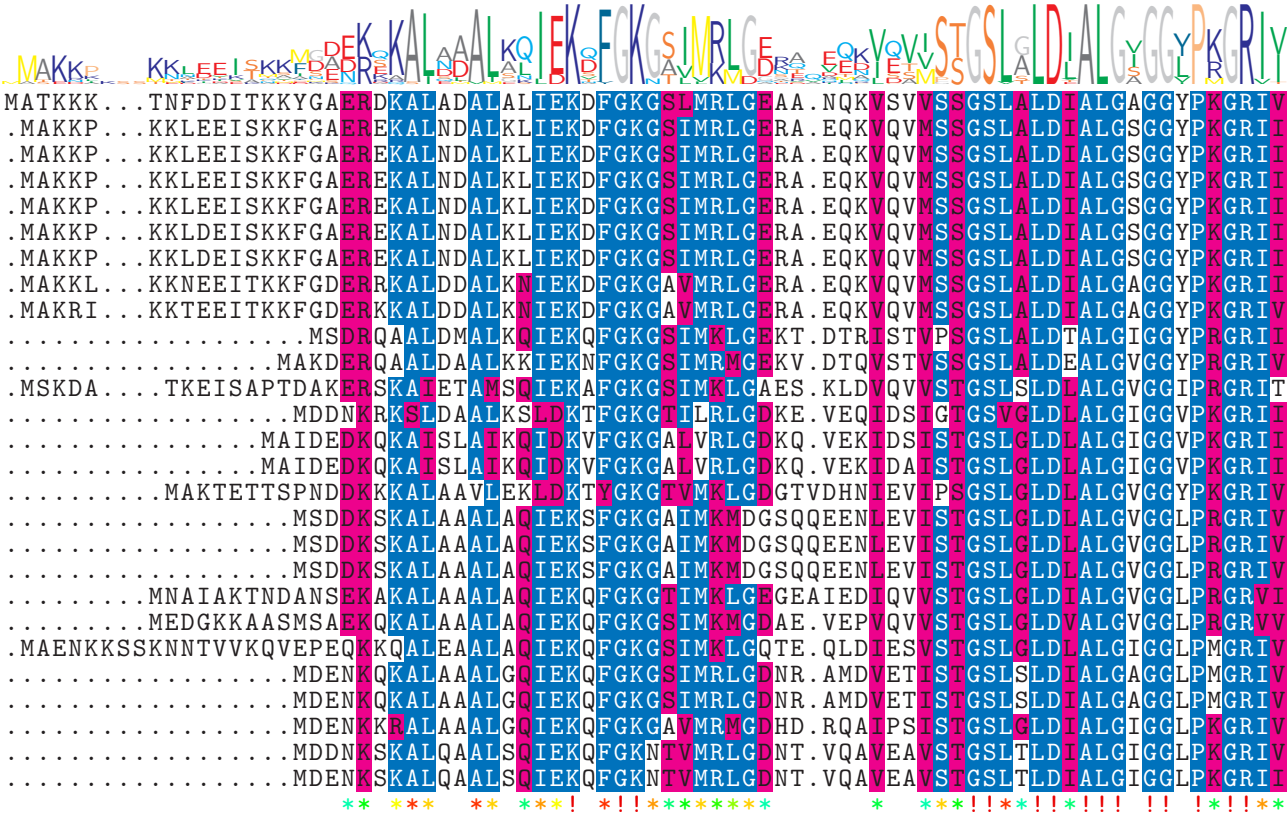


logo

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 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 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1334 RAOC RS04870 WP 004918236.1
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 668285 MP579 RS25160 WP 003072158.1
NTDB id 1427 RS RS02760 WP 011000510.1
NTDB id 1389 A4U84 RS07560 WP 021112712.1
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

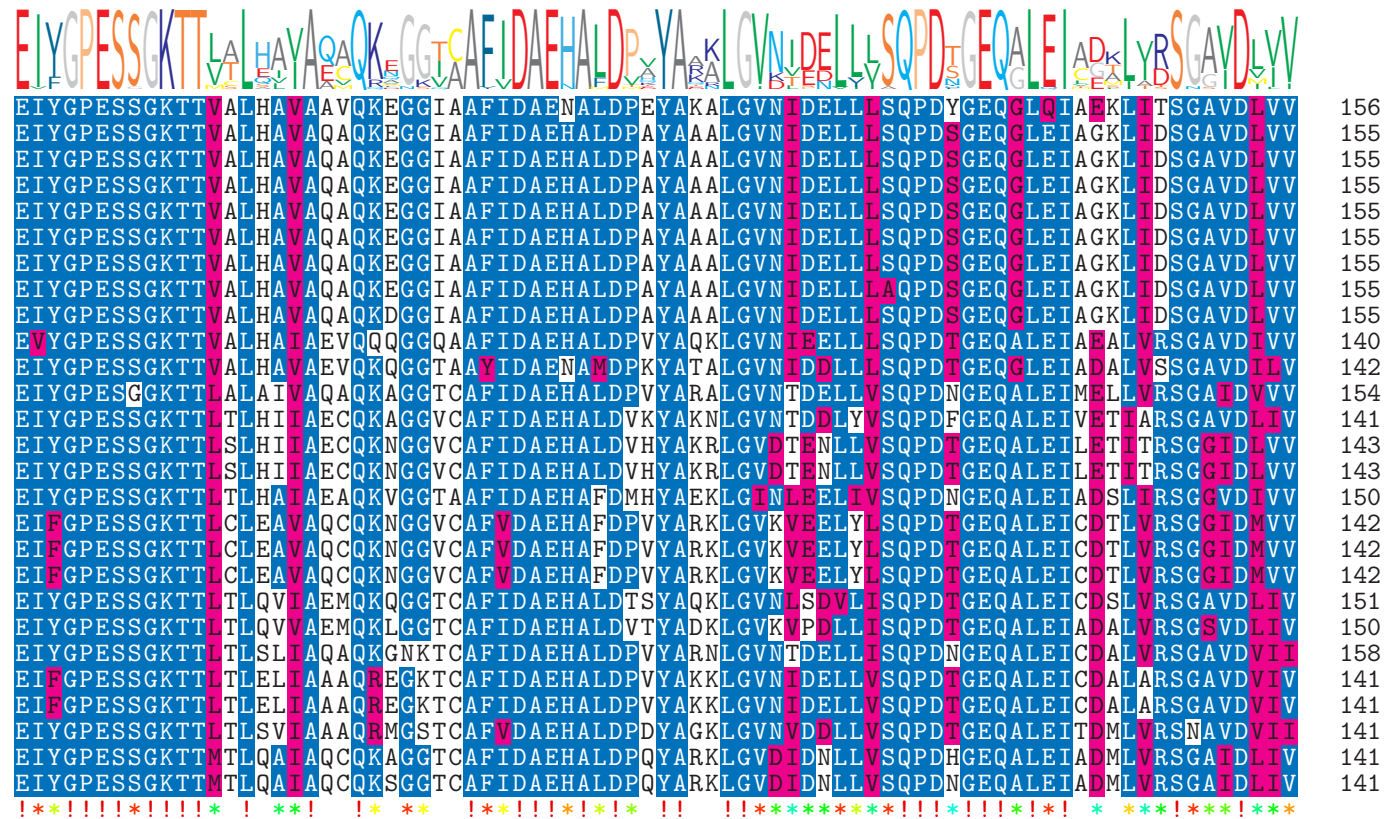


76
75
75
75
75
75
75
75
75
75
60
62
74
61
63
63
70
62
62
62
71
70
78
61
61
61
61
61

```

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 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1334 RAOC RS04870 WP 004918236.1
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 668285 MP579 RS25160 WP 003072158.1
NTDB id 1427 RS RS02760 WP 011000510.1
NTDB id 1389 A4U84 RS07560 WP 021112712.1
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

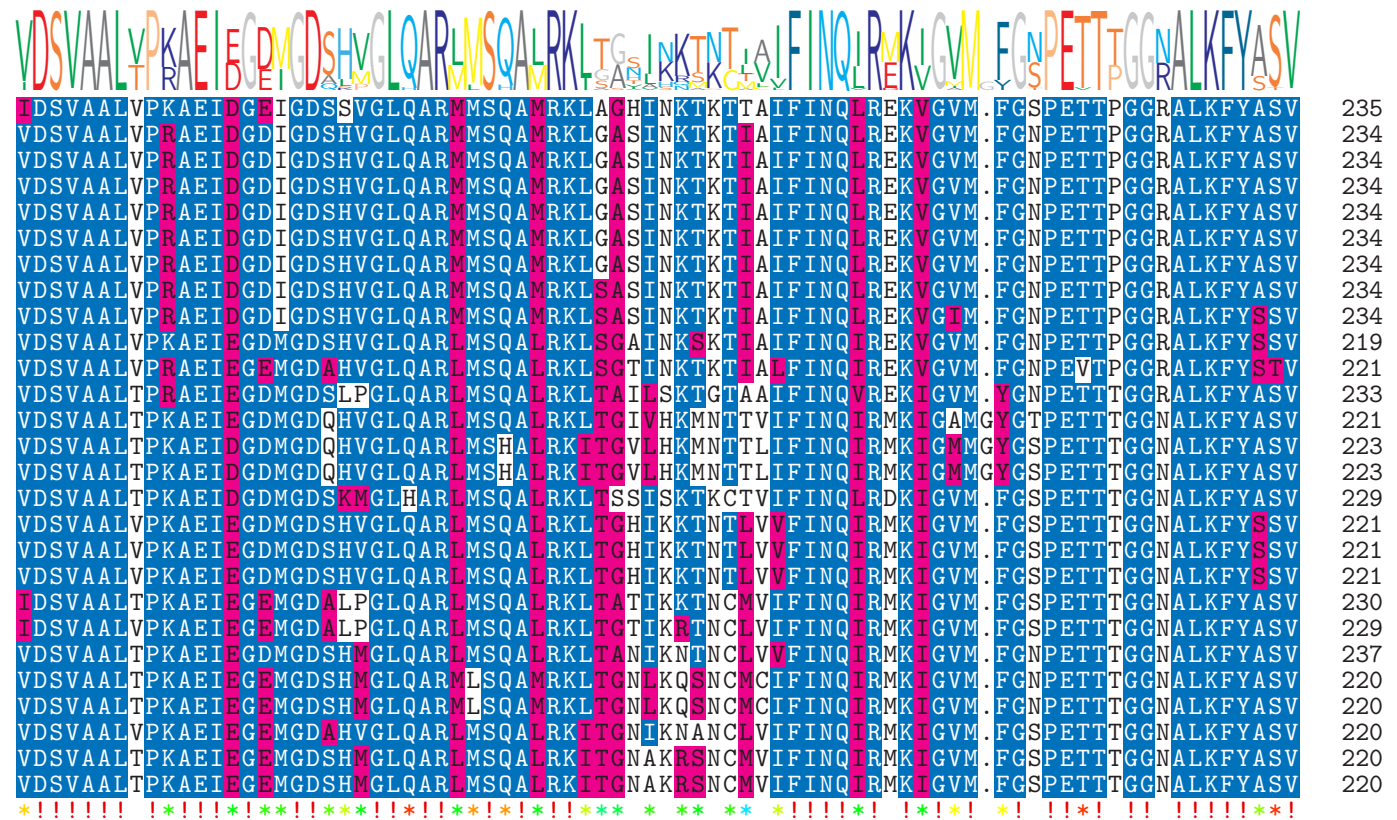
```



```

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 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1334 RAOC RS04870 WP 004918236.1
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 668285 MP579 RS25160 WP 003072158.1
NTDB id 1427 RS RS02760 WP 011000510.1
NTDB id 1389 A4U84 RS07560 WP 021112712.1
