Appendix

Was Kaposi's Sarcoma-Associated Herpesvirus Introduced into China via Ancient Silk Road: An Evolutionary Perspective?

Zhenqiu Liu[1], Qiwen Fang[1], Jialu Zuo[1], Veenu Minhas[2], Charles Wood[2], Na He[1], Tiejun Zhang[1 3‡]

1. Department of Epidemiology, School of Public Health, Fudan University, Shnaghai, China and Key Laboratory of Public Health Safety (Fudan University), Ministry of Education, China.
2. Nebraska Center of Virology and the School of Biological Sciences, University of Nebraska-Lincoln, USA.

3 Collaborative Innovation Center of Social Risks Governance in Health，Fudan University, Shanghai, China.

‡: Correspondence: Tiejun Zhang or Na He MD., PhD., Professor of Epidemiology, School of Public Health, Fudan University, and Key Laboratory of Public Health Safety (Fudan University), Ministry of Education, Shanghai, 200032, China. Email: tjzhang@shmu.edu.cn; TEL/FAX: +86-21- 54237410.

Running title: Introduction of KSHV into China

Contents

Appendix Table1: Viral strains used in this analysis.

Appendix Table2: Genetic distance between groups and within groups.

Appendix Table3: Sites found to be under positive selection pressure via three approaches within Chinese sequences.

Appendix Table4: Sites found to be under positive selection pressure via three approaches within all sequences.

Appendix Figure1: The Maximum Likelihood tree of KSHV sequences with following parameters: 1,000 bootstrap replicates, randomly broken site, and general time-reversible distance measure with a gamma distribution shape parameter of 0.5.

Appendix Figure2: The Maximum Parsimony tree of KSHV sequences with following parameters: 1,000 bootstrap replicates, randomly broken site, and general time-reversible distance measure with a gamma distribution shape parameter of 0.5.

Appendix Figure3: The MCC tree of KSHV sequences from Xinjiang, China.

Appendix Figure4: The MCC tree of KSHV sequences from Iran.

Appendix Figure5: The MCC tree of KSHV sequences from Italy & Greece.

Appendix Figure6: The MCC tree of KSHV sequences from Southern Siberia.

Appendix Figure7: The Bayesian skyline plot of KSHV sequences from China.

Appendix Figure8: The Bayesian skyline plot of KSHV sequences from Iran, Italy & Greece.

Appendix Figure9: The Bayesian skyline plot of KSHV sequences from Southern Siberia

Appendix Figure10: The substitution rate of KSHV ORFK1 obtained from Bayesian evolutionary analysis.

Appendix Figure11: The tree height of KSHV ORFK1 obtained from Bayesian evolutionary analysis.

Appendix Table1. Viral strains used in this analysis

Name	Continent	Country/area	Subtype	Sample year	Access Number
EU-ITA17-C0-1995	Europe	Italy	C0ζ	1995	AF130286.1
EU-ITA18-A0-1995	Europe	Italy	A0ζ	1995	AF130285.1
EU-ITA19-A0-1995	Europe	Italy	A5	1995	AF130284.1
EU-ITA20-A0-1995	Europe	Italy	A5	1995	AF130283.1
EU-ITA21-A0-1995	Europe	Italy	A5	1995	AF130282.1
EU-ITA22-C0-1993	Europe	Italy	C0	1993	AF130281.1
EU-ITA23-A3-1998	Europe	Italy	A3	1998	AF130280.1
EU-ITA24-A3-1998	Europe	Italy	A3	1998	AF130279.1
EU-ITA25-C0-1997	Europe	Italy	C0	1997	AF130278.1
EU-ITA26-C0-1993	Europe	Italy	C0	1993	AF130277.1
EU-ITA27-C0-1995	Europe	Italy	C0	1995	AF130276.1
EU-ITA28-A2-1994	Europe	Italy	A2	1994	AF130275.1
EU-ITA29-C0-1997	Europe	Italy	C3	1997	AF130274.1
EU-ITA30-C0-1996	Europe	Italy	C1	1996	AF130271.1
EU-ITA31-C0-1995	Europe	Italy	C0	1995	AF130270.1
EU-ITA32-A0-1988	Europe	Italy	A0	1988	AF130269.1
EU-ITA36-A4-2003	Europe	Italy	A4	2003	GU097430.1
EU-ITA37-C0-1991	Europe	Italy	C0	1991	GU097425.1
EU-ITA38-A3-2002	Europe	Italy	A3	2002	GU097421.1
EU-ITA39-A4-1990	Europe	Italy	A4	1990	FJ884615.1
EU-ITA40-C3-1991	Europe	Italy	C3	1991	FJ884614.1
EU-ITA41-A0-1985	Europe	Italy	A3	1985	FJ884613.1
EU-ITA42-A1-1984	Europe	Italy	A1	1984	FJ884612.1

EU-ITA43-A3-1983	Europe	Italy	A3	1983	FJ884611.1
EU-GRE01-C0-1994	Europe	Greece	C0	1994	AF130268.1
EU-GRE02-C0-1994	Europe	Greece	C1	1994	AF130267.1
EU-GRE03-C1-1992	Europe	Greece	C1	1992	GU097423.1
EU-GRE04-A3-1992	Europe	Greece	A3	1992	GU097420.1
EU-GRE05-A3-1992	Europe	Greece	A3	1992	GU097419.1
EU-GRE06-C0-1992	Europe	Greece	C0	1992	GU097417.1
EU-GRE07-A3-1992	Europe	Greece	A3	1992	FJ884610.1
EU-GRE08-A3-1992	Europe	Greece	A3	1992	FJ884608.1
EU-GRE09-C0-1992	Europe	Greece	C0	1992	FJ884609.1
AS-CHN01-C2-2006	Asia	China	C2	2006	FJ853388.1
AS-CHN02-C2-2005	Asia	China	C2	2005	FJ853387.1
AS-CHN03-A1-2004	Asia	China	A1	2004	FJ853386.1
AS-CHN04-C2-2003	Asia	China	C2	2003	FJ853385.1
AS-CHN05-A1-2002	Asia	China	A1	2002	FJ853384.1
AS-CHN06-A1-2001	Asia	China	A1	2001	FJ853383.1
AS-CHN07-C2-2000	Asia	China	C2	2000	FJ853382.1
AS-CHN08-C2-1999	Asia	China	C2	1999	FJ853381.1
AS-CHN09-C2-1998	Asia	China	C2	1998	FJ853380.1
AS-CHN10-C3-1997	Asia	China	C3	1997	FJ853379.1
AS-CHN11-C2-1998	Asia	China	C2	1998	FJ853378.1
AS-CHN12-C2-1999	Asia	China	C2	1999	FJ853377.1
AS-CHN13-C2-2000	Asia	China	C2	2000	FJ853376.1
AS-CHN14-C-2001	Asia	China	C2	2001	FJ853375.1
AS-CHN15-C3-2002	Asia	China	C3	2002	FJ853374.1
AS-CHN16-C2-2003	Asia	China	C2	2003	FJ853373.1
AS-CHN17-C2-2004	Asia	China	C2	2004	FJ853372.1
AS-CHN18-A0-2005	Asia	China	A3	2005	FJ853371.1
AS-CHN19-C2-2006	Asia	China	C2	2006	FJ853370.1
AS-CHN20-C2-2005	Asia	China	C2	2005	FJ853369.1
AS-CHN21-C2-2004	Asia	China	C2	2004	FJ853368.1
AS-CHN22-C2-2003	Asia	China	C2	2003	FJ853367.1

