```
logo

NTDB id 1323 RAOC RS07335 WP 004916218.1      .MLVKVYGSAIHGVSAQTITIEVNVDQGV.GYHLVGLPDNAIKESSHRISAALKNVGYKLPGKKITINMAPADLRKEGSA    78
NTDB id 90193 ANFP RS11950 WP 009565783.1     MPLAIVHSRALTGVQAAGVAVECDLGPGLPTFAVVGLAETAVKEARDRVRSAIQNSGFEFPARRMVVNLAPADLPKEGGR    80
NTDB id 1271 LPP RS03220 WP 011213198.1       MSLAFTKTRSTIGIVAQPVSVEVHLSNGLPSFTMVGLAETAVKESKDRVRSAIINSQFEFPCRKITVNLGPANLPKTGSG    80
NTDB id 1248 GC085 RS03150 WP 011213198.1     MSLAFTKTRSTIGIVAQPVSVEVHLSNGLPSFTMVGLAETAVKESKDRVRSAIINSQFEFPCRKITVNLGPANLPKTGSG    80
NTDB id 1153 A1552VC RS00115 WP 000521788.1   MGLAIIHSRASIGVQAPPVTVEVHISNGMPGFTLVGLPETTVKESRDRVRSAIINSRFEFPAKRITVNLAPADLPKEGGR    80
NTDB id 1397 DSB67 RS15690 WP 005535577.1     MGLAIIHSRASVGVQAPSVSVEVHISNGMPGFTLVGLPETTVKESKDRVRSAIVNSNFQFPAKRITVNLAPADLPKEGGR    80
NTDB id 1387 A4U84 RS06900 WP 020457569.1     MSLAIIYSRASIGVEAPLVTIEVHISGGSPGLTLVGLPEKSVKEAQDRVRSALMNANFDYPARRITINLAPADLPKEGGR    80
NTDB id 1349 HI 1117 AAC22771.1               MSLAIVYSRASMGVQAPLVTIEVHLSNGKPGFTLVGLPEKTVKEAQDRVRSALMNAQFKYPAKRITVNLAPADLPKEGGR    80
consensus                                     *  !*** *****!* !   ***!*****!******!!!*** *!!***!***!**!*****!******!**!!*!*!*!**

logo

NTDB id 1323 RAOC RS07335 WP 004916218.1      YDLSIALGILAASGQIIAPEIERYLIMGELSLDGGLQPIKGVLPIAIRAREEGFKGIILPKQNTREAAIVNDLEVYGVEN   158
NTDB id 90193 ANFP RS11950 WP 009565783.1     FDLPMAIGILAASGQLPAAALEKLEMIGELALDGSLRPVTGTLSSAALAAGQA.GHAILVPQGNAREAAFAQSTPVFACAN   159
NTDB id 1271 LPP RS03220 WP 011213198.1       FDLPIALGILAASEQIPLTNLANHEFIGELALSGELRGVSAIIPAVLAAHKD.NQHLIIANANAAEASLTGHQKVFTANN   159
NTDB id 1248 GC085 RS03150 WP 011213198.1     FDLPIALGILAASEQIPLTNLANHEFIGELALSGELRGVSAIIPAVLAAHKD.NQHLIIANANAAEASLTGHQKVFTANN   159
NTDB id 1153 A1552VC RS00115 WP 000521788.1   FDLPIALGILAASDQIARNKLESYEFIGELALSGEIRGVKGVLPAALAANQV.ERCLVVPHSNGDQAALVGVERHKSAQS   159
NTDB id 1397 DSB67 RS15690 WP 005535577.1     FDLPIALGILAASEQIATDKLKNYEFVGELALSGGLRTVKGVLPAALAANKK.QRHLVVPHANGDQAALVGKEQHKSAQS   159
NTDB id 1387 A4U84 RS06900 WP 020457569.1     FDLPIAIGILAASGQIDSDKLKRIELLGELSLTGHLRGVHGAIPAVLAASKA.KREIIVPQQNANEVSLVSNTQTYCAST   159
NTDB id 1349 HI 1117 AAC22771.1               FDLPIAIGILAASDQLDASHLKQFEFVAELALTGQLRGVHGVIPAILAAQKS.KRELIIAKQNANEASLVSDQNTYFAQT   159
consensus                                     *!!**!*!!!!!!!*!*    *   ****!!*!*! **** ***** **! *   * ****  !* **  **     * **

logo

NTDB id 1323 RAOC RS07335 WP 004916218.1      IKEVIDFFNENCPLEPTKVNTREEFHKRVNLFPFDFSEVKGQETAKRAMEVAAAGGHNIILIGPPGSGKTMLAKRIPSIL   238
NTDB id 90193 ANFP RS11950 WP 009565783.1     LAQAAAHLRGTDRLPEVVCDAES...PESAFPYLDLRDVRGQESTKRALIVAAVGGHHLLLSGPPGTGKSMLAARLPGLL   236