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	RLDVRG	STKIEEGS	.GDNKTQ	IGKI	TKIKVV	VKNKVAPP	PFKEA	LV	DIM	F	GEGIS	STGEL	IN	IAVEE	GI	IKK	SGAW	FAY	NDE	314		
NTDB id 269 KZH43 RS08665 WP 001085462.1	RLDVRG	NTQIKGTG	.DQKETN	VGKETK	IKVV	VKNKVAPP	PFKEA	VV	EIM	Y	GEGIS	KTGEL	LK	IASD	LD	I	IKK	AGAW	YSYK	DE	313	
NTDB id 228 SPD RS09265 WP 001085462.1	RLDVRG	NTQIKGTG	.DQKETN	VGKETK	IKVV	VKNKVAPP	PFKEA	VV	EIM	Y	GEGIS	KTGEL	LK	IASD	LD	I	IKK	AGAW	YSYK	DE	313	
NTDB id 194 SPR RS08825 WP 001085462.1	RLDVRG	NTQIKGTG	.DQKETN	VGKETK	IKVV	VKNKVAPP	PFKEA	VV	EIM	Y	GEGIS	KTGEL	LK	IASD	LD	I	IKK	AGAW	YSYK	DE	313	
NTDB id 159 SP RS09750 WP 001085462.1	RLDVRG	NTQIKGTG	.DQKETN	VGKETK	IKVV	VKNKVAPP	PFKEA	VV	EIM	Y	GEGIS	KTGEL	LK	IASD	LD	I	IKK	AGAW	YSYK	DE	313	
NTDB id 527 SMSK321 RS11065 WP 001085454.1	RLDVRG	STQIKGTG	.DQKDTN	VGKETK	IKVV	VKNKVAPP	PFKEA	FV	EIM	Y	GEGIS	KTGEL	LK	IASD	LD	I	IKK	AGAW	YSYK	DE	313	
NTDB id 499 SM12261 RS08315 WP 078228268.1	RLDVRG	STQIKGTG	.DQKDTN	VGKETK	IKVV	VKNKVAPP	PFKEA	FV	EIM	Y	GEGIS	KTGEL	LK	IASD	LD	I	IKK	AGAW	YSYK	DE	313	
NTDB id 453 Spy49 1753c ACI62003.1	RLDVRG	TQIKGTG	.DQKDS	IGKETK	IKVV	VKNKVAPP	PFKEA	EV	EIM	Y	GEGIS	R	TGEL	V	K	I	A	S	D	L	I	313
NTDB id 408 SMU RS09530 WP 002262392.1	RLDVRG	NTQIKGTG	.EQKDS	IGKETK	IKVV	VKNKVAPP	PFKEA	FV	EIM	Y	GEGIS	R	TGEL	V	K	I	A	S	D	L	I	313
NTDB id 115 BSU 16940 NP 389576.2	RLEVR	RAEQLKQGN	.....	DV	MGNK	TKIKVV	VKNKVAPP	FR	TAE	V	D	I	M	Y	G	E	G	I	S	K	294	
NTDB id 625 LCA RS02525 WP 011374196.1	RLEVR	RAETIKNGT		DM	IGNR	ARIKVV	VKNKVAPP	PFKEA	EV	DIM	Y	G	Q	G	I	S	R	TGEL	V	D	M	296
