```
logo

NTDB id 108 BSU 35470 NP 391427.1          MNVPVEKNSSFSKELQQTLRSRHLLRTELSFSDEMI.EWHIKNGYITAENSISINKRRYRCNRCGQTDQRYFSFYHSSGK   79
NTDB id 615 LCA RS02545 WP 011374200.1     MGQQ............VIACGRQFTAAQLADTQN....NNYSLPQIKRRPAFLRVKHRLVCQRCGQVV.PPQT...CLPD   60
NTDB id 593 KW2 RS05130 WP 021037147.1     MNLIL...........ENLLGHLLLEKDISAFNNFTDQVNNENKLIKIGAMTSVNANKVRCNRCGTIHIKTNV...KLPI   66
NTDB id 277 KZH43 RS10090 WP 000867601.1   MKVN............LDYLGRLFTENELT.........EEERQLAEKLPAMRKEKGKLFCQRCNSTI.LEEW...YLPI   55
NTDB id 236 SPD RS10765 WP 000867601.1     MKVN............LDYLGRLFTENELT.........EEERQLAEKLPAMRKEKGKLFCQRCNSTI.LEEW...YLPI   55
NTDB id 202 SPR RS10250 WP 000867601.1     MKVN............LDYLGRLFTENELT.........EEERQLAEKLPAMRKEKGKLFCQRCNSTI.LEEW...YLPI   55
NTDB id 167 SP RS11275 WP 000867616.1      MKVN............LDYLGRLFTENELT.........EEERQLAEKLPAMRKEKGKLFCQRCNSTI.LEEW...YLPI   55
NTDB id 507 SM12261 RS09240 WP 000867722.1 MKVN............PNYLGRLFTENELT.........EEERQLAEKLPAMRKEKGKLFCQRCNSTI.LEEW...YLPI   55
NTDB id 317231 D7D53 RS09245 WP 120770771.1 MKVN...........PNYLGRLFTENELT.........EEERQLAEKLPAMRKEKGKLFCQRCDSAI.LDEW...YLPI   55
NTDB id 535 SMSK321 RS10515 WP 000867726.1 MKVN............PNYLGRLFTENELT.........KEERQLAEKLPAMRKEKGKLFCQRCDSAI.LDEW...YLPI   55
consensus                                  !***            * ************         ********************!*!!**** ****    ****

logo

NTDB id 108 BSU 35470 NP 391427.1          NKLYCRSCVMMGRVSEEVPLYSWKEENESNWKSIKLTWDGKLSSGQQKAANVLIEAISKKEELLIWAVCGAGKTEMLFPG   159
NTDB id 615 LCA RS02545 WP 011374200.1     GRHYCAQCLLFGRLVEGDWLYTVPECHLFENNIPKLTWEGQLTPHQEKAAQAVVEVVQTQKRHVLTAVTGAGKTEMLFQG   140
NTDB id 593 KW2 RS05130 WP 021037147.1     GAFFCPTCLELGRVRSDEYFYHLPQQDFPEK..TYLRWTGKLTENQEKISDALCQQITNNQKLLVQAVTGAGKTEMIYQL   144
NTDB id 277 KZH43 RS10090 WP 000867601.1   GAYYCRECLLMKRVRSDQTLYYFPQEDFPKQ..DVLKWRGQLTPFQEKVSEGLLQAVDKQKPTLVHAVTGAGKTEMIYQV   133
NTDB id 236 SPD RS10765 WP 000867601.1     GAYYCRECLLMKRVRSDQTLYYFPQEDFPKQ..DVLKWRGQLTPFQEKVSEGLLQAVDKQKPTLVHAVTGAGKTEMIYQV   133
NTDB id 202 SPR RS10250 WP 000867601.1     GAYYCRECLLMKRVRSDQTLYYFPQEDFPKQ..DVLKWRGQLTPFQEKVSEGLLQAVDKQKPTLVHAVTGAGKTEMIYQV   133
NTDB id 167 SP RS11275 WP 000867616.1      GAYYCRECLLMKRVRSDQTLYYFPQEDFPKQ..DVLKWRGQLTPFQEKVSEGLLQVVDKQKPTLVHAVTGAGKTEMIYQV   133
NTDB id 507 SM12261 RS09240 WP 000867722.1 GTYYCRECLLMKRVRSDQSLYYFPQEDFPKQ..DVLKWRGQLTPFQDKVSQGLLQAVDKQEPSLVHAVTGAGKTEMIYQV   133
NTDB id 317231 D7D53 RS09245 WP 120770771.1 GAYYCRECLIMKRIRSDQALYYFPQEDFPKQ..DVLKWRGQLTPFQEKVSKGLIQAVDKQEPTLVHAVTGAGKTEMIYQV   133
NTDB id 535 SMSK321 RS10515 WP 000867726.1 GAYYCRECLLMKRVRSDQVLYYFPQEDFAKQ..DILKWRGQLTPFQEKVSEGLIQAVDKQEPILVHAVTGAGKTEMIYQV   133
consensus                                  ****!**!****!******!**********  **!*!*!*!***!*!*****************!!*!!!!!!!****

logo

