

NTDB	id	600	KW2	RS01765	WP	011675413.1	MATKKKTNFDDITKKYGA	ERD	KAL	ADAL	AL	IEKD	FGKGS	LMRLGE	A	ANQK	VSV	VSSGSL	ALDI	I	ALG	AGGY	PKGRI	75			
NTDB	id	269	KZH43	RS08665	WP	001085462.1	MAKKPKKLEEISKKFGA	ERE	KAL	NDAL	KL	IEKD	FGKGS	SIMRLGE	R	AEQK	VQVM	SSSGSL	ALDI	I	ALG	SGGY	PKGRI	74			
NTDB	id	228	SPD	RS09265	WP	001085462.1	MAKKPKKLEEISKKFGA	ERE	KAL	NDAL	KL	IEKD	FGKGS	SIMRLGE	R	AEQK	VQVM	SSSGSL	ALDI	I	ALG	SGGY	PKGRI	74			
NTDB	id	194	SPR	RS08825	WP	001085462.1	MAKKPKKLEEISKKFGA	ERE	KAL	NDAL	KL	IEKD	FGKGS	SIMRLGE	R	AEQK	VQVM	SSSGSL	ALDI	I	ALG	SGGY	PKGRI	74			
NTDB	id	159	SP	RS09750	WP	001085462.1	MAKKPKKLEEISKKFGA	ERE	KAL	NDAL	KL	IEKD	FGKGS	SIMRLGE	R	AEQK	VQVM	SSSGSL	ALDI	I	ALG	SGGY	PKGRI	74			
NTDB	id	527	SMSK321	RS11065	WP	001085454.1	MAKKPKKLDEISKKFGA	ERE	KAL	NDAL	KL	IEKD	FGKGS	SIMRLGE	R	AEQK	VQVM	SSSGSL	ALDI	I	ALG	SGGY	PKGRI	74			
NTDB	id	499	SM12261	RS08315	WP	078228268.1	MAKKPKKLDEISKKFGA	ERE	KAL	NDAL	KL	IEKD	FGKGS	SIMRLGE	R	AEQK	VQVM	SSSGSL	ALDI	I	ALG	SGGY	PKGRI	74			
NTDB	id	408	SMU	RS09530	WP	002262392.1	MAKRIKKTEEITKKFGD	ERR	KAL	DDAL	KN	IEKD	FGKGA	VIMRLGE	R	AEQK	VQVM	SSSGSL	ALDI	I	ALG	AGGY	PKGRI	74			
NTDB	id	453	Spy49	1753c	ACI	62003.1	MAKKLKKNEEITKKFGD	ERR	KAL	DDAL	KN	IEKD	FGKGA	VIMRLGE	R	AEQK	VQVM	SSSGSL	ALDI	I	ALG	AGGY	PKGRI	74			
NTDB	id	115	BSU	16940	NP	389576.2	MSDRQAALDMALKQ	IEK	Q	FGKGS	IMKLGE	K	TDTR	IST	VS	SGSL	ALD	T	ALG	IGGY	PRGRI	59					
NTDB	id	625	LCA	RS02525	WP	011374196.1	MAKDERQAALDAALKK	IEKN	FGKGS	IMRMGE	K	VDTV	IST	V	SGSL	ALDE	ALG	V	GGY	PRGRI	61						
