

logo

|                |           |                |                |                                                                                   |    |
|----------------|-----------|----------------|----------------|-----------------------------------------------------------------------------------|----|
| NTDB id 1159   | ABDM36    | RS04765        | WP 001166105.1 | .....MEALIEKIKYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDSSTEKDVKKEEKEEPV..... | 0  |
| NTDB id 1150   | A1552VC   | RS08580        | WP 001166105.1 | .....                                                                             | 0  |
| NTDB id 1395   | DSB67     | RS04445        | WP 010649155.1 | .....                                                                             | 0  |
| NTDB id 1362   | HI 1008   | AAC22669.1     |                | .....                                                                             | 0  |
| NTDB id 1382   | A4U84     | RS07375        | WP 062924234.1 | .....                                                                             | 0  |
| NTDB id 595    | KW2       | RS08725        | WP 021037687.1 | .....MEKILDKLKEYWKIM.LLVVCALIAGGIFYIFTNSPKPAETLSVEN....LSSS...STKSSVSKFNSSSSEK    | 65 |
| NTDB id 521    | SMSK321   | RS04960        | WP 000443804.1 | .....MESIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPHTPVKETNLQAE...VVAISKDSSTEKDVKKEEKEEPV    | 69 |
| NTDB id 493    | SM12261   | RS04300        | WP 000387351.1 | .....MEAIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDSVSEKEVNKKEEKEEPL   | 69 |
| NTDB id 263    | KZH43     | RS04195        | WP 000387330.1 | .....MEAIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLVSEKEVNKKEEKEEPL   | 69 |
| NTDB id 222    | SPD       | RS04535        | WP 000387330.1 | .....MEAIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLVSEKEVNKKEEKEEPL   | 69 |
| NTDB id 188    | SPR       | RS04295        | WP 000387330.1 | .....MEAIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLVSEKEVNKKEEKEEPL   | 69 |
| NTDB id 153    | SP        | RS04730        | WP 000387344.1 | .....MEAIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDSSTEKEVNKKEEKEEPL   | 69 |
| NTDB id 1069   | ABD1      | RS03060        | WP 043960841.1 | .....                                                                             | 0  |
| NTDB id 1041   | HON27     | RS14740        | WP 005124713.1 | .....                                                                             | 0  |
| NTDB id 36     | MW        | RS08230        | WP 001793467.1 | MVLLYQFLLRYKDFLTQWKLYIISAVVLMVLI GFIFWRQDDYTSRNFENKDNALKQSTSENSSLSKVEDVQVKDGDNSK  | 80 |
| NTDB id 20     | SA        | RS08005        | WP 001802022.1 | MVLLYQFLLRYKDFLTQWKLYIISAVVLMVLI GFIFWRQDDYTSRNFENKDTALKQSTSENSSLSKLEDVQVKDGDNSK  | 80 |
| NTDB id 105    | BSU 25590 | NP 390437.1    |                | .....MNWLNQHKKAIILAASAAVFTAIMIFLATG...KNKE...PVKQAVPTE...TENTVVVKQEANNDE          | 57 |
| NTDB id 1014   | ACIAD     | RS13855        | WP 004924483.1 | .....                                                                             | 0  |
| NTDB id 1127   | NGFG      | RS10560        | WP 003703428.1 | .....MSRGG                                                                        | 5  |
| NTDB id 1126   | NGFG      | RS09375        | WP 003703428.1 | .....MSRGG                                                                        | 5  |
| NTDB id 1125   | NGFG      | RS07215        | WP 003703428.1 | .....MSRGG                                                                        | 5  |
| NTDB id 1108   | NGFG      | RS06525        | WP 003703428.1 | .....MSRGG                                                                        | 5  |
| NTDB id 104849 | R8945     | RS00060        | WP 002855574.1 | .....                                                                             | 0  |
| NTDB id 1242   | Cj0011c   | YP 002343483.1 |                | .....                                                                             | 0  |
| consensus      |           |                |                | .....                                                                             | 0  |

