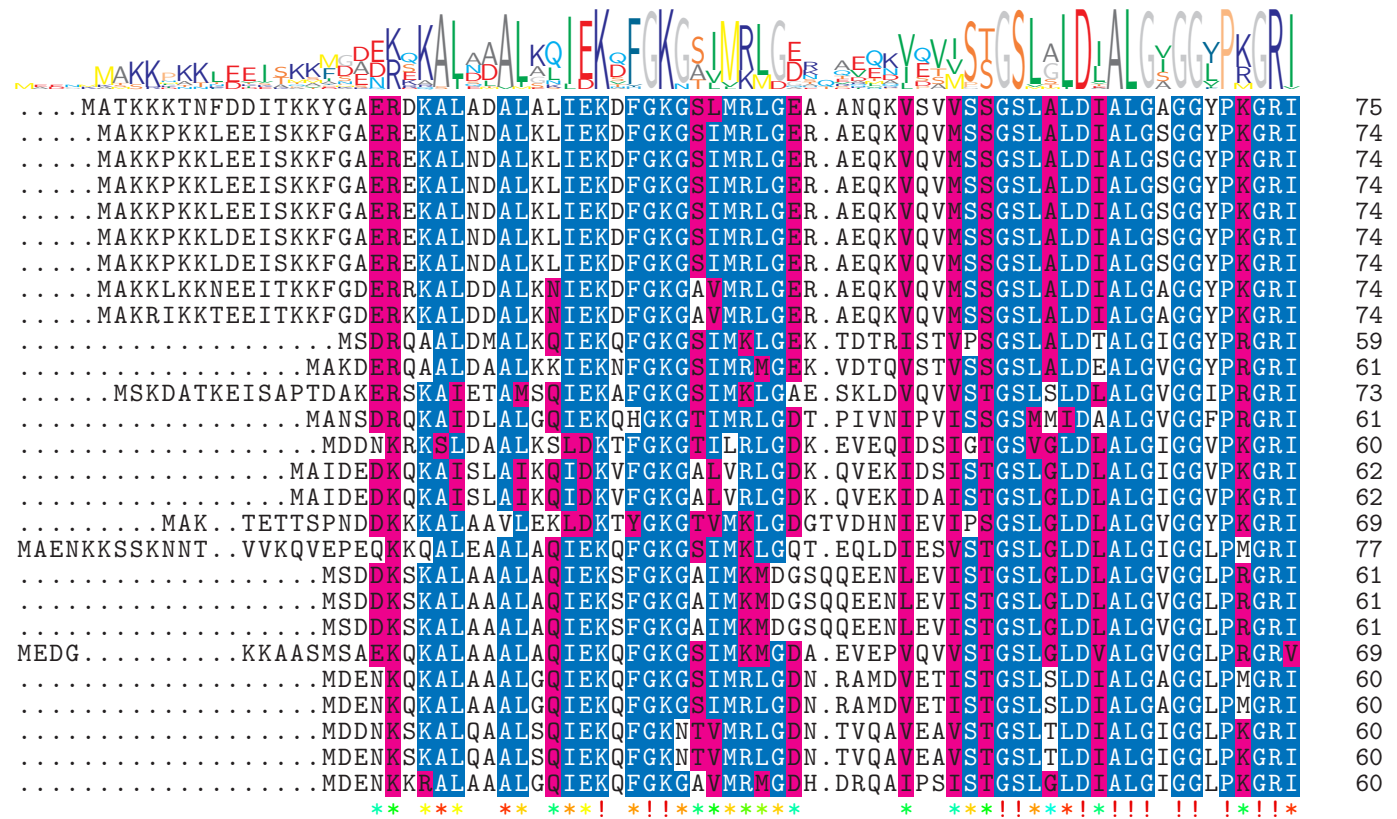


```

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 499 SM12261 RS08315 WP 078228268.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
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 280863 CYPRO RS12855 WP 114984999.1
NTDB id 1245 Cj1673c YP 002345041.1
NTDB id 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
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 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

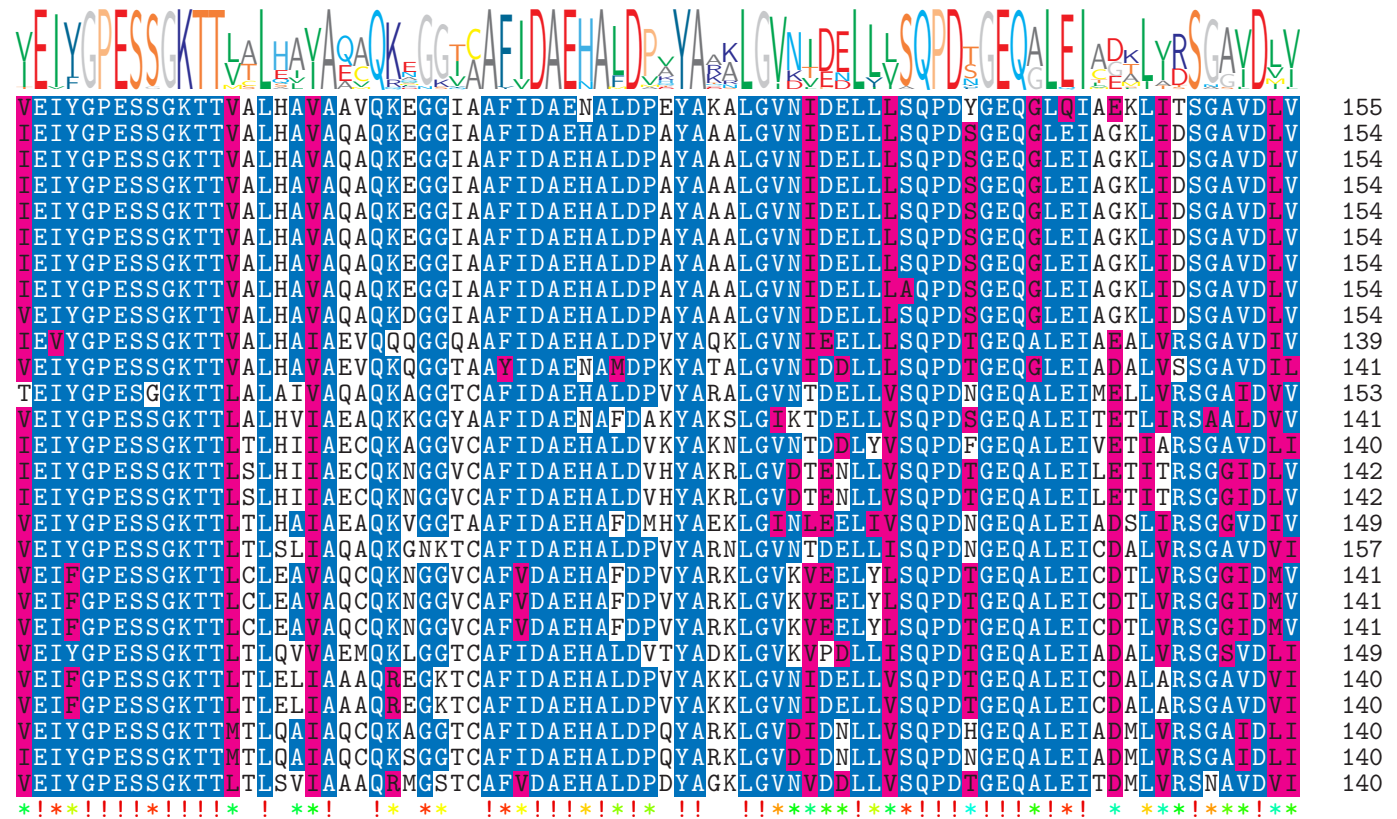
```



```

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 499 SM12261 RS08315 WP 078228268.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
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 280863 CYPRO RS12855 WP 114984999.1
NTDB id 1245 Cj1673c YP 002345041.1
NTDB id 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
NTDB id 1334 RA0C 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 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

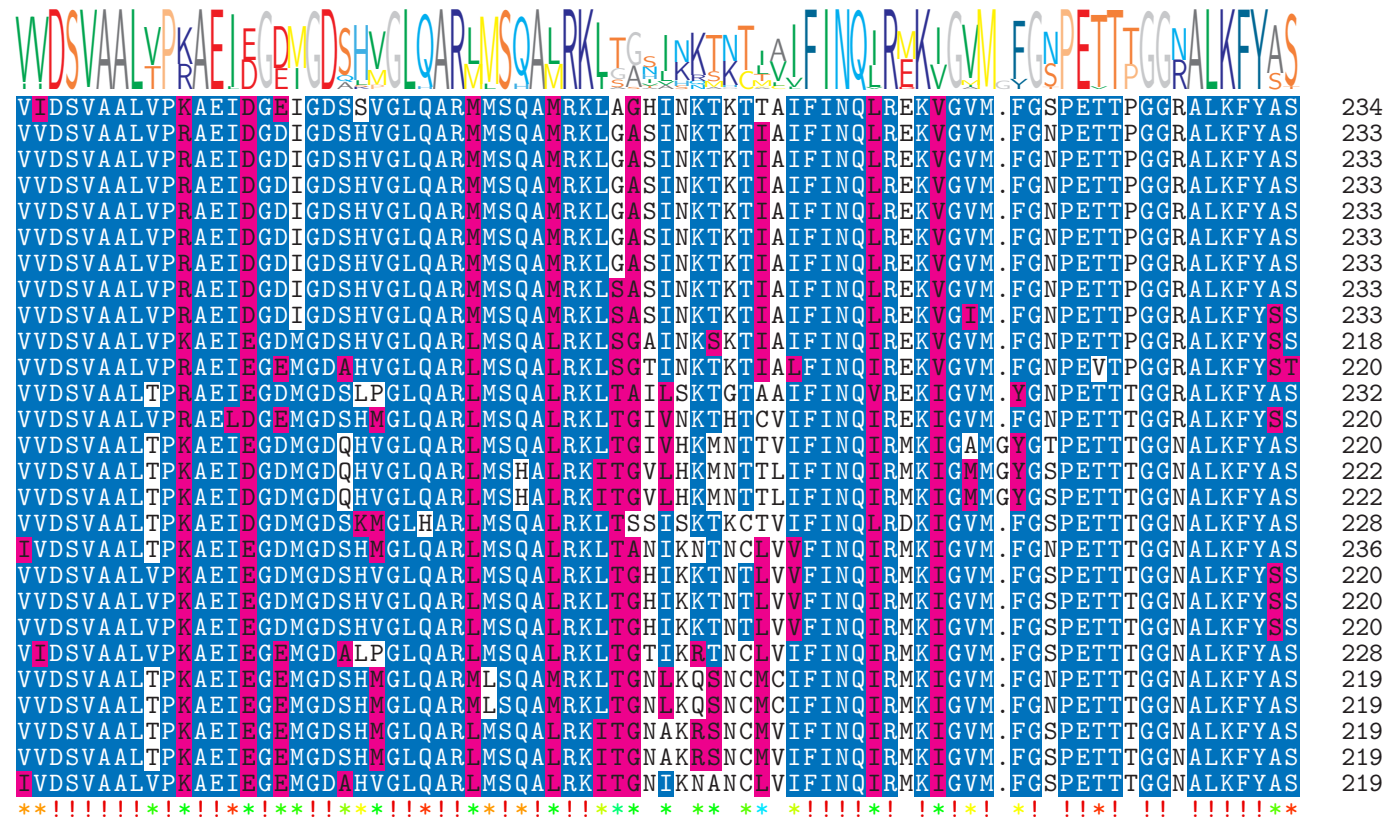
```



```

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 499 SM12261 RS08315 WP 078228268.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
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 280863 CYPRO RS12855 WP 114984999.1
NTDB id 1245 Cj1673c YP 002345041.1
NTDB id 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
