

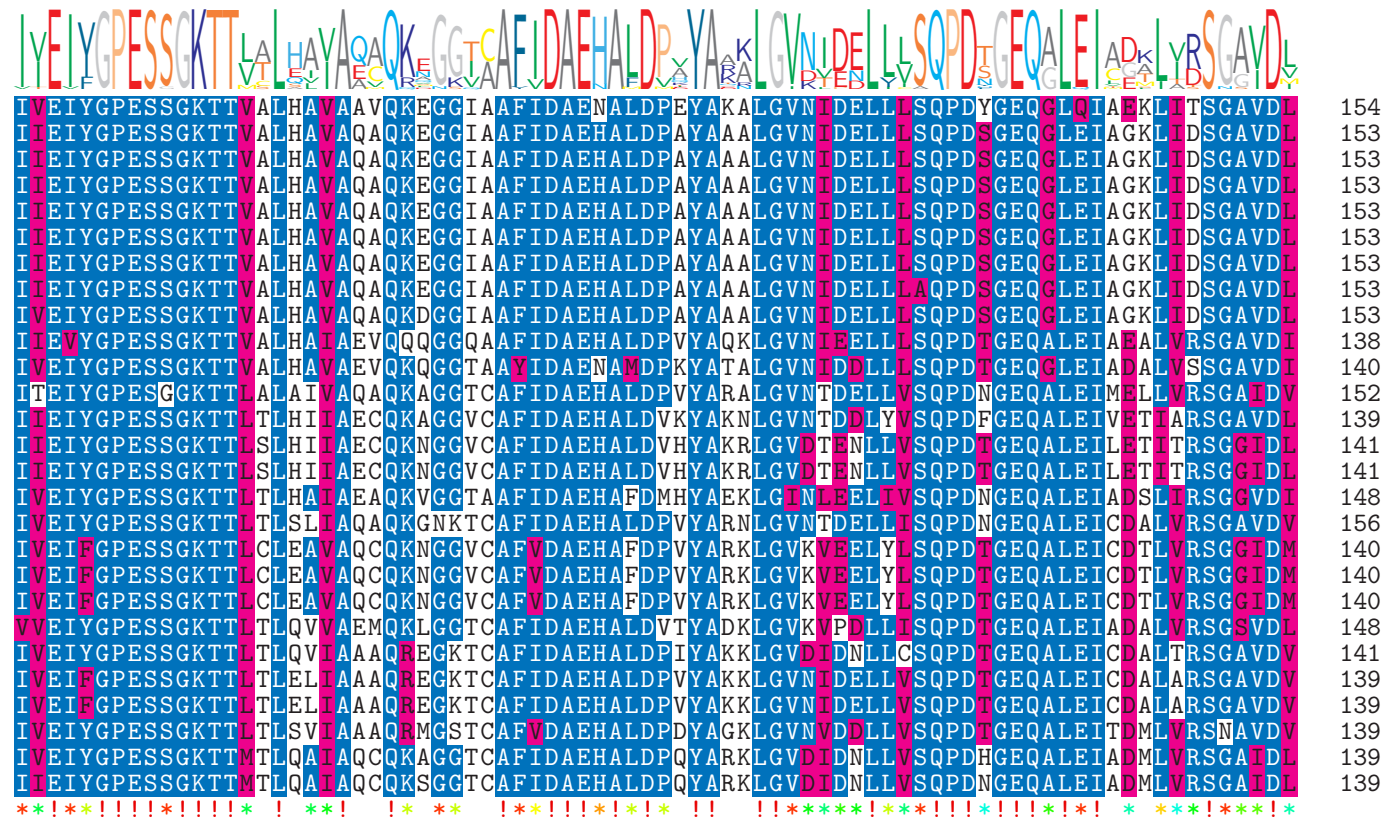
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| NTDB id 600 KW2 RS01765 WP 011675413.1      | MATKKK....TNFDDITKKYGAERDKALADALALIEKD FGKGSIMRLGEA.ANQKVSVVSSGSLALDIALGAGGYPKGR | 74 |
| NTDB id 269 KZH43 RS08665 WP 001085462.1    | .MAKKP....KKLEEISKKFGAEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGR | 73 |
| NTDB id 228 SPD RS09265 WP 001085462.1      | .MAKKP....KKLEEISKKFGAEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGR | 73 |
| NTDB id 194 SPR RS08825 WP 001085462.1      | .MAKKP....KKLEEISKKFGAEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGR | 73 |
| NTDB id 159 SP RS09750 WP 001085462.1       | .MAKKP....KKLEEISKKFGAEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGR | 73 |
| NTDB id 527 SMSK321 RS11065 WP 001085454.1  | .MAKKP....KKLDEISKKFGAEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGR | 73 |
| NTDB id 499 SM12261 RS08315 WP 078228268.1  | .MAKKP....KKLDEISKKFGAEREKALNDALKLIEKD FGKGSIMRLGER.AEQKVQVMSSGSLALDIALGSGGYPKGR | 73 |
| NTDB id 453 Spy49 1753c ACI62003.1          | .MAKKL....KKNEEITKKFGDERRKALDDALKNIEKD FGKGAVMRLGER.AEQKVQVMSSGSLALDIALGAGGYPKGR | 73 |
| NTDB id 408 SMU RS09530 WP 002262392.1      | .MAKRI....KKTEEITKKFGDERKKALDDALKNIEKD FGKGAVMRLGER.AEQKVQVMSSGSLALDIALGAGGYPKGR | 73 |
| NTDB id 115 BSU 16940 NP 389576.2           | .....MSDRQAALDMALKQIEKQFGKGSIMKLGEK.TDTRISTVPSGSLALDTALGIGGYPRGR                 | 58 |
| NTDB id 625 LCA RS02525 WP 011374196.1      | .....MAKDERQAALDAALKKIEKNFGKGSIMRMGEK.VDTQVSTVSSGSLALDEALGVGGYPRGR               | 60 |
| NTDB id 1313 DR RS12030 WP 010888966.1      | .....MSKDATKEISAPTDAKERSKATETAMSQIEKAFGKGSIMKLGAE.SKLDVQVVSTGSLSLDLALGVGGIPRGR   | 72 |
