





logo



NTDB id 600 KW2 RS01765 WP 011675413.1	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	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	V	235	
NTDB id 269 KZH43 RS08665 WP 001085462.1	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	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	V	234		
NTDB id 228 SPD RS09265 WP 001085462.1	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	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	V	234		
NTDB id 194 SPR RS08825 WP 001085462.1	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	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	V	234		
NTDB id 159 SP RS09750 WP 001085462.1	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	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	V	234		
NTDB id 499 SM12261 RS08315 WP 078228268.1	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	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	V	234		
NTDB id 527 SMSK321 RS11065 WP 001085454.1	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	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	V	234		
NTDB id 408 SMU RS09530 WP 002262392.1	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	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	V	234		
NTDB id 453 Spy49 1753c ACI62003.1	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	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	V	234		
NTDB id 115 BSU 16940 NP 389576.2	V	D	S	V	A	A	L	V	P	K	A	E	I	D	G	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	L	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	V	219	
NTDB id 625 LCA RS02525 WP 011374196.1	V	D	S	V	A	A	L	V	P	R	A	E	I	D	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	L	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	V	221
NTDB id 1313 DR RS12030 WP 010888966.1	V	D	S	V	A	A	L	T	P	R	A	E	I	D	G	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	L	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	V	233	
NTDB id 1245 Cj1673c YP 002345041.1	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	Q	A	L	R	K	L	T	G	I	V	H	K	M	N	T	T	V	I	F	I	N	Q	L	R	M	K	I	G	A	M	G	Y	G	T	P	E	T	T	P	G	G	N	A	L	K	F	Y	A	S	V	221	
NTDB id 1214 NCTC11637 00359 SQJ03206.1	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	L	R	M	K	I	G	M	M	G	Y	G	S	P	E	T	T	P	G	G	N	A	L	K	F	Y	A	S	V	223	
NTDB id 1211 C694 RS00795 WP 000963128.1	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	L	R	M	K	I	G	M	M	G	Y	G	S	P	E	T	T	P	G	G	N	A	L	K	F	Y	A	S	V	223	
NTDB id 1334 RAOC RS04870 WP 004918236.1	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	C	T	V	I	F	I	N	Q	L	R	D	K	I	G	V	M	.	F	G	S	P	E	T	T	P	G	G	N	A	L	K	F	Y	A	S	V	229	
NTDB id 1105888 ACNFJ7 RS04590 WP 019369408.1	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	E	M	G	D	S	H	V	G	L	Q	A	R	L	M	S	Q	S	L	R	K	L	T	G	S	I	S	R	S	R	C	M	V	I	F	I	N	Q	L	R	M	K	I	G	V	M	.	Y	G	N	P	E	T	T	P	G	G	N	A	L	K	F	Y	A	S	V	233
NTDB id 1389 A4U84 RS07560 WP 021112712.1	V	D	S	V	A	A	L	T	P	K	A	E	I	D	G	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	L	R	M	K	I	G	V	M	.	F	G	N	P	E	T	T	P	G	G	N	A	L	K	F	Y	A	S	V	237	
NTDB id 1130 NGFG RS03960 WP 003688695.1	V	D	S	V	A	A	L	V	P	K	A	E	I	D	G	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	L	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	P	G	G	N	A	L	K	F	Y	S	S	V	221		
NTDB id 1124 NGFG RS03960 WP 003688695.1	V	D	S	V	A	A	L	V	P	K	A	E	I	D	G	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	L	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	P	G	G	N	A	L	K	F	Y	S	S	V	221		
NTDB id 1123 OK783 RS03845 WP 003688695.1	V	D	S	V	A	A	L	V	P	K	A	E	I	D	G	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	L	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	P	G	G	N	A	L	K	F	Y	S	S	V	221		
NTDB id 1427 RS RS02760 WP 011000510.1	I	D	S	V	A	A	L	V	P	K	A	E	I	D	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	L	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	P	G	G	N	A	L	K	F	Y	A	S	V	229
NTDB id 1165 A1552VC RS01565 WP 000344154.1	V	D	S	V	A	A	L	T	P	K	A	E	I	D	G	E	M	G	D	S	H	M	G	L	Q	A	R	L	S	Q	A	M	R	K	L	T	G	N	L	K	Q	S	N	C	M	C	I	F	I	N	Q	L	R	M	K	I	G	V	M	.	F	G	N	P	E	T	T	P	G	G	N	A	L	K	F	Y	A	S	V	220	
NTDB id 1142 GTF74 RS11550 WP 000344154.1	V	D	S	V	A	A	L	T	P	K	A	E	I	D	G	E	M	G	D	S	H	M	G	L	Q	A	R	L	S	Q	A	M	R	K	L	T	G	N	L	K	Q	S	N	C	M	C	I	F	I	N	Q	L	R	M	K	I	G	V	M	.	F	G	N	P	E	T	T	P	G	G	N	A	L	K	F	Y	A	S	V	220	
NTDB id 1205 PSJM300 05545 AFN77183.1	V	D	S	V	A	A	L	V	P	K	A	E	I	D	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	L	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	P	G	G	N	A	L	K	F	Y	A	S	V	220
NTDB id 1022 ACIAD RS06390 WP 004925639.1	V	D	S	V	A	A	L	T	P	K	A	E	I	D	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	L	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	P	G	G	N	A	L	K	F	Y	A	S	V	220
NTDB id 1074 ABD1 RS10195 WP 000344167.1	V	D	S	V	A	A	L	T	P	K	A	E	I	D	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	L	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	P												



