

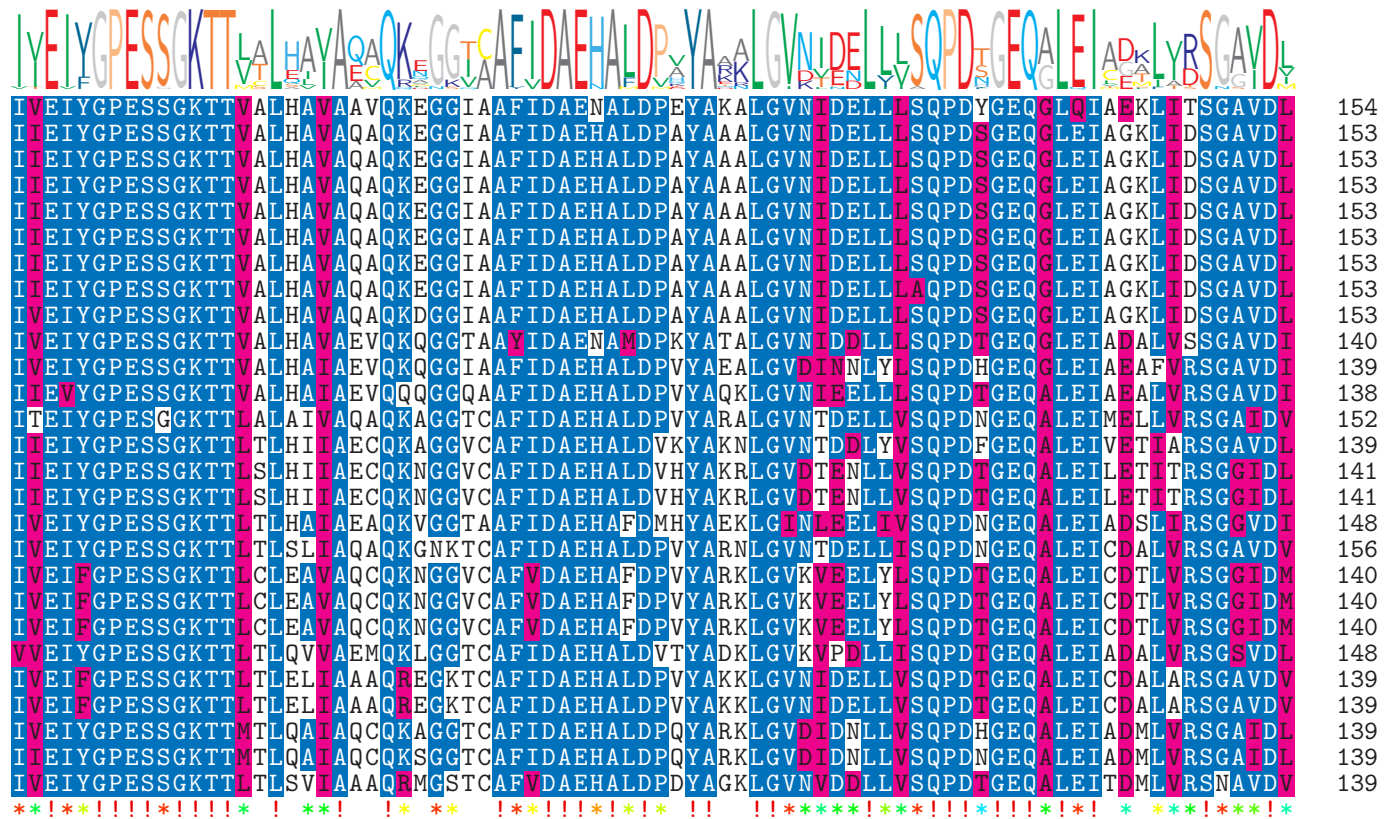
```

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 625 LCA RS02525 WP 011374196.1
NTDB id 167241 AL483 RS18055 WP 002480731.1
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 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
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 0049255639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1205 PSJM300 Q5545 AFN77183.1

```

	MAK	K	KK	EE	SKK	DE	K	KAL	AA	AL	KQ	IEK	FGK	SIM	RLG	E	AEQ	Y	VO	ST	SL	D	AL	G	Y	GG	Y	PK	GR																																										
MATK	...	K	K	T	F	D	D	I	T	K	K	Y	G	A	E	R	D	K	A	L	A	D	A	L	A	L	I	E	K	D	F	G	K	S	I	M	R	L	G	E	A	.	A	N	Q	K	V	S	V	S	S	G	S	L	A	L	D	I	A	L	G	A	G	G	Y	P	K	G	R		
.MAK	...	K	P	K	K	L	E	E	I	S	K	K	F	G	A	E	R	E	K	A	L	N	D	A	L	K	L	I	E	K	D	F	G	K	S	I	M	R	L	G	E	R	.	A	E	Q	K	V	Q	V	M	S	S	G	S	L	A	L	D	I	A	L	G	S	G	G	Y	P	K	G	R
.MAK	...	K	P	K	K	L	E	E	I	S	K	K	F	G	A	E	R	E	K	A	L	N	D	A	L	K	L	I	E	K	D	F	G	K	S	I	M	R	L	G	E	R	.	A	E	Q	K	V	Q	V	M	S	S	G	S	L	A	L	D	I	A	L	G	S	G	G	Y	P	K	G	R
.MAK	...	K	P	K	K	L	E	E	I	S	K	K	F	G	A	E	R	E	K	A	L	N	D	A	L	K	L	I	E	K	D	F	G	K	S	I	M	R	L	G	E	R	.	A	E	Q	K	V	Q	V	M	S	S	G	S	L	A	L	D	I	A	L	G	S	G	G	Y	P	K	G	R
.MAK	...	K	P	K	K	L	E	E	I	S	K	K	F	G	A	E	R	E	K	A	L	N	D	A	L	K	L	I	E	K	D	F	G	K	S	I	M	R	L	G	E	R	.	A	E	Q	K	V	Q	V	M	S	S	G	S	L	A	L	D	I	A	L	G	S	G	G	Y	P	K	G	R
.MAK	...	K	P	K	K	L	D	E	I	S	K	K	F	G	A	E	R	E	K	A	L	N	D	A	L	K	L	I	E	K	D	F	G	K	S	I	M	R	L	G	E	R	.	A	E	Q	K	V	Q	V	M	S	S	G	S	L	A	L	D	I	A	L	G	S	G	G	Y	P	K	G	R
.MAK	...	K	L	K	K	N	E	E	I	T	K	K	F	G	D	E	R	R	K	A	L	D	D	A	L	K	N	I	E	K	D	F	G	K	A	V	M	R	L	G	E	R	.	A	E	Q	K	V	Q	V	M	S	S	G	S	L	A	L	D	I	A	L	G	A	G	G	Y	P	K	G	R
.MAK	...	R	I	K	K	T	E	E	I	T	K	K	F	G	D	E	R	K	A	L	D	D	A	L	K	N	I	E	K	D	F	G	K	A	V	M	R	L	G	E	R	.	A	E	Q	K	V	Q	V	M	S	S	G	S	L	A	L	D	I	A	L	G	A	G	G	Y	P	K	G	R	
