

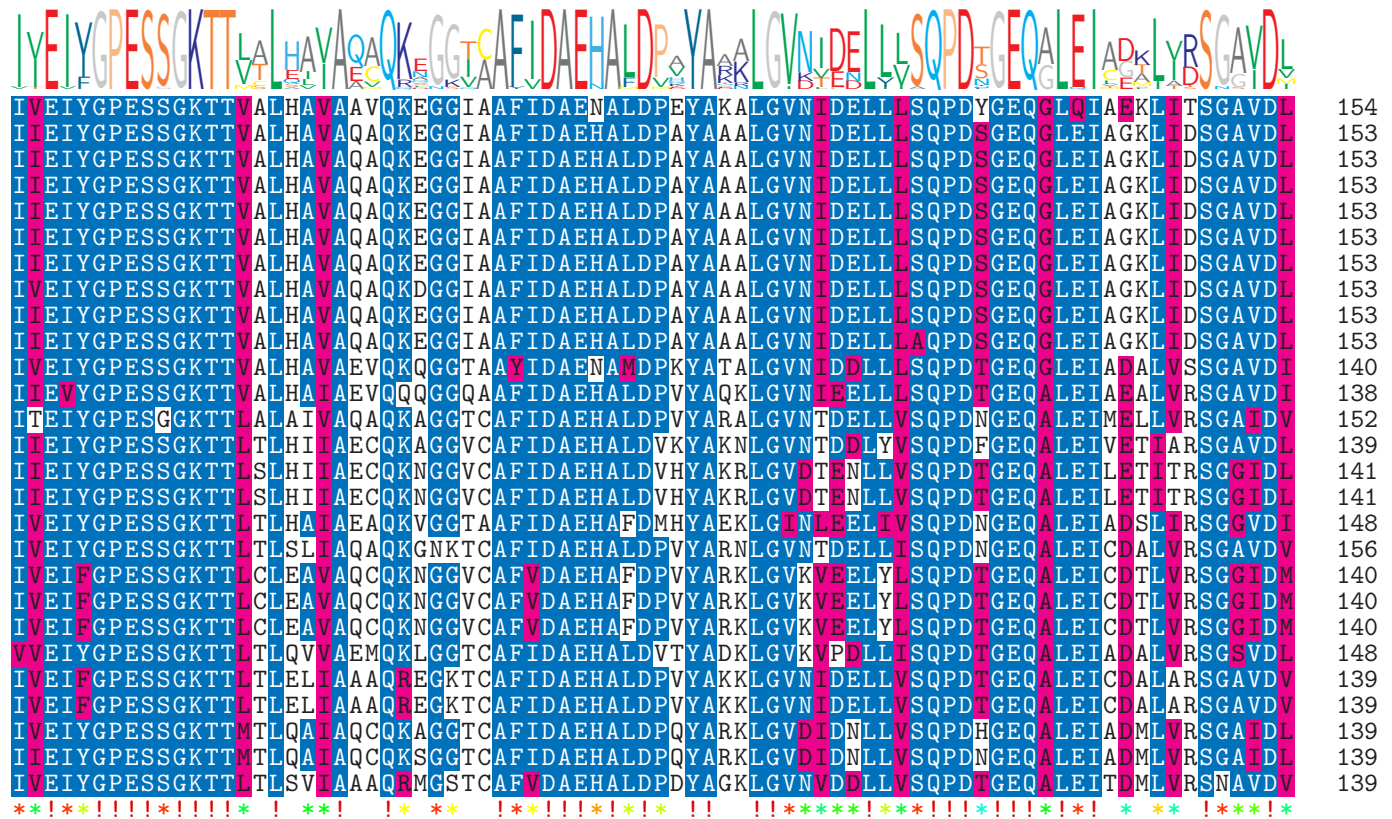
logo

NTDB id 600 KW2 RS01765 WP 011675413.1	MATKK.....KTNFDDITKKYGAERDKALADALALIEKD FGKGSIMRLGER.ANQKVS	VSSGSLALDIALGAGGYPKGR	74			
NTDB id 269 KZH43 RS08665 WP 001085462.1	.MAKK.....PKKLEEISKKFGEEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQV	MSSGSLALDIALGSGGYPKGR	73			
NTDB id 228 SPD RS09265 WP 001085462.1	.MAKK.....PKKLEEISKKFGEEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQV	MSSGSLALDIALGSGGYPKGR	73			
NTDB id 194 SPR RS08825 WP 001085462.1	.MAKK.....PKKLEEISKKFGEEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQV	MSSGSLALDIALGSGGYPKGR	73			
NTDB id 159 SP RS09750 WP 001085462.1	.MAKK.....PKKLEEISKKFGEEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQV	MSSGSLALDIALGSGGYPKGR	73			
NTDB id 499 SM12261 RS08315 WP 078228268.1	.MAKK.....PKKLDEISKKFGEEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQV	MSSGSLALDIALGSGGYPKGR	73			
NTDB id 527 SMSK321 RS11065 WP 001085454.1	.MAKK.....PKKLDEISKKFGEEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQV	MSSGSLALDIALGSGGYPKGR	73			
NTDB id 408 SMU RS09530 WP 002262392.1	.MAKR.....IKKTEEITKKFGDERKKALDDALKNIEKD FGKGAVMRLGER.AEQKVQV	MSSGSLALDIALGAGGYPKGR	73			
NTDB id 324503 EGC57 RS09130 WP 076639528.1	.MAKK.....LKKNEEITKKFGDERRKALDDALKNIEKD FGKGAVMRLGER.AEQKVQV	MSSGSLALDIALGAGGYPKGR	73			
NTDB id 453 Spy49 1753c ACI62003.1	.MAKK.....LKKNEEITKKFGDERRKALDDALKNIEKD FGKGAVMRLGER.AEQKVQV	MSSGSLALDIALGAGGYPKGR	73			