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 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	VR	L	D	V	R	G	S	T	K	I	E	E	G	S	.	G	D	N	K	T	Q	I	G	K	I	T	K	I	K	V	V	K	N	K	V	A	P	P	F	K	V	A	L	V	D	I	M	F	G	E	G	I	S	T	G	E	L	I	N	I	A	V	E	E	G	I	I	K	K	S	G	A	W	F	A	Y	N	D	313								
NTDB id 269 KZH43 RS08665 WP 001085462.1	VR	L	D	V	R	G	N	T	Q	I	K	G	T	G	.	D	Q	K	E	T	N	V	G	K	E	T	K	I	K	V	V	K	N	K	V	A	P	P	F	K	E	A	V	V	E	I	M	Y	G	E	G	I	S	K	T	G	E	L	L	K	I	A	S	D	L	D	I	I	K	K	A	G	A	W	Y	S	Y	K	D	312							
NTDB id 228 SPD RS09265 WP 001085462.1	VR	L	D	V	R	G	N	T	Q	I	K	G	T	G	.	D	Q	K	E	T	N	V	G	K	E	T	K	I	K	V	V	K	N	K	V	A	P	P	F	K	E	A	V	V	E	I	M	Y	G	E	G	I	S	K	T	G	E	L	L	K	I	A	S	D	L	D	I	I	K	K	A	G	A	W	Y	S	Y	K	D	312							
NTDB id 194 SPR RS08825 WP 001085462.1	VR	L	D	V	R	G	N	T	Q	I	K	G	T	G	.	D	Q	K	E	T	N	V	G	K	E	T	K	I	K	V	V	K	N	K	V	A	P	P	F	K	E	A	V	V	E	I	M	Y	G	E	G	I	S	K	T	G	E	L	L	K	I	A	S	D	L	D	I	I	K	K	A	G	A	W	Y	S	Y	K	D	312							
NTDB id 159 SP RS09750 WP 001085462.1	VR	L	D	V	R	G	N	T	Q	I	K	G	T	G	.	D	Q	K	E	T	N	V	G	K	E	T	K	I	K	V	V	K	N	K	V	A	P	P	F	K	E	A	V	V	E	I	M	Y	G	E	G	I	S	K	T	G	E	L	L	K	I	A	S	D	L	D	I	I	K	K	A	G	A	W	Y	S	Y	K	D	312							
NTDB id 499 SM12261 RS08315 WP 078228268.1	VR	L	D	V	R	G	S	T	Q	I	K	G	T	G	.	D	Q	K	D	T	N	V	G	K	E	T	K	I	K	V	V	K	N	K	V	A	P	P	F	K	E	A	F	V	E	I	M	Y	G	E	G	I	S	K	T	G	E	L	L	K	I	A	S	D	L	D	I	I	K	K	A	G	A	W	Y	S	Y	K	D	312							
