```
logo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
NTDB id 320 STU RS10340 WP 002949220.1        ....................................................MEQEVFVKAYEKVRPIVLKAFRQYFIQLWDQ    31
NTDB id 47 STER RS00925 WP 002949220.1        ....................................................MEQEVFVKAYEKVRPIVLKAFRQYFIQLWDQ    31
NTDB id 468 HSISS4 RS00725 WP 021143466.1     ....................................................MEQEVFVHAYEVVRPIVLKASRQYFIQLWDQ    31
NTDB id 50 STRSA0001 RS07545 WP 002885610.1   ....................................................MEQEVFVHAYEVVRPIVLKASRQYFIQLWDL    31
NTDB id 44 SMU RS09085 WP 002263585.1         ....................................................MEEDFEIVFNKVKPIVWKLSRYYFIKMWTR    30
NTDB id 457 SSUD9 RS00080 WP 002936602.1      ........................................................MEFEKVYASVKGIVNKARKEFYIKLWDR    28
NTDB id 461 GPW51 RS00080 WP 011921639.1      ........................................................MEFEKVYASVKGIVNKARKEFYIKLWDR    28
NTDB id 454 SSU RS00080 WP 011921639.1        ........................................................MEFEKVYASVKGIVNKARKEFYIKLWDR    28
NTDB id 424 SGO RS10430 WP 012130755.1        ........................................................MKFEDVYKQVEGIVKRCYKDYYLHLWEY    28
NTDB id 423 SGO RS08370 WP 012130755.1        ........................................................MKFEDVYKQVEGIVKRCYKDYYLHLWEY    28
NTDB id 252 KZH43 RS09050 WP 000588897.1      ......................................................MIKELYEEVQGTVYKCRNEYYLHLWEL    27
NTDB id 251 KZH43 RS09050 WP 000588897.1      ......................................................MIKELYEEVQGTVYKCRNEYYLHLWEL    27
NTDB id 211 SPD RS09675 WP 000588897.1        ......................................................MIKELYEEVQGTVYKCRNEYYLHLWEL    27
NTDB id 210 SPD RS00065 WP 000588897.1        ......................................................MIKELYEEVQGTVYKCRNEYYLHLWEL    27
NTDB id 177 SPR RS09210 WP 000588897.1        ......................................................MIKELYEEVQGTVYKCRNEYYLHLWEL    27
NTDB id 176 SPR RS00065 WP 000588897.1        ......................................................MIKELYEEVQGTVYKCRNEYYLHLWEL    27
NTDB id 141 SP RS10155 WP 000588925.1         ......................................................MIKELYEEVQGTVYKCRNEYYLHLWEL    27
NTDB id 140 SP RS00070 WP 000588925.1         ......................................................MIKELYEEVQGTVYKCRNEYYLHLWEL    27
NTDB id 489 SM12261 RS01070 WP 000471940.1    ......................................................MFKELYEEVQGIVYKCRNEYYLHLWEL    27
NTDB id 488 SM12261 RS00065 WP 000471939.1    ......................................................MFKELYEEVQGIVYKCRNEYHLHLWEL    27
NTDB id 517 SMSK321 RS10700 WP 000471945.1    ......................................................MFKELYKEVQGIVYKSRNEYYLHLWEL    27
NTDB id 516 SMSK321 RS09125 WP 000471944.1    ......................................................MFKELYKEVQGIVYKSRNEYYLHLWEL    27
NTDB id 582 DLJ51 RS00505 WP 002962720.1      MDKEKLKEIFNKHSALPEEVEEFDDGMVKEVITAGLLFCLKEVL....DMDDSSFVSAFSRVEKTVSKLAKDYYIKLWTY    76
