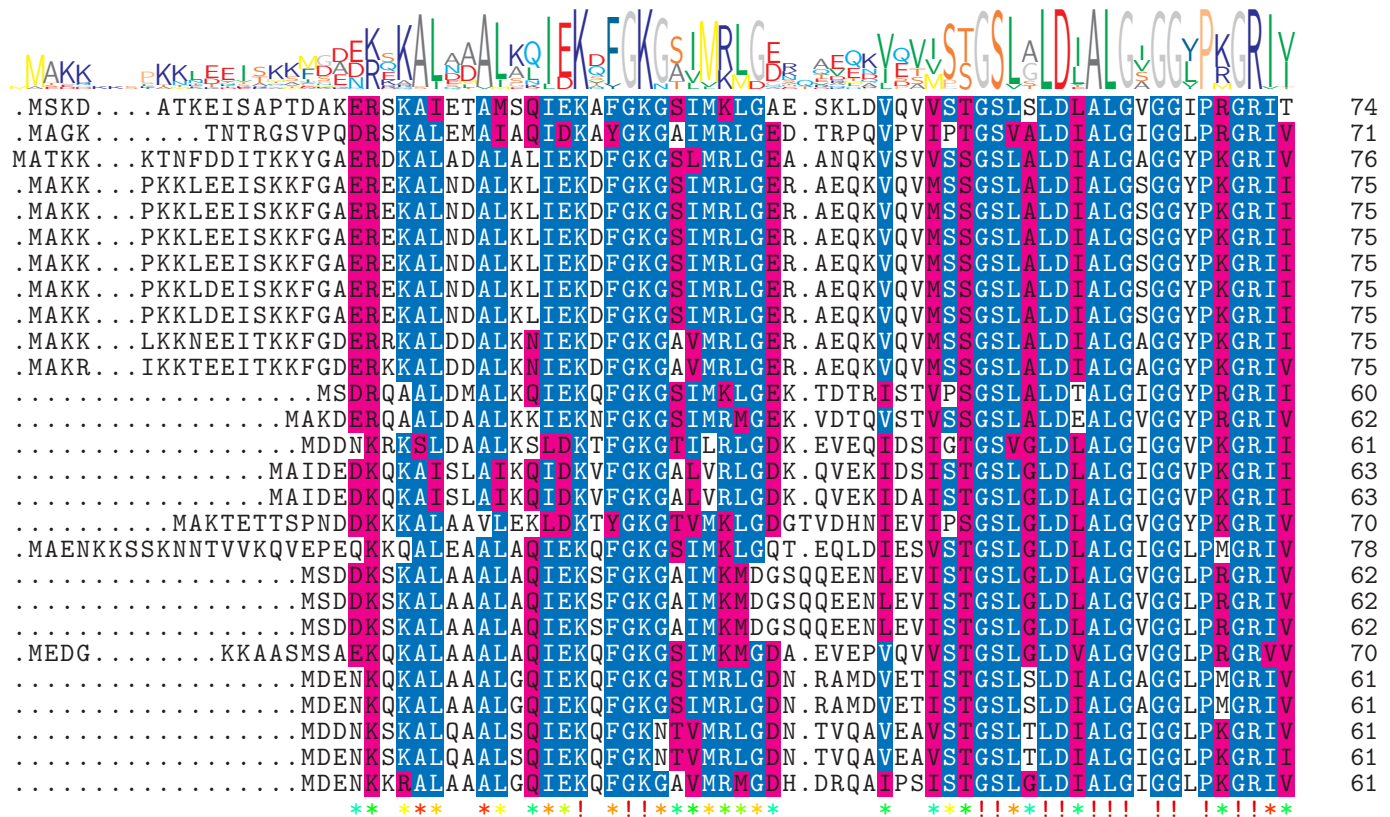


```

NTDB id 1313 DR RS012030 WP 010888966.1
NTDB id 203155 BK816 RS05805 WP 071164333.1
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 115 BSU 16940 NP 389576.2
NTDB id 625 LCA RS02525 WP 011374196.1
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

