N	Guangxi, China	2014	1.1	1.1	
4	GX14FF01	KU848765	Y	Guangxi, China	2014	1.1	1.1	
5	GX14ZS14	KX037423	Y	Guangxi, China	2014	1.1	1.1	
6	GX14DJ22	KY983564	G	Guangxi, China	2014	1.1	1.1	
7	GX14DJ45	KY983565	G	Guangxi, China	2014	1.1	1.1	
8	GX14DJ49	KY983566	G	Guangxi, China	2014	1.1	1.1	
9	GX14DJ53	KY983567	G	Guangxi, China	2014	1.1	1.1	
10	GX14PP03	KX506774	N	Guangxi, China	2014	1.1	1.1	
11	GX15PP03	KU848762	Y	Guangxi, China	2015	1.1	1.1	
12	GX20YL01	MW491262	Y	Guangxi, China	2020	1.1	1.1	Clinical sample
13	GX20YL02	MW491263	Y	Guangxi, China	2020	1.1	1.1	Clinical sample
14	GX20YL08	MW491269	Y	Guangxi, China	2020	1.1	1.1	Plasma sample
15	GX12NN03	KT598489	Y	Guangxi, China	2012	1.2	1.2	
16	GX12NN04	KT598488	Y	Guangxi, China	2012	1.2	1.2	
17	GX12NN07	KT598487	Y	Guangxi, China	2012	1.2	1.2	
18	GX12NN18	KT598485	Y	Guangxi, China	2012	1.2	1.2	
19	GX13YL03	KT598476	Y	Guangxi, China	2013	1.2	1.2	
20	GX13NN02	KT598482	Y	Guangxi, China	2013	1.2	1.2	
21	GX13NN10	KT598481	Y	Guangxi, China	2013	1.2	1.2	
22	GX13NN13	KT598480	Y	Guangxi, China	2013	1.2	1.2	
23	GX13NN14	KT598479	Y	Guangxi, China	2013	1.2	1.2	
24	GX13NN19	KT598478	Y	Guangxi, China	2013	1.2	1.2	
25	GX14QZ02	KT598472	N	Guangxi, China	2014	1.2	1.2	
26	GX14YL03	KR025484	Y	Guangxi, China	2014-04-11	1.2	1.2	
27	GX14YL13	KT598468	Y	Guangxi, China	2014	1.2	1.2	
28	GX17GG01	MW491258	Y	Guangxi, China	2017	1.2	1.2	
29	GX-J-4	JQ246093	Y	Guangxi, China	2010	1.3	1.3	
30	GX-J-5	JQ246094	Y	Guangxi, China	2010	1.3	1.3	
31	GX-J-6	JQ246095	N	Guangxi, China	2010-11	1.3	1.3	
32	GX-J-7	JQ246096	Y	Guangxi, China	2010	1.3	1.3	
33	GX-J-8	JQ246097	Y	Guangxi, China	2010	1.3	1.3	
34	GX-J-9	JQ246098	Y	Guangxi, China	2010	1.3	1.3	
35	GX-J-10	JQ246099	Y	Guangxi, China	2010	1.3	1.3	
36	GX10YL04	KT598498	Y	Guangxi, China	2010	1.3	1.3	
37	GX10YL22	KT598497	Y	Guangxi, China	2010	1.3	1.3	
38	GX10GL08	KT598499	Y	Guangxi, China	2010	1.3	1.3	
39	GXSH02	HQ185698	N	Guangxi, China	2010	1.3	1.3	
40	GX10GL07	KT598500	Y	Guangxi, China	2010	1.3	1.3	
41	GX-E-9	HM988992	N	Guangxi, China	2010-05	1.3	1.3	
42	GX11GL09	KT598496	Y	Guangxi, China	2011	1.3	1.3	
43	GX11GL10	KT598495	Y	Guangxi, China	2011	1.3	1.3	

