



logo



NTDB id 60728	CTRC852	RS03515	WP 009872817.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	L	A	T	H	I	V	A	N	A	Q	K	M	G	G	V	A	A	Y	I	D	A	E	H	A	L	D	P	N	Y	A	A	L	T	G	A	N	I	N	D	L	M	I	S	Q	P	D	C	G	E	D	A	L	S	T	A	E	L	L	A	R	S	G	A	V	D	V	141
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	M	I	D	E	L	L	S	Q	P	D	Y	G	E	Q	L	E	I	A	E	K	L	I	T	S	G	A	V	D	L	154		
NTDB id 269	KZH43	RS08665	WP 001085462.1	I	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	A	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	A	Y	A	A	L	G	V	M	I	D	E	L	L	S	Q	P	D	S	G	E	Q	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L	153					
NTDB id 228	SPD	RS09265	WP 001085462.1	I	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	A	Y	A	A	L	G	V	M	I	D	E	L	L	S	Q	P	D	S	G	E	Q	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L	153						
NTDB id 194	SPR	RS08825	WP 001085462.1	I	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	A	Y	A	A	L	G	V	M	I	D	E	L	L	S	Q	P	D	S	G	E	Q	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L	153						
NTDB id 159	SP	RS09750	WP 001085462.1	I	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	A	Y	A	A	L	G	V	M	I	D	E	L	L	S	Q	P	D	S	G	E	Q	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L	153						
NTDB id 499	SM12261	RS08315	WP 078228268.1	I	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	A	Y	A	A	L	G	V	M	I	D	E	L	L	S	Q	P	D	S	G	E	Q	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L	153						
NTDB id 527	SMSK321	RS11065	WP 001085454.1	I	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	A	Y	A	A	L	G	V	M	I	D	E	L	L	S	Q	P	D	S	G	E	Q	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L	153						
NTDB id 453	Spy49	1753c	ACI62003.1	I	E	I	Y	G	P	E	S	S	G	K	T	T	V	A	L	H	A	V	A	Q	K	E	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	A	Y	A	A	L	G	V	M	I	D	E	L	L	A	Q	P	D	S	G	E	Q	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L	153						
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	Q	K	D	G	G	I	A	A	F	I	D	A	E	H	A	L	D	P	A	Y	A	A	L	G	V	M	I	D	E	L	L	S	Q	P	D	S	G	E	Q	L	E	I	A	G	K	L	I	D	S	G	A	V	D	L	153					
NTDB id 115	BSU	16940	NP 389576.2	I	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	M	I	E	L	L	S	Q	P	D	T	G	E	Q	A	L	E	I	A	F	A	L	V	R	S	G	A	V	I	138					
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	T	A	A	Y	I	D	A	E	N	A	M	D	P	K	Y	A	T	A	L	G	V	M	I	D	L	L	S	Q	P	D	T	G	E	Q	L	E	I	A	D	A	L	V	S	S	G	A	V	I	140					
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	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	M	I	D	E	L	L	S	Q	P	D	N	G	E	Q	A	L	E	I	M	E	L	L	V	R	S	G	A	T	D	V	152			
NTDB id 1245	Cj1673c	YP 002345041.1	I	E	I	Y	G	P	E	S	S	G	K	T	T	L	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	M	T	D	L	Y	S	Q	P	D	F	G	E	Q	A	L	E	I	V	E	T	I	A	R	S	G	A	V	D	L	139					
NTDB id 1211	C694	RS00795	WP 000963128.1	I	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	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	141		
NTDB id 1214	NCTC11637	00359	SQJ03206.1	I	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	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	141		
NTDB id 1334	RA0C	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	T	A	A	F	I	D	A	E	H	A	F	D	M	H	Y	A	E	K	L	C	T	N	L	E	L	L	V	S	Q	P	D	N	G	E	Q	A	L	E	I	A	D	S	L	I	T	R	S	G	V	D	I	148		
NTDB id 1389	A4U84	RS07560	WP 021112712.1	I	V	E	I	Y	G	P	E	S	S	G	K	T	T	L	T	S	L	I	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	M	I	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	V	156				
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	K	N	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	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	140			
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	K	N	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	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	140			
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	K	N	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	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	140			
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	L	S	Q	P	D	T	G	E	Q	A	L	E	I	A	D	A	L	V	R	S	G	S	V	D	L	148	
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	M	I	D	E	L	L	S	Q																								

logo



NTDB id 60728	CTRC852	RS03515	WP 009872817.1	I	V	D	S	V	A	A	L	V	P	K	S	E	L	G	E	I	G	D	V	H	V	G	L	Q	A	R	M	S	Q	A	L	R	K	L	T	A	I	L	S	K	T	N	T	L	V	F	I	N	Q	I	R	M	K	I	G	V	S	.	F	G	N	P	E	T	T	T	G	G	R	A	L	K	F	Y	A	S	220		
NTDB id 600	KW2	RS01765	WP 011675413.1	V	V	D	S	V	A	A	L	V	P	K	A	E	I	D	G	E	I	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	I	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	G	D	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	I	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	G	D	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	I	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	G	D	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	I	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	G	D	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	I	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	G	D	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	I	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	G	D	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	I	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 453	Spy49	1753c	ACI62003.1	V	V	V	D	S	V	A	A	L	V	P	R	A	E	I	G	D	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	I	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	G	D	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	I	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 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	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	V	M	.	F	G	N	P	E	T	T	P	G	G	R	A	L	K	F	Y	A	217
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	M	S	Q	A	L	R	K	L	S	G	T	I	N	K	T	K	T	I	A	I	F	I	N	Q	I	R	E	K	V	G	V	M	.	F	G	N	P	E	V	T	P	G	G	R	A	L	K	F	Y	A	219	
NTDB id 1313	DR	RS12030	WP 010888966.1	V	V	V	D	S	V	A	A	L	T	P	K	A	E	I	E	G	D	M	G	D	S	L	P	G	L	Q	A	R	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	M	S	Q	A	L	R	K	L	T	G	I	V	H	K	M	N	T	V	I	F	I	N	Q	I	R	M	K	I	G	A	M	G	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	M	S	H	A	L	R	K	I	T	G	V	L	H	K	M	N	T	L	I	F	I	N	Q	I	R	M	K	I	G	M	G	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	M	S	H	A	L	R	K	I	T	G	V	L	H	K	M	N	T	L	I	F	I	N	Q	I	R	M	K	I	G	M	G	Y	G	S	P	E	T	T	T	G	G	N	A	L	K	F	Y	A	221			
NTDB id 1334	RA0C	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	M	S	Q	A	L	R	K	L	T	S	S	I	S	K	T	K	C	T	V	I	F	I	N	Q	I	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	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	M	S	Q	A	L	R	K	L	T	G	H	I	K	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	A	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	M	S	Q	A	L	R	K	L	T	G	H	I	K	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	A	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	M	S	Q	A	L	R	K	L	T	G	H	I	K	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	A	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	M	S	Q	A	L	R	K	L	T	G	T	I	K	E	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																																																							





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NTDB id 60728 CTRC852 RS03515 WP 009872817.1 ... 352
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
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consensus
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