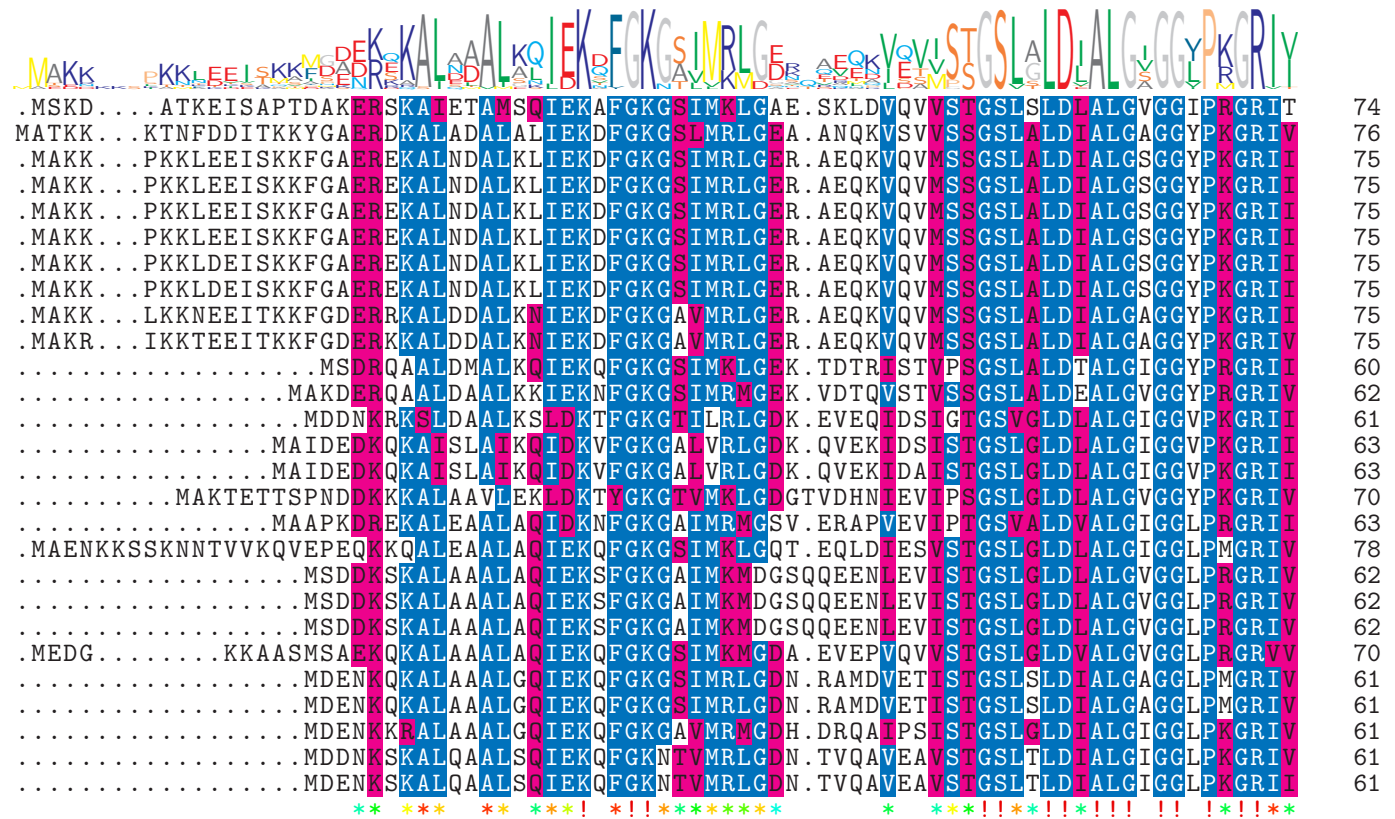


```

NTDB id 1313 DR RS12030 WP 010888966.1
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 1245 Cj1673c YP 002345041.1
NTDB id 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1334 RAOC RS04870 WP 004918236.1
NTDB id 344486 EVS81 RS02725 WP 130109023.1
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 1205 PSJM300 05545 AFN77183.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
consensus

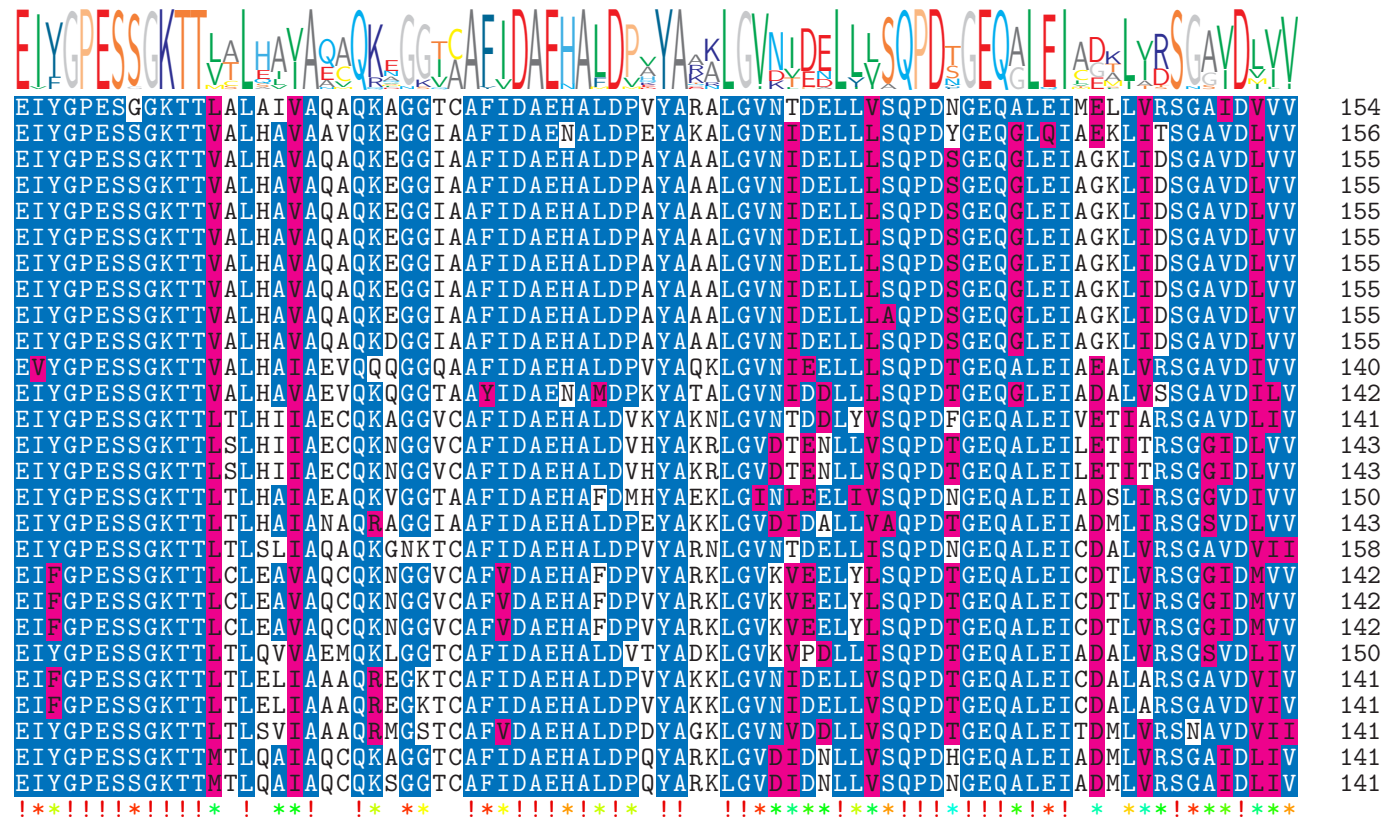
```



```

NTDB id 1313 DR RS12030 WP 010888966.1
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 1245 Cj1673c YP 002345041.1
NTDB id 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1334 RAOC RS04870 WP 004918236.1
NTDB id 344486 EVS81 RS02725 WP 130109023.1
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 1205 PSJM300 05545 AFN77183.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
consensus

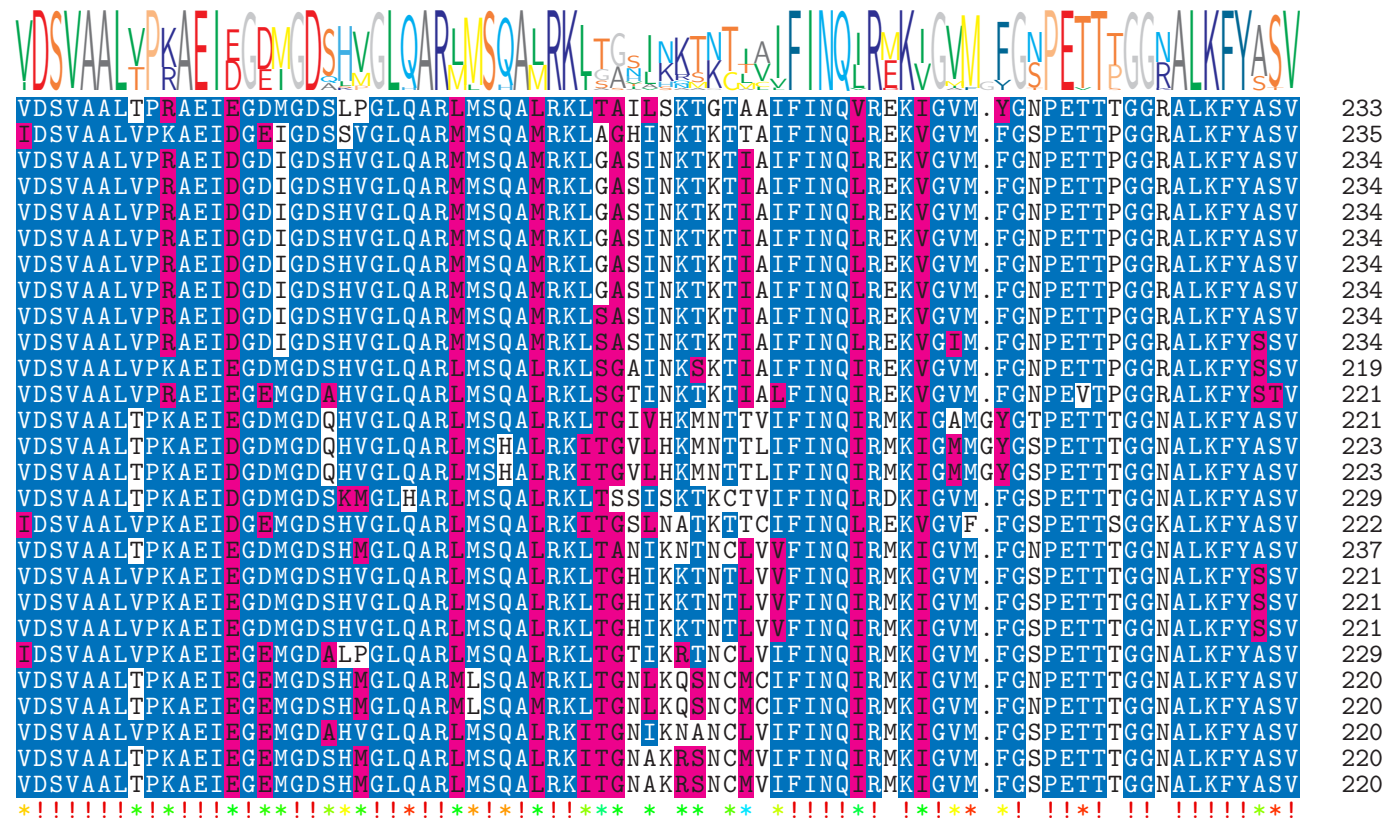
```



```

NTDB id 1313 DR RS12030 WP 010888966.1
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 1245 Cj1673c YP 002345041.1
NTDB id 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1334 RAOC RS04870 WP 004918236.1
NTDB id 344486 EVS81 RS02725 WP 130109023.1
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 1205 PSJM300 05545 AFN77183.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
consensus

```



logo

NTDB id 1313 DR RS12030 WP 010888966.1	RLDVRKIGQ...PTKVGND	AVANTVKKIKTVKNKVAA	PFKEVELALVYGKGFDQLS	DLVGLAADMDIIKKAGS	FFSYSGDE	309					