AS-CHN22-C3-2009	Asia	China	C3	2009	KM582707.1
AS-CHN23-A1-2009	Asia	China	A1	2009	KM582706.1
AS-CHN24-A2-2009	Asia	China	A2	2009	KM582705.1
AS-CHN25-A2-2009	Asia	China	A2	2009	KM582704.1
AS-CHN26-C3-2009	Asia	China	C3	2009	KM582703.1
AS-CHN27-A2-2008	Asia	China	A2	2008	KM582702.1
AS-CHN28-A2-2008	Asia	China	A2	2008	KM582701.1
AS-CHN29-A2-2008	Asia	China	A2	2008	KM582700.1
AS-CHN30-A2-2008	Asia	China	A2	2008	KM582699.1
AS-CHN31-A3-2008	Asia	China	A3	2008	KM582698.1
AS-CHN32-A2-2008	Asia	China	A2	2008	KM582696.1
AS-CHN33-A4-2008	Asia	China	A4	2008	KM582695.1
AS-CHN34-A2-2008	Asia	China	A2	2008	KM582694.1
AS-CHN35-A2-2008	Asia	China	A2	2008	KM582693.1
AS-CHN36-A2-2008	Asia	China	A2	2008	KM582692.1
AS-CHN37-A1-2008	Asia	China	A1	2008	KM582691.1
AS-CHN38-C2-2008	Asia	China	C2	2008	KM582690.1
AS-CHN39-C2-2008	Asia	China	C2	2008	KM582689.1
AS-CHN40-C3-2008	Asia	China	C3	2008	KM582688.1
AS-CHN41-A4-2007	Asia	China	A4	2007	KM582687.1
AS-CHN42-C3-2007	Asia	China	C3	2007	KM582686.1
AS-CHN43-A3-2007	Asia	China	A3	2007	KM582685.1
AS-CHN44-A2-2007	Asia	China	A2	2007	KM582684.1
AS-CHN45-A1-2007	Asia	China	A1	2007	KM582683.1
AS-CHN46-A3-2007	Asia	China	A3	2007	KM582682.1
AS-CHN47-A3-2007	Asia	China	A3	2007	KM582681.1
AS-CHN48-A2-2007	Asia	China	A2	2007	KM582680.1
AS-CHN49-A3-2008	Asia	China	A3	2008	KM582697.1
AS-CHN50-A0-2007	Asia	China	A3	2007	FJ601805.1
AS-CHN51-A0-2007	Asia	China	A3	2007	FJ601804.1
AS-CHN52-A0-2007	Asia	China	A1	2007	FJ601803.1
AS-IRA01-C0-2009	Asia	Iran	C0	2009	HQ395619.1

AS-IRA02-C0-2009	Asia	Iran	C3	2009	HQ395618.1
AS-IRA03-A0-2009	Asia	Iran	A0	2009	HQ395617.1
AS-IRA04-A0-2009	Asia	Iran	A0	2009	HQ395616.1
AS-IRA05-A0-2009	Asia	Iran	A0	2009	HQ395615.1
AS-IRA06-A0-2009	Asia	Iran	A0	2009	HQ395614.1
AS-IRA07-A0-2009	Asia	Iran	A0	2009	HQ395613.1
AS-IRA08-A0-2009	Asia	Iran	A0	2009	HQ395612.1
AS-IRA09-A0-2009	Asia	Iran	A0	2009	HQ395611.1
AS-IRA20-C0-2001	Asia	Iran	C2	2001	JN242284.1
AS-IRA21-C0-2005	Asia	Iran	C0	2005	JN242283.1
AS-IRA22-C0-2009	Asia	Iran	C2	2009	JN242282.1
AS-IRA23-C0-2000	Asia	Iran	C3	2000	JN242281.1
AS-IRA24-C0-2002	Asia	Iran	C0	2002	JN242280.1
AS-IRA25-C0-2000	Asia	Iran	C0	2000	JN242279.1
AS-IRA26-C0-2007	Asia	Iran	C0	2007	JN242278.1
AS-IRA27-C0-2006	Asia	Iran	C1	2006	JN242277.1
AS-IRA28-C0-2007	Asia	Iran	C3	2007	JN242276.1
AS-IRA29-C0-2007	Asia	Iran	C2	2007	JN242275.1
AS-IRA30-A0-2006	Asia	Iran	A0	2006	JN242274.1
AS-IRA31-C0-2008	Asia	Iran	C0	2008	JN242273.1
AS-IRA32-C0-2007	Asia	Iran	C1	2007	JN242272.1
AS-IRA33-C0-2006	Asia	Iran	C2	2006	JN242271.1
AS-IRA34-C0-2007	Asia	Iran	C2	2007	JN242270.1
AS-IRA35-C0-2008	Asia	Iran	C3	2008	JN242269.1
AS-IRA36-C0-2007	Asia	Iran	C0	2007	JN242268.1
AS-IRA37-C0-2008	Asia	Iran	C3	2008	JN242267.1
AS-IRA38-C0-2007	Asia	Iran	C2	2007	JN242266.1
AS-IRA39-C0-2008	Asia	Iran	C3	2008	JN242265.1
AS-IRA40-C0-2008	Asia	Iran	C2	2008	JN242264.1
AS-IRA41-A0-2007	Asia	Iran	A0	2007	JN242263.1
AS-IRA42-C0-2007	Asia	Iran	C0	2007	JN242262.1
AS-IRA43-C0-2000	Asia	Iran	C2	2000	JN242261.1

