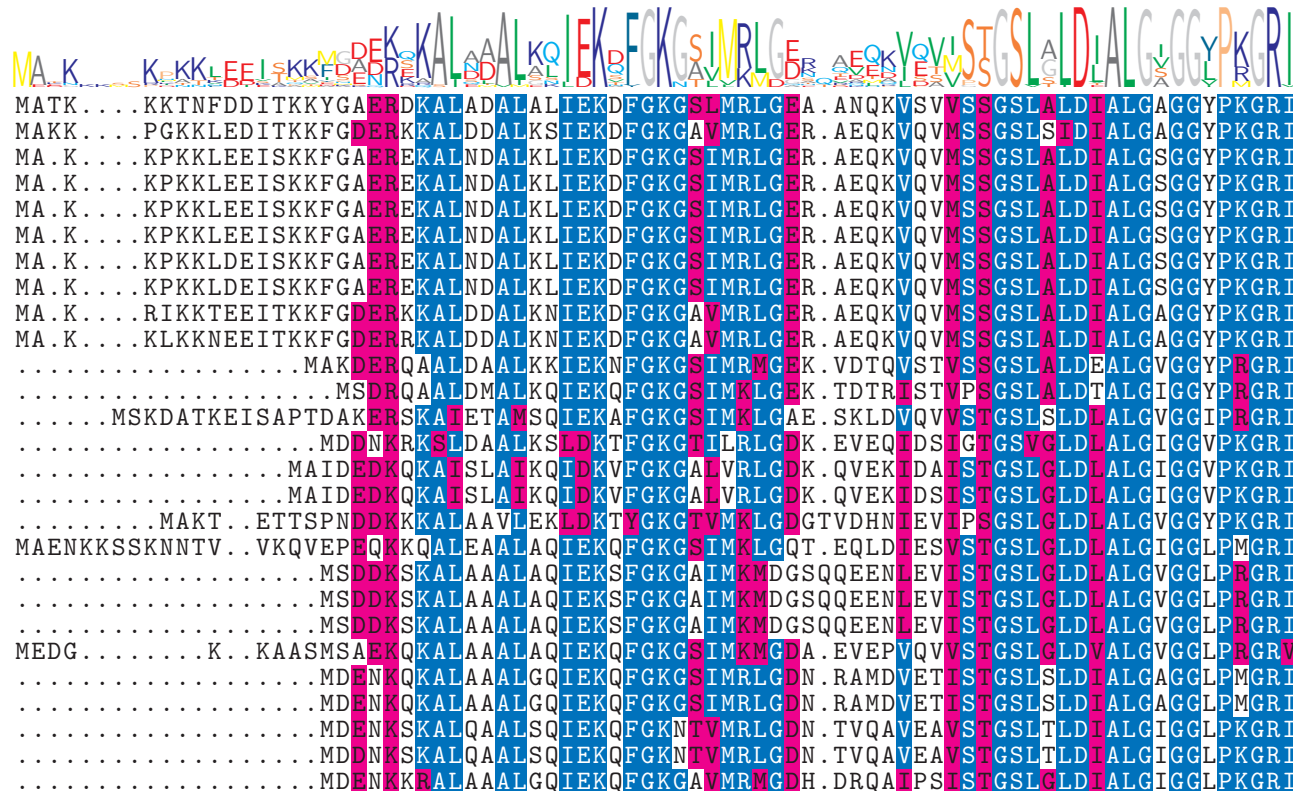


logo

NTDB id 600 KW2 RS01765 WP 011675413.1  
 NTDB id 56208 L6411 RS00420 WP 024532325.1  
 NTDB id 269 KZH43 RS08665 WP 001085462.1  
 NTDB id 228 SPD RS09265 WP 001085462.1  
 NTDB id 194 SPR RS08825 WP 001085462.1  
 NTDB id 159 SP RS09750 WP 001085462.1  
 NTDB id 527 SMSK321 RS11065 WP 001085454.1  
 NTDB id 499 SM12261 RS08315 WP 078228268.1  
 NTDB id 408 SMU RS09530 WP 002262392.1  
 NTDB id 453 Spy49 1753c ACI62003.1  
 NTDB id 625 LCA RS02525 WP 011374196.1  
 NTDB id 115 BSU 16940 NP 389576.2  
 NTDB id 1313 DR RS12030 WP 010888966.1  
 NTDB id 1245 Cj1673c YP 002345041.1  
 NTDB id 1214 NCTC11637 00359 SQJ03206.1  
 NTDB id 1211 C694 RS00795 WP 000963128.1  
 NTDB id 1334 RAOC RS04870 WP 004918236.1  
 NTDB id 1389 A4U84 RS07560 WP 021112712.1  
 NTDB id 1130 NGFG RS03960 WP 003688695.1  
 NTDB id 1124 NGFG RS03960 WP 003688695.1  
 NTDB id 1123 OK783 RS03845 WP 003688695.1  
 NTDB id 1427 RS RS02760 WP 011000510.1  
 NTDB id 1165 A1552VC RS01565 WP 000344154.1  
 NTDB id 1142 GTF74 RS11550 WP 000344154.1  
 NTDB id 1074 ABD1 RS10195 WP 000344167.1  
 NTDB id 1022 ACIAD RS06390 WP 004925639.1  
 NTDB id 1205 PSJM300 05545 AFN77183.1

consensus



75  
75  
74  
74  
74  
74  
74  
74  
74  
74  
74  
74  
61  
59  
73  
60  
62  
62  
69  
77  
61  
61  
61  
69  
60  
60  
60  
60  
60

\*\*\* \*\* \* \*! \*!\*\*\*\*\* \* \*\*\*!\*\*\*\*!! !! !!!!!



