

logo

|               |           |                |                |                                                                                  |    |
|---------------|-----------|----------------|----------------|----------------------------------------------------------------------------------|----|
| NTDB id 1159  | ABDM36    | RS04765        | WP 001166105.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSSEKEVSKKEEKSEEP  | 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.LLVVICALIAGGIFYIFTNSPKPAETLSVEN....LSSS...STKSSVSKFNSSSSEK  | 65 |
| NTDB id 521   | SMSK321   | RS04960        | WP 000443804.1 | .....MESIIEKIKEYKIIIV.ICTGLGLLVGGFFLLKPAPHTPVKETNLQAE...VVAISKDSSTEKDVKKEEKEEPV  | 69 |
| NTDB id 493   | SM12261   | RS04300        | WP 000387351.1 | .....MEAIIEKIKEYKIIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDSVSEKEVVKKEEKEEPL | 69 |
| NTDB id 263   | KZH43     | RS04195        | WP 000387330.1 | .....MEAIIEKIKEYKIIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VAAVSKDLVSEKEVNKEEKEEPL  | 69 |
| NTDB id 222   | SPD       | RS04535        | WP 000387330.1 | .....MEAIIEKIKEYKIIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VAAVSKDLVSEKEVNKEEKEEPL  | 69 |
| NTDB id 188   | SPR       | RS04295        | WP 000387330.1 | .....MEAIIEKIKEYKIIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VAAVSKDLVSEKEVNKEEKEEPL  | 69 |
| NTDB id 153   | SP        | RS04730        | WP 000387344.1 | .....MEAIIEKIKEYKIIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VAAVSKDSSTEKEVKKEEKEEPL  | 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 | MVLLYQFLLRYKDFLTQWKLYIISAVVLMVVLIGFIFWRQDDYTSRNFENKDNALKQSTSENSSLSKVEDVQVKDGDNSK | 80 |
| NTDB id 20    | SA        | RS08005        | WP 001802022.1 | MVLLYQFLLRYKDFLTQWKLYIISAVVLMVVLIGFIFWRQDDYTSRNFENKDTALKQSTSENSSLSKLEDVQVKDGDNSK | 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 85193 | RC17      | RS08760        | WP 002855574.1 | .....                                                                            | 0  |
| NTDB id 1242  | Cj0011c   | YP 002343483.1 |                | .....                                                                            | 0  |
| consensus     |           |                |                |                                                                                  |    |

logo

|               |           |                |                |                                                                                  |     |
|---------------|-----------|----------------|----------------|----------------------------------------------------------------------------------|-----|
| NTDB id 1159  | ABDM36    | RS04765        | WP 001166105.1 | .....EQDLITVDYKGAVKSPGYYLRTYSSRNDKLYLFCMLF.....AKGLLEQADSKSLNLAQKVSDEALVYVPKGEAA | 33  |
| NTDB id 1150  | A1552VC   | RS08580        | WP 001166105.1 | .....MQIKT.KIVTFLFLSLCLPTLPLLANAEETAPAAQ.....                                    | 33  |
| NTDB id 1395  | DSB67     | RS04445        | WP 010649155.1 | .....MKWMLTLCLLILAPMSWAE.TKTKAD.....                                             | 25  |
| NTDB id 1362  | HI 1008   | AAC22669.1     |                | .....MKT.L.FTSVVLGALVVSSSFEEKATXQTAQSVV.....TTQA.....                            | 38  |
| NTDB id 1382  | A4U84     | RS07375        | WP 062924234.1 | .....MKK.LSRYTFSLLFG.LFSATTFAEEKVTTSTEHTPV.....VMQQ.....                         | 39  |
| NTDB id 595   | KW2       | RS08725        | WP 021037687.1 | NKNEIMVDLKGAVAKPNVYQISSDERLVDLI.....RQAGGFTDQADQKSINLSAKLKDEEVIYVPKVGESS         | 133 |
| NTDB id 521   | SMSK321   | RS04960        | WP 000443804.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESA         | 137 |
| NTDB id 493   | SM12261   | RS04300        | WP 000387351.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESA         | 137 |
| NTDB id 263   | KZH43     | RS04195        | WP 000387330.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESA         | 137 |
| NTDB id 222   | SPD       | RS04535        | WP 000387330.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESA         | 137 |
| NTDB id 188   | SPR       | RS04295        | WP 000387330.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESA         | 137 |
| NTDB id 153   | SP        | RS04730        | WP 000387344.1 | EQDLITVDVKGAVKSPGIYDLVSGSRVNDV.....QKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESA         | 137 |
| NTDB id 1069  | ABD1      | RS03060        | WP 043960841.1 | .....MQYSMRFWKN...K.YFVLIMLCLGVISPSVCAQSFQDNFQEWKVKQQM..YDQK.....                | 49  |
| NTDB id 1041  | HON27     | RS14740        | WP 005124713.1 | .....MQYSMRFWKN...K.YFVLIMLCLGVISPSVCAQSFQDNFQEWKVKQQM..YDQK.....                | 49  |
| NTDB id 36    | MW        | RS08230        | WP 001793467.1 | NKGPVYVDVKGAVKHPNVYKMTSKDRVVD.LL.....DKAQLLEDADVSRINLSEKLTQKMFIPHKGQKNV          | 147 |
| NTDB id 20    | SA        | RS08005        | WP 001802022.1 | NKGPVYVDVKGAVKHPNVYKMTSKDRVVD.LL.....DKAQLLEDADVSRINLSEKLTQKMFIPHKGQKNV          | 147 |
| NTDB id 105   | BSU 25590 | NP 390437.1    |                | SNETIVIDIKGAVQHPGVYEM.RTGDRVS.....QAI...EKAGGTSEQADEAQVNLAELQDGTVVYIPKKGEETA     | 125 |
| NTDB id 1014  | ACIAD     | RS13855        | WP 004924483.1 | .....MSIRHFFT...FFWAT.....LLTLFSMQI...VFAQGGFDQYDQAW.....KTQQKAHDTR              | 45  |
| NTDB id 1127  | NGFG      | RS10560        | WP 003703428.1 | ATPYRFLIRHIVARCGLLFATLKGKTMKKMFVLFCLMF.....                                      | 44  |
| NTDB id 1126  | NGFG      | RS09375        | WP 003703428.1 | ATPYRFLIRHIVARCGLLFATLKGKTMKKMFVLFCLMF.....                                      | 44  |
| NTDB id 1125  | NGFG      | RS07215        | WP 003703428.1 | ATPYRFLIRHIVARCGLLFATLKGKTMKKMFVLFCLMF.....                                      | 44  |
| NTDB id 1108  | NGFG      | RS06525        | WP 003703428.1 | ATPYRFLIRHIVARCGLLFATLKGKTMKKMFVLFCLMF.....                                      | 44  |
| NTDB id 85193 | RC17      | RS08760        | WP 002855574.1 | .....MKKLLFLF..FA.....                                                           | 10  |
| NTDB id 1242  | Cj0011c   | YP 002343483.1 |                | .....MKKLLFLF..FA.....                                                           | 10  |
| consensus     |           |                |                | .....                                                                            |     |