AS-IRA44-C0-2001	Asia	Iran	C2	2001	JN242260.1
AS-IRA45-C0-2006	Asia	Iran	C2	2006	JN242259.1
AS-IRA46-C0-2006	Asia	Iran	C3	2006	JN242258.1
AS-IRA47-C0-2004	Asia	Iran	C0	2004	JN242257.1
AS-IRA48-C0-2009	Asia	Iran	C0	2009	JN242256.1
AS-IRA49-C0-2004	Asia	Iran	C0	2004	JN242255.1
AS-IRA50-C0-2004	Asia	Iran	C1	2004	JN242254.1
AS-IRA51-C0-2008	Asia	Iran	C0	2008	JN242253.1
AS-IRA52-C0-2007	Asia	Iran	C3	2007	JN242252.1
AS-IRA52-C0-2009	Asia	Iran	C0	2009	JN242292.1
AS-IRA53-C0-2009	Asia	Iran	C0	2009	JN242291.1
AS-IRA54-C0-2008	Asia	Iran	C2	2008	JN242290.1
AS-IRA55-C0-2008	Asia	Iran	C0	2008	JN242289.1
AS-IRA56-C0-2002	Asia	Iran	C2	2002	JN242288.1
AS-IRA57-C0-2008	Asia	Iran	C3	2008	JN242287.1
AS-IRA58-C0-2009	Asia	Iran	C0	2009	JN242286.1
AS-IRA59-C0-2008	Asia	Iran	C0	2008	JN242285.1
EU-SSI01-N0-1995	Europe	Southern Siberia	A3	1995	GQ861492.1
EU-SSI02-N0-1995	Europe	Southern Siberia	A3	1995	GQ861491.1
EU-SSI03-N0-1995	Europe	Southern Siberia	A3	1995	GQ861490.1
EU-SSI04-N0-1995	Europe	Southern Siberia	A3	1995	GQ861489.1
EU-SSI05-N0-1995	Europe	Southern Siberia	A3	1995	GQ861488.1
EU-SSI06-N0-1995	Europe	Southern Siberia	A3	1995	GQ861487.1
EU-SSI07-N0-1995	Europe	Southern Siberia	C2	1995	GQ861486.1
EU-SSI08-N0-1995	Europe	Southern Siberia	A3	1995	GQ861485.1
EU-SSI09-N0-1995	Europe	Southern Siberia	A3	1995	GQ861484.1
EU-SSI10-N0-1995	Europe	Southern Siberia	A3	1995	GQ861483.1
EU-SSI11-N0-1995	Europe	Southern Siberia	A2	1995	GQ861482.1
EU-SSI12-N0-1995	Europe	Southern Siberia	C2	1995	GQ861481.1
EU-SSI13-N0-1995	Europe	Southern Siberia	A3	1995	GQ861480.1
EU-SSI14-N0-1995	Europe	Southern Siberia	A3	1995	GQ861479.1
EU-SSI15-N0-1995	Europe	Southern Siberia	A3	1995	GQ861478.1

EU-SSI16-N0-1995	Europe	Southern Siberia	A3	1995	GQ861477.1
EU-SSI17-N0-1995	Europe	Southern Siberia	A3	1995	GQ861476.1
EU-SSI18-N0-1995	Europe	Southern Siberia	A3	1995	GQ861475.1

ζ: Sequence subtype was not explicitly determined via phylogenetic analysis.

Appendix Table2: Genetic distance between groups and within groups

	China	**Iran**	**Italy-Greece**	**Southern Siberia**
China	0.094	0.101	0.097	0.094
Iran	-	0.074	0.102	0.125
Italy-Greece	-	-	0.097	0.095
Southern Siberia	-	-	-	0.036

Appendix Table3: Sites found to be under positive selection pressure via three approaches within Chinese sequences.

Codon	**SLAC**		**FEL**		**REL**	
	dN-dS	**p value**	**dN-dS**	**p value**	**dN-dS**	**Bayes Factor**
31	3.907	0.066	42.514	0.022	13.172	>10000
33	3.224	0.022	32.170	0.005	13.047	>10000
35	2.738	0.252	28.223	0.089	13.009	>10000
36	3.914	0.120	55.246	0.013	13.164	>10000
39	1.645	0.229	18.231	0.092	9.452	4702.75
40	2.954	0.063	30.498	0.026	13.073	>10000
42	2.769	0.099	32.330	0.013	13.111	>10000
44	2.004	0.181	23.283	0.036	12.100	>10000
74	3.690	0.032	37.842	0.008	13.176	>10000

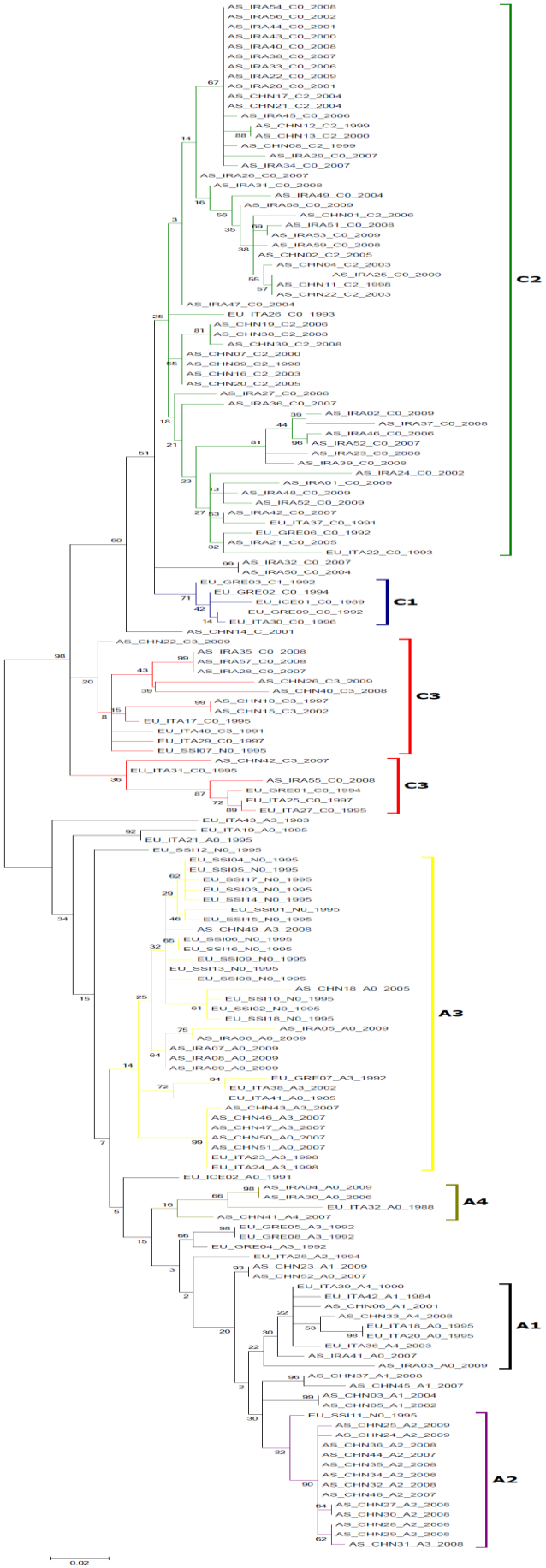
SLAC P value < 0.5; FEL P value < 0.25; REL Bayes factor > 50.

Appendix Table4: Sites found to be under positive selection pressure via three approaches within all sequences.

