```
logo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
NTDB id 1021 ACIAD RS00975 WP 004930462.1          ......MITI....LSSHHYHTIKVWYVLQHSLSGFKKLIHYFGDC.ETALQPQRLSDWQKLGLHANHLKRLEEV    64
NTDB id 114 BSU 16110 NP 389493.1                  MDQAAVCLTICRINQLLSPSLLLKWWKADP.................SMSLTSPVLQ..........TVTRDQIK    48
NTDB id 626 LCA RS04960 WP 011374694.1             ..............MLTKNQLLLKVHLAAGFGTISELRLAAWLSTSHNWALSALEIA..........QIARLPER    51
NTDB id 599 KW2 RS05940 WP 021037268.1             ...............MITNFDLFRW.KKAGMTNLGVNKLLKFFRKY.DRKISLRQMG..........QVAQV..K    46
NTDB id 525 SMSK321 RS06295 WP 000705298.1         ..............MKITNYEIYKL.KKSGLTNQQILKVLEYGENV.DQELLLGDIA..........DISGC..R    47
NTDB id 267 KZH43 RS05590 WP 000705306.1           ..............MKITNYEIYKL.KKSGLTNQQILKVLEYGENV.DQELLLGDIA..........DISGC..R    47
NTDB id 226 SPD RS05990 WP 000705306.1             ..............MKITNYEIYKL.KKSGLTNQQILKVLEYGENV.DQELLLGDIA..........DISGC..R    47
NTDB id 192 SPR RS05715 WP 000705306.1             ..............MKITNYEIYKL.KKSGLTNQQILKVLEYGENV.DQELLLGDIA..........DISGC..R    47
NTDB id 157 SP RS06205 WP 000705306.1              ..............MKITNYEIYKL.KKSGLTNQQILKVLEYGENV.DQELLLGDIA..........DISGC..R    47
NTDB id 497 SM12261 RS05565 WP 000705318.1         ..............MKITNYEIYKL.KKSGLTNQQVLAVLEYGENV.DQELLLGDIA..........EISGC..R    47
NTDB id 1111747 HMPREF9425 RS05100 WP 003093081.1  ................MNNFELFKL.KAAGLTNLNILNILDYQKTK.DRKLSLRDMA..........VVSKS..K    45
NTDB id 407 SMU RS04605 WP 002262865.1             ................MDNFQLFKL.KKAGLTNLNILNIIDYEERT.QKSLSLRDMA..........VVSKN..K    45
consensus                                                          * ********* ** **** ******** *    *  * * ***           **    *
```

```
logo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
NTDB id 1021 ACIAD RS00975 WP 004930462.1          ..HTLQGQQQFEKMLAQLQTHTDF....IVTPDDPAYPSQLIPYQDRPPILFGQGSIQSLIQ.PQIAVVGSRKPS   132
NTDB id 114 BSU 16110 NP 389493.1                  AAALKNEIEQFYPKLPRVLAAYREQGINTIPISSKQYPFWLKSIYDPPAVLFAKGDMTLLSKGRKIGIVGTRNPT   123
NTDB id 626 LCA RS04960 WP 011374694.1             ..YWPTFQASFQSTTLQRQCIDHEVRTTYLTILDKDYPQRLLETYLPPVLLFYRGDLRLLKQ.PCLAVVGARQAT   123
NTDB id 599 KW2 RS05940 WP 021037268.1             ..SIPNFIEQYKNQDV.KKLRADYKKFSSFSILDDLYPERLREIYNPPVLIFYQGNIDLLKN.PKLAFVGSRLAG   117
NTDB id 525 SMSK321 RS06295 WP 000705298.1         ..NPAVFMERYFQIDD.AHLEKEFKKIPSFSILDDCYPWDLSEIYDAPVLLFYKGNLDLLKF.PKVAVVGSRSCS   118
NTDB id 267 KZH43 RS05590 WP 000705306.1           ..NPAVFMERYFQIDD.AHLSKEFQKFPSFSILDDCYPWDLSEIYDAPVLLFYKGNLDLLKF.PKVAVVGSRACS   118
NTDB id 226 SPD RS05990 WP 000705306.1             ..NPAVFMERYFQIDD.AHLSKEFQKFPSFSILDDCYPWDLSEIYDAPVLLFYKGNLDLLKF.PKVAVVGSRACS   118
NTDB id 192 SPR RS05715 WP 000705306.1             ..NPAVFMERYFQIDD.AHLSKEFQKFPSFSILDDCYPWDLSEIYDAPVLLFYKGNLDLLKF.PKVAVVGSRACS   118
NTDB id 157 SP RS06205 WP 000705306.1              ..NPAVFMERYFQIDD.AHLSKEFQKFPSFSILDDCYPWDLSEIYDAPVLLFYKGNLDLLKF.PKVAVVGSRACS   118
NTDB id 497 SM12261 RS05565 WP 000705318.1         ..NPAVFMERYFQIDD.AHLEKEFQKFPSFSILDDCYPWDLSEIYDAPVLLFYKGNLDLLKF.PKVAVVGSRACS   118
NTDB id 1111747 HMPREF9425 RS05100 WP 003093081.1  ..NAVLFMEKYKSLDI.KQLKEQFERFPTLSIFDKEYPIELKHTYNPPVLLYYQGNLDLLIK.PKLAVVGARNCS   116
