1. Genes used for tree construction

Gene ID	GenBank coordinates	ID used in PubMLST cgMLST scheme
dnaA	(MW2-BA000033-[517:1878])	SAUR0001 (SAR_RS00005)
gyrB	(MW2-BA000033-[5034:6968])	SAUR0005 (SAR_RS00025)
walR	(MW2-BA000033-[24930:25631])	SAUR0020 (SAR_RS00100)
walK	(MW2-BA000033-[25644:27470])	SAUR0021 (SAR_RS00105)
orfX	(MW2-BA000033-[33689:34168])	SAUR0026 (SAR_RS00130)
sarS	(CA347-CP006044-[136199:136951])	
sirB	(MW2-BA000033-[103544:104539])	SAUR0111 (SAR_RS00555)
sbnB	(MW2-BA000033-[106755:107765])	SAUR0114 (SAR_RS00570)
sbnI	(MW2-BA000033-[116231:116995])	SAUR0121 (SAR_RS00605)
rpiRB	(MW2-BA000033-[199250:200128])	
ssaA	(MW2-BA000033-[304578:305480])	
esaB	(N315-BA000018-[330908:331150])	SAUR0284 (SAR_RS01420)
thlA=yqil	(MW2-BA000033-[378859:380040])	SAUR0353 (SAR_RS01765)
rpsR	(MW2-BA000033-[392495:392737])	
nfrA	(MW2-BA000033-[404682:405437])	SAUR0403 (SAR_RS02015)
xpt	(MW2-BA000033-[410879:411457])	SAUR0409 (SAR_RS02045)
pbuX	(MW2-BA000033-[411457:412725])	SAUR0410 (SAR_RS02050)
mpsC=ybcI	(MW2-BA000033-[460582:460944])	SAUR0450 (SAR_RS02250)
yaaK	(N315-BA000018-[504381:504698])	SAUR0477 (SAR_RS02385)
recR	(MW2-BA000033-[490084:490680])	SAUR0478 (SAR_RS02390)
glmU	(MW2-BA000033-[512249:513601])	SAUR0505 (SAR_RS02525)
pth	(MW2-BA000033-[515827:516399])	SAUR0509 (SAR_RS02545)
ctsR	(N315-BA000018-[560629:561090])	SAUR0546 (SAR_RS02730)
mrnC	(N315-BA000018-[572547:572951])	
yacO	(MW2-BA000033-[563521:564267])	SAUR0557 (SAR_RS02785)
secE	(COL-CP000046-[602561:602743])	
rplK	(N315-BA000018-[576117:576539])	SAUR0562 (SAR_RS02810)
rplA	(11819-97-CP003194-[574818:575510])	
rpoC	(MW2-BA000033-[573870:577493])	SAUR0568 (SAR_RS02840)
tuf	(MW2-BA000033-[581352:582536])	SAUR0573 (SAR_RS02865)
thiD1	(11819-97-CP003194-[629476:630306])	SAUR0603 (SAR_RS03015)
pta	(11819-97-CP003194-[636472:637458])	SAUR0611 (SAR_RS03055)
mvaD	(MW2-BA000033-[632126:633109])	SAUR0614 (SAR_RS03070)
mvaK2	(MW2-BA000033-[633122:634198])	SAUR0615 (SAR_RS03075)
A5IQH4	(CA347-CP006044-[681325:681885])	
mrpE	(MW2-BA000033-[671224:671706])	SAUR0651 (SAR_RS03255)
mntB	(N315-BA000018-[681665:682501])	SAUR0659 (SAR_RS03295)
mntA	(CA347-CP006044-[692970:693713])	
mntR	(MW2-BA000033-[678714:679358])	SAUR0661 (SAR_RS03305)
tarH	(MW2-BA000033-[681251:682045])	SAUR0664 (SAR_RS03320)
yxkD	(MW2-BA000033-[691596:692429])	SAUR0673 (SAR_RS03365)
dakL	(MW2-BA000033-[696806:697390])	SAUR0678 (SAR_RS03390)
murB	(N315-BA000018-[791508:792431])	SAUR0806 (SAR_RS04030)
gapA	(MW2-BA000033-[827901:828911])	SAUR0845 (SAR_RS04225)
tpi	(MW2-BA000033-[830362:831123])	SAUR0847 (SAR_RS04235)