NTDB id 1313 DR RS12030 WP 010888966.1	RLDVR	KIGQ		PTK	VGNDA	VANT	VKIK	TKVKN	KVA	APFKE	V	E	L	A	L	V	Y	G	K	G	F	309
NTDB id 1245 Cj1673c YP 002345041.1	RLDVR	KVAT		L	KQN	E	E	P	I	G	N	R	V	K	V	V	V	K	N	K	V	296
NTDB id 1211 C694 RS00795 WP 000963128.1	RIDIR	RIAS		L	KQNE	QH	IGNR	AK	AKVV	VKNKVAPP	PFRE	A	E	F	D	I	M	F	G	E	G	298
NTDB id 1214 NCTC11637 00359 SQJ03206.1	RIDIR	RIAA		L	KQNE	QH	IGNR	AK	AKVV	VKNKVAPP	PFRE	A	E	F	D	I	M	F	G	E	G	298
NTDB id 1334 RAOC RS04870 WP 004918236.1	RIDIR	RSLS	DTGKIKDKS	GEV	IGNR	TKV	VVKNKVAPP	PFK	S	A	E	F	D	I	M	Y	G	E	G	V	309	
NTDB id 1130 NGFG RS03960 WP 003688695.1	RLDIR	RTGS	....	I	KKGE	EV	LGN	ETRV	KV	I	KNKVAPP	FR	Q	A	E	F	D	I	L	Y	296	
NTDB id 1124 NGFG RS03960 WP 003688695.1	RLDIR	RTGS	....	I	KKGE	EV	LGN	ETRV	KV	I	KNKVAPP	FR	Q	A	E	F	D	I	L	Y	296	
NTDB id 1123 OK783 RS03845 WP 003688695.1	RLDIR	RTGS	....	I	KKGE	EV	LGN	ETRV	KV	I	KNKVAPP	FR	Q	A	E	F	D	I	L	Y	296	
NTDB id 668285 MP579 RS25160 WP 003072158.1	RLDIR	RTGT	....	I	KKGE	DEA	IGN	ETK	V	VVKNKV	S	P	P	F	K	T	A	E	F	D	305	
NTDB id 1427 RS RS02760 WP 011000510.1	RLDIR	RIGS	....	I	KKGE	DEV	VGN	ETK	V	VVKNKVAPP	FR	E	A	I	F	D	I	L	Y	G	304	
NTDB id 1389 A4U84 RS07560 WP 021112712.1	RLDIR	RCGV	....	V	KDG	DEI	IG	S	E	T	K	V	VVKNKVAPP	FR	E	V	Q	F	D	I	312	
NTDB id 1165 A1552VC RS01565 WP 000344154.1	RLDIR	RTGA	....	I	KEG	EEV	VGN	ETRI	K	VVKNK	I	A	A	P	F	K	E	A	N	T	295	
