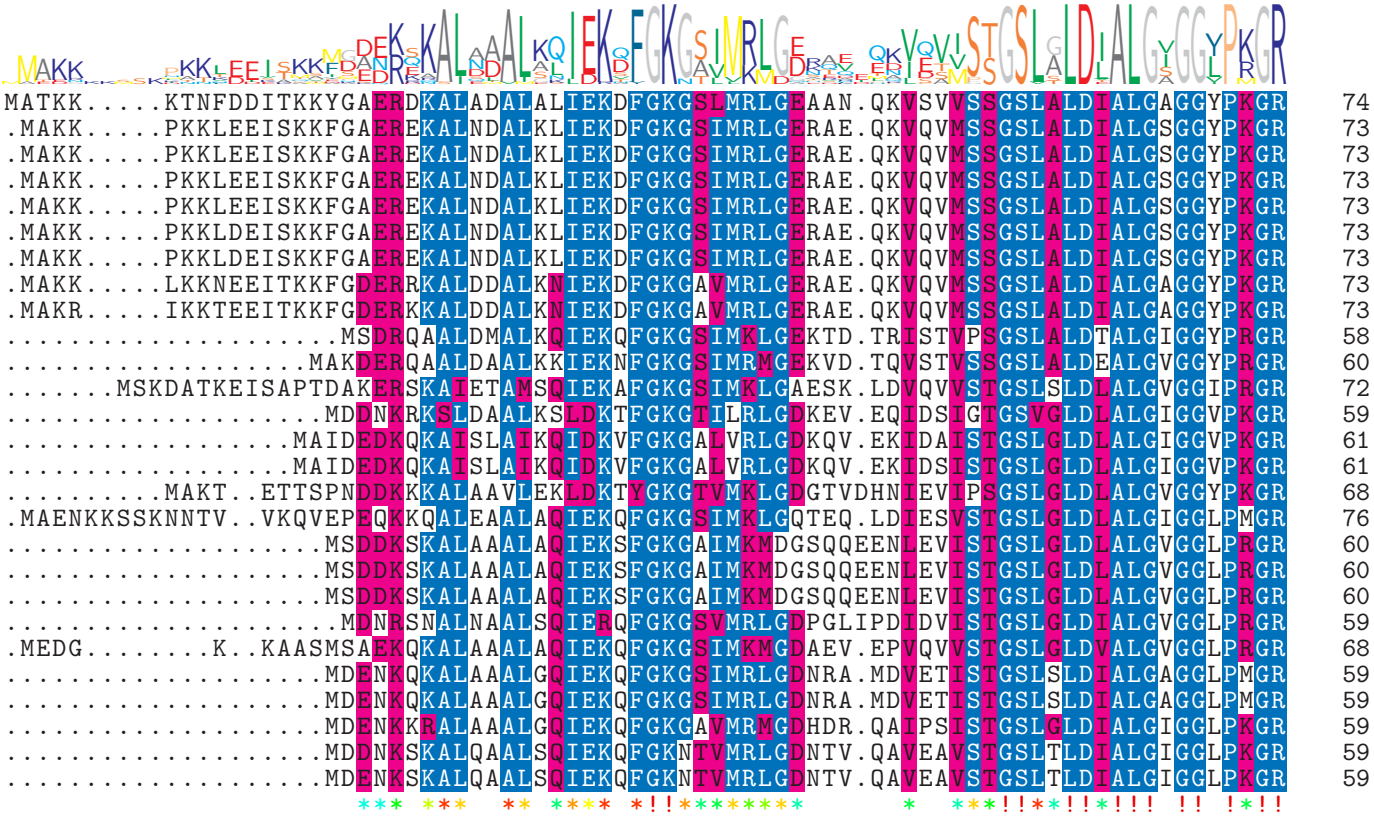


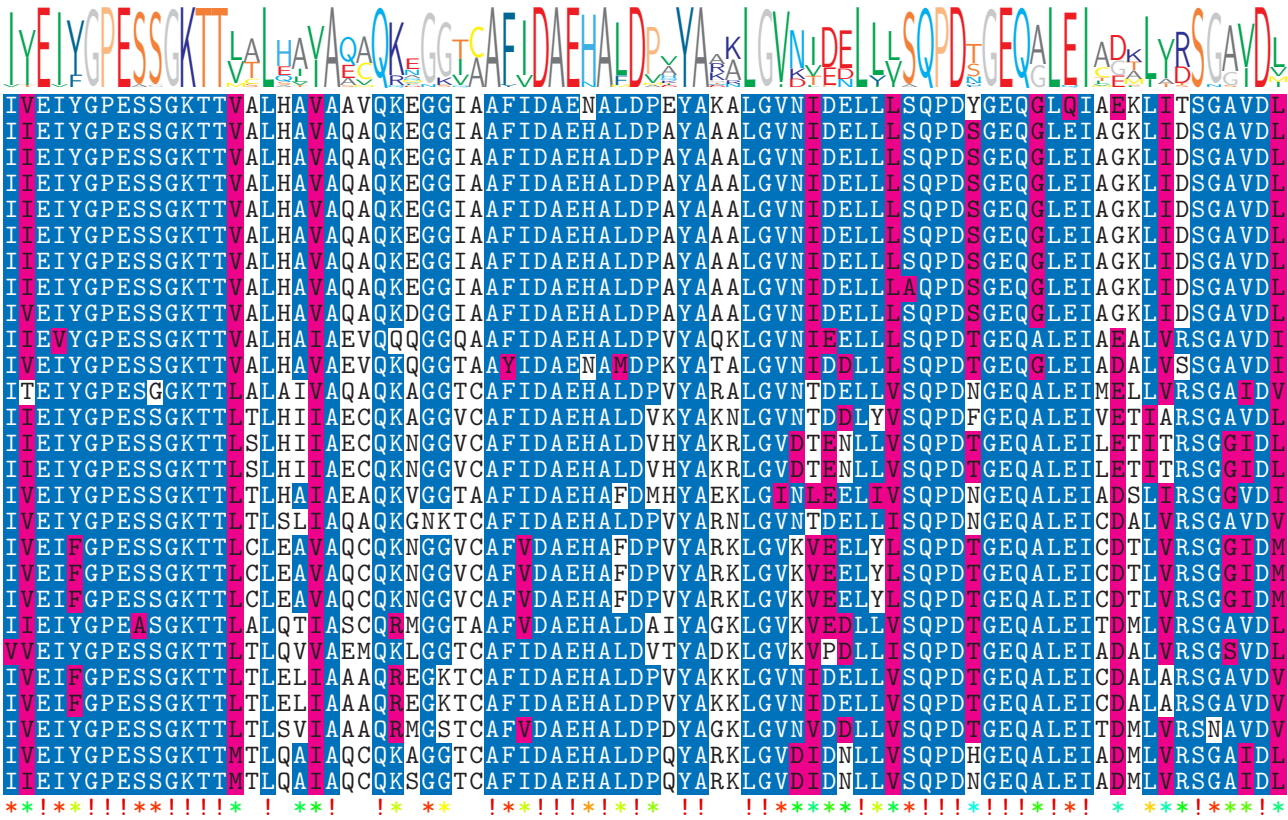
logo

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 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 73868 QMM28 RS06580 WP 005772330.1
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 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 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 73868 QMM28 RS06580 WP 005772330.1
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

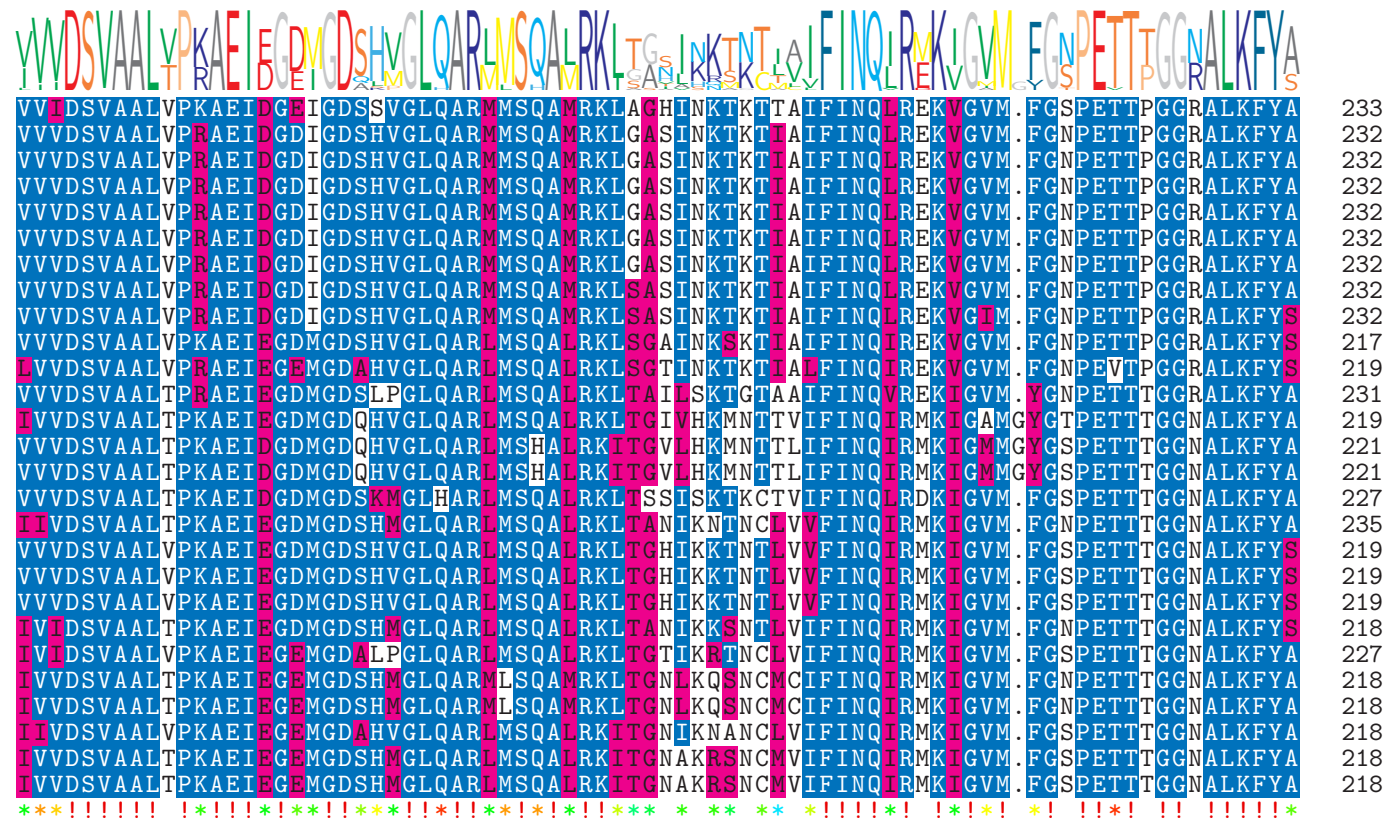


154
153
153
153
153
153
153
153
153
153
138
140
152
139
141
141
148
156
140
140
140
139
148
139
139
139
139

```

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 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 73868 QMM28 RS06580 WP 005772330.1
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 600 KW2 RS01765 WP 011675413.1	SVRLDVRGSTKIEEGS.GDNKTQIGKITKIKVVKNKVAPPFKEA	LV	DIMF	GEGISSTGELINIAVEEGITIKKS	GAWFAYN	312											
NTDB id 269 KZH43 RS08665 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPFKEA	AVV	EIMY	GEGISKTGELIKIASDLDI	IKKAGAWYSYK 311											
NTDB id 228 SPD RS09265 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPFKEA	AVV	EIMY	GEGISKTGELIKIASDLDI	IKKAGAWYSYK 311											
NTDB id 194 SPR RS08825 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPFKEA	AVV	EIMY	GEGISKTGELIKIASDLDI	IKKAGAWYSYK 311											