44	GX11GL12	KT598494	Y	Guangxi, China	2011	1.3	1.3
45	GX11GL13	KT598493	Y	Guangxi, China	2011	1.3	1.3
46	GX12GL07	KT598492	Y	Guangxi, China	2012	1.3	1.3
47	GX12GL08	KT598491	Y	Guangxi, China	2012	1.3	1.3
48	GX12GL09	KT598490	Y	Guangxi, China	2012	1.3	1.3
49	GX12NN17	KT598486	Y	Guangxi, China	2012	1.3	1.3
50	GX12NN19	KT598484	Y	Guangxi, China	2012	1.3	1.3
51	GX12NN20	KT598483	Y	Guangxi, China	2012	1.3	1.3
52	GX13ZS12	KY983563	G	Guangxi, China	2013	1.3	1.3
53	GX13DF16	KY983554	W	Guangxi, China	2013	1.3	1.3
54	GX13DF19	KY983555	W	Guangxi, China	2013	1.3	1.3
55	GX13DF32	KY983556	W	Guangxi, China	2013	1.3	1.3
56	GX13DF41	KY983557	W	Guangxi, China	2013	1.3	1.3
57	GX13DF52	KU848768	W	Guangxi, China	2013	1.3	1.1
58	GX13DF57	KY983558	W	Guangxi, China	2013	1.3	1.3
59	GX13QZ14	KT598477	Y	Guangxi, China	2013	1.3	1.3
60	GX13ZS02	KY983561	Y	Guangxi, China	2013	1.3	1.3
61	GX13ZS05	KY983562	Y	Guangxi, China	2013	1.3	1.3
62	GX14YY17	KU848764	Y	Guangxi, China	2014	1.3	1.3
63	GX14NN01	MN066154	N	Guangxi, China	2014	1.3	1.3
64	GX14NN02	MN066153	N	Guangxi, China	2014	1.3	1.3
65	GX14LT03	KY983547	Y	Guangxi, China	2014	1.3	1.3
66	GX14LT04	KY983548	Y	Guangxi, China	2014	1.3	1.3
67	GX14YL03	KT598470	Y	Guangxi, China	2014	1.3	1.3
68	GX14YL04	KT598469	Y	Guangxi, China	2014	1.3	1.3
69	GX14HG01	KU997685	N	Guangxi, China	2014	1.3	1.3
70	GX14HG04	KX058878	Y	Guangxi, China	2014	1.3	1.3
71	GX14BL09	KT598473	Y	Guangxi, China	2014	1.3	1.3
72	GX14HC01	KU923583	L	Guangxi, China	2014	1.3	1.3
73	GX14LT01	KY983546	Y	Guangxi, China	2014	1.3	1.3
74	GD15MM01	MN066152	N	Guangxi, China	2015	1.3	1.3
75	GD15MM02	MN066151	N	Guangxi, China	2015	1.3	1.3
76	GX15MM6-1	KU923584	Y	Guangxi, China	2015	1.3	1.1
77	GX15MM6-2	KU934276	Y	Guangxi, China	2015	1.3	1.3
78	GX15MM6-4	KU848763	Y	Guangxi, China	2015	1.3	1.3
79	GX16ZS01	KU983549	Y	Guangxi, China	2016	1.3	1.3
80	GX16ZS390	KY983551	Y	Guangxi, China	2016	1.3	1.3
81	GX16YL01	MN066148	Y	Guangxi, China	2016	1.3	1.3
82	GX16YL02	MN066147	Y	Guangxi, China	2016	1.3	1.3
83	GX16MM92	MN066149	Y	Guangxi, China	2016	1.3	1.3
84	GX16ZS352	KY983550	Y	Guangxi, China	2016	1.3	1.3
85	GX16ZSE10	KY983553	Y	Guangxi, China	2016	1.3	1.3
86	GX16ZS748	KY983552	Y	Guangxi, China	2016	1.3	1.3
87	GX17YL01	MN066143	Y	Guangxi, China	2017	1.3	1.3
88	GX17YL02	MW491254	Y	Guangxi, China	2017	1.3	1.3
89	GX17YL03	MW491255	Y	Guangxi, China	2017	1.3	1.3
90	GX17YL04	MW491256	Y	Guangxi, China	2017	1.3	1.3
91	GX17YL05	MN066142	Y	Guangxi, China	2017	1.3	1.3
92	GX17QZ01	MW491257	Y	Guangxi, China	2017	1.3	1.3
93	GX17NN05	MN066145	N	Guangxi, China	2017	1.3	1.3

94	GX17NN06	MN066144	W	Guangxi, China	2017	1.3	1.3	
95	GX18NN01	MN066141	Y	Guangxi, China	2018	1.3	1.3	
96	GX18NN02	MN066140	Y	Guangxi, China	2018	1.3	1.3	
97	GX18LZ017	MW491259	Y	Guangxi, China	2018	1.3	1.3	Plasma sample
98	GX19LZ094	MW491260	Y	Guangxi, China	2019	1.3	1.3	Plasma sample
99	GX19LZ096	MW491261	Y	Guangxi, China	2019	1.3	1.3	Plasma sample
100	GX20YL03	MW491264	Y	Guangxi, China	2020	1.3	1.3	Clinical sample
101	GX20YL04	MW491265	Y	Guangxi, China	2020	1.3	1.3	Clinical sample
102	GX20YL05	MW491266	Y	Guangxi, China	2020	1.3	1.3	Clinical sample
103	GX20YL06	MW491267	Y	Guangxi, China	2020	1.3	1.3	Plasma sample
104	GX20YL07	MW491268	Y	Guangxi, China	2020	1.3	1.3	Plasma sample
105	GX20YL09	MW491270	Y	Guangxi, China	2020	1.3	1.3	Plasma sample
106	GX20YL10	MW491271	Y	Guangxi, China	2020	1.3	1.3	Plasma sample

W: White-chickens; L: layers; Y: Yellow-chickens; V: contaminated live vaccine; G: gamecock; N: not available. ¹represents the classification results of a phylogenetic tree constructed using RAxML software; ²represents the classification results of a phylogenetic tree constructed using IQ-TREE software.

Supplementary Table S2. Details of viruses obtained from the GenBank in the study

No.	Viruses	Accession no.	ev/J	Host	Location	Time	Method ¹	Method ²
1	ADOL Line 0	AF247392	ev/J		USA		1.1	1.1
2	4-1	AF125528	ev/J		USA		1.1	1.1
3	ADOL-R5-4	AF076887		W	USA		1.1	1.1
4	ADOL-Hc1	AF097731		W	USA	1993	1.1	1.1
5	6683	AF247387		W	USA	1997	1.1	1.1
6	5701	AF247386		W	USA	1997	1.1	1.1
7	UD4	AF307951		W	USA	2000	1.1	1.1
8	UD5	AF307952		W	USA	2000	1.1	1.1
9	10022-2	GU222396		W	USA	2006	1.1	1.1
10	10022-12	GU222399		W	USA	2006	1.1	1.1
11	10022-16	GU222400		W	USA	2006	1.1	1.3
12	10022-20	GU222401		W	USA	2006	1.1	1.3
13	10075-12	GU222405		W	USA	2006	1.1	1.1
14	10075-16	GU222406		W	USA	2006	1.1	1.1
15	10075-20	GU222407		W	USA	2006	1.1	1.1
16	10089-12	GU222411		W	USA	2006	1.1	1.1
17	10089-16	GU222412		W	USA	2006	1.1	1.1
18	10089-20	GU222413		W	USA	2006	1.1	1.1
19	PDR-59831	KP284572		W	USA	2007	1.1	1.1
20	10022-4	GU222397		W	USA	2006	1.1	1.1
21	10022-8	GU222398		W	USA	2006	1.1	1.1
22	10075-2	GU222402		W	USA	2006	1.1	1.1
23	10075-4	GU222403		W	USA	2006	1.1	1.1
24	10075-8	GU222404		W	USA	2006	1.1	1.1
25	10089-2	GU222408		W	USA	2006	1.1	1.1
26	10089-4	GU222409		W	USA	2006	1.1	1.1
27	10089-8	GU222410		W	USA	2006	1.1	1.1
28	EAV-15I	AJ623289	ev/J		UK		1.1	1.1
29	EAV-6-3	AJ623292	ev/J		UK		1.1	1.1
30	EAV-JF2	AJ292967	ev/J		UK		1.1	1.1
31	EAV-21-1	AJ623291	ev/J		UK		1.1	1.1

