

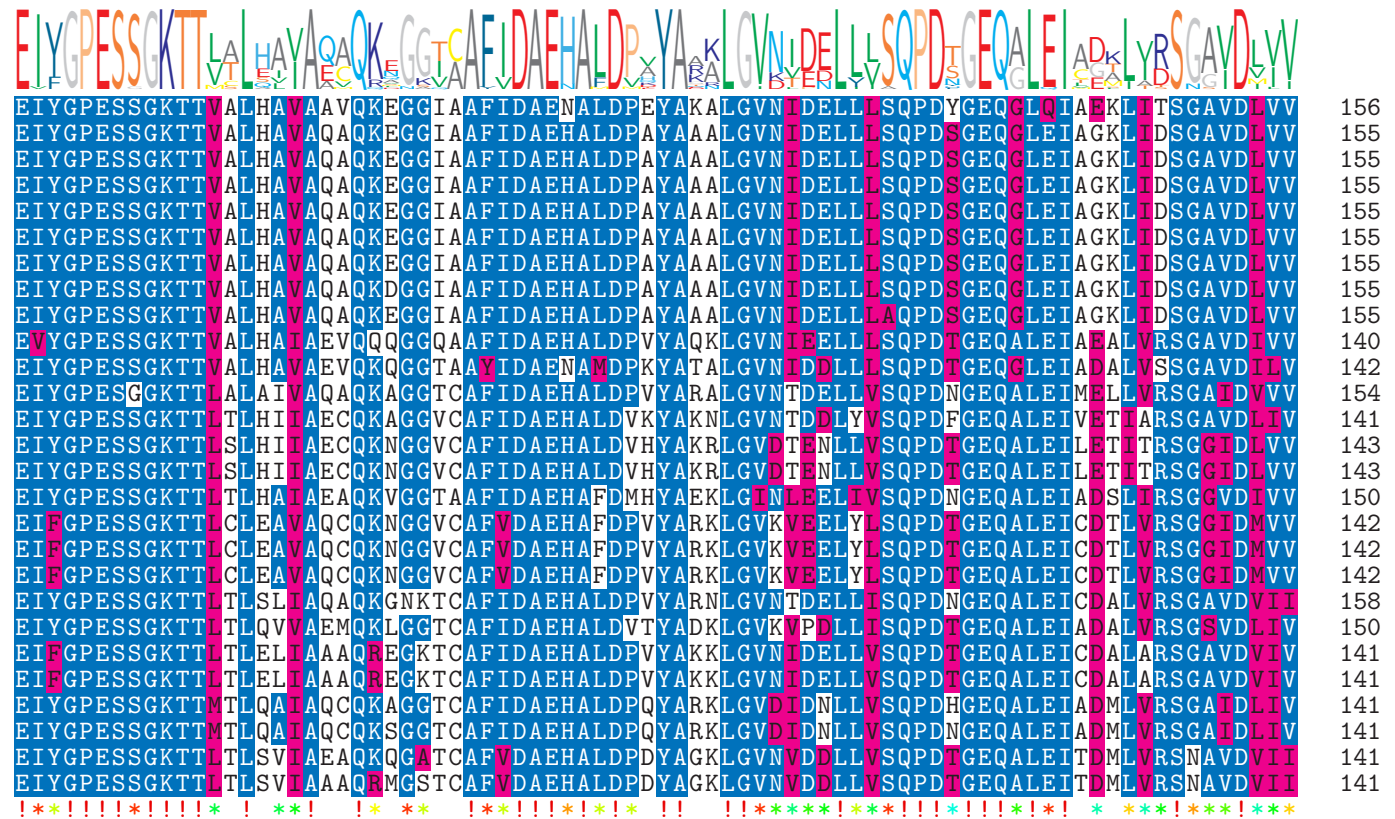
logo

NTDB id 600 KW2 RS01765 WP 011675413.1	MATKKK...TNFDDITKKYGAERDKALADALALIEKD FGKGSIMRLGEA.ANQKVSVVSSGSLALDIALGAGGYPKGRIV	76
NTDB id 269 KZH43 RS08665 WP 001085462.1	.MAKKP...KKLEEISKKFGAEREKALNDALKLIEKDFGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGRIT	75
NTDB id 228 SPD RS09265 WP 001085462.1	.MAKKP...KKLEEISKKFGAEREKALNDALKLIEKDFGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGRIT	75
NTDB id 194 SPR RS08825 WP 001085462.1	.MAKKP...KKLEEISKKFGAEREKALNDALKLIEKDFGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGRIT	75
NTDB id 159 SP RS09750 WP 001085462.1	.MAKKP...KKLEEISKKFGAEREKALNDALKLIEKDFGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGRIT	75
NTDB id 499 SM12261 RS08315 WP 078228268.1	.MAKKP...KKLDEISKKFGAEREKALNDALKLIEKDFGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGRIT	75
NTDB id 527 SMSK321 RS11065 WP 001085454.1	.MAKKP...KKLDEISKKFGAEREKALNDALKLIEKDFGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGRIT	75
NTDB id 408 SMU RS09530 WP 002262392.1	.MAKRI...KKTEEITKKFGDERKKALDDALKNIEKDFGKGAVMRLGER.AEQKVQVMSSGSLALDIALGAGGYPKGRIV	75
NTDB id 453 Spy49 1753c ACI62003.1	.MAKKL...KKNEEITKKFGDERRKALDDALKNIEKDFGKGAVMRLGER.AEQKVQVMSSGSLALDIALGAGGYPKGRIT	75
NTDB id 115 BSU 16940 NP 389576.2	MSDRQAALDMALKQIEKQFGKGSIMKLGEK.TDTRISTVPSGSLALDTALGIGGYPGRIT	60
NTDB id 625 LCA RS02525 WP 011374196.1	MAKDERQAALDAALKKIEKNFGKGSIMRMGEK.VDTQVSTVSSGSLALDEALGVGGYPGRIV	62
NTDB id 1313 DR RS12030 WP 010888966.1	.MSKD....ATKEISAPTDAKERSKATETAMSQIEKAFGKGSIMKLGAE.SKLDVQVVSTGSLSLDLALGVGGIPGRIT	74