NTDB id 1142 GTF74 RS11550 WP 000344154.1	RLDIR	RTGA	....	I	KEG	EEV	VGN	ETRI	K	VVKNK	I	A	A	P	F	K	E	A	N	T	295	
NTDB id 1205 PSJM300 05545 AFN77183.1	RLDIR	RTGA	....	V	KEG	DEV	VGS	E	T	R	V	VVKNKVAPP	FR	Q	A	E	F	Q	I	L	295	
NTDB id 1022 ACIAD RS06390 WP 004925639.1	RLDIR	RIGQ	....	V	KEG	DEI	IG	S	E	T	K	V	VVKNK	M	A	P	P	F	R	E	295	
NTDB id 1074 ABD1 RS10195 WP 000344167.1	RLDIR	RIGQ	....	V	KEG	DEI	IG	S	E	T	K	V	VVKNK	M	A	P	P	F	K	E	295	
consensus	!	***	!	*			*		*	*	***	!*	***	!*	***	!*	*		*			

logo

NTDB id 600 KW2 RS01765 WP 011675413.1	KIGQGA	EKAKNYLKEHQDV	DEIDHKVRAAHG	LDDSEVAETEEETT	ASKTKAKAKK	...	EEKAVETEEIELELED	...	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTENKK	DE	...	PKK	...	383
NTDB id 228 SPD RS09265 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTENKK	DE	...	PKK	...	383
NTDB id 194 SPR RS08825 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTENKK	DE	...	PKK	...	383
NTDB id 159 SP RS09750 WP 001085462.1	KIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTENKK	DE	...	PKK	...	383
NTDB id 527 SMSK321 RS11065 WP 001085454.1	KIGQGS	ENAKKYLA	DNPEVFAE	IDHQRVVRVQFGL	IDGEEAAE	...	SKKDE	...	379
NTDB id 499 SM12261 RS08315 WP 078228268.1	KIGQGS	ENAKKYLA	DNPEIF	DEIDHQRVVRVQFGL	IDGEEIAE	...	SKKDE	...	379
NTDB id 453 Spy49 1753c ACI62003.1	KIGQGS	ENAKRYLA	DHPQLF	DEIDRKVRVKFGL	LEESEESAMAVASE	...	E	...	375
NTDB id 408 SMU RS09530 WP 002262392.1	KIGQGS	ENAKKFLA	DNPEIF	DDIDHKVRVQYGL	IEEDNTEEKQSSKEK	...	ET	...	380
