

```

NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 995597 RAB64 RS07045 WP 003732286.1
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 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 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1205 PSJM300 05545 AFN77183.1

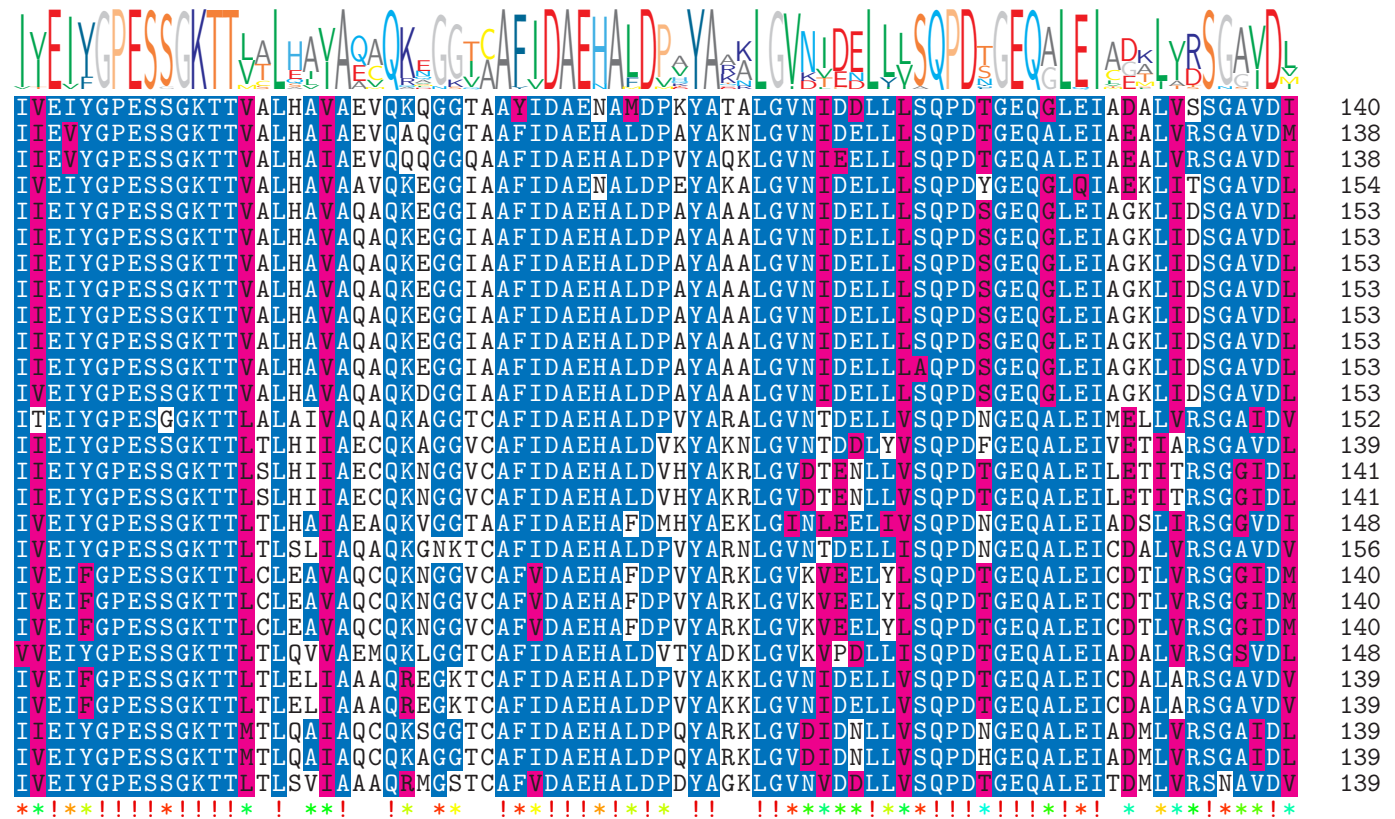
```

	MAKK	KK	EE	KK	DE	KK	KA	AA	AL	KQ	IE	EK	SM	RL	E	AE	QK	YV	ST	GS	SL	AL	DL	AL	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	SS	GS	SL	AL	DE	AL	GV	GG	Y	PK	GR																																						
MN	DR	QA	AL	DQ	AL	KQ	IE	K	Q	FG	KG	SIM	L	GEH	.SD	Q	N	I	ST	IS	SS	GS	SL	AL	D	I	AL	GV	GG	Y	PK	GR																																						
MS	DR	QA	AL	DM	AL	KQ	IE	K	Q	FG	KG	SIM	L	GEK	.TD	TR	I	ST	IP	SS	GS	SL	AL	D	I	AL	GV	GG	Y	PK	GR																																							
MATKK		K	T	N	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	G	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	I	E	K	D	F	G	K	G	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	I	E	K	D	F	G	K	G	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	I	E	K	D	F	G	K	G	