NTDB id 407 SMU RS04605 WP 002262865.1             ..KPLIFMEHYKNLDS.KALRKEFNRFPSLSILDKEYPLELKNIYNPPVLLFYQGDLDLLAR.PKLAVVGSRNAS   116
consensus                                            ** **********    * ************* !!**! **** !******!****!*  *****!!*! **
```

```
logo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
NTDB id 1021 ACIAD RS00975 WP 004930462.1          PHGRQVAYDFSYFLSEKGFYITSGLAHGIDEAAHQGSLVH.HRAIAVVGTGLDLCYPSGNKALKQHIRDQGGAIV   206
NTDB id 114 BSU 16110 NP 389493.1                  AYGKQVVNHLTKEICRKGWVIVSGLASGIDGMSHAASIKAKGRTIGVIAGGFQHIYPRENLQLADHMAK.HHILL   197
NTDB id 626 LCA RS04960 WP 011374694.1             HYSKQSLEQLLQGLT.A.TTIISGLAQGADAMAHEVALQRGLAPIGVIGTGINCSYPPQNEHLQQVVAE.KGLLL   195
NTDB id 599 KW2 RS05940 WP 021037268.1             QSGIKSVQKIVTELN.QSFTIVSGLAKGIDTASHLSAIKTKTPTIAVIGTGLDIFYPLENRKIQEYLAK.YQLVL   190
NTDB id 525 SMSK321 RS06295 WP 000705298.1         KQGAKSVEKIIQGLE.NELVIVSGLAKGIDTAAHMAALQNGGKTIAVIGTGLDVFYPKANKRLQDYISN.DHLVL   191
NTDB id 267 KZH43 RS05590 WP 000705306.1           KQGAKSVEKVIQGLE.NELVIVSGLAKGIDTAAHMAALQNGGKTIAVIGTGLDVFYPKANKRLQDYIGN.DHLVL   191
NTDB id 226 SPD RS05990 WP 000705306.1             KQGAKSVEKVIQGLE.NELVIVSGLAKGIDTAAHMAALQNGGKTIAVIGTGLDVFYPKANKRLQDYIGN.DHLVL   191
NTDB id 192 SPR RS05715 WP 000705306.1             KQGAKSVEKVIQGLE.NELVIVSGLAKGIDTAAHMAALQNGGKTIAVIGTGLDVFYPKANKRLQDYIGN.DHLVL   191
NTDB id 157 SP RS06205 WP 000705306.1              KQGAKSVEKVIQGLE.NELVIVSGLAKGIDTAAHMAALQNGGKTIAVIGTGLDVFYPKANKRLQDYIGN.DHLVL   191
NTDB id 497 SM12261 RS05565 WP 000705318.1         KQGAKSVEKVIQGLE.NELVIVSGLAKGIDTAAHMAALQNGGKTIAVIGTGLDVFYPKANKRLQDYIGN.DHLVL   191
NTDB id 1111747 HMPREF9425 RS05100 WP 003093081.1  ETGKQSVRKIVSELG.NQFTIVSGLARGIDTCAHMESLKNKGNTIAVIGTGLDVYYPKENKALQDYMAK.NHLVL   189
NTDB id 407 SMU RS04605 WP 002262865.1             QMGVAAVKKIIQDLS.KQFVIISGLARGIDTAAHLASLKSGGATIAVIGTGLDVHYPKENRRLQDYIAK.NHLLL   189
consensus                                            * *********  *   *!*!!!!*!*!***!**********!*!***!****!!**!*******   ****
```

```
logo

NTDB id 1021 ACIAD RS00975 WP 004930462.1          SEFLPGTPPLQAHFPRRNRIVSGLSLGVLVVEATLKSGSLITANKAAEQGKVVFAIPGHIYSEFHQGCHQLIREG   281
NTDB id 114 BSU 16110 NP 389493.1                  SEHPPETKPQKWHFPMRNRIISGLSEGVIVVQGKEKSGSLITAYQALEQGREVFAVPGSLFDPYAGGPIKLIQQG   272
NTDB id 626 LCA RS04960 WP 011374694.1             SEYALGTPARRYQFPARNKIIAGLCHSLIVTEARHKSGSLITANLALQANRNVYAIPGRIDQSLSQGCNQLIAAG   270
NTDB id 599 KW2 RS05940 WP 021037268.1             SEYSLGEKPLKYHFPERNRIIAGLSRGVVVVEAKLRSGSLITCERALEEGRDIFAIPGNIADGTSDGCNHLIQQG   265
NTDB id 525 SMSK321 RS06295 WP 000705298.1         SEYGPGEQPLKFHFPARNRIIAGLCRGVIVAEAKMRSGSLITCERAMEEGRDVFAIPGSILDGLSDGCHHLIQEG   266
NTDB id 267 KZH43 RS05590 WP 000705306.1           SEYGPGEQPLKFHFPARNRIIAGLCRGVIVAEAKMRSGSLITCERAMEEGRDVFAIPGSILDGLSDGCHHLIQEG   266
NTDB id 226 SPD RS05990 WP 000705306.1             SEYGPGEQPLKFHFPARNRIIAGLCRGVIVAEAKMRSGSLITCERAMEEGRDVFAIPGSILDGLSDGCHHLIQEG   266
NTDB id 192 SPR RS05715 WP 000705306.1             SEYGPGEQPLKFHFPARNRIIAGLCRGVIVAEAKMRSGSLITCERAMEEGRDVFAIPGSILDGLSDGCHHLIQEG   266
NTDB id 157 SP RS06205 WP 000705306.1              SEYGPGEQPLKFHFPARNRIIAGLCRGVIVAEAKMRSGSLITCERAMEEGRDVFAIPGSILDGLSDGCHHLIQEG   266
