```
                    1         10        20        30        40
QUERY               R N S A Y N Y W V P T L P G S G K Q S A Y G S S L M N P D S V I I N G G Y L I R
UniRef90_J5JN21     R N S A Y N Y W A P I L P S S   K N G N F G N S V M N P D A V I V S G P Y L V R
UniRef90_Q700S9     R N S A Y N Y W V P Q V P T K G T A P G Y S N Q E T T A S S I V I V K A G Y L V R
UniRef90_E9EER2     R N S A Y N Y W V P V L P G P   K S S P Y G T S L M N P D A A I I N G G Y L I R
UniRef90_G3JA38     R N S A Y N Y W V P V L P K G G S A     Y G S S V M N P E T I I V N G G Y L V R
UniRef90_V5G7X1     K N S A Y N Y W V P E L P T D S T S P G F S T Q E K T A S S I I V K A G Y L V R
UniRef90_B8N6V7     R N S A Y N Y W V P E L P T E G T S P G F S T S K T T A S S I I V K A G Y L L R
UniRef90_A0A017SRB5 R N T A Y N Y W V P E I P A E G T T P G Y S N E K N T A S S I I V K A G Y L V R
UniRef90_K9FHL1     R N S A Y N Y W V P Q L P N N G T S P G Y S S Q K T A P S S L I V K A G Y L V R
UniRef90_M1WBE3     R N S A Y K Y W V P V L P G P N A S   Q Y G T A L M N P D A V I V Y G S Y L I R
UniRef90_C7ZJJ3     R N S A Y K Y W V P D L P G K G D R A A F G T S V M N P D S V I I N G P Q L V R
UniRef90_N1RTX0     R N A A Y K Y W V P T I P S K   K S G E Y G S S V M N P D A V I I N G P Y V R
UniRef90_Q8X213     R N S A Y N Y W V P E L S T N G P T P G F S S P E T T A N S I V V K A G Y L V R
UniRef90_Q0D0B8     R N S A Y N Y W V P Q L G A D G A K T D Y S S E K T T A S S I I V K A G Y L V R
UniRef90_B6QBA3     R K S A Y K Y W V P Q V G T S G S V I G F T T K E T V A N S I I V K A G Y L V R
UniRef90_A0A016Q273 R N A A Y N Y W V P T I P G K G D R A A F G S S V M N P K A V I F N G A H L I R
UniRef90_Q5BFC4     R N S A Y N Y W V P Q L   G T E T S I P Y A T E K A V A A S V I V K A G Y L V R
UniRef90_M2MJZ8     R N S A Y N Y W V I D L P N D S I S G N Y T N Q T H F T S A P I V K A G Y L L R
UniRef90_N1PHL1     R N S A Y N Y W V I D L P D D S V T G N F T N N K H A T S A P I V K V G Y L L R
UniRef90_B8M3B6     R N S A Y S Y W V P Q V S T S N S S V E F S S Q E T V A N S I I V N A G Y L V R
UniRef90_W9WN38     K A S A Y D Y W V P E V S D G E S N S P F T T T E S I S T S I I V K A G Y L V R
UniRef90_G2X3Z7     R N E A Y N F W V P P       T G S G G D Y G T S D     V I V K A G Y L V R
UniRef90_V5G2W5     R N E A Y N Y W V L D L P D P E P L G L H A S E A R S D E A V I M K A G Y L L R
UniRef90_G7XUQ8     R N E A Y N Y W V L D L P V P G A I G R H V S Q S A N R S V I V K A G Y L L R
UniRef90_F9XKH7     R Q S A Y N Y W V V D L P N D D V T A N F T N H K H A I S A P I I Q F G Y L V R
UniRef90_H6C563     R N S A Y N Y W I I P E L S T N G T S A S F G S Q E A T A S S I I V K A G Y L V R
UniRef90_UPI000444A12C K N T A T T W H A P V I P G T G A F G Q F F S V G S N E T V L V N G P Y L V R
UniRef90_UPI0000E2C281 R A A A Y K F W A P P L T D D         P F A P E T D L V L V Q G P Y L V R
UniRef90_V2Y4K9     K K T A G G F W L P R I K D T D D V F D H Y D L S P N S T H A L V H G P Y L V R
UniRef90_B8MLY7     R N D A F N Y W V L D L K R P A P L N R Y A S S E R S N N S V I V K A G Y L L R
UniRef90_R8BCW2     R N E A Y K Y W V P A T P S D       Y G T S D     V I V K A G Y L V R
UniRef90_B0XNY2     K A A A Y R F W A P A L T D D         P N V Q E T E T V L V H G P Y L V R
UniRef90_H1VEN6     R N S A Y N Y W V T D K P G G G S Q P S Y G T S I M N P E S L I V N G G Y L I R
UniRef90_B0XXE7     R N D A Y Q H W V L E L P A K Q P I A N Y S S   P S K E T V I K G G Y L L R
UniRef90_S7Z3P8     R K S A Y K F W A P A L T N N         P L V P E T E T V L V Q G P Y L V R
UniRef90_UPI0004410BA0 R E N A Y Q F W V L H P A T S G K F A R F S   T A N P I L V K G G Y L L R
UniRef90_B6GW04     R T S A Y D F W A P A L T N D         P F V P E T E S V L I Q G P Y L V R
UniRef90_L2FZ52     R N E A Y N F W V P P     T E G N Y A T S D     V I L K A G Y L V R
UniRef90_T0KJ85     R N D A Y K H W V V D L P D P A T     G V I S P R E G E D S V I V R G P Y L V R
UniRef90_C7SLY9     R N D A Y N Y W S I E M P A A A P L G N F T S L   T K T S V I M K A G Y L M R
UniRef90_B6QHA9     K Y T A W D F F A P P L Q L S D     P N V K P N E H I F V I F G P Y L V R
UniRef90_D8Q3Q9     K Y T A R G F W A P R L N A A A N S T D V Y D Q S P D I P A V L V A G P Y L V R
UniRef90_M5G9R9       D T A G T F W A P T I A S S A T Q F Q H F Y Q F G T N E T V L V G G P Y L V R
UniRef90_V2X3D6     R E N A Y Q F W T L Y P P S S G A L P R F S     T E N P V L I K G G Y L M R
UniRef90_U4L6N4     R N E A Y R L W A P T L S G V S K K S R     T D T G V I H G T Y L V R
UniRef90_G2Y4X8     R N E A Y N Y W S L E L E A P A P I G N H T S P S K P     S I I V K A G Y L L R
UniRef90_K1X9R2     R N S A Y N Y W V P D F A R T D K W E A Y P S N I G N T T S V I V E A G Y L V R
UniRef90_C9S995     R N E A Y N Y W V P P T E A D L G T A       D V I V K A G Y L V R
UniRef90_D8Q9K6         N T W A P D I Q G E G D W G K F F S V G T N S S V L V G G P Y L V R
UniRef90_M2SU55     K P T A Y L F W A P N L S N D       P F A P V D Q S V L V Q G P Y L V R
UniRef90_E4ZPR8     K P T A Y L F W A P N L S N D       P F A P V D K S V L V Q G P Y L V R
UniRef90_F7VQH6     R N S A Y N Y W A P Q I A D         T S S S L I V N G G Y L I R
UniRef90_W9C6N5     R P S A W K F W A P P T T S N       P Q V K P D E Q V F V L G P Y L V R
UniRef90_C7ZRD6     R N E A Y N Y W V L D L P A P R P V N N Y T S A E A T D M S V I V K A G Y L V R
UniRef90_G2QZR1     R N S A Y N Y W V P D I S A S         S S V I V N G G Y L I R
UniRef90_W4K1F9     R D N A Y D F W V L N P P G T G A F A N F N     T K N P I I V K G G Y F L R
UniRef90_Q0CFT8     K A S A W N F F A P P L T S T     P E V A P D Q H I F V L G P Y L V R
UniRef90_B0Y752     K E S A W N F F A P P T T S S     P Q V A P N E H I L V Q G P Y L V R
UniRef90_B2W791     K P T A Y L F W A P N L S N D       P F A P V D Q S V L I Q G P Y L V R
UniRef90_B8NJE7     R Q S A Y K F W A P T L N N N       P L A W E N S T V L V H G P H L V R
UniRef90_W3WIY2     R N S A Y R Y W I L D L P K P D P V G K F V S A S R V N D S V I V K A G Y L L R
UniRef90_R0IFY9         S A W T F W A P P T K D       P N V T P D K Q I F V L G P Y L V R
UniRef90_F8PBZ5       D T A G T F W S P E I P S N A T S G S N Y W Q F G T N S I L V G G P Y L V R
UniRef90_N4V5Y5         K Y W V P D L P G S G D R V S Y G T T I M N P N S L I V R G G Y L V R
UniRef90_R0I9F4     R D E A Y K Y W S I D Q A P H D S S       S P V I L K A G Y L M R
UniRef90_K2RAL3     R T D A W K T F A P V L T T D     P H A P V D Q T V L V Q G P H L V R
UniRef90_N1S7H5     R N D A Y N Y W L L D L P A P A P I N N Y I T P E S T D L S V I V K A G Y L M R
UniRef90_R1E7W9     R T A A W K T F A P V L T S D     P H A P V D E T I L V Q G P H L V R
UniRef90_B2VSV5     R N E A F N Y W S V D Q A P H D S S       S P V M L K A G Y L M R
UniRef90_R8BI59     R N S A Y E Y W V P E L         S S G S D A S S L I I K G P Y L V R
UniRef90_M2QWN1       T A A T W A P P I P T G A S S F T N Y W Q F G T N T T A L I G G P N L V R