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NTDB id 600 KW2 RS01765 WP 011675413.1	KIGQGAEKAKNYLKEHQDVFEIDHKVRAAHGLDDSEVAETEEETTASKTAKAKKKEEKAVETEEIELELED.....	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	KIGQGSENAKKYLAEHPEIFDEIDKQVRSKFGIDGEEVSEQDTENKKDE...PKKEEA..VNEEVPLDLGDELEIEIE	387
NTDB id 228 SPD RS09265 WP 001085462.1	KIGQGSENAKKYLAEHPEIFDEIDKQVRSKFGIDGEEVSEQDTENKKDE...PKKEEA..VNEEVPLDLGDELEIEIE	387
NTDB id 194 SPR RS08825 WP 001085462.1	KIGQGSENAKKYLAEHPEIFDEIDKQVRSKFGIDGEEVSEQDTENKKDE...PKKEEA..VNEEVPLDLGDELEIEIE	387
NTDB id 159 SP RS09750 WP 001085462.1	KIGQGSENAKKYLAEHPEIFDEIDKQVRSKFGIDGEEVSEQDTENKKDE...PKKEEA..VNEEVPLDLGDELEIEIE	387
NTDB id 499 SM12261 RS08315 WP 078228268.1	KIGQGSENAKKYLADNPEIFDEIDHQVVRVQFGLIDGEEIAES...KKDE...AAQVDS..VNEEVTLDLGDELEIEIE	383
NTDB id 527 SMSK321 RS11065 WP 001085454.1	KIGQGSENAKKYLADNPEVFAEIDHQVVRVQFGLIDGEEAAES...KKDE...VAQVDS..VNEEVTLDLGDELEIEIE	383
NTDB id 408 SMU RS09530 WP 002262392.1	KIGQGSENAKKFLADNPEIFDDIDHKVVRVQYGLIEEDNTEEKQSSKEK.....ETDEK..ADKNLVLELDDTIELED.	383
NTDB id 453 Spy49 1753c ACI62003.1	KIGQGSENAKRYLADHPQLFDEIDRKVVRVQFGLLEESEESAMAVASE.....E.....TDDLALDLNGIEIED.	378
NTDB id 115 BSU 16940 NP 389576.2	RLGQGRENAKQFLKENKDIMLMIQEIQREHYGLDNNGVVQQAEETQEEL.EFE.E.....	348
NTDB id 625 LCA RS02525 WP 011374196.1	RIGQGRENAKNYLADHEDVEDEVRLKVRVRAAYGISDVPEEDLPTTEDE.QI.NILPDDST.....EE.....	355
NTDB id 1313 DR RS12030 WP 010888966.1	RIGQGKEKTIAYIAERPMEQEIRDRVMAAIRAGNAGEAPALA...PAPA...APE...AAEA.....	363
NTDB id 1245 Cj1673c YP 002345041.1	KLGGGRENASKAFLKENPEIADEITKAIQNSMGTIEGMISGSEDD.....E.....GEE.....	343
NTDB id 1214 NCTC11637 00359 SQJ03206.1	KLGGGRENAKALLKEDKALADEITLTKIKESIGSNEEIMPLPDE.....P.....LEE..M.E.....	347
NTDB id 1211 C694 RS00795 WP 000963128.1	KLGGGRENAKALLKEDKALADEITLTKIKESIGSNEEIMPLPDE.....P.....LEE..M.E.....	347
NTDB id 1334 RAOC RS04870 WP 004918236.1	KLGGGRDITVKELIKDNPELAEELEAKIREKLQAK.....	343
NTDB id 1105888 ACNFJ7 RS04590 WP 019369408.1	RIGQGRENAKNFLRENSEVCDRLEAAIRGRTEQVAEGLMAGPE...PDDD...I.....	356
