```
logo

NTDB id 108 BSU 35470 NP 391427.1          MNVPVEKNSSFSKELQQTLRSRHLLRTELSFSDEMIEWHIKNGYITAENSISINKRRYRCNRCGQTDQRYFSFYHSSGKN   80
NTDB id 106499 A4W82 RS02760 WP 052039239.1 MGQQVIA............CGRQFTAAQ..LADTQN.NNYSLPQIKRRPAFLRVKHRLVCQRCQQVVPPQTC....LPDG   61
NTDB id 615 LCA RS02545 WP 011374200.1     MGQQVIA............CGRQFTAAQ..LADTQN.NNYSLPQIKRRPAFLRVKHRLVCQRCQQVVPPQTC....LPDG   61
NTDB id 167 SP RS11275 WP 000867616.1      MKVNLDY............LGRLFTENE..LTEEE......RQLAEKLPAMRKEKGKLFCQRCNSTILEEWY....LPIG   56
NTDB id 277 KZH43 RS10090 WP 000867601.1   MKVNLDY............LGRLFTENE..LTEEE......RQLAEKLPAMRKEKGKLFCQRCNSTILEEWY....LPIG   56
NTDB id 236 SPD RS10765 WP 000867601.1     MKVNLDY............LGRLFTENE..LTEEE......RQLAEKLPAMRKEKGKLFCQRCNSTILEEWY....LPIG   56
NTDB id 202 SPR RS10250 WP 000867601.1     MKVNLDY............LGRLFTENE..LTEEE......RQLAEKLPAMRKEKGKLFCQRCNSTILEEWY....LPIG   56
NTDB id 507 SM12261 RS09240 WP 000867722.1 MKVNPNY............LGRLFTENE..LTEEE......RQLAEKLPAMRKEKGKLFCQRCNSTILEEWY....LPIG   56
NTDB id 535 SMSK321 RS10515 WP 000867726.1 MKVNPNY............LGRLFTENE..LTKEE......RQLAEKLPAMRKEKGKLFCQRCDSAILDEWY....LPIG   56
consensus                                  !******            **!******  *****      *************!****!*!!********    ****

logo

NTDB id 108 BSU 35470 NP 391427.1          KLYCRSCVMMGRVSEEVPLYSWKEENESNWKSIKLTWDGKLSSGQQKAANVLIEAISKKEELLIWAVCGAGKTEMLFPGI  160
NTDB id 106499 A4W82 RS02760 WP 052039239.1 RHYCAQCLLFGRLVEGDWLYTVPECHLFENNIPKLTWEGQLTPHQEQAAQAVVEVVQTQKRHVLTAVTGAGKTEMLFQGI  141
NTDB id 615 LCA RS02545 WP 011374200.1     RHYCAQCLLFGRLVEGDWLYTVPECHLFENNIPKLTWEGQLTPHQEKAAQAVVEVVQTQKRHVLTAVTGAGKTEMLFQGI  141
NTDB id 167 SP RS11275 WP 000867616.1      AYYCRECLLMKRVRSDQTLYYFPQEDFPKQ..DVLKWRGQLTPFQEKVSEGLLQVVDKQKPTLVHAVTGAGKTEMIYQVV  134
NTDB id 277 KZH43 RS10090 WP 000867601.1   AYYCRECLLMKRVRSDQTLYYFPQEDFPKQ..DVLKWRGQLTPFQEKVSEGLLQAVDKQKPTLVHAVTGAGKTEMIYQVV  134
NTDB id 236 SPD RS10765 WP 000867601.1     AYYCRECLLMKRVRSDQTLYYFPQEDFPKQ..DVLKWRGQLTPFQEKVSEGLLQAVDKQKPTLVHAVTGAGKTEMIYQVV  134
NTDB id 202 SPR RS10250 WP 000867601.1     AYYCRECLLMKRVRSDQTLYYFPQEDFPKQ..DVLKWRGQLTPFQEKVSEGLLQAVDKQKPTLVHAVTGAGKTEMIYQVV  134
NTDB id 507 SM12261 RS09240 WP 000867722.1 TYYCRECLLMKRVRSDQSLYYFPQEDFPKQ..DVLKWRGQLTPFQDKVSQGLLQAVDKQEPSLVHAVTGAGKTEMIYQVV  134
NTDB id 535 SMSK321 RS10515 WP 000867726.1 AYYCRECLLMKRVRSDQVLYYFPQEDFAKQ..DILKWRGQLTPFQEKVSEGLIQAVDKQEPILVHAVTGAGKTEMIYQVV  134
consensus                                  **!!**!****!******!!**********  **!*!*!*!***!*****************!!*!!!!!!!*****

logo

