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NTDB id 600 KW2 RS01765 WP 011675413.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	A	V	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	E	Y	A	K	A	L	G	V	N	I	D	E	L	L	S	Q	P	D	Y	G	E	Q	G	L	Q	I	A	E	K	L	I	T	S	G	A	V	D	L		
NTDB id 269 KZH43 RS08665 WP 001085462.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	A	V	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	E	Y	A	A	A	L	G	V	N	I	D	E	L	L	S	Q	P	D	S	G	E	Q	G	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L		
NTDB id 228 SPD RS09265 WP 001085462.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	A	V	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	E	Y	A	A	A	L	G	V	N	I	D	E	L	L	S	Q	P	D	S	G	E	Q	G	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L		
NTDB id 194 SPR RS08825 WP 001085462.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	A	V	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	E	Y	A	A	A	L	G	V	N	I	D	E	L	L	S	Q	P	D	S	G	E	Q	G	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L		
NTDB id 159 SP RS09750 WP 001085462.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	A	V	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	E	Y	A	A	A	L	G	V	N	I	D	E	L	L	S	Q	P	D	S	G	E	Q	G	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L		
NTDB id 527 SMSK321 RS11065 WP 001085454.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	A	V	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	E	Y	A	A	A	L	G	V	N	I	D	E	L	L	S	Q	P	D	S	G	E	Q	G	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L		
NTDB id 499 SM12261 RS08315 WP 078228268.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	A	V	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	E	Y	A	A	A	L	G	V	N	I	D	E	L	L	S	Q	P	D	S	G	E	Q	G	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L		
NTDB id 453 Spy49 1753c ACI62003.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	A	V	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	E	Y	A	A	A	L	G	V	N	I	D	E	L	L	A	Q	P	D	S	G	E	Q	G	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L		
NTDB id 408 SMU RS09530 WP 002262392.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	A	V	Q	K	D	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	E	Y	A	A	A	L	G	V	N	I	D	E	L	L	S	Q	P	D	S	G	E	Q	G	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L		