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	I	E	K	D	F	G	K	G	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	I	E	K	D	F	G	K	G	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	I	E	K	D	F	G	K	G	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	A	L	K	N	I	E	K	D	F	G	K	G	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	K	A	L	D	A	L	K	N	I	E	K	D	F	G	K	G	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		

```

NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 995597 RAB64 RS07045 WP 003732286.1
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

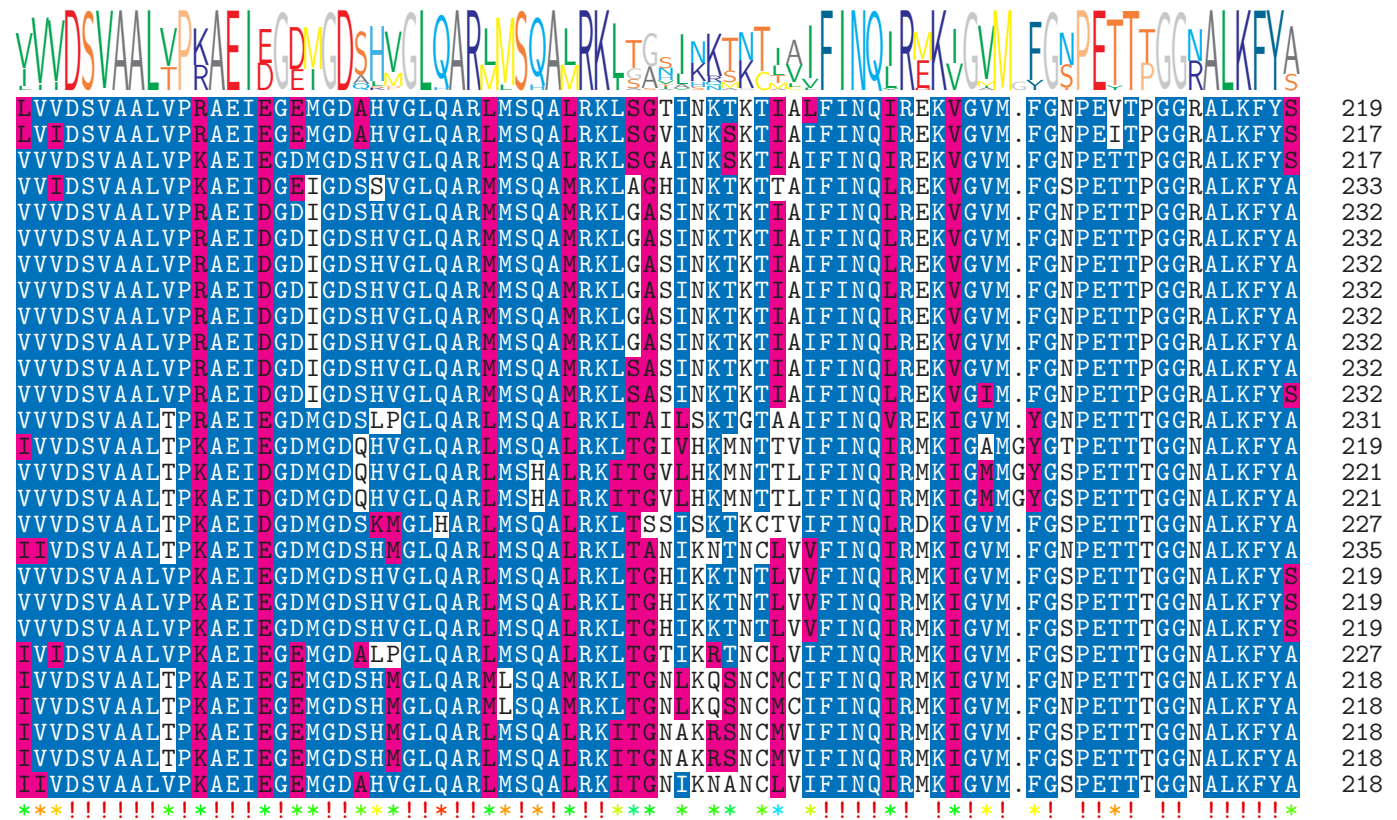
```



```

NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 995597 RAB64 RS07045 WP 003732286.1
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 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 1074 ABD1 RS10195 WP 000344167.1
NTDB id 1022 ACIAD RS06390 WP 004925639.1
NTDB id 1205 PSJM300 05545 AFN77183.1
consensus

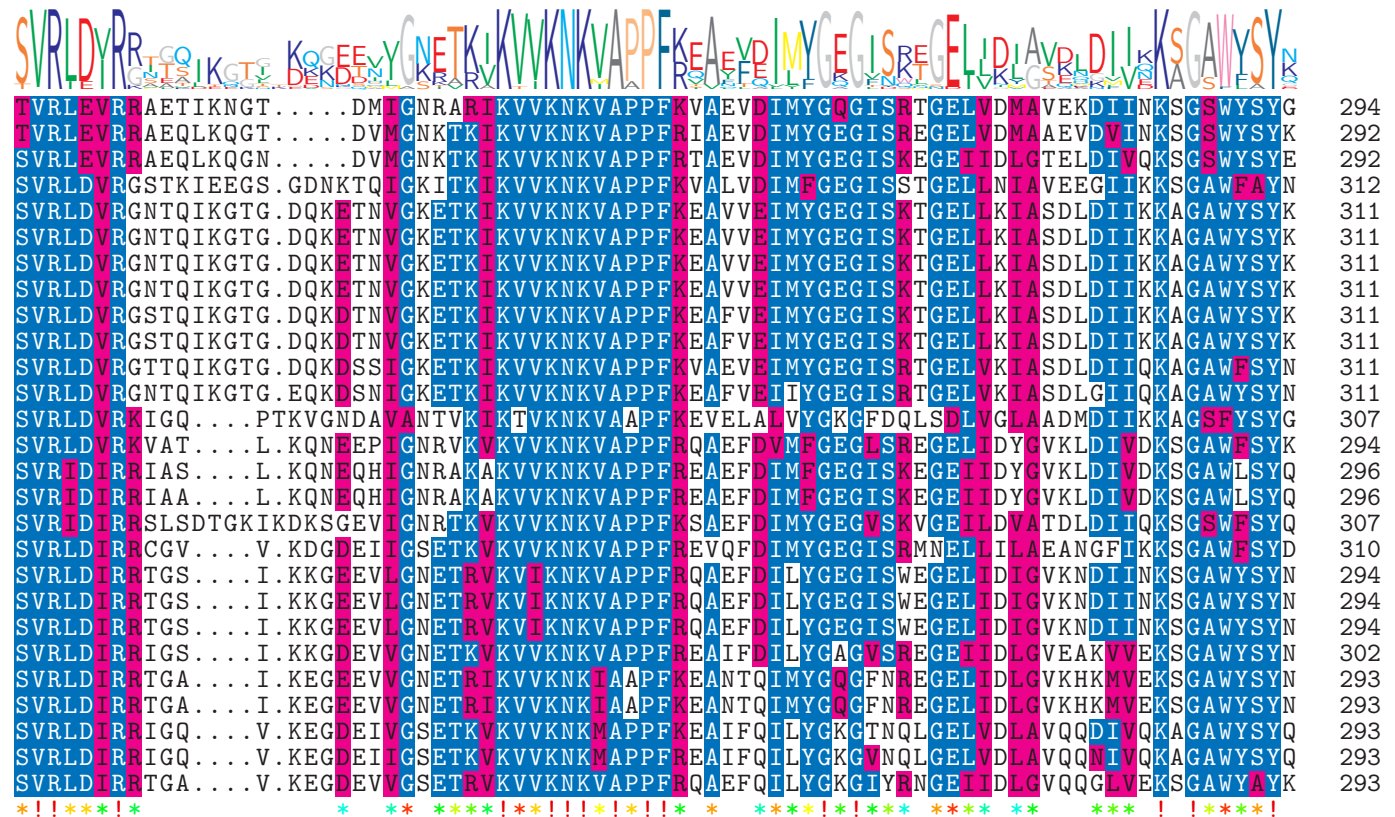
```



```

NTDB id 625 LCA RS02525 WP 011374196.1
NTDB id 995597 RAB64 RS07045 WP 003732286.1