.....	MAK	D	E	R	Q	A	A	L	D	A	A	L	K	K	I	E	K	N	F	G	K	S	I	M	R	M	G	E	K	.	V	D	T	Q	V	S	T	V	S	S	G	S	L	A	L	D	E	A	L	G	V	G	G	Y	P	K	G	R													
.....	M	N	N	E	R	Q	K	A	L	D	T	V	I	K	N	M	E	K	S	F	G	K	A	V	M	K	L	G	D	N	.	K	A	R	R	V	S	S	V	S	S	G	S	L	A	L	D	N	A	L	G	V	G	G	Y	P	K	G	R												
.....	M	S	D	R	Q	A	A	L	D	M	A	L	K	I	E	K	S	I	M	K	L	G	E	K	.	T	D	T	R	I	S	T	P	S	G	S	L	A	L	D	I	A	L	G	I	G	G	Y	P	K	G	R																			
.....	M	S	K	D	A	T	K	E	I	S	A																																																												

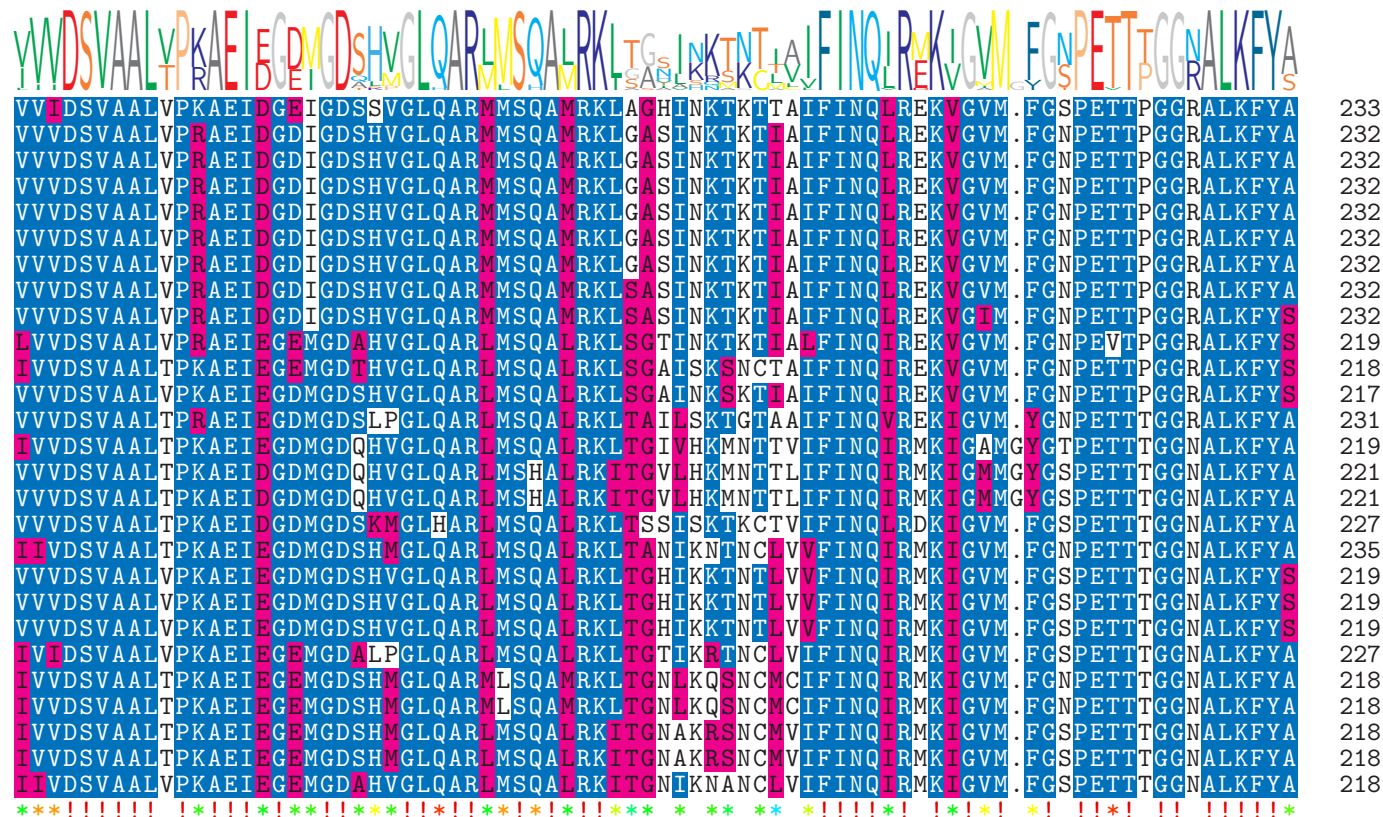
NTDB id 600 KW2 RS01765 WP 011675413.1
NTDB id 269 KZH43 RS08665 WP 001085462.1
NTDB id 228 SPD RS09265 WP 001085462.1
NTDB id 194 SPR RS08825 WP 001085462.1
NTDB id 159 SP RS09750 WP 001085462.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
NTDB id 499 SM12261 RS08315 WP 078228268.1
NTDB id 453 Spy49 1753c ACI62003.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 167241 AL483 RS18055 WP 002480731.1
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 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1334 RA0C 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 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 625 LCA RS02525 WP 011374196.1
NTDB id 167241 AL483 RS18055 WP 002480731.1
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 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1334 RA0C 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 Q5545 AEN77183.1

```



logo

NTDB id 600 KW2 RS01765 WP 011675413.1	SVRLDVRGSTKIEEGS.GDNKTQIGKITKIKVVKNKVAPPFKEAVALVDIMFGEGISSTGELINIAVEEGITIKKSGAWFAYN	312					
NTDB id 269 KZH43 RS08665 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETNVGKETKIKVVKNKVAPPFKEAVVEIMY GEGISKTGELLKIASDLDI IKKAGAWYSYK	311					