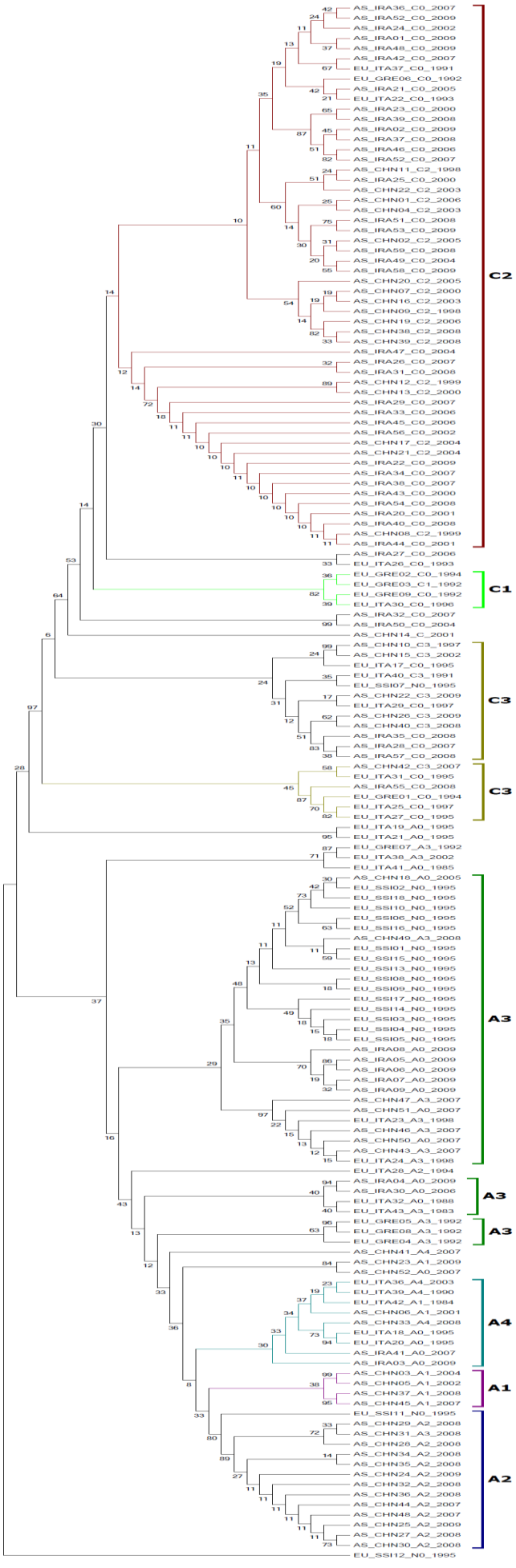
Codon	SLAC		FEL		REL	
	dN-dS	p value	dN-dS	p value	dN-dS	Bayes Factor
20	3.589	0.002	10.562	0.000	3.657	360.439
22	2.486	0.001	7.776	0.000	12.221	2154.34
24	3.084	0.019	9.892	0.005	16.327	475.574
25	4.336	0.000	13.680	0.000	21.175	>10000
26	0.995	0.091	3.096	0.023	5.047	>10000
28	1.443	0.036	4.568	0.012	6.449	>10000
29	2.135	0.015	6.026	0.022	13.432	>10000
30	2.842	0.004	9.568	0.000	12.438	>10000
31	3.100	0.007	11.823	0.000	5.887	2702.75
54	2.640	0.002	7.807	0. 000	12.988	>10000
63	2.162	0.014	6.263	0.009	12.133	112.556

SLAC P value < 0.5; FEL P value < 0.25; REL Bayes factor > 50.

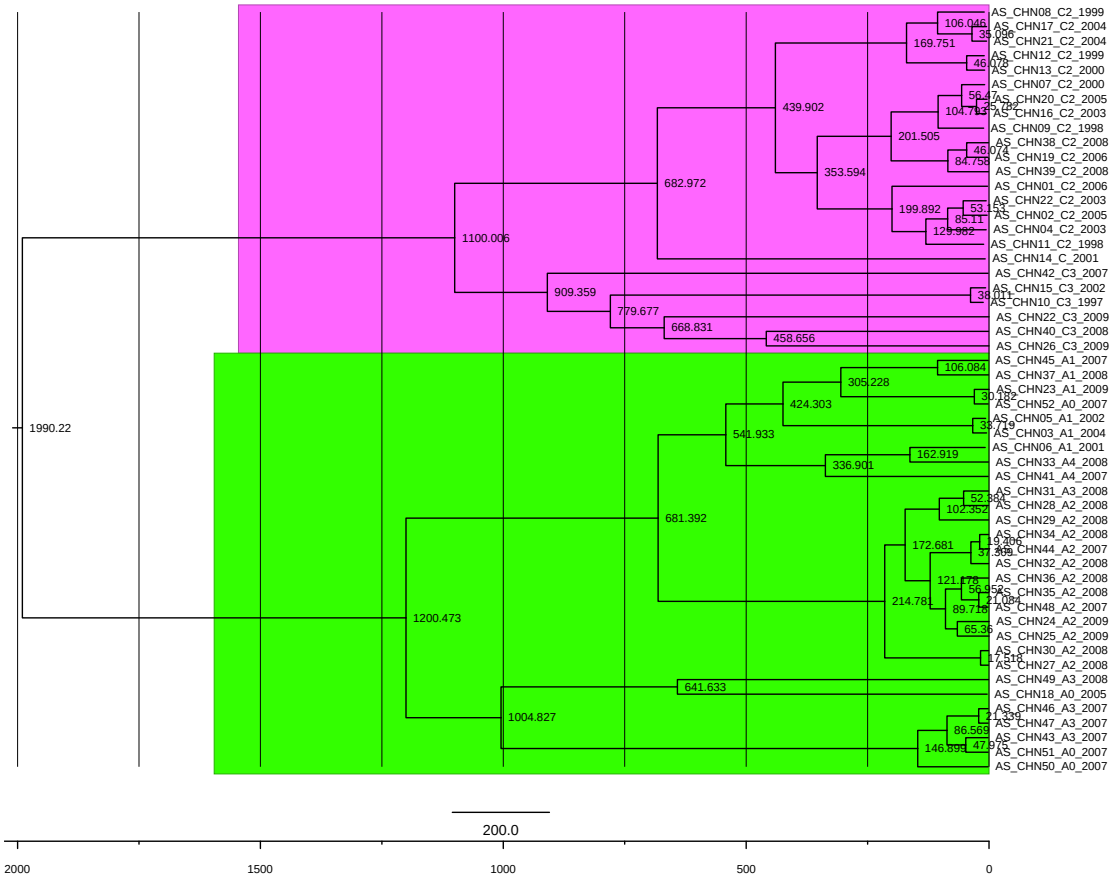
Appendix Figure1: The Maximum Likelihood tree of KSHV sequences with following parameters: 1,000 bootstrap replicates, randomly broken site, and general time-reversible distance measure with a gamma distribution shape parameter of 0.5.


