

```

NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 52415 BTG RS00345 WP 001283853.1
NTDB id 115 BSU 16940 NP 389576.2
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 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 GTFT74 RS11550 WP 000344154.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1205 PSJM300 05545 AFN77183.1

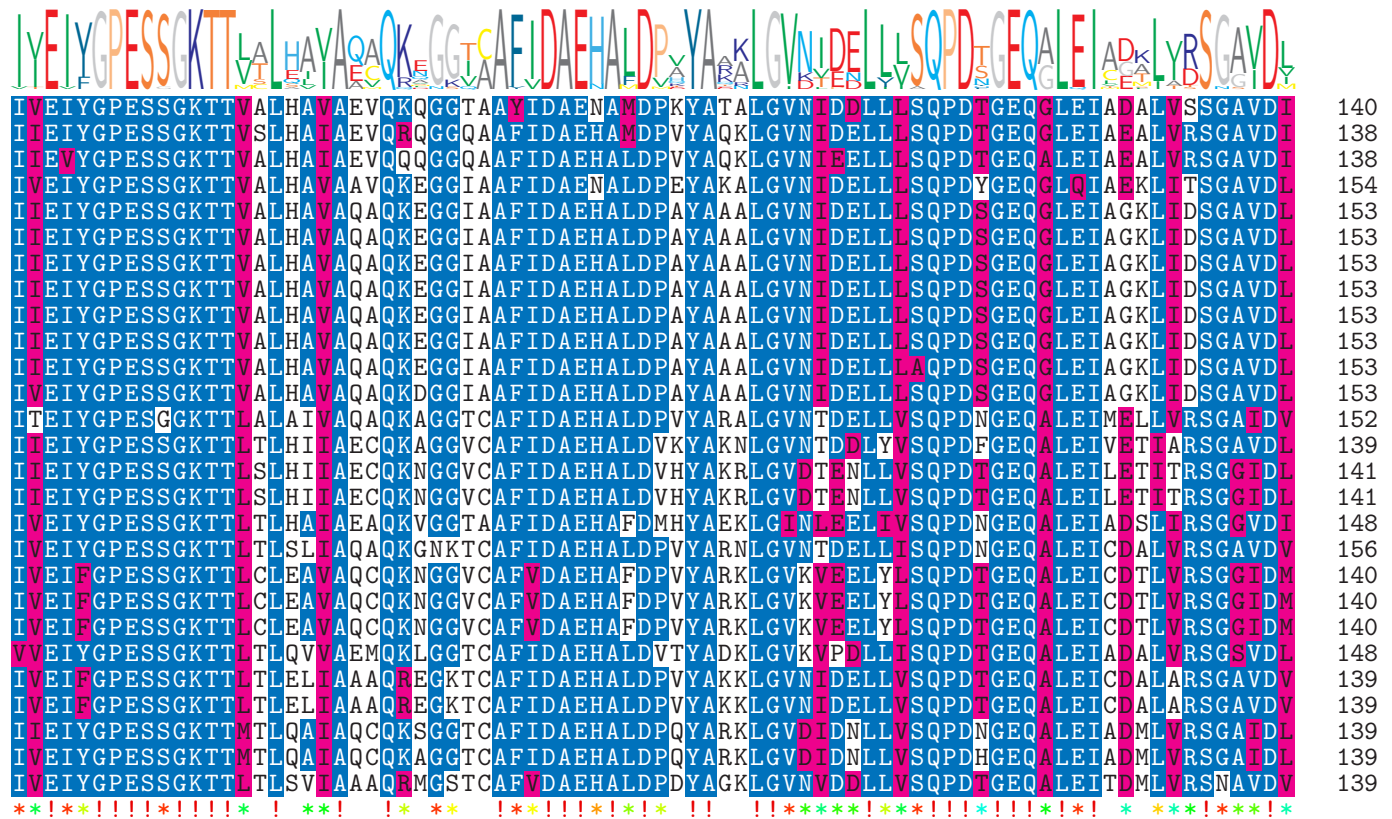
```

	MAKK	KKL	EEI	SKKF	DE	K	KAL	AAAL	KQ	EK	FGK	SIM	RLG	E	AEQK	YQV	ST	SL	D	ALG	GG	Y	PK	GR																																												
MAKD	ER	QA	AL	DA	AL	KK	IE	KN	FG	KG	SIM	R	MG	EK	.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	R	G	R																										
MS	DR	QA	AL	DM	AL	KQ	IE	KQ	FG	KG	SIM	L	GE	Q	.A	E	R	R	I	S	T	I	S	T	S	G	S	L	A	L	D	V	A	L	G	V	G	G	Y	P	R	G	R																									
MS	DR	QA	AL	DM	AL	KQ	IE	KQ	FG	KG	SIM	L	GE	K	.T	D	T	R	I	S	T	V	P	S	G	S	L	A	L	D	T	A	L	G	I	G	G	Y	P	R	G	R																										
MATKK	...	K	T	N	F	D	D	I	T	K	K	Y	G	A	E	R	D	K	A	L	A	D	A	L	IE	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			
.MAKK	...	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	IE	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
.MAKK	...	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	IE	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
.MAKK	...	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	IE	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
