

#EF213078.1_isolate_UT76_strain_Karp	---	---	---	---	-T	GAA	AAA	AAT	TAT	GTT	AAT	TGC	TAG	TGC	AAT	GTC	TGC	GTT	GTC	[600]	
#EF213086.1_isolate_UT150_strain_Karp	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[600]	
#EF213096.1_isolate_UT125_strain_Gilliam	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[600]	
#EF213091.1_isolate_UT144_strain_Gilliam	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[600]	
#M63382.1_strain_Kato	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[600]	
#EF213078.1_isolate_FFW1038_strain_TA716	TTT	TAA	GGA	GAT	TAG	AA.	---	---	---	---	---	---	---	---	---	---	---	A.	---	[600]	
#EF213095.1_isolate_UT302_strainTA763	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[600]	
#K13_insert	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[600]	
#EF213078.1_isolate_UT76_strain_Karp	GTT	GCC	GTT	TTC	TGC	TAG	TGC	GAT	AGA	ATT	GGG	GGA	TGA	AGG	AGG	ATT	AGA	GTG	TGG	TCC	[660]
#EF213086.1_isolate_UT150_strain_Karp	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[660]	
#EF213096.1_isolate_UT125_strain_Gilliam	---	---	---	---	A.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[660]	
#EF213091.1_isolate_UT144_strain_Gilliam	---	---	---	---	A.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[660]	
#M63382.1_strain_Kato	A.	---	---	---	A.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[660]	
#EF213078.1_isolate_FFW1038_strain_TA716	---	---	---	---	A.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[660]	
#EF213095.1_isolate_UT302_strainTA763	---	---	---	---	A.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[660]	
#K13_insert	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-A.	---	---	---	[660]	
#EF213078.1_isolate_UT76_strain_Karp	TTA	TGC	TAA	AGT	TGG	AGT	CGT	TGG	AGG	AAT	GAT	TAC	TGG	CGT	AGA	ATC	TAT	TCG	CTT	GGA	[720]
#EF213086.1_isolate_UT150_strain_Karp	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[720]	
#EF213096.1_isolate_UT125_strain_Gilliam	---	---	---	---	---	---	---	---	---	T.	---	---	---	---	---	C	---	---	---	[720]	
#EF213091.1_isolate_UT144_strain_Gilliam	---	---	---	---	---	---	---	---	---	T.	---	---	---	---	---	C	---	---	---	[720]	
#M63382.1_strain_Kato	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	C	---	---	---	[720]	
#EF213078.1_isolate_FFW1038_strain_TA716	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[720]	
#EF213095.1_isolate_UT302_strainTA763	---	C.G	---	---	---	A.	T.	---	---	---	---	T.	---	---	---	C	---	A	---	[720]	
#K13_insert	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[720]	
#EF213078.1_isolate_UT76_strain_Karp	TCC	AGC	TGA	TGC	TGA	TGG	CAA	AAA	ACA	CTT	GCC	ATT	AAT	AAC	CTC	GAT	GCC	ATT	TGG	TGG	[780]
#EF213086.1_isolate_UT150_strain_Karp	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	[780]	
#EF213096.1_isolate_UT125_strain_Gilliam	---	---</																			