NTDB id 1245 Cj1673c YP 002345041.1	MDNKRKSLDAALKSLDKTFGKGTILRLGDK.EVEQIDSIGTGSVGLDLALGIGGVPKGRIT	61
NTDB id 1214 NCTC11637 00359 SQJ03206.1	MAIDEDKQKALSLAIKQIDKVF GKGAIVRLGDK.QVEKIDAISTGSLGLDLALGIGGVPKGRIT	63
NTDB id 1211 C694 RS00795 WP 000963128.1	MAIDEDKQKALSLAIKQIDKVF GKGAIVRLGDK.QVEKIDSISTGSLGLDLALGIGGVPKGRIT	63
NTDB id 1334 RAOC RS04870 WP 004918236.1	MAKTETTSPNDDKKKALAAVLEKLDKTYGKGTVMKLGDDGTVDHNIIEVIPSGSLGLDLALGVGGYPKGRIV	70
NTDB id 1130 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALAQIEKSF GKGAIMKMDGSQQUEENLEVISTGSLGLDLALGVGGLPRGRIV	62
NTDB id 1124 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALAQIEKSF GKGAIMKMDGSQQUEENLEVISTGSLGLDLALGVGGLPRGRIV	62
NTDB id 1123 OK783 RS03845 WP 003688695.1	MSDDKSKALAAALAQIEKSF GKGAIMKMDGSQQUEENLEVISTGSLGLDLALGVGGLPRGRIV	62
NTDB id 1389 A4U84 RS07560 WP 021112712.1	.MAENKKSSKNNTVVKQVEPEQKKQALEAALAQIEKQFGKGSIMKLGQT.EQLDIESVSTGSLGLDLALGIGGLPMGRIV	78
NTDB id 1427 RS RS02760 WP 011000510.1	.MEDGK.....KAASMSAEKQKALAAALAQIEKQFGKGSIMKMGDA.EVEPVQVVSTGSLGLDVALGVGGLPRGRVV	70
NTDB id 1165 A1552VC RS01565 WP 000344154.1	MDENKQKALAAALGQIEKQFGKGSIMRLGDN.RAMDVETISTGSLSLDIALGAGGLPMGRIV	61
NTDB id 1142 GTF74 RS11550 WP 000344154.1	MDENKQKALAAALGQIEKQFGKGSIMRLGDN.RAMDVETISTGSLSLDIALGAGGLPMGRIV	61
NTDB id 1022 ACIAD RS06390 WP 004925639.1	MDDNKSKALQAALSQIEKQFGKNTVMRLGDN.TVQAVEAVSTGSLTLDIALGIGGLPKGRIV	61
NTDB id 1074 ABD1 RS10195 WP 000344167.1	MDENKSKALQAALSQIEKQFGKNTVMRLGDN.TVQAVEAVSTGSLTLDIALGIGGLPKGRIT	61