Gene ID	GenBank coordinates	ID used in PubMLST cgMLST scheme
secG	(CA347-CP006044-[851386:851619])	
est	(MW2-BA000033-[835290:836030])	SAUR0852 (SAR_RS04260)
ssrP	(MW2-BA000033-[838458:838922])	SAUR0854 (SAR_RS04270)
cspC-L1	(MSHR1132-FR821777-[843125:843325])	
ntrA	(MW2-BA000033-[872472:873011])	SAUR0878 (SAR_RS04390)
metN1	(MW2-BA000033-[877242:878267])	SAUR0886 (SAR_RS04430)
dltD	(N315-BA000018-[901367:902542])	SAUR0914 (SAR_RS04570)
nfuA	(MW2-BA000033-[902717:902938])	
kapB	(MW2-BA000033-[918173:918556])	SAUR0932 (SAR_RS04660)
pgi	(MW2-BA000033-[928831:930162])	SAUR0941 (SAR_RS04705)
sufT=paaD	(MW2-BA000033-[943736:944044])	SAUR0952 (SAR_RS04760)
A6U088	(N315-BA000018-[954670:954855])	SAUR0961 (SAR_RS04805)
fabH	(MW2-BA000033-[955118:956059])	SAUR0962 (SAR_RS04810)
ppnK	(MW2-BA000033-[978805:979614])	SAUR0990 (SAR_RS04950)
ugtP	(MW2-BA000033-[990850:992025])	SAUR1002 (SAR_RS05010)
defB=def1	(MW2-BA000033-[1070556:1071107])	SAUR1086 (SAR_RS05430)
pdhD	(MW2-BA000033-[1075749:1077155])	SAUR1091 (SAR_RS05455)
potD	(MW2-BA000033-[1080993:1082066])	SAUR1097 (SAR_RS05485)
ylbN=Q4L5E0	(11819-97-CP003194-[1137445:1138002])	SAUR1122 (SAR_RS05610)
isdG	(MW2-BA000033-[1113916:1114239])	SAUR1132 (SAR_RS05660)
spoU	(11819-97-CP003194-[1146950:1147690])	SAUR1134 (SAR_RS05670)
mraW=rsmH	(MW2-BA000033-[1156518:1157432])	
gmk	(MW2-BA000033-[1190834:1191457])	SAUR1210 (SAR_RS06050)
rlmN	(11819-97-CP003194-[1232662:1233756])	SAUR1219 (SAR_RS06095)
prkC=pknB	(MW2-BA000033-[1202183:1204177])	SAUR1221 (SAR_RS06105)
rpmB	(RF122-AJ938182-[1174752:1174940])	
yloU	(11819-97-CP003194-[1239905:1240279])	SAUR1226 (SAR_RS06130)
ftsY	(MW2-BA000033-[1220509:1221759])	SAUR1237 (SAR_RS06185)
ylxM	(MW2-BA000033-[1221746:1222078])	SAUR1238 (SAR_RS06190)
rpsP	(N315-BA000018-[1224108:1224383])	SAUR1240 (SAR_RS06200)
tsf	(MW2-BA000033-[1246279:1247160])	SAUR1262 (SAR_RS06310)
pyrH	(MW2-BA000033-[1247297:1248019])	SAUR1263 (SAR_RS06315)
cdsA	(MW2-BA000033-[1249742:1250524])	SAUR1266 (SAR_RS06330)
rbfA	(N315-BA000018-[1263268:1263618])	SAUR1275 (SAR_RS06375)
ribF	(MW2-BA000033-[1264851:1265822])	SAUR1277 (SAR_RS06385)
rpsO	(N315-BA000018-[1265805:1266074])	SAUR1278 (SAR_RS06390)
pgsA	(N315-BA000018-[1278452:1279030])	SAUR1288 (SAR_RS06440)
glpF	(N315-BA000018-[1296691:1297509])	SAUR1303 (SAR_RS06515)
glpK	(MW2-BA000033-[1297775:1299271])	SAUR1304 (SAR_RS06520)
Q99UF3	(N315-BA000018-[1321100:1321288])	SAUR1359 (SAR_RS06795)
alsT	(MW2-BA000033-[1360967:1362427])	SAUR1397 (SAR_RS06985)
msrA1	(MW2-BA000033-[1368327:1368836])	SAUR1402 (SAR_RS07010)
tyrA	(MW2-BA000033-[1371775:1372866])	SAUR1407 (SAR_RS07035)
dapD	(MW2-BA000033-[1405382:1406101])	SAUR1438 (SAR_RS07190)
cspC-L2=msaB	(CA347-CP006044-[1416364:1416564])	
asnS	(MW2-BA000033-[1493287:1494579])	SAUR1498 (SAR_RS07490)
ypiA	(MW2-BA000033-[1503738:1504982])	SAUR1507 (SAR_RS07535)

