

logo

|                |           |                |                |                                                                                  |    |
|----------------|-----------|----------------|----------------|----------------------------------------------------------------------------------|----|
| NTDB id 1159   | ABDM36    | RS04765        | WP 001166105.1 | .....MEALIEKIKYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSSEKESKEVSKKEEKSEEP | 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 | .....MESIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPHTPVKETNLQAE...VVAISKDSSTEKDVKKEEKEEPV   | 69 |
| NTDB id 493    | SM12261   | RS04300        | WP 000387351.1 | .....MEAIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDSVSEKEVVKKEEKEEPL  | 69 |
| NTDB id 263    | KZH43     | RS04195        | WP 000387330.1 | .....MEAIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLVSEKEVNKEEKEEPL   | 69 |
| NTDB id 222    | SPD       | RS04535        | WP 000387330.1 | .....MEAIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLVSEKEVNKEEKEEPL   | 69 |
| NTDB id 188    | SPR       | RS04295        | WP 000387330.1 | .....MEAIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLVSEKEVNKEEKEEPL   | 69 |
| NTDB id 153    | SP        | RS04730        | WP 000387344.1 | .....MEAIIEKIKEYKIIV.ICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDSSTEKEVKKEEKEEPL   | 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...TENTVVKQEANNDE          | 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 105485 | R9A04     | RS00060        | WP 002855574.1 | .....                                                                            | 0  |
| NTDB id 1242   | Cj0011c   | YP 002343483.1 |                | .....                                                                            | 0  |
| consensus      |           |                |                | .....                                                                            | 0  |