NTDB id 108 BSU 35470 NP 391427.1          IESALNQGLRVCIATPRTDVVLELAPRLKAAFQGADISALYGGSDDKGRLSPLMISTTHQLLRYKDAIDVMIIDEVDAFP   239
NTDB id 615 LCA RS02545 WP 011374200.1     ILVALQKGQRVCLAAPRVAVCLELYPRLQAAFATTSIMLMHGEQTEPYRYTQLVICTTHQLLKFYHAFDTVIVDEVDAFP   220
NTDB id 593 KW2 RS05130 WP 021037147.1     IEQILSHGGSVGLASPRIDVCIELHQRLSRDFTCQI.PLLYHE.GDSYFRSPLVVMTSHQLLRFKEAFDLLIIDEVDAFP   222
NTDB id 277 KZH43 RS10090 WP 000867601.1   VAKVINAGGAVCLASPRIDVCLELYKRLQQDFSCGI.ALLHGE.SEPYFRTPLVVATTHQLLKFYQAFDLLIVDEVDAFP   211
NTDB id 236 SPD RS10765 WP 000867601.1     VAKVINAGGAVCLASPRIDVCLELYKRLQQDFSCGI.ALLHGE.SEPYFRTPLVVATTHQLLKFYQAFDLLIVDEVDAFP   211
NTDB id 202 SPR RS10250 WP 000867601.1     VAKVINAGGAVCLASPRIDVCLELYKRLQQDFSCGI.ALLHGE.SEPYFRTPLVVATTHQLLKFYQAFDLLIVDEVDAFP   211
NTDB id 167 SP RS11275 WP 000867616.1      VAKVINAGGAVCLASPRIDVCLELYKRLQQDFSCGI.ALLHGE.SEPYFRTPLVVATTHQLLKFYQAFDLLIVDEVDAFP   211
NTDB id 507 SM12261 RS09240 WP 000867722.1 VAKVINAGGAVCLASPRIDVCLELYKRLQKDFACEI.ALLHGE.SEPYFRTPLVVATTHQLLKFYQAFDLLIVDEVDAFP   211
NTDB id 317231 D7D53 RS09245 WP 120770771.1 VAKVIDEGGAVCLASPRIDVCLELYKRLQDDFACEI.ALLHGE.SEPYFRTPLVVATTHQLLKFYHAFDLLIVDEVDAFP   211
NTDB id 535 SMSK321 RS10515 WP 000867726.1 VAKVINAGGAVCLASPRIDVCLELYKRLQDDFACEI.SLLYGE.SEPYFRTPLVVSTTHQLLKFYQAFDLLIVDEVDAFP   211
consensus                                  *******!**!**!*!!**!**!!**!!* *!**** ****** ********!***!*!!!!****!*!**!*!!!!!!!
```

```
logo
NTDB id 108 BSU 35470 NP 391427.1          YSADQTLQFAVQKARKKNSTLVYLSATPPKELKRKALNGQLHSVRIPARHHRKPLPEPRFVWCGNWKKKLNRNKIPPAVK   319
NTDB id 615 LCA RS02545 WP 011374200.1     FVDNPVLATAVEQACKPQCALLYLTATPTPAIKRAIAAKQMTVSELPLRFHGHLLPEPQRHVAFNWRAQLKKGRLPKRLE   300
NTDB id 593 KW2 RS05130 WP 021037147.1     FRDNDMLYFALENAKKINGTLLYLTATSTDKLDKQIKKHEIKRLFLPRRFHGHPLVIPMFFWKKTFYKK...........   291
NTDB id 277 KZH43 RS10090 WP 000867601.1   YVDNPMLYHAVKNSVKENGLRIFLTATSTNELDKKVRLGELKRLNLPRRFHGNPLIIPKPIWLSDFNRYLDKNRLSPKLK   291
NTDB id 236 SPD RS10765 WP 000867601.1     YVDNPMLYHAVKNSVKENGLRIFLTATSTNELDKKVRLGELKRLNLPRRFHGNPLIIPKPIWLSDFNRYLDKNRLSPKLK   291
NTDB id 202 SPR RS10250 WP 000867601.1     YVDNPMLYHAVKNSVKENGLRIFLTATSTNELDKKVRLGELKRLNLPRRFHGNPLIIPKPIWLSDFNRYLDKNRLSPKLK   291
NTDB id 167 SP RS11275 WP 000867616.1      YVDNPMLYHAVKNSVKENGLRIFLTATSTNELDKKVRLGELKRLNLPRRFHGNPLIIPKPIWLSDFNRYLDKNRLSPKLK   291
NTDB id 507 SM12261 RS09240 WP 000867722.1 YVDNPMLYHAVKNSVKENGLRIFLTATSTDELDRKVRIGELKRLSLPRRFHGNPLIIPKPVWLSDFNHCLEKSRLSPKLK   291
NTDB id 317231 D7D53 RS09245 WP 120770771.1 YVDNPTLYHAVKNSVKKNGLRIFLTATSTDELDRKVRIGELKRLSLPRRFHGNPLIIPKPVWLSDFNRYLDKNRLSPKLK   291
NTDB id 535 SMSK321 RS10515 WP 000867726.1 YVDNPMLYHAVKNSVKENGLRIFLTATSTDELDRKVRIGELKRLSLPRRFHGNPLIIPKPVWLSDFNRYLEKKCLSPKLK   291
consensus                                  ******!**!*****!*******!*!!** ************** *!*!*!***!**!**********************
```

```