UniRef90_A0A010RML3 R N E A Y N F W V P P     A V G D F G T S D     V I V K A G Y L V R
UniRef90_M7T455     R S A A Y L F W A P S L S N D     P M A S P N S T I L V H G P Y L V R
UniRef90_Q2U7N3     R N E A Y Q Y W V M D L P A P E P L D L H A S P S R T N S S V I V K A G Y L L R
UniRef90_A2QA64     R T A A Y K F W A P A L T E D     P L V P E D E A V L I Q G P Y L L R
UniRef90_W3WH12     R N D A F K Y W V L Q L E A P A P I G N Y S S Q   T K E T V I A K A G Y L L R
UniRef90_S3DFA1     R N T A Y N M W T P D F A R T D E W G T Y T S N I G N M S S V I V Q A G Y L V R
UniRef90_X8J392         A P R I W Q P R T T G T S G N G I Y D L S   P Q T G S V L V F G P Y L V R
UniRef90_R7S0V0     K D A A F T W S A P V L A G S G P F G S H F   G V G T N A T V F V K A G Y L V R
UniRef90_Q0UK59     K P T A Y L F W A P N L S N D       P F A P V D Q S V L V S G P Y L V R
UniRef90_W4JZ00     K P T A N T W H A P I I P G S G N Y G S F F S F   G T N Q T I L A S G P Y L I R
UniRef90_W9CD32     R N S A Y N Y W V A D F V R N D K W G A F S T S I D K T S S V I V E A G Y L V R
UniRef90_R7S3W7     R T E A Y E F W I L H T P G T G A Y A A F N     A E N P V I V K A G Y L L R
UniRef90_A0A010QDV3     K S A W R F W A P P T T S N P T       V K P D E Q L F I Q G P Y L V R
UniRef90_E3QKY6     R N E A Y N F W V P P A V G D F A T C       D V I V K A G Y L I R
UniRef90_F8NT20     R A N A Y E F W V L Y P P T T G A Y A N Y S     T A D P I L V K G G Y F I R
UniRef90_UPI000455E150   T A G N F W S P D V P T S D A L G A Y W Q F G T N T S V L I G G P Y L V R
UniRef90_S3EAU9       K A A W K F W A P P T T N S     P D V K P D E Q I F V L G P Y L V R
UniRef90_UPI000440993A   N T A G T F S A P V I P N D A R T F A N Y W Q L G S N S T I I V G G P Y L V R
UniRef90_B6QLF0     R E S A Y Y F W A P A L N S D     P S V P E D Q S V L V Q G P H L V R
UniRef90_N1QEG2     R N S A Y D Y W V V E K A A T P S I S A       P I V K A G Y L V R
UniRef90_A2QN51       T A W H F W A P S T S N       Y P S P R P D Q K L F I L G P Y L V R
```

```
                                        50            60            70            80
QUERY                 S V A I K G N A L S V Q A D F N V T T P L E I I G I P K G I S K L A V N G K E L
UniRef90_J5JN21       S A D V S G S T L N I Q A D F N K T T D F E V I G A P K G V S K L S I N G K M T
UniRef90_Q700S9       S A Y L D G N D L H I Q A D F N A T T P I E V V G A P S G A K N L V I N G K E I
UniRef90_E9EER2       S A S I S G N T L R A D F N A S T A L E V V G V P D G V T K L S V N G R P L
UniRef90_G3JA38       S A S I N G D T V S I Q A D F N Q T T F L E I I G A P H A S K L S I N G Q P T
UniRef90_V5G7X1       T A Y L K N N G L Y L T A D F N A T T P I E I I G T P K A A K S L Y I N G K K V
UniRef90_B8N6V7       G A H L D G A D L H L T A D F N A T T P I E V I G A P T G A K N L F V N G E K A
UniRef90_A0A017SRB5   T A Y L K D S G L Y L T A D F N T T T P I E V I G A P E S A Q A L Y I N N E K V
UniRef90_K9FHL1       T A Y V Q G N D L H L T A D F N T T T P I E V I G A P S N T K S L I I N G N Q A
UniRef90_M1WBE3       S A S I S G D T L H L R S D L N D P T A L E V V S V P S G V T K L S V N G Q R L
UniRef90_C7ZJJ3       S I S V Q G S K L S V Q A D F N S S T P L E I I G V P K G V S K L V L N G K E I
UniRef90_N1RTX0       S V A V E G S K L S V Q A D F N I T T P V E I I V G A P K G T S R L S I N G K D T
UniRef90_Q8X213       T A Y L E G S E L H L T A D F N A T T P V E I I G V P K I A K S V Y I N G V V Q Y
UniRef90_Q0D0B8       T A Y L Q G T D L H L T A D F N A T T A V E V I G A P G K A K N L I I N G K K A
UniRef90_B6QBA3       S A W L Q G N Q F H L S A D F D A T T T L E V I G V P A N A T S L Y I N G V Q Y
UniRef90_A0A016Q273   S V A I K G S G L S V Q A D F N A T S S L E I I G A P K G T S R L L I N G K D T
UniRef90_Q5BFC4       T A Y V K G R D L H L T A D F N A T T P V E V I G A P K T A E N L F I N G K K A
UniRef90_M2MJZ8       T V E V S G S S I H L T G D L N A T S D V E I I G A P S H T T Q L T F N G K S I
UniRef90_N1PHL1       T I E I H G S S L Y L T G D I N S T T P V E V I G A P Q P L N E L T F N G E S L
UniRef90_B8M3B6       Y A Y L Q G N E L H L S A D F N A T T N V E V I G A P S A T R L F V N G V Q Y
UniRef90_W9WN38       Q A Y V Q S S E L H L T G D F N D T T T I E V I G V P E S S K A L Y I N G E P V
UniRef90_G2X3Z7       T A N V D A S T L A L V G D V N A T T S I E I V G A P A G L K T L T W N G Q E L
UniRef90_V5G2W5       T A T I S G H S L H L I G D V N A T T D I E I I S T P T N V S S I F F N G K E V
UniRef90_G7XUQ8       T A E L T G T S L Y L T G D I N T T T T L E L I S A P Q P V T S I F F N N Q S V
UniRef90_F9XKH7       T V T V D G N N L H L T G D L N A T S S L E V I G A P H C L E Q L T F N G E S L
UniRef90_H6C563       S A S L V D D Q L Q I T A D F N A T A I E I I G V P S A A K T L C V N G Q S V
UniRef90_UPI000444A12C N A S V S G P T L S L T G D L N E T T S L E F F A P S S V S A L T W N G N N V
UniRef90_UPI0000E2C281 S A S L S G S T L A L R G D S A N E T A L E V F A S K K V H T V T W N G K R I
UniRef90_V2Y4K9       S A S V S G T T L A L T G D V N G T T T L Q V F A P T S F S A V T W N G V P V
UniRef90_B8MLY7       T A D V A H S V L Q L K G D I N A T T E I E L I A G P P S I F S I Y F N G K K V
UniRef90_R8BCW2       T A E V N G G T L S L V G D V N A T T P V E V I G A P A N L K S L L F N G K P L
UniRef90_B0XNY2       S A S I S K T T L A L R G D S V E K T T L E I F A P H S V R K I T W N G K K V
UniRef90_H1VEN6       S F S I Q G G T L R V E G D V N R T T E I E I I G V D D G M A K L E V N R K R V
UniRef90_B0XXE7       S A W I T D N D L H L T G D V N V T T P L E V I S A P K R F D G I V F N G Q S L
UniRef90_S7Z3P8       G A G V S G S K L A L T G D N T D K T V L E V F A P K N V K S V T W N G K T V
UniRef90_UPI0004410BA0 T A D I S G N T L A L R G D L N E T T T L E I I A P A A K S R T V T L N G E K L
UniRef90_B6GW04       D A K L S G S K L A I T G D V N A T T L D V F A P K G V K S V T W N G K K V
UniRef90_L2FZ52       T V A V D G D T L N I F G D V N A T T P I E V I G A P S S L K T L N F N G K A L
UniRef90_T0KJ85       N A T F S D N T L H L T G D V N E T T T L E I L G G V P E N A S L T F N G Q P V
UniRef90_C7SLY9       T A S V S G D I L Y L T G D V N A T T P L E I I S G A S G T K A I Y F N G K P L
UniRef90_B6QHA9       E A T I K G R T L E L T G D N Q N T T S I E I Y H G N P F I T S I T W N G K H I
UniRef90_D8Q3Q9       S A A I D G S T L A L T G D L N A T T P L Q V W A P S S V D T L T W N G E P V
UniRef90_M5G9R9       N A S I S G D T L E L R G D L N D T T Y L V V L A P S S V T K V T W N G D E V
UniRef90_V2X3D6       T V S V D E G T L A I T G D L N V T S S L E I I A P R A S T K A I T F N G K K L
UniRef90_U4L6N4       G A S I D G S T L K I R G D L N G T D T I E V F A P A S I K D V T Y N N R R L
UniRef90_G2Y4X8       T A S I E G K Q L K L T G D I N A T T N F E V I S T P T E V T S L L L N D K L L
UniRef90_K1X9R2       K V Y I N N K A L H I D G D L N A T V P I K V I G A P A N L K S L H F N S A K L
UniRef90_C9S995       T V S I D G S S L S F I G D V N A T T P I E V I G A P T S L K A L E F N G K A L