| NTDB id 1245 Cj1673c YP 002345041.1         | .....MDDNKRKSLDAALKSLDKT FGKGTILRLGDK.EVEQIDSIGTGSVGLDLALGIGGVPRGR               | 59 |
| NTDB id 1214 NCTC11637 00359 SQJ03206.1     | .....MAIDEDKQKAIISLAIKQIDKVF GKGA LVRLGDK.QVEKIDAISTGSLGLDLALGIGGVPRGR           | 61 |
| NTDB id 1211 C694 RS00795 WP 000963128.1    | .....MAIDEDKQKAIISLAIKQIDKVF GKGA LVRLGDK.QVEKIDSISTGSLGLDLALGIGGVPRGR           | 61 |
| NTDB id 1334 RAOC RS04870 WP 004918236.1    | .....MAKT..ETTSNPDDKKKALAAVLEKLDKT YGKGTVMKLGDTVDHNIEVIPSGSLGLDLALGVGGYPKGR      | 68 |
| NTDB id 1389 A4U84 RS07560 WP 021112712.1   | .MAENKKSSKNNTV..VKQVEPEQKKQALEAALAQIEKQFGKGSIMKLGQT.EQLDIESVSTGSLGLDLALGIGGLPMGR | 76 |
| NTDB id 1130 NGFG RS03960 WP 003688695.1    | .....MSDDKSKALAAALAQIEKSFGKGAIMKMDGSQREENLEVISTGSLGLDLALGVGGLPRGR                | 60 |
| NTDB id 1124 NGFG RS03960 WP 003688695.1    | .....MSDDKSKALAAALAQIEKSFGKGAIMKMDGSQREENLEVISTGSLGLDLALGVGGLPRGR                | 60 |
| NTDB id 1123 OK783 RS03845 WP 003688695.1   | .....MSDDKSKALAAALAQIEKSFGKGAIMKMDGSQREENLEVISTGSLGLDLALGVGGLPRGR                | 60 |
| NTDB id 1427 RS RS02760 WP 011000510.1      | .MED.....GK..KAASMSAEKQKALAAALAQIEKQFGKGSIMKMGDA.EVEPVQVVSTGSLGLDVALGVGGLPRGR    | 68 |
| NTDB id 326823 EG053 RS18905 WP 020825281.1 | .....MAIDENKQKALAAALGQIEKQFGKGSIMRLGED.RSMDVETISTGSLSLDIALGAGGLPMGR              | 61 |
| NTDB id 1165 A1552VC RS01565 WP 000344154.1 | .....MDENKQKALAAALGQIEKQFGKGSIMRLGDN.RAMDVETISTGSLSLDIALGAGGLPMGR                | 59 |
| NTDB id 1142 GTF74 RS11550 WP 000344154.1   | .....MDENKQKALAAALGQIEKQFGKGSIMRLGDN.RAMDVETISTGSLSLDIALGAGGLPMGR                | 59 |
| NTDB id 1205 PSJM300 05545 AFN77183.1       | .....MDENKKRALAAALGQIEKQFGKGAVMRMGDH.DRQAIPSIISTGSLGLDIALGIGGLPKGR               | 59 |