NTDB	id	1313	DR	RS12030	WP	010888966.1	MSKDAT.KEISAPTDAK	ERS	KA	TETAM	SQ	IEKA	FGKGS	IMKLGAE	SKLD	VQV	V	STGSL	S	LDL	ALG	V	GGI	PRGRI	73		
NTDB	id	1245	Cj1673c	YP	002345041.1	MDDNKRKSLDAALKS	LDK	T	FGKGT	I	LRLG	DK	EVEQ	IDS	I	GTGS	V	GLD	L	ALG	I	GGV	PKGRI	60			
NTDB	id	1214	NCTC11637	00359	SQJ	03206.1	MAIDEDKQKATSLA	IKQ	IDK	V	FGKGA	L	VRLG	DK	QVEK	IDA	I	STGSL	GLD	L	ALG	I	GGV	PKGRI	62		
NTDB	id	1211	C694	RS00795	WP	000963128.1	MAIDEDKQKATSLA	IKQ	IDK	V	FGKGA	L	VRLG	DK	QVEK	IDA	I	STGSL	GLD	L	ALG	I	GGV	PKGRI	62		
NTDB	id	1334	RAOC	RS04870	WP	004918236.1	MA..KTETTSPND	DKK	KALAA	VLEK	L	DKTY	V	GKGT	VM	KLGD	GTVDHN	IEV	I	PSGSL	GLD	L	ALG	V	GGY	PKGRI	69
NTDB	id	300509	DQL45	RS10820	WP	002720615.1	MATANL..LDLNGRREM	DKAKALE	ALAQ	IER	Q	FGKGS	IMKLGANS	PVME	IEAT	I	STGSL	GLD	I	ALG	I	GGL	PKGRI	73			
NTDB	id	1389	A4U84	RS07560	WP	021112712.1	MAENKKSSKNN..TVVKQVEPE	QKKQAL	EALAA	Q	IEK	Q	FGKGS	IMKLGQT	EQLD	IES	V	STGSL	GLD	L	ALG	I	GGL	PMGRI	77		
NTDB	id	1130	NGFG	RS03960	WP	003688695.1	MSDDKSKALAAALAA	Q	IEKS	F	GKGA	IMKMDGS	QQEEN	LEV	I	STGSL	GLD	L	ALG	V	GGL	PRGRI	61				
NTDB	id	1124	NGFG	RS03960	WP	003688695.1	MSDDKSKALAAALAA	Q	IEKS	F	GKGA	IMKMDGS	QQEEN	LEV	I	STGSL	GLD	L	ALG	V	GGL	PRGRI	61				
NTDB	id	1123	OK783	RS03845	WP	003688695.1	MSDDKSKALAAALAA	Q	IEKS	F	GKGA	IMKMDGS	QQEEN	LEV	I	STGSL	GLD</										

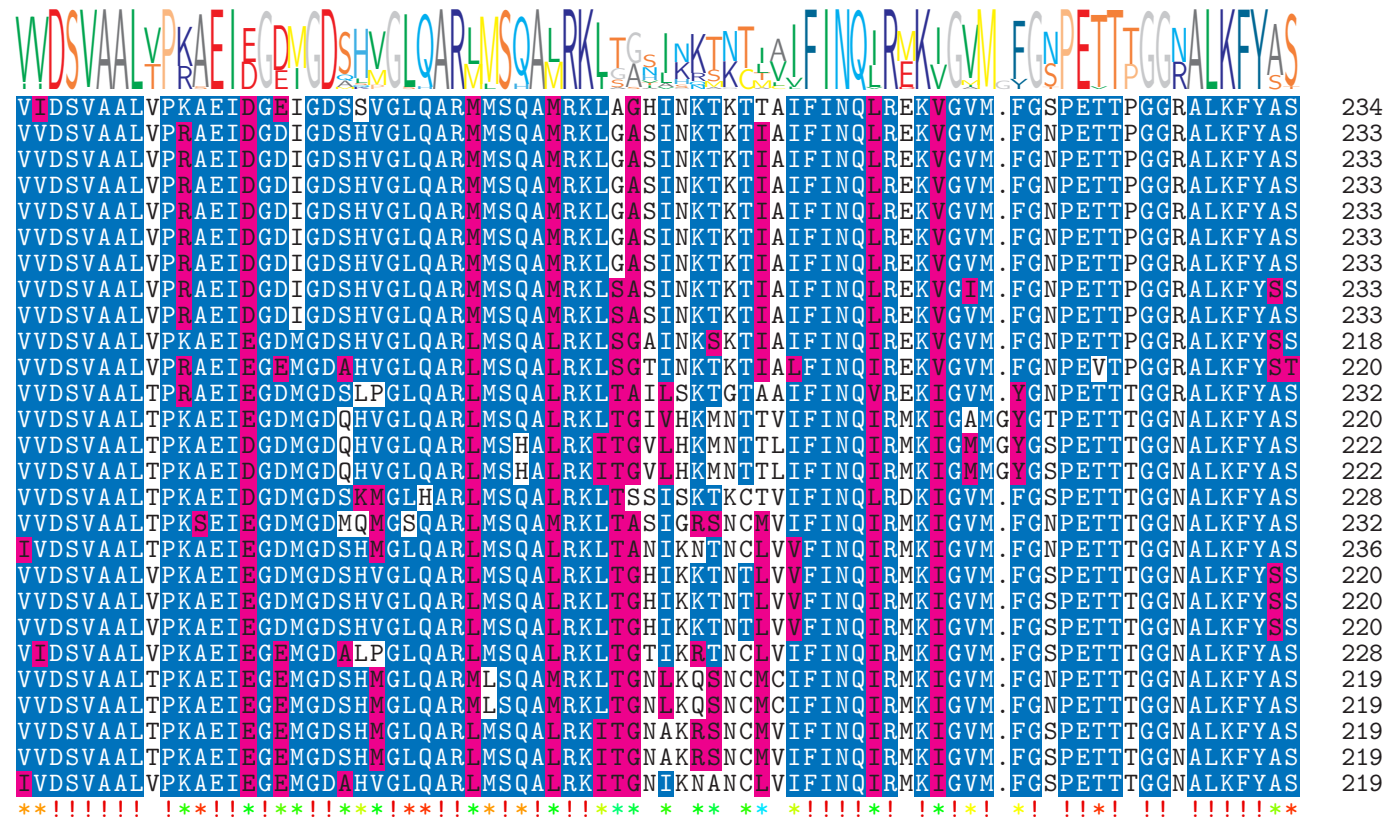
logo

NTDB id 600 KW2 RS01765 WP 011675413.1	VEIYGPESSGKTTVALHAVA	155
NTDB id 269 KZH43 RS08665 WP 001085462.1	IEIYGPESSGKTTVALHAVA	154