NTDB id 600 KW2 RS01765 WP 011675413.1	RLDVRGSTKIEEGS.GDNKTQ	IGKITKIKVVKNKVAPPF	KVALVDIMFGEGISST	GELINIAVEEGIIKKS	GAWFAYNDE	314					
NTDB id 269 KZH43 RS08665 WP 001085462.1	RLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPF	KEAVVEIMYEGEGISKT	GELLKIASDLDIIKKA	GAWYSYKDE	313					
NTDB id 228 SPD RS09265 WP 001085462.1	RLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPF	KEAVVEIMYEGEGISKT	GELLKIASDLDIIKKA	GAWYSYKDE	313					
NTDB id 194 SPR RS08825 WP 001085462.1	RLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPF	KEAVVEIMYEGEGISKT	GELLKIASDLDIIKKA	GAWYSYKDE	313					
NTDB id 159 SP RS09750 WP 001085462.1	RLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPF	KEAVVEIMYEGEGISKT	GELLKIASDLDIIKKA	GAWYSYKDE	313					
NTDB id 527 SMSK321 RS11065 WP 001085454.1	RLDVRGSTQIKGTG.DQKDTN	VGKETKIKVVKNKVAPPF	KEAFVEIMYEGEGISKT	GELLKIASDLDIIKKA	GAWYSYKDE	313					
NTDB id 499 SM12261 RS08315 WP 078228268.1	RLDVRGSTQIKGTG.DQKDTN	VGKETKIKVVKNKVAPPF	KEAFVEIMYEGEGISKT	GELLKIASDLDIIKKA	GAWYSYKDE	313					
NTDB id 453 Spy49 1753c ACI62003.1	RLDVRGTTQIKGTG.DQKDSN	IGKETKIKVVKNKVAPPF	KVAEVEIMYEGEGISRT	GELVKIASDLDIIKKA	GAWFSYNGE	313					
NTDB id 408 SMU RS09530 WP 002262392.1	RLDVRGNTQIKGTG.EQKDSN	IGKETKIKVVKNKVAPPF	KEAFVEIITYEGEGISRT	GELVKIASDLGIIQKA	GAWYSYNGE	313					
NTDB id 115 BSU 16940 NP 389576.2	RLEVRRAEQLKQGN.....	DVMGNKTKIKVVKNKVAPPF	RTAEVDIMYEGEGISKEGEI	IDLGTELIIQKSGSWYSY	EEEE	294					
NTDB id 625 LCA RS02525 WP 011374196.1	RLEVRRAETIKNGT.....	DMIGNRARIKVVKNKVAPPF	KVAEVDIMYGGGISRT	GELVDMAVEKDIINKSG	SWYSYGSE	296					