Gene ID	GenBank coordinates	ID used in PubMLST cgMLST scheme
ndk	(MW2-BA000033-[1509350:1509799])	SAUR1511 (SAR_RS07555)
ubiE	(MW2-BA000033-[1510852:1511577])	SAUR1513 (SAR_RS07565)
ansA	(MW2-BA000033-[1518182:1519150])	SAUR1524 (SAR_RS07620)
xerD	(N315-BA000018-[1536101:1536988])	SAUR1611 (SAR_RS08055)
lpdA	(MW2-BA000033-[1604342:1605763])	SAUR1635 (SAR_RS08175)
xseA	(MW2-BA000033-[1609575:1610912])	SAUR1640 (SAR_RS08200)
efp	(MW2-BA000033-[1614048:1614605])	SAUR1645 (SAR_RS08225)
glk	(N315-BA000018-[1582174:1583160])	SAUR1664 (SAR_RS08320)
sodA-L2	(MW2-BA000033-[1633614:1634213])	SAUR1670 (SAR_RS08350)
dgkA	(N315-BA000018-[1604006:1604350])	SAUR1686 (SAR_RS08430)
prmA	(MW2-BA000033-[1656890:1657828])	SAUR1695 (SAR_RS08475)
dnaK	(11819-97-CP003194-[1688529:1690361])	SAUR1697 (SAR_RS08485)
aroE	(MW2-BA000033-[1673986:1674792])	SAUR1712 (SAR_RS08560)
hisS	(CA347-CP006044-[1711663:1712925])	
yajC	(MRSA252-BX571856-[1784283:1784543])	
ruvA	(11819-97-CP003194-[1751933:1752535])	SAUR1760 (SAR_RS08800)
pheB	(11819-97-CP003194-[1752549:1753007])	
rpmA	(11819-97-CP003194-[1755197:1755481])	SAUR1763 (SAR_RS08815)
DUF464	(MW2-BA000033-[1725961:1726281])	SAUR1764 (SAR_RS08820)
rplT	(N315-BA000018-[1710716:1711072])	SAUR1798 (SAR_RS08990)
rpmI	(N315-BA000018-[1711119:1711319])	SAUR1799 (SAR_RS08995)
infC	(MW2-BA000033-[1750369:1750896])	SAUR1800 (SAR_RS09000)
pykA	(MW2-BA000033-[1773276:1775033])	SAUR1818 (SAR_RS09090)
pfkA	(MW2-BA000033-[1775055:1776023])	SAUR1819 (SAR_RS09095)
accA	(N315-BA000018-[1737273:1738217])	SAUR1820 (SAR_RS09100)
tpx	(MW2-BA000033-[1793401:1793895])	SAUR1834 (SAR_RS09170)
yoxC	(N315-BA000018-[1788940:1789431])	SAUR1866 (SAR_RS09330)
pepA1	(MW2-BA000033-[1834312:1835388])	SAUR1872 (SAR_RS09360)
putA	(MW2-BA000033-[1861651:1862652])	SAUR1898 (SAR_RS09490)
menC	(MW2-BA000033-[1884490:1885491])	SAUR1924 (SAR_RS09620)
hemE	(MW2-BA000033-[1928290:1929327])	SAUR1977 (SAR_RS09885)
prsA2	(MW2-BA000033-[1934731:1935693])	SAUR1985 (SAR_RS09925)
vraR	(MW2-BA000033-[1987314:1987943])	SAUR2061 (SAR_RS10305)
ftnA	(MW2-BA000033-[1996034:1996534])	SAUR2071 (SAR_RS10355)
gatC	(COL-CP000046-[2023183:2023485])	
A6U340	(N315-BA000018-[2000746:2000922])	SAUR2117 (SAR_RS10585)
groL	(MW2-BA000033-[2100933:2102549])	SAUR2199 (SAR_RS10995)
yheS	(MW2-BA000033-[2118912:2120840])	SAUR2217 (SAR_RS11085)
yedJ	(MW2-BA000033-[2171330:2171977])	SAUR2269 (SAR_RS11345)
rpmE	(MSHR1132-FR821777-[2115853:2116107])	
murZ	(MW2-BA000033-[2201005:2202264])	SAUR2307 (SAR_RS11535)
pyrG	(MW2-BA000033-[2204438:2206048])	SAUR2310 (SAR_RS11550)
coaW	(MW2-BA000033-[2208310:2209113])	SAUR2313 (SAR_RS11565)
glmM	(MW2-BA000033-[2245874:2247229])	SAUR2343 (SAR_RS11715)
cdaA=dacA	(MW2-BA000033-[2248190:2248999])	SAUR2345 (SAR_RS11725)
rplM	(N315-BA000018-[2290241:2290678])	SAUR2407 (SAR_RS12035)
rpoA	(MW2-BA000033-[2306516:2307460])	SAUR2415 (SAR_RS12075)