logo

|                |           |                |                |                                                                                                           |     |
|----------------|-----------|----------------|----------------|-----------------------------------------------------------------------------------------------------------|-----|
| NTDB id 1159   | ABDM36    | RS04765        | WP 001166105.1 | .....EQDLITVDYKGA VKSPG Y L L T Y S R P N K V L F C M L E .....AAGLTESADSKSLNLAQKVSDEALVYVP TKGE EAY      | 33  |
| NTDB id 1150   | A1552VC   | RS08580        | WP 001166105.1 | .....MQIKT.KIVTFLFSLCLPTLPLLANA EETAPAAQ.....                                                             | 33  |
| NTDB id 1395   | DSB67     | RS04445        | WP 010649155.1 | .....MKWMLTLCLLILAPMSWAE.TKTKAD.....                                                                      | 25  |
| NTDB id 1362   | HI 1008   | AAC22669.1     |                | .....MKT.L.FTSVVL CGALVSSSF AEEKATXQTAQSVV.....TTQA.....                                                  | 38  |
| NTDB id 1382   | A4U84     | RS07375        | WP 062924234.1 | .....MKK.LSRYTFSLLFG.LFSATTFAEEKVTTSTEHTPV.....VMQQ.....                                                  | 39  |
| NTDB id 595    | KW2       | RS08725        | WP 021037687.1 | NKNEIMVDLKGAVAKPNVYQISSDERLVDL.....RQAGGFTDQADQKSINLSAKLKDEEVIYVPKVGESS                                   | 133 |
| NTDB id 521    | SMSK321   | RS04960        | WP 000443804.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEE SA                                 | 137 |
| NTDB id 493    | SM12261   | RS04300        | WP 000387351.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEEAA                                  | 137 |
| NTDB id 263    | KZH43     | RS04195        | WP 000387330.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEEAV                                  | 137 |
| NTDB id 222    | SPD       | RS04535        | WP 000387330.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEEAV                                  | 137 |
| NTDB id 188    | SPR       | RS04295        | WP 000387330.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEEAV                                  | 137 |
| NTDB id 153    | SP        | RS04730        | WP 000387344.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEEAV                                  | 137 |
| NTDB id 1069   | ABD1      | RS03060        | WP 043960841.1 | .....MQYSMRFWKN...K.YFV L I M L C L G V I S P S V C A Q S F D Q N F Q E W K V K Q M . . Y D Q K . . . . . | 49  |
| NTDB id 1041   | HON27     | RS14740        | WP 005124713.1 | .....MQYSMRFWKN...K.YF L I M L C L G V I S P S V C A Q S F D Q N F Q E W K A K Q M . . Y D Q K . . . . .  | 49  |
| NTDB id 36     | MW        | RS08230        | WP 001793467.1 | NKGPVYVDVKGAVKHPNVYKMTSKDRVVD.LL.....DKAQLLEDADVSRINLSEKLT DQKMIFIPHKGQKNV                                | 147 |
| NTDB id 20     | SA        | RS08005        | WP 001802022.1 | NKGPVYVDVKGAVKHPNVYKMTSKDRVVD.LL.....DKAQLLEDADVSRINLSEKLT DQKMIFIPHKGQKNV                                | 147 |
| NTDB id 105    | BSU 25590 | NP 390437.1    |                | SNETIVIDIKGAVQHPGVYEM.RTGDRVS.....QAI...EKAGGTSEQADEAQVNLA EILQDGTVVYIPKKGEETA                            | 125 |
| NTDB id 1014   | ACIAD     | RS13855        | WP 004924483.1 | .....MSIRHFFT...FFWAT.....LLTLFSMQI...VFAQQGFDQYD AW.....KTQQKAHDTR                                       | 45  |
| NTDB id 1127   | NGFG      | RS10560        | WP 003703428.1 | ATPYRFL LIRHIVARCGLLFATLKGKTMKKMFVLF CMLF.....                                                            | 44  |
| NTDB id 1126   | NGFG      | RS09375        | WP 003703428.1 | ATPYRFL LIRHIVARCGLLFATLKGKTMKKMFVLF CMLF.....                                                            | 44  |
| NTDB id 1125   | NGFG      | RS07215        | WP 003703428.1 | ATPYRFL LIRHIVARCGLLFATLKGKTMKKMFVLF CMLF.....                                                            | 44  |
| NTDB id 1108   | NGFG      | RS06525        | WP 003703428.1 | ATPYRFL LIRHIVARCGLLFATLKGKTMKKMFVLF CMLF.....                                                            | 44  |
| NTDB id 104849 | R8945     | RS00060        | WP 002855574.1 | .....MKKL LFLF..FA.....                                                                                   | 10  |
| NTDB id 1242   | Cj0011c   | YP 002343483.1 |                | .....MKKL LFLF..FA.....                                                                                   | 10  |
| consensus      |           |                |                | .....                                                                                                     | 10  |