| NTDB id 1022 ACIAD RS06390 WP 004925639.1   | .....MDDNKSKALQAALSQIEKQFGKNTVMRLGDN.TVQAVEAVSTGSLTLDIALGIGGLPKGR                | 59 |
| NTDB id 1074 ABD1 RS10195 WP 000344167.1    | .....MDENKSKALQAALSQIEKQFGKNTVMRLGDN.TVQAVEAVSTGSLTLDIALGIGGLPKGR                | 59 |
| consensus                                   | *** **                                                                           |    |

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NTDB id 228 SPD RS09265 WP 001085462.1
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NTDB id 159 SP RS09750 WP 001085462.1
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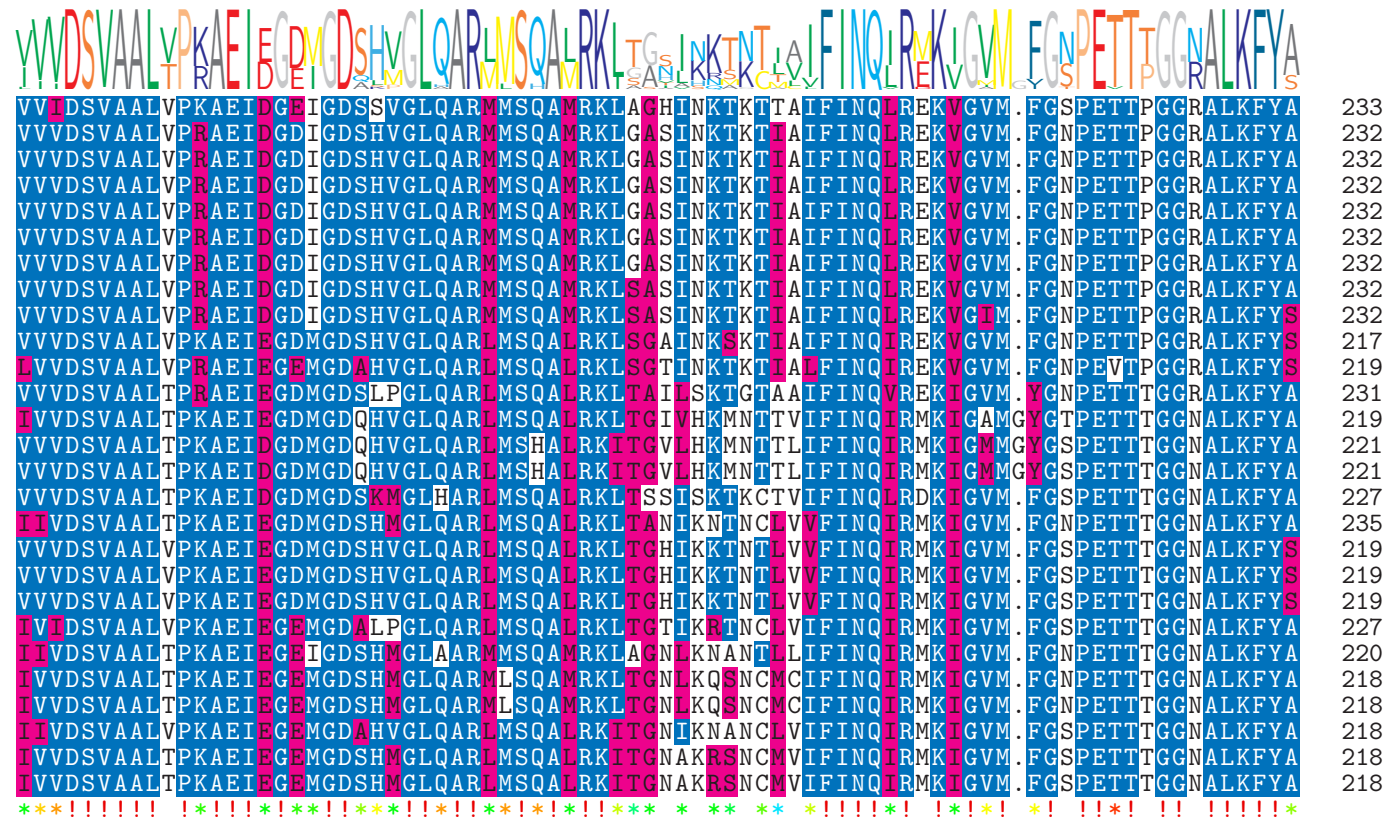
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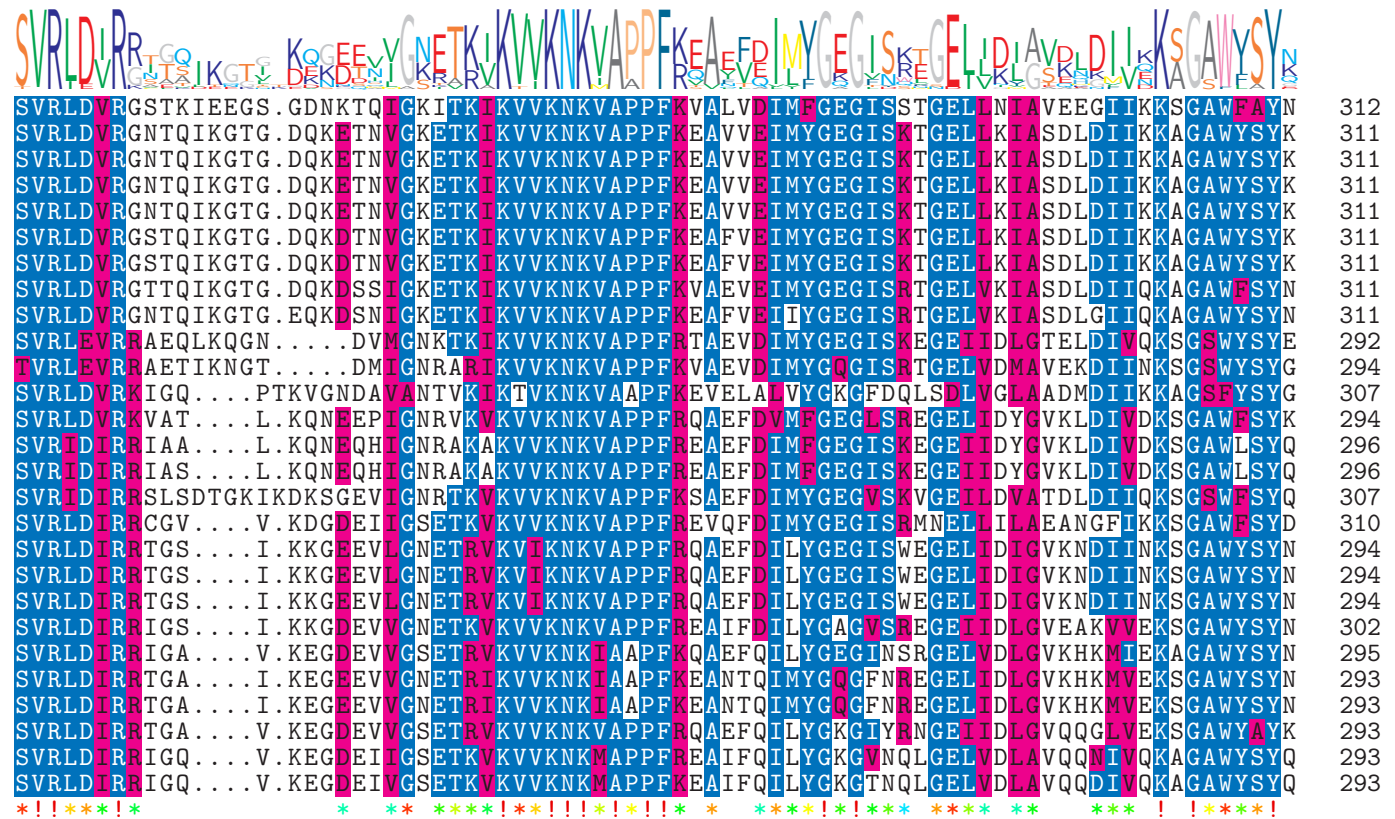
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consensus

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|---------------------------------------------|----------|----------------|----------------|-----------------|----------------------------------|----------------------|-----|
| NTDB id 600 KW2 RS01765 WP 011675413.1      | DEKIGQGA | EKAKNYLKEHQDV  | DEIDHKVRAAHG   | LDDSEVAETEEET   | .TASKTKAKAKKEEKAVETEEIELELED.... | 387                  |     |
| NTDB id 269 KZH43 RS08665 WP 001085462.1    | DEKIGQGS | ENAKKYLAEHPEIF | DEIDKQVRSKFGL  | IDGEEVSEQDTEN   | .KKDE....PKKEEA..VNEEVPLDLGDELEI | 384                  |     |
| NTDB id 228 SPD RS09265 WP 001085462.1      | DEKIGQGS | ENAKKYLAEHPEIF | DEIDKQVRSKFGL  | IDGEEVSEQDTEN   | .KKDE....PKKEEA..VNEEVPLDLGDELEI | 384                  |     |
| NTDB id 194 SPR RS08825 WP 001085462.1      | DEKIGQGS | ENAKKYLAEHPEIF | DEIDKQVRSKFGL  | IDGEEVSEQDTEN   | .KKDE....PKKEEA..VNEEVPLDLGDELEI | 384                  |     |