UniRef90_D8Q9K6       S A S I D G S S L A L V G D L N A T T P I E V F A P A A V S Q V T W N G A P L
UniRef90_M2SU55       H V A L E D D V L A L K G D I M N S T D I E V F A C A G A K T L S W N G K K L
UniRef90_E4ZPR8       S A A Q E G K Y L N L K G D I T K S T T I E V F A G K T V K Q L S W N G K K L
UniRef90_F7VQH6       S A S I N G A S L S L Q A D F N T T T T L E L I G V P R G V S K L Q I N G E T T
UniRef90_W9C6N5       S A S S S Y G A V Q I Y G D N D K A T T I E V F S G D S S I K A I V W N G L L V
UniRef90_C7ZRD6       N A R I S G T S L Y L S G D V N R T T E V E V I A A P V V P D R L Y F N G K R V
UniRef90_G2QZR1       S A S V S K A T L Y L R G D F N G T S T I E L I G V P K G V S S L T L N G A V L
UniRef90_W4K1F9       S V S V S G G T L S I Q G D L N S T A A F E I I A P A A S S K Q V T F N G H G L
UniRef90_Q0CFT8       G A S I K G T T V E I T G D N A N T T S L E V Y A G D K V T K V K W N G K P V
UniRef90_B0Y752       G A S V N H G T V E I T G D N A N T T S E V Y T G N S Q V K K I K W N G K T I
UniRef90_B2W791       G A A L D G D V V A L K G D V K N S T T I E V F A H E T A L T L S W N G K K L
UniRef90_B8NJE7       T A E I D G D T I A L T G D W D E E T D I E I W A P K N V K N V F F N G S K L
UniRef90_W3WIY2       N A T V S E N S L H L C G D V N Q T T T I E V I A A P L S C A T L F F N G H Q V
UniRef90_R0IFY9       S A S V S G G T V A V V G D N A N A T T I E V Y A G A S V T K I S W N G K H L
UniRef90_F8PBZ5       N A T I T G S T L N L R G D L N D S V R L T V I A P E T V S I T W N G M D I
UniRef90_N4V5Y5       S V S V R N D T L N I Q V D F H R F T Q L E I I G V D A Q V T R L E I N G K P L
UniRef90_R0I9F4       T A K V S G D T L A L T G D V N A T T P I E I I G A P S G L S K L T F N G K D I
UniRef90_K2RAL3       T A T V E D D T L K L T G D T S E E T T L Q I F A S A S I K A V T W N G E A L
UniRef90_N1S7H5       T A K V S G S S L F L T G D V N R T T E V E V V A A P I T P S K V Y F N G Q Q V
UniRef90_R1E7W9       T A S I E S D T L A L T G D S S E E A V I E V F A S A S V K S I T W N G E P L
UniRef90_B2VSV5       T A K V T G D T I A L T G D L N A T T P V E I I G A P S S V S T I T F N G K A L
UniRef90_R8BI59       S A S I D G S V V N I K A D F N K T S T V E I I G V P S A K S L Q I N G K S V
UniRef90_M2QWN1       N A S I D G S T L A L R G D L N A S V L T V I A P P Q V K S V S W N G A L V
UniRef90_A0A010RML3   N V A V N G D S I S F S G D V N S T A I E I I G A P S S L K T L N F N G K S L
UniRef90_M7T455       S A S I D D Q S L S L T G D I A N A T T I S V F A P Q A I S T I T W N G R N L
UniRef90_Q2U7N3       N A S I S E N T L H L T G D V N A T S T V E L I S A P P G C C S V L Y D G N R L
UniRef90_A2QA64       S A S L E K S T L A I K G D S I N E T A V E I F A P E N V K T I T W N G K Q L
UniRef90_W3WH12       T A T V S G T A L K L T G D N A T S E L E I I V A G F P D S D E V Y F N G Q R L
UniRef90_S3DFA1       K V Y I D G P A L H I D G D L N A T V P I K V I G A P S N V R S L H F N T L K V
UniRef90_X8J392       N A T L I A G S T L A L Y G D L N A T T E L E V V A P S S V K T I T W N G K S V
UniRef90_R7S0V0       T A T T S G G T L K L T G D N N G T T S I E F F A P S A V S R L S W N S K S V
UniRef90_Q0UK59       S V S Y S D G I L A L K G D I L N T T T V E V F A C A S A E T L S W N G N K L
UniRef90_W4JZ00       T A A I S G N T L H L T G D L N G T T P I E F I A P S S V D T L Y W N G Q V Q
UniRef90_W9CD32       T V S T Q G S D L H L T G D L N A T V P F K V I G A P K G T K N L Y F N S Q K I
UniRef90_R7S3W7       S V S A S D G T L A L T G D L N G T T S F E I I A P S A I T K R I T F N G D S L
UniRef90_A0A010QDV3   S A S I S H G V L H V S G D S D K A T T I E A Y V G D K P I E T I D W N G L R L
UniRef90_E3QKY6       N V A V G G D S L G F S G D V N S T T T I E V I G G P T P L K S L T F N G K S L
UniRef90_F8NT20       S V D V S G S T L A L L G D L N S T A S F E I I A P A A S A Q V T F N G E P L
UniRef90_UPI000455E150 N A T I A G S T L A L Y G D L N A T T S L T V V A P P S V S I T W N G A Q L
UniRef90_S3EAU9       S A S I T N G V V H I S G D N D N A T T L E Y S G N P A I Q T I D W N G I R L
UniRef90_UPI000440993A N A S I S G S E L R L Q G D L N A T T L T V I A P P E V S S I F W N G R N V
UniRef90_B6QLF0       S A K I V G S T I R L T G D S A Q T S P I E V I A P K Q V R I I F W N G D K E L
UniRef90_N1QEG2       S Y T I E Q S A V L H I G D L N A T T P I E V I G A P D S M T E L T F N G K A L
UniRef90_A2QN51       S A S V E N E V L Q V S G D N N G T T T L E S F I G D V P I K A I E W N G Q R L
```

```
QUERY                      G Y S V S E L G D W I A H P A I E
UniRef90_J5JN21            E F T K S K H G S W L A K P S I K
UniRef90_Q700S9           Q T K V D K N G I W S A S V A Y
UniRef90_E9EER2           K H T T S P T G T W L A Q P D I
UniRef90_G3JA38           C F K K T A D G T W L S K P A I R
UniRef90_V5G7X1           N H S V D K N G I W S T T V E Y
UniRef90_B8N6V7           S H T V D K N G I W S S E V K Y
UniRef90_A0A017SRB5       S H K V D K N G I W T S E V K F
UniRef90_K9FHL1           Q I N V D K N G I W S S S V A Y
UniRef90_M1WBE3           E Y T T T S T D S W L A Y P D I
UniRef90_C7ZJJ3          R Y Q K S L G N W I A Q R D V E
UniRef90_N1RTX0          S F T K S K L G N W L V N P E I K
UniRef90_Q8X213         K Q T V N A N G F W S A N P D I K
UniRef90_Q0D0B8         A H K V D K N G I W S T E V K Y
UniRef90_B6QBA3         N H T K T S N G F W I A V E Y K
UniRef90_A0A016Q273     P Y K K S K I G N W L V N P S V
UniRef90_Q5BFC4         H H T V D K N G I W S T E V
UniRef90_M2MJZ8         P F K Q S R N G V V T A T A S Y
UniRef90_N1PHL1         K F A Q A K N G V V T A T A E Y K
UniRef90_B8M3B6         D H A K T S N G F W T A S V K Y
UniRef90_W9WN38         Q Y S V N A R G D W S T R I T Y Q
UniRef90_G2X3Z7         S F E Q S S H G V I T A T V D F
UniRef90_V5G2W5         D T R I N   H G R L G G T I A F K
UniRef90_G7XUQ8         Q T S V T S   G R L T G T L T Y
UniRef90_F9XKH7         D F E E G D S G I V T A T V
UniRef90_H6C563         Q Y S A D A S G D W S
UniRef90_UPI000444A12C  D I T K T S L G S F T A T L E
UniRef90_UPI0000E2C281  K T S R S S Y G S L T A
UniRef90_V2Y4K9         S V Q K T D L G T L K G T I G F
UniRef90_B8MLY7         P T T V S   N G R L S G N V T Y
UniRef90_R8BCW2         S F K Q D K V G V V T A T V D F K
UniRef90_B0XNY2         Q T S H T P Y G S L K A T P D I K
UniRef90_H1VEN6         E H T T N N L T N W I A R P S L
UniRef90_B0XXE7         K S T R S K I G N L A A T V H Y Q
UniRef90_S7Z3P8         H V E R T A Y G S L K G S V E
UniRef90_UPI0004410BA0  Q L K K T A H G T L T A T R S V R
UniRef90_B6GW04         D T H S T E Y G S L K G S L D
UniRef90_L2FZ52         D F K Q N D R G V V T A S V D F K
UniRef90_T0KJ85         E P L Q R T V G R I E A D I T F Q
UniRef90_C7SLY9         S F E R T S Y G T F I S T V E F
UniRef90_B6QHA9         S T K R T A Y G S L T A T I
UniRef90_D8Q3Q9         E A S K S D T G A L E A S L A L
UniRef90_M5G9R9         E L D A S A T G V L T A T L T P K