AS_IRA54_C0_2008
AS_IRA56_C0_2002
AS_IRA44_C0_2001
AS_IRA43_C0_2000
AS_IRA40_C0_2008
AS_IRA38_C0_2007
AS_IRA33_C0_2006
AS_IRA22_C0_2009
AS_IRA20_C0_2001
AS_CHN17_C2_2004
AS_CHN21_C2_2004
AS_IRA45_C0_2006
AS_CHN12_C2_1999
AS_CHN13_C2_2000
AS_CHN08_C2_1999
AS_IRA29_C0_2007
AS_IRA34_C0_2007
AS_IRA26_C0_2007
AS_IRA31_C0_2008
AS_IRA49_C0_2004
AS_IRA58_C0_2009
AS_CHN01_C2_2006
AS_IRA51_C0_2008
AS_IRA53_C0_2009
AS_IRA59_C0_2008
AS_CHN02_C2_2005
AS_CHN04_C2_2003
AS_IRA25_C0_2000
AS_CHN11_C2_1998
AS_CHN22_C2_2003
AS_IRA47_C0_2004
EU_ITA26_C0_1993
AS_CHN19_C2_2006
AS_CHN38_C2_2008
AS_CHN39_C2_2008
AS_CHN07_C2_2000
AS_CHN09_C2_1998
AS_CHN16_C2_2003
AS_CHN20_C2_2005
AS_IRA27_C0_2006
AS_IRA36_C0_2007
AS_IRA02_C0_2009
AS_IRA37_C0_2008
AS_IRA46_C0_2006
AS_IRA52_C0_2007
AS_IRA23_C0_2000
AS_IRA39_C0_2008
AS_IRA24_C0_2002
AS_IRA01_C0_2009
AS_IRA48_C0_2009
AS_IRA52_C0_2009
AS_IRA42_C0_2007
EU_ITA37_C0_1991
EU_GRE06_C0_1992
AS_IRA21_C0_2005
EU_ITA22_C0_1993
C2
AS_IRA32_C0_2007
AS_IRA50_C0_2004
EU_GRE03_C1_1992
EU_GRE02_C0_1994
EU_ICE01_C0_1989
EU_GRE09_C0_1992
EU_ITA30_C0_1996
C1
AS_CHN14_C_2001
AS_CHN22_C3_2009
AS_IRA35_C0_2008
AS_IRA57_C0_2008
AS_IRA28_C0_2007
AS_CHN26_C3_2009
AS_CHN40_C3_2008
AS_CHN10_C3_1997
AS_CHN15_C3_2002
EU_ITA17_C0_1995
EU_ITA40_C3_1991
EU_ITA29_C0_1997
EU_SSI07_N0_1995
C3
AS_CHN42_C3_2007
EU_ITA31_C0_1995
AS_IRA55_C0_2008
EU_GRE01_C0_1994
EU_ITA25_C0_1997
EU_ITA27_C0_1995
C3
EU_ITA43_A3_1983
EU_ITA19_A0_1995
EU_ITA21_A0_1995
EU_SSI12_N0_1995
EU_SSI04_N0_1995
EU_SSI05_N0_1995
EU_SSI17_N0_1995
EU_SSI03_N0_1995
EU_SSI14_N0_1995
EU_SSI01_N0_1995
EU_SSI15_N0_1995
AS_CHN49_A3_2008
EU_SSI06_N0_1995
EU_SSI16_N0_1995
EU_SSI09_N0_1995
EU_SSI13_N0_1995
EU_SSI08_N0_1995
AS_CHN18_A0_2005
EU_SSI10_N0_1995
EU_SSI02_N0_1995
EU_SSI18_N0_1995
AS_IRA05_A0_2009
AS_IRA06_A0_2009
AS_IRA07_A0_2009
AS_IRA08_A0_2009
AS_IRA09_A0_2009
EU_GRE07_A3_1992
EU_ITA38_A3_2002
EU_ITA41_A0_1985
AS_CHN43_A3_2007
AS_CHN46_A3_2007
AS_CHN47_A3_2007
AS_CHN50_A0_2007
AS_CHN51_A0_2007
EU_ITA23_A3_1998
EU_ITA24_A3_1998
A3
EU_ICE02_A0_1991
AS_IRA04_A0_2009
AS_IRA30_A0_2006
EU_ITA32_A0_1988
A4
AS_CHN41_A4_2007
EU_GRE05_A3_1992
EU_GRE08_A3_1992
EU_GRE04_A3_1992
EU_ITA28_A2_1994
AS_CHN23_A1_2009
AS_CHN52_A0_2007
EU_ITA39_A4_1990
EU_ITA42_A1_1984
AS_CHN06_A1_2001
AS_CHN33_A4_2008
EU_ITA18_A0_1995
EU_ITA20_A0_1995
EU_ITA36_A4_2003
AS_IRA41_A0_2007
AS_IRA03_A0_2009
A1
AS_CHN37_A1_2008
AS_CHN45_A1_2007
AS_CHN03_A1_2004
AS_CHN05_A1_2002
EU_SSI11_N0_1995
AS_CHN25_A2_2009
AS_CHN24_A2_2009
AS_CHN36_A2_2008
AS_CHN44_A2_2007
AS_CHN35_A2_2008
AS_CHN34_A2_2008
AS_CHN32_A2_2008
AS_CHN48_A2_2007
AS_CHN27_A2_2008
AS_CHN30_A2_2008
AS_CHN28_A2_2008
AS_CHN29_A2_2008
AS_CHN31_A3_2008
A2
0.02

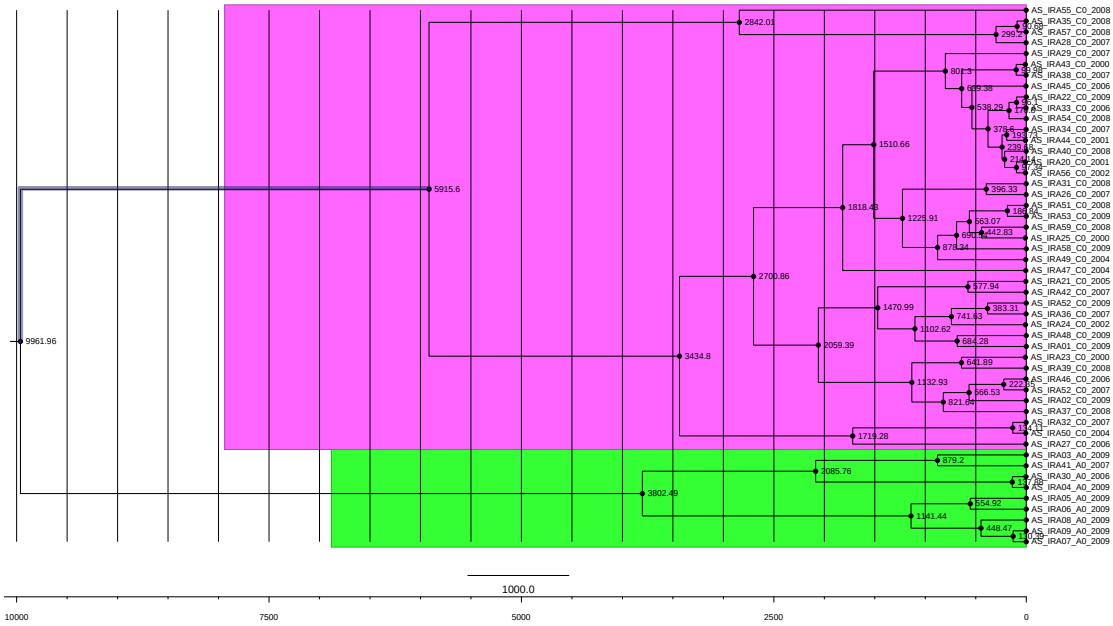
Appendix Figure2: The Maximum Parsimony tree of KSHV sequences with following parameters: 1,000 bootstrap replicates, randomly broken site, and general time-reversible distance measure with a gamma distribution shape parameter of 0.5.


