

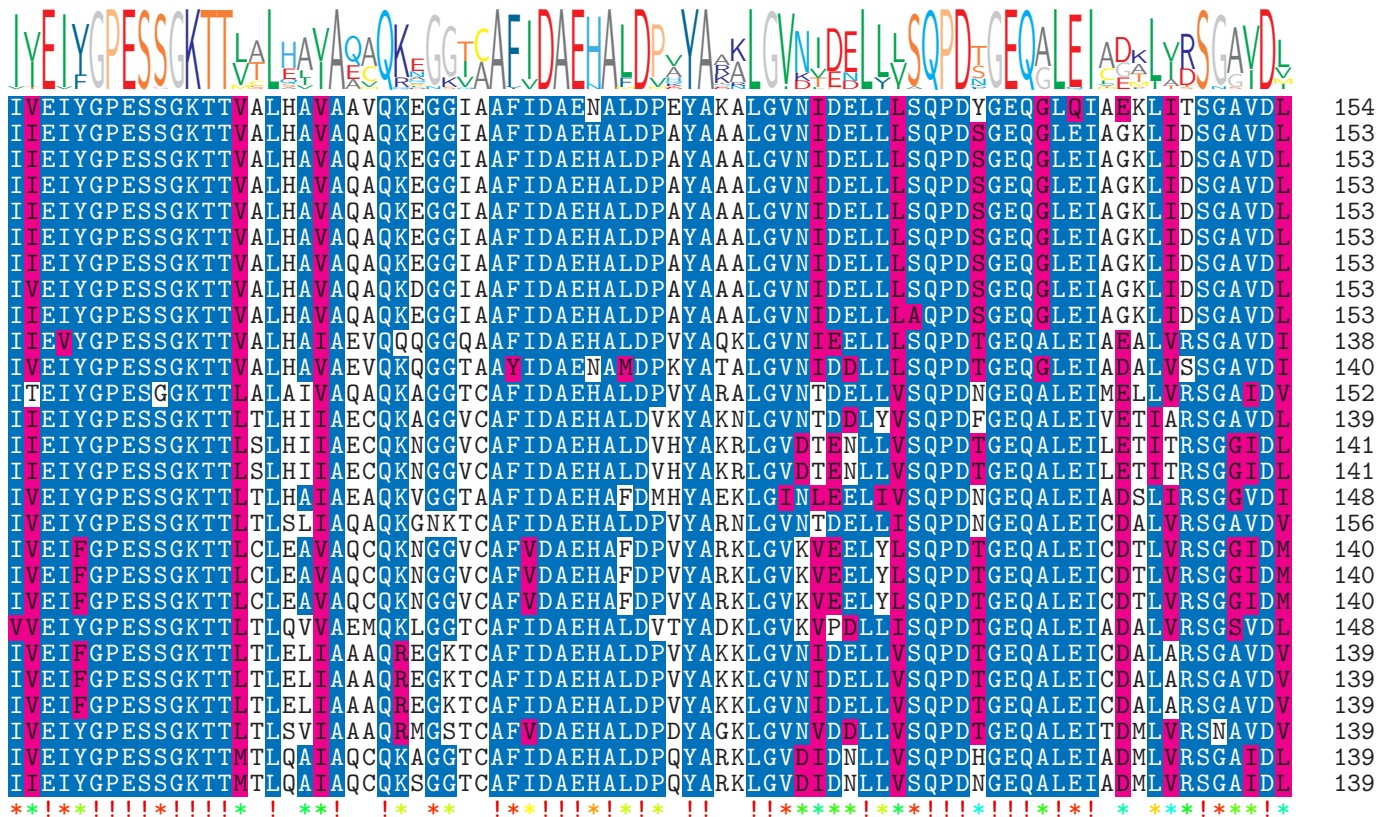
logo

NTDB id 600 KW2 RS01765 WP 011675413.1	MATKK....KTNFDDITKKYGAERDKALADALALIEKDFGKCSIMRLCER.ANQKVSVVSSGSLALDIALGAGGYPKGR	74
NTDB id 269 KZH43 RS08665 WP 001085462.1	.MAKK....PKKLEEISKKFGAEREKALNDALKLIEKDFGKCSIMRLCER.AEQKVQVMSSGSLALDIALCSGGYPKGR	73
NTDB id 228 SPD RS09265 WP 001085462.1	.MAKK....PKKLEEISKKFGAEREKALNDALKLIEKDFGKCSIMRLCER.AEQKVQVMSSGSLALDIALCSGGYPKGR	73
NTDB id 194 SPR RS08825 WP 001085462.1	.MAKK....PKKLEEISKKFGAEREKALNDALKLIEKDFGKCSIMRLCER.AEQKVQVMSSGSLALDIALCSGGYPKGR	73
NTDB id 159 SP RS09750 WP 001085462.1	.MAKK....PKKLEEISKKFGAEREKALNDALKLIEKDFGKCSIMRLCER.AEQKVQVMSSGSLALDIALCSGGYPKGR	73
NTDB id 499 SM12261 RS08315 WP 078228268.1	.MAKK....PKKLDEISKKFGAEREKALNDALKLIEKDFGKCSIMRLCER.AEQKVQVMSSGSLALDIALCSGGYPKGR	73
NTDB id 527 SMSK321 RS11065 WP 001085454.1	.MAKK....PKKLDEISKKFGAEREKALNDALKLIEKDFGKCSIMRLCER.AEQKVQVMSSGSLALDIALCSGGYPKGR	73
NTDB id 408 SMU RS09530 WP 002262392.1	.MAKR....IKKTEEITKKFGDERKKALDDALKNIEKDFGKCAVMRLCER.AEQKVQVMSSGSLALDIALGAGGYPKGR	73
NTDB id 453 Spy49 1753c ACI62003.1	.MAKK....LKKNEEITKKFGDERRKALDDALKNIEKDFGKCAVMRLCER.AEQKVQVMSSGSLALDIALGAGGYPKGR	73
NTDB id 115 BSU 16940 NP 389576.2	MSDRQAALDMALKQIEKQFGKCSIMKLCEK.TDTRISTVPSGSLALDIALGIGGYPGR	58
NTDB id 625 LCA RS02525 WP 011374196.1	MAKDERQAALDAALKKIEKNFGKCSIMRMCEK.VDTQVSTVSSGSLALDEALGVGGYPGR	60