NTDB id 625 LCA RS02525 WP 011374196.1	MAKDERQAALDAALKKIEKNFGKGSIMRMGEK.VDTQVST	VSSGSLALDEALGVGGYPGR	60			
NTDB id 115 BSU 16940 NP 389576.2	MSDRQAALDMALKQIEKQFGKGSIMKLGAE.TDTRISTVPSGSLALDTALGIGGYPRGR		58			
NTDB id 1313 DR RS12030 WP 010888966.1	MSKDATKEISAPTDAKERSKATETAMSQIEKAFGKGSIMKLGAE.SKLDVQVVSTGSLSLDLALGVGGIPGR		72			
NTDB id 1245 Cj1673c YP 002345041.1	MDNKRKSLDAALKSLDKTFGKGTILRLGDK.EVEQIDSIGTGSVGLDLALGIGGVPKGR		59			
NTDB id 1214 NCTC11637 00359 SQJ03206.1	MAIDEDKQKATISLAIKQIDKVFVGKGAIVRLGDK.QVEKIDAIISTGSLGLDLALGIGGVPKGR		61			
NTDB id 1211 C694 RS00795 WP 000963128.1	MAIDEDKQKATISLAIKQIDKVFVGKGAIVRLGDK.QVEKIDSISTGSLGLDLALGIGGVPKGR		61			
NTDB id 1334 RAOC RS04870 WP 004918236.1	MAKT..ETTSNDDKKKALAAVLEKLDKTYGKGTVMKLGDTVDHNIIEVIPSGLGLDLALGVGGYPKGR		68			
NTDB id 1389 A4U84 RS07560 WP 021112712.1	.MAENKKSSKNNTV..VKQVEPEQKKQALEAALAQIEKQFGKGSIMKLGQT.EQLDIESVSTGSLGLDLALGIGGLPMGR		76			
NTDB id 1130 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALAQIEKSFGKGAIMKMDGSQQUEENLEVISTGSLGLDLALGVGGLPRGR		60			
NTDB id 1124 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALAQIEKSFGKGAIMKMDGSQQUEENLEVISTGSLGLDLALGVGGLPRGR		60			
NTDB id 1123 OK783 RS03845 WP 003688695.1	MSDDKSKALAAALAQIEKSFGKGAIMKMDGSQQUEENLEVISTGSLGLDLALGVGGLPRGR		60			
NTDB id 1427 RS RS02760 WP 011000510.1	.MEDG.....K..KAASMSAEKQKALAAALAQIEKQFGKGSIMKMGDA.EVEPVQVVSTGSLGLDVALGVGGLPRGR		68			
NTDB id 1165 A1552VC RS01565 WP 000344154.1	MDENKQKALAAALGQIEKQFGKGSIMRLGDN.RAMDVETISTGSLSLDIALGAGGLPMGR		59			
