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| NTDB      | id       | Accession | Species | Length         | MDKEKLKEIFNKHSALPEEEVEEFDDGMVKEVITAGLLFCLKEV... | LDMDSSSFVSASF | SRVEKT      | VSKLAKDYYIKLW | TY    |                               |
|-----------|----------|-----------|---------|----------------|-------------------------------------------------|---------------|-------------|---------------|-------|-------------------------------|
| NTDB      | id 582   | DLJ51     | RS00505 | WP 002962720.1 | MDKEKLKEIFNKHSALPEEEVEEFDDGMVKEVITAGLLFCLKEV... | LDMDSSSFVSASF | SRVEKT      | VSKLAKDYYIKLW | TY    | 76                            |
| NTDB      | id 450   | SPYM18    | RS08475 | WP 011018214.1 | .....MS..CCFFVVLFILGIVKKKRRLLKMSIETRAAF         | EKVKPI        | ILKLKRHHYI  | QLWDR         |       | 52                            |
| NTDB      | id 449   | SPYM18    | RS01395 | WP 011018214.1 | .....MS..CCFFVVLFILGIVKKKRRLLKMSIETRAAF         | EKVKPI        | ILKLKRHHYI  | QLWDR         |       | 52                            |
| NTDB      | id 442   | SPYM3     | RS08515 | WP 011106595.1 | .....MS..CCFFVVLFILGIVKKKRRLLKMSIETRAV          | EKVKPI        | ILKLKRHHYI  | QLWDR         |       | 52                            |
| NTDB      | id 441   | SPYM3     | RS01385 | WP 011106595.1 | .....MS..CCFFVVLFILGIVKKKRRLLKMSIETRAV          | EKVKPI        | ILKLKRHHYI  | QLWDR         |       | 52                            |
| NTDB      | id 448   | SpyM6JRS4 | RS07800 | WP 010921894.1 | .....MS..CCFFVVLFILGIVKKKRRLLKMSIETRAAF         | EKVKPI        | ILKLKRHHYI  | QLWDR         |       | 52                            |
| NTDB      | id 447   | SpyM6JRS4 | RS01370 | WP 010921894.1 | .....MS..CCFFVVLFILGIVKKKRRLLKMSIETRAAF         | EKVKPI        | ILKLKRHHYI  | QLWDR         |       | 52                            |
| NTDB      | id 44    | SMU       | RS09085 | WP 002263585.1 | .....MEEDFEI                                    | VFNKVKPI      | VWKL        | SRYYFI        | KMWTR | 30                            |
| NTDB      | id 457   | SSUD9     | RS00080 | WP 002936602.1 | .....MEFEK                                      | VYASVKG       | IVNKARKEFYI | KLWDR         |       | 28                            |
| NTDB      | id 461   | GPW51     | RS00080 | WP 011921639.1 | .....MEFEK                                      | VYASVKG       | IVNKARKEFYI | KLWDR         |       | 28                            |
| NTDB      | id 454   | SSU       | RS00080 | WP 011921639.1 | .....MEFEK                                      | VYASVKG       | IVNKARKEFYI | KLWDR         |       | 28                            |
| NTDB      | id 424   | SGO       | RS10430 | WP 012130755.1 | .....MKFED                                      | VYKQVEG       | IVKRCYKDYYL | HLWEY         |       | 28                            |
| NTDB      | id 423   | SGO       | RS08370 | WP 012130755.1 | .....MKFED                                      | VYKQVEG       | IVKRCYKDYYL | HLWEY         |       | 28                            |
| NTDB      | id 58121 | SPN994038 | RS09660 | WP 000588866.1 | .....MIKEL                                      | YEEVQGT       | VYKCRNEYYL  | HLWEL         |       | 27                            |
| NTDB      | id 252   | KZH43     | RS09050 | WP 000588897.1 | .....MIKEL                                      | YEEVQGT       | VYKCRNEYYL  | HLWEL         |       | 27                            |