.MAKK	...	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	IE	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
.MAKK	...	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	IE	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
.MAKK	...	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	IE	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
.MAKR	...	I	K	K	T	E	E	I	T	K	K	F	G	D	E	R	R	K	A	L	D	D	A	L	K	N	IE	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
.....MSK	D	A	T	K	E	I	S	A	P	T	D	A	K	E	R	S	K	A	I	E	T	A	M	S	Q	I	E	K	A	F	G	K	S	I	M	L	G	A	E	.S	K	L	D	V	Q	V	S	T	G	S	L	S	L	D	A	L	G	V	G	G	I	P	R	G	R			
.....MDD</																																																																				

```

NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 52415 BTG RS00345 WP 001283853.1
NTDB id 115 BSU 16940 NP 389576.2
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 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 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus

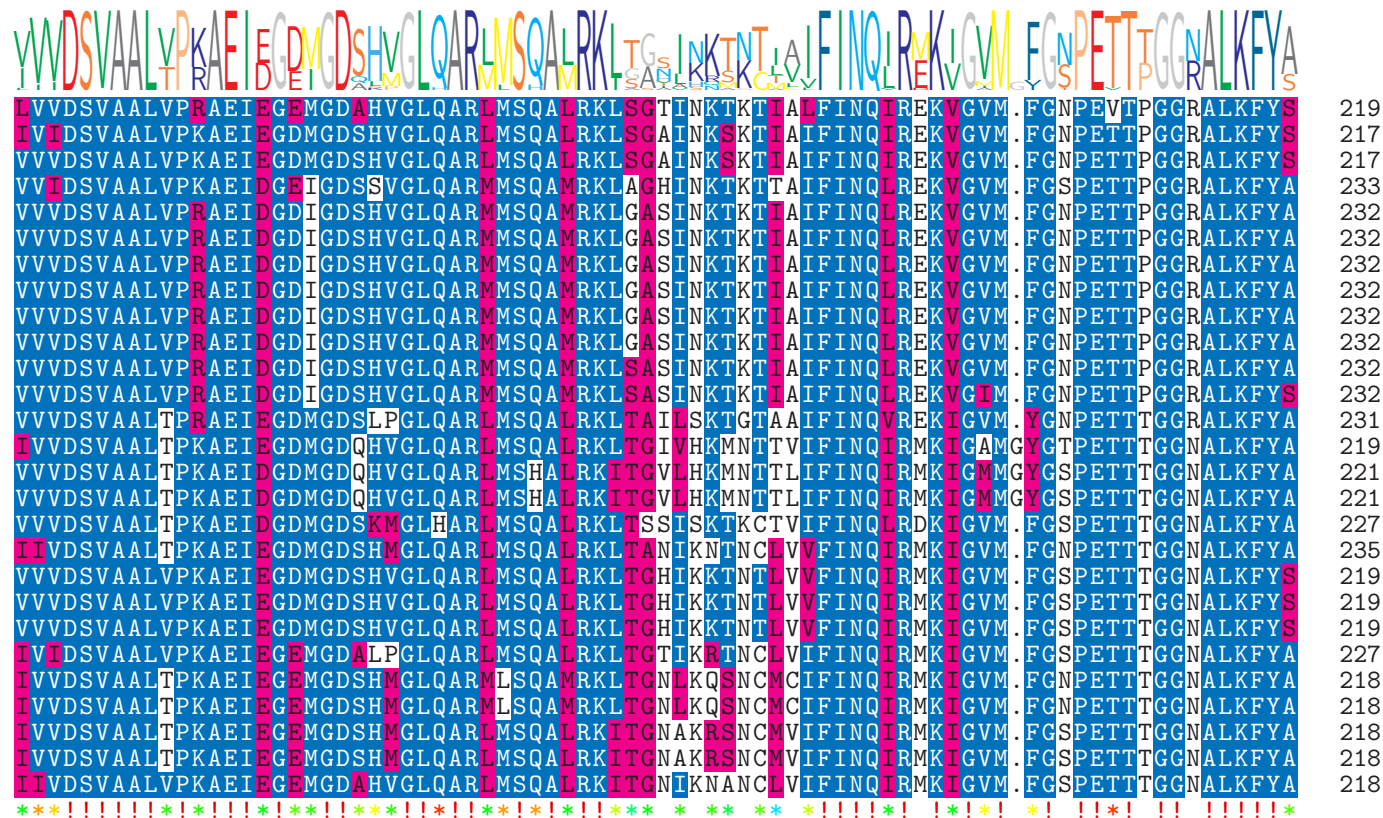
```



```

NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 52415 BTG RS00345 WP 001283853.1
NTDB id 115 BSU 16940 NP 389576.2
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 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 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus

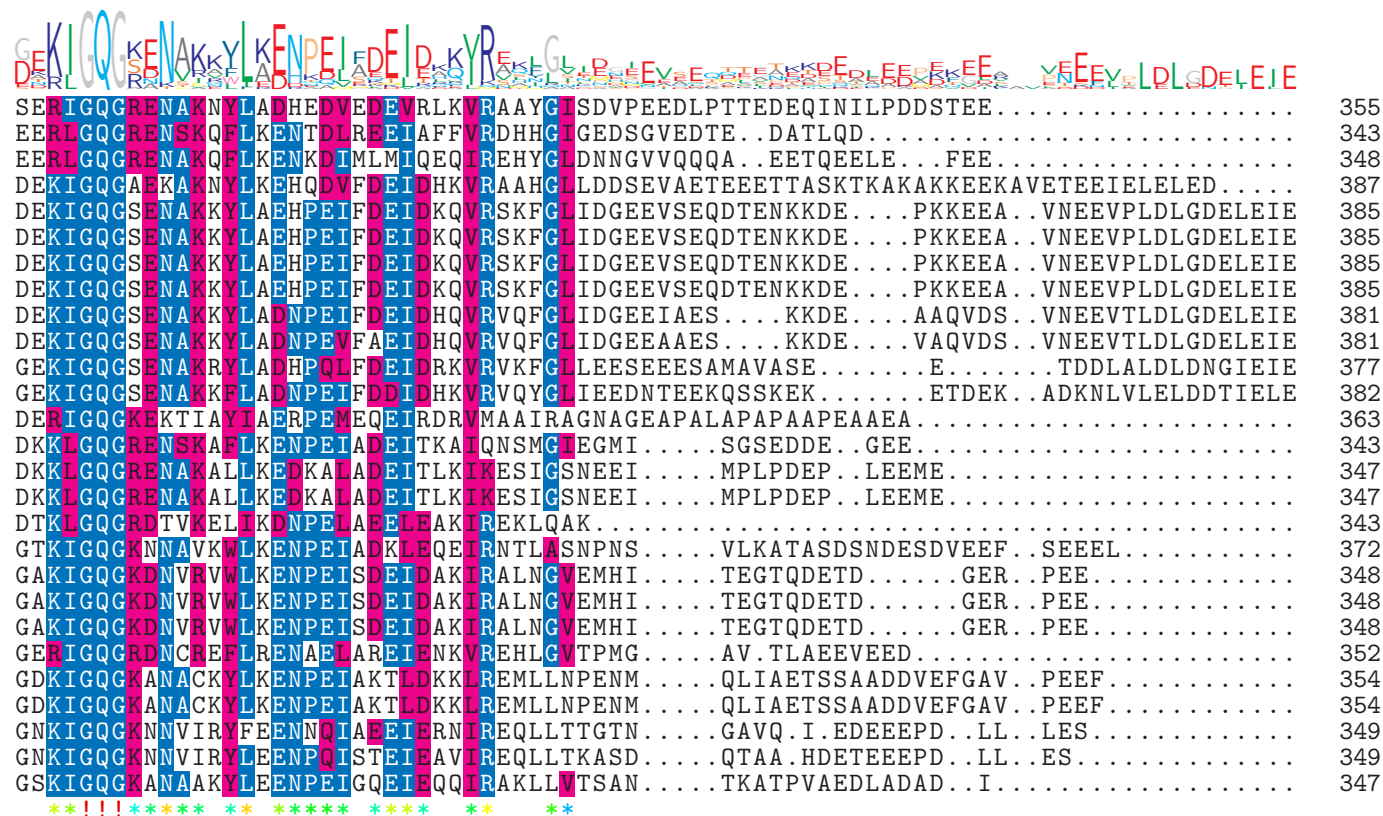
```



logo

NTDB id 625 LCA RS02525 WP 011374196.1	TVRLDVRRAETIKNGT.....DM	IGNRAIKVVKNKVAPPFKEAEVDIMYGGGISRTGELVDMAVEKDII	INKSGSWYSYG	294