| NTDB id 159 SP RS09750 WP 001085462.1       | DEKIGQGS | ENAKKYLAEHPEIF | DEIDKQVRSKFGL  | IDGEEVSEQDTEN   | .KKDE....PKKEEA..VNEEVPLDLGDELEI | 384                  |     |
| NTDB id 527 SMSK321 RS11065 WP 001085454.1  | DEKIGQGS | ENAKKYLADNPEV  | FAEIDHQVRVQFGL | IDGEEAAE....S   | .KKDE....VAQVDS..VNEEVTLDLGDELEI | 380                  |     |
| NTDB id 499 SM12261 RS08315 WP 078228268.1  | DEKIGQGS | ENAKKYLADNPEIF | DEIDHQVRVQFGL  | IDGEEIAE....S   | .KKDE....AAQVDS..VNEEVTLDLGDELEI | 380                  |     |
| NTDB id 453 Spy49 1753c ACI62003.1          | GEKIGQGS | ENAKRYLADHPQLF | DEIDRKVRVKFGL  | LEESEEEESAMAVA  | .SE.....E.....TDDLALDLNGIEI      | 376                  |     |
| NTDB id 408 SMU RS09530 WP 002262392.1      | GEKIGQGS | ENAKKFLADNPEIF | DDIDHKVRVQYGL  | IEEDNTEEKQSSK   | .EK.....ETDEK..ADKNLVLELDDTIEL   | 381                  |     |
| NTDB id 115 BSU 16940 NP 389576.2           | EERLGGG  | RENAKQFLKENK   | DIIMLIQEIQ     | IREHYGLDNNGVVQQ | QAET.QEEL.EFE.E.....             | 348                  |     |
| NTDB id 625 LCA RS02525 WP 011374196.1      | SERIGQG  | RENAKNYLADHED  | VEDEVRLKVR     | AAYGISDVPEEDLPT | TED.E.QI.NILPDDST.....EE.....    | 355                  |     |
| NTDB id 1313 DR RS12030 WP 010888966.1      | DERIGQG  | KEKTIAYIAER    | PEMEQEIRDRV    | MAAIRAGNAGEA    | PALAPAPAAPEAAEA.....             | 363                  |     |
| NTDB id 1245 Cj1673c YP 002345041.1         | DKKLGGG  | RENSKAF        | LKENPEIADEIT   | KAIQNSMCI       | EGMISGS..EDDEGEE.....            | 343                  |     |
| NTDB id 1214 NCTC11637 00359 SQJ03206.1     | DKKLGGG  | RENAKALLKED    | KALADEITLKI    | KESIGSNEEIMPL   | .PDEPLEEME.....                  | 347                  |     |