NTDB id 159 SP RS09750 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPFKEA	AVV	EIMY	GEGISKTGELIKIASDLDI	IKKAGAWYSYK 311											
NTDB id 499 SM12261 RS08315 WP 078228268.1	SVRLDVRGSTQIKGTG.DQKDTN	VGKETKIKVVKNKVAPPFKEA	FV	EIMY	GEGISKTGELIKIASDLDI	IKKAGAWYSYK 311											
NTDB id 527 SMSK321 RS11065 WP 001085454.1	SVRLDVRGSTQIKGTG.DQKDTN	VGKETKIKVVKNKVAPPFKEA	FV	EIMY	GEGISKTGELIKIASDLDI	IKKAGAWYSYK 311											
NTDB id 453 Spy49 1753c ACI62003.1	SVRLDVRGTTQIKGTG.DQKDS	IGKETKIKVVKNKVAPPFKEA	EV	EIMY	GEGISRTGELV	KIASDLDI	IKKAGAWFSYN 311										
NTDB id 408 SMU RS09530 WP 002262392.1	SVRLDVRGNTQIKGTG.EQKDS	IGKETKIKVVKNKVAPPFKEA	FV	EIIY	GEGISRTGELV	KIASDLGI	IKKAGAWSYN 311										
NTDB id 115 BSU 16940 NP 389576.2	SVRLEVRRAEQLKQGN.....	DVMGNKTKIKVVKNKVAPPFRTAEV	DIMY	GEGISKEGEI	IDLGTELDIVQ	KSGSWSYE	292										
NTDB id 625 LCA RS02525 WP 011374196.1	TVRLEVRRAETIKNGT.....	DMIGNRARIKVVKNKVAPPFKEA	EV	DIMY	GQGISRTGELV	DMAVEKDI	INKSGSWSYG 294										
NTDB id 1313 DR RS12030 WP 010888966.1	SVRLDVRKIGQ....PTKVGND	AVANTVKIKTKVKNKVAAPFKE	VELALVYGKGF	QDLS	DLVGLA	ADMDI	IKKAGSFSYSG 307										
NTDB id 1245 Cj1673c YP 002345041.1	SVRLDVRKVAT....L.KQNE	EEPIGNRVKVVKNKVAPPFRQAEF	DVMF	GEGLSR	EGELIDYGVKLDIV	DKSGAWFSYK 294											
NTDB id 1214 NCTC11637 00359 SQJ03206.1	SVRIDIRRIAA....L.KQNE	QHIGNRAKAKVVKNKVAPPFREAEF	DIMF	GEGISKEGEI	IDYGVKLDIV	DKSGAWLSYQ 296											
NTDB id 1211 C694 RS00795 WP 000963128.1	SVRIDIRRIAS....L.KQNE	QHIGNRAKAKVVKNKVAPPFREAEF	DIMF	GEGISKEGEI	IDYGVKLDIV	DKSGAWLSYQ 296											