32	HPRS103	Z46390		W	UK	1988	1.1	1.1
33	4.1	AY157601	ev/J		France		1.1	1.1
34	PK19FA01	MN956379		N	Pakistan	2019	1.1	1.1
35	WN100403	HQ333257		Y	Anhui, China	2010-04	1.1	1.1
36	AHq02	KF534753		Y	Anhui, China	2012	1.1	1.1
37	BF	KY085945	ev/J	Y	Beijing, China	2014	1.1	1.1
38	BJ0301	AY897230		W	Beijing, China	2003	1.1	1.1
39	BJ0302	AY897231		W	Beijing, China	2003	1.1	1.1
40	BJ0303	AY897232		W	Beijing, China	2003	1.1	1.1
41	BJ090201J	HQ333267		N	Beijing, China	2009-02	1.1	1.1
42	FJ201306	KM655820		L	Fujian, China	2013	1.1	1.1
43	FJ201307	KM655821		L	Fujian, China	2013	1.1	1.1
44	FJ201308	KM655822		L	Fujian, China	2013	1.1	1.1
45	WF13	KJ631314		N	Guangdong, China	2013-03	1.1	1.1
46	WC512	KJ631316		N	Guangdong, China	2012-05	1.1	1.1
47	WJ612	KJ631317		N	Guangdong, China	2012-06	1.1	1.1
48	WL12	KJ631318		N	Guangdong, China	2012-06	1.1	1.1
49	WSC512	KJ631320		N	Guangdong, China	2012-05	1.1	1.1
50	WSC912	KJ631321		N	Guangdong, China	2012-09	1.1	1.1
51	GD1401J	KP317564		Y	Guangdong, China	2014-10-18	1.1	1.1
52	GD1402J	KP317565		Y	Guangdong, China	2014-10-18	1.1	1.1
53	GD1403J	KP317566		Y	Guangdong, China	2014-10-18	1.1	1.1
54	GZA10	KX056478		Y	Guizhou, China	2016-02-20	1.1	1.1
55	GZL25	KX077609		Y	Guizhou, China	2016-02-28	1.1	1.1
56	GZA14	KX056479		Y	Guizhou, China	2016-02-20	1.1	1.1
57	GZN49	KX077613		Y	Guizhou, China	2016-02-28	1.1	1.1
58	GZN41	KX077612		Y	Guizhou, China	2016-02-28	1.1	1.1
59	GZN18	KX077611		Y	Guizhou, China	2016-02-28	1.1	1.1
60	GZA8	KX077606		Y	Guizhou, China	2016-02-28	1.1	1.1
61	GZZ32	KX056484		Y	Guizhou, China	2016-02-20	1.1	1.1
62	GZD12	KX056480		Y	Guizhou, China	2016-02-20	1.1	1.1
63	GZN16	KX077610		Y	Guizhou, China	2016-02-28	1.1	1.1
64	GZZ2	KX056483		Y	Guizhou, China	2016-08-20	1.1	1.1
65	GZA27	KX010990		Y	Guizhou, China	2016-08-20	1.1	1.1
66	GZC33	KX077607		Y	Guizhou, China	2016-02-28	1.1	1.1
67	GZL1	KX077608		Y	Guizhou, China	2016-02-28	1.1	1.1
68	GZD17	KX056482		Y	Guizhou, China	2016-02-20	1.1	1.1
69	GZD13	KX056481		Y	Guizhou, China	2016-02-20	1.1	1.1
70	GZZ18	KX010993		Y	Guizhou, China	2016-02-20	1.1	1.1
71	GZZ12	KX010992		Y	Guizhou, China	2016-02-20	1.1	1.1
72	GZZ8	KX010991		Y	Guizhou, China	2016-02-20	1.1	1.1
73	GZA3	KX010989		Y	Guizhou, China	2016-02-20	1.1	1.1
74	GZZ47	KX056485		Y	Guizhou, China	2016-02-20	1.1	1.1
75	SDAUAJ-3	KY767730		L	Hebei, China	2014	1.1	1.1
76	LB	KY085946	ev/J	L	Hubei, China	2014	1.1	1.1
77	RB	KY085948	ev/J	L	Hubei, China	2016	1.1	1.1
78	HuB09JY04	JN378888		L	Hubei, China	2009	1.1	1.1
79	HuB09XZ01	JN378890		L	Hubei, China	2009	1.1	1.1
80	HUB09JY03	HQ634811		L	Hubei, China	2009-10	1.1	1.1
81	HuB09XT02	JN378889		L	Hubei, China	2009	1.1	1.1