| NTDB id 1211 C694 RS00795 WP 000963128.1    | DKKLGGG  | RENAKALLKED    | KALADEITLKI    | KESIGSNEEIMPL   | .PDEPLEEME.....                  | 347                  |     |
| NTDB id 1334 RAOC RS04870 WP 004918236.1    | DTKLGGG  | RDITVKELIK     | DNPELAELEAK    | IREKLQAK.....   |                                  | 343                  |     |
| NTDB id 1389 A4U84 RS07560 WP 021112712.1   | GTKIGQG  | KNNAVKWLKEN    | PEIADKLEQEIR   | NTLASNPNSVLK..  | ATASDSNDESDVEEFS.....EEEL.....   | 372                  |     |
| NTDB id 1130 NGFG RS03960 WP 003688695.1    | GAKIGQG  | KDNVRVWLKEN    | PEISDEIDAKIR   | ALNGVEMHITEG..  | T.....QDETGERP.....EE.....       | 348                  |     |
| NTDB id 1124 NGFG RS03960 WP 003688695.1    | GAKIGQG  | KDNVRVWLKEN    | PEISDEIDAKIR   | ALNGVEMHITEG..  | T.....QDETGERP.....EE.....       | 348                  |     |
| NTDB id 1123 OK783 RS03845 WP 003688695.1   | GAKIGQG  | KDNVRVWLKEN    | PEISDEIDAKIR   | ALNGVEMHITEG..  | T.....QDETGERP.....EE.....       | 348                  |     |
| NTDB id 1427 RS RS02760 WP 011000510.1      | GERIGQG  | RDNCREF        | LRENAELAREI    | ENKVRHLGVTPM    | GAVT..L.AEEVEED.....             | 352                  |     |
| NTDB id 326823 EG053 RS18905 WP 020825281.1 | GDKIGQG  | KANACNFLKEN    | PAVAAELDKKL    | RDLLHSNGELVA..  | ATDEGFDDDEA...ETS.....EEF.....   | 353                  |     |
| NTDB id 1165 A1552VC RS01565 WP 000344154.1 | GDKIGQG  | KANACKY        | LKENPEIAKTLD   | KKLREMLLN       | PENMQLI..AETSSAADV               | VEFGAVP.....EEF..... | 354 |
| NTDB id 1142 GTF74 RS11550 WP 000344154.1   | GDKIGQG  | KANACKY        | LKENPEIAKTLD   | KKLREMLLN       | PENMQLI..AETSSAADV               | VEFGAVP.....EEF..... | 354 |
