

```

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 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1211 C694 RS00795 WP 000963128.1
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 355389 E4179 RS06665 WP 003037330.1
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 0004925639.1
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 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1211 C694 RS00795 WP 000963128.1
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 355389 E4179 RS06665 WP 003037330.1
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 0004925639.1
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 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1211 C694 RS00795 WP 000963128.1
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 355389 E4179 RS06665 WP 003037330.1
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 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1211 C694 RS00795 WP 000963128.1
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 355389 E4179 RS06665 WP 003037330.1
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 0004925639.1
NTDB id 1074 ABD1 RS10195 WP 000344167.1
consensus

```



NTDB	id	600	KW2	RS01765	WP	011675413.1	DEKIGQGA	EKAKNYLKEHQDVFEIDHKKVRAAHG	LLDDSEVAETEETETA...	SKTKAKAKKEEKAVETEEIELELED.	387		
NTDB	id	269	KZH43	RS08665	WP	001085462.1	DEKIGQGS	ENAKKYLAEHPEIFDEIDKQVRSKFG	LIDGEEVSEQDTENKK...	DE...PKKEEA..VNEEVPLDLGDE	381		
NTDB	id	228	SPD	RS09265	WP	001085462.1	DEKIGQGS	ENAKKYLAEHPEIFDEIDKQVRSKFG	LIDGEEVSEQDTENKK...	DE...PKKEEA..VNEEVPLDLGDE	381		
NTDB	id	194	SPR	RS08825	WP	001085462.1	DEKIGQGS	ENAKKYLAEHPEIFDEIDKQVRSKFG	LIDGEEVSEQDTENKK...	DE...PKKEEA..VNEEVPLDLGDE	381		
NTDB	id	159	SP	RS09750	WP	001085462.1	DEKIGQGS	ENAKKYLAEHPEIFDEIDKQVRSKFG	LIDGEEVSEQDTENKK...	DE...PKKEEA..VNEEVPLDLGDE	381		
NTDB	id	527	SMSK321	RS11065	WP	001085454.1	DEKIGQGS	ENAKKYLADNPEVFAEIDHQVRVQFGL	LIDGEEAAE...SKK...	DE...VAQVDS..VNEEVTLDLGDE	377		
NTDB	id	499	SM12261	RS08315	WP	078228268.1	DEKIGQGS	ENAKKYLADNPEIFDEIDHQVRVQFGL	LIDGEEIAE...SKK...	DE...AAQVDS..VNEEVTLDLGDE	377		
NTDB	id	453	Spy49	1753c	ACI62003.1		GEKIGQGS	ENAKRYLADHPQLFDEIDRKVRVKFGL	LEESEESAMAVASE.....	E.....TDDLALDLNG	373		
NTDB	id	408	SMU	RS09530	WP	002262392.1	GEKIGQGS	ENAKKFLADNPEIFDDIDHKVRVQYGL	IEEDNTEEKQSSKEK.....	ETDEK..ADKNLVLELDDT	378		
NTDB	id	115	BSU	16940	NP	389576.2	EERLGGGR	ENAKKFLKENKDIMIQEIREHYGL	DNNGVVQQQAETTE....	EL.EFE.E.....	348		
NTDB	id	625	LCA	RS02525	WP	011374196.1	SERIGGG	RENAKNYLADHEDVEDVRLKVRAAAYG	ISDVPEEDLPTEDE....	QI.NILPDDST.....EE.....	355		