NTDB id 228 SPD RS09265 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETNVGKETKIKVVKNKVAPPFKEAVVEIMY GEGISKTGELLKIASDLDI IKKAGAWYSYK	311					
NTDB id 194 SPR RS08825 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETNVGKETKIKVVKNKVAPPFKEAVVEIMY GEGISKTGELLKIASDLDI IKKAGAWYSYK	311					
NTDB id 159 SP RS09750 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETNVGKETKIKVVKNKVAPPFKEAVVEIMY GEGISKTGELLKIASDLDI IKKAGAWYSYK	311					
NTDB id 527 SMSK321 RS11065 WP 001085454.1	SVRLDVRGSTQIKGTG.DQKDTNVGKETKIKVVKNKVAPPFKEAFVEIMY GEGISKTGELLKIASDLDI IKKAGAWYSYK	311					
NTDB id 499 SM12261 RS08315 WP 078228268.1	SVRLDVRGSTQIKGTG.DQKDTNVGKETKIKVVKNKVAPPFKEAFVEIMY GEGISKTGELLKIASDLDI IKKAGAWYSYK	311					
NTDB id 453 Spy49 1753c ACI62003.1	SVRLDVRGTTQIKGTG.DQKDSNIGKETKIKVVKNKVAPPFKEAEVEIMY GEGISRTGELVKIASDLDI IQKAGAWFSYN	311					
NTDB id 408 SMU RS09530 WP 002262392.1	SVRLDVRGNTQIKGTG.EQKDSNIGKETKIKVVKNKVAPPFKEAFVEI IY GEGISRTGELVKIASDLGI IQKAGAWYSYN	311					
NTDB id 625 LCA RS02525 WP 011374196.1	TVRLEVRRRAETIKNGT.....DMIGNRARIKVVKNKVAPPFKEAEVDIMY GQGISRTGELVDMAVEKDI INKSGSWYSYG	294					
NTDB id 167241 AL483 RS18055 WP 002480731.1	SVRLEVRRRAEQLKQGQ.....EIVGNRTKIKVVKNKVAPPFRVAEVDIMY GQGISKEGELIDLGVHDI VDKSGAWYSYN	293					
NTDB id 115 BSU 16940 NP 389576.2	SVRLEVRRRAEQLKQGN.....DVMGNKTKIKVVKNKVAPPFR TAEVDIMY GEGISKEGEITIDLGTELDIVQKSGSWYSYE	292					
NTDB id 1313 DR RS12030 WP 010888966.1	SVRLDVRKIGQ....PTKVGNDAVANTVKIKTVKNKVAAPFKEVELALVY GKGFDQLSDLVGLAADMDI IKKAGSFYSYG	307					
NTDB id 1245 Cj1673c YP 002345041.1	SVRLDVRKVAT....L.KQNEEPIGNRVKVVKNKVAPPFRQAEFDVMFGEGLSREGELIDYGVKLDIVDKSGAWFSYK	294					
