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|---|--|---------------------|----------------------|--------------------|-------------------------------|-------------|----|
| NTDB id 600 KW2 RS01765 WP 011675413.1 | MATKKK....TNFDDITKKYGAERDKALADALALIEKD | FGKGSIMRLGER.A | ANQKVS | VSSGSLALDI | ALGAGGYPKGR | 74 | |
| NTDB id 269 KZH43 RS08665 WP 001085462.1 | .MAKKP....KKLEEISKKFGE | EREKALNDALKLIEKD | FGKGSIMRLGER | .AEQKVQVMSSGSLALDI | ALGSGGYPKGR | 73 | |
| NTDB id 228 SPD RS09265 WP 001085462.1 | .MAKKP....KKLEEISKKFGE | EREKALNDALKLIEKD | FGKGSIMRLGER | .AEQKVQVMSSGSLALDI | ALGSGGYPKGR | 73 | |
| NTDB id 194 SPR RS08825 WP 001085462.1 | .MAKKP....KKLEEISKKFGE | EREKALNDALKLIEKD | FGKGSIMRLGER | .AEQKVQVMSSGSLALDI | ALGSGGYPKGR | 73 | |
| NTDB id 159 SP RS09750 WP 001085462.1 | .MAKKP....KKLEEISKKFGE | EREKALNDALKLIEKD | FGKGSIMRLGER | .AEQKVQVMSSGSLALDI | ALGSGGYPKGR | 73 | |
| NTDB id 527 SMSK321 RS11065 WP 001085454.1 | .MAKKP....KKLDEISKKFGE | EREKALNDALKLIEKD | FGKGSIMRLGER | .AEQKVQVMSSGSLALDI | ALGSGGYPKGR | 73 | |
| NTDB id 499 SM12261 RS08315 WP 078228268.1 | .MAKKP....KKLDEISKKFGE | EREKALNDALKLIEKD | FGKGSIMRLGER | .AEQKVQVMSSGSLALDI | ALGSGGYPKGR | 73 | |
| NTDB id 453 Spy49 1753c ACI62003.1 | .MAKKL....KKNEEITKKFG | DERKALDDALKNIEKD | FGKGVMLRGER | .AEQKVQVMSSGSLALDI | ALGAGGYPKGR | 73 | |
| NTDB id 408 SMU RS09530 WP 002262392.1 | .MAKRI....KKTEEITKKFG | DERKALDDALKNIEKD | FGKGVMLRGER | .AEQKVQVMSSGSLALDI | ALGAGGYPKGR | 73 | |
| NTDB id 115 BSU 16940 NP 389576.2 |MSDRQAALDMALKQIEKQ | FGKGSIMKLG | EK.TDTRISTVPSGSLALDI | TALGIGGYPRGR | 58 | | |
| NTDB id 625 LCA RS02525 WP 011374196.1 |MAKDERQAALDAALKKIEKN | FGKGSIMRMGEK | .VDTQVSTVSSGSLALDEAL | GVGGYPRGR | 60 | | |
| NTDB id 1313 DR RS12030 WP 010888966.1 |MSKDATKEISAPTDAKERSKAT | ETAMSI | EKAFGKGSIMKLGAE | .SKLDVQVVSTGSLSLDL | ALGVGGIPRGR | 72 | |
| NTDB id 1245 Cj1673c YP 002345041.1 |MDNKRKSLDAALKS | LDKTFGKGTILRLGDK | .EVEQIDSIGTGSVGLDL | ALGIGGVPKGR | 59 | | |
| NTDB id 1214 NCTC11637 00359 SQJ03206.1 |MAIDEDKQKATISLAIKQID | KVFGKGVMLRGER | .QVEKIDAI | ISTGSLGLDL | ALGIGGVPKGR | 61 | |
| NTDB id 1211 C694 RS00795 WP 000963128.1 |MAIDEDKQKATISLAIKQID | KVFGKGVMLRGER | .QVEKIDAI | ISTGSLGLDL | ALGIGGVPKGR | 61 | |
| NTDB id 1334 RAOC RS04870 WP 004918236.1 |MAKTE..TTSPNDKKKALAAVLEK | LDKTYGKGTVMKLG | GTVDHNI | IEVIPS | SGSLGLDL | ALGVGGYPKGR | 68 |
| NTDB id 1389 A4U84 RS07560 WP 021112712.1 | .MAENKKS | SKNNTVV..KQVEPEQKKQ | ALEAALAI | QIEKQFGKGSIMKLG | QT.EQLDIESVSTGSLGLDL | ALGIGGLPMGR | 76 |
| NTDB id 1130 NGFG RS03960 WP 003688695.1 |MSDDKSKALAAALAI | QIEKSF | GKGAIMKMDGSQ | QEEENLEVISTGSLGLDL | ALGVGGLPRGR | 60 | |
| NTDB id 1124 NGFG RS03960 WP 003688695.1 |MSDDKSKALAAALAI | QIEKSF | GKGAIMKMDGSQ | QEEENLEVISTGSLGLDL | ALGVGGLPRGR | 60 | |
| NTDB id 1123 OK783 RS03845 WP 003688695.1 |MSDDKSKALAAALAI | QIEKSF | GKGAIMKMDGSQ | QEEENLEVISTGSLGLDL | ALGVGGLPRGR | 60 | |
| NTDB id 1427 RS RS02760 WP 011000510.1 | .MEDG.....KK..AASMSAEKQ | KALAAALAI | QIEKQFGKGSIMKMDA | .EVEPVQVSTGSLGLD | VALGVGGLPRGR | 68 | |
| NTDB id 1165 A1552VC RS01565 WP 000344154.1 |MDENKQKALAAALG | QIEKQFGKGSIMRLG | DN.RAMDVET | ISTGSLSLDI | ALGAGGLPMGR | 59 | |
| NTDB id 1142 GTF74 RS11550 WP 000344154.1 |MDENKQKALAAALG | QIEKQFGKGSIMRLG | DN.RAMDVET | ISTGSLSLDI | ALGAGGLPMGR | 59 | |
| NTDB id 1022 ACIAD RS06390 WP 004925639.1 |MDDNKSKALQAALS | QIEKQFGKNTVMRLG | DN.TVQAVEAVSTGSL | TLDI | ALGIGGLPKGR | 59 | |
| NTDB id 1074 ABD1 RS10195 WP 000344167.1 |MDENKSKALQAALS | QIEKQFGKNTVMRLG | DN.TVQAVEAVSTGSL | TLDI | ALGIGGLPKGR | 59 | |
| NTDB id 385264 FOQ09 RS02050 WP 182375354.1 |MDDNKRRALAAALG | QIERQFGKGVMLR | GDH.ERQGI | PAISTGSLGLDI | ALGIGGLPKGR | 59 | |
| NTDB id 1205 PSJM300 05545 AFN77183.1 |MDENKRRALAAALG | QIEKQFGKGVMLR | GDH.DRQAIPS | ISTGSLGLDI | ALGIGGLPKGR | 59 | |
| consensus | *** ** * | **** | ***** | ***** | * ****!!*!!*!!*!!*!!*!!*!!*!! | | |

