

**Phylogeographic analysis of severe fever with thrombocytopenia syndrome virus from
Zhoushan Islands, China: implication for transmission across the ocean**

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1 These authors contributed equally to this work.

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A

NJ tree
L segment



Genotype F

Genotype D

Genotype C

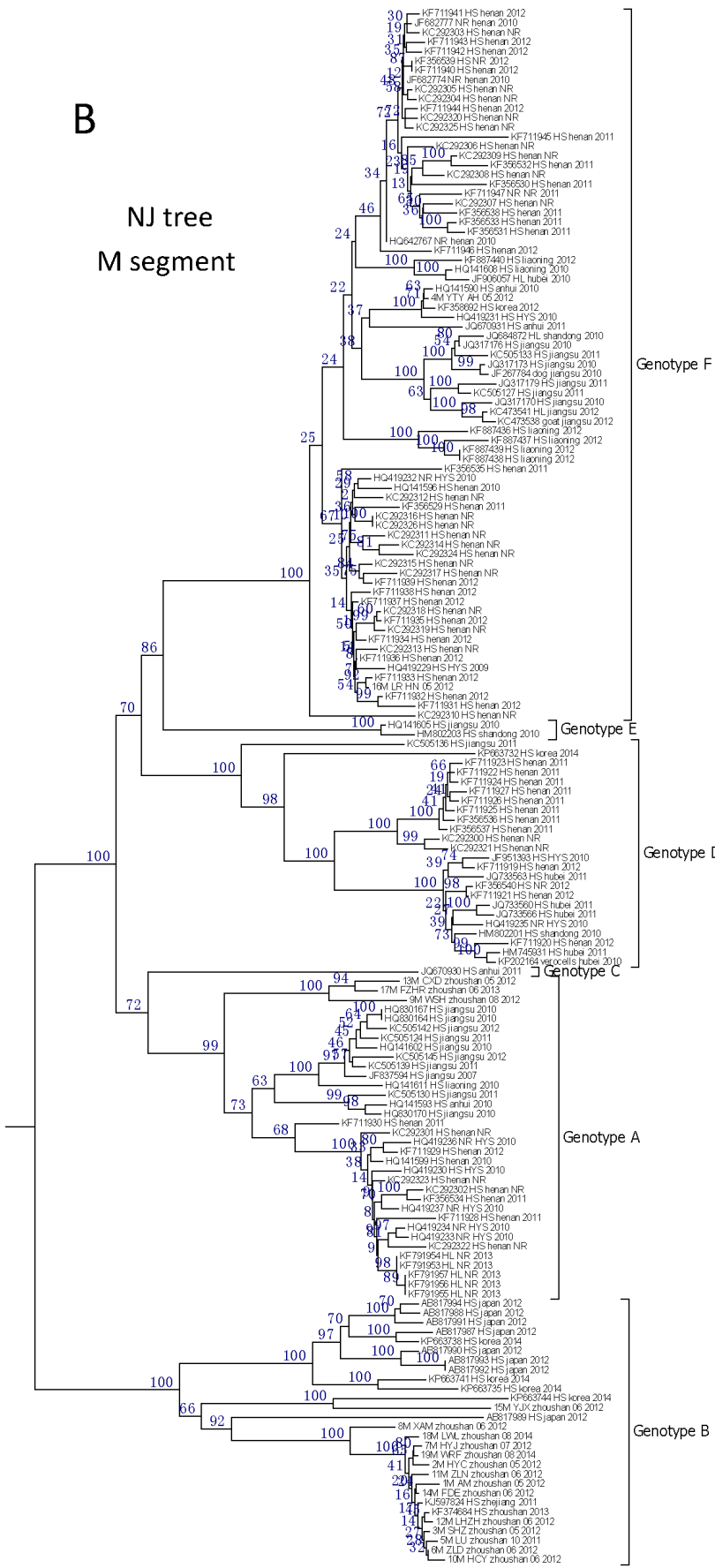
Genotype E

Genotype B

Genotype A

B

NJ tree
M segment



Genotype F

Genotype E

Genotype D

Genotype C

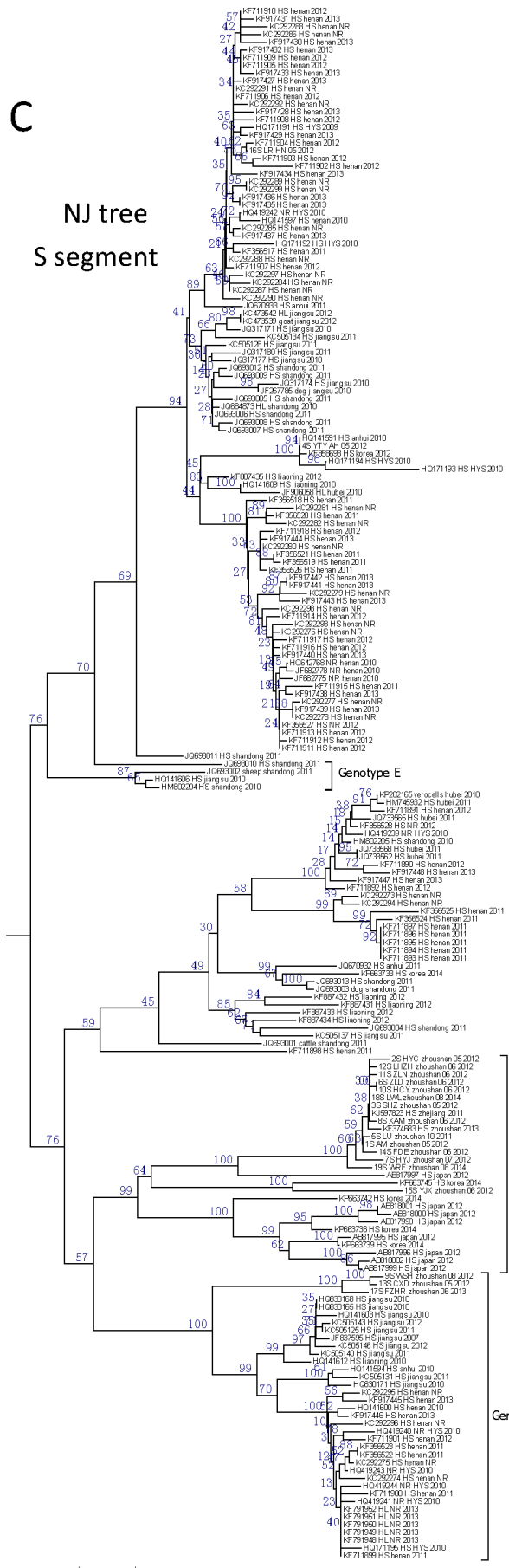
Genotype A

Genotype B

0.005

C

NJ tree
S segment



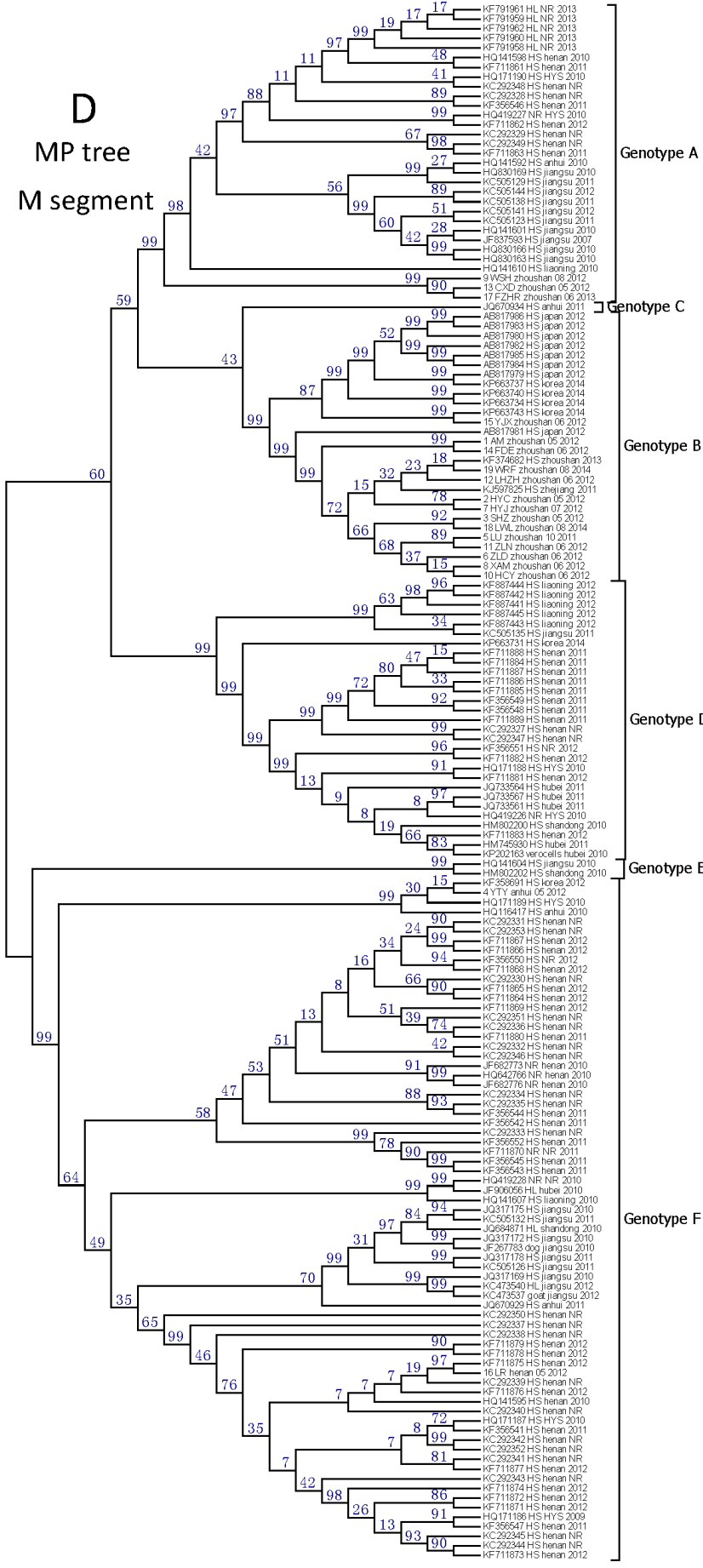
Genotype F

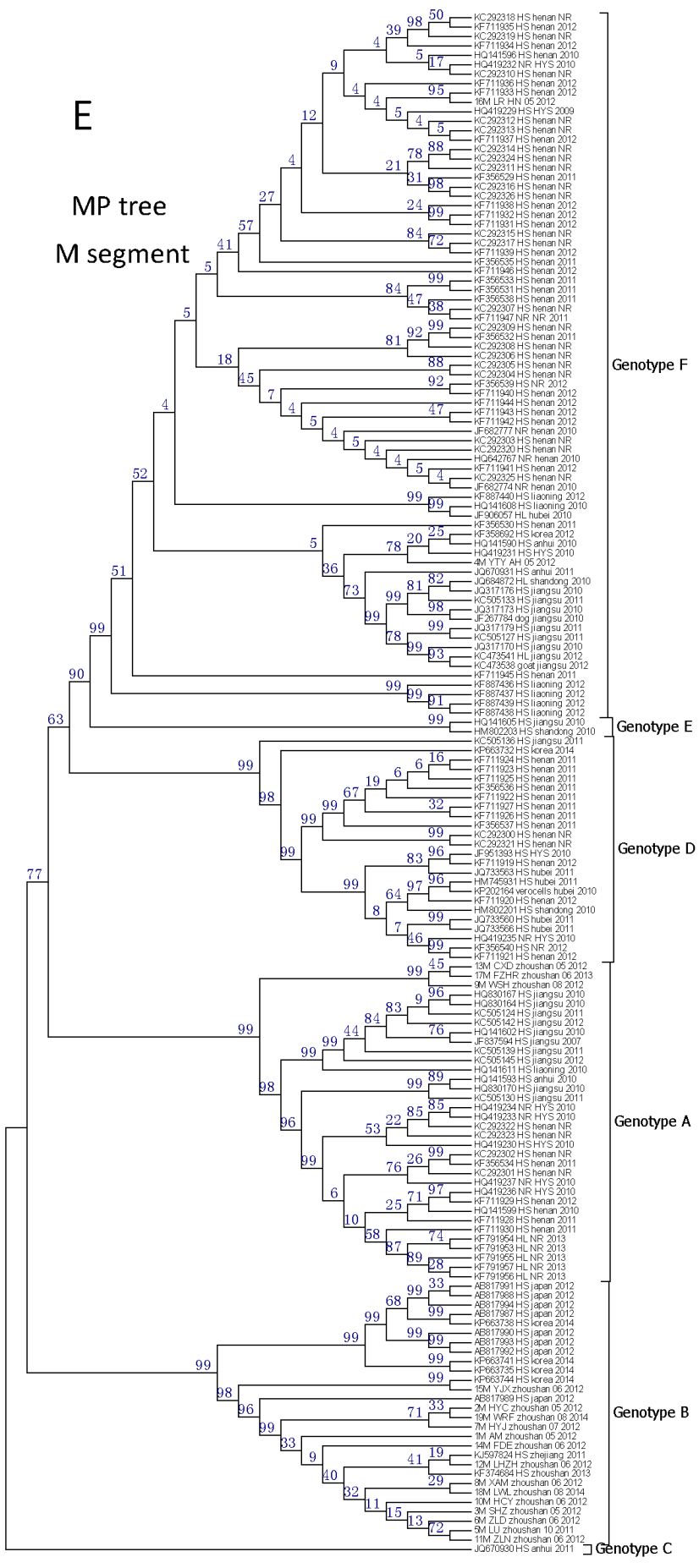
Genotype D

Genotype B

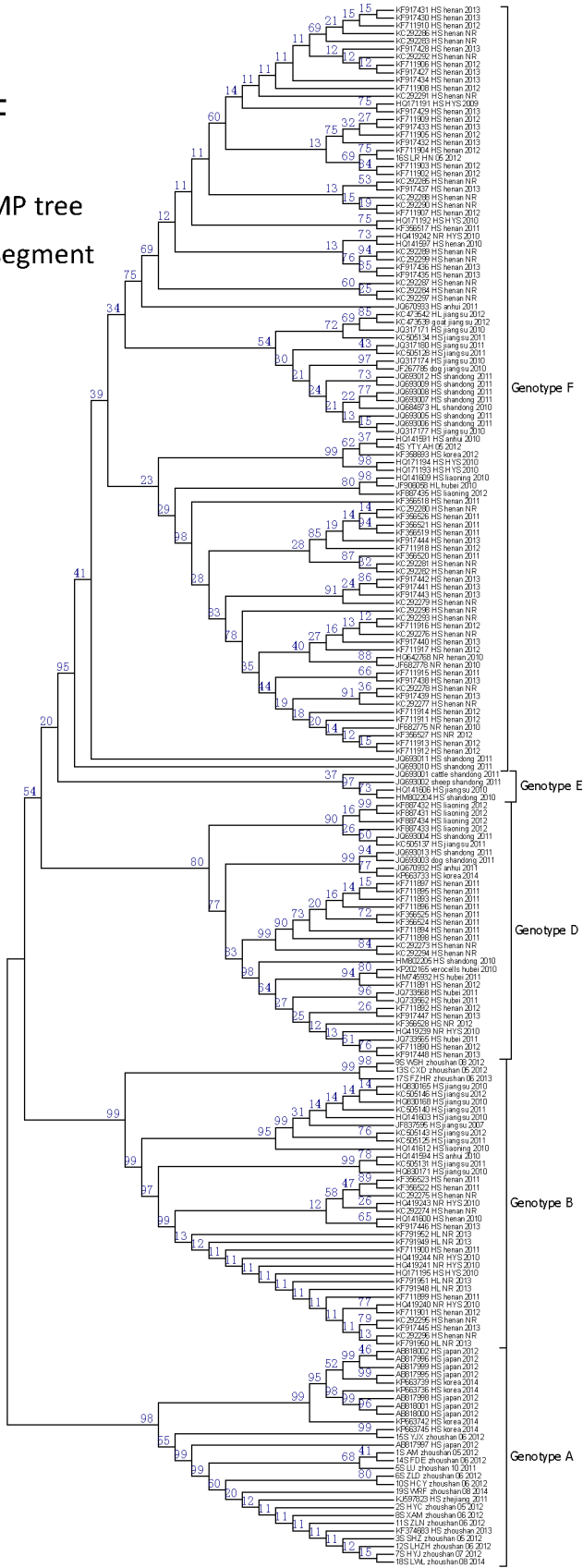
Genotype A

0.005





F
MP tree
S segment

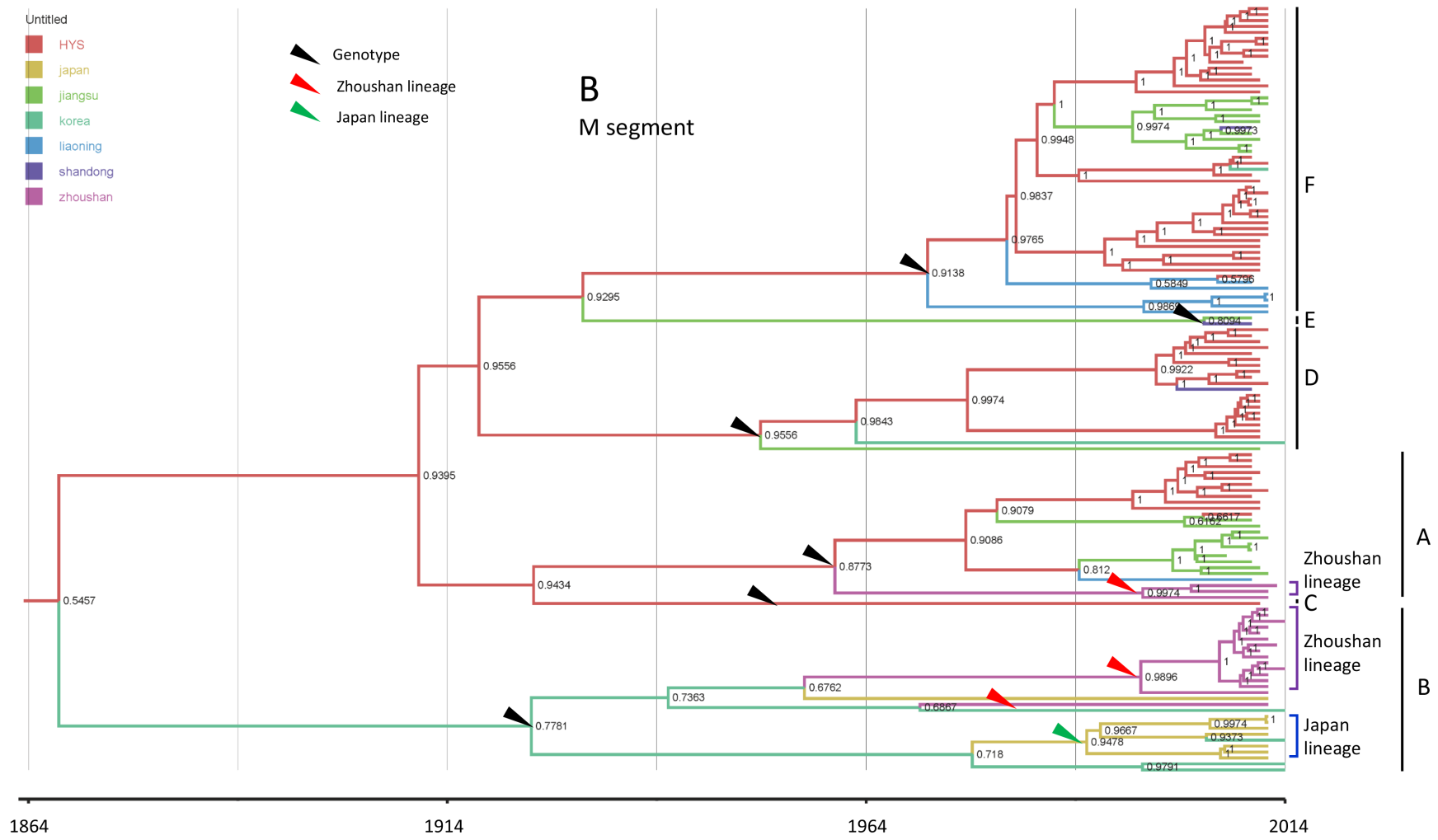


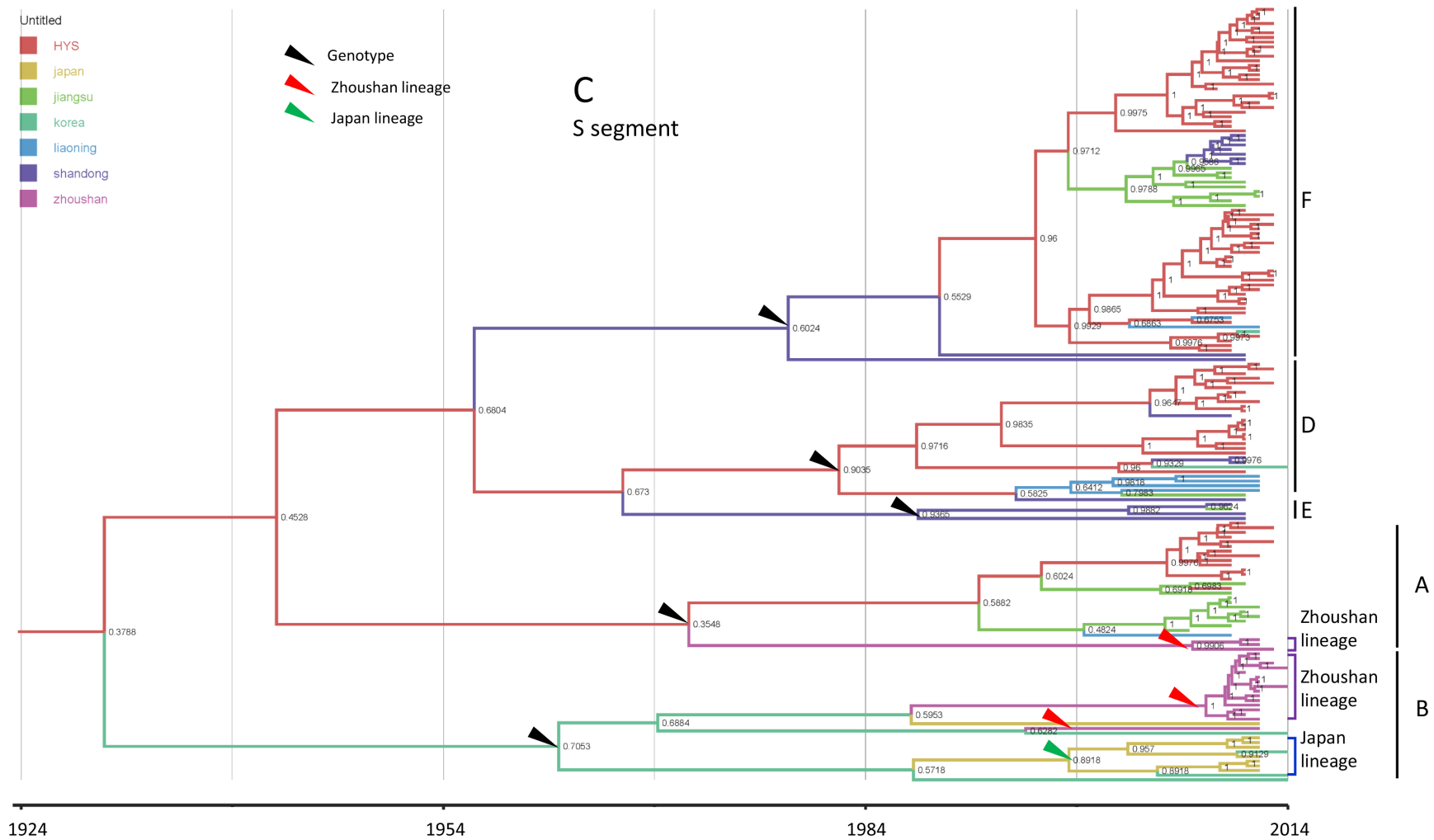
