

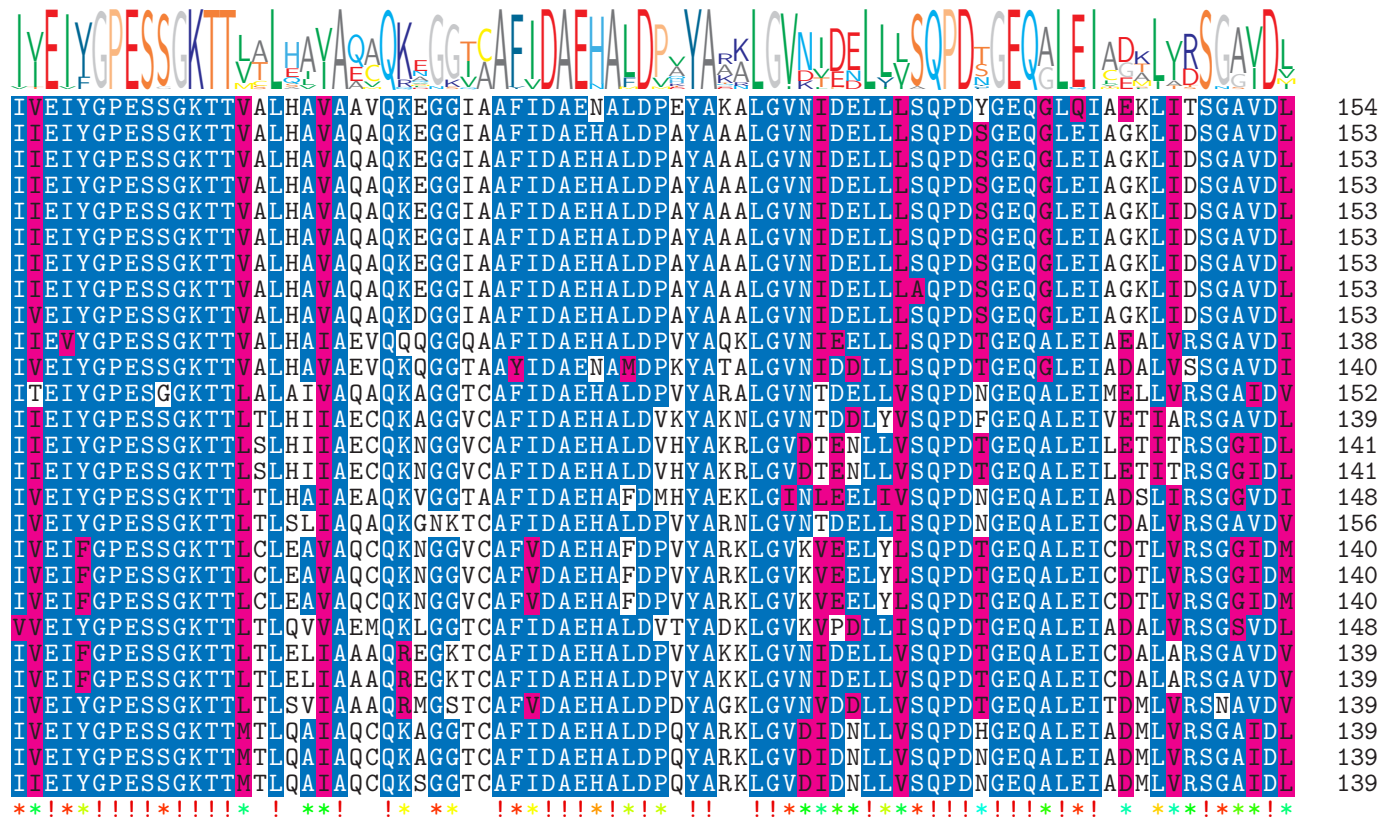
logo

NTDB id 600 KW2 RS01765 WP 011675413.1	MATKK....KTNFDDITKKYGA	ERDKALADALALIEKD	FGKGSIMRLGEA	.ANQKVS	VSSGSLALD	I	ALGAGGY	PKGR	74
NTDB id 269 KZH43 RS08665 WP 001085462.1	.MAKK....PKKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQ	VMSGSLALD	I	ALGSGGY	PKGR	73
NTDB id 228 SPD RS09265 WP 001085462.1	.MAKK....PKKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQ	VMSGSLALD	I	ALGSGGY	PKGR	73
NTDB id 194 SPR RS08825 WP 001085462.1	.MAKK....PKKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQ	VMSGSLALD	I	ALGSGGY	PKGR	73
NTDB id 159 SP RS09750 WP 001085462.1	.MAKK....PKKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQ	VMSGSLALD	I	ALGSGGY	PKGR	73
NTDB id 527 SMSK321 RS11065 WP 001085454.1	.MAKK....PKKLDEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQ	VMSGSLALD	I	ALGSGGY	PKGR	73
NTDB id 499 SM12261 RS08315 WP 078228268.1	.MAKK....PKKLDEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQ	VMSGSLALD	I	ALGSGGY	PKGR	73
NTDB id 453 Spy49 1753c ACI62003.1	.MAKK....LKKNEEITKKFG	DERRKALDDALKNIEKD	FGKGAVMRLGER	.AEQKVQ	VMSGSLALD	I	ALGAGGY	PKGR	73
NTDB id 408 SMU RS09530 WP 002262392.1	.MAKR....IKKTEEITKKFG	DERKKALDDALKNIEKD	FGKGAVMRLGER	.AEQKVQ	VMSGSLALD	I	ALGAGGY	PKGR	73
NTDB id 115 BSU 16940 NP 389576.2	MSDRQAALDMALK	QIEKQFGKGSIMKLGEK	.TDTR	ISTVP	SGSLALD	T	ALGIGGY	PRGR	58