NTDB id 52415 BTG RS00345 WP 001283853.1	TVRLDVRRAEQLKQGN.....DI	VGNKTKVVKNKVAPPFRVAEVDIMYGGEGISREGEILDMASELDIV	QKSGAWYSYN	292
NTDB id 115 BSU 16940 NP 389576.2	SVRLDVRRAEQLKQGN.....DV	MGNKTKIKVVKNKVAPPFRVAEVDIMYGGEGISKEGEIIDLGTEL	DIVQKSGSWYSYE	292
NTDB id 600 KW2 RS01765 WP 011675413.1	SVRLDVRGSTKIEEGS.GDNKTQ	IGKITIKVVKNKVAPPFKVALVDIMFGEGISSTGELLNIAVEEGIT	IKKSGAWFAYN	312
NTDB id 269 KZH43 RS08665 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPFKEAVVEIMYGGEGISKTGELLKIASDLDI	IKKAGAWYSYK	311
NTDB id 228 SPD RS09265 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPFKEAVVEIMYGGEGISKTGELLKIASDLDI	IKKAGAWYSYK	311
NTDB id 194 SPR RS08825 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPFKEAVVEIMYGGEGISKTGELLKIASDLDI	IKKAGAWYSYK	311
NTDB id 159 SP RS09750 WP 001085462.1	SVRLDVRGNTQIKGTG.DQKETN	VGKETKIKVVKNKVAPPFKEAVVEIMYGGEGISKTGELLKIASDLDI	IKKAGAWYSYK	311
NTDB id 499 SM12261 RS08315 WP 078228268.1	SVRLDVRGSTQIKGTG.DQKDTN	VGKETKIKVVKNKVAPPFKEAFVEIMYGGEGISKTGELLKIASDLDI	IKKAGAWYSYK	311
NTDB id 527 SMSK321 RS11065 WP 001085454.1	SVRLDVRGSTQIKGTG.DQKDTN	VGKETKIKVVKNKVAPPFKEAFVEIMYGGEGISKTGELLKIASDLDI	IKKAGAWYSYK	311
NTDB id 453 Spy49 1753c ACI62003.1	SVRLDVRGTTQIKGTG.DQKDSS	IGKETKIKVVKNKVAPPFKEAEVEIMYGGEGISRTGELVKIASDLDI	IKKAGAWFSYN	311
NTDB id 408 SMU RS09530 WP 002262392.1	SVRLDVRGNTQIKGTG.EQKDSN	IGKETKIKVVKNKVAPPFKEAFVEIIMYGGEGISRTGELVKIASDLGI	IKKAGAWYSYN	311