Supplementary Figure S1. Phylogenetic trees of L, M, S genomic segments using NJ and MP methods. A-C: NJ trees; D-F: MP trees.

- Untitled
- HYS
 - japan
 - jiangsu
 - korea
 - liaoning
 - shandong
 - zhoushan

- ▲ Genotype
- ▲ Zhoushan lineage
- ▲ Japan lineage

B
M segment





Supplementary Figure S2. Maximum clade credibility (MCC) trees for of SFTSV L (A), M (B), and S (C) segments.

Supplementary Table S1. Comparison of clinical phenotypes and clinical laboratory parameters of SFTS patients between Zhoushan and other regions/countries.

	Zhoushan (n =21)	Mainland China(n=311)	of Mainland of China (n=81)	Japan (n =11)
Clinical phenotype				
Fever	21	311	81	11
Diarrhea	7	80	34	7
Weakness	5	297 *	Unknown	Unknown
Cough	2	Unknown	8	1
Abdominal distension	1	Unknown	40 *	6 *
Restless	1	Unknown	Unknown	Unknown
Arthralgia	1	Unknown	Unknown	1
Myalgia	1	Unknown	22	1
Leukopenia (leukocyte count, < 4.0 × 10 ⁹ leukocytes/L)	20	Unknown	64	11
Thrombocytopenia (platelet count, < 100 × 10 ⁹ platelets/L)	21	Unknown	73	11