NTDB id 115 BSU 16940 NP 389576.2	I	V	E	V	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	I	A	E	V	Q	Q	G	G	Q	A	A	F	I	D	A	E	H	A	L	D	P	V	Y	A	Q	K	L	G	V	N	I	E	E	L	L	S	Q	P	D	T	G	E	Q	A	L	E	I	A	E	A	L	V	R	S	G	A	V	D	L			
NTDB id 1166348 AB3212 RS02370 WP 057783733.1	I	V	E	V	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	Q	V	Q	K	E	G	G	T	A	A	Y	I	D	A	E	N	A	L	D	P	V	Y	A	E	H	L	G	V	N	I	D	D	L	L	S	Q	P	D	T	G	E	E	G	L	E	I	T	D	A	L	V	S	S	G	A	V	D	L		
NTDB id 625 LCA RS02525 WP 011374196.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	E	V	Q	K	Q	G	G	T	A	A	Y	I	D	A	E	N	A	M	D	P	K	Y	A	T	A	L	G	V	N	I	D	D	L	L	S	Q	P	D	T	G	E	Q	G	L	E	I	A	D	A	L	V	S	S	G	A	V	D	L		
NTDB id 1313 DR RS12030 WP 010888966.1	I	T	E	I	Y	G	P	E	S	S	G	K	T	T	L	A	L	A	I	V	A	Q	A	Q	K	A	G	G	T	C	A	F	I	D	A	E	H	A	L	D	P	V	Y	A	R	A	L	G	V	N	T	D	E	L	L	V	S	Q	P	D	N	G	E	Q	A	L	E	I	M	E	L	L	V	R	S	G	A	I	D	V	L
NTDB id 1245 Cj1673c YP 002345041.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	L	T	L	H	I	I	A	E	C	Q	K	A	G	G	V	C	A	F	I	D	A	E	H	A	L	D	V	K	Y	A	K	N	L	G	V	N	T	D	D	L	Y	V	S	Q	P	D	F	G	E	Q	A	L	E	I	V	E	T	I	A	R	S	G	A	V	D	L	
NTDB id 1211 C694 RS00795 WP 000963128.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	L	S	L	H	I	I	A	E	C	Q	K	N	G	G	V	C	A	F	I	D	A	E	H	A	L	D	V	H	Y	A	K	R	L	G	V	D	T	E	N	L	L	V	S	Q	P	D	T	G	E	Q	A	L	E	I	L	E	T	I	T	R	S	G	G	I	D	L	
NTDB id 1214 NCTC11637 00359 SQJ03206.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	L	S	L	H	I	I	A	E	C	Q	K	N	G	G	V	C	A	F	I	D	A	E	H	A	L	D	V	H	Y	A	K	R	L	G	V	D	T	E	N	L	L	V	S	Q	P	D	T	G	E	Q	A	L	E	I	L	E	T	I	T	R	S	G	G	I	D	L	
NTDB id 1334 RAOC RS04870 WP 004918236.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	L	T	L	H	A	I	A	E	A	Q	K	V	G	G	T	A	A	F	I	D	A	E	H	A	F	D	M	H	Y	A	E	K	L	G	I	N	L	E	E	L	I	V	S	Q	P	D	N	G	E	Q	A	L	E	I	A	D	S	L	T	R	S	G	G	V	D	L	
NTDB id 1389 A4U84 RS07560 WP 021112712.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	L	T	L	S	L	I	A	Q	A	Q	K	G	N	K	T	C	A	F	I	D	A	E	H	A	L	D	P	V	Y	A	R	N	L	G	V	N	T	D	E	L	L	S	Q	P	D	N	G	E	Q	A	L	E	I	C	D	A	L	V	R	S	G	A	V	D	L		
NTDB id 1130 NGFG RS03960 WP 003688695.1	I	V	E	I	F	G	P	E	S	S	G	K	T	T	L	C	L	E	A	V	A	Q	C	Q	K	N	G	G	V	C	A	F	V	D	A	E	H	A	F	D	P	V	Y	A	R	K	L	G	V	K	V	E	E	L	Y	L	S	Q	P	D	T	G	E	Q	A	L	E	I	C	D	T	L	V	R	S	G	G	I	D	M	
NTDB id 1124 NGFG RS03960 WP 003688695.1	I	V	E	I	F	G	P	E	S	S	G	K	T	T	L	C	L	E	A	V	A	Q	C	Q	K	N	G	G	V	C	A	F	V	D	A	E	H	A	F	D	P	V	Y	A	R	K	L	G	V	K	V	E	E	L	Y	L	S	Q	P	D	T	G	E	Q	A	L	E	I	C	D	T	L	V	R	S	G	G	I	D	M	
NTDB id 1123 OK783 RS03845 WP 003688695.1	I	V	E	I	F	G	P	E	S	S	G	K	T	T	L	C	L	E	A	V	A	Q	C	Q	K	N	G	G	V	C	A	F	V	D	A	E	H	A	F	D	P	V	Y	A	R	K	L	G	V	K	V	E	E	L	Y	L	S	Q	P	D	T	G	E	Q	A	L	E	I	C	D	T	L	V	R	S	G	G	I	D	M	
