

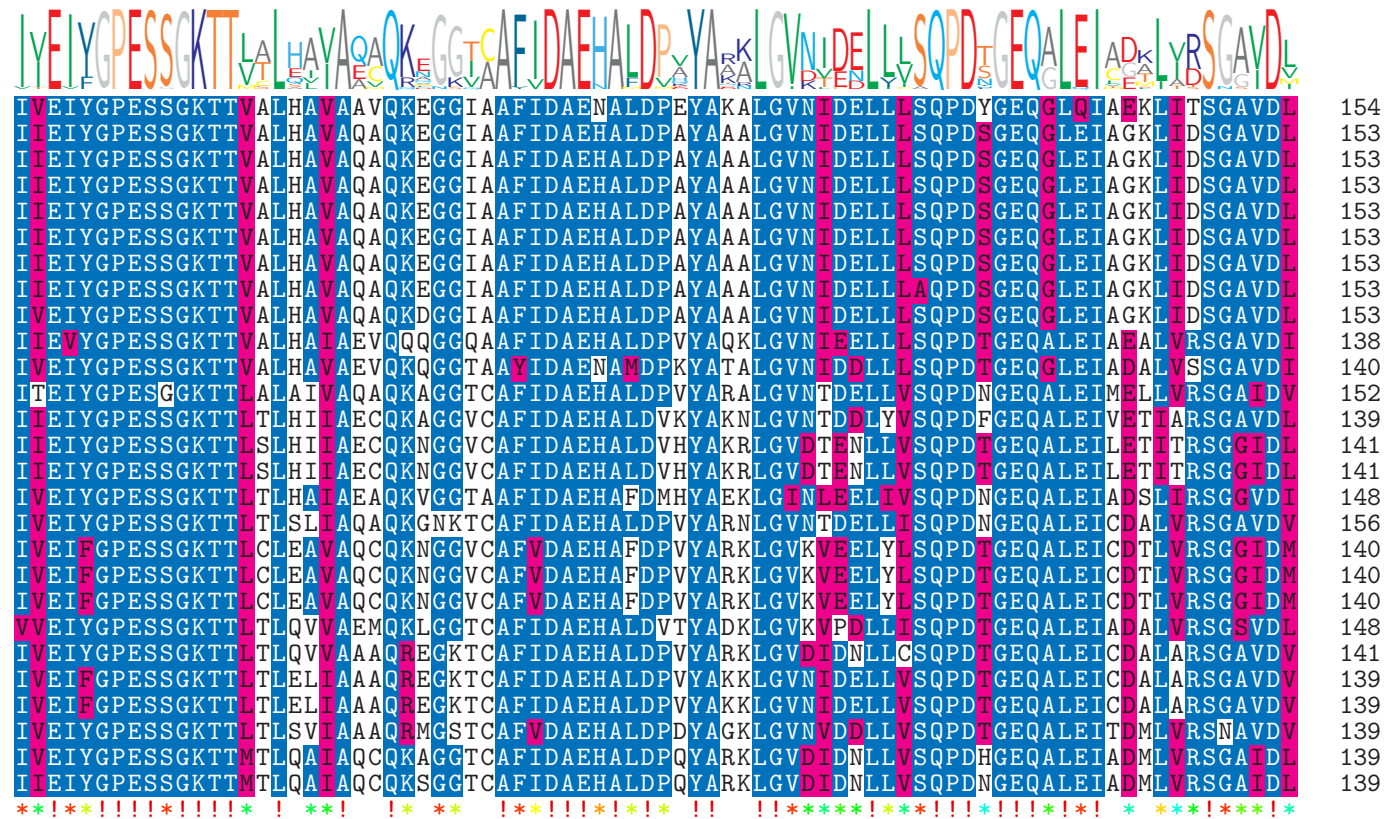
logo

NTDB id 600 KW2 RS01765 WP 011675413.1	MATKKK....TNFDDITKKYGA	ERDKALADALALIEKD	FGKGSIMRLGEA	.ANQKVS	VSSGSLALD	I	ALGAGGY	PKGR	74	
NTDB id 269 KZH43 RS08665 WP 001085462.1	.MAKKP....KKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73	
NTDB id 228 SPD RS09265 WP 001085462.1	.MAKKP....KKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73	
NTDB id 194 SPR RS08825 WP 001085462.1	.MAKKP....KKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73	
NTDB id 159 SP RS09750 WP 001085462.1	.MAKKP....KKLEEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73	
NTDB id 527 SMSK321 RS11065 WP 001085454.1	.MAKKP....KKLDEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73	
NTDB id 499 SM12261 RS08315 WP 078228268.1	.MAKKP....KKLDEISKKFGA	EREKALNDALKLIEKD	FGKGSIMRLGER	.AEQKVQV	MSSGSLALD	I	ALGSGGY	PKGR	73	
NTDB id 453 Spy49 1753c ACI62003.1	.MAKKL....KKNEEITKKFG	DERRKALDDALKNIEKD	FGKGAVMRLGER	.AEQKVQV	MSSGSLALD	I	ALGAGGY	PKGR	73	
NTDB id 408 SMU RS09530 WP 002262392.1	.MAKRI....KKTEEITKKFG	DERKKALDDALKNIEKD	FGKGAVMRLGER	.AEQKVQV	MSSGSLALD	I	ALGAGGY	PKGR	73	
NTDB id 115 BSU 16940 NP 389576.2	MSDRQAALDMALK	QIEKQFGKGSIMKLGEK	.TDTRIST	VP	SGSLALD	T	ALGIGGY	PRGR	58	
NTDB id 625 LCA RS02525 WP 011374196.1	MAKDERQAALDA	ALKKIEKNFGKGSIMRMGEK	.VDTQVST	V	SSGSLAL	D	EALGVGGY	PRGR	60	
NTDB id 1313 DR RS12030 WP 010888966.1	MSKDATKEISAPTD	AKERSKATETAMSQIEKA	FGKGSIMKLGAE	.SKLDVQV	VSTGSL	SLD	ALGVGGI	PRGR	72	