logo

|               |           |                |                                  |                                                    |                                 |              |           |              |           |          |     |
|---------------|-----------|----------------|----------------------------------|----------------------------------------------------|---------------------------------|--------------|-----------|--------------|-----------|----------|-----|
| NTDB id 1159  | ABDM36    | RS04765        | WP 001166105.1                   | .....VEEGIVITVNINTASAEELATLLKGI                    | GLKKAQAI                        | VDYREANGP    | FTH       | IDDLT        | NVKGIGEAT | VR       | 95  |
| NTDB id 1150  | A1552VC   | RS08580        | WP 001166105.1                   | .....VEEGIVITVNINTASAEELATLLKGI                    | GLKKAQAI                        | VDYREANGP    | FTH       | IDDLT        | NVKGIGEAT | VR       | 95  |
| NTDB id 1395  | DSB67     | RS04445        | WP 010649155.1                   | .....KYEGIEITVNVNSATAQEIATLLIGI                    | GEKKAQD                         | IVEYRNEHG    | PFKTAAD   | LTKVKGIGEAT  | VR        | 87       |     |
| NTDB id 1362  | HI 1008   | AAC22669.1     | .....EAQVAPAVVSDKLNINTATASEIQKSL | TGIGAKKA                                           | EAI                             | VQYREKHG     | NFXNAE    | QLELVQGIGKAT | LE        | 104      |     |
| NTDB id 1382  | A4U84     | RS07375        | WP 062924234.1                   | .....VAATQKVNANVVNINTATASEIQDKLV                   | GIGAKKAQAI                      | IVEYREKNGK   | FLNVEQ    | LTEVSGIGKAT  | LE        | 104      |     |
| NTDB id 595   | KW2       | RS08725        | WP 021037687.1                   | SESTDSPTG...SSVSNQISTTSGPKVNINKAD                  | LTELQK.LTGIGQKKAQDI             | IDFRMKN      | GD        | FKSIEDL      | GKVS      | GFGDKTLE | 209 |
| NTDB id 521   | SMSK321   | RS04960        | WP 000443804.1                   | SQHTGSGAP.....SSTS                                 | SKDKKINLNKASLEELKQ.VKGLGGKRAQDI | IDHREANGK    | FKSVDEL   | LKKVSGIGAKT  | IE        | 207      |     |
| NTDB id 493   | SM12261   | RS04300        | WP 000387351.1                   | SQQAGPGTA.....SSTS                                 | KEKKVNLNKASLEELKQ.VKGLGGKRAQDI  | IDHREANGK    | FKSVDEL   | LKKVSGIGAKT  | IE        | 207      |     |
| NTDB id 263   | KZH43     | RS04195        | WP 000387330.1                   | SQQTGLGTA.....SSISKEKKVNLNKASLEELKQ                | .VKGLGGKRAQDI                   | IDHREANGK    | FKSVDEL   | LKKVSGIGGKT  | IE        | 207      |     |
| NTDB id 222   | SPD       | RS04535        | WP 000387330.1                   | SQQTGLGTA.....SSISKEKKVNLNKASLEELKQ                | .VKGLGGKRAQDI                   | IDHREANGK    | FKSVDEL   | LKKVSGIGGKT  | IE        | 207      |     |
| NTDB id 188   | SPR       | RS04295        | WP 000387330.1                   | SQQTGLGTA.....SSISKEKKVNLNKASLEELKQ                | .VKGLGGKRAQDI                   | IDHREANGK    | FKSVDEL   | LKKVSGIGGKT  | IE        | 207      |     |
| NTDB id 153   | SP        | RS04730        | WP 000387344.1                   | SQQTGSGTA.....SSTS                                 | KEKKVNLNKASLEELKQ.VKGLGGKRAQDI  | IDHREANGK    | FKSVDEL   | LKKVSGIGGKT  | IE        | 207      |     |