NTDB id 1313 DR RS12030 WP 010888966.1	MSKDATKEISAPTDAKERSKATETAMQIEKAFGKCSIMKLCAE.SKLDVQVVSTGSLSLDIALCVGGIPGR	72
NTDB id 1245 Cj1673c YP 002345041.1	MDLNKRKSLDAALKSLDKTFGKGTILRLCDK.EVEQIDSIIGTGSVGLDLALGIGGVPKGR	59
NTDB id 1214 NCTC11637 00359 SQJ03206.1	MAIDEDKQKATSLATKQIDKVFVGKCALVRLCDK.QVEKIDASTGSLGLDLALGIGGVPKGR	61
NTDB id 1211 C694 RS00795 WP 000963128.1	MAIDEDKQKATSLATKQIDKVFVGKCALVRLCDK.QVEKIDASTGSLGLDLALGIGGVPKGR	61
NTDB id 1334 RAOC RS04870 WP 004918236.1	MAKT..ETTSPNDDKKKALAAVLEKLDKTYGKCTVMKLCGDTVDHNIETVPSGSLGLDLALGVGGYPKGR	68
NTDB id 1389 A4U84 RS07560 WP 021112712.1	.MAENKKSSKNNTV.VKQVEPEQKKQALEAALAQIEKQFGKCSIMKLQQT.EQLDIESVSTGSLGLDLALGIGGLPMGR	76
NTDB id 1130 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALAQIEKSFGKGAIMKMDGSQQEENLEVIISTGSLGLDLALGVGGLPGR	60
NTDB id 1124 NGFG RS03960 WP 003688695.1	MSDDKSKALAAALAQIEKSFGKGAIMKMDGSQQEENLEVIISTGSLGLDLALGVGGLPGR	60
NTDB id 1123 OK783 RS03845 WP 003688695.1	MSDDKSKALAAALAQIEKSFGKGAIMKMDGSQQEENLEVIISTGSLGLDLALGVGGLPGR	60
NTDB id 1427 RS RS02760 WP 011000510.1	.MEDG.....K..KAASMSAEKQKALAAALAQIEKQFGKCSIMKMCDA.EVEPVQVVSTGSLGLDVALGVGGLPGR	68
NTDB id 139960 VAA049 RS16045 WP 000344154.1	MDENKQKALAAALGQIEKQFGKCSIMRLCDN.RAMDVETISTGSLSLDIALGAGGLPMGR	59
NTDB id 1165 A1552VC RS01565 WP 000344154.1	MDENKQKALAAALGQIEKQFGKCSIMRLCDN.RAMDVETISTGSLSLDIALGAGGLPMGR	59
NTDB id 1142 GTF74 RS11550 WP 000344154.1	MDENKQKALAAALGQIEKQFGKCSIMRLCDN.RAMDVETISTGSLSLDIALGAGGLPMGR	59