NTDB id 1389 A4U84 RS07560 WP 021112712.1	KIGQGXNNAVKWLKENPEIADKLEQEI RNTLASNPNSVLKATASDSNDESD...VEE..FSEEEL.....	372
NTDB id 1130 NGFG RS03960 WP 003688695.1	KIGQGKDNVRVWLKENPEISDEIDAKIRALNGVEMHITEGT.....QDET...DGE..RPEE.....	348
NTDB id 1124 NGFG RS03960 WP 003688695.1	KIGQGKDNVRVWLKENPEISDEIDAKIRALNGVEMHITEGT.....QDET...DGE..RPEE.....	348
NTDB id 1123 OK783 RS03845 WP 003688695.1	KIGQGKDNVRVWLKENPEISDEIDAKIRALNGVEMHITEGT.....QDET...DGE..RPEE.....	348
NTDB id 1427 RS RS02760 WP 011000510.1	RIGQGRDNCREFLRENAREIENKVRHLGVTPMGAV.TLAEEVEED.....	352
NTDB id 1165 A1552VC RS01565 WP 000344154.1	KIGQGKANACKYLKENPEIAKTLDKKLREMLLNPNMQLIAETSSAADDVE...FGA..VPEEF.....	354
NTDB id 1142 GTF74 RS11550 WP 000344154.1	KIGQGKANACKYLKENPEIAKTLDKKLREMLLNPNMQLIAETSSAADDVE...FGA..VPEEF.....	354
NTDB id 1205 PSJM300 05545 AFN77183.1	KIGQGKANAAKYLEENPEIGQETIEQQIRAKLLVTSANTKATPVAEDLADAD...I.....	347
NTDB id 1022 ACIAD RS06390 WP 004925639.1	KIGQGXNNVIRYLEENPQISTEIEAVIREQLLTKASDQTAH.DETEEEPD...LL...ES.....	349
NTDB id 1074 ABD1 RS10195 WP 000344167.1	KIGQGXNNVIRYFENNQIAEIEIERNIREQLLTTGTNGAVQ.I.EDEEFPD...LL...LES.....	349
consensus	**!!!***** ** ***** ***** ** ** *	

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NTDB id 600 KW2 RS01765 WP 011675413.1	.	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	E	388
NTDB id 228 SPD RS09265 WP 001085462.1	E	388
NTDB id 194 SPR RS08825 WP 001085462.1	E	388
NTDB id 159 SP RS09750 WP 001085462.1	E	388
NTDB id 499 SM12261 RS08315 WP 078228268.1	E	384
NTDB id 527 SMSK321 RS11065 WP 001085454.1	E	384
NTDB id 408 SMU RS09530 WP 002262392.1	.	383
NTDB id 453 Spy49 1753c ACI62003.1	.	378
NTDB id 115 BSU 16940 NP 389576.2	.	348
NTDB id 625 LCA RS02525 WP 011374196.1	.	355
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 1105888 ACNFJ7 RS04590 WP 019369408.1	.	356
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 1205 PSJM300 05545 AFN77183.1	.	347
NTDB id 1022 ACIAD RS06390 WP 004925639.1	.	349
NTDB id 1074 ABD1 RS10195 WP 000344167.1	.	349

consensus

non conserved  
 similar  
  $\geq 50\%$  conserved