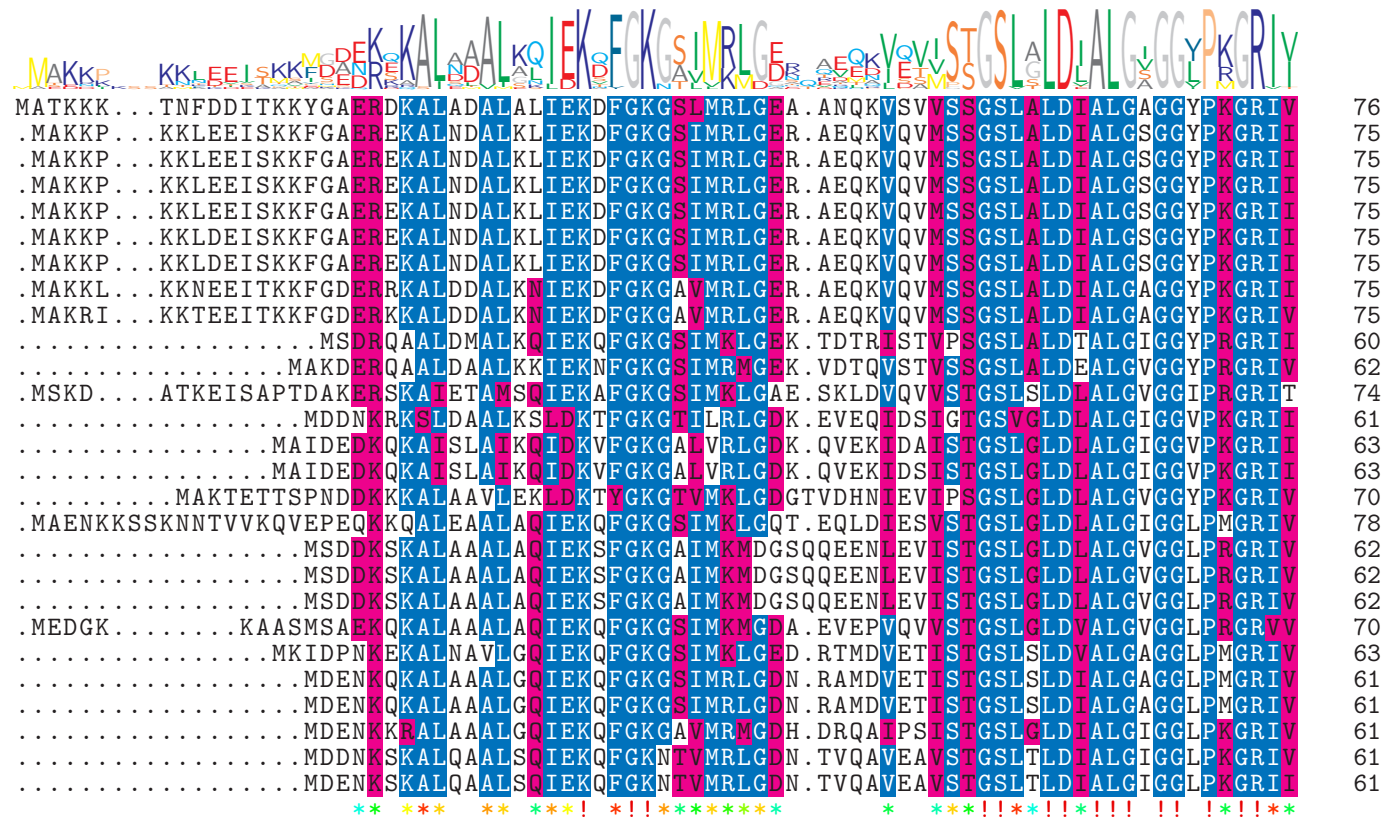


```

NTDB id 600 KW2 RS01765 WP 011675413.1
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 453 Spy49 1753c ACI62003.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 115 BSU 16940 NP 389576.2
NTDB id 625 LCA RS02525 WP 011374196.1
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 330197 ELY89 RS14285 WP 025011663.1
NTDB id 1165 A1552VC RS01565 WP 000344154.1
NTDB id 1142 GTF74 RS11550 WP 000344154.1
NTDB id 1205 PSJM300 05545 AFN77183.1
NTDB id 1022 ACIAD RS06390 WP 0004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
consensus

```



```

NTDB id 600 KW2 RS01765 WP 011675413.1
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 453 Spy49 1753c ACI62003.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 115 BSU 16940 NP 389576.2
NTDB id 625 LCA RS02525 WP 011374196.1
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 330197 ELY89 RS14285 WP 025011663.1
NTDB id 1165 A1552VC RS01565 WP 000344154.1
NTDB id 1142 GTF74 RS11550 WP 000344154.1
NTDB id 1205 PSJM300 05545 AFN77183.1
NTDB id 1022 ACIAD RS06390 WP 0004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
consensus

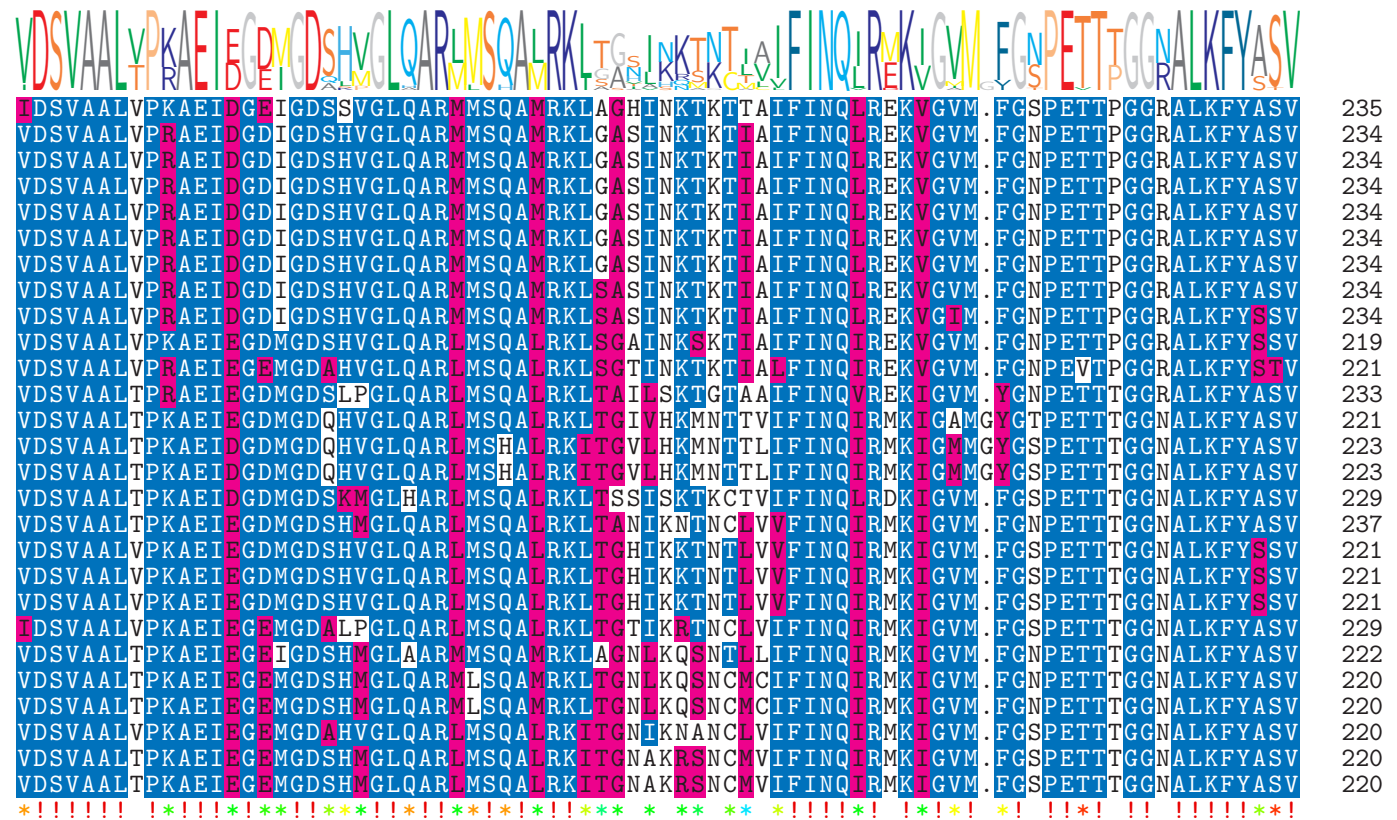
```



```

NTDB id 600 KW2 RS01765 WP 011675413.1
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 453 Spy49 1753c ACI62003.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 115 BSU 16940 NP 389576.2