Clinical laboratory parameter				
WBC (10 ⁹ /L)	1.5±0.8	2.9±2.2	Unknown	Unknown
PLT (10 ⁹ /L)	33±17	66±33	Unknown	Unknown
HGB (g/L)	108±23	128±20	Unknown	Unknown
AST (U/L)	28 (50-1201)	101 (12–1739)	Unknown	Unknown
ALT (U/L)	125 (56-516)	65 (10–800)	Unknown	Unknown
CK (U/L)	1129 (122-8495)	373 (26–7000)	Unknown	Unknown
LDH (U/L)	946 (266-2415)	473 (14–3354)	Unknown	Unknown
Reference	This study	[15]	[1]	[12]

Statistic analyses use. * means p value <0.05.

* P<0.05 (χ^2 test).

Supplementary Table S2. Sequence information of SFTSV strains used in this study.

Sample location	Viral strain	Host	Sample time	S segment		M segment		L segment		Genotype of strain	Sequence source
				Accession number	Genotype	Accession number	Genotype	Accession number	Genotype		
Anhui	AH15	Homo sapiens	2010.8	HQ141594	A	HQ141593	A	HQ141592	A	A	GenBank
Henan	HN13	Homo sapiens	2010.7	HQ141600	A	HQ141599	A	HQ141598	A	A	GenBank