NTDB id 1334 RAOC RS04870 WP 004918236.1	SVRIDIRRLSDTGKIKDKSGEV	IGNRTKVVKNKVAPPFKSAEF	DIMY	GEGVSKVGE	ILDVATDL	DI	QKSGSWFSYQ 307										
NTDB id 1389 A4U84 RS07560 WP 021112712.1	SVRLDIRRCGV....V.KDG	DEIGSETKVVKNKVAPPFREVQF	DIMY	GEGISRMNELL	ILAEANGFI	KKSGAWFSYD 310											
NTDB id 1130 NGFG RS03960 WP 003688695.1	SVRLDIRRTGS....I.KKG	EEVLGNETRVKVIKNKVAPPFRQAEF	DILY	GEGISWEGELID	IGVKNDI	INKSGAWSYN 294											
NTDB id 1124 NGFG RS03960 WP 003688695.1	SVRLDIRRTGS....I.KKG	EEVLGNETRVKVIKNKVAPPFRQAEF	DILY	GEGISWEGELID	IGVKNDI	INKSGAWSYN 294											
NTDB id 1123 OK783 RS03845 WP 003688695.1	SVRLDIRRTGS....I.KKG	EEVLGNETRVKVIKNKVAPPFRQAEF	DILY	GEGISWEGELID	IGVKNDI	INKSGAWSYN 294											
NTDB id 73868 QMM28 RS06580 WP 005772330.1	SVRLDIRRIGA....I.KKG	EEILGSETRVKVVKNKVAPPFRQVEF	DILY	GLGISRESELID	LGVKNELVEK	AGAWSYN 293											
NTDB id 1427 RS RS02760 WP 011000510.1	SVRLDIRRIGS....I.KKG	DEVGNETKVVKNKVAPPFREAI	FIDILY	GAGVSREGEI	IDL	GV	EAKVVEKSGAWSYN 302										
NTDB id 1165 A1552VC RS01565 WP 000344154.1	SVRLDIRRTGA....I.KEG	EEVVGNETRIKVVKNKIAAPFKE	ANTQIMYGQGF	NREGELID	LG	VKHKMVEK	SGAWSYN 293										
NTDB id 1142 GTF74 RS11550 WP 000344154.1	SVRLDIRRTGA....I.KEG	EEVVGNETRIKVVKNKIAAPFKE	ANTQIMYGQGF	NREGELID	LG	VKHKMVEK	SGAWSYN 293										
NTDB id 1205 PSJM300 05545 AFN77183.1	SVRLDIRRTGA....V.KEG	DEVGSETRVKVVKNKVAPPFRQAEF	QILY	GKGIYRN	GEI	IDL	GV	QQGLVEKSGAWYAYK 293									