NTDB id 1211 C694 RS00795 WP 000963128.1	SVRIDIRRIAS....L.KQNEQHIGNRAKAKVVKNKVAPPFR EA EAFDIMFGEGISKEGEITIDYGVKLDIVDKSGAWLSYQ	296					
NTDB id 1214 NCTC11637 00359 SQJ03206.1	SVRIDIRRIAA....L.KQNEQHIGNRAKAKVVKNKVAPPFR EA EAFDIMFGEGISKEGEITIDYGVKLDIVDKSGAWLSYQ	296					
NTDB id 1334 RAOC RS04870 WP 004918236.1	SVRIDIRRLSDTGKIKDKSGEVIGNRTKVVKNKVAPPFKSAEFDIMY GEGVSKVGEILD VATDLDI IQKSGSWFSYQ	307					
NTDB id 1389 A4U84 RS07560 WP 021112712.1	SVRLDIRRCGV....V.KDGDEIIGSETKVVKNKVAPPFR EVQFDIMY GEGISRMNELLILAEANGFIKKSGAWFSYD	310					
NTDB id 1130 NGFG RS03960 WP 003688695.1	SVRLDIRRTGS....I.KKGEVVLGNETRVKVIKNKVAPPFRQAEFDILY GEGISWEGELIDIGVKNDI INKSGAWYSYN	294					
NTDB id 1124 NGFG RS03960 WP 003688695.1	SVRLDIRRTGS....I.KKGEVVLGNETRVKVIKNKVAPPFRQAEFDILY GEGISWEGELIDIGVKNDI INKSGAWYSYN	294					
NTDB id 1123 OK783 RS03845 WP 003688695.1	SVRLDIRRTGS....I.KKGEVVLGNETRVKVIKNKVAPPFRQAEFDILY GEGISWEGELIDIGVKNDI INKSGAWYSYN	294					
NTDB id 1427 RS RS02760 WP 011000510.1	SVRLDIRRIGS....I.KKGEDEVGNETKVVKNKVAPPFR EA IFDILY GAGVSREGEITDLGVEAKVVEKSGAWYSYN	302					
NTDB id 1165 A1552VC RS01565 WP 000344154.1	SVRLDIRRTGA....I.KEGEEVVGNETRIKVVKNKIAAPFKEANTQIMY GQGFNREGELIDLGVKHKMVEKSGAWYSYN	293					
NTDB id 1142 GTF74 RS11550 WP 000344154.1	SVRLDIRRTGA....I.KEGEEVVGNETRIKVVKNKIAAPFKEANTQIMY GQGFNREGELIDLGVKHKMVEKSGAWYSYN	293					
NTDB id 1022 ACIAD RS06390 WP 004925639.1	SVRLDIRRIGQ....V.KEGDEIIGSETKVVKNKMAPPFR EA IFQILY GKGVTNQLGELVDLAVQQNIVQKAGAWYSYQ	293					
NTDB id 1074 ABD1 RS10195 WP 000344167.1	SVRLDIRRIGQ....V.KEGDEIIGSETKVVKNKMAPPFKEA IFQILY GKGVTNQLGELVDLAVQQD DIVQKAGAWYSYQ	293					
NTDB id 1205 PSJM300 05545 AFN77183.1	SVRLDIRRTGA....V.KEGDEVVGS ETRVKNKVAPPFRQAEFQILY GKG IYRNGEITDLGVQQGLVEKSGAWAYK	293					