NTDB id 625 LCA RS02525 WP 011374196.1	MAKDERQAALDAALKK	IEKNFGKGSIMRMGEK	.VDTQ	VSTVSSGSLAL	DEALGV	GGYPRGR			60
NTDB id 1313 DR RS12030 WP 010888966.1	MSKDATKEISAPTD	AKERSKATETAM	SQIEKAFGKGSIMKLGAE	.SKLDV	QVVSTGSLSLD	I	ALGVGGI	PRGR	72
NTDB id 1245 Cj1673c YP 002345041.1	MDDNKRKSLDAALKS	LDKTFGKGTILRLGDK	.EVEQ	IDSIGTGSVGLD	I	ALGIGGV	PKGR		59
NTDB id 1214 NCTC11637 00359 SQJ03206.1	MAIDEDKQKAI	SLAIKQIDKVF	FGKGALVRLGDK	.QVEK	IDAISTGSLGLD	I	ALGIGGV	PKGR	61
NTDB id 1211 C694 RS00795 WP 000963128.1	MAIDEDKQKAI	SLAIKQIDKVF	FGKGALVRLGDK	.QVEK	IDSISTGSLGLD	I	ALGIGGV	PKGR	61
NTDB id 1334 RAOC RS04870 WP 004918236.1	MAKT..ETTS	PNDDKKKALAAVLEK	LDKTYGKGTVMKLG	DGTVD	HNIEVIPSGSLGLD	I	ALGVGGY	PKGR	68
NTDB id 1389 A4U84 RS07560 WP 021112712.1	.MAENKKS	SKNNTV.VKQVEP	EQKKQALEAALA	QIEKQFGKGSIMKLG	QT.EQLDIESV	TGSLGLD	I	ALGIGGLPMGR	76
NTDB id 1130 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALA	QIEKSFGKGAIMKMDGSQ	QEE	NLEVISTGSLGLD	I	ALGVGGLPRGR			60
NTDB id 1124 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALA	QIEKSFGKGAIMKMDGSQ	QEE	NLEVISTGSLGLD	I	ALGVGGLPRGR			60
NTDB id 1123 OK783 RS03845 WP 003688695.1	MSDDKSKALAAALA	QIEKSFGKGAIMKMDGSQ	QEE	NLEVISTGSLGLD	I	ALGVGGLPRGR			60
NTDB id 1427 RS RS02760 WP 011000510.1	.MEDG.....K..KAAS	MSAEKQKALAAALA	QIEKQFGKGSIMKMDA	.EVEP	VQVVSTGSLGLD	I	ALGVGGLPRGR		68
