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NTDB id 600 KW2 RS01765 WP 011675413.1	VV	I	D	S	V	A	A	L	V	P	K	A	E	I	E	G	D	S	S	V	G	L	Q	A	R	M	S	Q	A	M	R	K	L	A	G	H	I	N	K	T	K	T	T	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	S	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	233					
NTDB id 269 KZH43 RS08665 WP 001085462.1	V	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	232		
NTDB id 228 SPD RS09265 WP 001085462.1	V	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	232		
NTDB id 194 SPR RS08825 WP 001085462.1	V	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	232		
NTDB id 159 SP RS09750 WP 001085462.1	V	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	232		
NTDB id 527 SMSK321 RS11065 WP 001085454.1	V	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	232		
NTDB id 499 SM12261 RS08315 WP 078228268.1	V	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	S	Q	A	M	R	K	L	G	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	232		
NTDB id 408 SMU RS09530 WP 002262392.1	V	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	S	Q	A	M	R	K	L	S	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	I	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	S	232		
NTDB id 453 Spy49 1753c ACI62003.1	V	V	V	D	S	V	A	A	L	V	P	R	A	E	I	D	G	I	G	D	S	H	V	G	L	Q	A	R	M	S	Q	A	M	R	K	L	S	A	S	I	N	K	T	K	T	I	A	I	F	I	N	Q	L	R	E	K	V	G	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	232			
NTDB id 625 LCA RS02525 WP 011374196.1	L	V	V	D	S	V	A	A	L	V	P	R	A	E	I	E	G	M	G	D	A	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	S	G	T	I	N	K	T	K	T	I	A	L	F	I	N	Q	I	R	E	K	V	G	M	.	F	G	N	P	E	V	T	P	G	G	R	A	L	K	F	Y	S	219		
NTDB id 420455 M654 RS11440 WP 026587036.1	V	V	I	D	S	V	A	A	L	V	P	K	A	E	I	E	G	D	M	G	D	S	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	S	G	A	I	N	K	S	K	T	I	A	I	F	I	N	Q	I	R	E	K	V	G	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	S	217	
NTDB id 115 BSU 16940 NP 389576.2	V	V	V	D	S	V	A	A	L	V	P	K	A	E	I	E	G	D	M	G	D	S	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	S	G	A	I	N	K	S	K	T	I	A	I	F	I	N	Q	I	R	E	K	V	G	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	S	217	
NTDB id 1313 DR RS12030 WP 010888966.1	V	V	V	D	S	V	A	A	L	T	P	R	A	E	I	E	G	D	M	G	D	S	L	P	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	A	I	L	S	K	T	G	T	A	A	I	F	I	N	Q	V	R	E	K	I	G	V	M	.	Y	G	N	P	E	T	T	T	G	G	R	A	L	K	F	Y	A	231
NTDB id 1245 Cj1673c YP 002345041.1	I	V	V	D	S	V	A	A	L	T	P	K	A	E	I	E	G	D	M	G	D	Q	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	G	I	V	H	K	M	N	T	T	V	I	F	I	N	Q	I	R	M	K	I	G	A	M	Y	G	T	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	219	
NTDB id 1211 C694 RS00795 WP 000963128.1	V	V	V	D	S	V	A	A	L	T	P	K	A	E	I	D	G	M	G	D	Q	H	V	G	L	Q	A	R	L	M	S	H	A	L	R	K	I	T	G	V	L	H	K	M	N	T	T	L	I	F	I	N	Q	I	R	M	K	I	G	M	Y	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	221			
