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|               |           |                |                |                                                                                     |    |
|---------------|-----------|----------------|----------------|-------------------------------------------------------------------------------------|----|
| NTDB id 1159  | ABDM36    | RS04765        | WP 001166105.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL..... | 0  |
| NTDB id 1150  | A1552VC   | RS08580        | WP 001166105.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL..... | 0  |
| NTDB id 1395  | DSB67     | RS04445        | WP 010649155.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL..... | 0  |
| NTDB id 1362  | HI 1008   | AAC22669.1     |                | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL..... | 0  |
| NTDB id 1382  | A4U84     | RS07375        | WP 062924234.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL..... | 0  |
| NTDB id 595   | KW2       | RS08725        | WP 021037687.1 | .....MEKILDKLKEYWKIM.LLVVICALIAGGIFYIFTNSPKPAETLSVEN....LSSS...STKSSVSKFNSSSSEK     | 65 |
| NTDB id 521   | SMSK321   | RS04960        | WP 000443804.1 | .....MESIIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 69 |
| NTDB id 493   | SM12261   | RS04300        | WP 000387351.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 69 |
| NTDB id 263   | KZH43     | RS04195        | WP 000387330.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 69 |
| NTDB id 222   | SPD       | RS04535        | WP 000387330.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 69 |
| NTDB id 188   | SPR       | RS04295        | WP 000387330.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 69 |
| NTDB id 153   | SP        | RS04730        | WP 000387344.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 69 |
| NTDB id 1069  | ABD1      | RS03060        | WP 043960841.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 0  |
| NTDB id 1041  | HON27     | RS14740        | WP 005124713.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 0  |
| NTDB id 105   | BSU 25590 | NP 390437.1    |                | .....MNWLNQHKKAIILAASAAVFTAIMIFLATG....KNKE....PVKQAVPT...ETENTVVVKQEANNDE          | 57 |
| NTDB id 36    | MW        | RS08230        | WP 001793467.1 | MVLLYQFLLRYKDFLTQWKLYIISAVVLMVLI GFIFWRQDDYTSRNFENKDNALKQSTSENSSLKVEDVQVKDGDNSK     | 80 |
| NTDB id 20    | SA        | RS08005        | WP 001802022.1 | MVLLYQFLLRYKDFLTQWKLYIISAVVLMVLI GFIFWRQDDYTSRNFENKDTALKQSTSENSSLKLEDVQVKDGDNSK     | 80 |
| NTDB id 1014  | ACIAD     | RS13855        | WP 004924483.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 0  |
| NTDB id 62208 | N135      | RS00055        | WP 002853093.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 0  |
| NTDB id 1242  | Cj0011c   | YP 002343483.1 |                | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 0  |
| NTDB id 1127  | NGFG      | RS10560        | WP 003703428.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 0  |
| NTDB id 1126  | NGFG      | RS09375        | WP 003703428.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 0  |
| NTDB id 1125  | NGFG      | RS07215        | WP 003703428.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 0  |
| NTDB id 1108  | NGFG      | RS06525        | WP 003703428.1 | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL      | 0  |
| consensus     |           |                |                | .....MEALIEKIKKEYKLIYICTGLGLLVGGFFLLKPAPQTPVKETNLQAE...VVAISKDLSVEKEVKKEEKEEPL..... | 0  |