NTDB id 625 LCA RS02525 WP 011374196.1
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 330197 ELY89 RS14285 WP 025011663.1
NTDB id 1165 A1552VC RS01565 WP 000344154.1
NTDB id 1142 GTF74 RS11550 WP 000344154.1
NTDB id 1205 PSJM300 05545 AFN77183.1
NTDB id 1022 ACIAD RS06390 WP 0004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
consensus

```



logo

NTDB id 600 KW2 RS01765 WP 011675413.1	RLDVRG	STKIEEGS	.GDNKTQ	IGKI	TKIKVV	VKNKVAPPF	KVALV	DIMF	GEGIS	STGEL	INTAVE	EETIKK	SGAW	FAYN	DE	314			
NTDB id 269 KZH43 RS08665 WP 001085462.1	RLDVRG	NTQIKGTG	.DQKETN	VGKETK	IKVV	VKNKVAPPF	KEAVV	EIMY	GEGIS	KTGELL	KIASD	LDI	IKKAG	AWYSY	KDE	313			
NTDB id 228 SPD RS09265 WP 001085462.1	RLDVRG	NTQIKGTG	.DQKETN	VGKETK	IKVV	VKNKVAPPF	KEAVV	EIMY	GEGIS	KTGELL	KIASD	LDI	IKKAG	AWYSY	KDE	313			
NTDB id 194 SPR RS08825 WP 001085462.1	RLDVRG	NTQIKGTG	.DQKETN	VGKETK	IKVV	VKNKVAPPF	KEAVV	EIMY	GEGIS	KTGELL	KIASD	LDI	IKKAG	AWYSY	KDE	313			
NTDB id 159 SP RS09750 WP 001085462.1	RLDVRG	NTQIKGTG	.DQKETN	VGKETK	IKVV	VKNKVAPPF	KEAVV	EIMY	GEGIS	KTGELL	KIASD	LDI	IKKAG	AWYSY	KDE	313			
NTDB id 527 SMSK321 RS11065 WP 001085454.1	RLDVRG	STQIKGTG	.DQKDTN	VGKETK	IKVV	VKNKVAPPF	KEAFV	EIMY	GEGIS	KTGELL	KIASD	LDI	IKKAG	AWYSY	KDE	313			
NTDB id 499 SM12261 RS08315 WP 078228268.1	RLDVRG	STQIKGTG	.DQKDTN	VGKETK	IKVV	VKNKVAPPF	KEAFV	EIMY	GEGIS	KTGELL	KIASD	LDI	IKKAG	AWYSY	KDE	313			
NTDB id 453 Spy49 1753c ACI62003.1	RLDVRG	TQIKGTG	.DQKDS	IGKETK	IKVV	VKNKVAPPF	KVAEV	EIMY	GEGIS	RGTGEL	VKIASD	LDI	IKKAG	AWF	SYNGE	313			