UniRef90_V2X3D6         A V E S S A Y G T L L A K I T V Q
UniRef90_U4L6N4         N L Q K T K Y G S F T G K I D F K
UniRef90_G2Y4X8         H T E K S R N G N I Q A H I S Y
UniRef90_K1X9R2         S Y T V D P T G D W S S N L A Y
UniRef90_C9S995         D F E Q D D S G V V S A V I E F K
UniRef90_D8Q9K6         D L E S S R G S L A G T
UniRef90_M2SU55         S T S Q T S Y G S L K A H V T
UniRef90_E4ZPR8         K T T G T S Y G S L K A T V A
UniRef90_F7VQH6         K Y R I D S E G N Y I V K I S Y K
UniRef90_W9C6N5         S T T K T K Y G S Y I A
UniRef90_C7ZRD6         T T K S A K S
UniRef90_G2QZR1         P H V K N A Q G N W E S T V R Y
UniRef90_W4K1F9         A L K K T S Y G T L T A T Q A V Q
UniRef90_Q0CFT8         K T K R T A Y G S L I G T
UniRef90_B0Y752         E T R K T A Y G S L I G T
UniRef90_B2W791         E T S R T P Y G S L K A Q I S
UniRef90_B8NJE7         K I T K S K Y G T L V G
UniRef90_W3WIY2         N D T R Y V Q G R L T G T V K Y
UniRef90_R0IFY9         D T T R T P Y G S L S A T
UniRef90_F8PBZ5         S A D V A A T S N L T T Q
UniRef90_N4V5Y5         D F K Q N S L S N W V A Q
UniRef90_R0I9F4         S F E K S K A D T L T A T V D F
UniRef90_K2RAL3         S T T S T P Y G S L T A T L S
UniRef90_N1S7H5         R T K
UniRef90_R1E7W9         T T S A T T Y G S L T A T V S
UniRef90_B2VSV5         D F T K S E A G T L V A N V E F
UniRef90_R8BI59         Q Y T T D S Q G T W L A
UniRef90_M2QWN1         P V E S N A S G I L T G T L E L
UniRef90_A0A010RML3     D F K Q D D H G A V T A K V E F
UniRef90_M7T455         E I A S R E N G I I T A Q I E
UniRef90_Q2U7N3         Q N I S N T N G R V S G V V P Y
UniRef90_A2QA64         K T S K S S Y G S L K A T I A
UniRef90_W3WH12         D C T R S S N G R L S A P L P F
UniRef90_S3DFA1         D I T V D S T G E W S G T L P Y
UniRef90_X8J392         K L S K T S S G T L K A T L T I
UniRef90_R7S0V0         P V S R T P Y G S Y K G T
UniRef90_Q0UK59         Q T S R T T H G S L K A T V A
UniRef90_W4JZ00         T V T Q T S H R S F T A
UniRef90_W9CD32         S Y K T D S T G E L S S T L T Y
UniRef90_R7S3W7         S L T K T K Y G T L V A K
UniRef90_A0A010QDV3     A A T K T A Y G S F T A Q I
UniRef90_E3QKY6         D F E Q N E H G V V T A T V D F
UniRef90_F8NT20         T L E K T S Y G T L T A E K T V
UniRef90_UPI000455E150  S V D A A A G S G L T
UniRef90_S3EAU9         N A V K T S Y G S V T A K I
UniRef90_UPI000440993A  H T T K D S A S S A T S R
UniRef90_B6QLF0         K T S K T S Y D S L Q A
UniRef90_N1QEG2         P F T V S K S G I I T A T A E Y
UniRef90_A2QN51         T A T K T P Y G S Y T A Q I
```

```
                            1         10        20        30        40
UniRef90_Q5BEQ0        R Q K A Y T F W A P A L T D N           P L V P E G E S V L V S G P Y L V R
UniRef90_X8IXY3        R S T A W K F W A P P L T A S P V A       P A N Q L I W A S G P Y L V R
UniRef90_F7W0A2        R K T A Y K F W V P A L T K D         P K V P V D K T A I V I G P H L V R
UniRef90_R1EEC1        R W A A Y T F F A P P T T E N         P D V S P D E Q V F V L G P Y L V R
UniRef90_B2WMP1            A Y N F F A P A T T N D           P N V T P D H Q I F V L G P Y L V R
UniRef90_E4ZMX2        R N E A Y N Y W A I D Q A P H D S S       N P V I L K A G Y L M R
UniRef90_S8EYH2          T A A T F W A P V I P A S G G A F S N Y F Q F G S N E T V L V G G P Y L V R
UniRef90_W4K8N8          T A G T F W A P V L A S T N A H A N Y W Q I G T N S T L L V G G P H L V R
UniRef90_L2GAD1        R N S A Y N Y W V A D Q P A E D G S   S Y G T T I M N P V S L I V N G G Y L I R
UniRef90_UPI0004408B24   D T A G T F F A P V I P G D E A T F S N Y W Q F G S N S T V L V G G P Y L V R
UniRef90_B8N2I5        K E T A W N F F A P P T V S S P T V A       P N E H I L V F G P Y L V R
UniRef90_B8N765        R N D A Y D Y W V M E V P A A E P I G N Y S S   P S K D L I I V K A G Y L V R
UniRef90_A7EZS5            S A W K F W A P P T T S N         P Q V K P N E Q I F V L G P Y L V R
UniRef90_N4URS6          K T A W R F W A P A T T P N P T       V L P N E Q L F I F G P Y L V R
UniRef90_UPI000455FC17     T A G S F W A P T I A S N D T S N D F Y W Q F G T N T S V L V A G P Y L V R
UniRef90_W0AHZ0                I G D E A E G A R Y W R Q D S A A G T V L V R G P A L V R
UniRef90_F9FNF7        R N M A Y N Y W V L D L A D A E T G A   I P F Q E T E S S L I V N G G Y L M R
UniRef90_D9X6H9              F A D D A T A V R L W P Y E T P S G Q L L V Y G P A L L R
UniRef90_Q0UME5            A Y N Y W S I D T A         P H S S A N P V I L N A G Y L M R
UniRef90_B8PAX4          T A A T F W A P V I P A S G T A F Q S Y Y Q F G S N T T I L V G G P Y L V R
UniRef90_X8IXX1            A P R L W Q P R V S G T S G N G R Y D L S P R T   G S V F V F G P Y L V R
UniRef90_B6H5X9        K E T A W N F F A V P T T S N         P R V A P S E Q I L A L G P Y L V R
UniRef90_J4IA50          T A A T F W A P A I P N P A A D F A N Y W Q F G T N T T A L V G G P Y L V R
UniRef90_K9GEM7        R N E V Y N Y W V M E L P A S S P I G N Y S S   P S K S L V V V K A G Y L I R
UniRef90_S7ZBH2        K E T A W N F F A V P T T S N         P I V S P S Q Q V L A I G P Y L V R
UniRef90_S8BJZ0          T A W N F F A P A T T K D           P A L S P E Q Q I F V F G P Y L V R
UniRef90_K5VXC5        Q T A S T F F A P A V S T G A A T F T N Y W Q F G T N E T V L V G G P M L V R
UniRef90_S8BHW2            E A Y N F W V P D L S I             P V I V K G G Y L L R
UniRef90_F9G489        R K T A Y K F W A P T L D N N         P F A P V N K T V L I H G G Y L V R
UniRef90_D8PK76          T A A T F W V P T L A G P D D P F R H F W S F G T N D T V L V G G P Y L V R
UniRef90_A2QL84          E T A F R F W A P P T T T D         P Y V T A E Q Q I F V L G P Y L V R
UniRef90_F8Q4B7        K A S A A Q W H A P L I E G S G A F S N Y F   G V G T N E T V L V G G P Y L V R
UniRef90_G4T7D6        K A N A L A T W A P R I E A P A S G L G H Y T P S S N I A G V W V T G P Y L V R
UniRef90_W6QFQ6        R N S A Y N Y W V P Q L P T K G T R P G Y S S Q E A A A S S L I V K A G Y L V R
UniRef90_UPI000455CDD5     T A G D F W S P D V P S S D S S D A F G W Q F G T N T S V L V G G P Y L V R
UniRef90_R7SMX4          T A A T F W A P P I R S P S V D L E T F W Q F G T N T T V L V G G P Y L V R
UniRef90_B0DSN5        D T A A T F W S P S I A G K G D P F R N F W G L G T N D S I L V G G P Y L V R
UniRef90_R7SKU3          T A A T F W A P A V K N T V P G F E S F W Q F G T N T T V L V G G P N L V R
UniRef90_S7PUE9          T A G S F W S P V I S G S G E F S N Y W Q F G T N S I L V G G P Y L V R
UniRef90_G2R540        R N A A Y N Y W V A D T P G G Q P           P L I V N G G Y L I R
UniRef90_A7EBU5        R S F A Y E F W V P V L T A D         P F S P A N E T V F V Q G P S L V R
UniRef90_G1XTB0        R V N A Y N F W V P D V             N L K D D L P V I I K G G Y L L R
UniRef90_UPI0004449F9D     T A T T F W A P T I P N S S D P L A N F W Q I G T N D T V L V G G P Y L V R
UniRef90_W9HIF2        R R S A Y K F W A P T L D N N P L A   W E N S T G D       G P Y L V R