Henan	HNXY_188	Homo sapiens	NA	KC292274	A	KC292301	A	KC292328	A	A	GenBank
Henan	HNXY_206	Homo sapiens	NA	KC292275	A	KC292302	A	KC292329	A	A	GenBank
Henan	HNXY_278	Homo sapiens	NA	KC292295	A	KC292322	A	KC292348	A	A	GenBank
Henan	HNXY_191	Homo sapiens	NA	KC292296	A	KC292323	A	KC292349	A	A	GenBank
Henan, Xinyang	YXX2	Homo sapiens	2011.5	KF356522	A	KF356534	A	KF356546	A	A	GenBank
Henan, Xinyang guangshan	2011YSH52	Homo sapiens	2011.8	KF711900	A	KF711928	A	KF711861	A	A	GenBank
Henan, Xinyang xinxian	2012YXX1	Homo sapiens	2012.8	KF711901	A	KF711929	A	KF711862	A	A	GenBank
Huaiyangshan	2010-FQM	NA	2010	HQ419240	A	HQ419236	A	HQ419227	A	A	GenBank
Huaiyangshan	S-WJQ	Homo sapiens	2010.5	HQ171195	A	HQ419230	A	HQ171190	A	A	GenBank
Jiangsu	JS2007-01	Homo sapiens	2007	JF837595	A	JF837594	A	JF837593	A	A	GenBank
Jiangsu	JS2011-004	Homo sapiens	2011	KC505125	A	KC505124	A	KC505123	A	A	GenBank
Jiangsu	JS2011-013-1	Homo sapiens	2011	KC505128	F	KC505127	F	KC505126	F	A	GenBank