NTDB id 1245 Cj1673c YP 002345041.1	RLDVRKVAT....L.KQNEEP	IGNRVKVVKNKVAPPFR	QAEFDVMFGEGLSREGEL	IDYGVKLDIVDKSGAW	FSYKDK	296					
NTDB id 1211 C694 RS00795 WP 000963128.1	RIDIRRIAS....L.KQNEQH	IGNRAKAKVVKNKVAPPFR	EAEFDIMFGEGISKEGEI	IDYGVKLDIVDKSGAW	LSYQDK	298					
NTDB id 1214 NCTC11637 00359 SQJ03206.1	RIDIRRIAA....L.KQNEQH	IGNRAKAKVVKNKVAPPFR	EAEFDIMFGEGISKEGEI	IDYGVKLDIVDKSGAW	LSYQDK	298					
NTDB id 1334 RAOC RS04870 WP 004918236.1	RIDIRRSLSDTGKIKDKSGEV	IGNRTKVVKNKVAPPFK	SAEFDIMYEGEGVSKVGEI	LDVATLDIIQKSGSWFSY	QDT	309					
NTDB id 344486 EVS81 RS02725 WP 130109023.1	RLDIRRIQT....L.KDGTDA	VGNRTRVKVVKNKMAPPFK	QAEFDILYGVGISREGSL	IDYGVVEHGFIIKKS	GAWFTYDGD	297					
NTDB id 1389 A4U84 RS07560 WP 021112712.1	RLDIRRCGV....V.KDGD	DEIIGSETKVVKNKVAPPF	REVQFDIMYEGEGISRMNELL	ILAEANGFIIKKS	GAWFSYDGT	312					
NTDB id 1130 NGFG RS03960 WP 003688695.1	RLDIRRTGS....I.KKGE	EVLGNETRKKVKNKVAPPFR	QAEFDILYEGEGISWEGEL	IDIGVKNDIINKSGAW	YSYNGA	296					
NTDB id 1124 NGFG RS03960 WP 003688695.1	RLDIRRTGS....I.KKGE	EVLGNETRKKVKNKVAPPFR	QAEFDILYEGEGISWEGEL	IDIGVKNDIINKSGAW	YSYNGA	296					
NTDB id 1123 OK783 RS03845 WP 003688695.1	RLDIRRTGS....I.KKGE	EVLGNETRKKVKNKVAPPFR	QAEFDILYEGEGISWEGEL	IDIGVKNDIINKSGAW	YSYNGA	296					
NTDB id 1427 RS RS02760 WP 011000510.1	RLDIRRIGS....I.KKGE	DEVVGNETKVVKNKVAPPF	REAIFFDILYGAGVSREGEI	IDLGVVEAKVVEKSGAW	YSYNGE	304					
NTDB id 1165 A1552VC RS01565 WP 000344154.1	RLDIRRTGA....I.KEGE	EEVVGNETRIKVVKNKIA	APFKEANTQIMYGGGFN	REGELIDLGVKHKMVEK	SGAWYSYNGD	295					