NTDB id 108 BSU 35470 NP 391427.1          ESALNQGLRVCIATPRTDVVLELAPRLKAAFQGADISALYGGSDDKGRLSPLMISTTHQLLRYKDAIDVMIIDEVDAFPY  240
NTDB id 106499 A4W82 RS02760 WP 052039239.1 LVALQKGQRVCLAAPRVAVCLELYPRLQAAFATASIMLMHGEQTEPYRYTQLVICTTHQLLKFYHAFDTVIVDEVDAFPF  221
NTDB id 615 LCA RS02545 WP 011374200.1     LVALQKGQRVCLAAPRVAVCLELYPRLQAAFATTSIMLMHGEQTEPYRYTQLVICTTHQLLKFYHAFDTVIVDEVDAFPF  221
NTDB id 167 SP RS11275 WP 000867616.1      AKVINAGGAVCLASPRIDVCLELYKRLQQDFSCG.IALLHGE.SEPYFRTPLVVATTHQLLKFYQAFDLLIVDEVDAFPY  212
NTDB id 277 KZH43 RS10090 WP 000867601.1   AKVINAGGAVCLASPRIDVCLELYKRLQQDFSCG.IALLHGE.SEPYFRTPLVVATTHQLLKFYQAFDLLIVDEVDAFPY  212
NTDB id 236 SPD RS10765 WP 000867601.1     AKVINAGGAVCLASPRIDVCLELYKRLQQDFSCG.IALLHGE.SEPYFRTPLVVATTHQLLKFYQAFDLLIVDEVDAFPY  212
NTDB id 202 SPR RS10250 WP 000867601.1     AKVINAGGAVCLASPRIDVCLELYKRLQQDFSCG.IALLHGE.SEPYFRTPLVVATTHQLLKFYQAFDLLIVDEVDAFPY  212
NTDB id 507 SM12261 RS09240 WP 000867722.1 AKVINAGGAVCLASPRIDVCLELYKRLQKDFACE.IALLHGE.SEPYFRTPLVVATTHQLLKFYQAFDLLIVDEVDAFPY  212
NTDB id 535 SMSK321 RS10515 WP 000867726.1 AKVINAGGAVCLASPRIDVCLELYKRLQDDFACE.ISLLYGE.SEPYFRTPLVVSTTHQLLKFYQAFDLLIVDEVDAFPY  212
consensus                                  ******!**!!*!*!!**!*!!!**!!* *! ** !****!* ********!***!!!!!!****!*!**!*!!!!!!!*

logo

NTDB id 108 BSU 35470 NP 391427.1          SADQTLQFAVQKARKKNSTLVYLSATPPKELKRKALNGQLHSVRIPARHHRKPLPEPRFVWCGNWKKKLNRNKIPPAVKR  320
NTDB id 106499 A4W82 RS02760 WP 052039239.1 VDNPVLVTAVEQACKPQCALLYLTATPTPAIKRAIAAKQMTVSELPLRFHGHLLPEPHRHVAFNWRAQLKKGRLPKRLER  301
NTDB id 615 LCA RS02545 WP 011374200.1     VDNPVLATAVEQACKPQCALLYLTATPTPAIKRAIAAKQMTVSELPLRFHGHLLPEPQRHVAFNWRAQLKKGRLPKRLER  301
NTDB id 167 SP RS11275 WP 000867616.1      VDNPMLYHAVKNSVKENGLRIFLTATSTNELDKKVRLGELKRLNLPRRFHGNPLIIPKPIWLSDFNRYLDKNRLSPKLKS  292
NTDB id 277 KZH43 RS10090 WP 000867601.1   VDNPMLYHAVKNSVKENGLRIFLTATSTNELDKKVRLGELKRLNLPRRFHGNPLIIPKPIWLSDFNRYLDKNRLSPKLKS  292
NTDB id 236 SPD RS10765 WP 000867601.1     VDNPMLYHAVKNSVKENGLRIFLTATSTNELDKKVRLGELKRLNLPRRFHGNPLIIPKPIWLSDFNRYLDKNRLSPKLKS  292
NTDB id 202 SPR RS10250 WP 000867601.1     VDNPMLYHAVKNSVKENGLRIFLTATSTNELDKKVRLGELKRLNLPRRFHGNPLIIPKPIWLSDFNRYLDKNRLSPKLKS  292
NTDB id 507 SM12261 RS09240 WP 000867722.1 VDNPMLYHAVKNSVKENGLRIFLTATSTDELDRKVRIGELKRLSLPRRFHGNPLIIPKPVWLSDFNHCLEKSRLSPKLKS  292
NTDB id 535 SMSK321 RS10515 WP 000867726.1 VDNPMLYHAVKNSVKENGLRIFLTATSTDELDRKVRIGELKRLSLPRRFHGNPLIIPKPVWLSDFNRYLEKKCLSPKLKS  292
consensus                                  *****!**!!****!*******!*!!** ************** *!*!*!***!**!***********!***********
```

```
logo