logo

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| NTDB id 1159  | ABDM36    | RS04765        | WP 001166105.1 | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 33  |
| NTDB id 1150  | A1552VC   | RS08580        | WP 001166105.1 | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 33  |
| NTDB id 1395  | DSB67     | RS04445        | WP 010649155.1 | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 25  |
| NTDB id 1362  | HI 1008   | AAC22669.1     |                | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 36  |
| NTDB id 1382  | A4U84     | RS07375        | WP 062924234.1 | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 37  |
| NTDB id 595   | KW2       | RS08725        | WP 021037687.1 | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 142 |
| NTDB id 521   | SMSK321   | RS04960        | WP 000443804.1 | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 146 |
| NTDB id 493   | SM12261   | RS04300        | WP 000387351.1 | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 146 |
| NTDB id 263   | KZH43     | RS04195        | WP 000387330.1 | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 146 |
| NTDB id 222   | SPD       | RS04535        | WP 000387330.1 | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 146 |
| NTDB id 188   | SPR       | RS04295        | WP 000387330.1 | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 146 |
| NTDB id 153   | SP        | RS04730        | WP 000387344.1 | EQDLITVDVKGAVKSPGIYDLSPVGS.RVNDVAVQKAGGLTEQADSKSLNLAQKVSDEALVYVPTKGEESASQHTGSGAP.. | 146 |
| NTDB id 1069  | ABD1      | RS03060        | WP 043960841.1 | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 48  |
| NTDB id 1041  | HON27     | RS14740        | WP 005124713.1 | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 48  |
| NTDB id 105   | BSU 25590 | NP 390437.1    |                | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 127 |
| NTDB id 36    | MW        | RS08230        | WP 001793467.1 | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 149 |
| NTDB id 20    | SA        | RS08005        | WP 001802022.1 | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 149 |
| NTDB id 1014  | ACIAD     | RS13855        | WP 004924483.1 | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 44  |
| NTDB id 62208 | N135      | RS00055        | WP 002853093.1 | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 9   |
| NTDB id 1242  | Cj0011c   | YP 002343483.1 |                | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 9   |
| NTDB id 1127  | NGFG      | RS10560        | WP 003703428.1 | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 43  |
| NTDB id 1126  | NGFG      | RS09375        | WP 003703428.1 | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 43  |
| NTDB id 1125  | NGFG      | RS07215        | WP 003703428.1 | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 43  |
| NTDB id 1108  | NGFG      | RS06525        | WP 003703428.1 | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 43  |
| consensus     |           |                |                | .....MQYSMRFWKNKYFVLLIMLCLGV.....ISPSVCAQSFQDNFQEWKVKQMQMYDQ                       | 43  |