NTDB id 442 SPYM3 RS08515 WP 011106595.1      ..........................MS..CCFFVVLFILGIVKKKRRLKMSIETRAVFEKVKPIILKLKRHYYIQLWDR    52
NTDB id 441 SPYM3 RS01385 WP 011106595.1      ..........................MS..CCFFVVLFILGIVKKKRRLKMSIETRAVFEKVKPIILKLKRHYYIQLWDR    52
NTDB id 1138210 DQL02 RS01500 WP 002988129.1  ....................................................MSIETRAAFEKVKPIILKLKRHYYIQLWDR    30
NTDB id 448 SpyM6JRS4 RS07800 WP 010921894.1  ..........................MS..CCFFVVLFILGIVKKKRRLKMSIETRAAFEKVKPIILKLKRHYYIQLWDR    52
NTDB id 447 SpyM6JRS4 RS01370 WP 010921894.1  ..........................MS..CCFFVVLFILGIVKKKRRLKMSIETRAAFEKVKPIILKLKRHYYIQLWDR    52
NTDB id 450 SPYM18 RS08475 WP 011018214.1     ..........................MS..CCFFVVLFILGIVKKKRRLKMSIETRAAFEKVKPIILKLKRHYYIQLWDR    52
NTDB id 449 SPYM18 RS01395 WP 011018214.1     ..........................MS..CCFFVVLFILGIVKKKRRLKMSIETRAAFEKVKPIILKLKRHYYIQLWDR    52
NTDB id 554 STRINF RS00370 WP 115283725.1     ........................................................MDFERYFQTVKPIILKLRRHYFVKLWDY    28
consensus                                                                                                  * *** ! *** * ****** *!*
```

```
logo
NTDB id 320 STU RS10340 WP 002949220.1        ADMEQEAMMTLYQLLKKFPDLEKDDDKLRRYFKTKFRNRLNDEVRRQESVKRQANRQCYVEISDIAFCIPNKELD.MVDR   110
NTDB id 47 STER RS00925 WP 002949220.1        ADMEQEAMMTLYQLLKKFPDLEKDDDKLRRYFKTKFRNRLNDEVRRQESVKRQANRQCYVEISDIAFCIPNKELD.MVDR   110
NTDB id 468 HSISS4 RS00725 WP 021143466.1     ADMEQEAMMTLYQLLEKFPELKSDDDKLRRYFKTKFRNRLNDEVRRQESVKRQANRQCYIEISDIAFCLPNKELD.AVDR   110
NTDB id 50 STRSA0001 RS07545 WP 002885610.1   ADMEQEAMMTLYQLLEKFPELKSDDDKLRRYFKTKFRNRLNDEVRRQESVKRQANRQCYIEISDIAFCLPNKELD.AVDR   110
NTDB id 44 SMU RS09085 WP 002263585.1         EDWQQEGMLILHQLLREHPELEEDDTKLYIYFKTRFSNYIKDVLRQQESQKRRFNRMSYEEVGEIEHCLSSGGMQ.LDEY   109
NTDB id 457 SSUD9 RS00080 WP 002936602.1      DDWEQEGMMTLFELLEAQPWLVDEQVQLYCYFKVKFRNRIKDRIRKQESQKRKFDRMPHEDIHELSHAIQSPGLI.NDEL   107
NTDB id 461 GPW51 RS00080 WP 011921639.1      DDWEQEGMMTLFELLEAQPWLVDEQVQLYCYFKVKFRNRIKDRIRKQESQKRKFDRMPHEDIYELSHAIQSPGLI.NDEL   107
NTDB id 454 SSU RS00080 WP 011921639.1        DDWEQEGMMTLFELLEAQPWLVDEQVQLYCYFKVKFRNRIKDRIRKQESQKRKFDRMPHEDIYELSHAIQSPGLI.NDEL   107
NTDB id 424 SGO RS10430 WP 012130755.1        ADWRQEGMLVLYELLKSHPNLLEDQPRLYRYFKTKFRNRIHDLIRRQESQKRKLDRQPYEEVSEIGHRLRMKELY.LDEL   107
NTDB id 423 SGO RS08370 WP 012130755.1        ADWRQEGMLVLYELLKSHPNLLEDQPRLYRYFKTKFRNRIHDLIRRQESQKRKLDRQPYEEVSEIGHRLRMKELY.LDEL   107
NTDB id 252 KZH43 RS09050 WP 000588897.1      SDWDQEGMLCLHELISREEGLVDDIPRLRKYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLW.LDDY   106
NTDB id 251 KZH43 RS09050 WP 000588897.1      SDWDQEGMLCLHELISREEGLVDDIPRLRKYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLW.LDDY   106
NTDB id 211 SPD RS09675 WP 000588897.1        SDWDQEGMLCLHELISREEGLVDDIPRLRKYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLW.LDDY   106
NTDB id 210 SPD RS00065 WP 000588897.1        SDWDQEGMLCLHELISREEGLVDDIPRLRKYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLW.LDDY   106