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	IDGEEVSEQDTEN	KKDE....PKKEEA	.VNEEVPLDLGDE	LEIE	385
NTDB id 228 SPD RS09265 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTEN	KKDE....PKKEEA	.VNEEVPLDLGDE	LEIE	385
NTDB id 194 SPR RS08825 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTEN	KKDE....PKKEEA	.VNEEVPLDLGDE	LEIE	385
NTDB id 159 SP RS09750 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTEN	KKDE....PKKEEA	.VNEEVPLDLGDE	LEIE	385
NTDB id 527 SMSK321 RS11065 WP 001085454.1	DEKIGQGS	ENAKKYLAADNPEV	FAEIDHQVRVQFGL	IDGEEAAE....SK	KDE....VAQVDS	.VNEEVTLDLGDE	LEIE	381
NTDB id 499 SM12261 RS08315 WP 078228268.1	DEKIGQGS	ENAKKYLAADNPEIF	DEIDHQVRVQFGL	IDGEEIAE....SK	KDE....AAQVDS	.VNEEVTLDLGDE	LEIE	381
NTDB id 453 Spy49 1753c ACI62003.1	GEKIGQGS	ENAKRYLADHPQLF	DEIDRKVRVKFGL	LEESEEEESAMAV	ASE.....E.....	TDDLALDLN	GIEIE	377
NTDB id 408 SMU RS09530 WP 002262392.1	GEKIGQGS	ENAKKFLADNPEIF	DDIDHKVRVQYGL	IEEDNTEEEKQSS	KEK.....ETDEK	.ADKNLVLELDD	TIELE	382
NTDB id 625 LCA RS02525 WP 011374196.1	SERIGQG	RENAKNYLADHEDV	DEVRLKVRAAYG	ISDVPEEDLPTTE	DEQINILPDDSTEE			355
NTDB id 167241 AL483 RS18055 WP 002480731.1	GDRMGQG	KENVKNYLKEHPDV	KADIDQKLRLQKLG	IFDGDVVEEKEE	KEAEKNS.ENASLF	EEEE.....		354
NTDB id 115 BSU 16940 NP 389576.2	EERLGQG	RENAKQFLKENKD	IMLMIQEQIREHYG	LDNNGVVQQQA	EETQEEL....EF	EEE.....		348
NTDB id 1313 DR RS12030 WP 010888966.1	DERIGQG	KEKTIAYIAERP	EMEQUEIRDRVMA	AIRAGNAGEAPAL	APAPAAPEAAEA			363
NTDB id 1245 Cj1673c YP 002345041.1	DKKLGQG	RENSKAFLENPEI	ADEITKAIQNSMG	IEGMI....SGSE	DD..EGEE.....			343
NTDB id 1211 C694 RS00795 WP 000963128.1	DKKLGQG	RENAKALLKEDKA	LADAITLKIKESIG	SNEEI....MPLP	DE..PLEEME.....			347
NTDB id 1214 NCTC11637 00359 SQJ03206.1	DKKLGQG	RENAKALLKEDKA	LADAITLKIKESIG	SNEEI....MPLP	DE..PLEEME.....			347