NTDB id 1427 RS RS02760 WP 011000510.1	V	V	E	I	Y	G	P	E	S	S	G	K	T	T	L	T	L	Q	V	V	A	E	M	Q	K	L	G	G	T	C	A	F	I	D	A	E	H	A	L	D	V	T	Y	A	D	K	L	G	V	K	V	P	D	L	I	S	Q	P	D	T	G	E	Q	A	L	E	I	A	D	A	L	V	R	S	G	S	V	D	L		
NTDB id 1165 A1552VC RS01565 WP 000344154.1	I	V	E	I	F	G	P	E	S	S	G	K	T	T	L	T	L	E	L	I	A	A	A	Q	R	E	G	K	T	C	A	F	I	D	A	E	H	A	L	D	P	V	Y	A	K	K	L	G	V	N	I	D	E	L	L	V	S	Q	P	D	T	G	E	Q	A	L	E	I	C	D	A	L	A	R	S	G	A	V	D	L	
NTDB id 1142 GTF74 RS11550 WP 000344154.1	I	V	E	I	F	G	P	E	S	S	G	K	T	T	L	T	L	E	L	I	A	A	A	Q	R	E	G	K	T	C	A	F	I	D	A	E	H	A	L	D	P	V	Y	A	K	K	L	G	V	N	I	D	E	L	L	V	S	Q	P	D	T	G	E	Q	A	L	E	I	C	D	A	L	A	R	S	G	A	V	D	L	
NTDB id 1205 PSJM300 05545 AFN77183.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	L	T	L	S	V	I	A	A	A	Q	R	M	G	S	T	C	A	F	V	D	A	E	H	A	L	D	P	Y	A	G	K	L	G	V	N	V	D	L	L	V	S	Q	P	D	T	G	E	Q	A	L	E	I	T	D	M	L	V	R	S	N	A	V	D	L			
NTDB id 1074 ABD1 RS10195 WP 000344167.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	M	T	L	Q	A	I	A	Q	C	Q	K	S	G	G	T	C	A	F	I	D	A	E	H	A	L	D	P	Q	Y	A	R	K	L	G	V	D	I	D	N	L	L	V	S	Q	P	D	N	G	E	Q	A	L	E	I	A	D	M	L	V	R	S	G	A	I	D	L	
NTDB id 1022 ACIAD RS06390 WP 004925639.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	M	T	L	Q	A	I	A	Q	C	Q	K	A	G	G	T	C	A	F	I	D	A	E	H	A	L	D	P	Q	Y	A	R	K	L	G	V	D	I	D	N	L	L	V	S	Q	P	D	H																				





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NTDB id 600	KW2	RS01765	WP 011675413.1	DEKIGQGA	EKA	KNYL	KEHQ	VD	FEID	HKVR	AAHG	GLDD	SEVA	ETEE	ETASK	TKAK	AKK	KEEK	AVETE	EEIE	LELED	....	387																																											
NTDB id 269	KZH43	RS08665	WP 001085462.1	DEKIGQGS	ENAK	KYLA	EHPE	IFDE	IDKQ	VRSK	FG	LIDG	EEV	SEQD	TENK	KDE	...	PKKE	EA	..	VNEE	VPLD	LGDE	LEIE	385																																									
NTDB id 228	SPD	RS09265	WP 001085462.1	DEKIGQGS	ENAK	KYLA	EHPE	IFDE	IDKQ	VRSK	FG	LIDG	EEV	SEQD	TENK	KDE	...	PKKE	EA	..	VNEE	VPLD	LGDE	LEIE	385																																									
NTDB id 194	SPR	RS08825	WP 001085462.1	DEKIGQGS	ENAK	KYLA	EHPE	IFDE	IDKQ	VRSK	FG	LIDG	EEV	SEQD	TENK	KDE	...	PKKE	EA	..	VNEE	VPLD	LGDE	LEIE	385																																									
NTDB id 159	SP	RS09750	WP 001085462.1	DEKIGQGS	ENAK	KYLA	EHPE	IFDE	IDKQ	VRSK	FG	LIDG	EEV	SEQD	TENK	KDE	...	PKKE	EA	..	VNEE	VPLD	LGDE	LEIE	385																																									