Gene ID	GenBank coordinates	ID used in PubMLST cgMLST scheme
infA	(RF122-AJ938182-[2247044:2247262])	
rplF	(N315-BA000018-[2301007:2301543])	SAUR2426 (SAR_RS12130)
Q5HDQ1	(N315-BA000018-[2361456:2361707])	
panC	(MW2-BA000033-[2680143:2680994])	SAUR2808 (SAR_RS14040)
lqo	(MW2-BA000033-[2690198:2691694])	SAUR2818 (SAR_RS14090)
cudT	(MW2-BA000033-[2700793:2702415])	SAUR2827 (SAR_RS14135)
gpxA-L2	(MW2-BA000033-[2710352:2710849])	SAUR2837 (SAR_RS14185)
estA	(N315-BA000018-[2717418:2718179])	SAUR2850 (SAR_RS14250)
arcR	(MW2-BA000033-[2723477:2724181])	SAUR2852 (SAR_RS14260)
arcC-L2	(MW2-BA000033-[2724280:2725221])	SAUR2853 (SAR_RS14265)
cspC-L3=cspB	(MSHR1132-FR821777-[2754573:2754773])	
rsmG=gidB	(MW2-BA000033-[2815456:2816175])	SAUR2935 (SAR_RS14675)
mnmG=gidA	(MW2-BA000033-[2816175:2818052])	SAUR2936 (SAR_RS14680)
rnpA	(MW2-BA000033-[2819637:2819984])	SAUR2938 (SAR_RS14690)
rpmH	(MRSA252-BX571856-[2902268:2902405])	

2.   Strains used for tree construction

Clonal Complex or Sequence Type	Strain	Accession No.
CC1	MSSA476	BX571857
CC1	MW2	BA000033
CC1	TCH70	ACHH
CC5	04-02981	CP001844
CC5	06BA18369	ARXY
CC5	CIG1150	AHVH
CC5	ED98	CP001781
CC5	JH1	CP000736
CC5	JH9	CP000703
CC5	Mu3	AP009324
CC5	Mu50	BA000017
CC5	N315	BA000018
CC5	Strain 10388	HE579059
CC5	VRS10	AHBT
CC6	PFESA1528	FKTB
CC6	Strain394	JVIV
CC7	Strain 8-2300	CP015646
CC7	TCH959	AASB
CC8	CIG2018	AHVV
CC8	CIG547	AHVQ
CC8	COL	CP000046
CC8	FPR3757	CP000255
CC8	M1	HF937103
CC8	MRSA177	AECP
CC8	NCTC8325	CP000253
CC8	Newman	AP009351
CC8	NRS100	CP007539

CC8	TCH1516	CP000730
CC9	Strain 21334	AGTW
CC10	H19ST10	ACSS
CC12	KLT6	APFH
CC12	Strain 21266	AFTT
CC15	CIGC93	AHVD
CC15	KPL1828	AZJB
CC15	RUH71	NHZV
CC15	VCU006	AGTZ
CC15-ST582	08-02119-	CP015645
CC20	PFESA2437	FKPW
CC22	H-EMRSA-15	CP007659
CC22	HO5096-0412	HE681097
CC22	IS-105	AHLR
CC22	Strain 21310	AFNP
CC25	Strain 21193	AFEG
CC30	68-397	ACJT
CC30	Btn1260	ACUU
CC30	CIG1605	AHKE
CC30	EMRSA16	ADAT
CC30	M876	ACJV
CC30	MRSA252	BX571856
CC30	WBG10049	ACSV
CC45 agr I	A9635	ACKI
CC45 agr I	CA347	CP006044
CC45 agr I	CIG1524	AHVI
CC45 agr IV caps 5	BU N22t6	LFNS
CC45 agr IV caps 8	CIG290	AIES
CC45 agr IV caps 8	Strain 21252	AHJV
CC49	Strain 21262	AHJW
CC49	Tager 104	CP012409
CC49	WT65	CP084107
CC50	Strain 6850	CP006706
CC59	PM1	BAFA
CC59	SA40	CP003604
CC59	SA957	CP003603
CC72	CN1	CP003979
CC72	TCH130	ACHD
CC80	11819-97	CP003194
CC80	Strain 103564	AHZI
CC80	Strain 21333	AHKA
CC88	HST105	AZTH
CC88	Strain 21343	AHKV
CC93	JKD6159	CP002114
CC96	KPL1845	AZJA
CC97	IS-55	AHLN
CC97	Newbould 305	AKYW
CC97	PB32	ANIB