NTDB id 228 SPD RS09265 WP 001085462.1	IEIYGPESSGKTTVALHAVA	154
NTDB id 194 SPR RS08825 WP 001085462.1	IEIYGPESSGKTTVALHAVA	154
NTDB id 159 SP RS09750 WP 001085462.1	IEIYGPESSGKTTVALHAVA	154
NTDB id 527 SMSK321 RS11065 WP 001085454.1	IEIYGPESSGKTTVALHAVA	154
NTDB id 499 SM12261 RS08315 WP 078228268.1	IEIYGPESSGKTTVALHAVA	154
NTDB id 408 SMU RS09530 WP 002262392.1	VEIYGPESSGKTTVALHAVA	154
NTDB id 453 Spy49 1753c ACI62003.1	IEIYGPESSGKTTVALHAVA	154
NTDB id 115 BSU 16940 NP 389576.2	IEVYGPESSGKTTVALHAI	139
NTDB id 625 LCA RS02525 WP 011374196.1	VEIYGPESSGKTTVALHAVA	141
NTDB id 1313 DR RS12030 WP 010888966.1	TEIYGPESSGKTTVALAI	153
NTDB id 1245 Cj1673c YP 002345041.1	IEIYGPESSGKTTTLHII	140
NTDB id 1214 NCTC11637 00359 SQJ03206.1	IEIYGPESSGKTTLSLHI	142
NTDB id 1211 C694 RS00795 WP 000963128.1	IEIYGPESSGKTTLSLHI	142
NTDB id 1334 RAOC RS04870 WP 004918236.1	VEIYGPESSGKTTTLHAI	149
NTDB id 300509 DQL45 RS10820 WP 002720615.1	IEIYGPESSGKTTTLHV	153
NTDB id 1389 A4U84 RS07560 WP 021112712.1	VEIYGPESSGKTTTLSLI	157
NTDB id 1130 NGFG RS03960 WP 003688695.1	VEIFGP	141
NTDB id 1124 NGFG RS03960 WP 003688695.1	VEIFGP	141
NTDB id 1123 OK783 RS03845 WP 003688695.1	VEIFGP	141
NTDB id 1427 RS RS02760 WP 011000510.1	VEIYGPESSGKTTTLQV	149
NTDB id 1165 A1552VC RS01565 WP 000344154.1	VEIFGP	140
NTDB id 1142 GTF74 RS11550 WP 000344154.1	VEIFGP	140
NTDB id 1022 ACIAD RS06390 WP 004925639.1	VEIYGPESSGKTTMTLQAI	140
NTDB id 1074 ABD1 RS10195 WP 000344167.1	IEIYGPESSGKTTMTLQAI	140
NTDB id 1205 PSJM300 05545 AFN77183.1	VEIYGPESSGKTTTL	140