UniRef90_M4G807        R A Q A R T F W V V D V A N Y A N S T G K A   A A P T D G A V I I K G G Y L I R
UniRef90_UPI00044148E0     T A G T F W A P V L S S D H P Y G A F W S   I G T N E T V L V G G P Y L V R
UniRef90_E4ZIB0          T A Y T F F A         A A T T E N P N V T P D H Q I F V L G P Y L V R
UniRef90_W3WIS9        R N E A Y N Y W A V E L P A A S P I S N Y S S P S K S S V I V N G G Y L I R
UniRef90_W3X4S8          S T A W R F W A P P T T       L S P A V R P D Q Q I F V I G P Y L V R
UniRef90_UPI000363D140       F A D D R T S S R L W P Y E T P S G S L L V C G P R L L R
UniRef90_R7SKT8          T A A S F W A P A I R A E T S S T S Y W W F   G T N T T V L V G G P Y L V R
UniRef90_UPI0004413654       A R T L W A P V L A G A G A F A Q F   P E I G S N S T L I V A G P S L V R
UniRef90_UPI00036C4468         V L L F A D E A T S V R L W P Y E T G S G T A L V Y G P A L L R
UniRef90_UPI0004624242   T V A T F W A P A V P T H E T I A G L F W Q F G T N T T V L V G G P Y L V R
UniRef90_K1WTM5        R S A A Y G T W F P S T S S D         P F T P E D S T V I L G P Y L V R
UniRef90_UPI000444A58A     T A T T F W A P V I P G E S S D P A N F W Q I G S N D T V L V G G P H L V R
UniRef90_G4T7H4        K A S A L A T W A P R L A   P S T D P G H Y T P S P D A A G V W I M G P Y L V R
UniRef90_Q2GX66        R K T A Y E V W A P A L T N D         P K V P V D Q T A L V I G P H L V R
UniRef90_E3Q7G5        R S A A Y L F W V P T L D N N         P L A P V N N T V F V Q G P Y L V R
UniRef90_UPI0004416D02     T A G T F W S P P I A Y D N N S F S N Y W S F G T N V T V L V G G P Y L V R
UniRef90_W4K1S5          T A G T F W A H A L A G T D P H A N Y W Q I G T N S T L L V G G P H L V R
UniRef90_A0A010SHV6    R N D A Y R H W I L D L P D A D N   G L I Q P T L G K S S T I V A K G P Y L L R
UniRef90_H1VMZ6        R T A A Y L F W V P T L D N D         P F A P A N N T V F V Q G P Y L L R
UniRef90_D8PM67            A K S F W Q P T V A G E G D Y A S Y V H F   G A S T P A L V A G P Y L V R
UniRef90_UPI00047AF245       I A D T A A S A A F W K Q D T A A G P V L E R G A D L V R
UniRef90_UPI0004413E17     S A V R T W Q P T I A S P G S S L A N F Y D L G A T T P V V V S G P Y L V R
UniRef90_E5A3W5        R N S A Y N Y W T V N T L G D E     A Y S H E A T P S S E L I I H A G Y L I R
UniRef90_UPI000462360D     T A A T F W A P H I A T K S P G F E H F W Q W G T N T T V L V G G P Y L V R
UniRef90_K2SSA3        R N S A Y N Y W               T H D D I V L K A G Y L I R
UniRef90_D7C0U2              I G T D S Q A A D F W R Q D T K A G P V L E R G T E L V R
UniRef90_V2WA71          S T A E T F W A P S I A S N T S E H A S F W G I G T N Q S V L G G P Y L V R
UniRef90_M2ZIV7          E T A W N F Y A I P L S T D       P F A S P N H Q I L A L G P Y N I R
UniRef90_T0M4J2        R S G A Y G M F A P T L T N D         P L T P V N E T V L V H G S S L I R
UniRef90_D9Y1Y0            V L L F A D D A T A L R L W P Y E T P S G S M L V Y G P A L L R
UniRef90_L8FN32        R N S G Y N Y                 G S A V I V K A G Y L V R
UniRef90_J9NPU8        R K D A Y N Y W I L D L P A P A P I N N Y T S F E S T N S S V I I K A G Y L M R
UniRef90_S3D6L9        R A S A Y K T W M P S T S N D         P F T A E N S T V I V Q G P Y L V R
UniRef90_UPI00036D8C97         V L L F A D D A T S T K L F P Y D T P S G S L L V Y G P A L L R
UniRef90_UPI000440E82E     T A S T F W A P V I A S G S T P F A R Y W Q F G T N T T V L V G G P H L V R
UniRef90_R8BTZ8          S A A W R L W T P S T T S     Y P Y P Q A D Q K L I V L G P Y L V R
UniRef90_C9SLP7        R K A A Y H F W A P Q L D N N         P F F V E N K T V L V Q G P Y L V R
UniRef90_W3WG52        R V A A W H T F L P V L T K D         P S A P V N Q T I V V Q G P H L V R
UniRef90_M5C8P4            A P R V W Q P R V S G T F G N G R Y D L S P R T   G S V F V F G P Y L V R
UniRef90_Q82BE9             F A D D E A S A R L W R Y D T P S G S V L V R G P A L L R
UniRef90_M5BVH6          T V G T F W Q P T I       N T G K G N Y W Q F D T N S T L L V G G P Y L V R
UniRef90_UPI0002630587         I G D E A E G A R F W R     M G D L V R G P A L V R
UniRef90_UPI0004416840     A A T Q L W L P T V A S S T G P L K N Y A D L G A S T P V V V S G P Y L L R
UniRef90_B2AT20        R K S A Y K Y W T V D L V P A Y S E G A     S S I I V Y G G Y L I R
UniRef90_S7Q690        K H A A L S F W N I R L P S A N N T P   Y D A A P D A P S V L L Y G P Y L V R
UniRef90_M3ASL6        R A S A Y K S W V V D     S S P M P A L T S P I I Q G P Y L V R
UniRef90_S2Z4H5            L A D D E T S V R L W P R E T P S G Y Y G P A L L R
UniRef90_UPI0004415E99  K P S A Y S A F V P S L T K D         P A A P H N K N L V V L G A H L V R
```

```
                                    50           60           70           80
UniRef90_Q5BEQ0          T A R L A R S T L T L R G D S K G E T   L E I F   A P R K I   K K V T W N G K A V
UniRef90_X8IXY3          S A S L S S S L L E I T G D A D S A T P I E I W   A P K S V T A L H W N G Q K L
UniRef90_F7W0A2          S A S V Q G N T I S V T G D S T N A T D I E V F T L   S R V S T I K W N G K Q L
UniRef90_R1EEC1          G A S V S G S T V S I S G D H T N D T A I D V Y V G D P S V Q T I S W N G A E L
UniRef90_B2WMP1          S A S A S G G K V A I I G D N A N A T T I E V Y A G   S N V D T I T W N G K D L
UniRef90_E4ZMX2          T A Q V T G G I L A M T G D L N A T T P I E I I G A P A S P S K L T F N D K D L
UniRef90_S8EYH2          N A S I S G G Q L A L R G D L N Q S V M L T V V   A P E D V T S V T W N G E E V
UniRef90_W4K8N8          N A S L S S G T L A L R G D L N S S V V R L T V I G   P P G V K R V T W N G E P V
UniRef90_L2GAD1          S V W F E E E M L K I Q G D F N Q T T E L E I I G V N T T L T T L E I N D R Q T
UniRef90_UPI0004408B24   N A T I S G S Q L Q I R G D L N E S V M L T V F   P P E V T S V T W N G Q P L
UniRef90_B8N2I5          G A S I K H D T V E I V G D N S N S T S I E I Y T G D E H V K K V S W N G N L I
UniRef90_B8N765          S A S I Q D N H L V L S G D V N A T T V E V I S T P Q E V R G I V F N N Q S L
UniRef90_A7EZS5          N A S I S S G V A Q I F G D N D N A T T I E V Y A G   S S L T S I V W N G V S L
UniRef90_N4URS6          S A S V S H G V L H V S G D S D K A A T L E A Y V G N E P V E T V D W N G L R L
UniRef90_UPI000455FC17   N A T I S D I T L A L R G D L N Q S I T L S V V   A P P Q V T A I T W N G E A I
UniRef90_W0AHZ0          T A T V R G G Q L A L T G D T A A E T P L E I W   A P A K L R T L S W N G A P V
UniRef90_F9FNF7          N A T L I D K K L Y L T G D L N T T T K I E V I G A P S D V   S V F L N G Q C L
UniRef90_D9X6H9          S A T L R G A T V H L T G D T V G A T G L E V W G   P P G I T H V T W N G R A V
UniRef90_Q0UME5          T A K V D G T T L A L T G D L N T T T T V E V F G G A P N V T K L T F N G K D V
UniRef90_B8PAX4          N A S I S D G T L A L R G D L N Q S A L L T I I   A P D D V T S V T W N G A P V
UniRef90_X8IXX1          S A T I K G T Q L A I T G D L K A T T E L E V L   A P S T V K S I S W N G K A V