#EF213078.1_isolate_UT76_strain_Karp	TGA TCG TGA CTT TGG GAT TGA TAT TCG TAA CAT ACC TCA GGC GCA AGC --- --- --- ---	[1080]
#EF213086.1_isolate_UT150_strain_Karp	...	[1080]
#EF213096.1_isolate_UT125_strain_Gilliam	... TGA G...G...C...GA...T TC. TG. ... TGC T...T-- --- --- ---	[1080]
#EF213091.1_isolate_UT144_strain_Gilliam	... TGA G...G...C...GA...T TC. TG. ... TGC T...T-- --- --- ---	[1080]
#M63382.1_strain_Kato	G...C...G...C...G...A.G AGG ... TAA TCA CCT GGG	[1080]
#EF213078.1_isolate_FFW1038_strain_TA716	...	[1080]
#EF213095.1_isolate_UT302_strainTA763	... TA. G...TG...G...AT...TGA G...A...T...A-- --- --- ---	[1080]
#K13_insert	...	[1080]
#EF213078.1_isolate_UT76_strain_Karp	TGG GAA TCT TAA TAA --- --- TGA GCA GCG TGC TG- --- -C AGC TAG GAT CGC TTG GTT	[1140]
#EF213086.1_isolate_UT150_strain_Karp	...	[1140]
#EF213096.1_isolate_UT125_strain_Gilliam	G...C...C.A C.G CTT ACT -GT ... --- --- --- ---	[1140]
#EF213091.1_isolate_UT144_strain_Gilliam	G...C...C.A C.G CTT ACT -GT ... --- --- --- ---	[1140]
#M63382.1_strain_Kato	...A T...C...GG .GC TAA TGA .AT T.G ... --- -A C.AA. ...	[1140]
#EF213078.1_isolate_FFW1038_strain_TA716	...	[1140]
#EF213095.1_isolate_UT302_strainTA763	CCA C...G...C.G C...AA- --- ... T.C T.T ..T .CG TGG ATT .CG ... T... ..	[1140]
#K13_insert	...	[1140]
#EF213078.1_isolate_UT76_strain_Karp	AAA GAA TTG TGC TGG TAT TGA CTA TAG GGT AAA AGA TCC TAA TAA TCC TAA TGG GCC TAT	[1200]
#EF213086.1_isolate_UT150_strain_Karp	...	[1200]
#EF213096.1_isolate_UT125_strain_Gilliam	G...A...T...CCC...C.G...C...- -- .G	[1200]
#EF213091.1_isolate_UT144_strain_Gilliam	G...A...T...CCC...C.G...C...- -- .G	[1200]
#M63382.1_strain_Kato	G...A...T...TCC...C.G...- -- .G	[1200]
#EF213078.1_isolate_FFW1038_strain_TA716	...	[1200]
#EF213095.1_isolate_UT302_strainTA763	... AC. G.AT...G...G... -- -- .A G...	[1200]
#K13_insert	...	[1200]
#EF213078.1_isolate_UT76_strain_Karp	GGT TAT AAA TCC GAT ATT GTT AAA TAT TCC ACA GGG TAA CCC TAT TCC TGT TGG AAA TCA	[1260]
#EF213086.1_isolate_UT150_strain_Karp	...	[1260]
#EF213096.1_isolate_UT125_strain_Gilliam	A...TG. G...A. T...A...GC- --- -C A...AA C.T .C. G.C	[1260]
#EF213091.1_isolate_UT144_strain_Gilliam	A...TG. G...A. T...A...GC- --- -C A...AA C.T .C. G.C	[1260]
#M63382.1_strain_Kato	AA .G...AG. GC. A...T...A...C- --- -C G...AA .CC	[1260]
#EF213078.1_isolate_FFW1038_strain_TA716	...	[1260]
#EF213095.1_isolate_UT302_strainTA763	.A. GG...TG. G...T...A...C- --- -C G...C .AA T...C	[1260]
#K13_insert	...	[1260]
#EF213078.1_isolate_UT76_strain_Karp	GCG AGC ACA GCA GCC TGC AGG GTT -TG CGA TAC ATG ACC ATG AGC AAT GGA GGT ATT TGG	[1320]
#EF213086.1_isolate_UT150_strain_Karp	...	[1320]
#EF213096.1_isolate_UT125_strain_Gilliam	TA .C. --- -T. G...A. A.C T.A AC. ... T...GT. .G...AC ...	[1320]
#EF213091.1_isolate_UT144_strain_Gilliam	TA .C. --- -T. G...A. A.C T.A AC. ... T...GT. .G...AC ...	[1320]
#M63382.1_strain_Kato	TA .CA .G- --- CTA ...AC C...G.A GT. ...T.A ...T. .C...C .C .T.	[1320]
#EF213078.1_isolate_FFW1038_strain_TA716	...	[1320]
#EF213095.1_isolate_UT302_strainTA763	AA...G- --- CTA ...AC ...G...AT...T.A .T...T. .C...C ...A.	[1320]
#K13_insert	...	[1320]
#EF213078.1_isolate_UT76_strain_Karp	TAA CTG GTC TTG CTG CAT TAT CAA ATG CTA ATA AAC CTA GCG CTT CTC CTG TCA AAG TAT	[1380]
#EF213086.1_isolate_UT150_strain_Karp	...	[1380]
#EF213096.1_isolate_UT125_strain_Gilliam	.G T...G .A ...G...C...T. T.A ...	[1380]
#EF213091.1_isolate_UT144_strain_Gilliam	.G T...G .A ...G...C...T. T.A ...	[1380]
#M63382.1_strain_Kato	.G T...A .A ...A .G...T...A ...	[1380]
#EF213078.1_isolate_FFW1038_strain_TA716	...	[1380]
#EF213095.1_isolate_UT302_strainTA763	.G T...A ...	[1380]
#K13_insert	...	[1380]
#EF213078.1_isolate_UT76_strain_Karp	TAA GTG ATA AAA TTA CTC AGA TAT ATA GTG ATA TTA AAG CTA TT- GCT GAT ATA GCT GGT	[1440]
#EF213086.1_isolate_UT150_strain_Karp	...	[1440]
#EF213096.1_isolate_UT125_strain_Gilliam	...C...A...GA .A...C...A.G ...AA.	[1440]
#EF213091.1_isolate_UT144_strain_Gilliam	...C...A...GA .A...C...A.G ...AA.	[1440]
#M63382.1_strain_Kato	...A...G TC...C...G .G...CG .T...AGA G... ..	[1440]
#EF213078.1_isolate_FFW1038_strain_TA716	...	[1440]
#EF213095.1_isolate_UT302_strainTA763	...C...T... ..	[1440]
#K13_insert	...	[1440]
#EF213078.1_isolate_UT76_strain_Karp	ATT GAT GTT CCT GAT GCT GGT TTG CCT AAT AGT GCA ACT GTC GAA CAG ATA CAG AAT AAA	[1500]
#EF213086.1_isolate_UT150_strain_Karp	...	[1500]
#EF213096.1_isolate_UT125_strain_Gilliam	.C .A ...CC...T...T...GC... ..	[1500]
#EF213091.1_isolate_UT144_strain_Gilliam	.C .A ...CC...T...T...GC... ..	[1500]
#M63382.1_strain_Kato	...A...AG. .A. CC...T...T...G... ..	[1500]
#EF213078.1_isolate_FFW1038_strain_TA716	...	[1500]
#EF213095.1_isolate_UT302_strainTA763	...A...A...G T...GA... ..	[1500]
#K13_insert	...	[1500]