NTDB id 497 SM12261 RS05565 WP 000705318.1         SEYGPGEQPLKFHFPARNRIIAGLCRGVIVAEAKMRSGSLITCERAMEEGRDVFAIPGSILDGLSDGCHHLIQEG   266
NTDB id 1111747 HMPREF9425 RS05100 WP 003093081.1 TEYGPGEQPLKYHFPERNRIISGLCQGVMVVEAKLRSGSLITCERAMEEGRDVFAIPGNILDGKSDGCHHLIQEG   264
NTDB id 407 SMU RS04605 WP 002262865.1             SEYEAQSQPLKYHFPERNRIIAGLSQGVMVAEAKIRSGSLITCERAMEEGRDVFVVPGNILDGQSEGCHHLIQEG   264
consensus                                          *!***********!!*!!*!**!!*****!******!!!!!***!**********!!********!***!!**!

logo

NTDB id 1021 ACIAD RS00975 WP 004930462.1          AILVDHPEQIIEDLALPTHWHSQSTASGEANADDSGKTDDADLPDDLLPLYQLLDWQGQDLDQLAQHYQGSTAEL   356
NTDB id 114 BSU 16110 NP 389493.1                  AKAIWSAEDIFEELPERNVQYTEPF.....................................................   297
NTDB id 626 LCA RS04960 WP 011374694.1             ATPLLDKNILIEELRYFD............................................................   288
NTDB id 599 KW2 RS05940 WP 021037268.1             AKLVYQAQDILEEYLYN.............................................................   282
NTDB id 525 SMSK321 RS06295 WP 000705298.1         AKLVTSGQDVLAEFEF..............................................................   282
NTDB id 267 KZH43 RS05590 WP 000705306.1           AKLVTSGQDVLAEFEF..............................................................   282
NTDB id 226 SPD RS05990 WP 000705306.1             AKLVTSGQDVLAEFEF..............................................................   282
NTDB id 192 SPR RS05715 WP 000705306.1             AKLVTSGQDVLAEFEF..............................................................   282
NTDB id 157 SP RS06205 WP 000705306.1              AKLVTSGQDVLAEFEF..............................................................   282
NTDB id 497 SM12261 RS05565 WP 000705318.1         AKLVTSGQDVLAEFEF..............................................................   282
NTDB id 1111747 HMPREF9425 RS05100 WP 003093081.1 AKCITTGFDILSEFS..............................................................   279
NTDB id 407 SMU RS04605 WP 002262865.1             AKCITSGFDILNEFNF..............................................................   280
consensus                                          !********** ** *

logo

NTDB id 1021 ACIAD RS00975 WP 004930462.1          TAQLMELELLGVCIQQSGRYLRCRSPY   383
NTDB id 114 BSU 16110 NP 389493.1                  ............................   297
NTDB id 626 LCA RS04960 WP 011374694.1             ............................   288
NTDB id 599 KW2 RS05940 WP 021037268.1             ............................   282
NTDB id 525 SMSK321 RS06295 WP 000705298.1         ............................   282
NTDB id 267 KZH43 RS05590 WP 000705306.1           ............................   282
NTDB id 226 SPD RS05990 WP 000705306.1             ............................   282
NTDB id 192 SPR RS05715 WP 000705306.1             ............................   282
NTDB id 157 SP RS06205 WP 000705306.1              ............................   282
NTDB id 497 SM12261 RS05565 WP 000705318.1         ............................   282
NTDB id 1111747 HMPREF9425 RS05100 WP 003093081.1 ............................   279
NTDB id 407 SMU RS04605 WP 002262865.1             ............................   280
consensus
```

X non conserved
X similar
X $\geq$50% conserved