NTDB id 1245 Cj1673c YP 002345041.1	MDDNKRKSLDA	ALKSLDKTIFGKGTILRLGDK	.EVEQIDS	IGTGSVGLD	L	ALGIGGV	PKGR	59		
NTDB id 1214 NCTC11637 00359 SQJ03206.1	MAIDEDKQKAI	SLAIKQIDKVF	FGKGALVRLGDK	.QVEKIDA	ISTGSL	GLDL	ALGIGGV	PKGR	61	
NTDB id 1211 C694 RS00795 WP 000963128.1	MAIDEDKQKAI	SLAIKQIDKVF	FGKGALVRLGDK	.QVEKIDS	ISTGSL	GLDL	ALGIGGV	PKGR	61	
NTDB id 1334 RAOC RS04870 WP 004918236.1	MAKT..ETTS	PNDDKKKALAAVLEK	LDKTYGKGTVMKLG	DGTVDH	NIEVIPS	GSGLGLD	ALGVGGY	PKGR	68	
NTDB id 1389 A4U84 RS07560 WP 021112712.1	.MAENKKSSKNNTV..VKQ	VEPEQKKQALEAALA	QIEKQFGKGSIMKLGQT	.EQLDIES	VSTGSL	GLDL	ALGIGGL	PMGR	76	
NTDB id 1130 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALA	QIEKSFGKGAIMKMDGS	QREENLEVISTGSL	GLDL	ALGVGGL	PRGR	60			
NTDB id 1124 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALA	QIEKSFGKGAIMKMDGS	QREENLEVISTGSL	GLDL	ALGVGGL	PRGR	60			
NTDB id 1123 OK783 RS03845 WP 003688695.1	MSDDKSKALAAALA	QIEKSFGKGAIMKMDGS	QREENLEVISTGSL	GLDL	ALGVGGL	PRGR	60			
NTDB id 1427 RS RS02760 WP 011000510.1	.MED.....GK..KAAS	MSAEKQKALAAALA	QIEKQFGKGSIMKMDA	.EVEPVQV	VSTGSL	GLD	VALGVGGL	PRGR	68	
NTDB id 255620 CU081 RS09330 WP 015571667.1	MAIDENKQKALAAAL	GQIEKQFGKGSIMRLGED	.RSMDVET	ISTGSL	SLD	I	ALGAGGL	PMGR	61	
NTDB id 1165 A1552VC RS01565 WP 000344154.1	MDENKQKALAAAL	GQIEKQFGKGSIMRLGDN	.RAMDVET	ISTGSL	SLD	I	ALGAGGL	PMGR	59	
NTDB id 1142 GTF74 RS11550 WP 000344154.1	MDENKQKALAAAL	GQIEKQFGKGSIMRLGDN	.RAMDVET	ISTGSL	SLD	I	ALGAGGL	PMGR	59	
NTDB id 1205 PSJM300 05545 AFN77183.1	MDENKKRALAAAL	GQIEKQFGKGAVMRMGD	H.DRQAIPS	ISTGSL	GLD	I	ALGIGGL	PKGR	59	