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 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 RAOC RS04870 WP 004918236.1
NTDB id 300509 DQL45 RS10820 WP 002720615.1
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

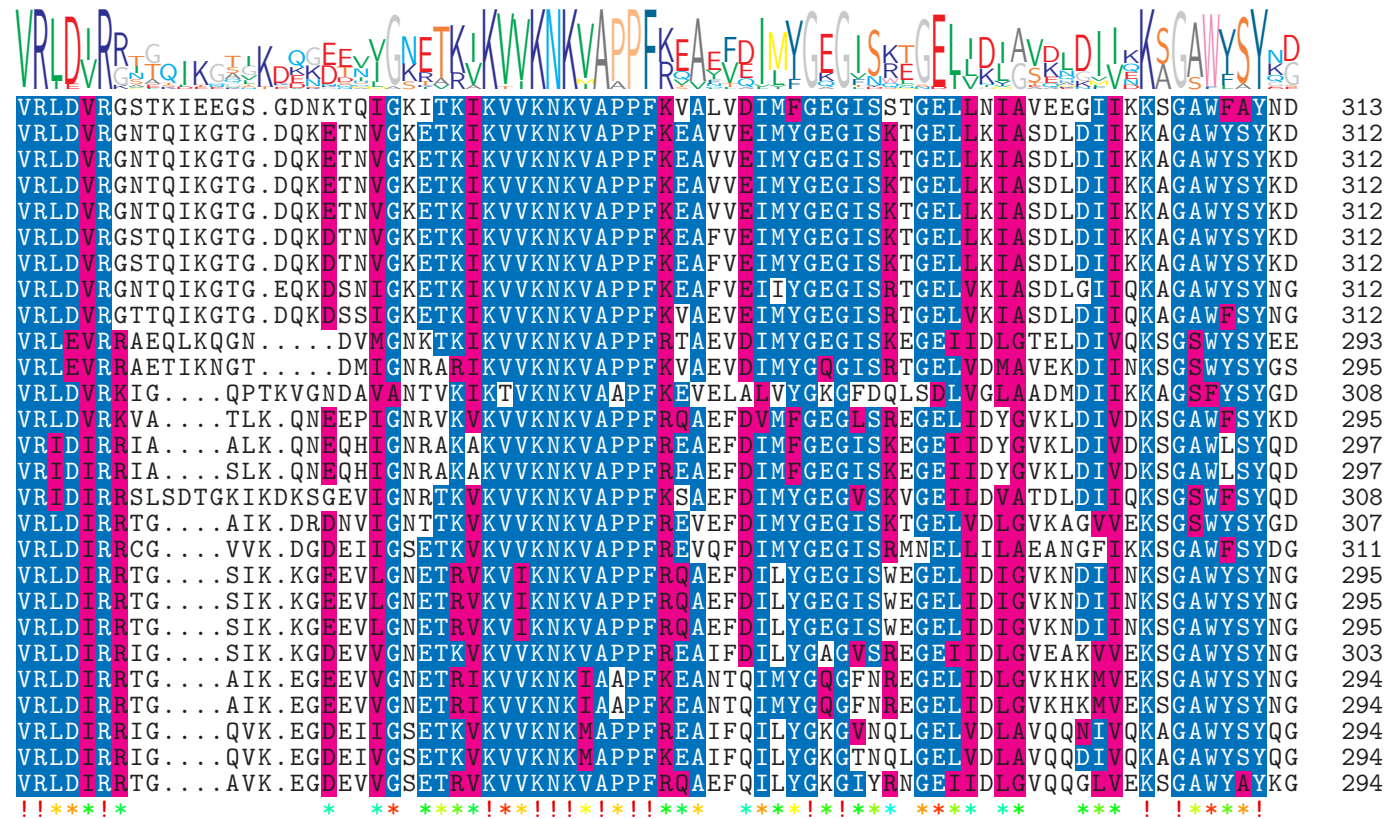
```



```

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 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 RAOC RS04870 WP 004918236.1
NTDB id 300509 DQL45 RS10820 WP 002720615.1
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 600 KW2 RS01765 WP 011675413.1	EKIGQGA	EKAKNYLKEHQDV	DEIDHKVRAAHG	LDDSEVAETEEETT	ASKTKAKAKKEEK	AVETEEIELELED	.....	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	EKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTEN	KKDE....PKKEEA	..VNEEVPLDLGDE	LEIEI	386
NTDB id 228 SPD RS09265 WP 001085462.1	EKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTEN	KKDE....PKKEEA	..VNEEVPLDLGDE	LEIEI	386
NTDB id 194 SPR RS08825 WP 001085462.1	EKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTEN	KKDE....PKKEEA	..VNEEVPLDLGDE	LEIEI	386
NTDB id 159 SP RS09750 WP 001085462.1	EKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFGL	IDGEEVSEQDTEN	KKDE....PKKEEA	..VNEEVPLDLGDE	LEIEI	386
NTDB id 527 SMSK321 RS11065 WP 001085454.1	EKIGQGS	ENAKKYLADNPEVF	AEIDHQVRVQFGL	IDGEEAAE....SK	KDE....VAQVDS	..VNEEVTLDLGDE	LEIEI	382
NTDB id 499 SM12261 RS08315 WP 078228268.1	EKIGQGS	ENAKKYLADNPEIF	DEIDHQVRVQFGL	IDGEEIAE....SK	KDE....AAQVDS	..VNEEVTLDLGDE	LEIEI	382