NTDB id 1142 GTF74 RS11550 WP 000344154.1	RLDIRRTGA....I.KEGE	EEVVGNETRIKVVKNKIA	APFKEANTQIMYGGGFN	REGELIDLGVKHKMVEK	SGAWYSYNGD	295					
NTDB id 1205 PSJM300 05545 AFN77183.1	RLDIRRTGA....V.KEGE	DEVVGSSETRVVKNKVAPPFR	QAEFQILYGGKIYRN	GEIIDLGVQQGLVEK	SGAWYAYKGS	295					
NTDB id 1022 ACIAD RS06390 WP 004925639.1	RLDIRRIGQ....V.KEGE	DEIIGSETKVVKNKMAPPF	REAIFFQILYGGKVN	QLGELVDLAVQQNIVQK	AGAWYSYQGN	295					
NTDB id 1074 ABD1 RS10195 WP 000344167.1	RLDIRRIGQ....V.KEGE	DEIVGSETKVVKNKMAPPF	KEAIFQILYGGKTN	QLGELVDLAVQQDIVQK	AGAWYSYQGN	295					
consensus	!***!*	*	**	*****!***!!*!!*!!*	*	*****!*!***	*****	*	***	!	!*****!

logo

NTDB id 1313 DR RS12030 WP 010888966.1	RIGQGKEKTIAYIAERP	EME	QEI	RDRVMAAIRAGNAGEAPALAPAPA.....APEAAEA.....	363		
NTDB id 600 KW2 RS01765 WP 011675413.1	KIGQGA	EAKAKNYLKEHQDV	FDEIDHKVRAAHGL	LLDDSEVAETEEETTAS	KTAK.AKKEEKAVETEEIELELED.....	387	
NTDB id 269 KZH43 RS08665 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	LIDGEEVSEQDTENKK	DE.....PKKEEA..VNEEVPLDLGDELEIEI	386	
NTDB id 228 SPD RS09265 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	LIDGEEVSEQDTENKK	DE.....PKKEEA..VNEEVPLDLGDELEIEI	386	
NTDB id 194 SPR RS08825 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	LIDGEEVSEQDTENKK	DE.....PKKEEA..VNEEVPLDLGDELEIEI	386	
NTDB id 159 SP RS09750 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	LIDGEEVSEQDTENKK	DE.....PKKEEA..VNEEVPLDLGDELEIEI	386	
NTDB id 527 SMSK321 RS11065 WP 001085454.1	KIGQGS	ENAKKYLA	DNPEVFAEIDHQVRVQFGL	LIDGEEAAE....SKK	DE.....VAQVDS..VNEEVTLDLGDELEIEI	382	