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	SERIGQGRENAKNYLADHEDVEDEVRLKVR	AAAYGISDVPEEDLPTTEDEQINILPDDSTEE	355
NTDB id 995597 RAB64 RS07045 WP 003732286.1	EERIGQGRENAKQYLKEHTDIRDEISKRVREEYE	IDGSSKEPLD..EKEETLSLLDDE	348
NTDB id 115 BSU 16940 NP 389576.2	EERLGQGRENAKQFLKENKDIMLMIQEQUIREHYGL	DNNGVVQQAEETQEELEFEE	348
NTDB id 600 KW2 RS01765 WP 011675413.1	DEKIGQGAEKAKNYLKEHQDVFEIDHKKVRAAHGL	LDDSEVAETEEETTASKTAKAKKKEEKAVETEEIELELED	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	DEKIGQGSSENAKKYLAEHPEIFDEIDKQVRSKFGL	LIDGEEVSEQDTENKKDE....PKKEEA..VNEEVPLDLGDELEIE	385
NTDB id 228 SPD RS09265 WP 001085462.1	DEKIGQGSSENAKKYLAEHPEIFDEIDKQVRSKFGL	LIDGEEVSEQDTENKKDE....PKKEEA..VNEEVPLDLGDELEIE	385
NTDB id 194 SPR RS08825 WP 001085462.1	DEKIGQGSSENAKKYLAEHPEIFDEIDKQVRSKFGL	LIDGEEVSEQDTENKKDE....PKKEEA..VNEEVPLDLGDELEIE	385
NTDB id 159 SP RS09750 WP 001085462.1	DEKIGQGSSENAKKYLAEHPEIFDEIDKQVRSKFGL	LIDGEEVSEQDTENKKDE....PKKEEA..VNEEVPLDLGDELEIE	385
NTDB id 499 SM12261 RS08315 WP 078228268.1	DEKIGQGSSENAKKYLADNPEIFDEIDHQRVVRVQFGL	LIDGEEIAES....KKDE....AAQVDS..VNEEVTLDLGDELEIE	381
