

|           |        |           |         |             |             |                                                    |                                                                      |                    |    |
|-----------|--------|-----------|---------|-------------|-------------|----------------------------------------------------|----------------------------------------------------------------------|--------------------|----|
| NTDB id   | 602    | KW2       | RS03060 | WP          | 011834647.1 | .....MGYL                                          | VPTVIEQSSRGERAYDIYSRLKLDRIIMLTGVPVEDGMANSIIAQLFLDAQDN                | TKDIYLYVNTPGGSVSAG | 75 |
| NTDB id   | 611    | V4T04     | RS07970 | WP          | 003129593.1 | .....MGYL                                          | VPTVIEQSSRGERAYDIYSRLKLDRIIMLTGVPVEDGMANSIIAQLFLDAQDN                | TKDIYLYVNTPGGSVSAG | 75 |
| NTDB id   | 330    | STU       | RS11365 | WP          | 002949732.1 | .....MIPV                                          | VIEQTSGERSYDIYSRLKLDRIIMLTGPTEEDNMANSIIAQLFLDAQDN                    | TKDIYLYVNTPGGSVSAG | 72 |
| NTDB id   | 298    | STER      | RS01925 | WP          | 002949732.1 | .....MIPV                                          | VIEQTSGERSYDIYSRLKLDRIIMLTGPTEEDNMANSIIAQLFLDAQDN                    | TKDIYLYVNTPGGSVSAG | 72 |
| NTDB id   | 282    | KZH43     | RS03215 | WP          | 000613477.1 | .....MIPV                                          | VIEQTSGERSYDIYSRLKLDRIIMLTGVPVEDNMANSIIAQLFLDAQDS                    | TKDIYLYVNTPGGSVSAG | 72 |
| NTDB id   | 246    | SPD       | RS03495 | WP          | 000613477.1 | .....MIPV                                          | VIEQTSGERSYDIYSRLKLDRIIMLTGVPVEDNMANSIIAQLFLDAQDS                    | TKDIYLYVNTPGGSVSAG | 72 |
| NTDB id   | 244    | SPR       | RS03300 | WP          | 000613477.1 | .....MIPV                                          | VIEQTSGERSYDIYSRLKLDRIIMLTGVPVEDNMANSIIAQLFLDAQDS                    | TKDIYLYVNTPGGSVSAG | 72 |
| NTDB id   | 242    | SP        | RS03655 | WP          | 000613477.1 | .....MIPV                                          | VIEQTSGERSYDIYSRLKLDRIIMLTGVPVEDNMANSIIAQLFLDAQDS                    | TKDIYLYVNTPGGSVSAG | 72 |
| NTDB id   | 446    | SpyM6JRS4 | RS01695 | WP          | 002985850.1 | .....MIPV                                          | VIEQTSGERSYDIYSRLKLDRIIMLTGVPVEDNMANSIIAQLFLDAQDN                    | TKDIYLYVNTPGGSVSAG | 72 |
| NTDB id   | 445    | SPYM3     | RS01720 | WP          | 002985850.1 | .....MIPV                                          | VIEQTSGERSYDIYSRLKLDRIIMLTGVPVEDNMANSIIAQLFLDAQDN                    | TKDIYLYVNTPGGSVSAG | 72 |
| NTDB id   | 376    | SMU       | RS07595 | WP          | 255262720.1 | MELKEKYS                                           | MIPVVIEQTSGERSYDIYSRLKLDRIIMLTGVPVEDNMANSIIAQLFLDAQDN                | TKDIYLYINSPGGSVSAG | 80 |
| NTDB id   | 968334 | MXK38     | RS17600 | WP          | 003228214.1 | .....MNL                                           | IPTVIEQTNRGERAYDIYSRLKLDRIIMLGSAIDDNVANISVSQLLFLAAEDPEKEISLYINSPGGSI | TAG                | 74 |