UniRef90_B6H5X9          T A S V S G H T V S L V G D N A N A T S L E V Y T G N S K V T Q I K W N G K E T
UniRef90_J4IA50          N A S I E G S T L A L R G D L N R S V T L T V V   A P E D V T S V S W N G A T V
UniRef90_K9GEM7          T A E L T N K Q L R L T G D V N A T T Q I E I I S S P A G L N G I A F N G E V L
UniRef90_S7ZBH2          E A E L T H D R V A L T G D N A K T T I E V Y P G T S K A K K I R W N G N I
UniRef90_S8BJZ0          E A Y T S G T V V H V S G D T V N S T T I E V Y V G K S S I S K I N W N G I V L
UniRef90_K5VXC5          N A T V S G S R L A L R G D L N A S T P L T L L V P S S V S T V S W N G A N V
UniRef90_S8BHW2          A A T F S G N T L A L S G D T N G T T T F E V F A G   S A V S T I T W N G K G L
UniRef90_F9G489          H A T I K N G Q L N I Q G D L D S A T E T T V F   A P E S L K S I A W N G E K V
UniRef90_D8PK76          E A T L E S G T L A L R G D L K E S A F L T V I G   P K D V V E V T W N G E V V
UniRef90_A2QL84          N V S I S G S V V D L V G D N D N A T T V E V F A G   S P A K A V K W N G K E I
UniRef90_F8Q4B7          S A E L S R H T L S L Q G D L N G T T I V E I F C P S A V S Q I R W N N Q I V
UniRef90_G4T7D6          T A S L K Q G T L A L T G D L N S T V S I N I W G   P S S I R R V T W N G K Q M
UniRef90_W6QFQ6          T A Y L Q G N D L H L T A D F N A T T P I E V
UniRef90_UPI000455CDD5   N A T I D G S T L A L F G D L N D T V S L T V I   T P P S V N T I T W N G A Q L
UniRef90_R7SMX4          N A S L S G T T L A L V G D L N A S V P L T V F   A P Q E V T A V T W N G E P V
UniRef90_B0DSN5          S A T V S G S K L A L R G D L K T D V V R L T V I   A P R G I R S I T W N G E Y V
UniRef90_R7SKU3          N A T I S G N T L A L R G D L N A S V P L T V V   A P S A V K R V T W N G A P V
UniRef90_S7PUE9          N A T I E G P T L A L Q G D L E T G V R L I V I   A P P G L E E V T W N G V P V
UniRef90_G2R540          S A A L A N G T L T I R G D F N R T T T L E L I G V P Q A A T S L V I N T T P T
UniRef90_A7EBU5          S A A Y S G S T L D L T G D N N G T S T I Q V F   P P K S V S K V T W N G Q Q V
UniRef90_G1XTB0          T A K F S G N T L A L T G D T N G T T V F E V I   A P K K A Q A Y T W N G K R I
UniRef90_UPI0004449F9D   N A S I S G S T L D L R G D L N A S V T L S V I   A P E S V E T V T W N G V A L
UniRef90_W9HIF2          S A S I K G D T I N I N G D W D E E T T V E I W   A P N T I R K V S F N G E K L
UniRef90_M4G807          S A S L D G G V L H V Y G D F D H T A T L E L M G V P P Q A T S L S I N G N A T
UniRef90_UPI00044148E0   S A N L R G S H L A L R G D L E G D A Y L T V I G   P R F V S S I S W N G Q P I
UniRef90_E4ZIB0          S A S V S G S K V S I V G D N A N A T T I E V Y A G   L G V D T I S W N G K D L
UniRef90_W3WIS9          S A E I S E G L L S L T G D L N A T T D I E V F D P T S T V E T L S F N G V Q I
UniRef90_W3X4S8          D A S L R G R Q L V V H G D N D N S T T I E V Y T G   K P I E S I Q W N G Q H
UniRef90_UPI000363D140   T A A V Q G A T L H L T G D T V E A T R L E V W   P P R V T T V T W N G R P V
UniRef90_R7SKT8          N A T L S R D T L A L R G D L N V S V P L I V I   A P P S V R A V S W N G N P V
UniRef90_UPI0004413654   T A K L S R S R L A L T G D T N R T T T L Q I Y G   P R S L T G V T W N G A A V
UniRef90_UPI00036C4468   G A T I S G T T A Q L T G D T I A E T G V V W G   P R G I T D V T W N G R P V
UniRef90_UPI0004624242   N A S L A G R T L A L H G D L N A S V P L T V I   A P E G V R A V S W N G K Q V
UniRef90_K1WTM5          S A A I S G E V L E L E G D W T G S T S I E I F A A   S A I S R V S F N G E S V
UniRef90_UPI000444A58A   N A S I S S G S L D L H G D L N S T V T L T I I G   P S N V T S V T W N G V S V
UniRef90_G4T7H4          S V S L N K G T L S L E G D L N S T A N I D I W G   P S S L K K V T W N G N P V
UniRef90_Q2GX66          S A L L T D N T I S L T G D T N R T T P L E V F   T F S S M T R I L W N G M D L
UniRef90_E3Q7G5          S A S F D E R S L A L S G D A D K E T T M T V F   A P A S L S S I T W N G K K V
UniRef90_UPI0004416D02   D A R I R G R E L A L R G D L D K D A R L I V I A Q P E   I T T V S W N D I L V
UniRef90_W4K1S5          N A S L S S D T L A L R G D L N S S V R L T V I G   P P E V E T V M W N G E P V
UniRef90_A0A010SHV6      N A T F A D G V L H L A G D I N A T T T I E I L G G V P P N S G L S F N G R S L
UniRef90_H1VMZ6          S A S F T G R G L D L R G D A D K E T T I T V F   A S A S L C S L T W N G K K L
UniRef90_D8PM67          T A A L D G A T L T L V G D L E S E T P L T V I   A P A N V Q A V T W N G E T V
UniRef90_UPI00047AF245   T A T A T G P L L A L T G D T S R A G D L E V W   A P P S V R W V T W N G R P L
UniRef90_UPI0004413E17   S A T V S A H T L L L T G D L D A T T N L T V M   A P A R V T A V T W N G A P V
UniRef90_E5A3W5          N A T V A E G K I N L V G D V N V T T T I E V I G A H E S I T G L T F N G V D V
UniRef90_UPI000462360D   N A S L A G R T L A L R G D L N A S V P L T V I   A P A S A V T W N G A R V
UniRef90_K2SSA3          N A T V D G T T L S V V G D N A T T T L E V I G A P S G L T K L T F N G E D V
UniRef90_D7C0U2          T A S V T G R T L A L T G D A R A K A G P L E V F   A P P G V R S V T W N G A P V
UniRef90_V2WA71          S A H I E G D T L A L R G D L N A S S R L M I I   A P R S I T K V T W N
UniRef90_M2ZIV7          N A S I Q G S T I A L V G D N E N T T S L E V F A G P   D V G L I S W N D Q N L
UniRef90_T0M4J2          G A Q I S S D V I A I T G D T V E D A Q L E V F   A P S N V K K A T W N G K A V
UniRef90_D9Y1Y0          S V T L R G A T A H L T G D L V E G T G L E V W V P R G I T A V T W N G R P V
UniRef90_L8FN32          T A T T K G N T L Q L S G D F N A T T P F E V I G A P K S A K K L T I N G Q P V
UniRef90_J9NPU8          T A R M S E G A L F L T G D V N R T T E V N I V G A P V I P T K L Y Y N D A Q
UniRef90_S3D6L9          S A A I D G N V L T L T G D W T E S I D L D I Y   A P M S I Q K V V F N G K T I
UniRef90_UPI00036D8C97   H A E V H G S E V R L T G D L T S D S M L E V W G   P R G I S S L V W N G R K V
UniRef90_UPI000440E82E   N A S I S D G S L D I R G D L N S S V T L T V I   P P T V S S V T W N S E P V
UniRef90_R8BTZ8          S A S I S H Q V L H V S G D N D V S T T I E A Y V G S A T I S T I D W N G V R L
UniRef90_C9SLP7          H A S I T N R G L D L R G D L D G P T T V T V F   A P S S L C S I S W N G E K V
UniRef90_W3WG52          E A G I D D T N L H V H G D T N A T T E V E I F A T   S S V N R L W W N G K S T
UniRef90_M5C8P4          N A T I A G S V L A I T G D V A T T T E V I G A P S K V A V T F N G N S V
UniRef90_Q82BE9          T A T V R G T T H L A G D T V K D A D L E V W   A P R G V S D V W N R R T V
UniRef90_M5BVH6          S A E I L K G N T V A L T G D L D K D T T V S V Y G A P K G   S K I T W N G K
UniRef90_UPI0002630587   H A T P E G S S L T L T G D T E G P T P L E V W   A P A A T R S L R W N G A P V
UniRef90_UPI0004416840   N A T I E H G T I I S L W G D L N A T T T L E I M N V P L L A R T L T V N S D P V