NTDB id 1334 RAOC RS04870 WP 004918236.1	DTKLGQG	RDTVKELIKDNPE	LAELEAKIREKLQ	AK.....				343
NTDB id 1389 A4U84 RS07560 WP 021112712.1	GTKIGQG	KNNAVKWLKENPE	IAKLEQEIRNTLAS	NPNS....VLKAT	ASDSNDES	DVEE..FSEEEL		372
NTDB id 1130 NGFG RS03960 WP 003688695.1	GAKIGQG	KDNVRVWLKENPE	ISDEIDAKIRALNG	VEMHI....TEGTQ	DETDGER.....	PEE.....		348
NTDB id 1124 NGFG RS03960 WP 003688695.1	GAKIGQG	KDNVRVWLKENPE	ISDEIDAKIRALNG	VEMHI....TEGTQ	DETDGER.....	PEE.....		348
NTDB id 1123 OK783 RS03845 WP 003688695.1	GAKIGQG	KDNVRVWLKENPE	ISDEIDAKIRALNG	VEMHI....TEGTQ	DETDGER.....	PEE.....		348
NTDB id 1427 RS RS02760 WP 011000510.1	GERIGQG	RDNCREFLRENAEL	AREIENKVREHLG	VTPMG....AVTLA	.EEVEED.....			352
NTDB id 1165 A1552VC RS01565 WP 000344154.1	GDKIGQG	KANACKYILKENPE	IAKTLDKKLREML	LNPNM....QLIA	ETSSAADD	VEFGA..VPEEF		354
NTDB id 1142 GTF74 RS11550 WP 000344154.1	GDKIGQG	KANACKYILKENPE	IAKTLDKKLREML	LNPNM....QLIA	ETSSAADD	VEFGA..VPEEF		354
NTDB id 1022 ACIAD RS06390 WP 004925639.1	GNKIGQG	KNNVIRYFEENNQ	IAEIEIERNIREQL	LLTKASD....QTAA	.HDETEEE	PDLL...ES.....		349
NTDB id 1074 ABD1 RS10195 WP 000344167.1	GNKIGQG	KNNVIRYFEENNQ	IAEIEIERNIREQL	LLTTGTN....GAVQ	.I.EDEEE	PDLL...LES.....		349
NTDB id 1205 PSJM300 05545 AFN77183.1	GSKIGQG	KANAACYILENPEI	GQIEIEQQIRAKLL	VTSAN....TKATP	VAAEDLADADI			347
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 625 LCA RS02525 WP 011374196.1	...	355	
NTDB id 167241 AL483 RS18055 WP 002480731.1	...	354	
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 1211 C694 RS00795 WP 000963128.1	...	347	
NTDB id 1214 NCTC11637 00359 SQJ03206.1	...	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			

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