NTDB id 408 SMU RS09530 WP 002262392.1	RLDVRG	NTQIKGTG	.EQKDSN	IGKETK	IKVV	VKNKVAPPF	KEAFV	EIIY	GEGIS	RGTGEL	VKIASD	LDI	IKKAG	AWYSY	NGE	313			
NTDB id 115 BSU 16940 NP 389576.2	RLEVRRA	AEQLKQGN		DVMGN	KT	IKVV	VKNKVAPPF	R	TA	EVDIMY	GEGISKEGE	I	IDL	GTELD	IVQKSG	SWSYEEE	294		
NTDB id 625 LCA RS02525 WP 011374196.1	RLEVRRA	ETIKNGT		DMIGN	RARI	IKVV	VKNKVAPPF	KVAEV	DIMY	GQGIS	RGTGEL	VDMAVE	KDI	INKSG	SWSY	GSE	296		
NTDB id 1313 DR RS12030 WP 010888966.1	RLDVRK	IG....	QPTKVG	ND	AVANT	VKI	IKTV	VKNKVA	APFKE	VELAL	VYGG	KGFD	QLSD	LVGLA	ADMDI	IKKAGS	FYSY	GDE	309
NTDB id 1245 Cj1673c YP 002345041.1	RLDVRK	VVA....	TL.KQN	E	EPIGN	RVKV	VVVKNKVAPPF	RQAEF	DVMF	GEGLS	R	EGELID	YGV	KLDI	VDKSG	AWF	SY	KDK	296
NTDB id 1214 NCTC11637 00359 SQJ03206.1	RIDIRRIA		AL.KQNE	QHIGN	RAKA	VVVKNKVAPPF	R	EAEFD	DIMF	GEGISKEGE	I	IDYGV	KLDI	VDKSG	AWLSY	QDK		298	
NTDB id 1211 C694 RS00795 WP 000963128.1	RIDIRRIA		SL.KQNE	QHIGN	RAKA	VVVKNKVAPPF	R	EAEFD	DIMF	GEGISKEGE	I	IDYGV	KLDI	VDKSG	AWLSY	QDK		298	
NTDB id 1334 RAOC RS04870 WP 004918236.1	RIDIRRS	LSDTGKIK	DKSGEV	IGNR	TKV	VVVKNKVAPPF	KSAEFD	IMYGE	GVSKV	VGEILD	VATD	LDI	IKKSG	SWF	SYQDT		309		
NTDB id 1389 A4U84 RS07560 WP 021112712.1	RLDIRRC	G....	VV.KDG	DEIG	SETKV	VVVKNKVAPPF	REVQ	F	IMYGE	GISRM	NELLIL	AEANG	F	IKKSG	AWF	SYDGT		312	
NTDB id 1130 NGFG RS03960 WP 003688695.1	RLDIRRT	G....	SI.KKG	EEVLGN	ETRV	KV	IKNKVAPPF	RQAEF	D	ILYGE	GISWEGEL	IDIGV	KNDI	INKSG	AWYSY	NGA		296	