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#EF213078.1_isolte_UT76_strain_Karp      ATT GAT GTT CCT GAT GCT GGT TTG CCT AAT AGT GCA ACT GTC GAA CAG ATA CAG AAT AAA [1500]
#EF213086.1_isolate_UT150_strain_Karp    ... .. [1500]
#EF213096.1_isolate_UT125_strain_Gilliam ..C ..A ... .. CC. ... .. T. ..T ... .. GC. ... [1500]
#EF213091.1_isolate_UT144_strain_Gilliam ..C ..A ... .. CC. ... .. T. ..T ... .. GC. ... [1500]
#M63382.1_strain_Kato                    ... ..A ... .. AG. ..A CC. ... .. T. ..T ..G ... .. [1500]
#EF213078.1_isolate_FFW1038_strain_TA716 ... .. [1500]
#EF213095.1_isolate_UT302_strainTA763    ... ..A ... .. A. ... .. ..G T. ... .. ..GA ... [1500]
#K13_insert                              ... .. [1500]

#EF213078.1_isolte_UT76_strain_Karp      ATA CAA GAA TTA AAC GAT GTA TTG GAA GAG CTC AGA GAA TCT TTT GAT GGG TAT CTT GGT [1560]
#EF213086.1_isolate_UT150_strain_Karp    ... .. [1560]
#EF213096.1_isolate_UT125_strain_Gilliam ..G G. ... .. .T A. ..A C ... .. ..C- ... .. [1560]
#EF213091.1_isolate_UT144_strain_Gilliam ..G G. ... .. .T A. ..A C ... .. ..C- ... .. [1560]
#M63382.1_strain_Kato                    ..G ... .. ..T ... ..A ... .. .T ... ..A ... .. .C ... ..G. A. ... [1560]
#EF213078.1_isolate_FFW1038_strain_TA716 ... .. [1560]
#EF213095.1_isolate_UT302_strainTA763    ..G ... .. ..T ... .. ..A ... .. .T G. ... .. ..A. AA- ... [1560]
#K13_insert                              ... .. [1560]

#EF213078.1_isolte_UT76_strain_Karp      GGT AAT GCT TTT GCT AAT CAG ATA CAG TTG AAT TTT GTC ATG CCG CAG CAA GCA CAG CAG [1620]
#EF213086.1_isolate_UT150_strain_Karp    ... .. [1620]
#EF213096.1_isolate_UT125_strain_Gilliam --- ... .. ..T ... .. ..T ... ..A ... .. CGG ..T ... --- ... ..G ... ..A [1620]
#EF213091.1_isolate_UT144_strain_Gilliam --- ... .. ..T ... .. ..T ... ..A ... .. CGG ..T ... --- ... ..G ... ..A [1620]
#M63382.1_strain_Kato                    ... .. ..C ... .. ..CG. ..T ... --- ... .. [1620]
#EF213078.1_isolate_FFW1038_strain_TA716 ... .. [1620]
#EF213095.1_isolate_UT302_strainTA763    --- ..C ... ..C ..T. G. ... .. ..C. ... .. [1620]
#K13_insert                              ... .. [1620]