logo

|               |           |                |                |                                                                                  |     |
|---------------|-----------|----------------|----------------|----------------------------------------------------------------------------------|-----|
| NTDB id 1159  | ABDM36    | RS04765        | WP 001166105.1 | .....VEEGIVITVNINTASAEELATLLKGGIGLKKAAQIVDYREANGPFTHIDDLTNVKGIGEATV              | 94  |
| NTDB id 1150  | A1552VC   | RS08580        | WP 001166105.1 | .....VEEGIVITVNINTASAEELATLLKGGIGLKKAAQIVDYREANGPFTHIDDLTNVKGIGEATV              | 94  |
| NTDB id 1395  | DSB67     | RS04445        | WP 010649155.1 | .....KYEGIEITVNNSATAQEIATLLIGIGEKKAQDIVEYRNEHGPFKTAADLTQVKGIGEATV                | 86  |
| NTDB id 1362  | HI 1008   | AAC22669.1     |                | QAEA.....QVAPAVVSDKLNINTATASEIQKSLTGIGAKKAEIVQYREKHGNFXNAEQQLLEVQGIGKATL         | 103 |
| NTDB id 1382  | A4U84     | RS07375        | WP 062924234.1 | QQ.V.....AATQKVNANVVNINTATASEIQDKLVGIGAKKAAQIVVEYREKNGKFLNVEQLTEVSGIGKATL        | 103 |
| NTDB id 595   | KW2       | RS08725        | WP 021037687.1 | .....S.....S..VSNQISTTSGPKVNINKADLTTELQK.LTGIGQKKAQDIIDFRMKNGDFKSIEDLGKVS        | 208 |
| NTDB id 521   | SMSK321   | RS04960        | WP 000443804.1 | .....SSTSCKDKKINLNKASLEELKQ.VKGLGGKRAQDIIDHREANGKFKSVDELKKVSGIGAKTI              | 206 |
| NTDB id 493   | SM12261   | RS04300        | WP 000387351.1 | .....SSTSKEKKVNLNKASLEELKQ.VKGLGGKRAQDIIDHREANGKFKSVDELKKVSGIGAKTI               | 206 |
| NTDB id 263   | KZH43     | RS04195        | WP 000387330.1 | .....SSTSKEKKVNLNKASLEELKQ.VKGLGGKRAQDIIDHREANGKFKSVDELKKVSGIGGKTI               | 206 |
| NTDB id 222   | SPD       | RS04535        | WP 000387330.1 | .....SSISKEKKVNLNKASLEELKQ.VKGLGGKRAQDIIDHREANGKFKSVDELKKVSGIGGKTI               | 206 |
| NTDB id 188   | SPR       | RS04295        | WP 000387330.1 | .....SSISKEKKVNLNKASLEELKQ.VKGLGGKRAQDIIDHREANGKFKSVDELKKVSGIGGKTI               | 206 |
| NTDB id 153   | SP        | RS04730        | WP 000387344.1 | .....SSTSKEKKVNLNKASLEELKQ.VKGLGGKRAQDIIDHREANGKFKSVDELKKVSGIGGKTI               | 206 |
| NTDB id 1069  | ABD1      | RS03060        | WP 043960841.1 | KLNISKSSHSNSSKISQTKNFNDSTGQIHLNQANVNEFQQ.LKGIGEKKAQAIVEYRQKNGSFKNIDEIKNVKGIGPAIF | 127 |
| NTDB id 1041  | HON27     | RS14740        | WP 005124713.1 | KLNITKSSHSNGSKISQTKNFNDSTGQIHLNQANVNEFQQ.LKGVGEKKAQAIVEYRQKNGSFKNIDEIKNVKGIGPAIF | 127 |
| NTDB id 105   | BSU 25590 | NP 390437.1    |                | QGGG.....GSV....QSDGGKGALVNINTATLEELQG.ISGVGPSKAEAIAYREENGFRQTIEDITKVS           | 195 |
| NTDB id 36    | MW        | RS08230        | WP 001793467.1 | QIGVNSV.....HV....KNGNTNNTKVNLNTASVSELMS.VPGVGQAKANAIVEYRNQQGAFQEI               | 219 |
| NTDB id 20    | SA        | RS08005        | WP 001802022.1 | QIEVNSV.....HV....KNGNTNNTKVNLNTASVSELMS.VPGVGQAKANAIVEYRNQQGAFQEI               | 219 |
| NTDB id 1014  | ACIAD     | RS13855        | WP 004924483.1 | RLNSSASHHSLSKP...TQQSGTGKVNINSATAKELQQ.LHGVGEKKALAIVEYRQQYQKGFASVDDL             | 119 |
| NTDB id 62208 | N135      | RS00055        | WP 002853093.1 | .....ALTAFLFGAVNINTATILKELKS.LNGIGEAKAKAILEYRKE.ANFTSIDDLKKVKGIGDKLF             | 69  |
| NTDB id 1242  | Cj0011c   | YP 002343483.1 |                | .....ALTAFLFGAVNINTATILKELKS.LNGIGEAKAKAILEYRKE.ANFTSIDDLKKVKGIGDKLF             | 69  |
| NTDB id 1127  | NGFG      | RS10560        | WP 003703428.1 | .....FSCAFSLAAVNINAASQQELEA.LPGIGPAKAKAIAEYRAQNGAFKSVDDL                         | 104 |
| NTDB id 1126  | NGFG      | RS09375        | WP 003703428.1 | .....FSCAFSLAAVNINAASQQELEA.LPGIGPAKAKAIAEYRAQNGAFKSVDDL                         | 104 |
| NTDB id 1125  | NGFG      | RS07215        | WP 003703428.1 | .....FSCAFSLAAVNINAASQQELEA.LPGIGPAKAKAIAEYRAQNGAFKSVDDL                         | 104 |
| NTDB id 1108  | NGFG      | RS06525        | WP 003703428.1 | .....FSCAFSLAAVNINAASQQELEA.LPGIGPAKAKAIAEYRAQNGAFKSVDDL                         | 104 |
| consensus     |           |                |                | ***!! !** !* * !** **!!**!!**!! ** !***** *!***! ***                             |     |