logo

|                |           |                |                                 |                                         |                           |                          |            |             |              |              |                  |                         |
|----------------|-----------|----------------|---------------------------------|-----------------------------------------|---------------------------|--------------------------|------------|-------------|--------------|--------------|------------------|-------------------------|
| NTDB id 1159   | ABDM36    | RS04765        | WP 001166105.1                  | .....VEEGIVITVNINTASAEELATLLKGI         | GLKKAQAI                  | VDYREANGP                | FTH        | IDDLTNVKGIG | EATVR        | 95           |                  |                         |
| NTDB id 1150   | A1552VC   | RS08580        | WP 001166105.1                  | .....VEEGIVITVNINTASAEELATLLKGI         | GLKKAQAI                  | VDYREANGP                | FTH        | IDDLTNVKGIG | EATVR        | 95           |                  |                         |
| NTDB id 1395   | DSB67     | RS04445        | WP 010649155.1                  | .....KYEGIEITVNVNSATAQEIATLLIGI         | GEKKAQD                   | IVEYRNEHG                | PFKTAADL   | TKVKGIG     | EATVR        | 87           |                  |                         |
| NTDB id 1362   | HI 1008   | AAC22669.1     | .....EAQVAPAVVSDKLNINTATASEIQKS | LTGIGAKKA                               | EAI                       | VQYREKHG                 | NFXNAE     | QQLLEVQ     | GIGKATLE     | 104          |                  |                         |
| NTDB id 1382   | A4U84     | RS07375        | WP 062924234.1                  | .....VAATQKVNANVVNINTATASEIQDK          | LVGIGAKKAQAI              | IVEYREKNGK               | FLNVEQLTEV | SGIGKATLE   |              | 104          |                  |                         |
| NTDB id 595    | KW2       | RS08725        | WP 021037687.1                  | SESTDSPTG...SSVSNQISTTSGPKVNIN          | KADLTTELQK.LTGIGQKKAQD    | I                        | DFRMKNGD   | FKSIEDL     | GLKVS        | SGFGDKTLE    | 209              |                         |
| NTDB id 521    | SMSK321   | RS04960        | WP 000443804.1                  | SQHTGSGAP.....SSTS                      | SKDKKINLN                 | NKASLEELKQ.VKGLGGKRAQD   | I          | IDHREANG    | KFKSVDEL     | KKVSGIGAKTIE | 207              |                         |
| NTDB id 493    | SM12261   | RS04300        | WP 000387351.1                  | SQQAGPGTA.....SSTS                      | KEKKVNLN                  | NKASLEELKQ.VKGLGGKRAQD   | I          | IDHREANG    | KFKSVDEL     | KKVSGIGAKTIE | 207              |                         |
| NTDB id 263    | KZH43     | RS04195        | WP 000387330.1                  | SQQTGLGTA.....SSISKEKKVNLN              | KASLEELKQ.VKGLGGKRAQD     | I                        | IDHREANG   | KFKSVDEL    | KKVSGIGGKTIE | 207          |                  |                         |
| NTDB id 222    | SPD       | RS04535        | WP 000387330.1                  | SQQTGLGTA.....SSISKEKKVNLN              | KASLEELKQ.VKGLGGKRAQD     | I                        | IDHREANG   | KFKSVDEL    | KKVSGIGGKTIE | 207          |                  |                         |
| NTDB id 188    | SPR       | RS04295        | WP 000387330.1                  | SQQTGLGTA.....SSISKEKKVNLN              | KASLEELKQ.VKGLGGKRAQD     | I                        | IDHREANG   | KFKSVDEL    | KKVSGIGGKTIE | 207          |                  |                         |