NTDB id 108 BSU 35470 NP 391427.1              WIEFHVKEGRPVFLFVPSVSILEKAAACFKGV..HCFTASVHAEDKHRKEKVQQFRDGQLDLLITTTILERGVTVPKVQT   398
NTDB id 106499 A4W82 RS02760 WP 052039239.1    DCQTCLK.TQQILLFVPQVRLLQPVANRLSTLLPAVRIETLHANDPDQIKKITAFRAQQIQLMVTTTILERGVTFKNVAV   380
NTDB id 615 LCA RS02545 WP 011374200.1         DCQTYLK.TQQILLFVPQVRLLQPVANRLSTLLPAVRIETLHANDPDQIKKITAFRAQQIQLMVTTTILERGVTFKNVAV   380
NTDB id 167 SP RS11275 WP 000867616.1          YIEKQRKTAYPLLIFASEIKKGEQLAEILQEQFPNEKIGFVSSVTEDRLEQVQAFRDGELTILISTTILERGVTFPCVDV   372
NTDB id 277 KZH43 RS10090 WP 000867601.1       YIEKQRKTAYPLLIFASEIKKGEQLAEILQEQFPNEKIGFVSSVTEDRLEQVQAFRDGELTILISTTILERGVTFPCVDV   372
NTDB id 236 SPD RS10765 WP 000867601.1         YIEKQRKTAYPLLIFASEIKKGEQLAEILQEQFPNEKIGFVSSVTEDRLEQVQAFRDGELTILISTTILERGVTFPCVDV   372
NTDB id 202 SPR RS10250 WP 000867601.1         YIEKQRKTAYPLLIFASEIKKGEQLAEILQEQFPNEKIGFVSSVTEDRLEQVQAFRDGELTILISTTILERGVTFPCVDV   372
NTDB id 507 SM12261 RS09240 WP 000867722.1     YIEKQRKTGYPLLIFASEIKKGEQLKEILQEQFPNEKIGFVSSITENRLEQVQAFRDRELTILISTTILERGVTFPCVDV   372
NTDB id 535 SMSK321 RS10515 WP 000867726.1     YIEKQRKTGYPLLIFASEIKKGEQLKEILQKEFPHEKIGFVSSVTEDRLEQVQAFRDGELTILISTTILERGVTFPCVDV   372
consensus                                      ******!******!*********************************!!*********!!!!!!!!!***!**

logo
NTDB id 108 BSU 35470 NP 391427.1              GVLGAESSIFTESALVQIAGRTGRHKEYADGDVIYFHFGKTKSMLDARKHIKEMNELAAKVECTD   463
NTDB id 106499 A4W82 RS02760 WP 052039239.1    LVLGAEHMVFNEAVLVQIAGRAGRHKDYAQNPVHFYYQDYTRAIKGACRQIKAQNQRGRRLQSTV   445
NTDB id 615 LCA RS02545 WP 011374200.1         LVLGAEHMVFNEAVLVQIAGRAGRHKDYAQNPVHFYYQDYTRAIKGACRQIKTQNQRGRRLQSTV   445
NTDB id 167 SP RS11275 WP 000867616.1          FVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNASIKKAIKEIQMMNKEAGL.....   432
NTDB id 277 KZH43 RS10090 WP 000867601.1       FVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNASIKKAIKEIQMMNKEAGL.....   432
NTDB id 236 SPD RS10765 WP 000867601.1         FVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNASIKKAIKEIQMMNKEAGL.....   432
NTDB id 202 SPR RS10250 WP 000867601.1         FVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNASIKKAIKEIQMMNKEAGL.....   432
NTDB id 507 SM12261 RS09240 WP 000867722.1     FVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNTSIKKAIKEIQQMNKEAGL.....   432
NTDB id 535 SMSK321 RS10515 WP 000867726.1     FVVEANHRLFTKSSLIQIGGRVGRSMDRPTGDLLFFHDGLNTSIKKAIKEIQQMNKEAGL.....   432
consensus                                      *!**!****!****!*!!*!!*!!*****************  ****!***!*  *!*****
```

X non conserved

X similar

X $\geq$ 50% conserved