Jiangsu	JS2011-027	Homo sapiens	2011	KC505131	A	KC505130	A	KC505129	A	A	GenBank
Jiangsu	JS2011-109	Homo sapiens	2011	KC505140	A	KC505139	A	KC505138	A	A	GenBank
Jiangsu	JS3	Homo sapiens	2010.8	HQ141603	A	HQ141602	A	HQ141601	A	A	GenBank
Jiangsu	JS6	Homo sapiens	2010.10	HQ830171	A	HQ830170	A	HQ830169	A	A	GenBank
Jiangsu	JS24	Homo sapiens	2010.11	HQ830165	A	HQ830164	A	HQ830163	A	A	GenBank
Jiangsu	JS26	Homo sapiens	2010.11	HQ830168	A	HQ830167	A	HQ830166	A	A	GenBank
Jiangsu	JS2012-020	Homo sapiens	2012.3	KC505143	A	KC505142	A	KC505141	A	A	GenBank
Jiangsu	JS2012-035	Homo sapiens	2012.3	KC505146	A	KC505145	A	KC505144	A	A	GenBank
Liaoning	LN3/China/2010	Homo sapiens	2010.7	HQ141612	A	HQ141611	A	HQ141610	A	A	GenBank
NA	HL/Injected	Homo sapiens	2013.9	KF791948	A	KF791953	A	KF791958	A	A	GenBank
NA	HL/Egg/G2	Haemaphysalis longicornis	2013.9	KF791949	A	KF791954	A	KF791959	A	A	GenBank
NA	HL/Larvae/G2	Haemaphysalis longicornis	2013.9	KF791950	A	KF791955	A	KF791960	A	A	GenBank
NA	HL/Nymph/G2	Haemaphysalis longicornis	2013.9	KF791951	A	KF791956	A	KF791961	A	A	GenBank
NA	HL/Adult/G2	Haemaphysalis longicornis	2013.9	KF791952	A	KF791957	A	KF791962	A	A	GenBank
Zhoushan	ZJZHS-CXD/China/	Homo sapiens	2012.5	KR017820	A	KR017858	A	KR017839	A	A	This study

	05/2012											
Zhoushan	ZJZSHH-WSH/China/ 08/2012	Homo sapiens	2012.8	KR017816	A	KR017854	A	KR017835	A	A	This study	
Zhoushan	ZJZSHH-FZHR/China /07/2013	Homo sapiens	2013.7	KR017824	A	KR017862	A	KR017843	A	A	This study	
Henan, Xinyang guangshan	2011YSC60*	Homo sapiens	2011.8	KF711899	A	KF711945	F	KF711863	A	AFA	GenBank	
Japan	SPL035A	Homo sapiens	2012	AB818002	B	AB817994	B	AB817986	B	B	GenBank	
Japan	YG1	Homo sapiens	2012	AB817995	B	AB817987	B	AB817979	B	B	GenBank	
Japan	SPL003A	Homo sapiens	2012	AB817996	B	AB817988	B	AB817980	B	B	GenBank	
Japan	SPL004A	Homo sapiens	2012	AB817997	B	AB817989	B	AB817981	B	B	GenBank	
Japan	SPL005A	Homo sapiens	2012	AB817998	B	AB817990	B	AB817982	B	B	GenBank	
Japan	SPL010A	Homo sapiens	2012	AB817999	B	AB817991	B	AB817983	B	B	GenBank	
Japan	SPL030A	Homo sapiens	2012	AB818000	B	AB817992	B	AB817984	B	B	GenBank	
Japan	SPL032A	Homo sapiens	2012	AB818001	B	AB817993	B	AB817985	B	B	GenBank	
South Korea	KAGWH3	Homo sapiens	2014.9	KP663736	B	KP663735	B	KP663734	B	B	GenBank	
South Korea	KAGBH5	Homo sapiens	2014.9	KP663739	B	KP663738	B	KP663737	B	B	GenBank	
South Korea	KAGBH6	Homo sapiens	2014.9	KP663742	B	KP663741	B	KP663740	B	B	GenBank	
South Korea	KACNH3	Homo sapiens	2014.9	KP663745	B	KP663744	B	KP663743	B	B	GenBank	

Zhejiang(zhoushan)	Zhejiang/01/2011	Homo sapiens	2011.6	KJ597823	B	KJ597824	B	KJ597825	B	B	GenBank
Zhoushan	Zhao	Homo sapiens	2013.3	KF374683	B	KF374684	B	KF374682	B	B	GenBank
Zhoushan	ZJZSHH-LU/China/10/2011	Homo sapiens	2011.10	KR017812	B	KR017850	B	KR017831	B	B	This study
Zhoushan	ZJZSHH-AM/China/05/2012	Homo sapiens	2012.5	KR017808	B	KR017846	B	KR017827	B	B	This study
Zhoushan	ZJZSHH-HYC/China/05/2012	Homo sapiens	2012.5	KR017809	B	KR017847	B	KR017828	B	B	This study
Zhoushan	ZJZSHH-SHZ/China/05/2012	Homo sapiens	2012.5	KR017810	B	KR017848	B	KR017829	B	B	This study
Zhoushan	ZJZSHH-XAM/China/06/2012	Homo sapiens	2012.6	KR017815	B	KR017853	B	KR017834	B	B	This study
Zhoushan	ZJZSHH-FDE/China/06/2012	Homo sapiens	2012.6	KR017821	B	KR017859	B	KR017840	B	B	This study
Zhoushan	ZJZSHH-HCY/China/06/2012	Homo sapiens	2012.6	KR017817	B	KR017855	B	KR017836	B	B	This study
Zhoushan	ZJZSHH-ZLN/China/06/2012	Homo sapiens	2012.6	KR017818	B	KR017856	B	KR017837	B	B	This study