NTDB id 1165 A1552VC RS01565 WP 000344154.1	MDENKQKALAAALG	QIEKQFGKGSIMRLGDN	.RAMD	VETISTGSLSLD	I	ALGAGGLPMGR			59
NTDB id 1142 GTF74 RS11550 WP 000344154.1	MDENKQKALAAALG	QIEKQFGKGSIMRLGDN	.RAMD	VETISTGSLSLD	I	ALGAGGLPMGR			59
NTDB id 1205 PSJM300 05545 AFN77183.1	MDENKKRALAAALG	QIEKQFGKGAVMRMG	DH.DRQA	IPSISTGSLGLD	I	ALGIGGLPKGR			59
NTDB id 1022 ACIAD RS06390 WP 004925639.1	MDDNKSKALQAALS	QIEKQFGKNTVMRLGDN	.TVQ	AVEAVSTGSLTLD	I	ALGIGGLPKGR			59
NTDB id 77641 H7R46 RS07570 WP 002115680.1	MDENKSKALQAALS	QIEKQFGKNTVMRLGDN	.TVQ	AVEAVSTGSLTLD	I	ALGIGGLPKGR			59
NTDB id 1074 ABD1 RS10195 WP 000344167.1	MDENKSKALQAALS	QIEKQFGKNTVMRLGDN	.TVQ	AVEAVSTGSLTLD	I	ALGIGGLPKGR			59
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 011000511.1
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 77641 H7R46 RS07570 WP 002115680.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
consensus

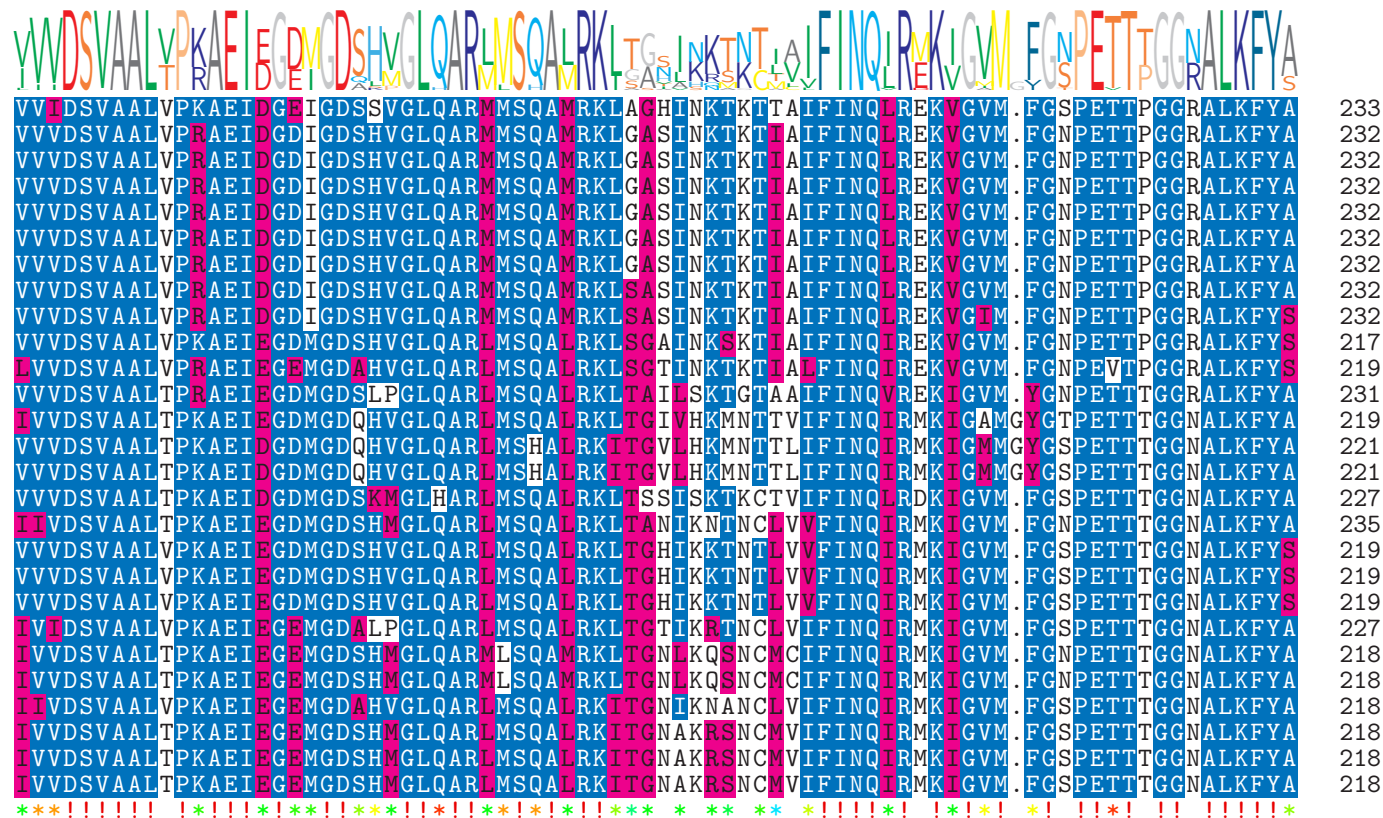
```



```

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 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 77641 H7R46 RS07570 WP 002115680.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
consensus

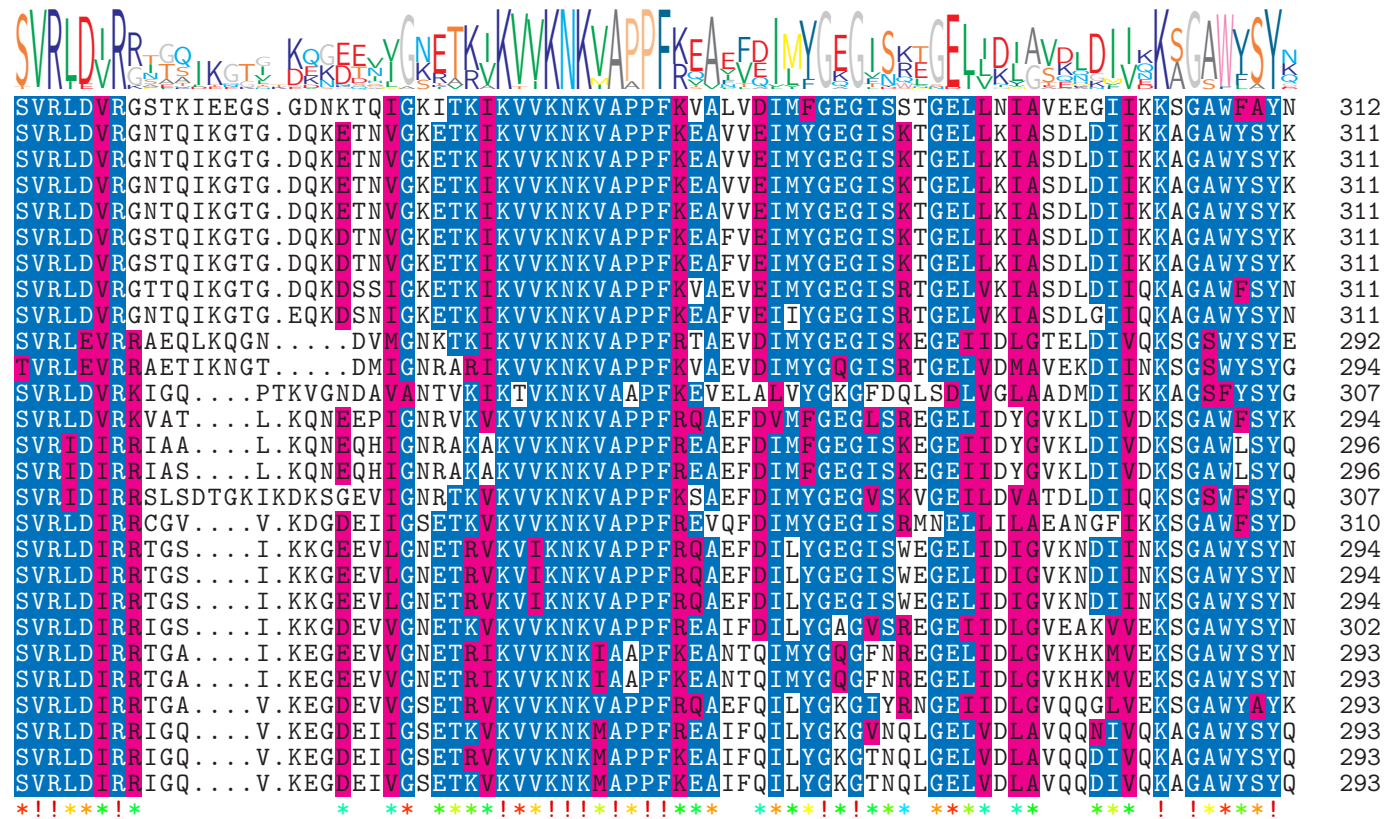
```



```

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 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 77641 H7R46 RS07570 WP 002115680.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