NTDB id 155455 A6701 RS07225 WP 003092260.1	MDENKKRALAAALGQIERQFGKGAVMRMGDH.ERQAIPAISTGSLGLDIALGIGGLPKGRIV	61
NTDB id 1205 PSJM300 05545 AFN77183.1	MDENKKRALAAALGQIEKQFGKGAVMRMGDH.DRQAIPSIISTGSLGLDIALGIGGLPKGRIV	61
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 499 SM12261 RS08315 WP 078228268.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 453 Spy49 1753c ACI62003.1
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 1130 NGFG RS03960 WP 003688695.1
NTDB id 1124 NGFG RS03960 WP 003688695.1
NTDB id 1123 OK783 RS03845 WP 003688695.1
NTDB id 1389 A4U84 RS07560 WP 021112712.1
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 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
NTDB id 155455 A6701 RS07225 WP 003092260.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus

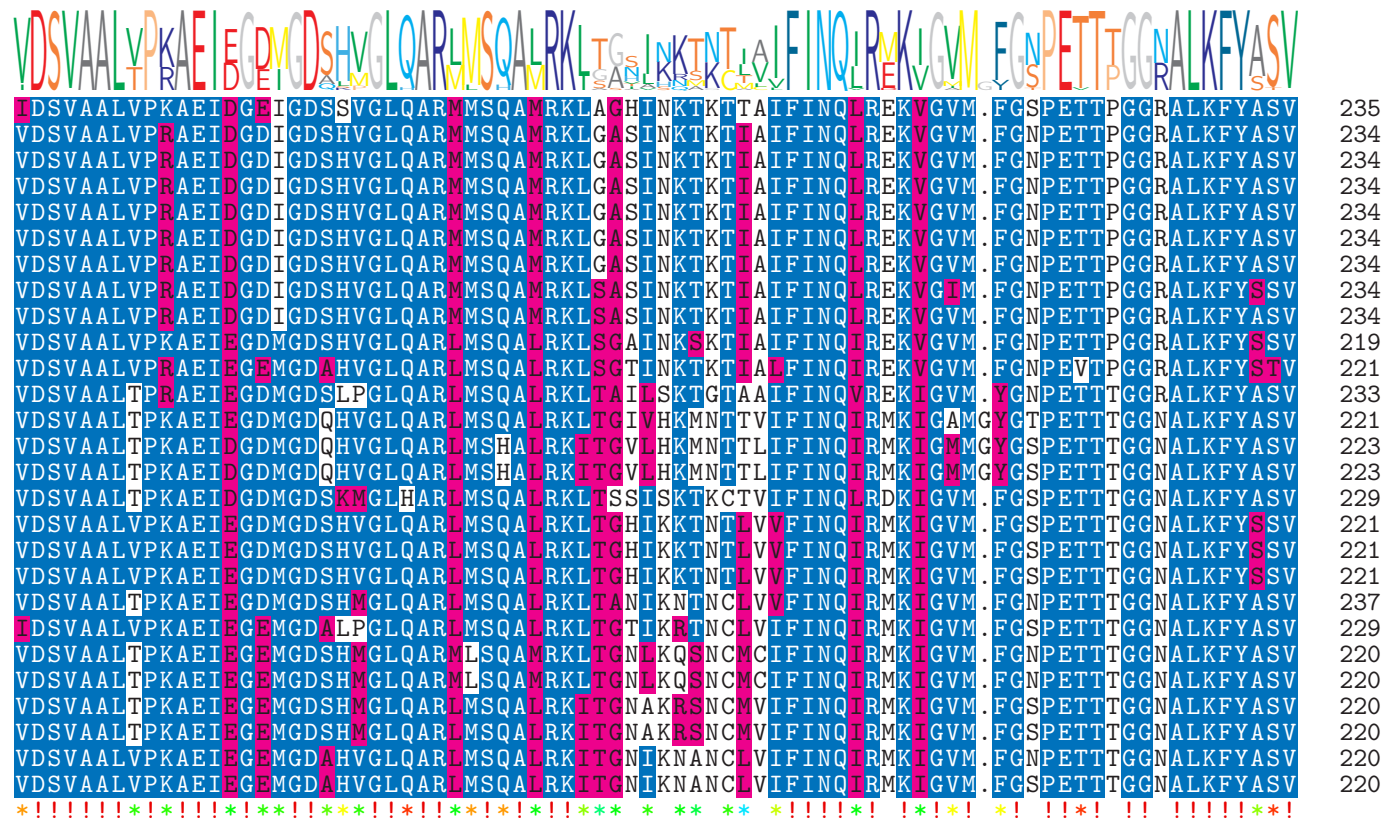
```



```

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 499 SM12261 RS08315 WP 078228268.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 453 Spy49 1753c ACI62003.1
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 1130 NGFG RS03960 WP 003688695.1
NTDB id 1124 NGFG RS03960 WP 003688695.1
NTDB id 1123 OK783 RS03845 WP 003688695.1
NTDB id 1389 A4U84 RS07560 WP 021112712.1
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 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
NTDB id 155455 A6701 RS07225 WP 003092260.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus

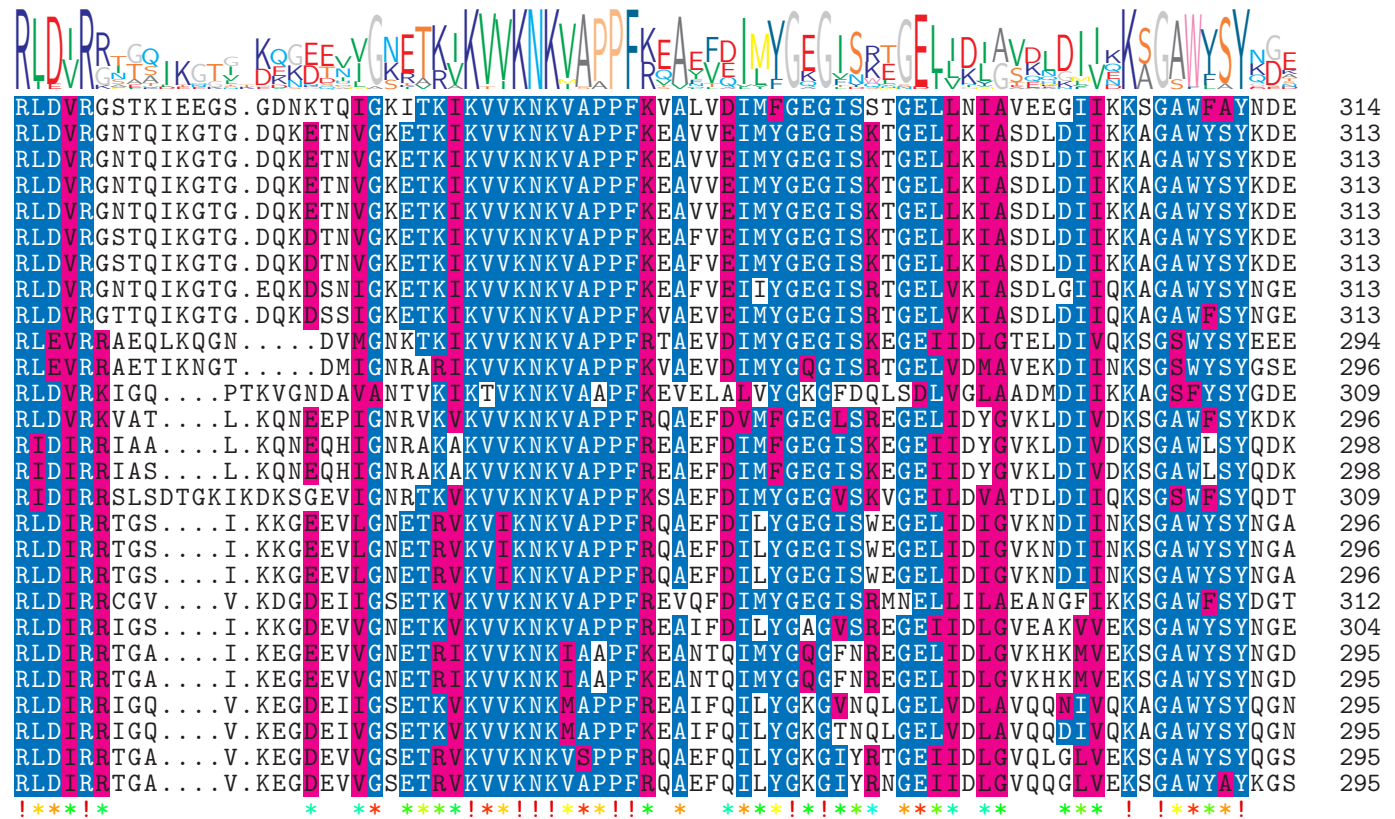
```



```

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 499 SM12261 RS08315 WP 078228268.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 453 Spy49 1753c ACI62003.1