CC101	SA083	JXIE
CC121	93bS9	CP010952
CC121	Strain 21269	AFTU
CC126	Sa1FB	PATRIC128024396
CC130	O11	CP024649
CC133	ED133	CP001996
ST140	Kenyaseq6547225	ERR1764920
ST140	SO-1977	SRR5682128
CC152	55-99-44	CP024998
CC152	BB155-	LN854556
CC188	CUHK HK188	JFFV
CC188	Strain 21340	AGTX
ST291	SA3-LAU	JHDV
CC361	GR1	AJLX
CC361	VH221	AOFX
CC395	Strain 21202	AGRO
CC398	08BA02176	CP003808
CC398	112808A	AHZK
CC398	S0385	AM990992
CC398	S100	AUPV
CC425	LGA251	FR821779
CC479	Strain 685	LRNB
CC599	H11240036	ERR175867
CC692	K12S0375	JYGF
CC705	RF122	AJ938182
CC707	Strain 21235	AFTQ
CC772	CO08	AJKD
CC772	KTY21	AOCQ
CC772	VH60	ALWG
CC779	st2344	FGWF
CC913	H1772	OFVV
CC1153	3688STDY6124889	FQHT
CC1153	Dubai M58	CP065857
CC1290	015H	FMMV
CC1464	ST1464	ANIT
CC1943	H105140339	ERR084755
CC1956	WT19	CP084892
CC2972	SS015	FQIU
ST2990	27-G-H	*this study*
ST2990	HS-MSSA	**VCMW**
ST3268	TXA	SAMN04362246
ST3268	TXB	SAMN04362247
ST4168	16CS0209	*this study*
CC4803	NN50	BAEA
ST7687	01-RR-86	*this study*
ST7688	05-RR-90	*this study*
ST7689	08-G-E	*this study*
ST7690	09-G-F	*this study*

ST7691	13-G-52	*this study*
ST7692	17-H-61	*this study*
ST7693	29-P-01	*this study*
ST7694	40-B-50	*this study*
ST7695	16CS0212	*this study*
ST7745	03-RR-88	*this study*
ST7746	07-G-D	*this study*
ST7747	12-G-51	*this study*
ST7748	15-G-54	*this study*
ST7749	18-H-62	*this study*
ST7750	26-G-G	*this study*
ST7751	28-G-I	*this study*
ST7752	30-P-10	*this study*
ST7753	32-T-13	*this study*
ST7754	39-B-49	*this study*
S. argenteus **CC1223**	M051	*CCEN*
S. argenteus **CC1850**	MSHR1132	FR821777
S. argenteus **CC2198**	M260	CCEF
S. argenteus **CC2250**	F87619	JGHK
S. argenteus **CC2250**	M21126	JGMK
S. argenteus **CC2596**	H115100079	CCEP
S. argenteus **CC4587**	JABA32044V6S1	CCEE
S. roterodami **ST3963**	BDS-54	CP092782
S. roterodami **ST4326**	BDS-53E	CP092783
S. roterodami/singaporensis **ST6107**	SS60	JABWHF
S. roterodami/singaporensis **ST6109**	SS90	JABWHD
S. roterodami **ST6999**	EMCR19	CAJGUT
S. roterodami **ST7342**	Zoo28	CP092781.1
S. schweitzeri **CC2059**	FSCB1B	CCEG
S. schweitzeri **ST (206 303 253 142 196 202 197)**	FSA090	CCEO
S. schweitzeri **ST1872**	FSA037	CCEH
S. schweitzeri **ST2022**	FSA084	CCEL
S. schweitzeri **ST2058**	FSCB5	CCEQ
S. schweitzeri **ST2074**	FSA096	CCEK