NTDB id 499 SM12261 RS08315 WP 078228268.1	KIGQGS	ENAKKYLA	DNPEIFDEIDHQVRVQFGL	LIDGEEIAE....SKK	DE.....AAQVDS..VNEEVTLDLGDELEIEI	382	
NTDB id 453 Spy49 1753c ACI62003.1	KIGQGS	ENAKRYLA	DHPQLFDEIDRKVRVKFGL	LEESEEEESAMAVASE.....E.....TDDLALDLNGIEIED	378		
NTDB id 408 SMU RS09530 WP 002262392.1	KIGQGS	ENAKKFLA	DNPEIFDDIDHKVRVQYGL	IEEDNTEEKQSSKEK.....ETDEK..ADKNLVLELDDTIELED	383		
NTDB id 115 BSU 16940 NP 389576.2	RLGQGR	ENAKQFLKENK	DIMLMIQEQIREHYGL	DNNGVVQQQAETQE	EL.EFE..E.....	348	
NTDB id 625 LCA RS02525 WP 011374196.1	RIGQGR	ENAKNYLA	DHEDVEDEVRLKVRAAYG	ISDVPEEDLPTTEDE.QI.NIL.PDDST.....EE.....	355		
NTDB id 1245 Cj1673c YP 002345041.1	KL	GQGR	ENSKAFLKENPEI	ADEITKAIQNSMGIEGMISGSEDDEGEE.....	343		
NTDB id 1211 C694 RS00795 WP 000963128.1	KL	GQGR	ENAKALLKEDKALA	DEITLKI	KESIGSNEEIMPLPDEPLEEME.....	347	
NTDB id 1214 NCTC11637 00359 SQJ03206.1	KL	GQGR	ENAKALLKEDKALA	DEITLKI	KESIGSNEEIMPLPDEPLEEME.....	347	
NTDB id 1334 RAOC RS04870 WP 004918236.1	KL	GQGR	DTVKELIK	DNPELAEELEAKIREKLQAK.....	343		
NTDB id 344486 EVS81 RS02725 WP 130109023.1	QL	GQGM	ENARRFLIQHPD	VAAEIEEKILTKLGVN	GRSEEPAQDE..AAAAPVAEAPQRASA.....	356	
NTDB id 1389 A4U84 RS07560 WP 021112712.1	KIGQGK	NNAVKWLKENPEI	ADKLEQEIRNTLAS	NPNSVLKATASDSN	DES	SDVEEFSEEL.....	372
NTDB id 1130 NGFG RS03960 WP 003688695.1	KIGQGK	DNVRVWLKENPEI	SDEIDAKIRALNGV	EMHITEGT.....QDET	DGERPEE.....	348	
NTDB id 1124 NGFG RS03960 WP 003688695.1	KIGQGK	DNVRVWLKENPEI	SDEIDAKIRALNGV	EMHITEGT.....QDET	DGERPEE.....	348	