logo



NTDB id 600 KW2 RS01765 WP 011675413.1	V	I	D	S	V	A	A	L	V	P	K	A	E	I	D	G	E	I	G	D	S	S	V	G	L	Q	A	R	M	M	S	Q	A	M	R	K	L	A	G	H	I	N	K	T	K	T	T	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	S	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	S	234
NTDB id 56208 L6411 RS00420 WP 024532325.1	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	M	S	Q	A	M	R	K	L	S	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	S	234	
NTDB id 269 KZH43 RS08665 WP 001085462.1	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	S	233	
NTDB id 228 SPD RS09265 WP 001085462.1	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	S	233	
NTDB id 194 SPR RS08825 WP 001085462.1	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	S	233	
NTDB id 159 SP RS09750 WP 001085462.1	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	S	233	
NTDB id 527 SMSK321 RS11065 WP 001085454.1	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	S	233	
NTDB id 499 SM12261 RS08315 WP 078228268.1	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	S	233	
NTDB id 408 SMU RS09530 WP 002262392.1	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	M	S	Q	A	M	R	K	L	S	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	I	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	S	S	233	
NTDB id 453 Spy49 1753c ACI62003.1	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	M	S	Q	A	M	R	K	L	S	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	S	233	
NTDB id 625 LCA RS02525 WP 011374196.1	V	V	D	S	V	A	A	L	V	P	R	A	E	I	E	G	E	M	G	D	A	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	S	G	T	I	N	K	T	K	T	I	A	L	F	I	N	Q	I	R	E	K	V	G	V	M	.	F	G	N	P	E	V	T	P	G	G	R	A	L	K	F	Y	S	T	220
NTDB id 115 BSU 16940 NP 389576.2	V	V	D	S	V	A	A	L	V	P	K	A	E	I	E	G	D	M	G	D	S	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	S	G	A	I	N	K	S	K	T	I	A	I	F	I	N	Q	I	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	S	S	218
NTDB id 1313 DR RS12030 WP 010888966.1	V	V	D	S	V	A	A	L	T	P	R	A	E	I	E	G	D	M	G	D	S	L	P	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	A	I	L	S	K	T	G	T	A	A	I	F	I	N	Q	V	R	E	K	I	G	V	M	.	Y	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	S	232
NTDB id 1245 Cj1673c YP 002345041.1	V	V	D	S	V	A	A	L	T	P	K	A	E	I	E	G	D	M	G	D	Q	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	G	I	V	H	K	M	N	T	T	V	I	F	I	N	Q	I	R	M	K	I	G	A	M	G	Y	G	T	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	S	220
NTDB id 1214 NCTC11637 00359 SQJ03206.1	V	V	D	S	V	A	A	L	T	P	K	A	E	I	D	G	M	G	D	Q	H	V	G	L	Q	A	R	L	M	S	H	A	L	R	K	I	T	G	V	L	H	K	M	N	T	T	L	I	F	I	N	Q	I	R	M	K	I	G	M	G	Y	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	S	222		