NTDB id 1205 PSJM300 05545 AFN77183.1	MDENKQKALAAALGQIEKQFGKCAVMRLCDH.DRQALPSISTGSLGLDLALGIGGLPKGR	59
NTDB id 1022 ACIAD RS06390 WP 004925639.1	MDDNKSKALQAALSQIEKQFGKNTVMRLCDN.TVQAVEAVSTGSLTLDIALGIGGLPKGR	59
NTDB id 1074 ABD1 RS10195 WP 000344167.1	MDENKSKALQAALSQIEKQFGKNTVMRLCDN.TVQAVEAVSTGSLTLDIALGIGGLPKGR	59
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 408 SMU RS09530 WP 002262392.1
NTDB id 453 Spy49 1753c ACI62003.1
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 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 139960 VAA049 RS16045 WP 000344154.1
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

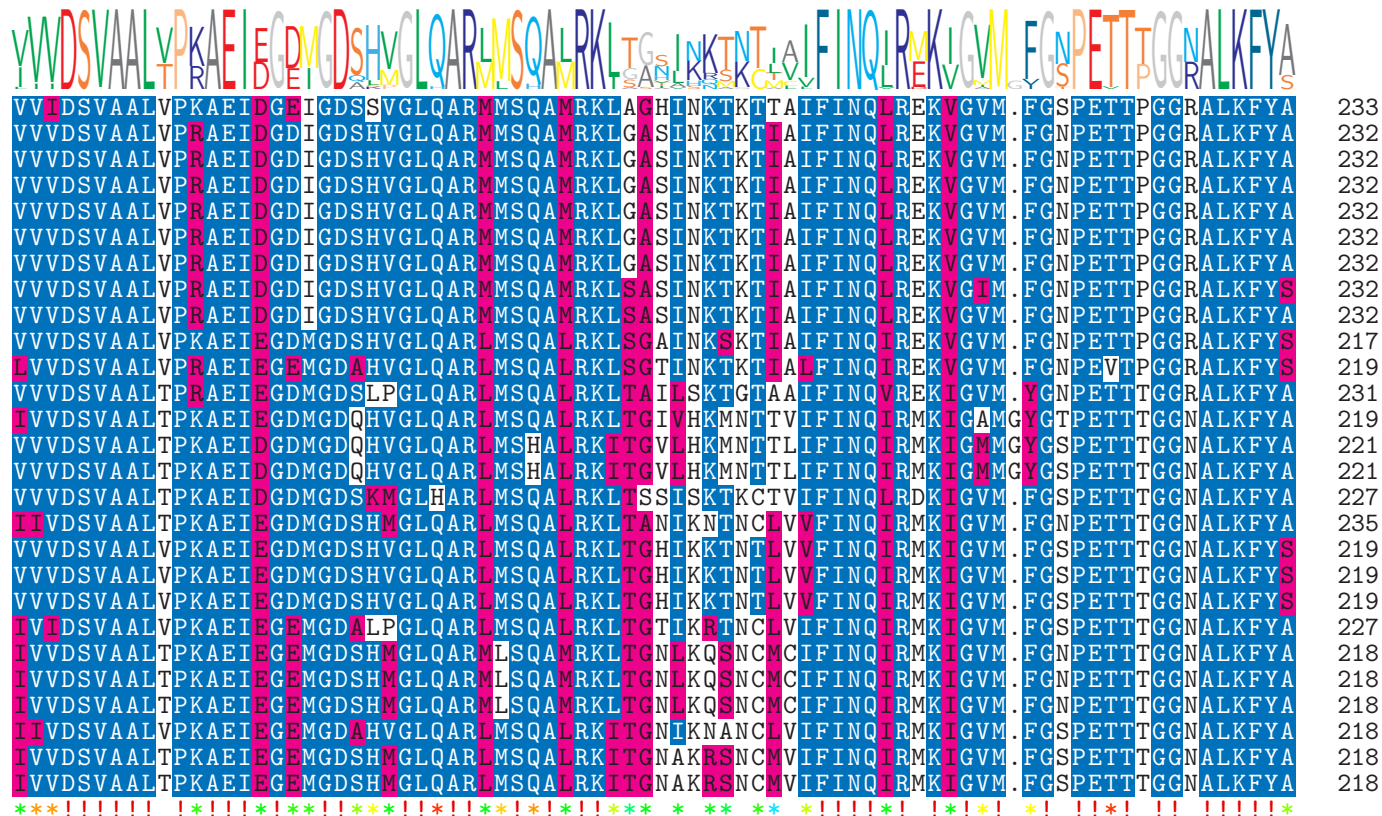
```



```

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 499 SM12261 RS08315 WP 078228268.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
NTDB id 408 SMU RS09530 WP 002262392.1
NTDB id 453 Spy49 1753c ACI62003.1
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 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 139960 VAA049 RS16045 WP 000344154.1
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

```

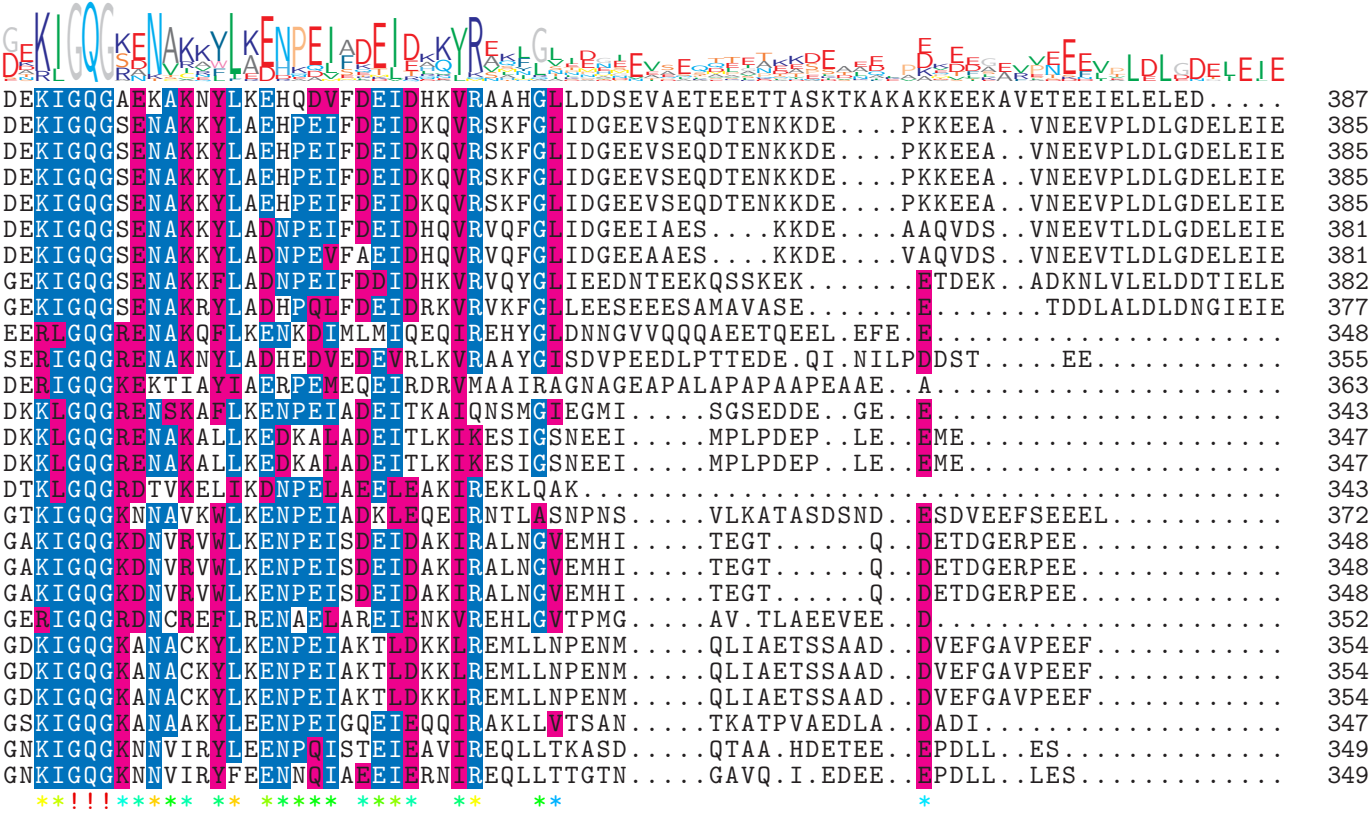


logo

NTDB id 600 KW2 RS01765 WP 011675413.1	SVRLDVRG	STKIEEGS	.GDNKTQ	IKITK	KVVKNKVAPPF	KVALVD	IMF	GEGIS	STGELL	NI	AVEEG	TI	KK	SGAW	FAYN	312						
NTDB id 269 KZH43 RS08665 WP 001085462.1	SVRLDVRG	NTQIKGTG	.DQKE	TNV	GKETK	KVVKNKVAPPF	KEAVVE	IMY	GEGIS	KTGELL	KIASD	LDI	KK	KAGAW	YSYK	311						