```



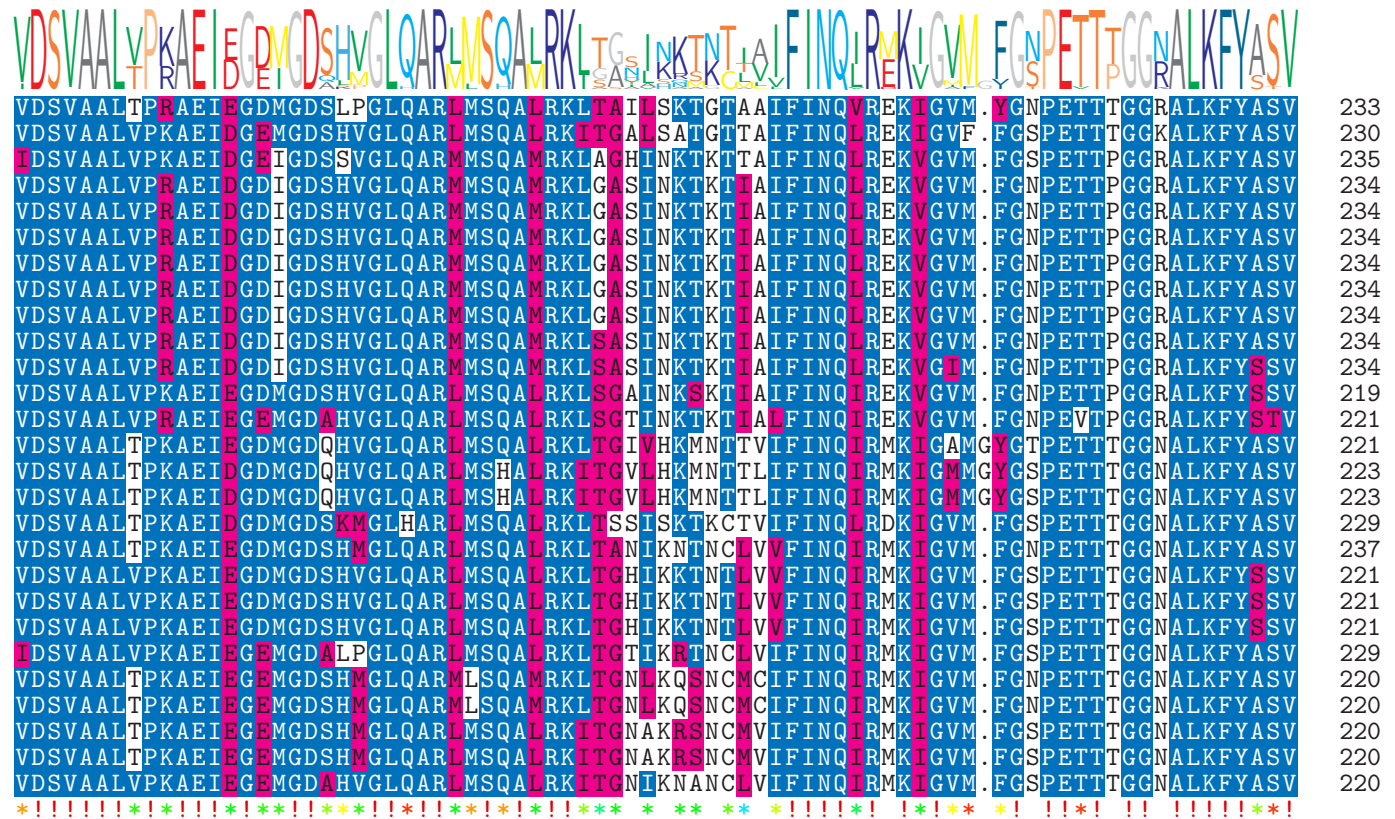
logo

NTDB id 1313 DR RS12030 WP 010888966.1	EIYGPESSGKTTT	154
NTDB id 203155 BK816 RS05805 WP 071164333.1	EVYGPESGKTTT	151
NTDB id 600 KW2 RS01765 WP 011675413.1	EIYGPESSGKTTT	156
NTDB id 269 KZH43 RS08665 WP 001085462.1	EIYGPESSGKTTT	155
NTDB id 228 SPD RS09265 WP 001085462.1	EIYGPESSGKTTT	155
NTDB id 194 SPR RS08825 WP 001085462.1	EIYGPESSGKTTT	155
NTDB id 159 SP RS09750 WP 001085462.1	EIYGPESSGKTTT	155
NTDB id 499 SM12261 RS08315 WP 078228268.1	EIYGPESSGKTTT	155
NTDB id 527 SMSK321 RS11065 WP 001085454.1	EIYGPESSGKTTT	155
NTDB id 453 Spy49 1753c ACI62003.1	EIYGPESSGKTTT	155
NTDB id 408 SMU RS09530 WP 002262392.1	EIYGPESSGKTTT	155
NTDB id 115 BSU 16940 NP 389576.2	EVYGPESGKTTT	140
NTDB id 625 LCA RS02525 WP 011374196.1	EIYGPESSGKTTT	142
NTDB id 1245 Cj1673c YP 002345041.1	EIYGPESSGKTTT	141
NTDB id 1211 C694 RS00795 WP 000963128.1	EIYGPESSGKTTT	143
NTDB id 1214 NCTC11637 00359 SQJ03206.1	EIYGPESSGKTTT	143
NTDB id 1334 RAOC RS04870 WP 004918236.1	EIYGPESSGKTTT	150
NTDB id 1389 A4U84 RS07560 WP 021112712.1	EIYGPESSGKTTT	158
NTDB id 1130 NGFG RS03960 WP 003688695.1	EIYFGPESSGKTTT	142
NTDB id 1124 NGFG RS03960 WP 003688695.1	EIYFGPESSGKTTT	142
NTDB id 1123 OK783 RS03845 WP 003688695.1	EIYFGPESSGKTTT	142
NTDB id 1427 RS RS02760 WP 011000510.1	EIYGPESSGKTTT	150
NTDB id 1165 A1552VC RS01565 WP 000344154.1	EIYFGPESSGKTTT	141
NTDB id 1142 GTF74 RS11550 WP 000344154.1	EIYFGPESSGKTTT	141
NTDB id 1022 ACIAD RS06390 WP 004925639.1	EIYGPESSGKTTT	141
NTDB id 1074 ABD1 RS10195 WP 000344167.1	EIYGPESSGKTTT	141
NTDB id 1205 PSJM300 05545 AFN77183.1	EIYGPESSGKTTT	141
consensus	!***!!!!*!!!!*! *?! *? *? !***!!!!*?! *! !*!*****!*****!!*!!*!!*! * *****!***	

```

NTDB id 1313 DR RS012030 WP 010888966.1
NTDB id 203155 BK816 RS05805 WP 071164333.1
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 115 BSU 16940 NP 389576.2
NTDB id 625 LCA RS02525 WP 011374196.1
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