consensus

```



logo

NTDB id 600 KW2 RS01765 WP 011675413.1	DEKIGQGA	EKAKNYLKEHQDV	DEIDHKVRAAHG	LDDSEVAETEEETT	ASKTKAKAKKEEK	AVETEEIELELED	.....	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQD	TENKKDE	PKKEEA	..VNEEVPLDLGDELEIE	385
NTDB id 228 SPD RS09265 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQD	TENKKDE	PKKEEA	..VNEEVPLDLGDELEIE	385
NTDB id 194 SPR RS08825 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQD	TENKKDE	PKKEEA	..VNEEVPLDLGDELEIE	385
NTDB id 159 SP RS09750 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQD	TENKKDE	PKKEEA	..VNEEVPLDLGDELEIE	385
NTDB id 527 SMSK321 RS11065 WP 001085454.1	DEKIGQGS	ENAKKYLAADNPEV	FAEIDHQVRVQFGL	IDGEEAAE	SKKDE	VAQVDS	..VNEEVTLDLGDELEIE	381
NTDB id 499 SM12261 RS08315 WP 078228268.1	DEKIGQGS	ENAKKYLAADNPEIF	DEIDHQVRVQFGL	IDGEEIAE	SKKDE	AAQVDS	..VNEEVTLDLGDELEIE	381
NTDB id 453 Spy49 1753c ACI62003.1	GEKIGQGS	ENAKRYLADHPQLF	DEIDRKVRVKFGL	LEESEEEESAMAVASE	E	TDDLALDL	DNGIEIE	377
NTDB id 408 SMU RS09530 WP 002262392.1	GEKIGQGS	ENAKKFLADNPEIF	DDIDHKVRVQYGL	IEEDNTEEKQSSKEK	ETDEK	..ADKNLVLEL	DDTIELE	382
NTDB id 115 BSU 16940 NP 389576.2	EERLGGQREN	AKQFLKENKDIM	LMIQEQIREHYGL	DNNGVVQQAEETQEEL	EFE	E	.....	348
NTDB id 625 LCA RS02525 WP 011374196.1	SERIGQGS	ENAKNYLADHEDVE	DEVRLKVRVQYGL	ISDVPEEDLPTTEDE	..QI	..NILPDDST	EE	355