NTDB id 1022 ACIAD RS06390 WP 004925639.1	MDDNKSKALQAALS	QIEKQFGKNTVMRLGDN	.TVQAVEA	VSTGSL	TL	D	I	ALGIGGL	PKGR	59
NTDB id 1074 ABD1 RS10195 WP 000344167.1	MDENKSKALQAALS	QIEKQFGKNTVMRLGDN	.TVQAVEA	VSTGSL	TL	D	I	ALGIGGL	PKGR	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 011000510.1
NTDB id 255620 CU081 RS09330 WP 015571667.1
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

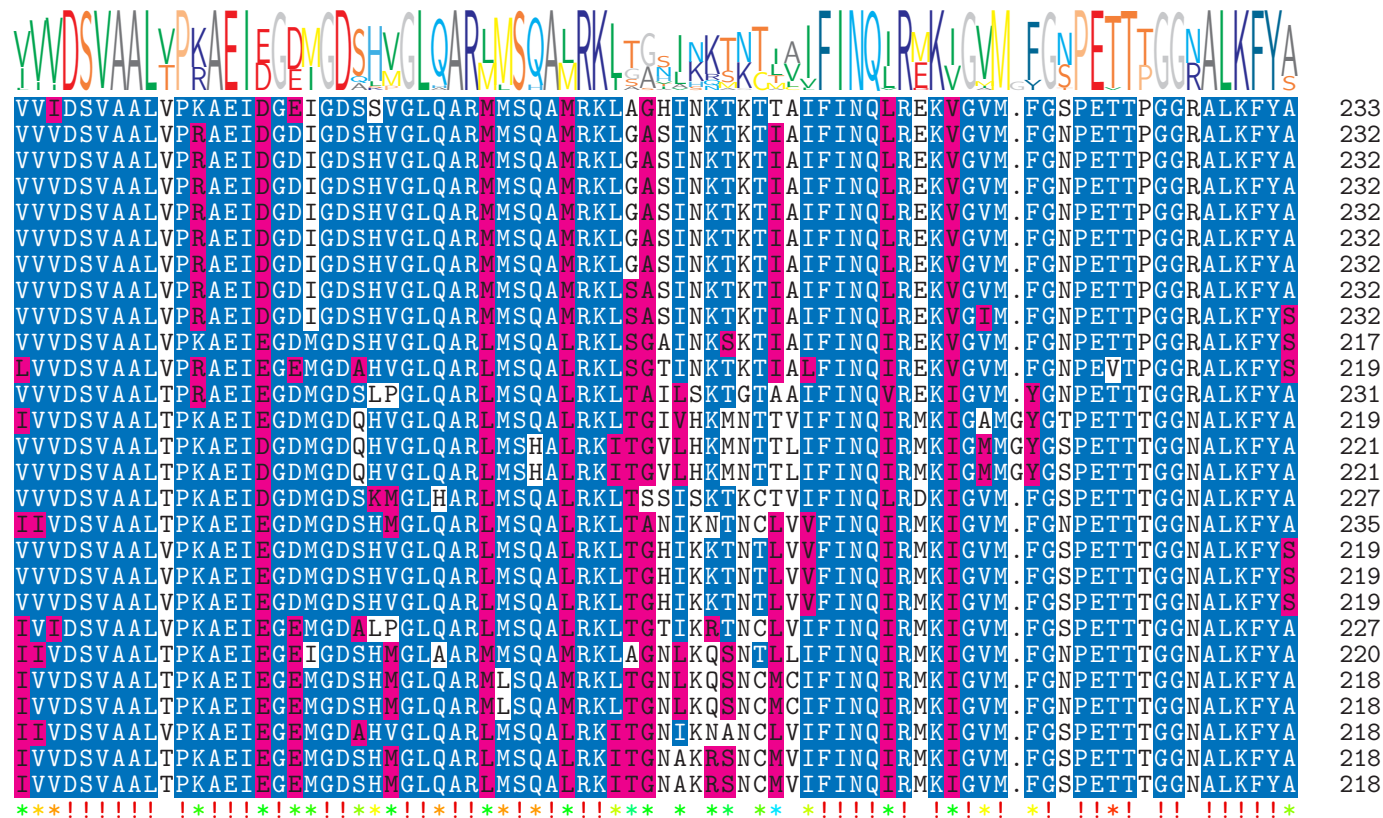
```



```

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 255620 CU081 RS09330 WP 015571667.1
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

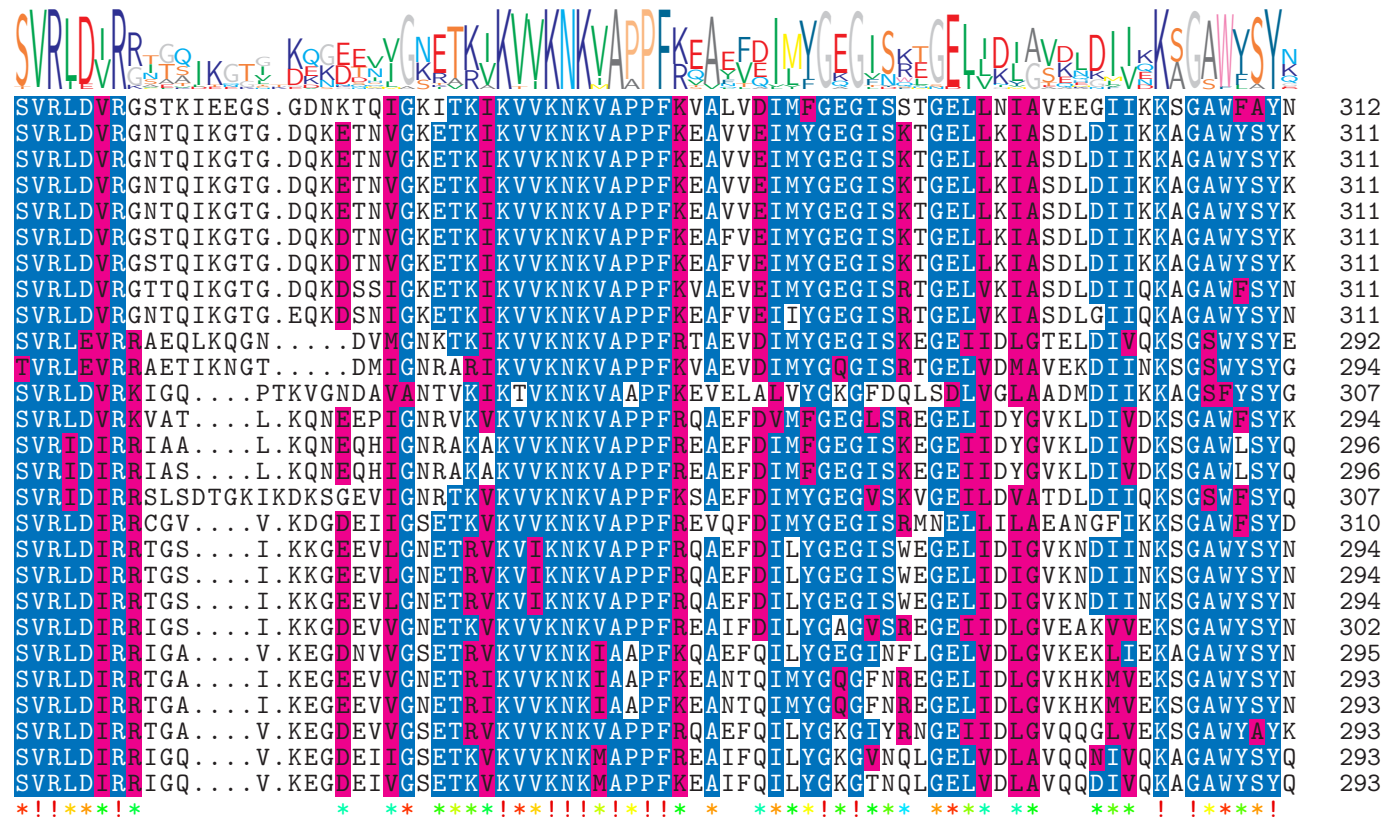
```



```

NTDB id 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 255620 CU081 RS09330 WP 015571667.1
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 255620 CU081 RS09330 WP 015571667.1
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

```

G	K	I	Q	G	K	E	N	A	K	Y	L	K	E	N	P	E	I	A	D	E	I	D	K	Y	R	E	S	G	L	P	E	V	E	T	E	K	P	E	F	E	E	V	E	E	L	D	L	G	D	E	I	E
DE	ER	L	R	R	V	T	E	F	A	D	E	K	R	A	E	L	E	S	G	L	P	E	V	E	T	E	K	P	E	F	E	E	V	E	E	L	D	L	G	D	E	I	E									
DEKIGQGAEKAKNYLKEHQDVFEIDHKKVRAAHGLDDSEVAETEEETTASKTAKAKKETKAVETEEIELELED	387																																																			
DEKIGQQSENAKKYLAEHPEIFDEIDKQVRSKFGLIDGEEVSEQDTENKKDE . . . PKKEEA . VNEEVPLDLGDELEIE	385																																																			
DEKIGQQSENAKKYLAEHPEIFDEIDKQVRSKFGLIDGEEVSEQDTENKKDE . . . PKKEEA . VNEEVPLDLGDELEIE	385																																																			