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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 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 | 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 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 | V | M | . | F | G | N | P | E | T | T | P | G | G | R | A | L | K | F | Y | S | . | 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 | E | 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 | V | M | . | F | G | N | P | E | V | T | P | G | G | R | A | L | K | F | Y | S | . | 219 |
| 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 | Q | L | 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 | G | Y | G | T | P | E | T | T | T | G | G | N | A | L | K | F | Y | A | . | 219 |
| NTDB id 1214 NCTC11637 00359 SQJ03206.1 | V | V | V | D | S | V | A | A | L | T | P | K | A | E | I | D | G | D | 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 | G | Y | G | S | P | E | T | T | T | G | G | N | A | L | K | F | Y | A | . | 221 | |
| 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 | D | 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 | G | 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 | D | 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 | 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 | 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 | 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 | E | M | G | D | A | L | P | Q | L | 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 | E | 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 RS11550 WP 000344154.1 | I | V | V | D | S | V | A | A | L | T | P | K | A | E | I | E | G | E | 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 1022 ACIAD RS06390 WP 004925639.1 | I | V | V | D | S | V | A | A | L | T | P | K | A | E | I | E | G | E | M | G | D | S | H | M | G | L | Q | A | R | L | M | S | Q | A | L | R | K | I | T | G | N | A | K | R | S | N | C | M | 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 | . | 218 |
| NTDB id 1074 ABD1 RS10195 WP 000344167.1 | I | V | V | D | S | V | A | A | L | T | P | K | A | E | I | E | G | E | M | G | D | S | H | M | G | L | Q | A | R | L | M | S | Q | A | L | R | K | I | T | G | N | A | K | R | S | N | C | M | 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 | . | 218 |
| NTDB id 385264 FOQ09 RS02050 WP 182375354.1 | I | I | V | D | S | V | A | A | L | V | P | K | A | E | I | E | G | E | M | G | D | M | H | V | G | L | Q | A | R | L | M | S | Q | A | L | R | K | I | T | G | N | I | K | N | A | 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 | . | 218 |
| NTDB id 1205 PSJM300 05545 AFN77183.1 | I | I | V | D | S | V | A | A | L | V | P | K | A | E | I | E | G | E | M | G | D | A | H | V | G | L | Q | A | R | L | M | S | Q | A | L | R | K | I | T | G | N | I | K | N | A | N | C | L | V | I | F | I | N | Q | I | R | M | K | I | G | V | M | . | F | G | S | P | E | T | | | | | | | | | | | | | |

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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 |
| 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 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 385264 FOQ09 RS02050 WP 182375354.1 | ... | 356 |
| NTDB id 1205 PSJM300 05545 AFN77183.1 | ... | 347 |

consensus

 non conserved
 similar
 ≥ 50% conserved