NTDB id 1313 DR RS12030 WP 010888966.1	DERIGQGS	KEKTIA	YIAERPEMEQEIR	DRVMAAIRAGNAGE	APALAPAPAAPEAA	..EA	.....	363
NTDB id 1245 Cj1673c YP 002345041.1	DKKLGGQGR	ENSKAFLKENPEIA	DEITKAIQNSMG	IEGMIS	GSEDDEGEE	.....	.....	343
NTDB id 1214 NCTC11637 00359 SQJ03206.1	DKKLGGQGR	ENAKALLKEDKAL	ADEITLKI	KESIGSNEEIM	PLPDEPLEE	..ME	.....	347
NTDB id 1211 C694 RS00795 WP 000963128.1	DKKLGGQGR	ENAKALLKEDKAL	ADEITLKI	KESIGSNEEIM	PLPDEPLEE	..ME	.....	347
NTDB id 1334 RAOC RS04870 WP 004918236.1	DTKLGGQR	DTVKELIKDNPELA	AELEAKIREKLQAK	.....	.....	.....	.....	343
NTDB id 1389 A4U84 RS07560 WP 021112712.1	GTKIGQGS	KNNAVKWLKENPEIA	DKLEQEIRNTL	ASNPN	SV....LKATASDSN	..DESDVEEFSEEL	.....	372
NTDB id 1130 NGFG RS03960 WP 003688695.1	GAKIGQGS	KDNVRVWLKENPEIS	DEIDAKIRALNG	VEMHIT	EG	T..QDET	DGERPEE	348
NTDB id 1124 NGFG RS03960 WP 003688695.1	GAKIGQGS	KDNVRVWLKENPEIS	DEIDAKIRALNG	VEMHIT	EG	T..QDET	DGERPEE	348
NTDB id 1123 OK783 RS03845 WP 003688695.1	GAKIGQGS	KDNVRVWLKENPEIS	DEIDAKIRALNG	VEMHIT	EG	T..QDET	DGERPEE	348
NTDB id 1427 RS RS02760 WP 011000510.1	GERIGQGR	DNCREFLRENAEL	AREIENKVRHLGV	TPMGA	VTLAE	..EVE..ED	.....	352
NTDB id 1165 A1552VC RS01565 WP 000344154.1	GDKIGQGS	KANACKYLVKENPEIA	AKTLDKKLREML	LNPNENMQ	LIAETSSAA	..DDVEFGAVPEEF	.....	354