DEKIGQQSENAKKYLAEHPEIFDEIDKQVRSKFGLIDGEEVSEQDTENKKDE . . . PKKEEA . VNEEVPLDLGDELEIE	385																																																			
DEKIGQQSENAKKYLAADNPFAEIDHQRVVFGLIDGEEAAE . . . SKKDE . . . VAQVDS . VNEEVTLDLGDELEIE	381																																																			
DEKIGQQSENAKKYLANPFIIDEIDHQRVVFGLIDGEEIAE . . . SKKDE . . . AAQVDS . VNEEVTLDLGDELEIE	381																																																			
GEKIGQQSENAKRYLADHPQLFDEIDRKVRVKFGLLEESEEESAMAVASE E TDDLALDNLNGIEIE	377																																																			
GEKIGQQSENAKKFLADNPFIIDDIDHKVRVQYGLIEEDNTEEKSSSKEK ETDEK . ADKNLVLELDDTIELE	382																																																			
EERLGGQRENARKQLKENKDIMLMIQEQIREHYGLDNNGVVQQAEETQEEL.EFE.E	348																																																			
SERIGQQRENARKNYLADHEDVEDEVRLKVRAAYGISDVPEEDLPPTTEDE.QI.NILPDDST EE	355																																																			
DERIGQKEKTIATYIAERPMEQEIRDRVMQAIRAGNAGEAPALAPAPAPEAA . . EA	363																																																			
DKKLGGGRENSKAFLKENPEIADITTKAIQNSMGTJEGMI . . . SGSEDDE GEE	343																																																			
DKKLGGGRENAKALLKEDKALADEITLKIKESIGSNEEI . . . MPLPDEP LEEME	347																																																			
DKKLGGGRENAKALLKEDKALADEITLKIKESIGSNEEI . . . MPLPDEP LEEME	347																																																			
DTKLGGGRDTV KELIKDNPELAEELEAKIREKLQAK	343																																																			
GTKIGQKKNNNAVWLKENPEIADKLEQIRNTLIASNPS VLKATASDSN . . DESDVVEEFSEEL	372																																																			