| NTDB id 1205 PSJM300 05545 AFN77183.1       | GSKIGQG  | KANAAYLEEN     | PEIGQIEEQ      | IRAKLLVTSANT    | KA..TPVAEDLADADI.....            |                      | 347 |
| NTDB id 1022 ACIAD RS06390 WP 004925639.1   | GNKIGQG  | KNNVIRY        | LEENPQISTE     | IEAVIREQLLT     | KASDQTA..A.HDETEEE               | PDLLLES.....         | 349 |
| NTDB id 1074 ABD1 RS10195 WP 000344167.1    | GNKIGQG  | KNNVIRY        | FEENNQIAEEI    | ERNIREQLLT      | TGTNGAV..Q.I.EDEEE               | PDLLLES.....         | 349 |
| consensus                                   | **!!!!   | *****          | **             | *****           | *****                            | **                   | *   |

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|---------------------------------------------|------|-----|
| NTDB id 600 KW2 RS01765 WP 011675413.1      | .... | 387 |
| NTDB id 269 KZH43 RS08665 WP 001085462.1    | EIEE | 388 |
| NTDB id 228 SPD RS09265 WP 001085462.1      | EIEE | 388 |
| NTDB id 194 SPR RS08825 WP 001085462.1      | EIEE | 388 |
| NTDB id 159 SP RS09750 WP 001085462.1       | EIEE | 388 |
| NTDB id 527 SMSK321 RS11065 WP 001085454.1  | EIEE | 384 |
| NTDB id 499 SM12261 RS08315 WP 078228268.1  | EIEE | 384 |
| NTDB id 453 Spy49 1753c ACI62003.1          | ED.. | 378 |
| NTDB id 408 SMU RS09530 WP 002262392.1      | ED.. | 383 |
| NTDB id 115 BSU 16940 NP 389576.2           | .... | 348 |
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| NTDB id 1022 ACIAD RS06390 WP 004925639.1   | .... | 349 |
| NTDB id 1074 ABD1 RS10195 WP 000344167.1    | .... | 349 |

consensus

 non conserved  
 similar  
 ≥ 50% conserved