NTDB id 1271 LPP RS03220 WP 011213198.1       LREVCDYLCQGTSLQSLPPKPDL....LLNNYELDWSDIKGQQHAKNAMVIAACGGHSILLSGAPGSGKTMMAKRFSTLL   235
NTDB id 1248 GC085 RS03150 WP 011213198.1     LREVCDYLCQGTSLQSLPPKPDL....LLNNYELDWSDIKGQQHAKNAMVIAACGGHSILLSGAPGSGKTMMAKRFSTLL   235
NTDB id 1153 A1552VC RS00115 WP 000521788.1   LLEVCADLCGQQTLSLFQSSPSV....QQVSQTRDLQDIIGQQQGKRALEIAAAGNHNLLFLGPPGTGKTMLASRLCDLL   235
NTDB id 1397 DSB67 RS15690 WP 005535577.1     LLEVCAELCGQHQLNLYQTPKKK....ELKAHGRDLQDIIGQQQGKRALEIAAAGNHNLLFLGPPGTGKTMLASRLCDLL   235
NTDB id 1387 A4U84 RS06900 WP 020457569.1     LLQVVNFLNNRDQLPIAQQLSQNIAEN.RPLVSRDLTDIIGQQHAKRALIIAASGQHNLLFLGPPGTGKTMLASRLADLL   238
NTDB id 1349 HI 1117 AAC22771.1               LLDVVQFLNGQEKLPLATEIVKESAVNFSGKNTLDLTDIIGQQHAKRALTIAAAGQHNLLFLGPPGTGKTMLASRLTGLL   239
consensus                                     *  **   **     !                     !**** !!* *!*!* *!! ! !*** *!*!!*!!*!*! !*   *!

logo

NTDB id 1323 RAOC RS07335 WP 004916218.1      PPLTLKEALETTKIHSVAGKMGAETSLMTIRPFRSPHHTISDVALVGGGSYPQPGEISLAHNGVLFLDEMPEFKRTVLEV   318
NTDB id 90193 ANFP RS11950 WP 009565783.1     PPLHRSEALEVAAIHSLARERFRY.PSVGQ...................TSVPQPPP........................   273
NTDB id 1271 LPP RS03220 WP 011213198.1       PELSETQALECAAINSIRGKLPDF.REWRLPPFRAPHHTASPVALVGGGNPPKPGEISLAHHGVLFLDELPEFNRQVLET   314
NTDB id 1248 GC085 RS03150 WP 011213198.1     PELSETQALECAAINSIRGKLPDF.REWRLPPFRAPHHTASPVALVGGGNPPKPGEISLAHHGVLFLDELPEFNRQVLET   314
NTDB id 1153 A1552VC RS00115 WP 000521788.1   PEMSDEEAMETASIASLTQQEINQ.HNWKLRPFRAPHHSSSMAALVGGGTIPRPGEISLAHNGLLFLDEMPEFERKVLDS   314
NTDB id 1397 DSB67 RS15690 WP 005535577.1     PEMSDEEAMETASVASLTQSEINE.HNWKTRPFRAPHHSSSMAALVGGGSVPRPGEISLAHNGLLFLDEMPEFDRKVLDS   314
NTDB id 1387 A4U84 RS06900 WP 020457569.1     PEMEDDEAIETASVTSLVQNELNF.QNWKKRPFRSPHHSASMVALVGGGSIPKPGEISLAHNGVLFLDELPEFERKVLDA   317
NTDB id 1349 HI 1117 AAC22771.1               PEMTDLEAIETASVTSLVQNELNF.HNWKQRPFRAPHHSASMPALVGGGTIPKPGEISLATNGVLFLDELPEFERKVLDA   318
consensus                                     !**** *!*!** * !*     *   ** ********* *  ********!*!*************** * ***
```

```
logo
NTDB id 1323 RA0C RS07335 WP 004916218.1      MRQPLEDREVTISRAKFTVNYPASFMLVASMNPSPSGFFPDDPNNT.SSSFEMQRYLNKLSGPLLDRIDIHIEVQKVEFD   397
NTDB id 90193 ANFP RS11950 WP 009565783.1     ..........................................................................................   273
NTDB id 1271 LPP RS03220 WP 011213198.1       LREPLESGHICISRAAAQIEFPAKFQLIAAMNPCPCGQWGNSQANCMCTPDRISRYLAKLSAPLLDRIDMQVTIHALSQE   394
NTDB id 1248 GC085 RS03150 WP 011213198.1     LREPLESGHICISRAAAQIEFPAKFQLIAAMNPCPCGQWGNSQANCMCTPDRISRYLAKLSAPLLDRIDMQVTIHALSQE   394