NTDB id 1313 DR RS12030 WP 010888966.1	SVRLDVRKIGQ....PTKVGND	AVANTVKIKTVKNKVAAPFKEVELALVYGGKGFQDLSDLVGLAADM	DIKKAGSFSYSG	307
NTDB id 1245 Cj1673c YP 002345041.1	SVRLDVRKIVAT....L.KQNEEP	IGNRVKVVKNKVAPPFRQAEFDVIMFGEGLSREGEIDYGVKLDIV	DKSGAWFSYK	294
NTDB id 1211 C694 RS00795 WP 000963128.1	SVRIDIRRIAS....L.KQNEQH	IGNRAKAKVVKNKVAPPFRQAEFDIMFGEGISKEGEIIDYGVKLDIV	DKSGAWLSYQ	296
NTDB id 1214 NCTC11637 00359 SQJ03206.1	SVRIDIRRIAA....L.KQNEQH	IGNRAKAKVVKNKVAPPFRQAEFDIMFGEGISKEGEIIDYGVKLDIV	DKSGAWLSYQ	296
NTDB id 1334 RAOC RS04870 WP 004918236.1	SVRIDIRRLSDTGKIKDKSGEV	IGNRTKVVVKNKVAPPFKSAEFDIMYGGEGVSKVGEILDVATDLDI	IKKSGSWFSYQ	307
NTDB id 1389 A4U84 RS07560 WP 021112712.1	SVRLDIRRCGV....V.KDGEI	IGSETKVVKNKVAPPFRQAEFDIMYGGEGISRMNELLILAEANGFI	IKKSGAWFSYD	310
NTDB id 1130 NGFG RS03960 WP 003688695.1	SVRLDIRRTGS....I.KKGEV	LGNETRVKVIKNKVAPPFRQAEFDILYGGEGISWEGELIDIGVKNDI	INKSGAWYSYN	294
NTDB id 1124 NGFG RS03960 WP 003688695.1	SVRLDIRRTGS....I.KKGEV	LGNETRVKVIKNKVAPPFRQAEFDILYGGEGISWEGELIDIGVKNDI	INKSGAWYSYN	294
NTDB id 1123 OK783 RS03845 WP 003688695.1	SVRLDIRRTGS....I.KKGEV	LGNETRVKVIKNKVAPPFRQAEFDILYGGEGISWEGELIDIGVKNDI	INKSGAWYSYN	294
NTDB id 1427 RS RS02760 WP 011000510.1	SVRLDIRRIGS....I.KKGEV	VGNETKVVKNKVAPPFRQAEFDILYGGAGVSREGEIIDLGVEAKV	VVEKSGAWYSYN	302
NTDB id 1165 A1552VC RS01565 WP 000344154.1	SVRLDIRRTGA....I.KEGEEV	VGNETRIKVVKNKIAAPFKEANTQIMYGGGFNREGELIDLGVKHKM	VVEKSGAWYSYN	293