NTDB id 177 SPR RS09210 WP 000588897.1        SDWDQEGMLCLHELISREEGLVDDIPRLRKYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLW.LDDY   106
NTDB id 176 SPR RS00065 WP 000588897.1        SDWDQEGMLCLHELISREEGLVDDIPRLRKYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLW.LDDY   106
NTDB id 141 SP RS10155 WP 000588925.1         SDWEQEGMLCLHELISREEGLVDDIPRLRKYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLW.LDDY   106
NTDB id 140 SP RS00070 WP 000588925.1         SDWEQEGMLCLHELISREEGLVDDIPRLRKYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLW.LDDY   106
NTDB id 489 SM12261 RS01070 WP 000471940.1    SDWDQEGMICLHELISREEELVEDIPRLRKYFKTKFRNRILDHIRKQESQKRRYDKEPYEEVGEISHRISEGGMW.LDEY   106
NTDB id 488 SM12261 RS00065 WP 000471939.1    SDWDQEGMICLHELISREEGIVEDIPRLRKYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGMW.LDEY   106
NTDB id 517 SMSK321 RS10700 WP 000471945.1    SDWDQEGMICLHELISREEELVEDIPRLRKYFKTKFRNRILDYIRKQESQKRRYDKEAYEEVGEISHRIGEGGLW.LDDY   106
NTDB id 516 SMSK321 RS09125 WP 000471944.1    SDWDQEGMICLHELISKEEELAEDIPRLRKYFKTKFRNRILDYIRKQESQKRRYDKESYEEVGEISHRIGEGGLW.LDEY   106
NTDB id 582 DLJ51 RS00505 WP 002962720.1      DDWRQEARIILYQLLERFPDLANDEEKLRIYFKTKFRSYVLDNIRKQESQKRAFDRMIYEEISELGHMIPSQQMD.TADY   155
NTDB id 442 SPYM3 RS08515 WP 011106595.1      DDWLQEGHIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLW.LDDY   131
NTDB id 441 SPYM3 RS01385 WP 011106595.1      DDWLQEGHIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLW.LDDY   131
NTDB id 1138210 DQL02 RS01500 WP 002988129.1  DDWLQEGHIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLW.LDDY   109
NTDB id 448 SpyM6JRS4 RS07800 WP 010921894.1 DDWLQEGHIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLW.LDDY   131
NTDB id 447 SpyM6JRS4 RS01370 WP 010921894.1 DDWLQEGHIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLW.LDDY   131
NTDB id 450 SPYM18 RS08475 WP 011018214.1    DDWLQEGHIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLW.LDDY   131
NTDB id 449 SPYM18 RS01395 WP 011018214.1    DDWLQEGHIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLW.LDDY   131
NTDB id 554 STRINF RS00370 WP 115283725.1    EDWIQEGRIVFFQLLEEHPDLLNNEGKCYSYFKTKFSNHVKDIIRHQESFKRKFNRMPYEEISDISHCVPQVFFFEVEDY   108
consensus                                     !**!!*** * *!* * ******  ****!!!**!**** ! *!*!!!*!!**** *******  * *   *** ****
```

```
logo
                                                  YLFHETLRDYRNKLSKEKQEELERLLRGERFRGRQRVLRDLRIVFKEFDIRT
                                                  YAYQEVIASLENQLNSQERMQFQALIRGERFKGRRALLRKISPYFKEFAQQL
                                                  LVYDEQLNAFRNQLSSEDATKLDRLLAGECFRGRKKMIRELKFWMVDFDPYNEDD
NTDB id 320 STU RS10340 WP 002949220.1            LAYDEQLNAFREQLSSEDSLKLDRLLGGECFRGRKKMIRELRFWMVDFDPCNEED   165
NTDB id 47 STER RS00925 WP 002949220.1            LAYDEQLNAFREQLSSEDSLKLDRLLGGECFRGRKKMIRELRFWMVDFDPCNEED   165
NTDB id 468 HSISS4 RS00725 WP 021143466.1         LVYDEQLNAFRNQLSSEDATKLDRLLAGECFRGRKKMIRELKFWMVDFDPYNEDD   165
NTDB id 50 STRSA0001 RS07545 WP 002885610.1       LVYDEQLNAFRNQLSSEDATKLDRLLAGECFRGRKKMIRELKFWMVDFDPYNEDD   165