NTDB id 1153 A1552VC RS00115 WP 000521788.1   LREPLESGEIVISRAQGKTRFPARFQLVGALNPSPTGYYEGSQAR..ANPQSILRYLSRLSGPLLDRFDMSIEIPALPKG   392
NTDB id 1397 DSB67 RS15690 WP 005535577.1     LREPLESGEIIISRAQGKTRFPARFQIVGALNPSPTGYYEGNQAR..TNPQAILRYLGRLSGPLLDRFDMSLEIPALPKG   392
NTDB id 1387 A4U84 RS06900 WP 020457569.1     LRQPLESGEIIISRANAKVQFPACFQLIAAMNPSPTGHYQGTHNR..TSPQQLMRYLNRLSGPFLDRFDLSIEVPLLPQG   395
NTDB id 1349 HI 1117 AAC22771.1               LRQPLESGEIIISRANAKIQFPARFQLVAAMNPSPTGHYTGTHNR..TSPQQIMRYLNRLSGPFLDRFDLSIEVPLLPQG   396
consensus                                     ** ******* **** * * ***************  *   *       **   * ***  ********* **  ***   *

logo
NTDB id 1323 RA0C RS07335 WP 004916218.1      QLSD..KRKGESSEIIRQRVLKAREIQQERYQDLAISYNAQMGPKEIEHFCELDEVSLLLIKNAMEKLNLSARAYDRILK   475
NTDB id 90193 ANFP RS11950 WP 009565783.1     ..........................................................................................   273
NTDB id 1271 LPP RS03220 WP 011213198.1       ELIKPNTHLEKQSLAIREKVTKMHEIQMARQD....SLNANLNSKTCEMVCELGSEEQLFLREVMSKLKLSARGYHRLLK   470
NTDB id 1248 GC085 RS03150 WP 011213198.1     ELIKPNTHLEKQSLAIREKVTKMHEIQMARQD....SLNANLNSKTCEMVCELGSEEQLFLREVMSKLKLSARGYHRLLK   470
NTDB id 1153 A1552VC RS00115 WP 000521788.1   TLANG.GDRGESTAAVRQRVWVARERMLARSG....KVNALLQSREIEQYCPLLKADAEFLESALHRLGLSIRAYHRIIK   467
NTDB id 1397 DSB67 RS15690 WP 005535577.1     TLSEG.GDRGEPTAIVKERVNQARDCMLARSG....KVNALLGSREIEAFCPLQKSDAEFLENALHRLGLSIRAYHRIIK   467
NTDB id 1387 A4U84 RS06900 WP 020457569.1     ALQNNTDQRGETTEQARKRVLEARHLQFNRRG....KINAQLTTKEIEQDCKLTDRDALFLENALTKLGLSVRAYHRILK   471
NTDB id 1349 HI 1117 AAC22771.1               SLQNT.GDRGETSAQVREKVLKVREIQMERAG....KINAYLNSKEIERDCKLNDKDAFFLEKALNKLGLSVRAYHRILK   471
consensus                                      *      *** *  ** **   ***** *       *** * *****  * *   *  **  ** ** ** ********

logo
NTDB id 1323 RA0C RS07335 WP 004916218.1      VSRTIADLERETNIQSHHIAEAIQYRSLDRDFWKV.....   510
NTDB id 90193 ANFP RS11950 WP 009565783.1     ........................................   273
NTDB id 1271 LPP RS03220 WP 011213198.1       VSRTIADMNSSKKVLLNHLQQALSYKQNLHLPK.......   503
NTDB id 1248 GC085 RS03150 WP 011213198.1     VSRTIADMNSSKKVLLNHLQQALSYKQNLHLPK.......   503
NTDB id 1153 A1552VC RS00115 WP 000521788.1   VARTIADLQGEAQIARPHLAEALGYRAMDRLLKQLSAQNV   507
NTDB id 1397 DSB67 RS15690 WP 005535577.1     VARTIADLEGSPQIERTHLAEALGYRAMDRLLKQLTAQAV   507
NTDB id 1387 A4U84 RS06900 WP 020457569.1     VSRTIADLAGEAQIQQPHLAEALGYRAMDRLLQRLQGES.   510
NTDB id 1349 HI 1117 AAC22771.1               VSRTIADLQGEQQIFQPHLAEALGYRAMVRLLQKLSNM..   509
consensus                                     ********     **    ****** ** * **    *
```

X non conserved

X similar

X $\geq$ 50% conserved