NTDB id 527	SMSK321	RS11065	WP 001085454.1	DEKIGQGS	ENAK	KYLAD	NPEV	FAE	IDHQ	VRVQ	FG	LIDG	EEAA	...	SKK	DE	...	VAQ	VDS	..	VNEE	VTL	LDL	GD	LEIE	381																																								
NTDB id 499	SM12261	RS08315	WP 078228268.1	DEKIGQGS	ENAK	KYLAD	NPEV	FAE	IDHQ	VRVQ	FG	LIDG	EEIA	...	SKK	DE	...	AAQ	VDS	..	VNEE	VTL	LDL	GD	LEIE	381																																								
NTDB id 453	Spy49	1753c	ACI62003.1	GEKIGQGS	ENAK	RYLAD	HPQL	FD	IDRK	VRVK	FG	LLEE	SEEE	SAM	AV	ASE	.....	E	.....	TDD	LAL	DL	DN	GI	EIE	377																																								
NTDB id 408	SMU	RS09530	WP 002262392.1	GEKIGQGS	ENAK	KFLAD	NPEV	FD	IDHK	VRVQ	YGL	IEED	NTEE	KQSS	KEK	.....	ET	DEK	..	ADKN	LVL	EL	DD	TIE	LE	382																																								
NTDB id 115	BSU	16940	NP 389576.2	EERL	GGRE	NAK	QFL	KEN	KD	IM	LM	I	QEQ	I	RE	H	Y	G	L	D	N	N	G	V	V	Q	Q	A	E	E	T	...	Q	E	.....	E	L	F	E	E	.....	348																								
NTDB id 1166348	AB3212	RS02370	WP 057783733.1	DERIGQGS	ENAK	QYLED	NPEK	RE	FEI	YK	VRA	AYN	MDPE	AE	AV	KD	KD	KE	KD	PS	.....	E	L	D	L	E	V	S	D	K	K	...	E	L	D	L	E	V	S	D	K	K	...	357																						
NTDB id 625	LCA	RS02525	WP 011374196.1	SERIGQGS	ENAK	NYLAD	HED	VE	DEV	R	L	K	V	R	A	A	Y	G	I	S	D	V	P	E	E	D	L	P	T	T	...	E	D	.....	Q	I	N	I	L	P	D	D	S	T	E	E	...	355																		
NTDB id 1313	DR	RS12030	WP 010888966.1	DERIGQK	EKT	IAY	I	A	E	R	P	E	M	E	Q	E	I	R	D	R	V	M	A	A	I	R	A	G	N	A	G	E	A	P	A	L	A	P	A	P	A	A	P	A	A	E	A	A	E	...	A	.....	363													
NTDB id 1245	Cj1673c	YP 002345041.1		DKKL	GGRE	NSKA	FL	KEN	PEI	A	D	E	I	T	K	A	I	Q	N	S	M	G	I	E	G	M	...	I	S	G	S	E	D	D	E	..	G	E	.....	E	.....	343																								
NTDB id 1211	C694	RS00795	WP 000963128.1	DKKL	GGRE	NAK	A	L	L	K	E	D	K	A	L	A	D	E	I	T	L	K	I	K	E	S	I	G	S	N	E	E	...	I	M	P	L	P	D	E	P	..	L	E	..	E	M	E	.....	347																
NTDB id 1214	NCTC11637	00359	SQJ03206.1	DKKL	GGRE	NAK	A	L	L	K	E	D	K	A	L	A	D	E	I	T	L	K	I	K	E	S	I	G	S	N	E	E	...	I	M	P	L	P	D	E	P	..	L	E	..	E	M	E	.....	347																
NTDB id 1334	RAOC	RS04870	WP 004918236.1	DTKL	GG	R	D	T	V	K	E	L	I	K	D	N	P	E	L	A	E	E	L	A	K	I	R	E	K	L	Q	A	K	.....	343																															
NTDB id 1389	A4U84	RS07560	WP 021112712.1	GTKIG	Q	G	K	N	N	A	V	K	W	L	K	E	N	P	E	I	A	K	L	E	Q	E	I	R	N	T	L	A	S	N	P	N	...	S	V	L	K	A	T	A	S	D	S	N	D	..	E	S	D	V	E	E	F	G	A	V	P	E	E	F	.....	372
NTDB id 1130	NGFG	RS03960	WP 003688695.1	GAKIG	Q	G	K	D	N	V	R	V	W	L	K	E	N	P	E	I	S	D	E	I	A	K	I	R	A	L	N	G	V	E	M	H	...	I	T	E	G	T	Q	D	E	T	.....	D	G	E	R	P	E	E	.....	348										