UniRef90_B2AT20          S A A L E G G I L I L M G D F N E T T T L E I M N V P L L A R T L T V N S D P V
UniRef90_S7Q690          N A S I T G N T L E L F G D I N A T I T I G V I   A P S S V K S V S W N G K Q L
UniRef90_M3ASL6          T Y T I H G T A F H L T G D V S D T T T I E I L L G A P H P L T V L T W N G I S V
UniRef90_S2Z4H5          T A A V E G T T V A R L T G D T V R A T E L E M W G   P R G I R V T W N G G E L
UniRef90_UPI0004415E99   S A K I V G P V V A L S G D L N A A T T L E V F   A P L P A L A V T W N G R L L
```

```
                                                        90
UniRef90_Q5BEQ0              E  A  T  R  T  S  Y  G  S  L  K  A
UniRef90_X8IXY3              S  F  K  K  T  A  Y  G  T  L  V  G  T
UniRef90_F7W0A2              R  T  T  K  T  K  Y  G  T  L  K  A
UniRef90_R1EEC1              E  T  T  R  S  A  Y  G  S  L  Q  A
UniRef90_B2WMP1              T  T  S  K  T  P  Y  G  S  L  T  A  N
UniRef90_E4ZMX2              D  F  K  V  S  D  E  G  V  V  S  A  N  M  E  F
UniRef90_S8EYH2              E  T  S  V  T  S  S  G
UniRef90_W4K8N8              D  P  D  T  T  S  V  G  G  F  T  G  Q  L  A  L  K
UniRef90_L2GAD1              D  F  T  T  N  K  L  G  N  M  L  A  R  P  S  L
UniRef90_UPI0004408B24       N  S  M  S  N  S  S  G  I  F  T  G  Q
UniRef90_B8N2I5              D  T  R  A  T  A  Y  G  S  L  I  G  T  V
UniRef90_B8N765              N  T  I  L  S  S  R  G  K  L  Q  G  S  V  P  Y
UniRef90_A7EZS5              S  A  T  K  T  K  Y  G  S  Y  S  A
UniRef90_N4URS6              P  A  S  K  T  S  Y  G  S  F  T  A  Q  I
UniRef90_UPI000455FC17       P  A  S  K  T  S  S  G  G  F  V  G  H  L  T  F
UniRef90_W0AHZ0              A  L  R  A  G  K  A  G  S  R  V  A
UniRef90_F9FNF7              N  T  A  K  Q  K  H  G  R  T  K  A  T  A  D  F
UniRef90_D9X6H9              P  T  R  I  S  A  S  G  S  L  L  A
UniRef90_Q0UME5              G  F  T  T  S  K  E  G  V  I  C  A  S  V  D  V
UniRef90_B8PAX4              S  A  Y  S  L  T  D  G  I  L
UniRef90_X8IXX1              P  V  T  K  T  A  T  G  T  F  K  G  S  I  G  V  K
UniRef90_B6H5X9              P  T  K  K  T  A  Y  G  S  L  I  G
UniRef90_J4IA50              N  T  A  S  L  T  G  G  V  L  V  G
UniRef90_K9GEM7              Q  T  S  K  M  S  N  G  N  L  W  G  T  V  K  Y
UniRef90_S7ZBH2              P  T  K  K  T  P  Y  G  S  L  I  G  T  V
UniRef90_S8BJZ0              P  T  T  K  T  T  Y  G  S  L  K  A  A  I
UniRef90_K5VXC5              A  V  K           S  L  S  G  A  P  T  L
UniRef90_S8BHW2              N  L  S  K  T  A  Y  G  S  F
UniRef90_F9G489              K  V  S
UniRef90_D8PK76              E
UniRef90_A2QL84              T  V  T  K  T  D  Y  G  S  L  V  G  S  I
UniRef90_F8Q4B7              D  V  T  R  T  T  Y  G  S  Y  Q  A  K  I  E
UniRef90_G4T7D6              S  T  S  R  T  K  L  N  S  I  T  A  N
UniRef90_W6QFQ6
UniRef90_UPI000455CDD5       S  V  D  S  S  A  T  S  S  L  T
UniRef90_R7SMX4              G  T  M  T  Q  S  R  S  S
UniRef90_B0DSN5              S  G  D  L  V  A  T  S  A  L  T  A
UniRef90_R7SKU3              S  V  Q  S  S  G  T  G  R  L  T  Q  N  A  N  V  R
UniRef90_S7PUE9              L  A  D  V  Q  A  A  S  S  L  S  S
UniRef90_G2R540              P  H  R  A  D  D  D  G  H  W  L  A  Q  I  A  Y
UniRef90_A7EBU5              T  T  E  K  T  D  Y  D  S  L  I  G
UniRef90_G1XTB0              D  T  D  L  T  R  H  G  T
UniRef90_UPI0004449F9D
UniRef90_W9HIF2              Q  V  T  K  S  K
UniRef90_M4G807              S  F  T  A  D  P  T  G  F  W  K  T  T  V
UniRef90_UPI00044148E0       A  A  Q  I  S  A  G  G  A  F  V  A  R  L  E
UniRef90_E4ZIB0              P  T  E  K  T  A  Y  G  S  L  T  S  T  L  S
UniRef90_W3WIS9              G  I  E  E  S  D  D  G  R  R  T  S  H  I  E  Y
UniRef90_W3X4S8              R  A  N  R  T  T  Y  G  S  Y  I  A  E  I  T
UniRef90_UPI000363D140       R  T  A  R  T  G  S  G  S  L  R  S
UniRef90_R7SKT8              A  M  R  S  D  G  R  G  V  L  T  G  N
UniRef90_UPI0004413654       K  V  S  Q  D  A  L  G  A  W  S  G  T
UniRef90_UPI00036C4468       P  A  T  V  T  N  A  G  S  L  R  S  N  P  D
UniRef90_UPI0004624242       R  V  Q  G  A  S  S  G  V  L  E  G  K  L  E  V
UniRef90_K1WTM5              E  V  S  R  T  G  Y  G  S  L  V  G  T
UniRef90_UPI000444A58A       D  N  D  A  S  A  A  S  A  I  T  S
UniRef90_G4T7H4              A  L  S  R  N  T  L  G  S  L  S  G  T  V  K  Y
UniRef90_Q2GX66              P  T  T  Q  T  N  H  S  T  L  R  A  T  I
UniRef90_E3Q7G5              E  I  I  S  R  D  G  N  A  F  T  A  K  I  E
UniRef90_UPI0004416D02       P  F  S  S  A  A
UniRef90_W4K1S5              D  P  D  M  D  A  A  L  R  L  T  S
UniRef90_A0A010SHV6          S  N  A  Q  W  K  N  G  R  L  Q  A  E  L  V  F  E
UniRef90_H1VMZ6              E  I  L  S  R  D  G  N  T  F  T  A  R  I  D
UniRef90_D8PM67              Q  S  T  R  T  A  W  G  A  L  T  A  T  L  S
UniRef90_UPI00047AF245       P  V  T  R  T  A  A  G  T  L  R  G  R  L  D
UniRef90_UPI0004413E17       R  L  R  R  E  A  W  G  A  L  S  A  R
UniRef90_E5A3W5              T  A  K  L  D  R  N  G  F  L  S  G  V  V  D  F
UniRef90_UPI000462360D       E  A  T  T  S  A  R  G
UniRef90_K2SSA3              A  F  N  Q  S  S  L  G  N  V  A  A  T
UniRef90_D7C0U2              K  V  K  P  T  A  S  G  S  L  L  G  T  V
UniRef90_V2WA71
UniRef90_M2ZIV7              A  T  T  M  T  E  Y  G  S  L  K  A  T
UniRef90_T0M4J2              D  T  K  P  T  P  R  G  S  L  I  G  R  I
UniRef90_D9Y1Y0              R  T  Q  V  S  R  A  G  S  L  V
UniRef90_L8FN32              A  I  E  T  N  S  T  G  S  W
UniRef90_J9NPU8
UniRef90_S3D6L9              R  V  N  R  T  R  Y  G  S  L  L  G  R
UniRef90_UPI00036D8C97       P  T  R  I  T  L  S  G  S  V  I  S  T  V  T  L
UniRef90_UPI000440E82E       S  A  A  V  T  S  I  G  G  F  I  G  N  L  E
UniRef90_R8BTZ8              A  A  T  K  T  A  Y  G  S  Y  T  A  T  I
UniRef90_C9SLP7              A  I  E     S  R  N  G  N
UniRef90_W3WG52              S  F  T  K  S  S  Y  G  S  L  I  A  T  I
UniRef90_M5C8P4              K  V  S  K  T  P  T  G  T  L  K  G  S  I
UniRef90_Q82BE9              R  T  R  A  T  A  S  G  S  L  R  A
UniRef90_M5BVH6
UniRef90_UPI0002630587       A  T  T  R  T  P  S  G  S  F  V  A  T
UniRef90_UPI0004416840       R  V  Q  K  N  Y  W  G  A  L  Q  A  R
UniRef90_B2AT20              N  Y  T  V  N  E  H  G  N  W  V  V  T  I  D  Y  K
UniRef90_S7Q690              E  V  K  A  S  V  P  G  V  F  E  A  T  L  E  F
UniRef90_M3ASL6              S  F  N  Q  S  R  S  G  V  V  K  A
UniRef90_S2Z4H5              R  T  R  G  T  S  G  S  L  R  G  A  Q  S  L
UniRef90_UPI0004415E99       L  A  T  R  T  S  Y  G  S  L  V  A  R
```

```
                 1         10              20            30           40
UniRef90_K5WW10          E T A A A F W A P V I P G A D D P F R N Y W G F G T N Q T V L V G G P H L V R
UniRef90_Q1NEH4                          L A D E A E G A R Y W R R D G               M L V R G P V L L R
UniRef90_W3WG96          R N T A Y N F W V I P         S G N S L Y T N T E D V N I V A K S G Y L L R