NTDB id 527 SMSK321 RS11065 WP 001085454.1	VR	L	D	V	R	G	S	T	Q	I	K	G	T	G	.	D	Q	K	D	T	N	V	G	K	E	T	K	I	K	V	V	K	N	K	V	A	P	P	F	K	E	A	F	V	E	I	M	Y	G	E	G	I	S	K	T	G	E	L	L	K	I	A	S	D	L	D	I	I	K	K	A	G	A	W	Y	S	Y	K	D	312							
NTDB id 453 Spy49 1753c ACI62003.1	VR	L	D	V	R	G	T	T	Q	I	K	G	T	G	.	D	Q	K	D	S	S	I	G	K	E	T	K	I	K	V	V	K	N	K	V	A	P	P	F	K	V	A	E	V	E	I	M	Y	G	E	G	I	S	R	T	G	E	L	V	K	I	A	S	D	L	D	I	I	Q	K	A	G	A	W	F	S	Y	N	G	312							
NTDB id 408 SMU RS09530 WP 002262392.1	VR	L	D	V	R	G	N	T	Q	I	K	G	T	G	.	E	Q	K	D	S	N	I	G	K	E	T	K	I	K	V	V	K	N	K	V	A	P	P	F	K	E	A	F	V	E	I	I	Y	G	E	G	I	S	R	T	G	E	L	V	K	I	A	S	D	L	G	I	I	Q	K	A	G	A	W	Y	S	Y	N	G	312							
NTDB id 115 BSU 16940 NP 389576.2	VR	L	E	V	R	R	A	E	Q	L	K	Q	G	N	.	.	.	.	.	.	D	M	G	N	K	T	K	I	K	V	V	K	N	K	V	A	P	P	F	R	T	A	E	V	D	I	M	Y	G	E	G	I	S	K	E	G	E	T	I	D	L	G	T	E	L	D	I	V	Q	K	S	G	S	W	Y	S	Y	E	E	293							
NTDB id 625 LCA RS02525 WP 011374196.1	VR	L	E	V	R	R	A	E	T	I	K	N	G	T	.	.	.	.	.	.	D	M	I	G	N	R	A	R	I	K	V	V	K	N	K	V	A	P	P	F	K	V	A	E	V	D	I	M	Y	G	Q	G	I	S	R	T	G	E	L	V	D	M	A	V	E	K	D	I	I	N	K	S	G	S	W	Y	S	Y	G	S	295						
NTDB id 1313 DR RS12030 WP 010888966.1	VR	L	D	V	R	K	I	G	Q	.	.	.	.	.	.	.	.	.	.	P	T	K	V	G	N	D	A	V	A	N	T	V	K	I	K	T	V	K	N	K	V	A	A	P	F	K	E	V	E	L	A	L	V	Y	G	K	G	F	D	Q	L	S	D	L	V	L	G	L	A	A	D	M	D	I	I	K	K	A	G	S	F	Y	S	Y	G	D	308