| NTDB      | id 251   | KZH43     | RS09050 | WP 000588897.1 | .....MIKEL                                      | YEEVQGT       | VYKCRNEYYL  | HLWEL         |       | 27                            |
| NTDB      | id 211   | SPD       | RS09675 | WP 000588897.1 | .....MIKEL                                      | YEEVQGT       | VYKCRNEYYL  | HLWEL         |       | 27                            |
| NTDB      | id 210   | SPD       | RS00065 | WP 000588897.1 | .....MIKEL                                      | YEEVQGT       | VYKCRNEYYL  | HLWEL         |       | 27                            |
| NTDB      | id 177   | SPR       | RS09210 | WP 000588897.1 | .....MIKEL                                      | YEEVQGT       | VYKCRNEYYL  | HLWEL         |       | 27                            |
| NTDB      | id 176   | SPR       | RS00065 | WP 000588897.1 | .....MIKEL                                      | YEEVQGT       | VYKCRNEYYL  | HLWEL         |       | 27                            |
| NTDB      | id 141   | SP        | RS10155 | WP 000588925.1 | .....MIKEL                                      | YEEVQGT       | VYKCRNEYYL  | HLWEL         |       | 27                            |
| NTDB      | id 140   | SP        | RS00070 | WP 000588925.1 | .....MIKEL                                      | YEEVQGT       | VYKCRNEYYL  | HLWEL         |       | 27                            |
| NTDB      | id 488   | SM12261   | RS00065 | WP 000471939.1 | .....MFKEL                                      | YEEVQGI       | VYKCRNEYHL  | HLWEL         |       | 27                            |
| NTDB      | id 489   | SM12261   | RS01070 | WP 000471940.1 | .....MFKEL                                      | YEEVQGI       | VYKCRNEYYL  | HLWEL         |       | 27                            |
| NTDB      | id 517   | SMSK321   | RS10700 | WP 000471945.1 | .....MFKEL                                      | YKEVQGI       | VYKSRNEYYL  | HLWEL         |       | 27                            |
| NTDB      | id 516   | SMSK321   | RS09125 | WP 000471944.1 | .....MFKEL                                      | YKEVQGI       | VYKSRNEYYL  | HLWEL         |       | 27                            |
| consensus |          |           |         |                |                                                 |               |             |               |       | * * * * ! * * * * * * * * ! * |

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|------------------------------------------------|---------------------------------------------------------------------------------------|-----|
| NTDB id 582 DLJ51 RS00505 WP 002962720.1       | DDWRQEARIIILYQLIERFPDLANDDEEKLRIFYFKTKFRSYVLDNIRKQESQKRAFDRMIYEEITSEIGHMTPSQQMDTADYCY | 156 |
| NTDB id 450 SPYM18 RS08475 WP 011018214.1      | DDWLQEGHIIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLWLDDYV     | 132 |
| NTDB id 449 SPYM18 RS01395 WP 011018214.1      | DDWLQEGHIIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLWLDDYV     | 132 |
| NTDB id 442 SPYM3 RS08515 WP 011106595.1       | DDWLQEGHIIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLWLDDYV     | 132 |
| NTDB id 441 SPYM3 RS01385 WP 011106595.1       | DDWLQEGHIIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLWLDDYV     | 132 |
| NTDB id 448 SpyM6JRS4 RS07800 WP 010921894.1   | DDWLQEGHIIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLWLDDYV     | 132 |
| NTDB id 447 SpyM6JRS4 RS01370 WP 010921894.1   | DDWLQEGHIIILLQLLERYPELIEEEERLYRYFKTKFSSYLKDLLRRQESQKRQFHKLAYEEIGEVAHAIPSRGLWLDDYV     | 132 |
| NTDB id 44 SMU RS09085 WP 002263585.1          | EDWQQEGMILHLHQLLREHPELEEDDTKLYTYFKTRFSNYIKDVLRRQESQKRFRNRMSEYEEVGEIEHCSSSGCMQLDEYI    | 110 |