NTDB id 1142 GTF74 RS11550 WP 000344154.1	MDENKQKALAAALGQIEKQFGKGSIMRLGDN.RAMDVETISTGSLSLDIALGAGGLPMGR		59			
NTDB id 1022 ACIAD RS06390 WP 004925639.1	MDDNKSKALQAALSQIEKQFGKNTVMRLGDN.TVQAVEAVSTGSLTLDIALGIGGLPKGR		59			
NTDB id 1074 ABD1 RS10195 WP 000344167.1	MDDNKSKALQAALSQIEKQFGKNTVMRLGDN.TVQAVEAVSTGSLTLDIALGIGGLPKGR		59			
NTDB id 1205 PSJM300 05545 AFN77183.1	MDENKKRALAAALGQIEKQFGKGAVMRMGDH.DRQAIPSISTGSLGLDIALGIGGLPKGR		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 499 SM12261 RS08315 WP 078228268.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 324503 EGC57 RS09130 WP 076639528.1
NTDB id 453 Spy49 1753c ACI62003.1
NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 115 BSU 16940 NP 389576.2
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 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus

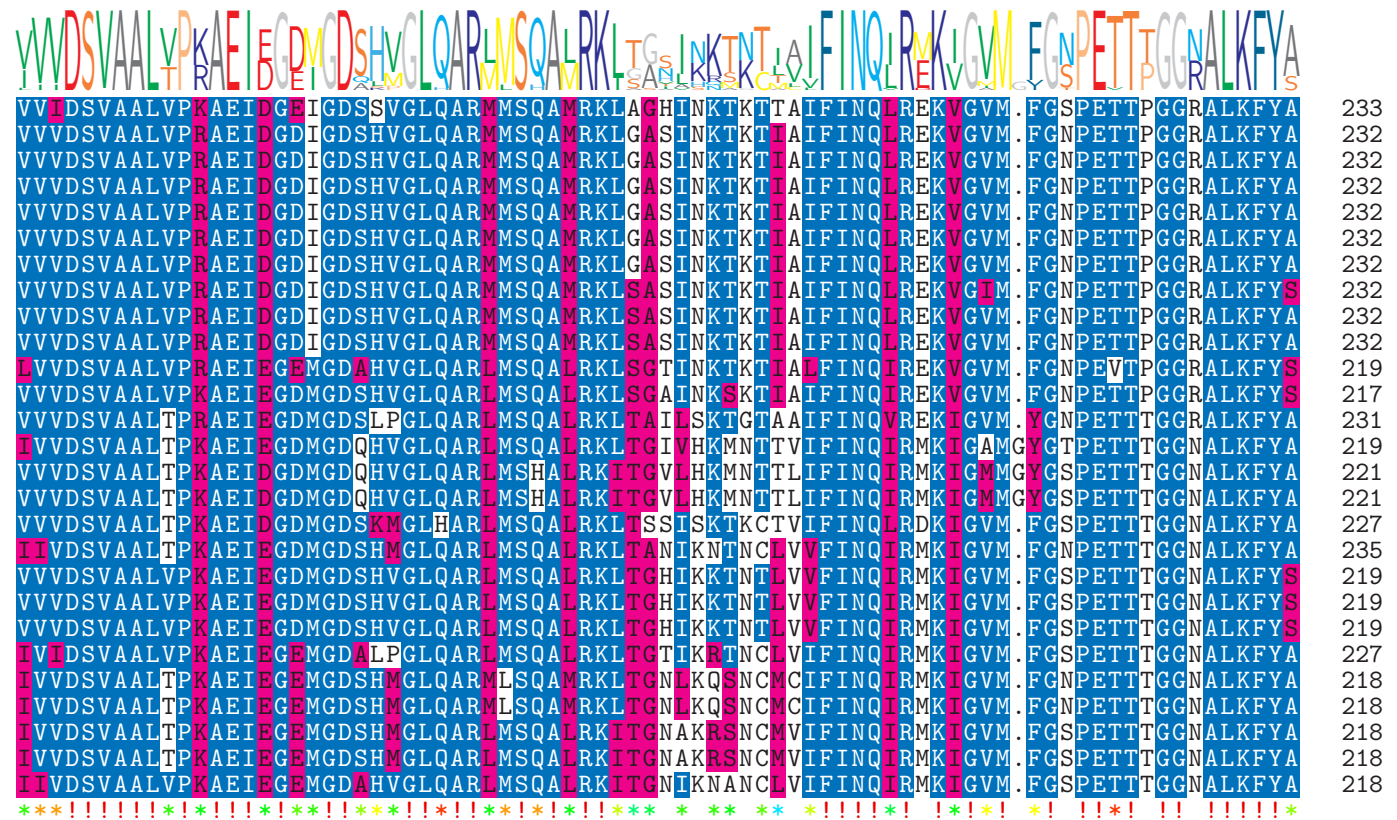
```



```

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 324503 EGC57 RS09130 WP 076639528.1
NTDB id 453 Spy49 1753c ACI62003.1
NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 115 BSU 16940 NP 389576.2
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 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus

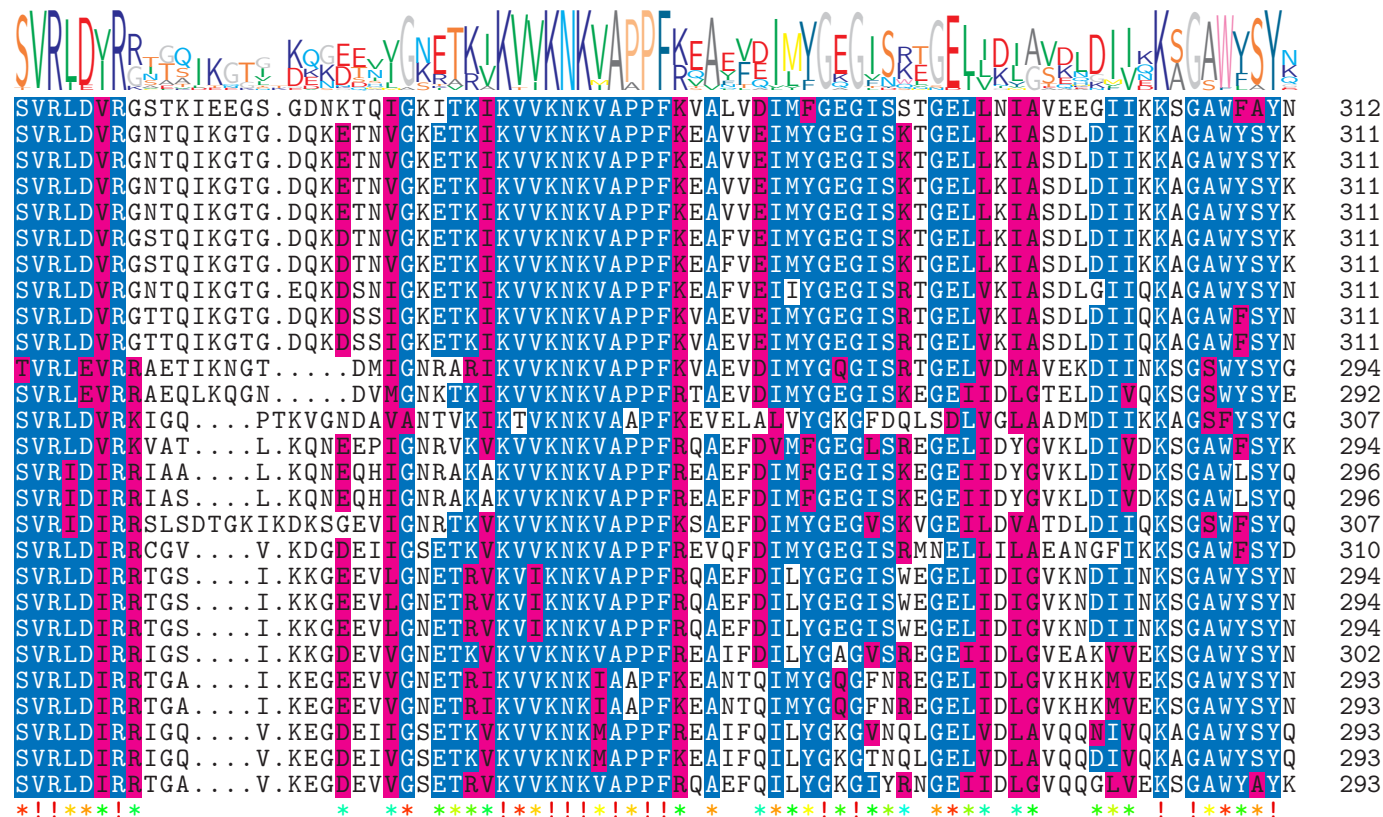
```



```

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 324503 EGC57 RS09130 WP 076639528.1
NTDB id 453 Spy49 1753c ACI62003.1
NTDB id 625 LCA RS02525 WP 0011374196.1
NTDB id 115 BSU 16940 NP 389576.2