NTDB id 228 SPD RS09265 WP 001085462.1	SVRLDVRG	NTQIKGTG	.DQKE	TNV	GKETK	KVVKNKVAPPF	KEAVVE	IMY	GEGIS	KTGELL	KIASD	LDI	KK	KAGAW	YSYK	311						
NTDB id 194 SPR RS08825 WP 001085462.1	SVRLDVRG	NTQIKGTG	.DQKE	TNV	GKETK	KVVKNKVAPPF	KEAVVE	IMY	GEGIS	KTGELL	KIASD	LDI	KK	KAGAW	YSYK	311						
NTDB id 159 SP RS09750 WP 001085462.1	SVRLDVRG	NTQIKGTG	.DQKE	TNV	GKETK	KVVKNKVAPPF	KEAVVE	IMY	GEGIS	KTGELL	KIASD	LDI	KK	KAGAW	YSYK	311						
NTDB id 499 SM12261 RS08315 WP 078228268.1	SVRLDVRG	STQIKGTG	.DQKD	TNV	GKETK	KVVKNKVAPPF	KEAFVE	IMY	GEGIS	KTGELL	KIASD	LDI	KK	KAGAW	YSYK	311						
NTDB id 527 SMSK321 RS11065 WP 001085454.1	SVRLDVRG	STQIKGTG	.DQKD	TNV	GKETK	KVVKNKVAPPF	KEAFVE	IMY	GEGIS	KTGELL	KIASD	LDI	KK	KAGAW	YSYK	311						
NTDB id 408 SMU RS09530 WP 002262392.1	SVRLDVRG	NTQIKGTG	.EQKD	SN	GKETK	KVVKNKVAPPF	KEAFVE	IMY	GEGIS	RTGEL	VKIASD	LG	TI	QKAGAW	YSYN	311						
NTDB id 453 Spy49 1753c ACI62003.1	SVRLDVRG	TTQIKGTG	.DQKD	SSI	GKETK	KVVKNKVAPPF	KVAEVE	IMY	GEGIS	RTGEL	VKIASD	LDI	TI	QKAGAW	YSYN	311						
NTDB id 115 BSU 16940 NP 389576.2	SVRL	EVRR	AEQLKQGN		DVM	GNKTK	KVVKNKVAPPF	RTAEVD	IMY	GEGIS	KEGE	IIDL	LGTELD	IVQK	SGSWYSY	292						
NTDB id 625 LCA RS02525 WP 011374196.1	TVRL	EVRR	AETIKNGT		DM	GNRARI	KVVKNKVAPPF	KVAEVD	IMY	GEGIS	RTGEL	VDMAVE	KD	INK	SGSWYSY	294						
NTDB id 1313 DR RS12030 WP 010888966.1	SVRLDVR	KIGQ		PTK	VGNDA	VANTV	KIK	TVKNKVA	APFKE	VELAL	VYCK	CFDQL	SD	IVGLA	ADMDI	KKAC	SEFYSY	307				