| NTDB id 457 SSUD9 RS00080 WP 002936602.1       | DDWEQEGMMTLFELIEAQPWLVDQVQLYCYFKVKFRNRKIDRIRKQESQKRKFDRMPHEDIHELISHAIQSPGLINDELL      | 108 |
| NTDB id 461 GPW51 RS00080 WP 011921639.1       | DDWEQEGMMTLFELIEAQPWLVDQVQLYCYFKVKFRNRKIDRIRKQESQKRKFDRMPHEDIYELSHAIQSPGLINDELL       | 108 |
| NTDB id 454 SSU RS00080 WP 011921639.1         | DDWEQEGMMTLFELIEAQPWLVDQVQLYCYFKVKFRNRKIDRIRKQESQKRKFDRMPHEDIYELSHAIQSPGLINDELL       | 108 |
| NTDB id 424 SGO RS10430 WP 012130755.1         | ADWRQEGMILVLYELLKSHPNLLEDQPRLRYRYFKTKFRNRIDHLLIRKQESQKRKLDRQPYEEVSEIGHRIIRMKELYLDELV  | 108 |
| NTDB id 423 SGO RS08370 WP 012130755.1         | ADWRQEGMILVLYELLKSHPNLLEDQPRLRYRYFKTKFRNRIDHLLIRKQESQKRKLDRQPYEEVSEIGHRIIRMKELYLDELV  | 108 |
| NTDB id 58121 SPN994038 RS09660 WP 000588866.1 | SDWDQEGMILCLHELISREEGLVDDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLWLDDYY   | 107 |
| NTDB id 252 KZH43 RS09050 WP 000588897.1       | SDWDQEGMILCLHELISREEGLVDDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLWLDDYY   | 107 |
| NTDB id 251 KZH43 RS09050 WP 000588897.1       | SDWDQEGMILCLHELISREEGLVDDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLWLDDYY   | 107 |
| NTDB id 211 SPD RS09675 WP 000588897.1         | SDWDQEGMILCLHELISREEGLVDDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLWLDDYY   | 107 |
| NTDB id 210 SPD RS00065 WP 000588897.1         | SDWDQEGMILCLHELISREEGLVDDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLWLDDYY   | 107 |
| NTDB id 177 SPR RS09210 WP 000588897.1         | SDWDQEGMILCLHELISREEGLVDDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLWLDDYY   | 107 |
| NTDB id 176 SPR RS00065 WP 000588897.1         | SDWDQEGMILCLHELISREEGLVDDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLWLDDYY   | 107 |
| NTDB id 141 SP RS10155 WP 000588925.1          | SDWEQEGMILCLHELISREEGLVDDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLWLDDYY   | 107 |
| NTDB id 140 SP RS00070 WP 000588925.1          | SDWEQEGMILCLHELISREEGLVDDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLWLDDYY   | 107 |
| NTDB id 488 SM12261 RS00065 WP 000471939.1     | SDWDQEGMILCLHELISREEGLVEDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLWLDEYY   | 107 |
| NTDB id 489 SM12261 RS01070 WP 000471940.1     | SDWDQEGMILCLHELISREEGLVEDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEPYEEVGEISHRISEGGLWLDEYY   | 107 |
| NTDB id 517 SMSK321 RS10700 WP 000471945.1     | SDWDQEGMILCLHELISREEGLVEDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKEAYEEVGEISHRISEGGLWLDDYY   | 107 |
| NTDB id 516 SMSK321 RS09125 WP 000471944.1     | SDWDQEGMILCLHELISKEEELVEDIPRLRKIFYFKTKFRNRILDYIRKQESQKRRYDKESYEEVGEISHRISEGGLWLDEYY   | 107 |
| consensus                                      | !! !!*** ! *!* * **** *! *!!!!*!***** ! *!*!!!!!!***** *!***!* ! * *****              |     |

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|           |    |       |           |         |    |             |        |        |          |          |        |       |         |         |         |      |     |       |       |        |      |          |       |      |      |   |   |   |   |   |     |     |
|-----------|----|-------|-----------|---------|----|-------------|--------|--------|----------|----------|--------|-------|---------|---------|---------|------|-----|-------|-------|--------|------|----------|-------|------|------|---|---|---|---|---|-----|-----|