NTDB id 1214 NCTC11637 00359 SQJ03206.1	V	V	V	D	S	V	A	A	L	T	P	K	A	E	I	D	G	M	G	D	Q	H	V	G	L	Q	A	R	L	M	S	H	A	L	R	K	I	T	G	V	L	H	K	M	N	T	T	L	I	F	I	N	Q	I	R	M	K	I	G	M	Y	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	221			
NTDB id 1334 RAOC RS04870 WP 004918236.1	V	V	V	D	S	V	A	A	L	T	P	K	A	E	I	D	G	M	G	D	S	K	M	G	L	H	A	R	L	M	S	Q	A	L	R	K	L	T	S	S	I	S	K	T	K	T	V	I	F	I	N	Q	L	R	D	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	227		
NTDB id 1389 A4U84 RS07560 WP 021112712.1	I	I	V	D	S	V	A	A	L	T	P	K	A	E	I	E	G	D	M	G	D	S	H	M	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	A	N	I	K	N	T	N	C	L	V	V	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	N	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	235
NTDB id 1130 NGFG RS03960 WP 003688695.1	V	V	V	D	S	V	A	A	L	V	P	K	A	E	I	E	G	D	M	G	D	S	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	G	H	I	K	T	N	T	L	V	V	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	S	219	
NTDB id 1124 NGFG RS03960 WP 003688695.1	V	V	V	D	S	V	A	A	L	V	P	K	A	E	I	E	G	D	M	G	D	S	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	G	H	I	K	T	N	T	L	V	V	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	S	219	
NTDB id 1123 OK783 RS03845 WP 003688695.1	V	V	V	D	S	V	A	A	L	V	P	K	A	E	I	E	G	D	M	G	D	S	H	V	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	G	H	I	K	T	N	T	L	V	V	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	S	219	
NTDB id 1427 RS RS02760 WP 011000510.1	I	V	I	D	S	V	A	A	L	V	P	K	A	E	I	E	G	M	G	D	A	L	P	G	L	Q	A	R	L	M	S	Q	A	L	R	K	L	T	G	T	I	K	R	T	N	C	L	V	I	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	227	
NTDB id 1165 A1552VC RS01565 WP 000344154.1	I	V	V	D	S	V	A	A	L	T	P	K	A	E	I	E	G	M	G	D	S	H	M	G	L	Q	A	R	M	L	S	Q	A	M	R	K	L	T	G	N	L	K	Q	S	N	C	M	C	I	F	I	N	Q	I	R	M	K	I	G	V	M	.	F	G	N	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	218	
NTDB id 1142 GTF74 RS1																																																																																	



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NTDB id 600 KW2 RS01765 WP 011675413.1	DEKIGQGA	EKAKNYLKEHQDV	DEIDHKVRAAHG	LDDSEVAETEEETT	...	ASKTKAKAKKEEKAVETEEIELELED	387		
NTDB id 269 KZH43 RS08665 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFG	LIDGEEVSEQDTENK	...	KDE...PKKEEA..VNEEVPLDLGDE	381		
NTDB id 228 SPD RS09265 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFG	LIDGEEVSEQDTENK	...	KDE...PKKEEA..VNEEVPLDLGDE	381		
NTDB id 194 SPR RS08825 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFG	LIDGEEVSEQDTENK	...	KDE...PKKEEA..VNEEVPLDLGDE	381		
NTDB id 159 SP RS09750 WP 001085462.1	DEKIGQGS	ENAKKYLAEHPEIF	DEIDKQVRSKFG	LIDGEEVSEQDTENK	...	KDE...PKKEEA..VNEEVPLDLGDE	381		
NTDB id 527 SMSK321 RS11065 WP 001085454.1	DEKIGQGS	ENAKKYLADNPEVFAE	IDHQVVRVQFGL	LIDGEEAAE	...	SK...KDE...VAQVDS..VNEEVTLDLGDE	377		
NTDB id 499 SM12261 RS08315 WP 078228268.1	DEKIGQGS	ENAKKYLADNPEIF	DEIDHQVVRVQFGL	LIDGEEIAE	...	SK...KDE...AAQVDS..VNEEVTLDLGDE	377		