logo
NTDB id 108 BSU 35470 NP 391427.1          RWIEFHVKECRPVFLFVPSVSILEKAAACFKGV..HCRTASVHAEDKHRKEKVQQFRDGQLDLLITTTILERGVTVPKVQ   397
NTDB id 615 LCA RS02545 WP 011374200.1     RDCQTYL.KTQQILLFVPQVRLLQPVANRLSTLLPAVRIETLHANDPDQIKKITAFRAQQIQLMVTTTILERGVTFKNVA   379
NTDB id 593 KW2 RS05130 WP 021037147.1     ..FIEQRKTGFPLLIFVAEIDFGQDFAKNLQEKFPKEKMAFVASTTKSRKTIVEAFRKKQVSILITTSILERGVTFSSID   369
NTDB id 277 KZH43 RS10090 WP 000867601.1   SYIEKQRKTAYPLLIFASEIKKGEQLAEILQEQFPNEKIGFVSSVTEDRLEQVQAFRDGELTILISTTILERGVTFPCVD   371
NTDB id 236 SPD RS10765 WP 000867601.1     SYIEKQRKTAYPLLIFASEIKKGEQLAEILQEQFPNEKIGFVSSVTEDRLEQVQAFRDGELTILISTTILERGVTFPCVD   371
NTDB id 202 SPR RS10250 WP 000867601.1     SYIEKQRKTAYPLLIFASEIKKGEQLAEILQEQFPNEKIGFVSSVTEDRLEQVQAFRDGELTILISTTILERGVTFPCVD   371
NTDB id 167 SP RS11275 WP 000867616.1      SYIEKQRKTAYPLLIFASEIKKGEQLAEILQEQFPNEKIGFVSSVTEDRLEQVQAFRDGELTILISTTILERGVTFPCVD   371
NTDB id 507 SM12261 RS09240 WP 000867722.1 SYIEKQRKTGYPLLIFASEIKKGEQLKEIIQEQFPNEKIGFVSSITENRLEQVQAFRDRELTILISTTILERGVTFPCVD   371
NTDB id 317231 D7D53 RS09245 WP 120770771.1 FYIEKQRKTGYPLLIFASEIKKGEQLKEVLQKEFSHEKIGFVSSVTEDRLEQVQAFRDGELTILISTTILERGVTFPCVD   371
NTDB id 535 SMSK321 RS10515 WP 000867726.1 SYIEKQRKTGYPLLIFASEIKKGEQLKEILQKEFPHEKIGFVSSVTEDRLEQVQAFRDGELTILISTTILERGVTFPCVD   371
consensus                                  ***************!*************************************!!*********!*!!!!!!!*****
```

```
logo
NTDB id 108 BSU 35470 NP 391427.1          TGVLGAESSIFTESALVQIAGRTGRHKEYADGDVIYFHFGKTKSMLDARKHIKEMNELAAKVECTD   463
NTDB id 615 LCA RS02545 WP 011374200.1     VLVLGAEHMVFNEAVLVQIAGRAGRHKDYAQNPVHFYYQDYTRAIKGACRQIKTQNQRGRRLQSTV   445
NTDB id 593 KW2 RS05130 WP 021037147.1     VFVINSEHPNFTKSALIQMAGRVGRDSKRPTGLVSFFHSGKSLAMCQAQKEIKKMNRLGGF.....   430
NTDB id 277 KZH43 RS10090 WP 000867601.1   VFVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNASIKKAIKEIQMMNKEAGL.....   432
NTDB id 236 SPD RS10765 WP 000867601.1     VFVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNASIKKAIKEIQMMNKEAGL.....   432
NTDB id 202 SPR RS10250 WP 000867601.1     VFVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNASIKKAIKEIQMMNKEAGL.....   432
NTDB id 167 SP RS11275 WP 000867616.1      VFVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNASIKKAIKEIQMMNKEAGL.....   432
NTDB id 507 SM12261 RS09240 WP 000867722.1 VFVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNTSIKKAIKEIQQMNKEAGL.....   432
NTDB id 317231 D7D53 RS09245 WP 120770771.1 VFVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNASIKKAIKEIQQMNKEASL.....   432
NTDB id 535 SMSK321 RS10515 WP 000867726.1 VFVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNTSIKKAIKEIQQMNKEAGL.....   432
consensus                                  **!*******!****!*!**!!*!!*********************!***!* *!*****
```

X non conserved

X similar

X $\geq$ 50% conserved