NTDB id 1245 Cj1673c YP 002345041.1	SVRLDVR	KVAT		L	KQNE	EPI	GNRVK	KVVKNKVAPPF	FRQAE	FDV	MF	GEGIS	RE	GEL	IDYCV	KLDI	VDK	SGAW	FYSY	294		
NTDB id 1214 NCTC11637 00359 SQJ03206.1	SVRLDIR	RIAA		L	KQNE	QHI	GNRAK	KVVKNKVAPPF	FRQAE	FDV	MF	GEGIS	KE	GEI	IDYCV	KLDI	VDK	SGAW	LSYQ	296		
NTDB id 1211 C694 RS00795 WP 000963128.1	SVRLDIR	RIAS		L	KQNE	QHI	GNRAK	KVVKNKVAPPF	FRQAE	FDV	MF	GEGIS	KE	GEI	IDYCV	KLDI	VDK	SGAW	LSYQ	296		
NTDB id 1334 RAOC RS04870 WP 004918236.1	SVRLDIR	RSLS	DTGKIKDKSGE	VI	GNRTK	VKVVKNKVAPPF	KS	AEFD	IMY	GEGIS	VSKV	GEILD	VATD	LDI	TI	QK	SGSW	FYSY	307			
NTDB id 1389 A4U84 RS07560 WP 021112712.1	SVRLDIR	RCGV		V	KDGE	DEI	GSETK	VVVKNKVAPPF	RE	VQFD	IMY	GEGIS	RMNELL	ILAE	ANGF	IKK	SGAW	FYSY	310			
NTDB id 1130 NGFG RS03960 WP 003688695.1	SVRLDIR	RTGS		I	KKGE	EV	GNETRV	KVI	KNKVAPPF	FRQAE	FDI	LY	GEGIS	WE	GEL	IDIG	VKNDI	INK	SGAW	YSYN	294	
NTDB id 1124 NGFG RS03960 WP 003688695.1	SVRLDIR	RTGS		I	KKGE	EV	GNETRV	KVI	KNKVAPPF	FRQAE	FDI	LY	GEGIS	WE	GEL	IDIG	VKNDI	INK	SGAW	YSYN	294	
NTDB id 1123 OK783 RS03845 WP 003688695.1	SVRLDIR	RTGS		I	KKGE	EV	GNETRV	KVI	KNKVAPPF	FRQAE	FDI	LY	GEGIS	WE	GEL	IDIG	VKNDI	INK	SGAW	YSYN	294	
NTDB id 1427 RS RS02760 WP 011000510.1	SVRLDIR	RIGS		I	KKGE	EV	GNETRV	KVVKNKVAPPF	FRQAE	FDI	LY	GACV	SE	GEI	IDL	GV	EAKV	VVEK	SGAW	YSYN	302	
NTDB id 139960 VAA049 RS16045 WP 000344154.1	SVRLDIR	RTGA		I	KEGE	EV	GNETRI	KVVKNK	IA	APFKE	ANTQ	IMY	G	CFNR	EGEL	IDLG	VKHK	MVEK	SGAW	YSYN	293	