NTDB id 408 SMU RS09530 WP 002262392.1	GEKIGQGS	ENAKKFLADNPEIF	DDIDHKVVRVQYGL	IEEDNTEEKQSSKE	...	K...ETDEK..ADKNLVLELDDT	378		
NTDB id 453 Spy49 1753c ACI62003.1	GEKIGQGS	ENAKRYLADHPQLF	DEIDRKVVRVKFGL	LEESEESAMAVAS	...	E...E...TDDLALDLNNG	373		
NTDB id 625 LCA RS02525 WP 011374196.1	SERIGQG	RENAKNYLADHEDVE	DEVRLKVVRAAYG	ISDVPEEDLPTTEDE	...	QINILPDDSTEE	355		
NTDB id 420455 M654 RS11440 WP 026587036.1	DERLGGG	RENAKQFLKENKDVLL	TIQEIQREHYGL	DTGASA.PKD.EEV	...	QEELEF	345		
NTDB id 115 BSU 16940 NP 389576.2	EERLGGG	RENAKQFLKENKDIM	LMIQEIQREHYGL	DNNGVVQQA.EET	...	QEELEFEE	348		
NTDB id 1313 DR RS12030 WP 010888966.1	DERIGQG	KEKTIAYIAERP	EMEQRDRVMAAIR	AGNAGEAPALAPAPA	EA	...	363		
NTDB id 1245 Cj1673c YP 002345041.1	DKKLGQG	RENSKAFLENPEIA	DEITKAIQNSMG	TEGMI	...	SGSEDDE.GEE	343		
NTDB id 1211 C694 RS00795 WP 000963128.1	DKKLGQG	RENAKALLKEDKAL	ADEITLTKESIGS	NEEI	...	MPLPDEP..LEEME	347		
NTDB id 1214 NCTC11637 00359 SQJ03206.1	DKKLGQG	RENAKALLKEDKAL	ADEITLTKESIGS	NEEI	...	MPLPDEP..LEEME	347		
NTDB id 1334 RAOC RS04870 WP 004918236.1	DTKLGQGR	DTVKKELTKDNPEL	AEELEAKIREKLQAK	...	...	...	343		
NTDB id 1389 A4U84 RS07560 WP 021112712.1	GTKIGQG	KNNAVKWLKENPEI	ADKLEQEI	RNTLASNPNS	...	VLKATASDSNDESDVEEFSEE	372		
NTDB id 1130 NGFG RS03960 WP 003688695.1	GAKIGQG	KDNVVRVWLKENPEI	SDAIDAKIRALNG	VEMHI	...	TEGTQDET	348		
NTDB id 1124 NGFG RS03960 WP 003688695.1	GAKIGQG	KDNVVRVWLKENPEI	SDAIDAKIRALNG	VEMHI	...	TEGTQDET	348		
NTDB id 1123 OK783 RS03845 WP 003688695.1	GAKIGQG	KDNVVRVWLKENPEI	SDAIDAKIRALNG	VEMHI	...	TEGTQDET	348		
NTDB id 1427 RS RS02760 WP 011000510.1	GERIGQGR	DNCREFLRENAEL	AREIENKVR	REHLGVTPMG	...	AV.TLAEVEED	352		
NTDB id 1165 A1552VC RS01565 WP 000344154.1	GDKIGQG	KANACKYLKENPEI	AKTLDKKLREMLLN	PENM	...	QLIAETSSAADDVEFGAVPEE	354		
NTDB id 1142 GTF74 RS11550 WP 000344154.1	GDKIGQG	KANACKYLKENPEI	AKTLDKKLREMLLN	PENM	...	QLIAETSSAADDVEFGAVPEE	354		
NTDB id 1074 ABD1 RS10195 WP 000344167.1	GNKIGQG	KNNVIRYFEENN	QIAEEIERN	IREQLLTGTN	...	GAVQ.I.EDEEEDP.LLLES	349		
NTDB id 1022 ACIAD RS06390 WP 004925639.1	GNKIGQG	KNNVIRYLEENP	QISTEIEAV	IREQLLTKASD	...	QTAA.HDETEEEDP.LLES	349		
NTDB id 1205 PSJM300 05545 AFN77183.1	GSKIGQG	KANAACKYLEENPEI	GQIEIQQIRAKLL	VTSAN	...	TKATPVAEDLADAD.I	347		
consensus	**!!!	*****	**	*****	*****	**	**	**	**

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	LEIELEE	
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 408 SMU RS09530 WP 002262392.1	IELED..	383
NTDB id 453 Spy49 1753c ACI62003.1	IEIED..	378
NTDB id 625 LCA RS02525 WP 011374196.1	.....	355
NTDB id 420455 M654 RS11440 WP 026587036.1	.....	345
NTDB id 115 BSU 16940 NP 389576.2	.....	348
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 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 1074 ABD1 RS10195 WP 000344167.1	.....	349
NTDB id 1022 ACIAD RS06390 WP 004925639.1	.....	349
NTDB id 1205 PSJM300 05545 AFN77183.1	.....	347

consensus

- X non conserved
- X similar
- X ≥ 50% conserved