NTDB id 280863 CYPRO RS12855 WP 114984999.1	VR	V	D	I	R	R	I	G	T	.	.	.	.	.	.	.	.	.	.	I	.	K	K	S	D	E	V	V	G	N	R	T	K	V	K	I	V	K	N	K	V	A	P	P	F	R	E	V	E	F	N	I	E	Y	G	K	G	I	S	R	M	G	E	L	D	L	A	V	Q	F	D	I	I	Q	K	R	G	S	W	Y	R	Y	D	G	295		
NTDB id 1245 Cj1673c YP 002345041.1	VR	L	D	V	R	K	V	A	T	.	.	.	.	.	.	.	.	.	.	L	.	K	Q	N	E	E	P	I	G	N	R	V	K	V	K	V	K	N	K	V	A	P	P	F	R	Q	A	E	F	D	V	M	F	G	E	G	L	S	R	E	G	E	L	I	D	Y	G	V	K	L	D	I	V	D	K	S	G	A	W	F	S	Y	K	D	295		
NTDB id 1211 C694 RS00795 WP 000963128.1	VR	I	D	I	R	R	I	A	S	.	.	.	.	.	.	.	.	.	.	L	.	K	Q	N	E	Q	H	I	G	N	R	A	K	A	K	V	V	K	N	K	V	A	P	P	F	R	E	A	E	F	D	I	M	F	G	E	G	I	S	K	E	G	E	T	I	D	Y	G	V	K	L	D	I	V	D	K	S	G	A	W	L	S	Y	Q	D	297	
NTDB id 1214 NCTC11637 00359 SQJ03206.1	VR	I	D	I	R	R	I	A	A	.	.	.	.	.	.	.	.	.	.	L	.	K	Q	N	E	Q	H	I	G	N	R	A	K	A	K	V	V	K	N	K	V	A	P	P	F	R	E	A	E	F	D	I	M	F	G	E	G	I	S	K	E	G	E	T	I	D	Y	G	V	K	L	D	I	V	D	K	S	G	A	W	L	S	Y	Q	D	297	
NTDB id 1334 RAOC RS04870 WP 004918236.1	VR	I	D	I	R	R	S	L	S	D	T	G	K	I	K	D	K	S	G	E	V	I	G	N	R	T	K	V	K	V	V	K	N	K	V	A	P	P	F	K	S	A	E	F	D	I	M	Y	G	E	G	V	S	K	V	G	E	I	L	D	V	A	T	D	L	D	I	I	Q	K	S	G	S	W	F	S	Y	Q	D	308							
NTDB id 1389 A4U84 RS07560 WP 021112712.1	VR	L	D	I	R	R	C	G	V	.	.	.	.	.	.	.	.	.	.	V	.	K	D	G	D	E	I	I	G	S	E	T	K	V	K	V	V	K	N	K	V	A	P	P	F	R	E	V	Q	F	D	I	M	Y	G	E	G	I	S	R	M	N	E	L	L	I	L	A	E	A	N	G	F	I	K	K	S	G	A	W	F	S	Y	D	G	311	
NTDB id 1130 NGFG RS03960 WP 003688695.1	VR	L	D	I	R	R	T	G	S	.	.	.	.	.	.	.	.	.	.	I	.	K	K	G	E	E	V	L	G	N	E	T	R	V	K	V	I	K	N	K	V	A	P	P	F	R	Q	A	E	F	D	I	L	Y	G	E	G	I	S	W	E	G	E	L	I	D	I	G	V	K	N	D	I	I	N	K	S	G	A	W	Y	S	Y	N	G	295	