NTDB id 1211 C694 RS00795 WP 000963128.1	V	V	D	S	V	A	A	L	T	P	K	A	E	I	D	G	M	G	D	Q	H	V	G	L	Q	A	R	L	M	S	H	A	L	R	K	I	T	G	V	L	H	K	M	N	T	T	L	I	F	I	N	Q	I	R	M	K	I	G	M	G	Y	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	S	222		
NTDB id 1334 RAOC RS04870 WP 004918236.1	V	V	D	S	V	A	A	L	T	P	K	A	E	I	D	G	M	G	D	S	K	M	G	L	H	A	R	L	M	S	Q	A	L	R	K	L	T	S	S	I	S	K	T	K	T	V	I	F	I	N	Q	L	R	D	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	S	228		
NTDB id 1389 A4U84 RS07560 WP 021112712.1	I	V	D	S	V	A	A	L	T	P	K	A	E	I	E	G	D	M	G	D	S	H	M	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	A	N	I	K	N	T	N	C	L	V	V	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	N	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	S	236
NTDB id 1130 NGFG RS03960 WP 003688695.1	V	V	D	S	V	A	A	L	V	P	K	A	E	I	E	G	D	M	G	D	S	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	G	H	I	K	T	N	T	L	V	V	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	S	S	220	
NTDB id 1124 NGFG RS03960 WP 003688695.1	V	V	D	S	V	A	A	L	V	P	K	A	E	I	E	G	D	M	G	D	S	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	G	H	I	K	T	N	T	L	V	V	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	S	S	220	
NTDB id 1123 OK783 RS03845 WP 003688695.1	V	V	D	S	V	A	A	L	V	P	K	A	E	I	E	G	D	M	G	D	S	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	G	H	I	K	T	N	T	L	V	V	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	S	S	220	
NTDB id 1427 RS RS02760 WP 011000510.1	V	I	D	S	V	A	A	L	V	P	K	A	E	I	E	G	E	M	G	D	A	L	P	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	G	T	I	K	R	T	N	C	L	V	I	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	S	228
NTDB id 1165 A1552VC RS01565 WP 000344154.1	V	V	D	S	V	A	A	L	T	P	K	A	E	I	E	G	E	M	G	D	S	H	M	G	L	Q	A	R	M	L	S	Q	A	M	R	K	L	T	G	N	L	K	Q	S	N	C	M	C	I	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	N	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	S	219
NTDB id 1142 GTF74 RS11550 WP 000344154.1	V	V	D	S	V	A	A	L	T	P	K	A	E	I	E	G	E	M	G	D	S	H	M	G	L	Q	A	R	M	L	S	Q	A	M	R	K	L	T	G	N	L	K	Q	S	N	C	M	C	I	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	N	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	S	219
NTDB id 1074 ABD1 RS10195 WP 000344167.1	V	V	D	S	V	A	A	L	T	P	K	A	E	I	E	G	E	M	G	D	S	H	M	G	L	Q	A	R	L	M	S	Q	A	L	R	K	I	T	G	N	A	K	R	S	N	C	M	V	I	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	S	219
NTDB id 1022 ACIAD RS06390 WP 004925639.1	V	V	D	S	V	A	A	L	T	P	K	A	E	I	E	G	E	M	G	D	S	H	M	G	L	Q	A	R	L	M	S	Q	A	L	R	K	I	T	G	N	A	K	R	S	N	C	M	V	I	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	S	219
NTDB id 1205 PSJM300 05545 AFN77183.1	I	V	D	S	V	A	A	L	V	P	K	A	E	I	E	G	E	M	G	D	A	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	I	T	G	N	I	K	N	A	N	C	L	V	I	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	S	219