NTDB id 1124 NGFG RS03960 WP 003688695.1	RLDIRRT	G....	SI.KKG	EEVLGN	ETRV	KV	IKNKVAPPF	RQAEF	D	ILYGE	GISWEGEL	IDIGV	KNDI	INKSG	AWYSY	NGA		296	
NTDB id 1123 OK783 RS03845 WP 003688695.1	RLDIRRT	G....	SI.KKG	EEVLGN	ETRV	KV	IKNKVAPPF	RQAEF	D	ILYGE	GISWEGEL	IDIGV	KNDI	INKSG	AWYSY	NGA		296	
NTDB id 1427 RS RS02760 WP 011000510.1	RLDIRRI	G....	SI.KKG	DEVVGN	ETKV	VVVKNKVAPPF	R	EAI	F	DILYGA	GVSR	EGE	I	IDL	GVEAK	VVEKSG	AWYSYNGE	304	
NTDB id 330197 EIY89 RS14285 WP 025011663.1	RLDIRRT	G....	AI.KEG	DEVVGN	ETRV	KVVKNK	IAAPF	KQAD	FQILY	GQGIN	RTGEL	VDL	GV	VAHKL	VEKSG	AWYSYKGD		297	
NTDB id 1165 A1552VC RS01565 WP 000344154.1	RLDIRRT	G....	AI.KEG	EEVGN	ETRIK	VVKNK	IAAPF	KEANT	QIMY	GQGF	NREGEL	IDL	GV	VKHKM	MVEKSG	AWYSYNGD		295	
NTDB id 1142 GTF74 RS11550 WP 000344154.1	RLDIRRT	G....	AI.KEG	EEVGN	ETRIK	VVKNK	IAAPF	KEANT	QIMY	GQGF	NREGEL	IDL	GV	VKHKM	MVEKSG	AWYSYNGD		295	
NTDB id 1205 PSJM300 05545 AFN77183.1	RLDIRRT	G....	AV.KEG	DEVVGS	ETRV	VVVKNKVAPPF	RQAEF	Q	ILYGK	GIYRN	GE	I	IDL	GV	QQGL	VEKSGAWY	AYKGS	295	
NTDB id 1022 ACIAD RS06390 WP 004925639.1	RLDIRRI	G....	QV.KEG	DEIG	SETKV	VVVKNK	MAPPF	R	EAI	FQILY	GKGV	NQLGEL	VDL	AV	QQNIV	QKAGAWYSY	QGN	295	
NTDB id 1074 ABD1 RS10195 WP 000344167.1	RLDIRRI	G....	QV.KEG	DEIG	SETKV	VVVKNK	MAPPF	KEAI	FQILY	GKGT	NQLGEL	VDL	AV	QQDIV	QKAGAWYSY	QGN		295	
consensus	!***!*			*	*	*	*****!***!!*!!*!!*	*		*****!*	*****	*****	***		***	! !*****!			