AS_IRA36_C0_2007
AS_IRA52_C0_2009
AS_IRA24_C0_2002
AS_IRA01_C0_2009
AS_IRA48_C0_2009
AS_IRA42_C0_2007
EU_ITA37_C0_1991
EU_GRE06_C0_1992
AS_IRA21_C0_2005
EU_ITA22_C0_1993
AS_IRA23_C0_2000
AS_IRA39_C0_2008
AS_IRA02_C0_2009
AS_IRA37_C0_2008
AS_IRA46_C0_2006
AS_IRA52_C0_2007
AS_CHN11_C2_1998
AS_IRA25_C0_2000
AS_CHN22_C2_2003
AS_CHN01_C2_2006
AS_CHN04_C2_2003
AS_IRA51_C0_2008
AS_IRA53_C0_2009
AS_CHN02_C2_2005
AS_IRA59_C0_2008
AS_IRA49_C0_2004
AS_IRA58_C0_2009
AS_CHN20_C2_2005
AS_CHN07_C2_2000
AS_CHN16_C2_2003
AS_CHN09_C2_1998
AS_CHN19_C2_2006
AS_CHN38_C2_2008
AS_CHN39_C2_2008
AS_IRA47_C0_2004
AS_IRA26_C0_2007
AS_IRA31_C0_2008
AS_CHN12_C2_1999
AS_CHN13_C2_2000
AS_IRA29_C0_2007
AS_IRA33_C0_2006
AS_IRA45_C0_2006
AS_IRA56_C0_2002
AS_CHN17_C2_2004
AS_CHN21_C2_2004
AS_IRA22_C0_2009
AS_IRA34_C0_2007
AS_IRA38_C0_2007
AS_IRA43_C0_2000
AS_IRA54_C0_2008
AS_IRA20_C0_2001
AS_IRA40_C0_2008
AS_CHN08_C2_1999
AS_IRA44_C0_2001
C2
AS_IRA27_C0_2006
EU_ITA26_C0_1993
EU_GRE02_C0_1994
EU_GRE03_C1_1992
EU_GRE09_C0_1992
EU_ITA30_C0_1996
C1
AS_IRA32_C0_2007
AS_IRA50_C0_2004
AS_CHN14_C_2001
AS_CHN10_C3_1997
AS_CHN15_C3_2002
EU_ITA17_C0_1995
EU_ITA40_C3_1991
EU_SSI07_N0_1995
AS_CHN22_C3_2009
EU_ITA29_C0_1997
AS_CHN26_C3_2009
AS_CHN40_C3_2008
AS_IRA35_C0_2008
AS_IRA28_C0_2007
AS_IRA57_C0_2008
C3
AS_CHN42_C3_2007
EU_ITA31_C0_1995
AS_IRA55_C0_2008
EU_GRE01_C0_1994
EU_ITA25_C0_1997
EU_ITA27_C0_1995
C3
EU_ITA19_A0_1995
EU_ITA21_A0_1995
EU_GRE07_A3_1992
EU_ITA38_A3_2002
EU_ITA41_A0_1985
AS_CHN18_A0_2005
EU_SSI02_N0_1995
EU_SSI18_N0_1995
EU_SSI10_N0_1995
EU_SSI06_N0_1995
EU_SSI16_N0_1995
AS_CHN49_A3_2008
EU_SSI01_N0_1995
EU_SSI15_N0_1995
EU_SSI13_N0_1995
EU_SSI08_N0_1995
EU_SSI09_N0_1995
EU_SSI17_N0_1995
EU_SSI14_N0_1995
EU_SSI03_N0_1995
EU_SSI04_N0_1995
EU_SSI05_N0_1995
AS_IRA08_A0_2009
AS_IRA05_A0_2009
AS_IRA06_A0_2009
AS_IRA07_A0_2009
AS_IRA09_A0_2009
AS_CHN47_A3_2007
AS_CHN51_A0_2007
EU_ITA23_A3_1998
AS_CHN46_A3_2007
AS_CHN50_A0_2007
AS_CHN43_A3_2007
EU_ITA24_A3_1998
A3
EU_ITA28_A2_1994
AS_IRA04_A0_2009
AS_IRA30_A0_2006
EU_ITA32_A0_1988
EU_ITA43_A3_1983
A3
EU_GRE05_A3_1992
EU_GRE08_A3_1992
EU_GRE04_A3_1992
A3
AS_CHN41_A4_2007
AS_CHN23_A1_2009
AS_CHN52_A0_2007
EU_ITA36_A4_2003
EU_ITA39_A4_1990
EU_ITA42_A1_1984
AS_CHN06_A1_2001
AS_CHN33_A4_2008
EU_ITA18_A0_1995
EU_ITA20_A0_1995
AS_IRA41_A0_2007
AS_IRA03_A0_2009
A4
AS_CHN03_A1_2004
AS_CHN05_A1_2002
AS_CHN37_A1_2008
AS_CHN45_A1_2007
A1
EU_SSI11_N0_1995
AS_CHN29_A2_2008
AS_CHN31_A3_2008
AS_CHN28_A2_2008
AS_CHN34_A2_2008
AS_CHN35_A2_2008
AS_CHN24_A2_2009
AS_CHN32_A2_2008
AS_CHN36_A2_2008
AS_CHN44_A2_2007
AS_CHN48_A2_2007
AS_CHN25_A2_2009
AS_CHN27_A2_2008
AS_CHN30_A2_2008
A2
EU_SSI12_N0_1995

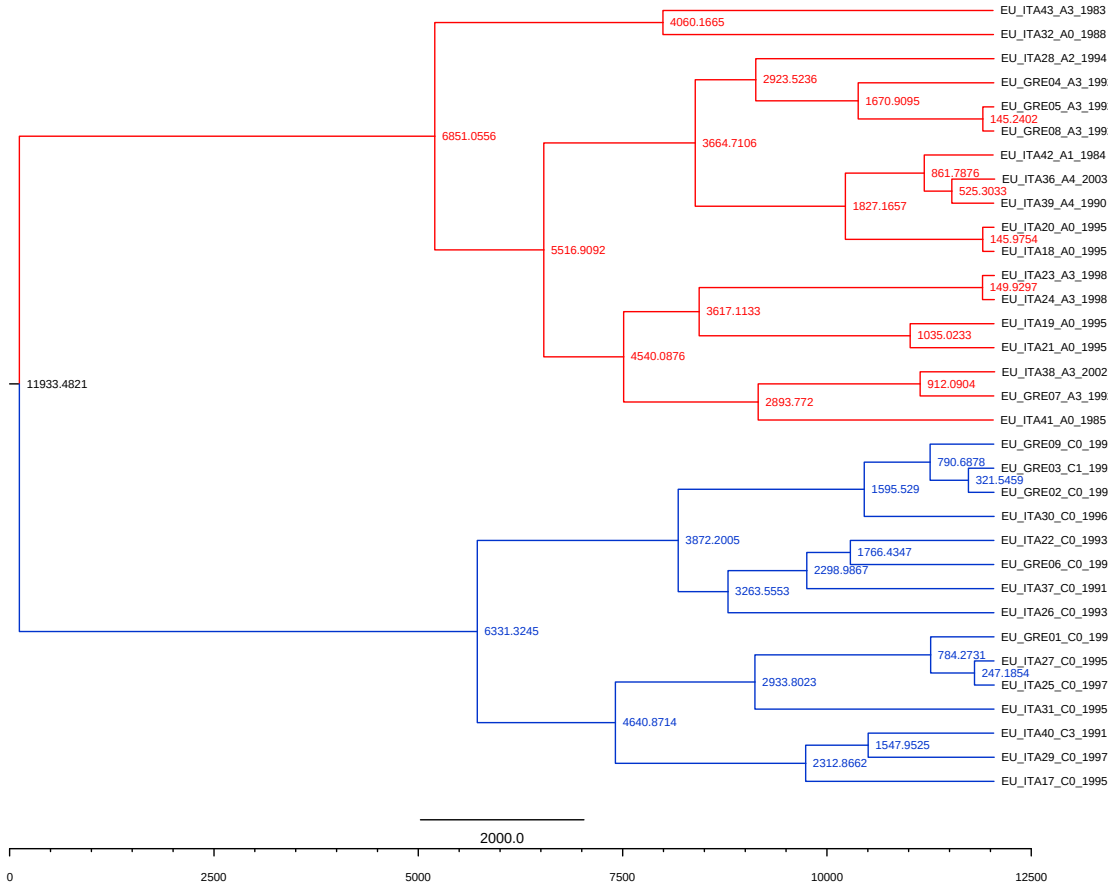
Appendix Figure3: The MCC tree of KSHV sequences from Xinjiang, China.