Zhoushan	ZJZSHH-LHZH/China /06/2012	Homo sapiens	2012.6	KR017819	B	KR017857	B	KR017838	B	B	This study
Zhoushan	ZJZSHH-ZLD/China/0 6/2012	Homo sapiens	2012.6	KR017813	B	KR017851	B	KR017832	B	B	This study
Zhoushan	ZJZSHH-YJX/China/0 6/2012	Homo sapiens	2012.6	KR017822	B	KR017860	B	KR017841	B	B	This study
Zhoushan	ZJZSHH-HYJ/China/0 7/2012	Homo sapiens	2012.7	KR017814	B	KR017852	B	KR017833	B	B	This study
Zhoushan	ZJZSHH-WRF/China/ 08/2014	Homo sapiens	2014.8	KR017826	B	KR017864	B	KR017845	B	B	This study
Zhoushan	ZJZSHH-LWL/China/ 08/2014	Homo sapiens	2014.8	KR017825	B	KR017863	B	KR017844	B	B	This study
Anhui	AHL/China/2011*	Homo sapiens	2011.6	JQ670932	D	JQ670930	C	JQ670934	C	CCD	GenBank
Henan	HNNY_212	Homo sapiens	NA	KC292273	D	KC292300	D	KC292327	D	D	GenBank
Henan	HNNY_327	Homo sapiens	NA	KC292294	D	KC292321	D	KC292347	D	D	GenBank
Henan, Xinyang	YSHX002	Homo sapiens	2012	KF356528	D	KF356540	D	KF356551	D	D	GenBank
Henan, Xinyang	YGS1	Homo sapiens	2011.4	KF356525	D	KF356537	D	KF356549	D	D	GenBank
Henan, Xinyang	YSC19	Homo sapiens	2011.5	KF356524	D	KF356536	D	KF356548	D	D	GenBank
Henan, Xinyang	2011YGS5	Homo sapiens	2011.8	KF711893	D	KF711925	D	KF711884	D	D	GenBank

guangshan											
Henan, Xinyang	2011YSC22	Homo sapiens	2011.8	KF711894	D	KF711927	D	KF711888	D	D	GenBank
guangshan											
Henan, Xinyang	2011YGS7	Homo sapiens	2011.8	KF711895	D	KF711922	D	KF711885	D	D	GenBank
guangshan											
Henan, Xinyang	2011YPQ17	Homo sapiens	2011.8	KF711896	D	KF711923	D	KF711887	D	D	GenBank
pingqiao											
Henan, Xinyang	2011YPQ11	Homo sapiens	2011.8	KF711897	D	KF711926	D	KF711886	D	D	GenBank
pingqiao											
Henan, Xinyang	2012YSH91	Homo sapiens	2012.8	KF711891	D	KF711920	D	KF711883	D	D	GenBank
shihe											
Henan, Xinyang	2011YXX9	Homo sapiens	2011.8	KF711898	D	KF711924	D	KF711889	D	D	GenBank
xinxian											
Henan, Xinyang	2012YSH9	Homo sapiens	2012.8	KF711890	D	KF711919	D	KF711881	D	D	GenBank
xinxian											
Henan, Xinyang	2012YSH6	Homo sapiens	2012.8	KF711892	D	KF711921	D	KF711882	D	D	GenBank
xinxian											
Huaiyangshan	2010-WSQ	NA	2010	HQ419239	D	HQ419235	D	HQ419226	D	D	GenBank
Hubei	HB29	Vero cells	2010	KP202165	D	KP202164	D	KP202163	D	D	GenBank

Hubei	HB29	Homo sapiens	2010.5	HM745932	D	HM745931	D	HM745930	D	D	GenBank
Hubei	HB154/China/2011	Homo sapiens	2011.8	JQ733562	D	JQ733560	D	JQ733561	D	D	GenBank
Hubei	HB155/China/2011	Homo sapiens	2011.8	JQ733565	D	JQ733563	D	JQ733564	D	D	GenBank
Hubei	HB156/China/2011	Homo sapiens	2011.8	JQ733568	D	JQ733566	D	JQ733567	D	D	GenBank
Jiangsu	JS2011-062	Homo sapiens	2011	KC505137	D	KC505136	D	KC505135	D	D	GenBank
Shandong	SD24	Homo sapiens	2010	HM802205	D	HM802201	D	HM802200	D	D	GenBank
South Korea	KASJH	Homo sapiens	2014.9	KP663733	D	KP663732	D	KP663731	D	D	GenBank
Huaiyangshan	S-HZM*	Homo sapiens	2010.5	HQ171193	F	JF951393	D	HQ171188	D	DDF	GenBank
Liaoning	LN2012-14*	Homo sapiens	2012.7	KF887431	D	KF887436	F	KF887441	D	DFD	GenBank
Liaoning	LN2012-34*	Homo sapiens	2012.7	KF887432	D	KF887437	F	KF887442	D	DFD	GenBank
Liaoning	LN2012-42*	Homo sapiens	2012.8	KF887434	D	KF887439	F	KF887444	D	DFD	GenBank
Liaoning	LN2012-41*	Homo sapiens	2012.8	KF887433	D	KF887438	F	KF887443	D	DFD	GenBank
Liaoning	LN2012-58*	Homo sapiens	2012.8	KF887435	F	KF887440	F	KF887445	D	DFF	GenBank
Jiangsu	JS4	Homo sapiens	2010.8	HQ141606	E	HQ141605	E	HQ141604	E	E	GenBank
Shandong	SD4	Homo sapiens	2010	HM802204	E	HM802203	E	HM802202	E	E	GenBank
Anhui	AH12	Homo sapiens	2010.8	HQ141591	F	HQ141590	F	HQ116417	F	F	GenBank
Anhui	AHZ/China/2011	Homo sapiens	2011.7	JQ670933	F	JQ670931	F	JQ670929	F	F	GenBank
Anhui	AH-YTY/China/05/201	Homo sapiens	2012.5	KR017811	F	KR017849	F	KR017830	F	F	GenBank

Henan	BX-2010/Henan/CHN	NA	2010	HQ642768	F	HQ642767	F	HQ642766	F	F	GenBank
Henan	BX-2010/Henan/CHN isolate 20	NA	2010	JF682775	F	JF682774	F	JF682773	F	F	GenBank
Henan	BX-2010/Henan/CHN 69	NA	2010	JF682778	F	JF682777	F	JF682776	F	F	GenBank
Henan	HN6	Homo sapiens	2010.7	HQ141597	F	HQ141596	F	HQ141595	F	F	GenBank
Henan	HNXY_293	Homo sapiens	NA	KC292276	F	KC292303	F	KC292330	F	F	GenBank
Henan	HNXY_170	Homo sapiens	NA	KC292277	F	KC292304	F	KC292353	F	F	GenBank
Henan	HNXY_157	Homo sapiens	NA	KC292278	F	KC292305	F	KC292331	F	F	GenBank
Henan	HNXY_174	Homo sapiens	NA	KC292279	F	KC292306	F	KC292332	F	F	GenBank
Henan	HNXY_144	Homo sapiens	NA	KC292280	F	KC292307	F	KC292333	F	F	GenBank
Henan	HNXY_186	Homo sapiens	NA	KC292281	F	KC292308	F	KC292334	F	F	GenBank
Henan	HNXY_262	Homo sapiens	NA	KC292282	F	KC292309	F	KC292335	F	F	GenBank
Henan	HNXY_31	Homo sapiens	NA	KC292283	F	KC292310	F	KC292336	F	F	GenBank
Henan	HNXY_93	Homo sapiens	NA	KC292284	F	KC292311	F	KC292337	F	F	GenBank
Henan	HNXY_115	Homo sapiens	NA	KC292285	F	KC292312	F	KC292338	F	F	GenBank
Henan	HNXY_231	Homo sapiens	NA	KC292286	F	KC292313	F	KC292339	F	F	GenBank
Henan	HNXY_164	Homo sapiens	NA	KC292287	F	KC292314	F	KC292340	F	F	GenBank
Henan	HNXY_207	Homo sapiens	NA	KC292288	F	KC292315	F	KC292341	F	F	GenBank