NTDB id 115 BSU 16940 NP 389576.2	RLGQGR	ENAKQFL	KENKDIMLMI	QEQIREHYGL	DNNGVVQQAEETQEEL	EFE	E	...	348
NTDB id 625 LCA RS02525 WP 011374196.1	RIGQGR	ENAKNYLA	DHEDVE	DEVRLKVRAAYG	ISDVPEEDLPTTEDE	QI	NILPDD	...	355
NTDB id 1313 DR RS12030 WP 010888966.1	RIGQGK	EKTIAIYA	ERP	MEQEIRDRVMAA	IRAGNAGEAPALAPAPAAPEAAEA	...			363
NTDB id 1245 Cj1673c YP 002345041.1	KLGGGR	ENSKAFL	KENPEIA	DEITKAIQNSMG	IEGMI	...	SGSEDDEGEE	...	343
NTDB id 1211 C694 RS00795 WP 000963128.1	KLGGGR	ENAKALLK	EDKALADEITLKI	KESIGSNEEI	...	MPLPDEPLEEME	...		347
NTDB id 1214 NCTC11637 00359 SQJ03206.1	KLGGGR	ENAKALLK	EDKALADEITLKI	KESIGSNEEI	...	MPLPDEPLEEME	...		347
NTDB id 1334 RAOC RS04870 WP 004918236.1	KLGGGR	DTVKELIK	DNPELAEELEAK	IREKLQAK	...				343
NTDB id 1130 NGFG RS03960 WP 003688695.1	KIGQGD	NVRVWL	KENPEIS	DEIDAKIRALNG	VEMHI	...	TEGTQDET	DGERPEE	348
NTDB id 1124 NGFG RS03960 WP 003688695.1	KIGQGD	NVRVWL	KENPEIS	DEIDAKIRALNG	VEMHI	...	TEGTQDET	DGERPEE	348
NTDB id 1123 OK783 RS03845 WP 003688695.1	KIGQGD	NVRVWL	KENPEIS	DEIDAKIRALNG	VEMHI	...	TEGTQDET	DGERPEE	348
NTDB id 668285 MP579 RS25160 WP 003072158.1	KIGQGR	DNRSREFL	RENPA	LAIEIENKVR	ESLGIKLLP	...	VDGAAAAEAKPAKGGKGV	KDGVIEG	369
NTDB id 1427 RS RS02760 WP 011000510.1	RIGQGR	DNCREFL	RENAELAREIENKVR	REHLGVTPMG	...	AVTLAEEVEED	...		352
NTDB id 1389 A4U84 RS07560 WP 021112712.1	KIGQGN	NAVKKWL	KENPEIA	DKLEQEI	RNTLASNPNS	...	VLKATASDSNDES	...	372
