

|      |    |       |         |         |    |             |            |      |           |       |       |        |       |      |       |       |      |       |       |     |       |        |     |      |    |      |     |     |    |    |    |      |   |    |     |    |   |    |   |   |    |   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |
|------|----|-------|---------|---------|----|-------------|------------|------|-----------|-------|-------|--------|-------|------|-------|-------|------|-------|-------|-----|-------|--------|-----|------|----|------|-----|-----|----|----|----|------|---|----|-----|----|---|----|---|---|----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| NTDB | id | 624   | LCA     | RS00040 | WP | 011373726.1 | MINRVVLVGR | LDV  | DLRYTSSGA | AVGTF | SM    | AVNRQF | TN    | AGD  | READF | INC   | VI   | WRK   | SAENF | ANF | TK    | KGSL   | V   | GDGR | LQ | TRN  | Y   | ENQ | 85 |    |    |      |   |    |     |    |   |    |   |   |    |   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |
| NTDB | id | 113   | BSU     | 40900   | NP | 391970.1    | MLNRVVLVGR | LKD  | PELRYTP   | NGAA  | VATFT | L      | AVNR  | TFTN | QSG   | EREAD | FINC | VTWR  | RQAEN | V   | ANFLK | KGSL   | A   | VDGR | LQ | TRN  | Y   | ENQ | 85 |    |    |      |   |    |     |    |   |    |   |   |    |   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |
| NTDB | id | 112   | BSU     | 36310   | NP | 391512.2    | MFNQVMLVGR | LTKD | PLRYTS    | GAA   | VAHV  | T      | LAVNR | SF   | KNAS  | GET   | EADY | VN    | CTL   | WRK | T     | AE     | NAL | Y    | CQ | KGSL | V   | GS  | GR | I  | Q  | TR   | S | Y  | ENE | 85 |   |    |   |   |    |   |    |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |
| NTDB | id | 597   | KW2     | RS01935 | WP | 021036727.1 | .M         | NKTM | LIGRL     | TNA   | PEL   | ISK    | TNN   | KSV  | YVR   | V     | T    | LAVNR | RF    | KNE | K     | GEREAD | FIS | I    | LW | CK   | SAE | TL  | V  | SY | AK | KGSL | S | IS | VE  | GE | I | TR | N | Y | TD | K | 84 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |
| NTDB | id | 498   | SM12261 | RS01980 | WP | 000282464.1 | MYN        | KVIM | I         | GR    | L     | T      | S     | TP   | EL    | H     | K    | T     | N     | N   | D     | K      | S   | V    | A  | R    | A   | T   | I  | A  | V  | N    | R | R  | Y   | K  | D | Q  | N | G | E  | R | E  | A | D | F | V | M | V | L | W | G | R | L | A | E | T | L | A | S | Y | A | T | K | G | S | L | I | S | V | D | G | E | L | R | T | R | R | F | E | . | K | 84 |
| NTDB | id | 526   | SMSK321 | RS08825 | WP | 000282440.1 | MYN        | KVIL | I         | GR    | L     | T      | S     | TP   | EL    | H     | K    | T     | N     | N   | D     | K      | S   | V    | A  | R    | A   | T   | I  | A  | V  | N    | R | R  | Y   | K  | D | Q  | N | G | E  | R | E  | A | D | F | V | M | V | L | W | G | R | L | A | E | T | L | A | S | Y | A | T | K | G | S | L | I | S | V | D | G | E | L | R | T | R | R | F | E | . | K | 84 |
| NTDB | id | 97584 | R8775   | RS08950 | WP | 000282442.1 | MYN        | KVIL | I         | GR    | L     | T      | S     | TP   | EL    | H     | K    | T     | N     | N   | D     | K      | S   | V    | A  | R    | A   | T   | I  | A  | V  | N    | R | R  | Y   | K  | D | Q  | N | G | E  | R | E  | A | D | F | V | M | V | L | W | G | R | L | A | E | T | L | A | S | Y | A | T | K | G | S | L | I | S | V | D | G | E | L | R | T | R | R | F | E | . | K | 84 |
| NTDB | id | 158   | SP      | RS09595 | WP | 000282442.1 | MYN        | KVIL | I         | GR    | L     | T      | S     | TP   | EL    | H     | K    | T     | N     | N   | D     | K      | S   | V    | A  | R    | A   | T   | I  | A  | V  | N    | R | R  | Y   | K  | D | Q  | N | G | E  | R | E  | A | D | F | V | M | V | L | W | G | R | L | A | E | T | L | A | S | Y | A | T | K | G | S | L | I | S | V | D | G | E | L | R | T | R | R | F | E | . | K | 84 |
| NTDB | id | 268   | KZH43   | RS08520 | WP | 000282467.1 | MYN        | KVIM | I         | GR    | L     | T      | S     | TP   | EL    | H     | K    | T     | N     | N   | D     | K      | S   | V    | A  | R    | A   | T   | I  | A  | V  | N    | R | R  | Y   | K  | D | Q  | N | G | E  | R | E  | A | D | F | V | M | V | L | W | G | R | L | A | E | T | L | A | S | Y | A | T | K | G | S | L | I | S | V | D | G | E | L | R | T | R | R | F | E | . | K | 84 |
| NTDB | id | 227   | SPD     | RS09110 | WP | 000282467.1 | MYN        | KVIM | I         | GR    | L     | T      | S     | TP   | EL    | H     | K    | T     | N     | N   | D     | K      | S   | V    | A  | R    | A   | T   | I  | A  | V  | N    | R | R  | Y   | K  | D | Q  | N | G | E  | R | E  | A | D | F | V | M | V | L | W | G | R | L | A | E | T | L | A | S | Y | A | T | K | G | S | L | I | S | V | D | G | E | L | R | T | R | R | F | E | . | K | 84 |
| NTDB | id | 193   | SPR     | RS08685 | WP | 000282467.1 | MYN        | KVIM | I         | GR    | L     | T      | S     | TP   | EL    | H     | K    | T     | N     | N   | D     | K      | S   | V    | A  | R    | A   | T   | I  | A  | V  | N    | R | R  | Y   | K  | D | Q  | N | G | E  | R | E  | A | D | F | V | M | V | L | W |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |

|           |       |                                |                                                                                 |           |     |
|-----------|-------|--------------------------------|---------------------------------------------------------------------------------|-----------|-----|
| NTDB id   | 624   | LCA RS00040 WP 011373726.1     | QGQRVYVTEVVVDNFSLLESRTTTEQRQG DGA SQNFNSNQSNQSQ..... QSGFTSPQQTGNAPAANNTQADPFAN | GQA ID I  | 163 |
| NTDB id   | 113   | BSU 40900 NP 391970.1          | QGQRVFVTEVQAESVQFLEPKNGGGSGSG.... GYNEGNSGGGQYFGGGQNNDNPFGGNQNNQRRNQGSNFNDDPFAN | DGKP ID I | 165 |
| NTDB id   | 112   | BSU 36310 NP 391512.2          | EGVNVIYVTEVLADTVRFMDPKPREKAAD.....                                              |           | 113 |
| NTDB id   | 597   | KW2 RS01935 WP 021036727.1     | NEQKHYTEILGLSYD LLESRA TLALRESAV.....                                           | KTEEL LL  | 122 |
| NTDB id   | 498   | SM12261 RS01980 WP 000282464.1 | NGQMNYVTEVLVTGFQLLESRA QRAMRENNAGQ.....                                         | DLADLV L  | 124 |
| NTDB id   | 526   | SMSK321 RS08825 WP 000282440.1 | NGQMNYVAEVLVTGFQLLESRA QRAMRENNAGQ.....                                         | DLADLV L  | 124 |
| NTDB id   | 97584 | R8775 RS08950 WP 000282442.1   | NGQMNYVTEVLVTGFQLLESRA QRAMRENNAGQ.....                                         | DLADLV L  | 124 |
| NTDB id   | 158   | SP RS09595 WP 000282442.1      | NGQMNYVTEVLVTGFQLLESRA QRAMRENNAGQ.....                                         | DLADLV L  | 124 |
| NTDB id   | 268   | KZH43 RS08520 WP 000282467.1   | NGQMNYVTEVLVTGFQLLESRA QRAMRENNAGQ.....                                         | DLADLV L  | 124 |
| NTDB id   | 227   | SPD RS09110 WP 000282467.1     | NGQMNYVTEVLVTGFQLLESRA QRAMRENNAGQ.....                                         | DLADLV L  | 124 |
| NTDB id   | 193   | SPR RS08685 WP 000282467.1     | NGQMNYVTEVLVTGFQLLESRA QRAMRENNAGQ.....                                         | DLADLV L  | 124 |
| NTDB id   | 409   | SMU RS08940 WP 002263454.1     | DGVTHFVTEVLGHSLFQLLESRA QRAMRENNSEN.....                                        | DLADLV L  | 124 |
| NTDB id   | 583   | DLJ51 RS09560 WP 002962590.1   | DGGTHYVTEILAQSFQLLESRA QRLRENNGAS.....                                          | DLTDLV L  | 124 |
| consensus |       |                                | ***** ! *****                                                                   | *****     |     |

|           |    |       |         |         |    |             |   |     |   |   |   |     |     |
|-----------|----|-------|---------|---------|----|-------------|---|-----|---|---|---|-----|-----|
| NTDB      | id | 624   | LCA     | RS00040 | WP | 011373726.1 | S | DDD | L | P | F | 170 |     |
| NTDB      | id | 113   | BSU     | 40900   | NP | 391970.1    | S | DDD | L | P | F | 172 |     |
| NTDB      | id | 112   | BSU     | 36310   | NP | 391512.2    |   |     |   |   |   | 113 |     |
| NTDB      | id | 597   | KW2     | RS01935 | WP | 021036727.1 | E | A   | D | E | L | P   | 129 |
| NTDB      | id | 498   | SM12261 | RS01980 | WP | 000282464.1 | E | E   | E | E | L | P   | 131 |
| NTDB      | id | 526   | SMSK321 | RS08825 | WP | 000282440.1 | E | E   | E | E | L | P   | 131 |
| NTDB      | id | 97584 | R8775   | RS08950 | WP | 000282442.1 | E | E   | E | E | L | P   | 131 |
| NTDB      | id | 158   | SP      | RS09595 | WP | 000282442.1 | E | E   | E | E | L | P   | 131 |
| NTDB      | id | 268   | KZH43   | RS08520 | WP | 000282467.1 | E | E   | E | E | L | P   | 131 |
| NTDB      | id | 227   | SPD     | RS09110 | WP | 000282467.1 | E | E   | E | E | L | P   | 131 |
| NTDB      | id | 193   | SPR     | RS08685 | WP | 000282467.1 | E | E   | E | E | L | P   | 131 |
| NTDB      | id | 409   | SMU     | RS08940 | WP | 002263454.1 | E | E   | E | E | L | P   | 131 |
| NTDB      | id | 583   | DLJ51   | RS09560 | WP | 002962590.1 | E | E   | E | E | L | P   | 131 |
| consensus |    |       |         |         |    |             |   | *   | * | * | * | *   |     |

 non conserved  
 similar  
  $\geq 50\%$  conserved