Henan	HNXY_130	Homo sapiens	NA	KC292289	F	KC292316	F	KC292342	F	F	GenBank
Henan	HNXY_224	Homo sapiens	NA	KC292290	F	KC292317	F	KC292343	F	F	GenBank
Henan	HNXY_2	Homo sapiens	NA	KC292291	F	KC292318	F	KC292344	F	F	GenBank
Henan	HNXY_319	Homo sapiens	NA	KC292292	F	KC292319	F	KC292345	F	F	GenBank
Henan	HNXY_245	Homo sapiens	NA	KC292293	F	KC292320	F	KC292346	F	F	GenBank
Henan	HNXY_182	Homo sapiens	NA	KC292297	F	KC292324	F	KC292350	F	F	GenBank
Henan	HNXY_202	Homo sapiens	NA	KC292298	F	KC292325	F	KC292351	F	F	GenBank
Henan	HNXY_195	Homo sapiens	NA	KC292299	F	KC292326	F	KC292352	F	F	GenBank
Henan	HN-LR/China/05/2012	Homo sapiens	2012.5	KR017823	F	KR017861	F	KR017842	F	F	This study
Henan, Nanyang	YNY1	Homo sapiens	2011.7	KF356526	F	KF356538	F	KF356552	F	F	GenBank
Henan, Xinyang	YPQX03	Homo sapiens	2012	KF356527	F	KF356539	F	KF356550	F	F	GenBank
Henan, Xinyang	YPQ2	Homo sapiens	2011.4	KF356519	F	KF356531	F	KF356543	F	F	GenBank
Henan, Xinyang	YPQ5	Homo sapiens	2011.5	KF356520	F	KF356532	F	KF356544	F	F	GenBank
Henan, Xinyang	YXX1	Homo sapiens	2011.5	KF356521	F	KF356533	F	KF356545	F	F	GenBank
Henan, Xinyang	YSH39	Homo sapiens	2011.6	KF356517	F	KF356529	F	KF356541	F	F	GenBank
Henan, Xinyang	YPQ133	Homo sapiens	2011.7	KF356518	F	KF356530	F	KF356542	F	F	GenBank
Henan, Xinyang guangshan	2012YGS4	Homo sapiens	2012.8	KF711904	F	KF711933	F	KF711875	F	F	GenBank
Henan, Xinyang	2012YSH37	Homo sapiens	2012.8	KF711905	F	KF711936	F	KF711871	F	F	GenBank

Henan, Xinyang shihe	2012YSH105	Homo sapiens	2012.8	KF711914	F	KF711944	F	KF711869	F	F	GenBank
Henan, Xinyang shihe	2012YSH107	Homo sapiens	2012.8	KF711916	F	KF711942	F	KF711864	F	F	GenBank
Henan, Xinyang shihe	2012YSH92	Homo sapiens	2012.8	KF711917	F	KF711941	F	KF711865	F	F	GenBank
Henan, Xinyang shihe	2012YSH27	Homo sapiens	2012.8	KF711903	F	KF711932	F	KF711878	F	F	GenBank
Huaiyangshan	S-WJ	Homo sapiens	2009.6	HQ171191	F	HQ419229	F	HQ171186	F	F	GenBank
Huaiyangshan	S-WWG	Homo sapiens	2010.5	HQ171194	F	HQ419231	F	HQ171189	F	F	GenBank
Huaiyangshan	XCQ-A112S	Haemaphysalis longicornis	2010.5	JF906058	F	JF906057	F	JF906056	F	F	GenBank
Hubei	HB29	Homo sapiens	2010.5	NC_018137	F	NC_018138	F	NC_018136	F	F	GenBank
Jiangsu	JS2011-034	Homo sapiens	2011	KC505134	F	KC505133	F	KC505132	F	F	GenBank
Jiangsu	JS2010-014	Homo sapiens	2010.11	JQ317171	F	JQ317170	F	JQ317169	F	F	GenBank
Jiangsu	JS2010-015	Homo sapiens	2010.11	JQ317174	F	JQ317173	F	JQ317172	F	F	GenBank
Jiangsu	JS2010-018	Homo sapiens	2010.12	JQ317177	F	JQ317176	F	JQ317175	F	F	GenBank
Jiangsu	JSD1	Dog	2011.1	JF267785	F	JF267784	F	JF267783	F	F	GenBank
Jiangsu	JS2010-019	Homo sapiens	2011.1	JQ317180	F	JQ317179	F	JQ317178	F	F	GenBank

Jiangsu	JS2012-goat01	Goat	2012.9	KC473539	F	KC473538	F	KC473537	F	F	GenBank
Jiangsu	JS2012-tick01	Haemaphysalis longicornis	2012.9	KC473542	F	KC473541	F	KC473540	F	F	GenBank
Liaoning	LN2/China/2010	Homo sapiens	2010.7	HQ141609	F	HQ141608	F	HQ141607	F	F	GenBank
Shandong	SDLZtick12/2010	Haemaphysalis longicornis	2010.7	JQ684873	F	JQ684872	F	JQ684871	F	F	GenBank
South Korea	Gangwon/Korea/2012	Homo sapiens	2012.8	KF358693	F	KF358692	F	KF358691	F	F	GenBank
Henan, Xinyang pingqiao	2011YPQ12*	Homo sapiens	2011.8	KF711915	F	KF711930	A	KF711880	F	FAF	GenBank
Henan, Xinyang	YSC3*	Homo sapiens	2011.5	KF356523	A	KF356535	F	KF356547	F	FFA	GenBank
Henan, Xinyang	2012YSH45	Homo sapiens	2012.8	KF711918	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013082S	Homo sapiens	2013.10	KF917427	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013066S	Homo sapiens	2013.10	KF917428	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013067S	Homo sapiens	2013.10	KF917429	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013041S	Homo sapiens	2013.10	KF917430	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013043S	Homo sapiens	2013.10	KF917431	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013048S	Homo sapiens	2013.10	KF917432	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013075S	Homo sapiens	2013.10	KF917433	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013040S	Homo sapiens	2013.10	KF917434	F	NA	NA	NA	NA	ND	GenBank

Henan, Xinyang	2013049S	Homo sapiens	2013.10	KF917435	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013051S	Homo sapiens	2013.10	KF917436	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013037S	Homo sapiens	2013.10	KF917437	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013081S	Homo sapiens	2013.10	KF917438	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013001S	Homo sapiens	2013.10	KF917439	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013045S	Homo sapiens	2013.10	KF917440	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013077S	Homo sapiens	2013.10	KF917441	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013079S	Homo sapiens	2013.10	KF917442	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013052S	Homo sapiens	2013.10	KF917443	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013063S	Homo sapiens	2013.10	KF917444	F	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013038S	Homo sapiens	2013.10	KF917445	A	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013070S	Homo sapiens	2013.10	KF917446	A	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013039S	Homo sapiens	2013.10	KF917447	D	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang	2013050S	Homo sapiens	2013.10	KF917448	D	NA	NA	NA	NA	ND	GenBank
Henan, Xinyang guangshan	2011YSC45	NA	2011.8	NA	NA	NA	NA	KF711870	F	ND	GenBank
Henan, Xinyang guangshan	2011YSH45	Homo sapiens	NA	NA	NA	KF711947	F	NA	NA	ND	GenBank
Huaiyangshan	2010-ZGQ	NA	2010	HQ419241	A	HQ419233	A	NA	NA	ND	GenBank