NTDB id 1124	NGFG	RS03960	WP 003688695.1	GAKIG	Q	G	K	D	N	V	R	V	W	L	K	E	N	P	E	I	S	D	E	I	A	K	I	R	A	L	N	G	V	E	M	H	...	I	T	E	G	T	Q	D	E	T	.....	D	G	E	R	P	E	E	.....	348										
NTDB id 1123	OK783	RS03845	WP 003688695.1	GAKIG	Q	G	K	D	N	V	R	V	W	L	K	E	N	P	E	I	S	D	E	I	A	K	I	R	A	L	N	G	V	E	M	H	...	I	T	E	G	T	Q	D	E	T	.....	D	G	E	R	P	E	E	.....	348										
NTDB id 1427	RS	RS02760	WP 011000510.1	GERIG	Q	G	R	D	N	C	R	E	F	L	R	E	N	A	E	L	A	R	E	I	E	N	K	V	R	E	H	L	G	V	T	P	M	...	G	A	V	T	L	A	..	E	E	V	E	..	D	.....	352													
NTDB id 1165	A1552VC	RS01565	WP 000344154.1	GDKIG	Q	G	K	A	N	A	C	K	Y	L	K	E	N	P	E	I	A	K	T	L	D	K	K	L	R	E	M	L	L	N	P	E	N	...	M	Q	L	I	A	E	T	S	S	A	A	D	..	D	V	E	F	G	A	V	P	E	E	F	.....	354		
NTDB id 1142	GTF74	RS11550	WP 000344154.1	GDKIG	Q	G	K	A	N	A	C	K	Y	L	K	E	N	P	E	I	A	K	T	L	D	K	K	L	R	E	M	L	L	N	P	E	N	...	M	Q	L	I	A	E	T	S	S	A	A	D	..	D	V	E	F	G	A	V	P	E	E	F	.....	354		
NTDB id 1205	PSJM300	05545	AFN77183.1	GSKIG	Q	G	K	A	N	A	K	Y	L	E	N	P	E	I	G	Q	E	I	E	Q	I	R	A	K	L	L	V	T	S	A	...	N	T	K	A	T	P	V	A	E	D	L	A	..	D	A	D	..	I	.....	347											
NTDB id 1074	ABD1	RS10195	WP 000344167.1	GNKIG	Q	G	K	N	N	V	I	R	Y	F	E	N	N	Q	I	A	E	E	I	E	R	N	I	R	E	Q	L	L	T	T	G	T	...	N	G	A	V	Q	..	I	..	E	D	E	..	E	P	D	..	L	L	L	E	S	.....	349						
NTDB id 1022	ACIAD	RS06390	WP 004925639.1	GNKIG	Q	G	K	N	N	V	I	R	Y	L	E	N	P	Q	I	S	T	E	I	E	A	V	I	R	E	Q	L	L	T	K	A	S	...	D	Q	T	A	..	H	D	E	T	E	..	E	P	D	..	L	L	E	S	.....	349								
consensus				**!!!***** ** ***** ***** ** *																																																														

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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 527 SMSK321 RS11065 WP 001085454.1	IEE	384
NTDB id 499 SM12261 RS08315 WP 078228268.1	IEE	384
NTDB id 453 Spy49 1753c ACI62003.1	D..	378
NTDB id 408 SMU RS09530 WP 002262392.1	D..	383
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NTDB id 1166348 AB3212 RS02370 WP 057783733.1	...	357
NTDB id 625 LCA RS02525 WP 011374196.1	...	355
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NTDB id 1211 C694 RS00795 WP 000963128.1	...	347
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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
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NTDB id 1165 A1552VC RS01565 WP 000344154.1	...	354
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NTDB id 1074 ABD1 RS10195 WP 000344167.1	...	349
NTDB id 1022 ACIAD RS06390 WP 004925639.1	...	349

consensus

 non conserved  
 similar  
 ≥ 50% conserved