82	IMC10200	AY234051		W	Inner Mongolia, China	2000	1.1	1.1
83	SDC2000	AY234052		W	Inner Mongolia, China	2000	1.1	1.1
84	NM2002-1	HM235669		W	Inner Mongolia, China	2002	1.1	1.1
85	YZ9901	AY897222		W	Jiangsu, China	1999-01	1.1	1.1
86	YZ9902	HM235670		W	Jiangsu, China	1999	1.1	1.1
87	JS-nt	HM235667		W	Jiangsu, China	2003	1.1	1.1
88	HAY013	HM235665		Y	Jiangsu, China	2008	1.1	1.1
89	HA08	HM235664		L	Jiangsu, China	2008	1.1	1.1
90	SQ-J1211	KC282895		L	Jiangsu, China	2012	1.1	1.1
91	LS	KY085947	ev/J	Y	Jiangsu, China	2014	1.1	1.1
92	JS14NT01	MN735308		Y	Jiangsu, China	2014	1.1	1.1
93	NX0101	DQ115805		W	Ningxia, China	2001	1.1	1.1
94	DBYJ1105	KC875861		WB	Northeast China	2011-06-08	1.1	1.1
95	DBYJ1101	KC875863		WB	Northeast China	2011-12-22	1.1	1.1
96	SD0101	AY897225		W	Shandong, China	2001	1.1	1.1
97	SD9901	AY897220		W	Shandong, China	1999-08	1.1	1.1
98	SD9902	AY897221		W	Shandong, China	1999-08	1.1	1.1
99	SD0002	AY897224		W	Shandong, China	2000	1.1	1.1
100	SD0102	AY897226		W	Shandong, China	2001	1.1	1.1
101	SD0201	AY897218		W	Shandong, China	2002	1.1	1.1
102	SD0301	AY897228		W	Shandong, China	2003	1.1	1.1
103	BR119	KF562373		Y	Shandong, China	2011	1.1	1.1
104	LYJ195	KF218957		Y	Shandong, China	2010-04-09	1.1	1.1
105	SG-1	KF218958		Y	Shandong, China	2011-04-08	1.1	1.1
106	SG	KY085949	ev/J	Y	Shandong, China	2014	1.1	1.1
107	WL	KY085950	ev/J	L	Shandong, China	2014	1.1	1.1
108	BR2	KF201289		Y	Shandong, China	2011-12-28	1.1	1.1
109	DJ146	KF218959		G	Shandong, China	2010-05-24	1.1	1.1
110	BR170	KF575331		Y	Shandong, China	2011-01-28	1.1	1.1
111	BR09J	JX444701		Y	Shandong, China	2011-12-05	1.1	1.1
112	SD09TA04	JN378893		L	Shandong, China	2009	1.1	1.1
113	SDLWH34J	HQ332146		N	Shandong, China	2009-02	1.1	1.1
114	HR334	JN388902		Y	Shandong, China	2010-10-31	1.1	1.1
115	HR336	JN388903		Y	Shandong, China	2010-10-31	1.1	1.1
116	HR332	JN388901		Y	Shandong, China	2010-10-31	1.1	1.1
117	HR306J	JN388905		Y	Shandong, China	2010-10-31	1.1	1.1
118	HR313J	JN388906		Y	Shandong, China	2010-10-31	1.1	1.1
119	SDYC02J	JN388907		L	Shandong, China	2010-10	1.1	1.1
120	SDYC04J	JN388908		L	Shandong, China	2010-10	1.1	1.1
121	SDYC06J	JN388910		L	Shandong, China	2010-10	1.1	1.1
122	TA081225J	HQ333269		N	Shandong, China	2008-12	1.1	1.1
123	QF081201J	HQ333268		N	Shandong, China	2008-12	1.1	1.1
124	CL09DP01	JN378882		L	Shandong, China	2009	1.1	1.1
125	CL09DP02	JN378883		L	Shandong, China	2009	1.1	1.1
126	CL09DP03	JN378884		L	Shandong, China	2009	1.1	1.1
127	CL09DP04	JN378885		L	Shandong, China	2009	1.1	1.1
128	GL09DP01	JN378886		L	Shandong, China	2009	1.1	1.1
129	LH091101	KF291259		Y	Shandong, China	2009-11-01	1.1	1.1
130	LYJ15	KF201290		Y	Shandong, China	2009-04-09	1.1	1.1
131	SCNC1260	KF796650		Y	Sichuan, China	2011-10	1.1	1.1

132	SCYA788	KF796655	Y	Sichuan, China	2011-10	1.1	1.1
133	SCYA931	KF796656	Y	Sichuan, China	2011-10	1.1	1.1
134	SCMZ40	KF796646	Y	Sichuan, China	2011-10	1.1	1.1
135	SCYA787	KF796654	Y	Sichuan, China	2011-10	1.1	1.1
136	SCYA759	KF796640	Y	Sichuan, China	2011-10	1.1	1.1
137	SCMZ120	KF796648	Y	Sichuan, China	2011-10	1.1	1.1
138	SCNC4160	KF796651	Y	Sichuan, China	2011-10	1.1	1.1
139	SCDY00	KF796642	W	Sichuan, China	2011-10	1.1	1.1
140	TW99	AF497905	N	Taiwan, China	1999	1.1	1.1
141	2921-00	EF653908	N	Taiwan, China	2000	1.1	1.1
142	HH11	JX014438	N	China	2011	1.1	1.1
143	SVR807	HM776937	N	Russia	2008-07	1.2	1.2
144	GD0512	EF103133	Y	Guangdong, China	2005	1.2	1.3
145	ZH-08	HQ316166	W	Guangdong, China	2008	1.2	1.2
146	J-SDAU12-737	KM873195	Y	Guangdong, China	2012	1.2	1.2
147	GX14NN02	MN735293	Y	Guangxi, China	2014	1.2	1.2
148	GX15JL01	MN735294	Y	Guangxi, China	2015	1.2	1.2
149	GX-RJ01	MT119963	Y	Guangxi, China	2020-02-01	1.2	1.2
150	CAUTS01	JF932002	L	Hebei, China	2009	1.2	1.2
151	HB09-1	HM600812	L	Hebei, China	2009-05	1.2	1.2
152	HLJ13SH01	KM376510	L	Heilongjiang, China	2013-01-03	1.2	1.2
153	HLJ09SH01	HQ634806	L	Heilongjiang, China	2009-11	1.2	1.2
154	HLJ09SH02	HQ634807	L	Heilongjiang, China	2009-12	1.2	1.2
155	HLJ10SH03	HQ634813	L	Heilongjiang, China	2010-08	1.2	1.2
156	HLJ10SH04	HQ634814	L	Heilongjiang, China	2010-09	1.2	1.2
157	HN0001	AY897219	W	Henan, China	2001	1.2	1.3
158	HN1001-1	HQ260974	L	Henan, China	2010	1.2	1.2
159	HN1001-2	HQ260975	L	Henan, China	2010	1.2	1.2
160	HN1001-3	HQ260976	L	Henan, China	2010	1.2	1.2
161	HUB09WH03	HQ634805	L	Hubei, China	2009	1.2	1.2
162	HuB09-1	HM600813	L	Hubei, China	2009-09	1.2	1.2
163	JS09GY5	GU982309	L	Jiangsu, China	2009	1.2	1.2
164	JS09GY3	GU982308	L	Jiangsu, China	2009	1.2	1.2
165	JS09GY6	GU982310	L	Jiangsu, China	2009	1.2	1.2
166	JS09GY07	HM595734	L	Jiangsu, China	2009-11-16	1.2	1.2
167	JS09GY2	GU982307	L	Jiangsu, China	2009	1.2	1.2
168	JS-J1209	KC282893	L	Jiangsu, China	2012	1.2	1.2
169	JS13NT01	MN735301	Y	Jiangsu, China	2013	1.2	1.2
170	JS14NT02	MN735302	Y	Jiangsu, China	2014	1.2	1.2
171	HQSC202	KU981173	Y	Jiangsu, China	2015-01-18	1.2	1.2
172	JL08CH3-1	HQ634809	L	Jilin, China	2008	1.2	1.2
173	JL093-1	JN624878	L	Jilin, China	2009	1.2	1.2
174	JL10HW01	HQ634800	L	Jilin, China	2010	1.2	1.2
175	LN08SY10	HQ634802	L	Liaoning, China	2008-11	1.2	1.2
176	LN09SY31	HQ634803	L	Liaoning, China	2009-04	1.2	1.2
177	WB11016j	JX570795	WB	Northeast China	2011-05	1.2	1.2
178	WB11055	JX570794	WB	Northeast China	2011-05	1.2	1.2
179	WB11008j	JX570785	WB	Northeast China	2011-05	1.2	1.2
180	WB11075j	JX570798	WB	Northeast China	2011-05	1.2	1.2
181	WB11038	JX570789	WB	Northeast China	2011-05	1.2	1.2