NTDB id 1165 A1552VC RS01565 WP 000344154.1	KIGQGN	ANACKYLL	KENPEIA	KTLDKKLREMLLN	PNENM	...	QLIAETSSAADDV	...	354
NTDB id 1142 GTF74 RS11550 WP 000344154.1	KIGQGN	ANACKYLL	KENPEIA	KTLDKKLREMLLN	PNENM	...	QLIAETSSAADDV	...	354
NTDB id 1205 PSJM300 05545 AFN77183.1	KIGQGN	ANAAYLEEN	PEIGQIE	EQQIRAKLL	VTSAN	...	TKATPVAEDLADA	...	347
NTDB id 1022 ACIAD RS06390 WP 004925639.1	KIGQGN	NVIRYLEEN	PQISTE	IEAVIREQLLT	KASD	...	QTAAHDETEEEP	...	349
NTDB id 1074 ABD1 RS10195 WP 000344167.1	KIGQGN	NVIRYFEEN	NQIAEEI	ERNIREQLLT	TGTN	...	GAVQI	...	349
consensus	**!	!!	*****	**	*****	*****	**	**	

logo

NTDB id 600 KW2 RS01765 WP 011675413.1	.....	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	IEIEE	388
NTDB id 228 SPD RS09265 WP 001085462.1	IEIEE	388
NTDB id 194 SPR RS08825 WP 001085462.1	IEIEE	388
NTDB id 159 SP RS09750 WP 001085462.1	IEIEE	388
NTDB id 527 SMSK321 RS11065 WP 001085454.1	IEIEE	384
NTDB id 499 SM12261 RS08315 WP 078228268.1	IEIEE	384
NTDB id 453 Spy49 1753c ACI62003.1	IED..	378
NTDB id 408 SMU RS09530 WP 002262392.1	LED..	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 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 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 668285 MP579 RS25160 WP 003072158.1	.....	369
NTDB id 1427 RS RS02760 WP 011000510.1	.....	352
NTDB id 1389 A4U84 RS07560 WP 021112712.1	.....	372
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