NTDB id 1124 NGFG RS03960 WP 003688695.1	VR	L	D	I	R	R	T	G	S	.	.	.	.	.	.	.	.	.	.	I	.	K	K	G	E	E	V	L	G	N	E	T	R	V	K	V	I	K	N	K	V	A	P	P	F	R	Q	A	E	F	D	I	L	Y	G	E	G	I	S	W	E	G	E	L	I	D	I	G	V	K	N	D	I	I	N	K	S	G	A	W	Y	S	Y	N	G	295	
NTDB id 1123 OK783 RS03845 WP 003688695.1	VR	L	D	I	R	R	T	G	S	.	.	.	.	.	.	.	.	.	.	I	.	K	K	G	E	E	V	L	G	N	E	T	R	V	K	V	I	K	N	K	V	A	P	P	F	R	Q	A	E	F	D	I	L	Y	G	E	G	I	S	W	E	G	E	L	I	D	I	G	V	K	N	D	I	I	N	K	S	G	A	W	Y	S	Y	N	G	295	
NTDB id 1427 RS RS02760 WP 011000510.1	VR	L	D	I	R	R	I	G	S	.	.	.	.	.	.	.	.	.	.	I	.	K	K	G	D	E	V	V	G	N	E	T	K	V	K	V	K	N	K	V	A	P	P	F	R	E	A	I	F	D	I	L	Y	G	A	G	V	S	R	E	G	E	T	I	D	L	G	V	E	A	K	V	V	E	K	S	G	A	W	Y	S	Y	N	G	303		
NTDB id 1165 A1552VC RS01565 WP 000344154.1	VR	L	D	I	R	R	T	G	A	.	.	.	.	.	.	.	.	.	.	I	.	K	E	G	E	E	V	V	G	N	E	T	R	I	K	V	V	K	N	K	I	A	A	P	F	K	E	A	N	T	Q	I	M	Y	G	Q	G	F	N	R	E	G	E	L	I	D	L	G	V	K	H	K	M	V	E	K	S	G	A	W	Y	S	Y	N	G	294	
NTDB id 1142 GTF74 RS11550 WP 000344154.1	VR	L	D	I	R	R	T	G	A	.	.	.	.	.	.	.	.	.	.	I	.	K	E	G	E	E	V	V	G	N	E	T	R	I	K	V	V	K	N	K	I	A	A	P	F	K	E	A	N	T	Q	I	M	Y	G	Q	G	F	N	R	E	G	E	L	I	D	L	G	V	K	H	K	M	V	E	K	S	G	A	W	Y	S	Y	N	G	294	
NTDB id 1022 ACIAD RS06390 WP 004925639.1	VR	L	D	I	R	R	I	G	Q	.	.	.	.	.	.	.	.	.	.	V	.	K	E	G	D	E	I	I	G	S	E	T	K	V	K	V	K	N	K	M	A	P	P	F	R	E	A	I	F	Q	I	L	Y	G	K	G	V	N	Q	L	G	E	L	V	D	L	A	V	Q	Q	N	I	V	Q	K	A	G	A	W	Y	S	Y	Q	G	294		