| NTDB      | id | 582   | DLJ51     | RS00505 | WP | 002962720.1 | ALKEK  | KELKQ  | KLAP     | EDYAKILL | LMRGGA | F     | KGRSAFI | KD      | IKVEFED | FD   | EDN | .     | 207   |        |      |          |       |      |      |   |   |   |   |   |     |     |
| NTDB      | id | 450   | SPYM18    | RS08475 | WP | 011018214.1 | AYQEV  | IASLEN | QLNSQERM | QFKALIR  | GERFK  | GRRAL | LRKI    | SPY     | FKEFA   | QQL  | .   | 183   |       |        |      |          |       |      |      |   |   |   |   |   |     |     |
| NTDB      | id | 449   | SPYM18    | RS01395 | WP | 011018214.1 | AYQEV  | IASLEN | QLNSQERM | QFKALIR  | GERFK  | GRRAL | LRKI    | SPY     | FKEFA   | QQL  | .   | 183   |       |        |      |          |       |      |      |   |   |   |   |   |     |     |
| NTDB      | id | 442   | SPYM3     | RS08515 | WP | 011106595.1 | AYQEV  | IASLEN | QLNSQERM | QFKALIR  | GERFK  | GRRAL | LRKI    | SPY     | FKEFA   | QQL  | .   | 183   |       |        |      |          |       |      |      |   |   |   |   |   |     |     |
| NTDB      | id | 441   | SPYM3     | RS01385 | WP | 011106595.1 | AYQEV  | IASLEN | QLNSQERM | QFKALIR  | GERFK  | GRRAL | LRKI    | SPY     | FKEFA   | QQL  | .   | 183   |       |        |      |          |       |      |      |   |   |   |   |   |     |     |
| NTDB      | id | 448   | SpyM6JRS4 | RS07800 | WP | 010921894.1 | AYQEV  | IASLEN | QLNSQERM | QFKALIR  | GERFK  | GRRAL | LRKI    | SPY     | FKEFA   | QQL  | .   | 183   |       |        |      |          |       |      |      |   |   |   |   |   |     |     |
| NTDB      | id | 447   | SpyM6JRS4 | RS01370 | WP | 010921894.1 | AYQEV  | IASLEN | QLNSQERM | QFKALIR  | GERFK  | GRRAL | LRKI    | SPY     | FKEFA   | QQL  | .   | 183   |       |        |      |          |       |      |      |   |   |   |   |   |     |     |
| NTDB      | id | 44    | SMU       | RS09085 | WP | 002263585.1 | LFERS  | LLAY   | KQGL     | ST       | EKQEL  | FERL  | VAGE    | H       | FLGR    | QSM  | KDL | RKKLS | DFKEK | ..     | 160  |          |       |      |      |   |   |   |   |   |     |     |
| NTDB      | id | 457   | SSUD9     | RS00080 | WP | 002936602.1 | MLRGAL | RDYRKN | LSND     | QLDK     | YEKL   | ISG   | CFN     | GR      | REM     | IRDL | Q   | IHL   | KD    | FR     | ...  | 156      |       |      |      |   |   |   |   |   |     |     |
| NTDB      | id | 461   | GPW51     | RS00080 | WP | 011921639.1 | MLRGAL | RDYRKN | LSND     | QLDK     | YEKL   | ISG   | CFN     | GR      | REM     | IRDL | Q   | IHL   | KD    | FR     | ...  | 156      |       |      |      |   |   |   |   |   |     |     |
| NTDB      | id | 454   | SSU       | RS00080 | WP | 011921639.1 | MLRGAL | RDYRKN | LSND     | QLDK     | YEKL   | ISG   | CFN     | GR      | REM     | IRDL | Q   | IHL   | KD    | FR     | ...  | 156      |       |      |      |   |   |   |   |   |     |     |
| NTDB      | id | 424   | SGO       | RS10430 | WP | 012130755.1 | A      | FRSAM  | S        | EYRSRL   | S      | P     | E       | EAKQYER | L       | MAD  | E   | R     | F     | KGRKAM | L    | KDLSYHLR | D     | F    | N    | P | R | L | D | . | 160 |     |
| NTDB      | id | 423   | SGO       | RS08370 | WP | 012130755.1 | A      | FRSAM  | S        | EYRSRL   | S      | P     | E       | EAKQYER | L       | MAD  | E   | R     | F     | KGRKAM | L    | KDLSYHLR | D     | F    | N    | P | R | L | D | . | 160 |     |
| NTDB      | id | 58121 | SPN994038 | RS09660 | WP | 000588866.1 | LFHET  | L      | RDYRN    | KQ       | SKEKQ  | EEL   | ERVL    | SNER    | F       | GRQR | V   | LRDL  | R     | I      | V    | FKEFT    | TIRTH | .    | 159  |   |   |   |   |   |     |     |