logo



NTDB id 600 KW2 RS01765 WP 011675413.1	EKIGQGA	EKAKNYLKEHQDVFDEIDHKVRAAHGL	LLDDSEVAETEE	ETTAS	KTAKAKK	EEKAVETEE	IELELED	387	
NTDB id 56208 L6411 RS00420 WP 024532325.1	EKIGQGS	ENAKKFLADHPTIFEEIDRKIRIHYGL	IEEESGSTEVI	ED	PTFEGQ	DVILDLDGG	375		
NTDB id 269 KZH43 RS08665 WP 001085462.1	EKIGQGS	ENAKKYLAEHPEIFDEIDKQVRSKFG	LIDGEEVSEQDT	ENK	DEPK	EEAVNEEVPLDLGDE	381		
NTDB id 228 SPD RS09265 WP 001085462.1	EKIGQGS	ENAKKYLAEHPEIFDEIDKQVRSKFG	LIDGEEVSEQDT	ENK	DEPK	EEAVNEEVPLDLGDE	381		
NTDB id 194 SPR RS08825 WP 001085462.1	EKIGQGS	ENAKKYLAEHPEIFDEIDKQVRSKFG	LIDGEEVSEQDT	ENK	DEPK	EEAVNEEVPLDLGDE	381		
NTDB id 159 SP RS09750 WP 001085462.1	EKIGQGS	ENAKKYLAEHPEIFDEIDKQVRSKFG	LIDGEEVSEQDT	ENK	DEPK	EEAVNEEVPLDLGDE	381		
NTDB id 527 SMSK321 RS11065 WP 001085454.1	EKIGQGS	ENAKKYLADNPEVFAEIDHQVVRVQFGL	LIDGEEAAE	SKK	DEVA	QVDSVNEEVTLDLGDE	377		
NTDB id 499 SM12261 RS08315 WP 078228268.1	EKIGQGS	ENAKKYLADNPEIFDEIDHQVVRVQFGL	LIDGEEIAE	SKK	DEAA	QVDSVNEEVTLDLGDE	377		
NTDB id 408 SMU RS09530 WP 002262392.1	EKIGQGS	ENAKKFLADNPEIFDDIDHKVVRVQYGL	IEEDNTEEKQS	SKEK	DEKADK	NLVLELDDT	378		
NTDB id 453 Spy49 1753c ACI62003.1	EKIGQGS	ENAKRYLADHPQLFDEIDRKVVRVQFGL	LEESEEEESAMA	VASE	TDDL	LALDLNNG	373		
NTDB id 625 LCA RS02525 WP 011374196.1	ERIGQGR	ENAKNYLADHEDVEDEVRLKVRAAAYGIS	SDVPEEDLPTT	EDE	QINI	LPDDS	352		
NTDB id 115 BSU 16940 NP 389576.2	ERLGQGR	ENAKQLFKENKDIMLMIQEIQREHYGL	DNNGVVQQQAE	ETQE	LEF	EE	348		
NTDB id 1313 DR RS12030 WP 010888966.1	ERIGQG	KEKTIAYIAERPEMEQEIRDRVMAAIRAG	NAGEAPALAPAPAPEAAEA	363					
NTDB id 1245 Cj1673c YP 002345041.1	KKLGQGR	ENSKAFLKENPEIADEITKAIQNSMGI	EGMI	SG	SEDDE	GEE	343		
NTDB id 1214 NCTC11637 00359 SQJ03206.1	KKLGQGR	ENAKALLKEDKALADEITLTKESIGS	NEEI	MPL	PDEP	LEEME	347		
NTDB id 1211 C694 RS00795 WP 000963128.1	KKLGQGR	ENAKALLKEDKALADEITLTKESIGS	NEEI	MPL	PDEP	LEEME	347		
NTDB id 1334 RAOC RS04870 WP 004918236.1	TKLGQGR	RDTVKELTKDNPELAELEAKIREKLQAK	343						
NTDB id 1389 A4U84 RS07560 WP 021112712.1	TKIGQG	KNNAVKWLKENPEIADKLEQEIRNTLAS	SNPNS	VL	KATASDSND	ESDV	EEFSEEL	372	
NTDB id 1130 NGFG RS03960 WP 003688695.1	AKIGQG	KDNVRVWLKENPEISDEIDAKIRALNG	VEMHI	TEGT	QDET	GERPEE	348		
NTDB id 1124 NGFG RS03960 WP 003688695.1	AKIGQG	KDNVRVWLKENPEISDEIDAKIRALNG	VEMHI	TEGT	QDET	GERPEE	348		
NTDB id 1123 OK783 RS03845 WP 003688695.1	AKIGQG	KDNVRVWLKENPEISDEIDAKIRALNG	VEMHI	TEGT	QDET	GERPEE	348		
NTDB id 1427 RS RS02760 WP 011000510.1	ERIGQGR	DNCREFLRENAELAREIENKVRHLGV	TPMG	AV	TLAEEVEED	352			
NTDB id 1165 A1552VC RS01565 WP 000344154.1	DKIGQG	KANACKYLLKENPEIAKTLDKKLR	REMLLNPNEM	QL	IAETSSAAD	DVEF	GAVPEEF	354	
NTDB id 1142 GTF74 RS11550 WP 000344154.1	DKIGQG	KANACKYLLKENPEIAKTLDKKLR	REMLLNPNEM	QL	IAETSSAAD	DVEF	GAVPEEF	354	
NTDB id 1074 ABD1 RS10195 WP 000344167.1	NKIGQG	KNNVIRYFEENNQIAEEIERNIRE	QLLTTGTN	GAV	Q	IEDEE	EPD	LLLES	349
NTDB id 1022 ACIAD RS06390 WP 004925639.1	NKIGQG	KNNVIRYLEENPQISTEIEAVIRE	QLLTKASD	QTAA	HDETEE	EPD	LLES	349	
NTDB id 1205 PSJM300 05545 AFN77183.1	SKIGQG	KANAACKYLEENPEIGQIEIQQLRAK	LLVTSAN	TKAT	PVAEDLADAD	I	347		