| NTDB id   | 86     | BSU       | 34540   | NP          | 391334.1    | .....MNL                                           | IPTVIEQTNRGERAYDIYSRLKLDRIIMLGSAIDDNVANISVSQLLFLAAEDPEKEISLYINSPGGSI | TAG                | 74 |
| NTDB id   | 1223   | Cj0192c   | YP      | 002343650.1 | .....MFIP   | PYVIEKSSRGRSYDIYSRLKLDRIIMLSGEIHDELAASIVAQLFLAEADP | TKDIYLYINSPGGVITSG                                                   | 73                 |    |
| consensus |        |           |         |             |             |                                                    | **!*!*****!!*!!!!!!!!!!!!!!*!!!!*!*****!!*!****!                     |                    |    |

|                  |                                      |               |                       |                                                              |                                                    |     |
|------------------|--------------------------------------|---------------|-----------------------|--------------------------------------------------------------|----------------------------------------------------|-----|
| NTDB id          | 602 KW2 RS03060 WP 011834647.1       | LAIVDTMNFIKS  | DVQTIIVMGMAASMTI      | IASSGTGKGRFMLPNAEYL                                          | LIHQPMGGAGQGTTQTDMIAIVAEQLLKTRKRLEQ                | 155 |
| NTDB id          | 611 V4T04 RS07970 WP 003129593.1     | LAIVDTMNFIKS  | DVQTIIVMGMAASMTI      | IASSGTGKGRFMLPNAEYLI                                         | LIHQPMGGTGQGTQQTDMAIVAEEQLLTKRKRLEQ                | 155 |
| NTDB id          | 330 STU RS11365 WP 002949732.1       | LAIVDTMNFIKS  | DVQTIIVMGMAASMTI      | IASSGTGKGRFMLPNAEYMIHQPMMGGTGGGTQQTDMAIAAAEHLLKTRNNLEQ       |                                                    | 152 |
| NTDB id          | 298 STER RS01925 WP 002949732.1      | LAIVDTMNFIKS  | DVQTIIVMGMAASMTI      | IASSGTGKGRFMLPNAEYMIHQPMMGGTGGGTQQTDMAIAAHHLLKTRNNLEQ        |                                                    | 152 |
| NTDB id          | 282 KZH43 RS03215 WP 000613477.1     | LAIVDTMNFKA   | DVQTIIVMGMAASMTVI     | IASSGAKGFRFLPNAYEMIHQPMMGGTGGGTQQTDMAIAAHHLLKTRNTLEK         |                                                    | 152 |
| NTDB id          | 246 SPD RS03495 WP 000613477.1       | LAIVDTMNFKA   | DVQTIIVMGMAASMTVI     | IASSGAKGFRFLPNAYEMIHQPMMGGTGGGTQQTDMAIAAHHLLKTRNTLEK         |                                                    | 152 |
| NTDB id          | 244 SPR RS03300 WP 000613477.1       | LAIVDTMNFKA   | DVQTIIVMGMAASMTVI     | IASSGAKGFRFLPNAYEMIHQPMMGGTGGGTQQTDMAIAAHHLLKTRNTLEK         |                                                    | 152 |
| NTDB id          | 242 SP RS03655 WP 000613477.1        | LAIVDTMNFKA   | DVQTIIVMGMAASMTVI     | IASSGAKGFRFLPNAYEMIHQPMMGGTGGGTQQTDMAIAAHHLLKTRNTLEK         |                                                    | 152 |
| NTDB id          | 446 SpyM6JRS4 RS01695 WP 002985850.1 | LAIVDTMNFKA   | DVQTIIVMGMAASMTVI     | IASSGTGKGRFMLPNAEYMIHQPMMGGTGGGTQQTDMAIAAHHLLKTRHRLEK        |                                                    | 152 |