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 1130 NGFG RS03960 WP 003688695.1
NTDB id 1124 NGFG RS03960 WP 003688695.1
NTDB id 1123 OK783 RS03845 WP 003688695.1
NTDB id 1389 A4U84 RS07560 WP 021112712.1
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 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
NTDB id 155455 A6701 RS07225 WP 003092260.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus

```



logo

NTDB id 600 KW2 RS01765 WP 011675413.1	KIGQGA	EKAKNYLKEHQDV	DEIDHKVRAAHG	LDDSEVAETEEETT	...	AS	TKAKAKKEEKAVETEEIELELED	...	387			
NTDB id 269 KZH43 RS08665 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTENK	...	KDE	...	PKKEEA..VNEEVPLDLGDELE	383			
NTDB id 228 SPD RS09265 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTENK	...	KDE	...	PKKEEA..VNEEVPLDLGDELE	383			
NTDB id 194 SPR RS08825 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTENK	...	KDE	...	PKKEEA..VNEEVPLDLGDELE	383			
NTDB id 159 SP RS09750 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTENK	...	KDE	...	PKKEEA..VNEEVPLDLGDELE	383			
NTDB id 499 SM12261 RS08315 WP 078228268.1	KIGQGS	ENAKKYLADNPEIF	DEIDHQVRVQFGL	IDGEEIAES	...	K	...	KDE	...	AAQVDS..VNEEVTLDLGDELE	379	
NTDB id 527 SMSK321 RS11065 WP 001085454.1	KIGQGS	ENAKKYLADNPEVFAE	IDHQVRVQFGL	IDGEEAAES	...	K	...	KDE	...	VAQVDS..VNEEVTLDLGDELE	379	
NTDB id 408 SMU RS09530 WP 002262392.1	KIGQGS	ENAKKFLADNPEIFDD	IDHKVRVQYGL	IEDDNTEEKQSSKE	...	K	...	ETDEK	...	ADKNLVLELDDTIE	380	