| NTDB id 153    | SP        | RS04730        | WP 000387344.1                  | SQQTGSGTA.....SSTS                      | KEKKVNLN                  | NKASLEELKQ.VKGLGGKRAQD   | I          | IDHREANG    | KFKSVDEL     | KKVSGIGGKTIE | 207              |                         |
| NTDB id 1069   | ABD1      | RS03060        | WP 043960841.1                  | LNISKSSHSNSSKISQTKNFNDSTGQ              | IHLNQANVNE                | FQQ.LKGIGEKKAQAI         | IVEYRQKNGS | FKNIDEI     | KNVKGIG      | PAIFE        | 128              |                         |
| NTDB id 1041   | HON27     | RS14740        | WP 005124713.1                  | LNITKSSHSNGSKISQTKNFNDSTGQ              | IHLNQANVNE                | FQQ.LKGIGEKKAQAI         | IVEYRQKNGS | FKNIDEI     | KNVKGIG      | PAIFE        | 128              |                         |
| NTDB id 36     | MW        | RS08230        | WP 001793467.1                  | EP....QIGVNS..VHVKNGNTNNTK              | VNLNTASVSELMS.VPGVGQAKANA | IVEYRNQ                  | QGAFQE     | IDDLK       | KKVKG        | FGSKTFD      | 220              |                         |
| NTDB id 20     | SA        | RS08005        | WP 001802022.1                  | EP....QIEVNS..VHVKNGNTNNTK              | VNLNTASVSELMS.VPGVGQAKANA | IVEYRNQ                  | QGAFQE     | IDDLK       | KKVKG        | FGSKTFD      | 220              |                         |
| NTDB id 105    | BSU 25590 | NP 390437.1    |                                 | V....QQGGGGS..V..QSDGGKGALVNINTATLEELQG | .ISGVGPSKAE               | EAI                      | IAYREENGR  | FQTI        | EDIT         | KVSGIG       | EKSFE            | 196                     |
| NTDB id 1014   | ACIAD     | RS13855        | WP 004924483.1                  | LNSSASHHSLSK..P..TQQSGTG                | VKNINSAT                  | AKELQQ.LHGVGEKKALAI      | IVEYRQYQ   | GKFASVDDL   | QKVKGIG      | PKFIE        | 120              |                         |
| NTDB id 1127   | NGFG      | RS10560        | WP 003703428.1                  | .....SCAFSLAAVNINAASQQE                 | LEA.LPGIGPAKAKAIAEYRAQ    | NGAFKSVDDL               | IKVKGIG    | PAVLA       |              | 105          |                  |                         |
| NTDB id 1126   | NGFG      | RS09375        | WP 003703428.1                  | .....SCAFSLAAVNINAASQQE                 | LEA.LPGIGPAKAKAIAEYRAQ    | NGAFKSVDDL               | IKVKGIG    | PAVLA       |              | 105          |                  |                         |
| NTDB id 1125   | NGFG      | RS07215        | WP 003703428.1                  | .....SCAFSLAAVNINAASQQE                 | LEA.LPGIGPAKAKAIAEYRAQ    | NGAFKSVDDL               | IKVKGIG    | PAVLA       |              | 105          |                  |                         |
| NTDB id 1108   | NGFG      | RS06525        | WP 003703428.1                  | .....SCAFSLAAVNINAASQQE                 | LEA.LPGIGPAKAKAIAEYRAQ    | NGAFKSVDDL               | IKVKGIG    | PAVLA       |              | 105          |                  |                         |
| NTDB id 104849 | R8945     | RS00060        | WP 002855574.1                  | .....LTAFLFGA                           | VNINTATL                  | KELKS.LNGIGEAKAKAILEYRKE | .ANFTS     | IDDLK       | KKVKGIG      | DKLFE        | 70               |                         |
| NTDB id 1242   | Cj0011c   | YP 002343483.1 |                                 | .....LTAFLFGA                           | VNINTATL                  | KELKS.LNGIGEAKAKAILEYRKE | .ANFTS     | IDDLK       | KKVKGIG      | DKLFE        | 70               |                         |
| consensus      |           |                |                                 | ***! !** !*                             |                           |                          |            |             |              |              | * !** !***!****! | *** !***** *!***! ***** |