NTDB id 408 SMU RS09530 WP 002262392.1	EKIGQGS	ENAKKFLADNPEIF	DDIDHKVVRVQYGL	IEEDNTEEKQSSKE	ETDEK	..ADKNLVLELDDT	IELED	383
NTDB id 453 Spy49 1753c ACI62003.1	EKIGQGS	ENAKRYLADHPQLF	DEIDRKVRVKFGL	LEESEEEESAMAV	ASE.....E	TDDLALDL	DNGIEIED	378
NTDB id 115 BSU 16940 NP 389576.2	ERLGGG	RENAKQFLKENKDI	MLMIQEQIREHYGL	DNNGVVQQQAEET	QEEL.EFE.E	.....	.....	348
NTDB id 625 LCA RS02525 WP 011374196.1	ERIGQG	RENAKNYLADHED	VEDEVRLKVRAAYG	ISDVPEEDLPTTE	DE.QI.NILPDD	ST.....EE	.....	355
NTDB id 1313 DR RS12030 WP 010888966.1	ERIGQG	KEKTIAIYTAERPE	MEQEIRDRVMAA	IRAGNAGEAPAL	AAPAAPEAAE	..A	.....	363
NTDB id 1245 Cj1673c YP 002345041.1	KKLGGG	RENSKAFLKENPEI	ADEITKAIQNSMG	IEGMI.....SG	SEDDE..GE..E	.....	.....	343
NTDB id 1214 NCTC11637 00359 SQJ03206.1	KKLGGG	RENAKALLKEDKA	LADAITLKIKESIG	SNEEI....MPLP	DEP..LE..EME	.....	.....	347
NTDB id 1211 C694 RS00795 WP 000963128.1	KKLGGG	RENAKALLKEDKA	LADAITLKIKESIG	SNEEI....MPLP	DEP..LE..EME	.....	.....	347
NTDB id 1334 RAOC RS04870 WP 004918236.1	TKLGGQ	RDITVKELIKDNPE	LAELEAKIREKLQ	AK.....	.....	.....	.....	343
NTDB id 300509 DQL45 RS10820 WP 002720615.1	ERIGQG	RENAKAFLRANPT	VAGDIEDRIRASH	GLDFST.....G	ED.....GK..G	DDLVD	M.....	357
NTDB id 1389 A4U84 RS07560 WP 021112712.1	TKIGQG	KNNAVKWLKENPEI	ADKLEQEIRNTLA	SNPNS.....V	LKATASDSND	..ESDVVEEFSEEL	.....	372
NTDB id 1130 NGFG RS03960 WP 003688695.1	AKIGQG	KDNVRVWLKENPEI	SDEIDAKIRALNG	VEMHI....TEGT	QDETGE..R	PEE	.....	348
NTDB id 1124 NGFG RS03960 WP 003688695.1	AKIGQG	KDNVRVWLKENPEI	SDEIDAKIRALNG	VEMHI....TEGT	QDETGE..R	PEE	.....	348