consensus




\*\*!!!\*\*\*\*\* \*\* \* \*\*\* \*\*\*\*\* \*\* \*  
 \*

logo

LEIEEE

NTDB id 600 KW2 RS01765 WP 011675413.1	.....	387
NTDB id 56208 L6411 RS00420 WP 024532325.1	IELEE..	380
NTDB id 269 KZH43 RS08665 WP 001085462.1	LEIEIEE	388
NTDB id 228 SPD RS09265 WP 001085462.1	LEIEIEE	388
NTDB id 194 SPR RS08825 WP 001085462.1	LEIEIEE	388
NTDB id 159 SP RS09750 WP 001085462.1	LEIEIEE	388
NTDB id 527 SMSK321 RS11065 WP 001085454.1	LEIEIEE	384
NTDB id 499 SM12261 RS08315 WP 078228268.1	LEIEIEE	384
NTDB id 408 SMU RS09530 WP 002262392.1	IELED..	383
NTDB id 453 Spy49 1753c ACI62003.1	IEIED..	378
NTDB id 625 LCA RS02525 WP 011374196.1	TEE....	355
NTDB id 115 BSU 16940 NP 389576.2	.....	348
NTDB id 1313 DR RS12030 WP 010888966.1	.....	363
NTDB id 1245 Cj1673c YP 002345041.1	.....	343
NTDB id 1214 NCTC11637 00359 SQJ03206.1	.....	347
NTDB id 1211 C694 RS00795 WP 000963128.1	.....	347
NTDB id 1334 RAOC RS04870 WP 004918236.1	.....	343
NTDB id 1389 A4U84 RS07560 WP 021112712.1	.....	372
NTDB id 1130 NGFG RS03960 WP 003688695.1	.....	348
NTDB id 1124 NGFG RS03960 WP 003688695.1	.....	348
NTDB id 1123 OK783 RS03845 WP 003688695.1	.....	348
NTDB id 1427 RS RS02760 WP 011000510.1	.....	352
NTDB id 1165 A1552VC RS01565 WP 000344154.1	.....	354
NTDB id 1142 GTF74 RS11550 WP 000344154.1	.....	354
NTDB id 1074 ABD1 RS10195 WP 000344167.1	.....	349
NTDB id 1022 ACIAD RS06390 WP 004925639.1	.....	349
NTDB id 1205 PSJM300 05545 AFN77183.1	.....	347

consensus

 non conserved  
 similar  
 ≥ 50% conserved