NTDB id 453 Spy49 1753c ACI62003.1	KIGQGS	ENAKRYLADHPQLFDE	IDRKVRVKFGL	LEESEEEESAMAVAS	...	E	...	E	...	TDDLALDLDNGIE	375	
NTDB id 115 BSU 16940 NP 389576.2	RLGQGR	ENAKQFLKENKDIMLMI	QEQIREHYGL	DNNGVVQQAEETQ	...	EEL	EFE	E	...		348	
NTDB id 625 LCA RS02525 WP 011374196.1	RIGQGR	ENAKNYLADHEDVEDEV	RLKVRVRAAYG	ISDVPEEDLPTTEDE	...	QI	NILPDDST	EE	...		355	
NTDB id 1313 DR RS12030 WP 010888966.1	RIGQGK	EKTIAIYTAERP	MEQEIRDRVMAAIR	AGNAGEAPALAPAPAA	PEAAE	EA	...				363	
NTDB id 1245 Cj1673c YP 002345041.1	KLGGGR	ENSKAFLKENPEIADE	ITKAIQNSMCI	EGMIS	...	GSEDDE	GEE	...			343	
NTDB id 1214 NCTC11637 00359 SQJ03206.1	KLGGGR	ENAKALLKEDKALADE	ITLKIKESIGS	NEEIM	...	PLPDEP	LEEME	...			347	
NTDB id 1211 C694 RS00795 WP 000963128.1	KLGGGR	ENAKALLKEDKALADE	ITLKIKESIGS	NEEIM	...	PLPDEP	LEEME	...			347	
NTDB id 1334 RAOC RS04870 WP 004918236.1	KLGGGR	DTVKELIKDNPELAE	ELEAKIREKLQAK	...							343	
NTDB id 1130 NGFG RS03960 WP 003688695.1	KIGQGD	NVRVWLKENPEISDE	IDAKIRALNGVEMHIT	...		EGTQDET	DGE	...	RP	EE	348	
NTDB id 1124 NGFG RS03960 WP 003688695.1	KIGQGD	NVRVWLKENPEISDE	IDAKIRALNGVEMHIT	...		EGTQDET	DGE	...	RP	EE	348	
NTDB id 1123 OK783 RS03845 WP 003688695.1	KIGQGD	NVRVWLKENPEISDE	IDAKIRALNGVEMHIT	...		EGTQDET	DGE	...	RP	EE	348	
NTDB id 1389 A4U84 RS07560 WP 021112712.1	KIGQGN	NAVKWLKENPEIADK	LEQEIRNTLASNPNSV	...		LKATASDSN	DES	DVEEFS	EEEL	...	372	
NTDB id 1427 RS RS02760 WP 011000510.1	RIGQGR	DNCREFLRENAELARE	ENKVRHLGVTPMG	...		AVTLAE	EEVEED	...			352	
NTDB id 1165 A1552VC RS01565 WP 000344154.1	KIGQGN	ANACKYLKENPEIAKT	LDKKLREMLLNPENMQ	...		LIAETSSAA	DD	VEFGAVP	EEF	...	354	