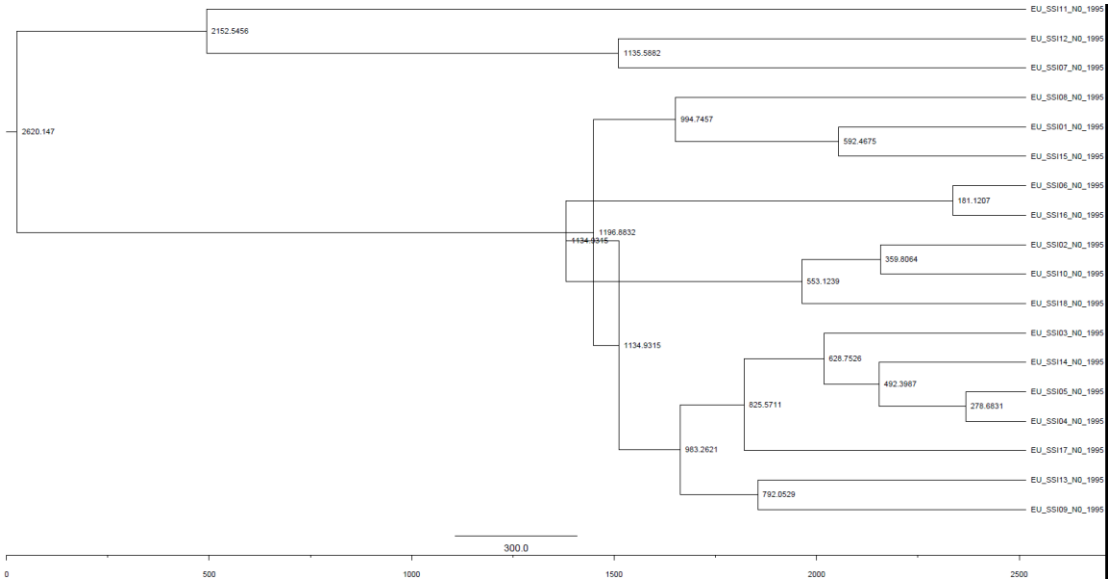
Appendix Figure4: The MCC tree of KSHV sequences from Iran.



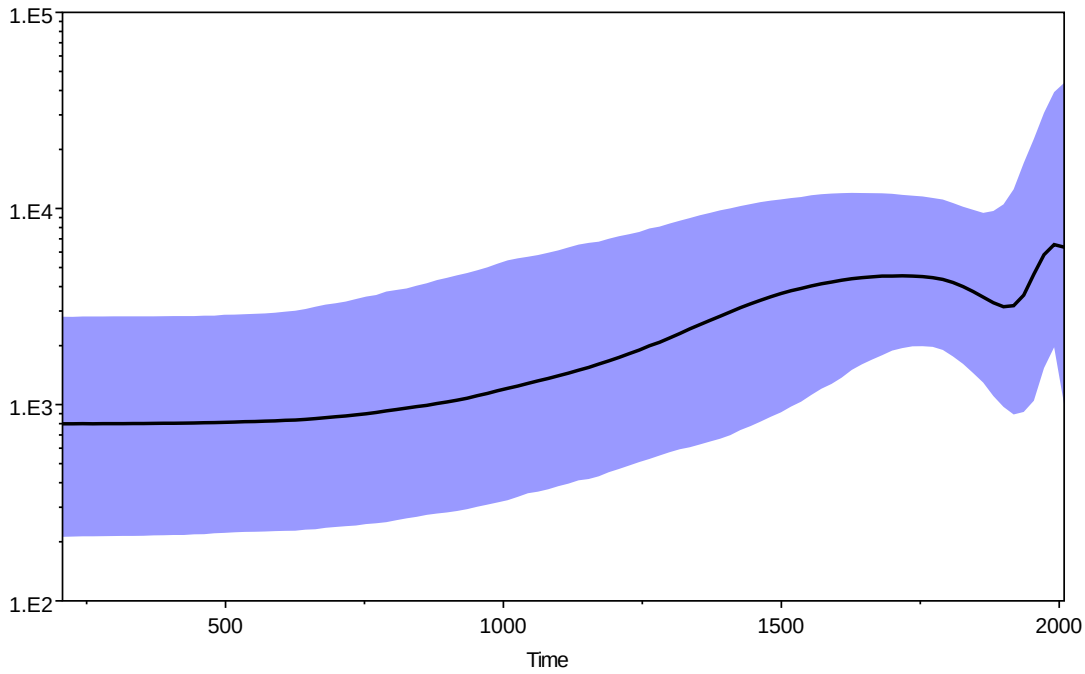
Appendix Figure5: The MCC tree of KSHV sequences from Italy & Greece.