182	WB11098	JX848322	WB	Northeast China	2011-05	1.2	1.2
183	WB11042j	JX570796	WB	Northeast China	2011-05	1.2	1.2
184	WB11058j	JX570793	WB	Northeast China	2011-05	1.2	1.2
185	DBYJ1103	KC875860	WB	Northeast China	2011-12-22	1.2	1.2
186	DBYJ1106	KC875859	WB	Northeast China	2011-06-08	1.2	1.2
187	DBYJ1104	KC875862	WB	Northeast China	2012-06-08	1.2	1.2
188	DBYJ1102	KC875858	WB	Northeast China	2012-12-22	1.2	1.2
189	SD09DP03	JN624879	L	Shandong, China	2009	1.2	1.2
190	SDAU1001	JN389517	L	Shandong, China	2010	1.2	1.2
191	PL09DP5-1	JN378891	L	Shandong, China	2009	1.2	1.2
192	sdau1002	JN389518	L	Shandong, China	2010	1.2	1.2
193	LC110515-4	KC841153	Y	Shandong, China	2011-05-15	1.2	1.2
194	PL09DP5-2	JN378892	L	Shandong, China	2009	1.2	1.2
195	GL09DP02	JN378887	L	Shandong, China	2009	1.2	1.2
196	SDAU1005	KT156668	817	Shandong, China	2010	1.2	1.2
197	SD100501J	HQ270189	817	Shandong, China	2010	1.2	1.2
198	Fu-J5	KT156669	817	Shandong, China	2011	1.2	1.2
199	SDAU1102	KU159178	L	Shandong, China	2010-06-01	1.2	1.2
200	LC110515-3	KC841152	Y	Shandong, China	2011-05-15	1.2	1.2
201	SD110503	KF562374	Y	Shandong, China	2011-05-03	1.2	1.2
202	SDAU1701	KY980657	L	Shandong, China	2017	1.2	1.2
203	SDAU1703	KY980659	L	Shandong, China	2017	1.2	1.2
204	SDAU1705	KY980661	L	Shandong, China	2017	1.2	1.2
205	SDAU1706	KY980662	L	Shandong, China	2017	1.2	1.2
206	ZB110604-5	KC841156	Y	Shandong, China	2011-06-04	1.2	1.3
207	SD12HN02	KM873188	Y	Shandong, China	2012	1.2	1.2
208	SD12HN03	KM873189	Y	Shandong, China	2012	1.2	1.2
209	SD12HN04	KM873190	Y	Shandong, China	2012	1.2	1.2
210	SD1009	KF768000	L	Shandong, China	2010-09-01	1.2	1.2
211	SX090912J	HQ386988	L	Shanxi, China	2009-09-12	1.2	1.2
212	SX090915J	HQ386989	L	Shanxi, China	2009-09-15	1.2	1.2
213	GD1109	JX254901	L	Sichuan, China	2011	1.2	1.2
214	CAUXT01	JF932003	N	China	2009	1.2	1.2
215	CAUYL01	JF932004	L	China	2009	1.2	1.2
216	CAUHM01	JF932000	L	China	2009	1.2	1.2
217	4817	AF247385	W	USA	1996	1.3	1.3
218	UD2	AF307949	W	USA	2000	1.3	1.3
219	UD3	AF307950	W	USA	2000	1.3	1.3
220	EO49-1	MF926334	L	Nigeria	2017-06-08	1.3	1.3
221	EO49-2	MF926335	L	Nigeria	2017-06-08	1.3	1.3
222	PK19SA01	MN956380	N	Pakistan	2018	1.3	1.3
223	CLB908M	JX855935	N	Russia	2009-08	1.3	1.3
224	AHq01	KF534752	Y	Anhui, China	2012	1.3	1.3
225	WN100401	KC711043	N	Anhui, China	2010-04	1.3	1.3
226	WN100402	HQ271448	N	Anhui, China	2010-04	1.3	1.3
227	WN100404	HQ333258	Y	Anhui, China	2010-04	1.3	1.3
228	ALV-J-Anhui8	MH186094	N	Anhui, China	2018-01-20	1.3	1.3
229	GD06SL1	EF107624	Y	Guangdong, China	2006	1.3	1.3
230	GD06SL2	EF103129	Y	Guangdong, China	2006	1.3	1.3
231	GD06SL3	EF103130	Y	Guangdong, China	2006	1.3	1.3