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 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus

```



logo

NTDB id 600 KW2 RS01765 WP 011675413.1	DEKIGQGA	EKAKNYLKEHQ	DV	FDEIDHKV	VRAAHG	LDDSEVAETEEETTAS	KTAKAKKEEKAVETE	E	I	E	L	E	D	....	387					
NTDB id 269 KZH43 RS08665 WP 001085462.1	DEKIGQGS	ENAKKYLA	EHPEI	FDEIDKQV	RSKFG	LIDGEEVSEQD	TENKKDEPK	...	KEEA	..	VNEE	EVPLDLG	DELEIE		385					
NTDB id 228 SPD RS09265 WP 001085462.1	DEKIGQGS	ENAKKYLA	EHPEI	FDEIDKQV	RSKFG	LIDGEEVSEQD	TENKKDEPK	...	KEEA	..	VNEE	EVPLDLG	DELEIE		385					
NTDB id 194 SPR RS08825 WP 001085462.1	DEKIGQGS	ENAKKYLA	EHPEI	FDEIDKQV	RSKFG	LIDGEEVSEQD	TENKKDEPK	...	KEEA	..	VNEE	EVPLDLG	DELEIE		385					
NTDB id 159 SP RS09750 WP 001085462.1	DEKIGQGS	ENAKKYLA	EHPEI	FDEIDKQV	RSKFG	LIDGEEVSEQD	TENKKDEPK	...	KEEA	..	VNEE	EVPLDLG	DELEIE		385					
NTDB id 499 SM12261 RS08315 WP 078228268.1	DEKIGQGS	ENAKKYLA	DNPEI	FDEIDHQV	RVVQF	G	LIDGEEIAES	...	KKDEAA	...	QVDS	..	VNEE	EVTLDLG	DELEIE	381				
NTDB id 527 SMSK321 RS11065 WP 001085454.1	DEKIGQGS	ENAKKYLA	DNPEI	FDEIDHQV	RVVQF	G	LIDGEEAAES	...	KKDEVA	...	QVDS	..	VNEE	EVTLDLG	DELEIE	381				
NTDB id 408 SMU RS09530 WP 002262392.1	GEKIGQGS	ENAKKFLA	DNPEI	FDDIDHKV	RVVQY	G	LIEEDNTEEKQSSKE	KE	.....	TDEK	..	ADKNLVLEL	DDTIELE		382					
NTDB id 324503 EGC57 RS09130 WP 076639528.1	GEKIGQGS	ENAKRYLA	DHP	ELFDEIDRKV	RVVKF	G	LLEESSEESAMAVA	.....	AE	..	GTDDLVL	DL	LDNGIEIE		377					
NTDB id 453 Spy49 1753c ACI62003.1	GEKIGQGS	ENAKRYLA	DHP	ELFDEIDRKV	RVVKF	G	LLEESSEESAMAVA	.....	SE	..	ETDDLAL	DL	LDNGIEIE		377					