Huaiyangshan	2010-WWX	NA	2010	HQ419242	F	HQ419232	F	NA	NA	ND	GenBank
Huaiyangshan	2010-LZR	NA	2010	HQ419243	A	HQ419237	A	NA	NA	ND	GenBank
Huaiyangshan	2010-CBX	NA	2010	HQ419244	A	HQ419234	A	NA	NA	ND	GenBank
Huaiyangshan	2010-WJ	NA	2010	NA	NA	HQ419229	F	NA	NA	ND	GenBank
Huaiyangshan	2010-T112	NA	2010	NA	NA	NA	NA	HQ419228	F	ND	GenBank
Huaiyangshan	S-HGX	Homo sapiens	2010.5	HQ171192	F	NA	NA	HQ171187	F	ND	GenBank
Shandong	SDLZCattle01/2011	Cattle	2011.6	JQ693001	E	NA	NA	NA	NA	ND	GenBank
Shandong	SDLZSheep01/2011	Sheep	2011.6	JQ693002	E	NA	NA	NA	NA	ND	GenBank
Shandong	SDLZDog01/2011	Dog	2011.6	JQ693003	D	NA	NA	NA	NA	ND	GenBank
Shandong	SDLZP01/2011	Homo sapiens	2011.6	JQ693004	D	NA	NA	NA	NA	ND	GenBank
Shandong	SDLZP02/2011	Homo sapiens	2011.6	JQ693005	F	NA	NA	NA	NA	ND	GenBank
Shandong	SDLZP05/2011	Homo sapiens	2011.6	JQ693008	F	NA	NA	NA	NA	ND	GenBank
Shandong	SDLZP07/2011	Homo sapiens	2011.6	JQ693010	F	NA	NA	NA	NA	ND	GenBank
Shandong	SDPLP01/2011	Homo sapiens	2011.6	JQ693013	D	NA	NA	NA	NA	ND	GenBank
Shandong	SDLZP03/2011	Homo sapiens	2011.6	JQ693006	F	NA	NA	NA	NA	ND	GenBank
Shandong	SDLZP04/2011	Homo sapiens	2011.6	JQ693007	F	NA	NA	NA	NA	ND	GenBank
Shandong	SDLZP06/2011	Homo sapiens	2011.6	JQ693009	F	NA	NA	NA	NA	ND	GenBank
Shandong	SDLZP08/2011	Homo sapiens	2011.7	JQ693011	F	NA	NA	NA	NA	ND	GenBank
Shandong	SDLZP09/2011	Homo sapiens	2011.7	JQ693012	F	NA	NA	NA	NA	ND	GenBank

Note: *, the SFTSV reassortants. NA, not available; ND, not determined.

Supplementary Table S3. Mean P distances between/within different SFTSV genotypes.

Segment	Clade	A	B	C	D	E	F
L	A	0.014±0.001					
	B	0.038±0.002	0.023±0.001				
	C	0.041±0.002	0.043±0.002	-			
	D	0.039±0.001	0.042±0.002	0.045±0.002	0.017±0.001		
	E	0.039±0.003	0.040±0.002	0.041±0.003	0.039±0.002	0.001	
	F	0.035±0.002	0.039±0.002	0.041±0.002	0.037±0.002	0.035±0.002	0.011±0.001
M	A	0.013±0.001					
	B	0.058±0.003	0.024±0.001				
	C	0.038±0.003	0.054±0.003	-			
	D	0.042±0.003	0.062±0.003	0.044±0.003	0.015±0.001		
	E	0.040±0.003	0.058±0.003	0.041±0.003	0.041±0.003	0.003±0.001	
	F	0.043±0.003	0.057±0.004	0.044±0.004	0.044±0.003	0.036±0.003	0.012±0.001
S	A	0.012±0.001					
	B	0.050±0.004	0.026±0.002				
	D	0.045±0.004	0.048±0.004		0.018±0.002		
	E	0.043±0.004	0.044±0.004		0.035±0.003	0.013±0.002	
	F	0.049±0.005	0.051±0.005		0.050±0.005	0.035±0.004	0.010±0.001

Supplementary Table S4. Parameter comparison between strict and relaxed molecular clocks in the evolutionary analyses of the three SFTSV segments.

	L strict	L relaxed	M strict	M relaxed	S strict	S relaxed
Likelihood	-28982.36	-28874.16	-16813.73	-16698.90	-9204.82	-9039.71
Posterior	-29971.15	-29936.11	-17809.12	-17608.37	-10350.66	-10220.63
Prior	-988.8	-998.15	-995.39	-996.79	-1145.84	-1100.08
Population	522.44	450.43	489.08	429.63	228.57	172.52
Size Scaled						

Supplementary Methods:

RT-PCR amplification and sequencing

Blood samples (200 μL) of patients were extracted for total nucleic acids (DNA and RNA) using the QIAamp MinElute Virus Spin Kit (Qiagen Sciences, USA) according to manufacturer's instructions. cDNA synthesis using total nucleic acids was performed using the PrimeScript RT-PCR Kit (Takara Bio Inc, Japan), according to manufacturer's instructions. Briefly, 8 μL total nucleic acids was mixed with 1 μL 10 mM dNTP Mixture and 1 μL 20 μM Random 6 primers, incubated at 65°C for 5 min, and then cooled down to 4°C. RT-PCR for cDNA synthesis was conducted by adding 4 μL 5 \times PrimeScript Buffer, 0.5 μL 40 U μL^{-1} RNase inhibitor, 5 μL RNase Free dH₂O, and 0.5 μL PrimeScript RTase, and incubated at 42°C for 60 min and then 70°C for 15 min.

Novel bunyavirus was detected using overlapping PCR in a 25 μL mixture containing 4 μL cDNA, 0.2 mM dNTP mixture, 1.5 mM MgSO₄, 0.5 U Platinum® Taq DNA Polymerase (Invitrogen, Life Technologies Corporation), and 0.2 μM primers^{1,2}. Thermal cycling program was 94°C for 2 min, 35 cycles of 94°C for 30 s,

55°C for 30 s, and 68°C for 1 min, followed by 68°C for 5 min. Amplified products were detected by agarose gel electrophoresis and sequenced using an ABI Prism 3100 genetic analyzer (Applied Biosystems, Foster City, CA, USA). Whole genome sequences were assembled using the SeqMan package in the DNASTAR 6.0 software. SFTSV genomic sequences from 19 patients, including 17 from Zhoushan, one from Henan, and one from Anhui, were obtained for this study.

References:

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