NTDB id 1022 ACIAD RS06390 WP 004925639.1	SVRLDIRRIGQ....V.KEG	DEIVGSETKVVKNKMAPPF	R	EAI	FQILY	GKGVNQLGEL	V	D	LAV	QQN	IV	QKAGAWSYQ 293					
NTDB id 1074 ABD1 RS10195 WP 000344167.1	SVRLDIRRIGQ....V.KEG	DEIVGSETKVVKNKMAPPF	R	EAI	FQILY	GKGTNQLGEL	V	D	LAV	QQ	D	IV	QKAGAWSYQ 293				
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 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 73868 QMM28 RS06580 WP 005772330.1
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

```

Sequence	Score
DEKIGQGAETAKAKNYLKEHQDVFEIDHKKVRAAHGLDDSEVAETEEETT.ASKTKAKAKKEEKAVETEEIELELED...	387
DEKIGQGSENAKKYLAEHPEIFDEIDKQVRSKFGLIDGEEVSEQDTENK.KDE...PKKEEA..VNEEVPLDLGDELEI	384
DEKIGQGSENAKKYLAEHPEIFDEIDKQVRSKFGLIDGEEVSEQDTENK.KDE...PKKEEA..VNEEVPLDLGDELEI	384
DEKIGQGSENAKKYLAEHPEIFDEIDKQVRSKFGLIDGEEVSEQDTENK.KDE...PKKEEA..VNEEVPLDLGDELEI	384
DEKIGQGSENAKKYLAHNPEIFDEIDHQRVVFGLIDGEEAAS...K.KDE...AAQVDS..VNEEVPLDLGDELEI	380
DEKIGQGSENAKKYLAHNPEIFDEIDHQRVVFGLIDGEEAAS...K.KDE...VAQVDS..VNEEVPLDLGDELEI	380
GEKIGQGSENAKRYLADHPQLFDEIDRKVRVKFGLLEESEESAMAVAS.E.....E.....TDDLALDLNGIEI	376
GEKIGQGSENAKKFLADNPEIFDDIDHKKRVVQYGLIEEDNTEEKQSSKE.K.....ETDEK..ADKNLVLELDDTIEL	381
EERLGGGRENAAKQFLKENKDIMLMIQEQUIREHYGLDNGGVVQQAEETQ.EEL.EFE.E.....	348
SERIGGGRENAAKNYLADHEDVEDEVRLKVRAAAYGISDVPPEEDLPTTEDE..QI.NILPDDST....EE	355
DERIGGQKEKTIATYIAERPMEQEITDRVMAAIRAGNAGEAPALAPAPAAPAAEA	363
DKKLGQGRENSKAFLLKENPEIADEITKAIQNSMGIEGMISGSE..DDE..GEE	343
DKKLGQGRENAKALLKEDKALADEITLKIKESIGSNEEIMPLP..DEP..LEEME	347