NTDB id 1142 GTF74 RS11550 WP 000344154.1	KIGQGN	ANACKYLKENPEIAKT	LDKKLREMLLNPENMQ	...		LIAETSSAA	DD	VEFGAVP	EEF	...	354	
NTDB id 1022 ACIAD RS06390 WP 004925639.1	KIGQGN	NVIRYLEENPQISTE	IEAVIREQLLT	KASDQ	...	TA	AHD	ETEE	EPDLL	E	S	349
NTDB id 1074 ABD1 RS10195 WP 000344167.1	KIGQGN	NVIRYFEENNQIAEE	IERNIREQLLT	TGTNG	...	AV	QI	EDE	EPDLL	L	ES	349
NTDB id 155455 A6701 RS07225 WP 003092260.1	KIGQGN	ANAAYLEDNPEIGSV	LEKTIIRDQLL	AKSGPV	...	KAD	AEEVADAE	AD	...			346
NTDB id 1205 PSJM300 05545 AFN77183.1	KIGQGN	ANAAYLEENPEIGQ	EIEQQIRAKLL	VTSANT	...	KATPVAED	LADADI	...				347
consensus	***!!	*****	**	*****	*****	**	**					**

logo

NTDB id 600 KW2 RS01765 WP 011675413.1	.....	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	IEIEE	388
NTDB id 228 SPD RS09265 WP 001085462.1	IEIEE	388
NTDB id 194 SPR RS08825 WP 001085462.1	IEIEE	388
NTDB id 159 SP RS09750 WP 001085462.1	IEIEE	388
NTDB id 499 SM12261 RS08315 WP 078228268.1	IEIEE	384
NTDB id 527 SMSK321 RS11065 WP 001085454.1	IEIEE	384
NTDB id 408 SMU RS09530 WP 002262392.1	LED..	383
NTDB id 453 Spy49 1753c ACI62003.1	IED..	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 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 1389 A4U84 RS07560 WP 021112712.1	.....	372
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 1022 ACIAD RS06390 WP 004925639.1	.....	349
NTDB id 1074 ABD1 RS10195 WP 000344167.1	.....	349
NTDB id 155455 A6701 RS07225 WP 003092260.1	.....	346
NTDB id 1205 PSJM300 05545 AFN77183.1	.....	347

consensus

 non conserved
 similar
 ≥ 50% conserved