NTDB id 625 LCA RS02525 WP 011374196.1	SERIGQGS	ENAKNYLA	DHDE	VEDEVRLK	VRAAY	G	ISDVPEEDLPTTE	DE	..	QINI	.....	LPDDSTEE	..		355					
NTDB id 115 BSU 16940 NP 389576.2	EERLGQGS	ENAKQFL	KENK	DIMLM	IQEQ	I	REHYGL	DNNGVVQQAEET	QEELEF	.....	E	..	E	.....	348					
NTDB id 1313 DR RS12030 WP 010888966.1	DERIGQGS	KEKTIAY	IAERPE	MEQEIR	DRVMAA	IRAGNAGEA	PALAPAPAAPEAA	.....	EA	.....					363					
NTDB id 1245 Cj1673c YP 002345041.1	DKKLGQGS	ENAKFL	KENPEI	ADEITKAI	QNSMG	I	EGMI	...	SGSEDD	..	EG	.....	EE	.....	343					
NTDB id 1214 NCTC11637 00359 SQJ03206.1	DKKLGQGS	ENAKALL	KEDKAL	ADEITLK	IKESIGS	N	EEI	...	MPLPDE	..	PL	.....	EEME	.....	347					
NTDB id 1211 C694 RS00795 WP 000963128.1	DKKLGQGS	ENAKALL	KEDKAL	ADEITLK	IKESIGS	N	EEI	...	MPLPDE	..	PL	.....	EEME	.....	347					
NTDB id 1334 RAOC RS04870 WP 004918236.1	DTKLGQGR	DTVKEL	IKDNPEI	A	EELAK	I	REKLQAK	.....							343					
NTDB id 1389 A4U84 RS07560 WP 021112712.1	GTKIGQGS	KNNAVK	WLKENPEI	ADKLEQ	EIRNTLAS	NPNS	...	VLKATASDSN	.....	DES	D	VEEFSEEL	...		372					
NTDB id 1130 NGFG RS03960 WP 003688695.1	GAKIGQGS	KDNVRV	WLKENPEI	SDEIDAKI	RALNGV	EMHI	...	TEGTQDET	DG	.....	ER	.....	PEE	.....	348					
NTDB id 1124 NGFG RS03960 WP 003688695.1	GAKIGQGS	KDNVRV	WLKENPEI	SDEIDAKI	RALNGV	EMHI	...	TEGTQDET	DG	.....	ER	.....	PEE	.....	348					
NTDB id 1123 OK783 RS03845 WP 003688695.1	GAKIGQGS	KDNVRV	WLKENPEI	SDEIDAKI	RALNGV	EMHI	...	TEGTQDET	DG	.....	ER	.....	PEE	.....	348					