DKKLGQGRENAKALLKEDKALADEITLKIKESIGSNEEIMPLP..DEP..LEEME	347
DTKLGQGRDITVKELIKDNPELAELEAKIREKLQAK	343
GTKIGQGKNNNAVKWLKENPEIADKLEQEIINTLASNPNSVLKA..TASDSNDESVDVEEF...SEEL	372
GAKIGQKDNVRVWLKENPEISDEIDAKIRALNGVEMHITEGT.....QDETGDGER.....PEE	348
GAKIGQKDNVRVWLKENPEISDEIDAKIRALNGVEMHITEGT.....QDETGDGER.....PEE	348
GAKIGQKDNVRVWLKENPEISDEIDAKIRALNGVEMHITEGT.....QDETGDGER.....PEE	348
GERIGQKKNVRQFFLENPKIAGEIETRLREKLLPHRQGEKIA..EEVNAAE	343
GERIGQGRDNREFLRENAELARLEIENKVRHLGVTPMGAV.T.LAEVEED	352
GDKIGQKKANACKYLKENPEIAKTLDDKKLREMLLNPNMQLIA..ETSSAADVEFGAV.....PEEF	354
GDKIGQKKANACKYLKENPEIAKTLDDKKLREMLLNPNMQLIA..ETSSAADVEFGAV.....PEEF	354
GSKIGQKKANAACKYLEENPEIGQEIEQQIRAKLLVTSANTKAT..PVAEDLADADI	347
GNIKIGQKKNNVIRYLEENPQISTEIEAVIREQLLTKASDQTAA...HDETEEEPDLL.....ES	349
GNKIGQKKNNVIRIYFENNQIAEIEIERNIREQLLTGTNGAVQ...I.EDETEEEPDLL.....LES	349

logo

NTDB id 600 KW2 RS01765 WP 011675413.1	....	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	EIEE	388
NTDB id 228 SPD RS09265 WP 001085462.1	EIEE	388
NTDB id 194 SPR RS08825 WP 001085462.1	EIEE	388
NTDB id 159 SP RS09750 WP 001085462.1	EIEE	388
NTDB id 499 SM12261 RS08315 WP 078228268.1	EIEE	384
NTDB id 527 SMSK321 RS11065 WP 001085454.1	EIEE	384
NTDB id 453 Spy49 1753c ACI62003.1	ED..	378
NTDB id 408 SMU RS09530 WP 002262392.1	ED..	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 73868 QMM28 RS06580 WP 005772330.1	....	343
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