GAKIGQKKDNVRVWLKENPEISDEIDAKIRALNGVEMHI TEG T . . QDETGDGERPEE	348																																																			
GAKIGQKKDNVRVWLKENPEISDEIDAKIRALNGVEMHI TEG T . . QDETGDGERPEE	348																																																			
GAKIGQKKDNVRVWLKENPEISDEIDAKIRALNGVEMHI TEG T . . QDETGDGERPEE	348																																																			
GERIGQKRDNCREFLRENAELAREIENKRVREHLGVTPMG AVTL.AEEVE . . ED	352																																																			
GDKIGQKKANAISWLKENPAAAKIEKKVRELLLNQDS KPDFVVD GADAEETNEDF	352																																																			
GDKIGQKKANACKYLKENPEIAKTLDKKLREMLLNPNEM QLIAETSSAA . DDVEFGAVPEEF	354																																																			
GDKIGQKKANACKYLKENPEIAKTLDKKLREMLLNPNEM QLIAETSSAA . DDVEFGAVPEEF	354																																																			
GSKIGQKKANAACKYLEENPEIGQIEEQIRAKLLITSAN TKATPVAEDL . ADADI	347																																																			
GNIKIGQKKNNVIRYLEENPISTEIEAVIREQLLTAKSD QTAA.HDETE . EEPOLLLES	349																																																			
GNKIGQKKNNVIRIFYENNQIAEIERNIEREQLLTGTN GAVQ.I.EDE . EEPOLLLES	349																																																			
!!** ** ***** **** * *																																																				

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 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 255620 CU081 RS09330 WP 015571667.1	...	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