NTDB id 1123 OK783 RS03845 WP 003688695.1	KIGQGK	DNVRVWLKENPEI	SDEIDAKIRALNGV	EMHITEGT.....QDET	DGERPEE.....	348	
NTDB id 1427 RS RS02760 WP 011000510.1	RIGQGR	DNCREFLRENAELARE	EIENKVREHLGV	TPMGAV.TLAEVEED.....	352		
NTDB id 1165 A1552VC RS01565 WP 000344154.1	KIGQGK	ANACKYLLKENPEI	AKTLDKKLREMLLN	PENMQLIAETSSAAD	DVEFGAVPEEF.....	354	
NTDB id 1142 GTF74 RS11550 WP 000344154.1	KIGQGK	ANACKYLLKENPEI	AKTLDKKLREMLLN	PENMQLIAETSSAAD	DVEFGAVPEEF.....	354	
NTDB id 1205 PSJM300 05545 AFN77183.1	KIGQGK	ANAAYLEENPEI	QIEEQIRAKLLV	TSANTKATPVAEDLADADI.....	347		
NTDB id 1022 ACIAD RS06390 WP 004925639.1	KIGQGK	NNVIRYLEENPQ	ISTEIEAVIREQLL	TKASDQTAA.HDETEEPDLL..ES.....	349		
NTDB id 1074 ABD1 RS10195 WP 000344167.1	KIGQGK	NNVIRYFEENN	QIAEEIERNIREQLL	TGTNGAVQ.I.EDEE	EPDLL..LES.....	349	
consensus	**!!!*****	**	*	***	*****	**	**

logo

NTDB id 1313 DR RS12030 WP 010888966.1	..	363
NTDB id 600 KW2 RS01765 WP 011675413.1	..	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	EE	388
NTDB id 228 SPD RS09265 WP 001085462.1	EE	388
NTDB id 194 SPR RS08825 WP 001085462.1	EE	388
NTDB id 159 SP RS09750 WP 001085462.1	EE	388
NTDB id 527 SMSK321 RS11065 WP 001085454.1	EE	384
NTDB id 499 SM12261 RS08315 WP 078228268.1	EE	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 1245 Cj1673c YP 002345041.1	..	343
NTDB id 1211 C694 RS00795 WP 000963128.1	..	347
NTDB id 1214 NCTC11637 00359 SQJ03206.1	..	347
NTDB id 1334 RAOC RS04870 WP 004918236.1	..	343
NTDB id 344486 EVS81 RS02725 WP 130109023.1	..	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
 ≥ 50% conserved