NTDB id 527 SMSK321 RS11065 WP 001085454.1	DEKIGQGSSENAKKYLADNPEVFAEIDHQRVVRVQFGL	LIDGEEAAES....KKDE....VAQVDS..VNEEVTLDLGDELEIE	381
NTDB id 453 Spy49 1753c ACI62003.1	GEKIGQGSSENAKRYLADHPQLFDEIDRKVRVKFGL	LEESEEEESAMAVASE.....E.....TDDLALDLNGIEIE	377
NTDB id 408 SMU RS09530 WP 002262392.1	GEKIGQGSSENAKKFLADNPEIFDDIDHKKVRVQYGL	IEEDNTEEKQSSKEK.....ETDEK..ADKNLVLELDDTIELE	382
NTDB id 1313 DR RS12030 WP 010888966.1	DERIGQGKEKTIAYIAERPMEQEIRDRVMAAIRAGNAGEAPALAPAPAAPEAAEA		363
NTDB id 1245 Cj1673c YP 002345041.1	DKKLGQGRENSKAFLENPEIADDEITKAIQNSMGI	EGMI....SGSEDDE..GEE	343
NTDB id 1211 C694 RS00795 WP 000963128.1	DKKLGQGRENAKALLKEDKALADEITLKI	KESIGSNEEI....MPLPDEP..LEEME	347
NTDB id 1214 NCTC11637 00359 SQJ03206.1	DKKLGQGRENAKALLKEDKALADEITLKI	KESIGSNEEI....MPLPDEP..LEEME	347
NTDB id 1334 RAOC RS04870 WP 004918236.1	DTKLGQGRDITVKELIKDNPELAEELEAKIREKLQAK		343
NTDB id 1389 A4U84 RS07560 WP 021112712.1	GTKIGQGGKNNAVKWLKENPEIADKLEQEIRNTLASNPNS	VLKATASDSNDESVDVEE..FSEEEL	372
NTDB id 1130 NGFG RS03960 WP 003688695.1	GAKIGQGGKDNVRVWLKENPEISDEIDAKIRALNGVEMHI	TEGTQDETD.....GE..RPEE	348