NTDB id 1123 OK783 RS03845 WP 003688695.1	AKIGQG	KDNVRVWLKENPEI	SDEIDAKIRALNG	VEMHI....TEGT	QDETGE..R	PEE	.....	348
NTDB id 1427 RS RS02760 WP 011000510.1	ERIGQG	RDNCREFLRENAEL	AREIENKVRHLGV	TPMG....AVTL	A.EVEE..D	.....	.....	352
NTDB id 1165 A1552VC RS01565 WP 000344154.1	DKIGQG	KANACKYLLKENPEI	AKTLDKKLREMLLN	PNENM.....Q	LIAETSSAAD	..DVEFGAVPEEF	.....	354
NTDB id 1142 GTF74 RS11550 WP 000344154.1	DKIGQG	KANACKYLLKENPEI	AKTLDKKLREMLLN	PNENM.....Q	LIAETSSAAD	..DVEFGAVPEEF	.....	354
NTDB id 1022 ACIAD RS06390 WP 004925639.1	NKIGQG	KNNVIRYLEENPQI	STEIEAVIREQLLT	TKASD....QTAA	.HDETEE..EPD	LL..ES	.....	349
NTDB id 1074 ABD1 RS10195 WP 000344167.1	NKIGQG	KNNVIRYFEENNQI	AEEIERNIREQLLT	TGTN....GAVQ	.I.EDEE..EPD	LL..LES	.....	349
NTDB id 1205 PSJM300 05545 AFN77183.1	SKIGQG	KANAACKYLEENPEI	IGQIEEQIRAKLL	VTSAN....TKAT	PVAEDLA..DADI	.....	.....	347
consensus	***!!	*****	***	*****	*****	***	***	

logo

NTDB id 600 KW2 RS01765 WP 011675413.1	..	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	EE	388
NTDB id 228 SPD RS09265 WP 001085462.1	EE	388
NTDB id 194 SPR RS08825 WP 001085462.1	EE	388
NTDB id 159 SP RS09750 WP 001085462.1	EE	388
NTDB id 527 SMSK321 RS11065 WP 001085454.1	EE	384
NTDB id 499 SM12261 RS08315 WP 078228268.1	EE	384
NTDB id 408 SMU RS09530 WP 002262392.1	..	383
NTDB id 453 Spy49 1753c ACI62003.1	..	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 300509 DQL45 RS10820 WP 002720615.1	..	357
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
 ≥ 50% conserved