logo

|                |           |                |                |                                                                                    |     |
|----------------|-----------|----------------|----------------|------------------------------------------------------------------------------------|-----|
| NTDB id 1159   | ABDM36    | RS04765        | WP 001166105.1 | .....EQDLITVDYKGAVKSPGYYLDTYSKRYNDKLYLFCMLF.....AGGLTEQADSKSLNLAQKVSDEALVYYPKKEEAY | 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.FTSVVLGALVSSSFEEKATXQTAQSVV.....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.YFVLIMLCGLVISPSVCAQSFQDNFQEWKVKQQM..YDQK.....                  | 49  |
| NTDB id 1041   | HON27     | RS14740        | WP 005124713.1 | .....MQYSMRFWKN...K.YFVLIMLCGLVISPSVCAQSFQDNFQEWKVKQQM..YDQK.....                  | 49  |
| NTDB id 36     | MW        | RS08230        | WP 001793467.1 | NKGPVYVDVKGAVKHPNVYKMTSKDRVVD.LL.....DKAQLLEDADVSRINLSEKLTQDKMIFIPHKGQKNV          | 147 |
| NTDB id 20     | SA        | RS08005        | WP 001802022.1 | NKGPVYVDVKGAVKHPNVYKMTSKDRVVD.LL.....DKAQLLEDADVSRINLSEKLTQDKMIFIPHKGQKNV          | 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 105485 | R9A04     | RS00060        | WP 002855574.1 | .....MKKLFLF..FA.....                                                              | 10  |
| NTDB id 1242   | Cj0011c   | YP 002343483.1 |                | .....MKKLFLF..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     | .....EAQVAPAVVSDKLNINTATASEIQKSL | TGIGAKKA                          | EAI                             | VQYREKHG    | NFXNAE   | QLELVQG     | GIGKATLE | 104  |
| NTDB id 1382   | A4U84     | RS07375        | WP 062924234.1                   | .....VAATQKVNANV                  | VNINTATASEIQDKLVGIGAKKAQAI      | IVEYREKNGK  | FLNVEQL  | TEVSGIG     | KATLE    | 104  |
| NTDB id 595    | KW2       | RS08725        | WP 021037687.1                   | SESTDSPTG...SSVSNQISTTSGPKVNINKAD | ITELQK.LTGIGQKKAQDI             | IDFRMKN     | GD       | FKSIEDL     | GKVS     | 209  |
| NTDB id 521    | SMSK321   | RS04960        | WP 000443804.1                   | SQHTGSGAP.....SSTS                | SKDKKINLNKASLEELKQ.VKGLGGKRAQDI | IDHREANGK   | FKSVDEL  | KKVSGIG     | AKTIE    | 207  |
| NTDB id 493    | SM12261   | RS04300        | WP 000387351.1                   | SQQAGPGTA.....SSTSKEKKVN          | LNKASLEELKQ.VKGLGGKRAQDI        | IDHREANGK   | FKSVDEL  | KKVSGIG     | AKTIE    | 207  |
| NTDB id 263    | KZH43     | RS04195        | WP 000387330.1                   | SQQTGLGTA.....SSISKEKKVN          | LNKASLEELKQ.VKGLGGKRAQDI        | IDHREANGK   | FKSVDEL  | KKVSGIG     | GKTIE    | 207  |
| NTDB id 222    | SPD       | RS04535        | WP 000387330.1                   | SQQTGLGTA.....SSISKEKKVN          | LNKASLEELKQ.VKGLGGKRAQDI        | IDHREANGK   | FKSVDEL  | KKVSGIG     | GKTIE    | 207  |
| NTDB id 188    | SPR       | RS04295        | WP 000387330.1                   | SQQTGLGTA.....SSISKEKKVN          | LNKASLEELKQ.VKGLGGKRAQDI        | IDHREANGK   | FKSVDEL  | KKVSGIG     | GKTIE    | 207  |
| NTDB id 153    | SP        | RS04730        | WP 000387344.1                   | SQQTGSGTA.....SSTSKEKKVN          | LNKASLEELKQ.VKGLGGKRAQDI        | IDHREANGK   | FKSVDEL  | KKVSGIG     | GKTIE    | 207  |
| NTDB id 1069   | ABD1      | RS03060        | WP 043960841.1                   | LNISKSSHSNSSKISQTKNFNDSTGQIHLN    | QANVNEFQQ.LKGIGEKKAQAI          | IVEYRQKNGS  | FKNIDEI  | KNVKGIG     | PAIFE    | 128  |
| NTDB id 1041   | HON27     | RS14740        | WP 005124713.1                   | LNITKSSHSNGSKISQTKNFNDSTGQIHLN    | QANVNEFQQ.LKGVGEKKAQAI          | IVEYRQKNGS  | FKNIDEI  | KNVKGIG     | PAIFE    | 128  |
| NTDB id 36     | MW        | RS08230        | WP 001793467.1                   | EP....QIGVNS..VHVKNGNTNNTKVN      | LNTASVSELMS.VPGVGQAKANA         | IVEYRNQQGAF | QEIDDL   | KKVKG       | FGSKTFD  | 220  |
| NTDB id 20     | SA        | RS08005        | WP 001802022.1                   | EP....QIEVNS..VHVKNGNTNNTKVN      | LNTASVSELMS.VPGVGQAKANA         | IVEYRNQQGAF | QEIDDL   | KKVKG       | FGSKTFD  | 220  |
| NTDB id 105    | BSU 25590 | NP 390437.1    |                                  | V....QQGGGGS..V..QSDGGKGALVN      | INTATLEELQG.ISGVGPSKAEAI        | IAYREENG    | R        | FQTI        | IEDITKVS | 196  |
| NTDB id 1014   | ACIAD     | RS13855        | WP 004924483.1                   | LNSSASHHSLSK..P..TQQSGTG          | VKNINSATAKELQQ.LHGVGEKKALA      | IVEYRQYQK   | FA       | SVDDL       | QKVKGIG  | 120  |
| NTDB id 1127   | NGFG      | RS10560        | WP 003703428.1                   | .....SCAFSLAAVNINAASQQE           | LEA.LPGIGPAKAKAIAEYRAQNGAF      | KS          | VDDL     | IKVKGIG     | PAVLA    | 105  |
| NTDB id 1126   | NGFG      | RS09375        | WP 003703428.1                   | .....SCAFSLAAVNINAASQQE           | LEA.LPGIGPAKAKAIAEYRAQNGAF      | KS          | VDDL     | IKVKGIG     | PAVLA    | 105  |
| NTDB id 1125   | NGFG      | RS07215        | WP 003703428.1                   | .....SCAFSLAAVNINAASQQE           | LEA.LPGIGPAKAKAIAEYRAQNGAF      | KS          | VDDL     | IKVKGIG     | PAVLA    | 105  |
| NTDB id 1108   | NGFG      | RS06525        | WP 003703428.1                   | .....SCAFSLAAVNINAASQQE           | LEA.LPGIGPAKAKAIAEYRAQNGAF      | KS          | VDDL     | IKVKGIG     | PAVLA    | 105  |
| NTDB id 105485 | R9A04     | RS00060        | WP 002855574.1                   | .....LTAFLFGAVNINTATL             | KELKS.LNGIGEAKAKAILEYRKE        | .ANFTS      | IDDL     | KKVKGIG     | DKLFE    | 70   |
| NTDB id 1242   | Cj0011c   | YP 002343483.1 |                                  | .....LTAFLFGAVNINTATL             | KELKS.LNGIGEAKAKAILEYRKE        | .ANFTS      | IDDL     | 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 | 131 |
| NTDB id 1126   | NGFG      | RS09375        | WP 003703428.1 | KLKDQASVGAPAPKGP | 131 |
| NTDB id 1125   | NGFG      | RS07215        | WP 003703428.1 | KLKDQASVGAPAPKGP | 131 |
| NTDB id 1108   | NGFG      | RS06525        | WP 003703428.1 | KLKDQASVGAPAPKGP | 131 |
| NTDB id 105485 | R9A04     | RS00060        | WP 002855574.1 | KIKNDITVE.....   | 79  |
| NTDB id 1242   | Cj0011c   | YP 002343483.1 |                | KIKNDITIE.....   | 79  |
| consensus      |           |                |                | **** **          |     |

 non conserved  
 similar  
  $\geq 50\%$  conserved