| NTDB id 1069  | ABD1      | RS03060        | WP 043960841.1                   | LNISKSSHSNSSKISQTKNFNDSTGQIHLNQAN                  | VNEFQQ.LKGIGEKKAAQAI            | IVEYRQKNGS   | FKNIDEI   | KNVKGIGPA    | IFE       | 128      |     |
| NTDB id 1041  | HON27     | RS14740        | WP 005124713.1                   | LNITKSSHSNGSKISQTKNFNDSTGQIHLNQAN                  | VNEFQQ.LKGVGEKKAAQAI            | IVEYRQKNGS   | FKNIDEI   | KNVKGIGPA    | IFE       | 128      |     |
| NTDB id 36    | MW        | RS08230        | WP 001793467.1                   | EP....QIGVNS..VHVKNGNTNNTKVN                       | LNTASVSELMS.VPGVGQAKANA         | IVEYRNQQGAF  | QEIDDL    | LKKVKGFGS    | KTFD      | 220      |     |
| NTDB id 20    | SA        | RS08005        | WP 001802022.1                   | EP....QIEVNS..VHVKNGNTNNTKVN                       | LNTASVSELMS.VPGVGQAKANA         | IVEYRNQQGAF  | QEIDDL    | LKKVKGFGS    | KTFD      | 220      |     |
| NTDB id 105   | BSU 25590 | NP 390437.1    |                                  | V....QQGGGGS..V..QSDGGKGALVNINTAT                  | LEELQG.ISGVGPSKAEAI             | IAYREENG     | RFTIED    | ITKVS        | GIGEK     | SFE      | 196 |
| NTDB id 1014  | ACIAD     | RS13855        | WP 004924483.1                   | LNSSASHHSLSK..P..TQQSGTG                           | VKNINSATAKELQQ.LHGVGEKKALAI     | IVEYRQQY     | GKFASVDDL | LQKVKGIGP    | KFIE      | 120      |     |
| NTDB id 1127  | NGFG      | RS10560        | WP 003703428.1                   | .....SCAFSLAAVNINAASQQELEA.LPGIGPA                 | KAKAIAEYRAQNGAFKSVDDL           | LKVKGIGPAVLA |           |              |           | 105      |     |
| NTDB id 1126  | NGFG      | RS09375        | WP 003703428.1                   | .....SCAFSLAAVNINAASQQELEA.LPGIGPA                 | KAKAIAEYRAQNGAFKSVDDL           | LKVKGIGPAVLA |           |              |           | 105      |     |
| NTDB id 1125  | NGFG      | RS07215        | WP 003703428.1                   | .....SCAFSLAAVNINAASQQELEA.LPGIGPA                 | KAKAIAEYRAQNGAFKSVDDL           | LKVKGIGPAVLA |           |              |           | 105      |     |
| NTDB id 1108  | NGFG      | RS06525        | WP 003703428.1                   | .....SCAFSLAAVNINAASQQELEA.LPGIGPA                 | KAKAIAEYRAQNGAFKSVDDL           | LKVKGIGPAVLA |           |              |           | 105      |     |
| NTDB id 85193 | RC17      | RS08760        | WP 002855574.1                   | .....LTAFLFGAVNINTATL                              | KELKS.LNGIGEAKAKAILEYRKE.ANFTS  | IDDL         | LKKVKGIGD | KLFE         |           | 70       |     |
| NTDB id 1242  | Cj0011c   | YP 002343483.1 |                                  | .....LTAFLFGAVNINTATL                              | KELKS.LNGIGEAKAKAILEYRKE.ANFTS  | IDDL         | LKKVKGIGD | KLFE         |           | 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 85193 | RC17      | RS08760        | WP 002855574.1 | KIKNDITVE        | 79      |       |     |
| NTDB id 1242  | Cj0011c   | YP 002343483.1 |                | KIKNDITIE        | 79      |       |     |
| consensus     |           |                |                | *****            |         |       |     |

 non conserved  
 similar  
  $\geq 50\%$  conserved