NTDB id 1074 ABD1 RS10195 WP 000344167.1	VR	L	D	I	R	R	I	G	Q	.	.	.	.	.	.	.	.	.	.	V	.	K	E	G	D	E	I	I	G	S	E	T	K	V	K	V	K	N	K	M	A	P	P	F	K	E	A	I	F	Q	I	L	Y	G	K	G	T	N	Q	L	G	E	L	V	D	L	A	V	Q	Q	D	I	V	Q	K	A	G	A	W	Y	S	Y	Q	G	294		
NTDB id 1205 PSJM300 05545 AFN77183.1	VR	L	D	I	R	R	T	G	A	.	.	.	.	.	.	.	.	.	.	V	.	K	E	G	D	E	V	V	G	S	E	T	R	V	K	V	K	N	K	V	A	P	P	F	R	Q	A	E	F	Q	I	L	Y	G	K	G	I	Y	R	N	G	E	T	I	D	L	G	V	Q	Q	L	V	E	K	S	G	A	W	Y	A	Y	K	G				

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 499 SM12261 RS08315 WP 078228268.1
NTDB id 527 SMSK321 RS11065 WP 001085454.1
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 280863 CYPPO RS12855 WP 114984999.1
NTDB id 1245 Cj1673c YP 002345041.1
NTDB id 1211 C694 RS00795 WP 000963128.1
NTDB id 1214 NCTC11637 00359 SQJ03206.1
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 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

[illegible]

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 499 SM12261 RS08315 WP 078228268.1	EE	384
NTDB id 527 SMSK321 RS11065 WP 001085454.1	EE	384
NTDB id 453 Spy49 1753c ACI62003.1	..	378
NTDB id 408 SMU RS09530 WP 002262392.1	..	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 280863 CYPRO RS12855 WP 114984999.1	..	359
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 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