NTDB id 1165 A1552VC RS01565 WP 000344154.1	SVRLDIR	RTGA		I	KEGE	EV	GNETRI	KVVKNK	IA	APFKE	ANTQ	IMY	G	CFNR	EGEL	IDLG	VKHK	MVEK	SGAW	YSYN	293	
NTDB id 1142 GTF74 RS11550 WP 000344154.1	SVRLDIR	RTGA		I	KEGE	EV	GNETRI	KVVKNK	IA	APFKE	ANTQ	IMY	G	CFNR	EGEL	IDLG	VKHK	MVEK	SGAW	YSYN	293	
NTDB id 1205 PSJM300 05545 AFN77183.1	SVRLDIR	RTGA		V	KEGE	EV	GSETRV	KVVKNKVAPPF	FRQAE	FDI	LY	GKGI	Y	NGE	IDL	GV	QQGL	VEK	SGAW	YAYK	293	
NTDB id 1022 ACIAD RS06390 WP 004925639.1	SVRLDIR	RIGQ		V	KEGE	DEI	GSETK	VVVKNK	MAPPF	FRQAE	FDI	LY	GK	CV	NQL	GEL	VDL	AV	QQ	NTV	QKAGAWYSYQ	293
NTDB id 1074 ABD1 RS10195 WP 000344167.1	SVRLDIR	RIGQ		V	KEGE	DEI	GSETK	VVVKNK	MAPPF	FRQAE	FDI	LY	GK	CV	NQL	GEL	VDL	AV	QQ	NTV	QKAGAWYSYQ	293
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 408 SMU RS09530 WP 002262392.1
NTDB id 453 Spy49 1753c ACI62003.1
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 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 139960 VAA049 RS16045 WP 000344154.1
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

		LEE	
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 408 SMU RS09530 WP 002262392.1	D..	383	
NTDB id 453 Spy49 1753c ACI62003.1	D..	378	
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 1427 RS RS02760 WP 011000510.1	...	352	
NTDB id 139960 VAA049 RS16045 WP 000344154.1	...	354	
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