| NTDB id          | 445 SPYM3 RS01720 WP 002985850.1     | LAIVDTMNFKA   | DVQTIIVMGMAASMTVI     | IASSGTGKGRFMLPNAEYMIHQPMMGGTGGGTQQTDMAIAAHHLLKTRHRLEK        |                                                    | 152 |
| NTDB id          | 376 SMU RS07595 WP 255262720.1       | LAIVDTMNFIKS  | DVQTIIVMGI            | AASMTII ASSGTAKGGRFMLPNAEYLIHQPMGGTGGGTQQSDMAIAAEQLLKTRKKLEK |                                                    | 160 |
| NTDB id          | 968334 MKX38 RS17600 WP 003228214.1  | MAIYDTMQFIKP  | KPVSTICIGMAASMGAFL    | LAAAGEKGKYALPNSSEVMIHQPLGGAQG..QATEIEIAAKRIILLRLDKLNK        |                                                    | 152 |
| NTDB id          | 86 BSU 34540 NP 391334.1             | MAIYDTMQFIKP  | KPVSTICIGMAASMGAFL    | LAAAGEKGKYALPNSSEVMIHQPLGGAQG..QATEIEIAAKRIILLRLDKLNK        |                                                    | 152 |
| NTDB id          | 1223 Cj0192c YP 002343650.1          | FSAIYDITMNFIK | PVKDVCTTCIGQAASMGAFIL | LSCGAECKRFALPNSRIMIHQPLGLGAR.G.QATDIEIQAKEILLRLKITIND        |                                                    | 151 |
| <b>consensus</b> |                                      | **!*          | *!!**!                | *                                                            | *!*!!!!!!!*****!****!!*!!!!!!!!!!!!***!!*!!!!!!*!* |     |

|                                              |                                                 |     |
|----------------------------------------------|-------------------------------------------------|-----|
| NTDB id 602 KW2 RS03060 WP 011834647.1       | ILADNSNRSLQIHKDAERDHWMDAKETLEYGFIDEIMENNSLK.    | 199 |
| NTDB id 611 V4T04 RS07970 WP 003129593.1     | ILADNSNRSLQIHKDAERDHWMDAKETLEYGFIDEIMENNSLK.    | 199 |
| NTDB id 330 STU RS11365 WP 002949732.1       | ILADNSGQPTEKVVHDAERDNWMSAQETLEYGFIDEIMTNQLK.    | 196 |
| NTDB id 298 STER RS01925 WP 002949732.1      | ILADNSGQPTEKVVHDAERDNWMSAQETLEYGFIDEIMTNQLK.    | 196 |
| NTDB id 282 KZH43 RS03215 WP 000613477.1     | ILAENSQGSMKEKVHADAEARNWMSAQETLEYGFIDEIMANNSLN.  | 196 |
| NTDB id 246 SPD RS03495 WP 000613477.1       | ILAENSQGSMKEKVHADAEARNWMSAQETLEYGFIDEIMANNSLN.  | 196 |
| NTDB id 244 SPR RS03300 WP 000613477.1       | ILAENSQGSMKEKVHADAEARNWMSAQETLEYGFIDEIMANNSLN.  | 196 |
| NTDB id 242 SP RS03655 WP 000613477.1        | ILAENSQGSMKEKVHADAEARNWMSAQETLEYGFIDEIMANNSLN.  | 196 |
| NTDB id 446 SpyM6JRS4 RS01695 WP 002985850.1 | ILAAQNAGKTIKQIHKAEDRYWMSAEEETLAYGFIDEIMENNELK.  | 196 |
| NTDB id 445 SPYM3 RS01720 WP 002985850.1     | ILAAQNAGKTIKQIHKAEDRYWMSAEEETLAYGFIDEIMENNELK.  | 196 |
| NTDB id 376 SMU RS07595 WP 255262720.1       | ILSDNSGKTIKQIHKAEDRYWMDAKETLKYGFIDEIMENNELK.    | 204 |
| NTDB id 968334 MKX38 RS17600 WP 003228214.1  | VLAERTTGQPLEVIERDTDRDNFKSAEEALEYGLIDKILTHTEDKK  | 197 |
| NTDB id 86 BSU 34540 NP 391334.1             | VLAERTTGQPLEVIERDTDRDNFKSAEEALEYGLIDKILTHTEDKK  | 197 |
| NTDB id 1223 Cj0192c YP 002343650.1          | ILAKNITKQKVAKIAKTDTERDFFMSAQEAKKEYGLIDKVLKSFK.. | 194 |
| consensus                                    | *!*****!****!*!!**!!!***!!*!!!!!!*!!*!!*!!*     |     |

 non conserved  
 similar  
  $\geq 50\%$  conserved