NTDB	id	1313	DR	RS12030	WP	010888966.1	DERIGQG	KEKTIAIYIAERPMEQEIRDRVMAAIR	AGNAGEAPALAPAPAAPEAA	EA.....	363		
NTDB	id	1245	Cj1673c	YP	002345041.1		DKKLGGGR	ENSKAFLKENPEIADEITKAIQNSMG	IEGMI....SGSEDD..EGEE	.....	343		
NTDB	id	1214	NCTC11637	00359	SQJ03206.1		DKKLGGGR	ENAKALLKEDKALADEITLKI	KESIGSNEEI....MPLPDE..PLEEME	.....	347		
NTDB	id	1211	C694	RS00795	WP	000963128.1	DKKLGGGR	ENAKALLKEDKALADEITLKI	KESIGSNEEI....MPLPDE..PLEEME	.....	347		
NTDB	id	1334	RAOC	RS04870	WP	004918236.1	DTKLGGGR	DTVKELIKDNPELAELEAKIREKLQAK	.....	.....	343		
NTDB	id	1389	A4U84	RS07560	WP	021112712.1	GTKIGQG	KNNAVKWIKENPEIADKLEQEI	RNTLASNPNS....VLKATASDSN	DESDVEEFS.....EEEL.....	372		
NTDB	id	1130	NGFG	RS03960	WP	003688695.1	GAKIGQG	KDNVRVWLKENPEISDEIDAKIRALN	GVEMHI....TEGTQDET.....	GERP.....EE.....	348		
NTDB	id	1124	NGFG	RS03960	WP	003688695.1	GAKIGQG	KDNVRVWLKENPEISDEIDAKIRALN	GVEMHI....TEGTQDET.....	GERP.....EE.....	348		
NTDB	id	1123	OK783	RS03845	WP	003688695.1	GAKIGQG	KDNVRVWLKENPEISDEIDAKIRALN	GVEMHI....TEGTQDET.....	GERP.....EE.....	348		
NTDB	id	1427	RS	RS02760	WP	011000510.1	GERIGQGR	DNREFLRNLAELARIENKVRHGL	GVTPMG....AVTL.AEEVEE	ED.....	352		
NTDB	id	355389	E4179	RS06665	WP	003037330.1	GEKIGGK	KANATNWLKENPATAKEIEKKL	RELLNNQDS....TPDFSVDSDG	EDV...KETN.....EDF.....	354		
NTDB	id	1165	A1552VC	RS01565	WP	000344154.1	GDKIGQG	KANACKYIKENPEIAKTLDKKL	REMLLNPNENM....QLIAETSSAA	DDVEFGAVP.....EEF.....	354		
NTDB	id	1142	GTF74	RS11550	WP	000344154.1	GDKIGQG	KANACKYIKENPEIAKTLDKKL	REMLLNPNENM....QLIAETSSAA	DDVEFGAVP.....EEF.....	354		
NTDB	id	1205	PSJM300	05545	AFN77183.1		GSKIGQG	KANAAKYLEENPEIGQIEEQ	IRAKLLVTSAN....TKATPVAEDL	ADADI.....	347		
NTDB	id	1022	ACIAD	RS06390	WP	004925639.1	GNKIGQG	KNNVIRYLEENQISTEIEAV	IREQLLTKASD....QTAA.HDETE	EEDPDLLES.....	349		
NTDB	id	1074	ABD1	RS10195	WP	000344167.1	GNKIGQG	KNNVIRYFENNQIAEIEIERN	IREQLLTGTN....GAVQ.I.ED	EEDPDLLES.....	349		
consensus							***!!!!*****	**	*****	*****	**	***	***

logo

NTDB id 600 KW2 RS01765 WP 011675413.1	.....	387
NTDB id 269 KZH43 RS08665 WP 001085462.1	LEIEIEE	388
NTDB id 228 SPD RS09265 WP 001085462.1	LEIEIEE	388
NTDB id 194 SPR RS08825 WP 001085462.1	LEIEIEE	388
NTDB id 159 SP RS09750 WP 001085462.1	LEIEIEE	388
NTDB id 527 SMSK321 RS11065 WP 001085454.1	LEIEIEE	384
NTDB id 499 SM12261 RS08315 WP 078228268.1	LEIEIEE	384
NTDB id 453 Spy49 1753c ACI62003.1	IEIED..	378
NTDB id 408 SMU RS09530 WP 002262392.1	IELED..	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 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 355389 E4179 RS06665 WP 003037330.1	.....	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