232	GD06SL4	EF103131	Y	Guangdong, China	2006	1.3	1.3
233	SCAU-0901	FJ619190	Y	Guangdong, China	2008-10-06	1.3	1.3
234	SZ-08	HM775329	Y	Guangdong, China	2008	1.3	1.3
235	2921-00	HM775330	N	Guangdong, China	2010	1.3	1.3
236	XX2-09	HM775331	Y	Guangdong, China	2009	1.3	1.3
237	GDQY1201	JX423792	Y	Guangdong, China	2012	1.3	1.3
238	GDKP1202	JX453210	Y	Guangdong, China	2012	1.3	1.3
239	SCAU11-H	KC149972	W	Guangdong, China	2011	1.3	1.3
240	SCAU11-XG	KC149971	W	Guangdong, China	2011	1.3	1.3
241	WLY13	KJ631311	N	Guangdong, China	2013-07-01	1.3	1.3
242	WGD13	KJ631312	N	Guangdong, China	2013	1.3	1.3
243	WGZ13	KJ631313	N	Guangdong, China	2013-05	1.3	1.3
244	WA1112	KJ631315	N	Guangdong, China	2012-11	1.3	1.3
245	WSC112	KJ631322	N	Guangdong, China	2012-03	1.3	1.3
246	GDQJ2	KU156826	N	Guangdong, China	2014-11-01	1.3	1.3
247	GDQJ-4	KU170199	N	Guangdong, China	2014-11-01	1.3	1.3
248	GDQJ-5	KU170200	N	Guangdong, China	2014-11-01	1.3	1.3
249	GD13GZ	KU500030	Y	Guangdong, China	2013	1.3	1.3
250	GD13HY	KU500031	Y	Guangdong, China	2013	1.3	1.3
251	GD14J2	KU500032	W	Guangdong, China	2014	1.3	1.3
252	GD1407	KU500034	Y	Guangdong, China	2014	1.3	1.3
253	GD1407-L	KU500035	Y	Guangdong, China	2014	1.3	1.3
254	GD1408-1	KU500036	Y	Guangdong, China	2014	1.3	1.3
255	GD1408-2	KU500037	Y	Guangdong, China	2014	1.3	1.3
256	GD1411-1	KU500038	Y	Guangdong, China	2014	1.3	1.3
257	GD1411-4	KU500041	Y	Guangdong, China	2014	1.3	1.3
258	M180	KX611834	Y	Guangdong, China	2016	1.3	1.3
259	ALV-J-Guangdong11	MH186095	N	Guangdong, China	2018-01-20	1.3	1.3
260	GDHN-YM1	MK683478	L	Guangdong, China	2018-12-01	1.3	1.3
261	GDHN-YM2	MK683479	L	Guangdong, China	2018-12-08	1.3	1.3
262	GDHN-YH1	MK683480	L	Guangdong, China	2018-11-29	1.3	1.1
263	GDHN-YH2	MK683481	L	Guangdong, China	2018-12-20	1.3	1.3
264	GDYH-B1	MK940585	Y	Guangdong, China	2018-11-12	1.3	1.1
265	GD19GZ02	MN893851	Y	Guangdong, China	2019-11-11	1.3	1.3
266	CAUGX01	HM640943	N	Guangxi, China	2009	1.3	1.3
267	GX14NN01	MN735292	Y	Guangxi, China	2014	1.3	1.3
268	GX16YL01	MN735297	Y	Guangxi, China	2016	1.3	1.3
269	GX16NN05	MN735309	Y	Guangxi, China	2016	1.3	1.3
270	GX16NN04	MN735296	Y	Guangxi, China	2016	1.3	1.1
271	2012004-C5	KC453974	N	Guangxi, China	2012-08-18	1.3	1.3
272	2012004-D4	KC453975	N	Guangxi, China	2012-08-18	1.3	1.3
273	HB1801	MN419352	W	Hebei, China	2019-05-18	1.3	1.3
274	HLJ09MDJ-1	JN624880	L	Heilongjiang, China	2009	1.3	1.3
275	HLJ13SH01	KM376510	L	Heilongjiang, China	2013-01-03	1.3	1.3
276	SCAU-HN06	HQ900844	L	Henan, China	2006	1.3	1.3
277	NHH	HM235668	L	Henan, China	2007	1.3	1.3
278	HB0301	AY897229	W	Hubei, China	2003	1.3	1.3
279	HN17ZZ01	MN735299	Y	Hunan, China	2017	1.3	1.3
280	HN17ZZ02	MN735300	Y	Hunan, China	2017	1.3	1.3
281	JS-J1210	KC282894	L	Jiangsu, China	2012	1.3	1.3