logo

|                |           |                |                |                  |         |       |     |
|----------------|-----------|----------------|----------------|------------------|---------|-------|-----|
| NTDB id 1159   | ABDM36    | RS04765        | WP 001166105.1 | NNAARILL.....    | 103     |       |     |
| NTDB id 1150   | A1552VC   | RS08580        | WP 001166105.1 | NNAARILL.....    | 103     |       |     |
| NTDB id 1395   | DSB67     | RS04445        | WP 010649155.1 | KNEDRILL.....    | 95      |       |     |
| NTDB id 1362   | HI 1008   | AAC22669.1     |                | KNRDRIIF.....    | 112     |       |     |
| NTDB id 1382   | A4U84     | RS07375        | WP 062924234.1 | KNRDCIVIE.....   | 113     |       |     |
| NTDB id 595    | KW2       | RS08725        | WP 021037687.1 | KLKDEISID.....   | 218     |       |     |
| NTDB id 521    | SMSK321   | RS04960        | WP 000443804.1 | KLKDYVTVD.....   | 216     |       |     |
| NTDB id 493    | SM12261   | RS04300        | WP 000387351.1 | KLKDYVTVD.....   | 216     |       |     |
| NTDB id 263    | KZH43     | RS04195        | WP 000387330.1 | KLKDYVTVD.....   | 216     |       |     |
| NTDB id 222    | SPD       | RS04535        | WP 000387330.1 | KLKDYVTVD.....   | 216     |       |     |
| NTDB id 188    | SPR       | RS04295        | WP 000387330.1 | KLKDYVTVD.....   | 216     |       |     |
| NTDB id 153    | SP        | RS04730        | WP 000387344.1 | KLKDYVTVD.....   | 216     |       |     |
| NTDB id 1069   | ABD1      | RS03060        | WP 043960841.1 | KNKSRLIAL.....   | 136     |       |     |
| NTDB id 1041   | HON27     | RS14740        | WP 005124713.1 | KNKSRLIAL.....   | 136     |       |     |
| NTDB id 36     | MW        | RS08230        | WP 001793467.1 | KLKSYFTI.....    | 228     |       |     |
| NTDB id 20     | SA        | RS08005        | WP 001802022.1 | KLKSYFTI.....    | 228     |       |     |
| NTDB id 105    | BSU 25590 | NP 390437.1    |                | KIKSSIIVK.....   | 205     |       |     |
| NTDB id 1014   | ACIAD     | RS13855        | WP 004924483.1 | KNRDRLAI.....    | 128     |       |     |
| NTDB id 1127   | NGFG      | RS10560        | WP 003703428.1 | KLKDQASVGAPAPKGP | PAKPVLP | PAVKK | 131 |
| NTDB id 1126   | NGFG      | RS09375        | WP 003703428.1 | KLKDQASVGAPAPKGP | PAKPVLP | PAVKK | 131 |
| NTDB id 1125   | NGFG      | RS07215        | WP 003703428.1 | KLKDQASVGAPAPKGP | PAKPVLP | PAVKK | 131 |
| NTDB id 1108   | NGFG      | RS06525        | WP 003703428.1 | KLKDQASVGAPAPKGP | PAKPVLP | PAVKK | 131 |
| NTDB id 104849 | R8945     | RS00060        | WP 002855574.1 | KIKNDITVE.....   | 79      |       |     |
| NTDB id 1242   | Cj0011c   | YP 002343483.1 |                | KIKNDITIE.....   | 79      |       |     |
| consensus      |           |                |                | *****            | ****    |       |     |

 non conserved  
 similar  
  $\geq 50\%$  conserved