```

NTDB id 600 KW2 RS01765 WP 011675413.1
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 453 Spy49 1753c ACI62003.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 115 BSU 16940 NP 389576.2
NTDB id 625 LCA RS02525 WP 0011374196.1
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 330197 EY89 RS14285 WP 020011663.1
NTDB id 1165 A1552VC RS01565 WP 000344154.1
NTDB id 1142 GTF74 RS11550 WP 000344154.1
NTDB id 1205 PSJM300 05545 AFN77183.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
consensus

```

Sequence	Score
KIGQGAEKAKNYLKEHQDVFEIDHKVRAAHGLDDSEVAETEEETTASKTAKAKKEEKAVETEEIELELED.....	387
KIGQGSSENAKKYLAEHPEIFDEIDKQVRSKFLIDGEEVSEQDTENKKDE....PKKEEA..VNEEVPLDLGDELEIEIE	387
KIGQGSSENAKKYLAEHPEIFDEIDKQVRSKFLIDGEEVSEQDTENKKDE....PKKEEA..VNEEVPLDLGDELEIEIE	387
KIGQGSSENAKKYLAEHPEIFDEIDKQVRSKFLIDGEEVSEQDTENKKDE....PKKEEA..VNEEVPLDLGDELEIEIE	387
KIGQGSSENAKKYLAADNPEVFAEIDHQVRVQFLIDGEEAAE....SKKDE....VAQVDS..VNEEVTLDLGDLEIEIE	383
KIGQGSSENAKKYLAADNPEIFDEIDHQVRVQFLIDGEEAAE....SKKDE....AAQVDS..VNEEVTLDLGDLEIEIE	383
KIGQGSSENAKRYLADHPQLFDEIDRKVRVKFLLEESEESAMAVASE.....E.....TDDLALDLNGIEIED.	378
KIGQGSSENAKKFLADNPEIFDDIDHKVVRVQGLIEEDNTEEKQSSKEK.....ETDEK..ADKNLVLELDDTIELED.	383
RLGQGRENAKQFLKENKDIMLMIQEQUIREHYGLDNGGVVQQAEETQEEL.EFE.E.....	348
RIGQGRENAKNYLADHEDVEDEVRLKVRAAAYGISDVPPEEDLPTTEDE.QI.NILPDDST.....EE.....	355
RIGQGKEKTIAYIAERPMEQEIRDRVMAAIRAGNAGEAPALAPAPAAPAAAAA.....	363
KLGGGRENKAFLEKNPEIADIEITKAIQNSMGIEGM.....ISGSED..DEGEE.....	343
KLGGGRENAKALLKEDKALADEITLKIKESIGSNEE....IMPLPD..EPLEEME.....	347
KLGGGRENAKALLKEDKALADEITLKIKESIGSNEE....IMPLPD..EPLEEME.....	347
KLGGGRDITVKELIKDNPELAEELEAKIREKLQAK.....	343
KIGQGKNNAVKLKENPEIADKLEGEIRNTLASNP.....SVLKATASDSNDESVDVEEF.....SEE..EL.....	372
KIGQGKDNVRVWLKENPEISDEIDAKIRALNGVEMH....ITEGT.....QDET.....GERPEE.....	348
KIGQGKDNVRVWLKENPEISDEIDAKIRALNGVEMH....ITEGT.....QDET.....GERPEE.....	348
KIGQGKDNVRVWLKENPEISDEIDAKIRALNGVEMH....ITEGT.....QDET.....GERPEE.....	348
RIGQGRDNCREFLRENAELAREIENKVRHLGVTPM.....GAVTL..AEEVEED.....	352
KIGQGRANAGKFLKENPEVAAEIEAALRAKLLSKAE....AAPASA..ETGEGNVLET.....GEVF.....	354
KIGQGKANACKYLKENPEIAKTLDKKIREMLLNPN....MQ.LIA..ETSSAADDVEF...GAVPEEF.....	354
KIGQGKANACKYLKENPEIAKTLDKKIREMLLNPN....MQ.LIA..ETSSAADDVEF...GAVPEEF.....	354
KIGQGKANAAKYLEENPEIGQEIEQQIRAKLLVTSA....NTKATPVAEDLADADI.....	347
KIGQGKNNVIRYLEENPQISTEIEAVIREQLLTKAS....DQTAA.HDETEEEPDLLES.....	349
KIGQGKNNVIRIFYENNQIAEIERNIQREQLLTGT....NGAVQ.I..DEEPEPDLLE.....S.....	349

logo

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 527 SMSK321 RS11065 WP 001085454.1	E	384
NTDB id 499 SM12261 RS08315 WP 078228268.1	E	384
NTDB id 453 Spy49 1753c ACI62003.1	.	378
NTDB id 408 SMU RS09530 WP 002262392.1	.	383
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 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 330197 EIY89 RS14285 WP 025011663.1	.	354
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
 ≥ 50% conserved