NTDB id 1142 GTF74 RS11550 WP 000344154.1	GDKIGQGS	KANACKYLVKENPEIA	AKTLDKKLREML	LNPNENMQ	LIAETSSAA	..DDVEFGAVPEEF	.....	354
NTDB id 1205 PSJM300 05545 AFN77183.1	GSKIGQGS	KANAACKYLVLENPEI	QIEQQIRAKLL	VTSANT	KATPVAEDL	..ADA...DI	.....	347
NTDB id 1022 ACIAD RS06390 WP 004925639.1	GNKIGQGS	KNNVIRHFEENPQ	ISTEIEAVIREQLL	TKASDQ	TAAHD	..ETE..EEP...DLLES	.....	349
NTDB id 77641 H7R46 RS07570 WP 002115680.1	GNKIGQGS	KNNVIRHFEENPQ	ISTEIEAVIREQLL	TTGTNG	AVQVE	..DEE..ED...LLLES	.....	348
NTDB id 1074 ABD1 RS10195 WP 000344167.1	GNKIGQGS	KNNVIRYFEENNQIA	EIEIERNIREQLL	TTGTNG	AVQIE	..DEE..EPD...LLLES	.....	349
consensus	***!!!	*****	**	*****	*****	**	**	

logo

		IEE	
NTDB id 600 KW2 RS01765 WP 011675413.1	...	387	
NTDB id 269 KZH43 RS08665 WP 001085462.1	IEE	388	
NTDB id 228 SPD RS09265 WP 001085462.1	IEE	388	
NTDB id 194 SPR RS08825 WP 001085462.1	IEE	388	
NTDB id 159 SP RS09750 WP 001085462.1	IEE	388	
NTDB id 527 SMSK321 RS11065 WP 001085454.1	IEE	384	
NTDB id 499 SM12261 RS08315 WP 078228268.1	IEE	384	
NTDB id 453 Spy49 1753c ACI62003.1	D..	378	
NTDB id 408 SMU RS09530 WP 002262392.1	D..	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 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 77641 H7R46 RS07570 WP 002115680.1	...	348	
NTDB id 1074 ABD1 RS10195 WP 000344167.1	...	349	
consensus			

- X non conserved
- X similar
- X ≥ 50% conserved