NTDB id 1124 NGFG RS03960 WP 003688695.1	GAKIGQGGKDNVRVWLKENPEISDEIDAKIRALNGVEMHI	TEGTQDETD.....GE..RPEE	348
NTDB id 1123 OK783 RS03845 WP 003688695.1	GAKIGQGGKDNVRVWLKENPEISDEIDAKIRALNGVEMHI	TEGTQDETD.....GE..RPEE	348
NTDB id 1427 RS RS02760 WP 011000510.1	GERIGQGRDNCREFLRENAELAREIENKVREHLGV	TPMG....AV.TLAEVEED	352
NTDB id 1165 A1552VC RS01565 WP 000344154.1	GDKIGQGGKANACKYLLKENPEIAKTLDDKKLREMLLNPENM	QLIAETSSAADDVEFGA..VPEEF	354
NTDB id 1142 GTF74 RS11550 WP 000344154.1	GDKIGQGGKANACKYLLKENPEIAKTLDDKKLREMLLNPENM	QLIAETSSAADDVEFGA..VPEEF	354
NTDB id 1074 ABD1 RS10195 WP 000344167.1	GNKIGQGGKNNVIRYFEENNQIAEEIERNIREQLLTGTN	GAVQ.I.EDEEEDPD..L..LLES	349
NTDB id 1022 ACIAD RS06390 WP 004925639.1	GNKIGQGGKNNVIRYLEENPQISTEIEAVIREQLLTKASD	QTAA.HDETEEEDPD..L..LES	349
NTDB id 1205 PSJM300 05545 AFN77183.1	GSKIGQGGKANAAKYLEENPEIGQEIEQQIRAKLLVTSAN	TKATPVAEDLADAD..I	347
consensus	***!!!***** ** * *** ***** ** **		

logo

		IEE	
NTDB id 625 LCA RS02525 WP 011374196.1	...	355	
NTDB id 995597 RAB64 RS07045 WP 003732286.1	...	348	
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