NTDB id 44 SMU RS09085 WP 002263585.1             ILFRDSLLAYKQGLSTEKQELFERLVAGEHFLGRQSMLKDLRKKLSDFKEK....   160
NTDB id 457 SSUD9 RS00080 WP 002936602.1          LMLRGALRDYRKNLSNDQLDKYEKLISGQCFNGRREMIRDLQIHLKDFR......   156
NTDB id 461 GPW51 RS00080 WP 011921639.1          LMLRGALRDYRKNLSNDQLDKYEKLISGQCFNGRREMIRDLQIHLKDFR......   156
NTDB id 454 SSU RS00080 WP 011921639.1            LMLRGALRDYRKNLSNDQLDKYEKLISGQCFNGRREMIRDLQIHLKDFR......   156
NTDB id 424 SGO RS10430 WP 012130755.1            VAFRSAMSEYRSRLSPEEAKQYERLMADERFKGRKAMLKDLSYHLRDFNPRLD..   160
NTDB id 423 SGO RS08370 WP 012130755.1            VAFRSAMSEYRSRLSPEEAKQYERLMADERFKGRKAMLKDLSYHLRDFNPRLD..   160
NTDB id 252 KZH43 RS09050 WP 000588897.1          YLFHETLRDYRNKQSKEKQEELERVLSNERFRGRQRVLRDLRIVFKEFTIRTH..   159
NTDB id 251 KZH43 RS09050 WP 000588897.1          YLFHETLRDYRNKQSKEKQEELERVLSNERFRGRQRVLRDLRIVFKEFTIRTH..   159
NTDB id 211 SPD RS09675 WP 000588897.1            YLFHETLRDYRNKQSKEKQEELERVLSNERFRGRQRVLRDLRIVFKEFTIRTH..   159
NTDB id 210 SPD RS00065 WP 000588897.1            YLFHETLRDYRNKQSKEKQEELERVLSNERFRGRQRVLRDLRIVFKEFTIRTH..   159
NTDB id 177 SPR RS09210 WP 000588897.1            YLFHETLRDYRNKQSKEKQEELERVLSNERFRGRQRVLRDLRIVFKEFTIRTH..   159
NTDB id 176 SPR RS00065 WP 000588897.1            YLFHETLRDYRNKQSKEKQEELERVLSNERFRGRQRVLRDLRIVFKEFTIRTH..   159
NTDB id 141 SP RS10155 WP 000588925.1             YLFHETLRDYRNKQSKEKQEELERVLSNERFRGRQRVLRDLRIVFKEFTIRTH..   159
NTDB id 140 SP RS00070 WP 000588925.1             YLFHETLRDYRNKQSKEKQEELERVLSNERFRGRQRVLRDLRIVFKEFTIRTH..   159
NTDB id 489 SM12261 RS01070 WP 000471940.1        YLFHETLRDYRNKQSKDKQEELERVLRHERFRGRQRVLRDLRIVFKEFDIRTH..   159
NTDB id 488 SM12261 RS00065 WP 000471939.1        YLFHETLRDYRNKQSKDKQEELERVLRHERFRGRQRVLRDLRIVFKEFDIRTH..   159
NTDB id 517 SMSK321 RS10700 WP 000471945.1        YLFHETLRDYRSKQSKDKQEELERVLRHERFRGRQRVLRDLRIVFKEFDIRTQ..   159
NTDB id 516 SMSK321 RS09125 WP 000471944.1        YLFHETLRDYRSKQSKDKQEELERVLRHERFRGRQRVLRDLRIVFKEFDIRTR..   159
NTDB id 582 DLJ51 RS00505 WP 002962720.1          CALKEKLKELKQKLAPEDYAKILLLMRGGAFKGRSAFIKDIKVEFEDFDEDN...   207
NTDB id 442 SPYM3 RS08515 WP 011106595.1          VAYQEVIASLENQLNSQERMQFQALIRGERFKGRRALLRKISPYFKEFAQQL...   183
NTDB id 441 SPYM3 RS01385 WP 011106595.1          VAYQEVIASLENQLNSQERMQFQALIRGERFKGRRALLRKISPYFKEFAQQL...   183
NTDB id 1138210 DQL02 RS01500 WP 002988129.1      VAYQEVIASLENQLNSQERMQFQALIRGERFKGRRALLRKISPYFKEFAQQL...   161
NTDB id 448 SpyM6JRS4 RS07800 WP 010921894.1      VAYQEVIASLENQLNSQERMQFQALIRGERFKGRRALLRKISPYFKEFAQQL...   183
NTDB id 447 SpyM6JRS4 RS01370 WP 010921894.1      VAYQEVIASLENQLNSQERMQFQALIRGERFKGRRALLRKISPYFKEFAQQL...   183
NTDB id 450 SPYM18 RS08475 WP 011018214.1         VAYQEVIASLENQLNSQERMQFKALIRGERFKGRRALLRKISPYFKEFAQQL...   183
NTDB id 449 SPYM18 RS01395 WP 011018214.1         VAYQEVIASLENQLNSQERMQFKALIRGERFKGRRALLRKISPYFKEFAQQL...   183
NTDB id 554 STRINF RS00370 WP 115283725.1         VAYQDSLACLRRTLGREDRLKLEKVIRGERFEGKKAFLKSIELYFSDFRP.....   158
consensus                                         *** * * **** ** *     ***** ***!*!** ******* ***!
```

X non conserved

X similar

X ≥ 50% conserved