```



logo

NTDB id 1313 DR RS12030 WP 010888966.1	RLDVRKIGQ...PTKVGND	AVANTV	KIKTVKNKV	APPFKE	VELALV	YGKG	GFDQLS	DLVGLA	ADMDI	IKKAGS	FYSY	GDE	309
NTDB id 203155 BK816 RS05805 WP 071164333.1	RLDIRRIESLKEGG....QP	VGNRTK	VKVKNK	MAPPFK	VAEFDI	LYGQ	GISRE	GGELID	LGVELG	IVRKSG	SWFTY	GED	305
NTDB id 600 KW2 RS01765 WP 011675413.1	RLDVRGSTKIEEGS.GDNKTQ	IGKITK	IKVVKNK	VAPPFK	VALVDI	MFGE	GISSTG	ELLNIA	VEEGI	IKKSGA	WFAYND	E	314
NTDB id 269 KZH43 RS08665 WP 001085462.1	RLDVRGNTQIKGTG.DQKETN	VGKETK	IKVVKNK	VAPPFK	EAVVEI	MYGEG	ISKTG	ELLKIA	SDLDI	IKKAGA	WYSYK	DE	313
NTDB id 228 SPD RS09265 WP 001085462.1	RLDVRGNTQIKGTG.DQKETN	VGKETK	IKVVKNK	VAPPFK	EAVVEI	MYGEG	ISKTG	ELLKIA	SDLDI	IKKAGA	WYSYK	DE	313
NTDB id 194 SPR RS08825 WP 001085462.1	RLDVRGNTQIKGTG.DQKETN	VGKETK	IKVVKNK	VAPPFK	EAVVEI	MYGEG	ISKTG	ELLKIA	SDLDI	IKKAGA	WYSYK	DE	313
NTDB id 159 SP RS09750 WP 001085462.1	RLDVRGNTQIKGTG.DQKETN	VGKETK	IKVVKNK	VAPPFK	EAVVEI	MYGEG	ISKTG	ELLKIA	SDLDI	IKKAGA	WYSYK	DE	313
NTDB id 499 SM12261 RS08315 WP 078228268.1	RLDVRGSTQIKGTG.DQKDTN	VGKETK	IKVVKNK	VAPPFK	EAFVEI	MYGEG	ISKTG	ELLKIA	SDLDI	IKKAGA	WYSYK	DE	313
NTDB id 527 SMSK321 RS11065 WP 001085454.1	RLDVRGSTQIKGTG.DQKDTN	VGKETK	IKVVKNK	VAPPFK	EAFVEI	MYGEG	ISKTG	ELLKIA	SDLDI	IKKAGA	WYSYK	DE	313
NTDB id 453 Spy49 1753c ACI62003.1	RLDVRGTTQIKGTG.DQKDSS	IGKETK	IKVVKNK	VAPPFK	VAEVEI	MYGEG	ISRTG	ELVKIA	SDLDI	IKKAGA	WFSYNG	E	313
NTDB id 408 SMU RS09530 WP 002262392.1	RLDVRGNTQIKGTG.EQKDSN	IGKETK	IKVVKNK	VAPPFK	EAFVEI	IYGE	ISRTG	ELVKIA	SDLGI	IKKAGA	WFSYNG	E	313
NTDB id 115 BSU 16940 NP 389576.2	RLEVRRAEQLKQGN.....DV	MGNKTK	IKVVKNK	VAPPFR	TAEVDI	MYGEG	ISKEGE	ITIDL	GTELDI	VQKSGS	WYSYEEE		294
NTDB id 625 LCA RS02525 WP 011374196.1	RLEVRRAETIKNGT.....DM	IGNRARI	IKVVKNK	VAPPFK	VAEVDI	MYGQ	GISRTG	ELVDM	AVEKDI	INKSGS	WYSYGS	E	296
NTDB id 1245 Cj1673c YP 002345041.1	RLDVRKVAT....L.KQNEEP	IGNRVK	VKVKNK	VAPPFR	QAEFDV	MFGE	LSREGE	LIDYGV	KLDIV	DKSGA	WFSYKDK		296