logo

|               |           |                |                |                             |     |
|---------------|-----------|----------------|----------------|-----------------------------|-----|
| NTDB id 1159  | ABDM36    | RS04765        | WP 001166105.1 | RNNAARILL.....              | 103 |
| NTDB id 1150  | A1552VC   | RS08580        | WP 001166105.1 | RNNAARILL.....              | 103 |
| NTDB id 1395  | DSB67     | RS04445        | WP 010649155.1 | RKNEDRILL.....              | 95  |
| NTDB id 1362  | HI 1008   | AAC22669.1     |                | EKNRDRIF.....               | 112 |
| NTDB id 1382  | A4U84     | RS07375        | WP 062924234.1 | EKNRDCIVIE.....             | 113 |
| NTDB id 595   | KW2       | RS08725        | WP 021037687.1 | EKLKDEISID.....             | 218 |
| NTDB id 521   | SMSK321   | RS04960        | WP 000443804.1 | EKLKDYVTVD.....             | 216 |
| NTDB id 493   | SM12261   | RS04300        | WP 000387351.1 | EKLKDYVTVD.....             | 216 |
| NTDB id 263   | KZH43     | RS04195        | WP 000387330.1 | EKLKDYVTVD.....             | 216 |
| NTDB id 222   | SPD       | RS04535        | WP 000387330.1 | EKLKDYVTVD.....             | 216 |
| NTDB id 188   | SPR       | RS04295        | WP 000387330.1 | EKLKDYVTVD.....             | 216 |
| NTDB id 153   | SP        | RS04730        | WP 000387344.1 | EKLKDYVTVD.....             | 216 |
| NTDB id 1069  | ABD1      | RS03060        | WP 043960841.1 | EKNKSRIAL.....              | 136 |
| NTDB id 1041  | HON27     | RS14740        | WP 005124713.1 | EKNKSRIAL.....              | 136 |
| NTDB id 105   | BSU 25590 | NP 390437.1    |                | EKIKSSITVK.....             | 205 |
| NTDB id 36    | MW        | RS08230        | WP 001793467.1 | DKLKSIFTI.....              | 228 |
| NTDB id 20    | SA        | RS08005        | WP 001802022.1 | DKLKSIFTI.....              | 228 |
| NTDB id 1014  | ACIAD     | RS13855        | WP 004924483.1 | EKNRDRILAI.....             | 128 |
| NTDB id 62208 | N135      | RS00055        | WP 002853093.1 | EKIKNDITIE.....             | 79  |
| NTDB id 1242  | Cj0011c   | YP 002343483.1 |                | EKIKNDITIE.....             | 79  |
| NTDB id 1127  | NGFG      | RS10560        | WP 003703428.1 | AKLKDQASVGAPAPKGPAPVLPVAVKK | 131 |
| NTDB id 1126  | NGFG      | RS09375        | WP 003703428.1 | AKLKDQASVGAPAPKGPAPVLPVAVKK | 131 |
| NTDB id 1125  | NGFG      | RS07215        | WP 003703428.1 | AKLKDQASVGAPAPKGPAPVLPVAVKK | 131 |
| NTDB id 1108  | NGFG      | RS06525        | WP 003703428.1 | AKLKDQASVGAPAPKGPAPVLPVAVKK | 131 |
| consensus     |           |                |                | ***** **                    |     |

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  $\geq 50\%$  conserved