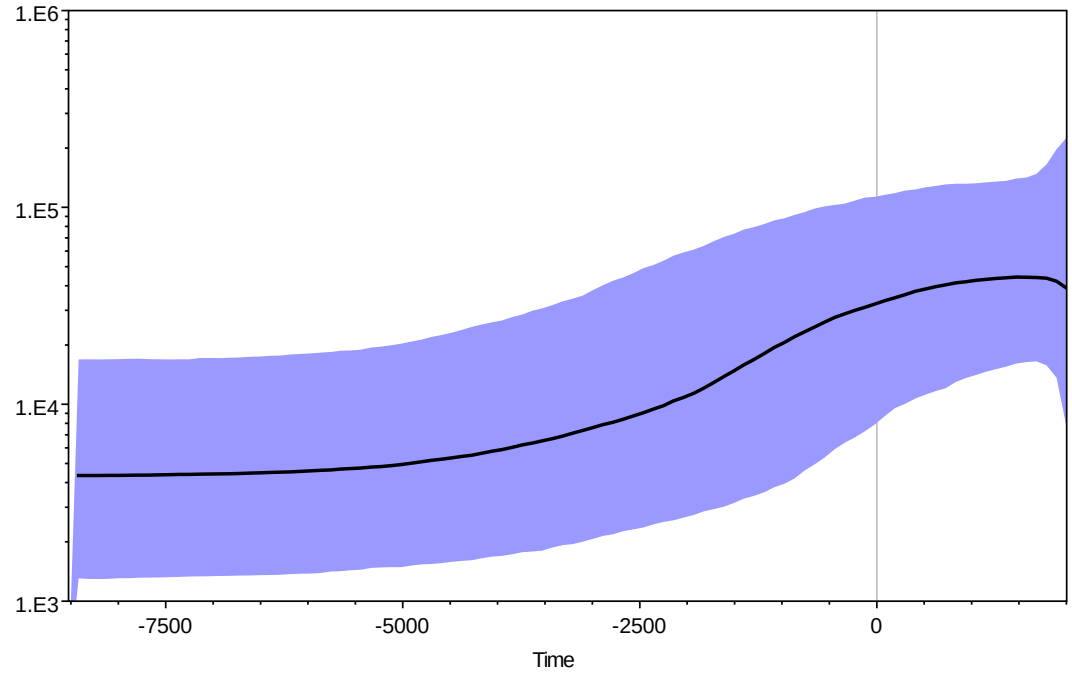
Appendix Figure6: The MCC tree of KSHV sequences from Southern Siberia.



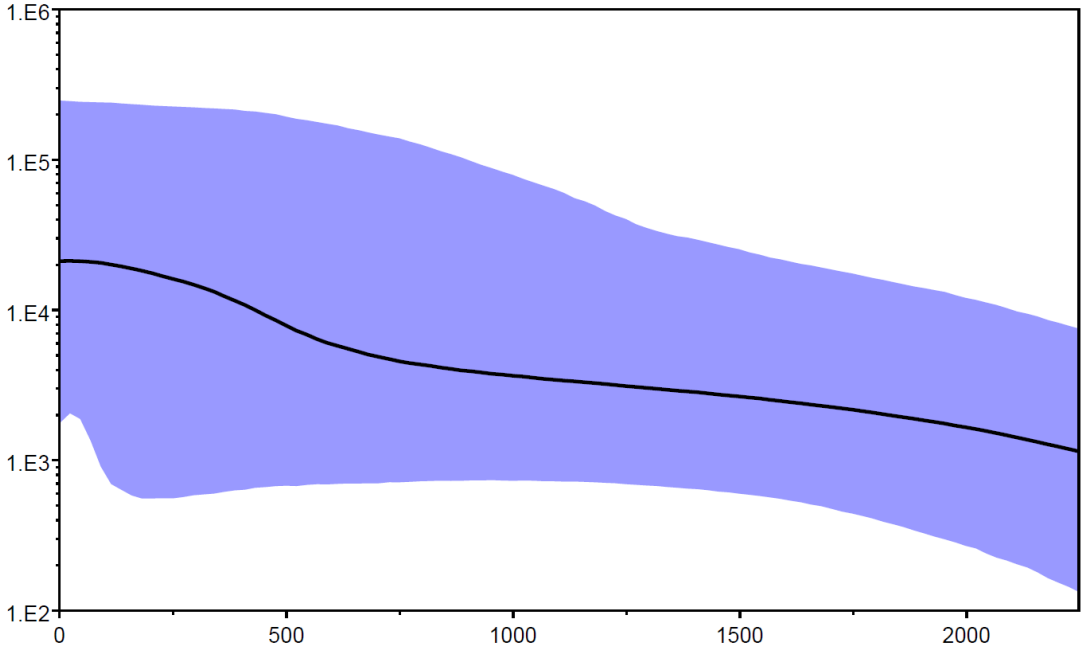
Appendix Figure7: The Bayesian skyline plot of KSHV sequences from China.



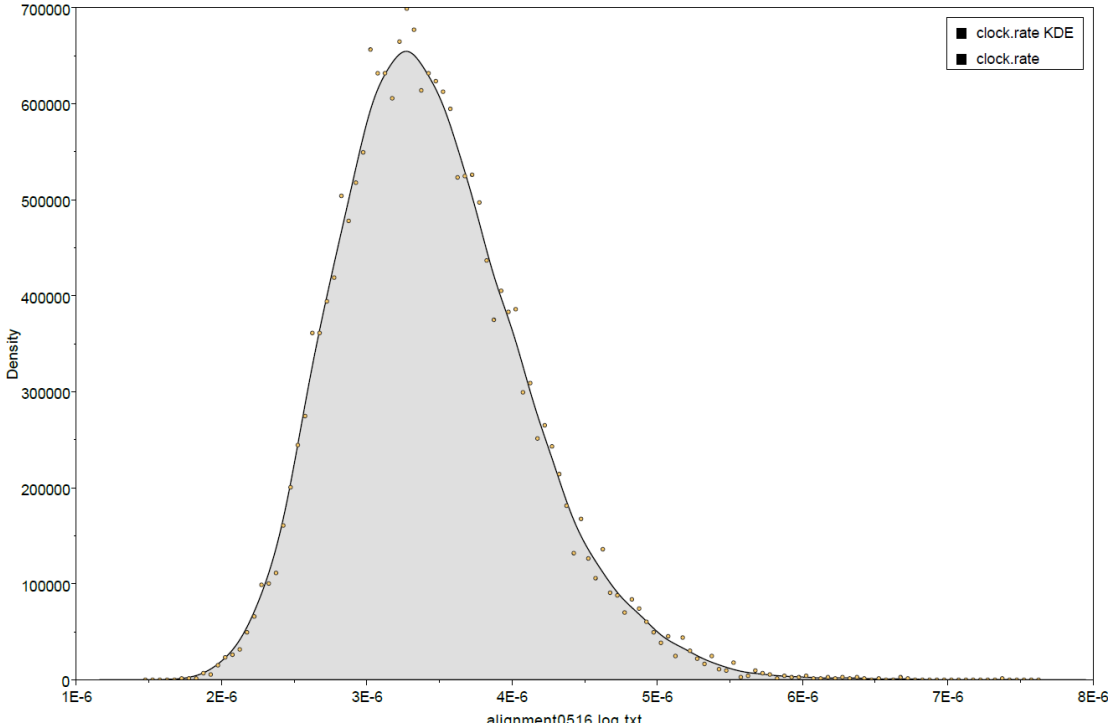
Appendix Figure8: The Bayesian skyline plot of KSHV sequences from Iran, Italy & Greece.



Appendix Figure9: The Bayesian skyline plot of KSHV sequences from Southern Siberia.



Appendix Figure10: The substitution rate of KSHV ORFK1 obtained from Bayesian evolutionary analysis.



Appendix Figure11: The tree height of KSHV ORFK1 obtained from Bayesian evolutionary analysis.