NTDB id 1211 C694 RS00795 WP 000963128.1	RDIRRIAS....L.KQNEQH	IGNRAKA	VKVKNK	VAPPFRE	AEFDI	MFGE	GISKEGE	ITIDY	GVKLDI	VDKSGA	WLSYQDK		298
NTDB id 1214 NCTC11637 00359 SQJ03206.1	RDIRRIAA....L.KQNEQH	IGNRAKA	VKVKNK	VAPPFRE	AEFDI	MFGE	GISKEGE	ITIDY	GVKLDI	VDKSGA	WLSYQDK		298
NTDB id 1334 RAOC RS04870 WP 004918236.1	RDIRRSLSDTGKIKDKSGEV	IGNRTK	VKVKNK	VAPPFK	SAEFDI	MYGEG	VSKVGE	ILDVAT	DLDI	IQKSGS	WFSYQDT		309
NTDB id 1389 A4U84 RS07560 WP 021112712.1	RLDIRRCGV....V.KDGEI	IGSETK	VKVKNK	VAPPFRE	REVQFD	MYGEG	ISRMNELL	ILAEANG	FIIKKSGA	WFSYDGT		312	
NTDB id 1130 NGFG RS03960 WP 003688695.1	RLDIRRTGS....I.KKGEVL	GNETRV	KVIKNKV	VAPPFR	QAEFDI	LYGEG	ISWEGEL	IDIGV	KNDI	INKSGA	WYSYNGA		296
NTDB id 1124 NGFG RS03960 WP 003688695.1	RLDIRRTGS....I.KKGEVL	GNETRV	KVIKNKV	VAPPFR	QAEFDI	LYGEG	ISWEGEL	IDIGV	KNDI	INKSGA	WYSYNGA		296
NTDB id 1123 OK783 RS03845 WP 003688695.1	RLDIRRTGS....I.KKGEVL	GNETRV	KVIKNKV	VAPPFR	QAEFDI	LYGEG	ISWEGEL	IDIGV	KNDI	INKSGA	WYSYNGA		296
NTDB id 1427 RS RS02760 WP 011000510.1	RLDIRRIGS....I.KKGEV	GNETRV	KVVKNK	VAPPFRE	EAIFDI	LYGAG	VSREGE	ITIDL	GVKAK	VVEKSGA	WYSYNGE		304
NTDB id 1165 A1552VC RS01565 WP 000344154.1	RLDIRRTGA....I.KEGEEV	VGNETRI	IKVVKNK	IAAPFK	EAANTQ	IMYGQ	GFNREG	ELIDLG	VKHKM	VVEKSGA	WYSYNGD		295
NTDB id 1142 GTF74 RS11550 WP 000344154.1	RLDIRRTGA....I.KEGEEV	VGNETRI	IKVVKNK	IAAPFK	EAANTQ	IMYGQ	GFNREG	ELIDLG	VKHKM	VVEKSGA	WYSYNGD		295
NTDB id 1022 ACIAD RS06390 WP 004925639.1	RLDIRRIGQ....V.KEGDEI	IGSETK	VKVKNK	MAPPFRE	EAIFQI	ILYGK	GVNQL	GELVD	LAVQQ	NIVQKA	GAWYSY	QGN	295
NTDB id 1074 ABD1 RS10195 WP 000344167.1	RLDIRRIGQ....V.KEGDEI	IGSETK	VKVKNK	MAPPFK	EAIFQI	ILYGK	GTNQL	GELVD	LAVQQ	DIVQKA	GAWYSY	QGN	295
NTDB id 1205 PSJM300 05545 AFN77183.1	RLDIRRTGA....V.KEGDEV	VGSETR	VKVKNK	VAPPFR	QAEFQI	ILYGK	GIYRNGE	ITIDL	LGVQQG	LVEKSGA	WYAYKGS		295
consensus	!***!*	*	**	*****!***!!*!!*!!*	*	*****!*	*****	*****	*	***	!	!*****!	