282	JS13DX03	KM873177	Y	Jiangsu, China	2013	1.3	1.3
283	JS13DX06	KM873178	Y	Jiangsu, China	2013	1.3	1.3
284	JS13DX07	KM873179	Y	Jiangsu, China	2013	1.3	1.3
285	JS13LH03	KM873180	Y	Jiangsu, China	2013	1.3	1.3
286	JS13LY02	KM873181	Y	Jiangsu, China	2013	1.3	1.3
287	JS13LY09	KM873182	Y	Jiangsu, China	2013	1.3	1.3
288	JS13LY14	KM873183	Y	Jiangsu, China	2013	1.3	1.3
289	JS14XJ01	KM873185	Y	Jiangsu, China	2014	1.3	1.3
290	JS14XJ02	KM873186	Y	Jiangsu, China	2014	1.3	1.1
291	JS13LHAJ1	KR049171	L	Jiangsu, China	2013	1.3	1.3
292	JS13LHAJ2	KR049172	L	Jiangsu, China	2013	1.3	1.3
293	HQSC18	KU981172	Y	Jiangsu, China	2015-01-18	1.3	1.3
294	SDAUAJ-5	KY773916	Y	Jiangsu, China	2015	1.3	1.3
295	SDAUAJ-7	KY773918	Y	Jiangsu, China	2015	1.3	1.2
296	SDAUAJ-8	KY773919	Y	Jiangsu, China	2015	1.3	1.2
297	SDAUAJ-9	KY773920	Y	Jiangsu, China	2015	1.3	1.3
298	SDAUAJ-12	KY773922	Y	Jiangsu, China	2015	1.3	1.2
299	JS16JH2	MG700534	Y	Jiangsu, China	2016-08	1.3	1.3
300	JS16JH3	MG700535	Y	Jiangsu, China	2016-08	1.3	1.3
301	JS16JH4	MG700536	Y	Jiangsu, China	2016-08	1.3	1.3
302	JS16JH5	MG700537	Y	Jiangsu, China	2016-08	1.3	1.3
303	JS16JH8	MG700540	Y	Jiangsu, China	2016-08	1.3	1.3
304	JS16JH9	MG700541	Y	Jiangsu, China	2016-08	1.3	1.3
305	SD1804	MN419338	W	Jiangsu, China	2018-04-15	1.3	1.3
306	JS1805	MN419339	W	Jiangsu, China	2018-04-18	1.3	1.3
307	JS1806	MN419340	W	Jiangsu, China	2018-05-06	1.3	1.3
308	JS1807	MN419341	W	Jiangsu, China	2018-07-29	1.3	1.3
309	JS18YZ01	MN735303	Y	Jiangsu, China	2018	1.3	1.3
310	JS18YZ02	MN735304	Y	Jiangsu, China	2018	1.3	1.3
311	JS18YZ03	MN735305	Y	Jiangsu, China	2018	1.3	1.3
312	JL1801	MN419348	W	Jilin, China	2019-04-14	1.3	1.3
313	JL1802	MN419349	W	Jilin, China	2019-05-05	1.3	1.3
314	JL1803	MN419350	W	Jilin, China	2019-05-11	1.3	1.3
315	JL1804	MN419351	W	Jilin, China	2019-05-15	1.3	1.3
316	CAUSY01	JF932001	L	Liaoning, China	2009	1.3	1.3
317	LN1802	MN419355	W	Liaoning, China	2019-05-24	1.3	1.3
318	LN1801	MN419354	W	Liaoning, China	2019-05-24	1.3	1.3
319	SD0001	AY897223	W	Shandong, China	2000	1.3	1.3
320	SD07LK2	EU264065	L	Shandong, China	2007	1.3	1.1
321	SD07LK1	FJ216405	L	Shandong, China	2007	1.3	1.1
322	ZB110604-3	KC841154	Y	Shandong, China	2011-06-04	1.3	1.3
323	SD13QJ03	KJ922509	Y	Shandong, China	2013-05-27	1.3	1.3
324	SD13QJ01	KJ922510	Y	Shandong, China	2013-05-27	1.3	1.3
325	SD12HN01	KM873187	Y	Shandong, China	2012	1.3	1.3
326	SDAU1702	KY980658	L	Shandong, China	2017	1.3	1.3
327	SDAU1704	KY980660	L	Shandong, China	2017	1.3	1.3
328	GM0209-1	MH379642	W	Shandong, China	2018	1.3	1.3
329	GM0209-2	MH379643	W	Shandong, China	2018	1.3	1.3
330	GM0209-3	MH379644	W	Shandong, China	2018	1.3	1.3
331	GM0209-4	MH379645	W	Shandong, China	2018	1.3	1.3

332	GM0209-5	MH379646	W	Shandong, China	2018	1.3	1.3
333	GM0209-6	MH379647	W	Shandong, China	2018	1.3	1.3
334	SDGM1801	MN413674	W	Shandong, China	2018-02-16	1.3	1.3
335	SD1802	MN419336	W	Shandong, China	2018-02-21	1.3	1.3
336	SD1803	MN419337	W	Shandong, China	2018-03-07	1.3	1.3
337	SD1805	MN419343	W	Shandong, China	2018-11-15	1.3	1.3
338	SD1806	MN419344	W	Shandong, China	2019-01-11	1.3	1.3
339	SD1807	MN419345	W	Shandong, China	2019-03-06	1.3	1.3
340	SD1809	MN419346	W	Shandong, China	2019-03-17	1.3	1.3
341	SD1810	MN419347	W	Shandong, China	2019-03-19	1.3	1.3
342	SCDY1	HQ425636	L	Sichuan, China	2010	1.3	1.3
343	SCGS-1	JQ396302	N	Sichuan, China	2010-10	1.3	1.3
344	SCGA1	KF796643	Y	Sichuan, China	2011-10	1.3	1.3
345	SCMSBS	KF796644	Y	Sichuan, China	2011-10	1.3	1.3
346	SCMZ06	KF796645	Y	Sichuan, China	2011-10	1.3	1.1
347	SCMZ92	KF796647	Y	Sichuan, China	2011-10	1.3	1.3
348	SCSM01	KF796657	Y	Sichuan, China	2011-10	1.3	1.3
349	TJ1801	MN419353	W	Tianjin, China	2019-05-18	1.3	1.3
350	ADOL-7501	AY027920	W	USA	1997	2	2
351	1696	AF247384	W	USA	1997	2	2
352	6803	AF247388	W	USA	1997	2	2
353	6827	AF247389	W	USA	1997	2	2
354	AF88	AF247390	W	USA	1997	2	2
355	UD-J1	AF305091	N	USA	2000	2	2
356	QL1	MN496121	L	Egypt	2019-02	2	2
357	QL2	MN496122	L	Egypt	2018-11	2	2
358	QL3	MN496123	L	Egypt	2018-04	2	2
359	QL4	MN496124	L	Egypt	2019-05	2	2
360	QL5	MN496125	L	Egypt	2019-12	2	2
361	QL6	MN496126	L	Egypt	2018-08	2	2
362	SCSM00	KF796652	Y	Sichuan, China	2011-10	2	2
363	GDQJ-1	KU254611	N	Guangdong, China	2014	2	2
364	HB18XH01	MN735298	Y	Hebei, China	2018	2	2
365	SH18JY01	MN735306	Y	Shanghai, China	2018	2	2
366	SH18JY02	MN735307	Y	Shanghai, China	2018	2	2
367	JL09H01	HQ148554	L	Jilin, China	2009	UNCL	UNCL
368	JL09L01	HQ148555	L	Jilin, China	2009	UNCL	UNCL
369	JL09DH02	HQ634812	L	Jilin, China	2009-03	UNCL	UNCL

ev/J: a member of the endogenous avian virus family; W: White-chickens; L: layers; Y: Yellow-chickens; G: gamecock; WB: wild birds; N: not available; 817: Crossbreed broilers. ¹represents the classification results of a phylogenetic tree constructed using RAXML software; ²represents the classification results of a phylogenetic tree constructed using IQ-TREE software.