| NTDB      | id | 252   | KZH43     | RS09050 | WP | 000588897.1 | LFHET  | L      | RDYRN    | KQ       | SKEKQ  | EEL   | ERVL    | SNER    | F       | GRQR | V   | LRDL  | R     | I      | V    | FKEFT    | TIRTH | .    | 159  |   |   |   |   |   |     |     |
| NTDB      | id | 251   | KZH43     | RS09050 | WP | 000588897.1 | LFHET  | L      | RDYRN    | KQ       | SKEKQ  | EEL   | ERVL    | SNER    | F       | GRQR | V   | LRDL  | R     | I      | V    | FKEFT    | TIRTH | .    | 159  |   |   |   |   |   |     |     |
| NTDB      | id | 211   | SPD       | RS09675 | WP | 000588897.1 | LFHET  | L      | RDYRN    | KQ       | SKEKQ  | EEL   | ERVL    | SNER    | F       | GRQR | V   | LRDL  | R     | I      | V    | FKEFT    | TIRTH | .    | 159  |   |   |   |   |   |     |     |
| NTDB      | id | 210   | SPD       | RS00065 | WP | 000588897.1 | LFHET  | L      | RDYRN    | KQ       | SKEKQ  | EEL   | ERVL    | SNER    | F       | GRQR | V   | LRDL  | R     | I      | V    | FKEFT    | TIRTH | .    | 159  |   |   |   |   |   |     |     |
| NTDB      | id | 177   | SPR       | RS09210 | WP | 000588897.1 | LFHET  | L      | RDYRN    | KQ       | SKEKQ  | EEL   | ERVL    | SNER    | F       | GRQR | V   | LRDL  | R     | I      | V    | FKEFT    | TIRTH | .    | 159  |   |   |   |   |   |     |     |
| NTDB      | id | 176   | SPR       | RS00065 | WP | 000588897.1 | LFHET  | L      | RDYRN    | KQ       | SKEKQ  | EEL   | ERVL    | SNER    | F       | GRQR | V   | LRDL  | R     | I      | V    | FKEFT    | TIRTH | .    | 159  |   |   |   |   |   |     |     |
| NTDB      | id | 141   | SP        | RS10155 | WP | 000588925.1 | LFHET  | L      | RDYRN    | KQ       | SKEKQ  | EEL   | ERVL    | SNER    | F       | GRQR | V   | LRDL  | R     | I      | V    | FKEFT    | TIRTH | .    | 159  |   |   |   |   |   |     |     |
| NTDB      | id | 140   | SP        | RS00070 | WP | 000588925.1 | LFHET  | L      | RDYRN    | KQ       | SKEKQ  | EEL   | ERVL    | SNER    | F       | GRQR | V   | LRDL  | R     | I      | V    | FKEFT    | TIRTH | .    | 159  |   |   |   |   |   |     |     |
| NTDB      | id | 488   | SM12261   | RS00065 | WP | 000471939.1 | LFHET  | L      | RDYRN    | KQ       | SKDKQ  | EEL   | ERVL    | R       | H       | E    | R   | F     | GRQR  | V      | LRDL | R        | I     | V    | FKEF | D | I | R | T | H | .   | 159 |
| NTDB      | id | 489   | SM12261   | RS01070 | WP | 000471940.1 | LFHET  | L      | RDYRN    | KQ       | SKDKQ  | EEL   | ERVL    | R       | H       | E    | R   | F     | GRQR  | V      | LRDL | R        | I     | V    | FKEF | D | I | R | T | H | .   | 159 |
| NTDB      | id | 517   | SMSK321   | RS10700 | WP | 000471945.1 | LFHET  | L      | RDYRSKQ  | SKDKQ    | EEL    | ERVL  | R       | H       | E       | R    | F   | GRQR  | V     | LRDL   | R    | I        | V     | FKEF | D    | I | R | T | H | . | 159 |     |
| NTDB      | id | 516   | SMSK321   | RS09125 | WP | 000471944.1 | LFHET  | L      | RDYRSKQ  | SKDKQ    | EEL    | ERVL  | R       | H       | E       | R    | F   | GRQR  | V     | LRDL   | R    | I        | V     | FKEF | D    | I | R | T | H | . | 159 |     |
| consensus |    |       |           |         |    |             | **     | *      | *****    | *        | *      | *     | *****   | **      | !       | !    | !   | ***** | *     | ***    | !    |          |       |      |      |   |   |   |   |   |     |     |

-  non conserved
-  similar
-  > 50% conserved