logo

NTDB id 1313 DR RS12030 WP 010888966.1	RIGQGKEKTIAYIAERP	MEQEIRDRVMAAIRAGNAGEAPALAPAP..A....APEAAEA.....	363			
NTDB id 203155 BK816 RS05805 WP 071164333.1	QLGGQKENVRRFLVDNP	DLANEIEEQKIFA	EVGINRITSPNETVEETVPAN...KSKKAKAADANEDAGF.....	371		
NTDB id 600 KW2 RS01765 WP 011675413.1	KIGQGA	EKAKNYLKEHQDVFEIDHKVRAAHGLDDSEVAETEEETT	ASKTKAKAKKEEKAVETEEIELELED.....	387		
NTDB id 269 KZH43 RS08665 WP 001085462.1	KIGQGS	ENAKKYLA	AEHP	EIFDEIDKQVRSKFGLIDGEEVSEQDTENKKDE....PKKEEA..VNEEVPLDLGDELEIEIE	387	
NTDB id 228 SPD RS09265 WP 001085462.1	KIGQGS	ENAKKYLA	AEHP	EIFDEIDKQVRSKFGLIDGEEVSEQDTENKKDE....PKKEEA..VNEEVPLDLGDELEIEIE	387	
NTDB id 194 SPR RS08825 WP 001085462.1	KIGQGS	ENAKKYLA	AEHP	EIFDEIDKQVRSKFGLIDGEEVSEQDTENKKDE....PKKEEA..VNEEVPLDLGDELEIEIE	387	
NTDB id 159 SP RS09750 WP 001085462.1	KIGQGS	ENAKKYLA	AEHP	EIFDEIDKQVRSKFGLIDGEEVSEQDTENKKDE....PKKEEA..VNEEVPLDLGDELEIEIE	387	
NTDB id 499 SM12261 RS08315 WP 078228268.1	KIGQGS	ENAKKYLA	DN	PEIFDEIDHQVVRVQFGLIDGEEIAES....KKDE....AAQVDS..VNEEVTLDLGDELEIEIE	383	
NTDB id 527 SMSK321 RS11065 WP 001085454.1	KIGQGS	ENAKKYLA	DN	PEVFAEIDHQVVRVQFGLIDGEEAAES....KKDE....VAQVDS..VNEEVTLDLGDELEIEIE	383	
NTDB id 453 Spy49 1753c ACI62003.1	KIGQGS	ENAKRYLA	DHP	QLFDEIDRKVRVKFGLLEESEESAMAVASE.....E.....TDDLALDLNGIEIED.	378	
NTDB id 408 SMU RS09530 WP 002262392.1	KIGQGS	ENAKKFLA	DN	PEIFDDIDHKVVRVQYGLIEEDNTEEKQSSKEK.....ETDEK..ADKNLVLELDDTIELED.	383	
NTDB id 115 BSU 16940 NP 389576.2	RLGGQ	RENAKQFLKENK	DI	MLMIQE	QIREHYGLDNNGVVQQAEETQEEL.EFE.E.....	348
NTDB id 625 LCA RS02525 WP 011374196.1	RIGQG	RENAKNYLA	DH	EDVEDEVRLKVRAAYGISDVPEEDLPTTEDE.QI.NILPDDST.....EE.....	355	
NTDB id 1245 Cj1673c YP 002345041.1	KLGGQ	RENSKAFLKENPEI	ADEITKAIQNSMGIEGMISGSEDD..EGEE.....	343		
NTDB id 1211 C694 RS00795 WP 000963128.1	KLGGQ	RENAKALLKEDKALA	DEITLKI	KESIGSNEEIMPLPDE..PLEEM.E.....	347	
NTDB id 1214 NCTC11637 00359 SQJ03206.1	KLGGQ	RENAKALLKEDKALA	DEITLKI	KESIGSNEEIMPLPDE..PLEEM.E.....	347	
NTDB id 1334 RAOC RS04870 WP 004918236.1	KLGGQR	DTVKE	LKDNPELA	EELEAKIREKLQAK.....	343	