Supplementary Table S3. Viruses included in Supplementary Table S1 and S2 that represent other viruses with identical sequences

No.	Clades	Viruses	Other viruses with identical sequences
1	1.1	ADOL Line 0_AF247392	4.1_AY157601
2			AHq02_KF534753
3			GX13LT02_KY983559
4			GD1402J_KP317565
5			PK19FA01_MN956379
6	1.1	HuB09JY04_JN378888	RB_KY085948
7			SCNC1260_KF796650
8	1.1	LYJ195_KF218957	GZA3_KX010989
9			GZZ47_KX056485
10			BR170_KF575331
11			BR09J_JX444701
12	1.1	GX14YYA1_MF461280	GX14DJ45_KY983565
13			GX14DJ53_KY983567
14			GX14PP03_KX506774
15			GX15PP03_KU848762
16	1.1	CL09DP01_JN378882	GZL1_KX077608
17			GZD17_KX056482
18			GZD13_KX056481
19			GZZ18_KX010993
20			GZZ12_KX010992
21			GZZ8_KX010991
22			CL09DP04_JN378885
23			CL09DP03_JN378884
24			CL09DP02_JN378883
25			GL09DP01_JN378886
26			LH091101_KF291259
27			LYJ15_KF201290
28			BR2_KF201289
29			SDYC02J_JN388907
30	1.1	10022-2_GU222396	10022-4_GU222397
31			10022-8_GU222398
32			10075-2_GU222402
33			10075-4_GU222403
34			10075-8_GU222404
35			10089-2_GU222408
36			10089-4_GU222409
37			10089-8_GU222410
38	1.1	EAV-21-1_AJ623291	SCYA788_KF796655
39	1.1	BJ090201J_HQ333267	QF081201J_HQ333268
40	1.1	TA081225J_HQ333269	HH11_JX014438
41	1.1	GZA8_KX077606	GZC33_KX077607
42	1.1	FJ201307_KM655821	FJ201308_KM655822
43	1.2	WB11016j_JX570795	WB11042j_JX570796
44			WB11058j_JX570793
45			SD1009_KF768000
46	1.2	JL08CH3-1_HQ634809	JL093-1_JN624878
47	1.2	SD12HN03_KM873189	SD12HN04_KM873190
48	1.2	GX14YL03_KR025484	GX14YL13_KT598468
49	1.2	HLJ09SH02_HQ634807	HLJ10SH03_HQ634813

50	1.2	SDAUAJ-3_KY767730	GX-RJ01_MT119963
51	1.3	GX14NN01_MN066154	GD15MM02_MN066151
52			GX17YL05_MN066142
53			GX17NN05_MN066145
54			GX17NN06_MN066144
55	1.3	GX-J-9_JQ246098	GX-E-9_HM988992
56			GX11GL09_KT598496
57	1.3	GX-J-4_JQ246093	GX10YL04_KT598498
58	1.3	GX-J-8_JQ246097	GX10GL08_KT598499
59	1.3	GX-J-10_JQ246099	GX11GL10_KT598495
60	1.3	JS18YZ02_MN735304	JS18YZ03_MN735305
61	1.3	GDQY1201_JX423792	GDKP1202_JX453210
62	1.3	GD13GZ_KU500030	WGZ13_KJ631313
63	1.3	GX10YL22_KT598497	GXSH02_HQ185698
64	1.3	GX-J-7_JQ246096	GX10GL07_KT598500
65	1.3	GD13HY_KU500031	WLY13_KJ631311
66	1.3	GX20YL05_MW491266	GX20YL09_MW491270
67	1.3	GX17YL02_MW491254	GX17YL03_MW491255
68	1.3	HLJ09MDJ-1_JN624880	HLJ13SH01_KM376510
69	UNCL	JL09L01_HQ148555	JL09DH02_HQ634812

Supplementary Table S4. Estimates of the evolutionary distances that are between clades and within clades of viruses

Clades	No. of base substitutions per site in lower triangle ¹			
	1.1	1.2	1.3	2
1.1	3.6			
1.2	6.7	5.4		
1.3	6.7	7.4	6.5	
2	13.8	14.8	15.0	6.0

¹ The numbers of base substitutions per site from averaging over all sequence pairs between clades and within clades of viruses are shown. All results are based on the pairwise analysis of clades 1 and 2, and the number of sequences analyzed per groups from the classification results of RAXML was: Clade 1.1, n =114; Clade 1.2, n=80; Clade 1.3, n=193; Clade 2, n = 17. Bold numbers represents different inter-clade nucleotide distance that is greater than 5% and 10%, respectively.

Supplementary Table S5. Estimates of the evolutionary distances that are between clades and within clades of viruses

Clades	No. of base substitutions per site in lower triangle ¹			
	1.1	1.2	1.3	2
1.1	3.8			
1.2	6.7	5.5		
1.3	6.7	7.5	6.5	
2	13.9	14.9	15.0	6.0

¹ The numbers of base substitutions per site from averaging over all sequence pairs between clades and within clades of viruses are shown. All results are based on the pairwise analysis of clades 1 and 2, and the number of sequences analyzed per groups from the classification results of IQ-TREE was: Clade 1.1, n =121; Clade 1.2, n=80; Clade 1.3, n=186; Clade 2, n = 17. Bold numbers represents different inter-clade nucleotide distance that is greater than 5% and 10%, respectively.