#EF213078.1_isolte_UT76_strain_Karp      CAG --- GGG CAA GGG CAG CAA CAG CAA GCT CAA GCT ACA GCG CAA GAA GCA GTA GCA GCA [1680]
#EF213086.1_isolate_UT150_strain_Karp    ... --- [1680]
#EF213096.1_isolate_UT125_strain_Gilliam ... CAG CAA GG. CA. ..A ..G ... .. .GA ... ..T. ... ..T ... ..T ... ..C. ... ..T [1680]
#EF213091.1_isolate_UT144_strain_Gilliam ... CAG CAA GG. CA. ..A ..G ... .. .GA ... ..T. ... ..T ... ..T ... ..C. ... ..T [1680]
#M63382.1_strain_Kato                    ... GGG CAA GGG CA. ..A ..G ... .. ..C. ..G ... [1680]
#EF213078.1_isolate_FFW1038_strain_TA716 ... --- [1680]
#EF213095.1_isolate_UT302_strainTA763    ... CAG ... .. ..T. ... .. [1680]
#K13_insert                              ... --- [1680]

#EF213078.1_isolte_UT76_strain_Karp      GCA GCT GTT AGG CTT TTA AAT GGC AAT AAT CAG ATT GAG CAG TTA TAT AGA GAT CTT GTT [1740]
#EF213086.1_isolate_UT150_strain_Karp    ... .. [1740]
#EF213096.1_isolate_UT125_strain_Gilliam ... .. GC. ... .. .T ... ..G.A ... .. ATA ... ..A. ... .. [1740]
#EF213091.1_isolate_UT144_strain_Gilliam ... .. GC. ... .. .T ... ..G.A ... .. ATA ... ..A. ... .. [1740]
#M63382.1_strain_Kato                    ... .. G. ... .. AA. ... ..G. ... .. ATA A. ... ..A. ... .. [1740]
#EF213078.1_isolate_FFW1038_strain_TA716 ... .. [1740]
#EF213095.1_isolate_UT302_strainTA763    ... .. G. ... .. .T. ... ..A. ... .. [1740]
#K13_insert                              ... .. [1740]

#EF213078.1_isolte_UT76_strain_Karp      AAA TTG CAG CGT CAT GCA GGA ATT AAG AAA GCG ATG GAA AAA TTA GCT GCC CAA CAA GAA [1800]
#EF213086.1_isolate_UT150_strain_Karp    ... .. [1800]
#EF213096.1_isolate_UT125_strain_Gilliam ... .. ..G. ..G ..T ... ..C. ..G ... ..G. ... [1800]
#EF213091.1_isolate_UT144_strain_Gilliam ... .. ..G. ..G ..T ... ..C. ..G ... ..G. ... [1800]
#M63382.1_strain_Kato                    ... ..A. ... .. ..A ... ..T ... ..G. ..G ... ..T ... ..G.C ..G. [1800]
#EF213078.1_isolate_FFW1038_strain_TA716 ... .. [1800]
#EF213095.1_isolate_UT302_strainTA763    ... .. [1800]
#K13_insert                              G-- --- [1800]

#EF213078.1_isolte_UT76_strain_Karp      GAA GAT GCA AAG AAT CAA GGT GAA GGT GAC TGC AAG CAG CAA CAA GGA GCA TCT GAA AAA [1860]
#EF213086.1_isolate_UT150_strain_Karp    ... .. [1860]
#EF213096.1_isolate_UT125_strain_Gilliam ..GT ... ..AT C.A ... .. ..A AGT T.C A.G GAT ... ..A. ..G ... ..AT. ... ..A. ... ..G.C [1860]
#EF213091.1_isolate_UT144_strain_Gilliam ..GT ... ..AT C.A ... .. ..A AGT T.C A.G GAT ... ..A. ..G ... ..AT. ... ..A. ... ..G.C [1860]
#M63382.1_strain_Kato                    ..GT TG. AAT --- --- ..A ..GT ... ..T AAT ... ..A. ..A.G ..G. ... ..G.C [1860]
#EF213078.1_isolate_FFW1038_strain_TA716 ... .. [1860]
#EF213095.1_isolate_UT302_strainTA763    ... ..C ... .. [1860]
#K13_insert                              --- --- [1860]

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Figure S1. Multiple DNA alignment of 56-kDa type-specific antigen (TSA) gene among varied strains of *O. tsutsugamushi*, i.e., Karp UT76 strain (EF213078.1), Karp UT150 strain (EF213086.1), Gilliam UT125 strain (EF213096.1), Gilliam UT144 strain (EF213091.1), Kato strain (M63382.1), TA716 strain (EF213078.1), TA763 strain (EF213095.1), and K13 clone containing partial gene derived from Karp serotype.