NTDB id 1142 GTF74 RS11550 WP 000344154.1	SVRLDIRRTGA....I.KEGEEV	VGNETRIKVVKNKIAAPFKEANTQIMYGGGFNREGELIDLGVKHKM	VVEKSGAWYSYN	293
NTDB id 1074 ABD1 RS10195 WP 000344167.1	SVRLDIRRIGQ....V.KEGDEI	VGSETKVVKNKMAPPFKEAIFQILYGGKGTNQLGELVDLAVQQN	DIVQKAGAWYSYQ	293
NTDB id 1022 ACIAD RS06390 WP 004925639.1	SVRLDIRRIGQ....V.KEGDEI	IGSETKVVKNKMAPPFKEAIFQILYGGKGVNQLGELVDLAVQQN	DIVQKAGAWYSYQ	293
NTDB id 1205 PSJM300 05545 AFN77183.1	SVRLDIRRTGA....V.KEGDEV	VGSETRVVKNKVAPPFRQAEFQILYGGKIYRNGEIIDLGVQQGL	LVEKSGAWAYK	293
consensus	*!!**!*~	*~**~*****!!*!!*!!*!!*~	*****!!*~**~*****~	***~!!*****!

NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 52415 BTG RS00345 WP 001283853.1
NTDB id 115 BSU 16940 NP 389576.2
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 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 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus



logo

		IEE	
NTDB id 625 LCA RS02525 WP 011374196.1	...	355	
NTDB id 52415 BTG RS00345 WP 001283853.1	...	343	
NTDB id 115 BSU 16940 NP 389576.2	...	348	
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 453 Spy49 1753c ACI62003.1	D..	378	
NTDB id 408 SMU RS09530 WP 002262392.1	D..	383	
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 1074 ABD1 RS10195 WP 000344167.1	...	349	
NTDB id 1022 ACIAD RS06390 WP 004925639.1	...	349	
NTDB id 1205 PSJM300 05545 AFN77183.1	...	347	
consensus			

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