NTDB id 1389 A4U84 RS07560 WP 021112712.1	KIGQG	KNN	AVKWLKENPEI	ADKLEQEIRNTLASNPNSVLKATASDSNDES.DVEEFS.....EEEL.....	372	
NTDB id 1130 NGFG RS03960 WP 003688695.1	KIGQK	KDNVRVWLKENPEI	SDEIDAKIRALNGVEMHITEGTQDET	DGER.....P.....EE.....	348	
NTDB id 1124 NGFG RS03960 WP 003688695.1	KIGQK	KDNVRVWLKENPEI	SDEIDAKIRALNGVEMHITEGTQDET	DGER.....P.....EE.....	348	
NTDB id 1123 OK783 RS03845 WP 003688695.1	KIGQK	KDNVRVWLKENPEI	SDEIDAKIRALNGVEMHITEGTQDET	DGER.....P.....EE.....	348	
NTDB id 1427 RS RS02760 WP 011000510.1	RIGQGR	DNCREFLRENAELAREI	ENKVREHLGVTPMGAVTLA.EEVEED.....	352		
NTDB id 1165 A1552VC RS01565 WP 000344154.1	KIGQK	KANACKYLKENPEI	AKTLDKKLREMLLN	PENMQLIAETSSAADV.EFGAVP.....EEF.....	354	
NTDB id 1142 GTF74 RS11550 WP 000344154.1	KIGQK	KANACKYLKENPEI	AKTLDKKLREMLLN	PENMQLIAETSSAADV.EFGAVP.....EEF.....	354	
NTDB id 1022 ACIAD RS06390 WP 004925639.1	KIGQK	KNNVIRYLEENPQISTE	IEAVIREQLLTKASDQTA	A.HDETEEEP.DLL..E.....S.....	349	
NTDB id 1074 ABD1 RS10195 WP 000344167.1	KIGQK	KNNVIRYFEENNQIAEIE	ERNIREQLLTTGTNGAVQ.I.EDEEEP.DLL..L.....ES.....	349		
NTDB id 1205 PSJM300 05545 AFN77183.1	KIGQK	KANA	AKYLEENPEIGQEIEQQIRAKLLVTSANTKATPVAEDLADA.DI.....	347		
consensus	***!!!!*****	**	*****	*****	**	*

logo

NTDB id	DR	RS	WP	010888966.1	.	363
NTDB id	203155	BK816	RS05805	WP 071164333.1	.	371
NTDB id	600	KW2	RS01765	WP 011675413.1	.	387
NTDB id	269	KZH43	RS08665	WP 001085462.1	E	388
NTDB id	228	SPD	RS09265	WP 001085462.1	E	388
NTDB id	194	SPR	RS08825	WP 001085462.1	E	388
NTDB id	159	SP	RS09750	WP 001085462.1	E	388
NTDB id	499	SM12261	RS08315	WP 078228268.1	E	384
NTDB id	527	SMSK321	RS11065	WP 001085454.1	E	384
NTDB id	453	Spy49	1753c	ACI62003.1	.	378
NTDB id	408	SMU	RS09530	WP 002262392.1	.	383
NTDB id	115	BSU	16940	NP 389576.2	.	348
NTDB id	625	LCA	RS02525	WP 011374196.1	.	355
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	RA0C	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						

- ☐ non conserved
- ☒ similar
- ☒ $\geq 50\%$ conserved