NTDB id 1427 RS RS02760 WP 011000510.1	GERIGQGR	DNCREF	FLRENAEL	AREIENK	VREHLG	VTPMG	...	AVTLA	..	EEVE	.....	ED	.....		352					
NTDB id 1165 A1552VC RS01565 WP 000344154.1	GDKIGQGS	KANACKY	LLKENPEI	AKTLDKKL	REMLLN	PNENM	...	QLIAETSSAA	.....	DDV	E	FGAVPEEF	...		354					
NTDB id 1142 GTF74 RS11550 WP 000344154.1	GDKIGQGS	KANACKY	LLKENPEI	AKTLDKKL	REMLLN	PNENM	...	QLIAETSSAA	.....	DDV	E	FGAVPEEF	...		354					
NTDB id 1022 ACIAD RS06390 WP 004925639.1	GNKIGQGS	KNNVIRY	FEENN	QIAEIEI	ERN	I	REQLLT	TKASD	...	QTAA	..	HDETE		EEDLL	..	ES		349		
NTDB id 1074 ABD1 RS10195 WP 000344167.1	GNKIGQGS	KNNVIRY	FEENN	QIAEIEI	ERN	I	REQLLT	TTGTN	...	GAVQ	..	I	..	EDE		EEDLL	..	LES		349
NTDB id 1205 PSJM300 05545 AFN77183.1	GSKIGQGS	KANAACKY	LLKENPEI	GQIEI	EQQIRAKLL	V	TSAN	...	TKATPVAEDL		ADAD	I							347	
consensus	***!!!	*****	***	*	***	*****	***	***					*							

logo

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 499 SM12261 RS08315 WP 078228268.1	IEE	384
NTDB id 527 SMSK321 RS11065 WP 001085454.1	IEE	384
NTDB id 408 SMU RS09530 WP 002262392.1	D..	383
NTDB id 324503 EGC57 RS09130 WP 076639528.1	D..	378
NTDB id 453 Spy49 1753c ACI62003.1	D..	378
NTDB id 625 LCA RS02525 WP 011374196.1	...	355
NTDB id 115 BSU 16940 NP 389576.2	...	348
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 1022 ACIAD RS06390 WP 004925639.1	...	349
NTDB id 1074 ABD1 RS10195 WP 000344167.1	...	349
NTDB id 1205 PSJM300 05545 AFN77183.1	...	347
consensus		

-  non conserved
-  similar
-  ≥ 50% conserved