UniRef90_W6PYZ9          R N E A Y N Y W V L E L P V S G P I G N Y T S     P S K S L V V V E A G Y L I R
UniRef90_H2K3F5                          F A D D A T A V R L F P Y D T P S G T L L V Y G P A L L R
UniRef90_L8WWS5          E T A G N F W A P V L A P Q E S D S A N F Y Q F G T N S S V L V G G P Y L V R
UniRef90_C7ZEJ8          R E T A Y H F W A P A L D N         H P L V D A N N T V L V Q G P Y L R
UniRef90_G8A534          K K T A G S I W V Y H V G P D       S L Y D M A P D I P A V W V L G P Y F L R
UniRef90_W7S927                          V G D K A T A E T F W R Q D T A A G P V L V R G T H L L R
UniRef90_Q2U6P1          R S A A H V F W S T P L N N D P A E A G         N N T V L V H G P Y L V R
UniRef90_UPI000369CEED                   F A D D A A S L R L W P Y E T P S G R V L V H G P A L L R
UniRef90_UPI000440D75E   S A S T F H A P I L P G P D G F T F F G T S       T N D T I L L Q G P P L V R
UniRef90_S8DTS6                                    N N Y W Q F G S N E T V L V G G P Y L V R
UniRef90_UPI00035C2077                   F A D D A A S L R L W P Y D T P S G S V L V Y G P G L L R
UniRef90_UPI0003A71135                   L A D A T A D T F W R Q D T A A G P V L V R G P A I L R
UniRef90_E2LUS4          E T V K T F W S P T I P S D S D P F A N F W S F G T N Q S I L V G G P Y L V R
UniRef90_X8J311          D T A G N F W A P V L A P Q G K D S A N F F Q F G T N S T V L V G G P Y L V R
UniRef90_M2YMG9          R Q T A Y T F W T A D T           D Y K P Q V       S S P I I H G P Y L V R
UniRef90_B5HW58                          F T D D P G S L R L F P V D T P T G P V L V Y G P S L V R
UniRef90_UPI0004663686           V L L F A D D E T A L R L W P Y E T P A G P L L V Y G P A L L R
UniRef90_L7FBW0                          T S V R L W P R E T P A G S V L V L G P P L L R
UniRef90_J9NQD2                                          E A V V V R G P Y L V R
UniRef90_K5W3E9          K H T A L S F W N V H L S S A N T T V     Y D R A P D V P S I F V F G P Y L V R
UniRef90_R0D0S6                          L A D A E T G Q T F W R R         D D V L V R G P G L V R
UniRef90_F0KCT1                          F T T D I T A Q T F W C E D T S I G E I L V R G P Y L V R
UniRef90_G4TGK5          E T A F K L H A P M L Q N T S D P F A T F W N I G S N D T I V V G G P Y I V R
UniRef90_UPI0001F2B157                   D L P A P E P L D L H A S P S R T N S S V I V K A G Y L L R
UniRef90_UPI0004449AF0   K S T A A T F W A P D A T G T T S T T A F F W G L G T N S T I L V S G P Y L V R
UniRef90_V6L1D1                          A D T A T A K T F W R Q D T A A G P V L V R G T H L L R
UniRef90_UPI00035EE0DB                   I G D I A A G Q S F F R Q D G       L L E R G P A L V R
UniRef90_X8J6L6          A P R T W Q P R V S H T S G N G K Y D L S P R T     G S I L V F G P Y L V R
UniRef90_V2X6G9          N A E T F F A P V I A T D S S S S P F G W S I G T N E T V L A G G P Y L V R
UniRef90_W5W591                          L A D K D S A K S F W R L D T V S G P V L V R G T H L L R
UniRef90_G0S1Q5          R N A V Y N Y W V             T K L K D Y P P L I V N G P Y L V R
UniRef90_V2Y5W6          T A E T F Y A P A I T S D D N P Y S K F W S F G T N E T V L V A G P Y L V R
UniRef90_I4WRM0                          P L I G D D Q A T Q R V W R Q D T P K G S V L M I G S H L L R
UniRef90_U7Q4D2          T A W R F W A P R         D G D N S F D V A G S S R V F I L G P Y L V R
UniRef90_UPI000440EB6B   T S Y Q L W N P T I T D S S E P F G A Y A G Y G S T E S V L V G G P Y F V R
UniRef90_S1S9Y2                          V A D D A A S L R L W P Y E T P S G R V L V R G P E L L R
UniRef90_UPI00046E57DE                   I G D E A E G A K F W H         A G D T L V R G P A L V R
UniRef90_F8EUX8                          I G D E N E S A R F W K L S T E A G D V L A R G P T L I R
UniRef90_E8RLZ7                          I A D E P T S F N F W R Q E T A Q G P V L Q M T A A L V R
UniRef90_C8WB58                          I G D E K E S A R F S R F S T D A G D V L V F G P S L V R
UniRef90_J2L9J2                          L A D E A E G A R Y W R E         K D L L V R G P A L V R
UniRef90_F0XST5          T A W R F W A P         A N G K P Q S S P L E V F K S D R L F I L G P Y L V R
UniRef90_W2EKI7                          T D A T A A Q F W R A D S A A G P V L V R G T S L V R
UniRef90_UPI0003A8069B                   V G D K A T A E T F W R Q D T A S G P V L V R G T H L L R
UniRef90_V4PY42                          L A E D E V A K T F W R Q D T P D G P V L E R S N A L I R
UniRef90_E2M2A8          K K T A G G F W L P R I K D T N D I F D H Y D L S P N S T H A L I H G P Y L I R
UniRef90_D8HTL5                          L A D K A T A E T F W R Q D T A S G P V L V R G T H L L R
UniRef90_G8SFA1                          L A D K A T A E T F W R Q D T A A G P V L V R G S H L L R
UniRef90_L7FGV1                          I A D V A E T A H W W R Q D T A D G P V L V R G P S L V R
UniRef90_R4LJA0                          L A D Q T T A D S F W R V D S D N G P V L A R G P A L V R
UniRef90_S3CBR8          T A W R L W A P         A D G D V S L S S T P G K R L I I L G P Y L V R
UniRef90_UPI000379F04B                   I A D E D A A A G F W R V         D D V L V R G P Q L V R
UniRef90_UPI0003803D01             V I G D R E G V A G T W Q L D A G G G G Q V L V L G P E L A R
UniRef90_UPI00047728A6                   L G T D D T A G S F W R A D T A G G P V L V R G T S L L R
UniRef90_C7QBZ5                          L A D K P T A E T F W T Q N T A T G P V L V R G T H L L R
UniRef90_UPI0003776329                   L T D R D A V A T T W Q L D T G A D K V L V T G P D L A R
UniRef90_S8A8J5                          D R E V A S K T W I L D T T P P T I I K G G Y L I R
UniRef90_V4QHC2                          I A D E P T S Y N F W Q Q T T T E G P V L Q L T A A L V R
UniRef90_C7ZKF5                          G S Y G T T E S N P D A V I V K A G Y L V R
UniRef90_V4QTW1                          T A Q E F W R Q D T T E G A I I E R S R A L I R
UniRef90_G8SDJ0                          I A D Q S T A D T F W K S         G D V L V Q G P A L L R
UniRef90_F2T9U0                                                                    L V R
UniRef90_K6V5F0          R A A Y G Q I W H P D L S               V G G S I R V A G V D L V R
UniRef90_UPI00047C1931                                   T T N K T V F V D G A Q L V R
UniRef90_UPI000456024F             A T A S A G S L D E I L G T G D R I L V G G A Y H I A
UniRef90_UPI0003670678                   L A D N K H S L Q F W S Q N T P A G T V L Q L T P A M V R
UniRef90_M2W7S2                          L A S R E V A K R W W N I E S N E G D V L V S G P Y L V R
UniRef90_UPI0003B41B8C                   D T T W Q V T G T D G D D N A T V L A A G V E L L R
UniRef90_W3WZA6          R D S A Y R Y W V P S I G K T S A         I I L G P Y L V R
UniRef90_K9DBW4                          L A D E Q T S M R F W T Q D T G A G R A L Q L T P A L V R
UniRef90_R4LI80                          L A D K P T A E T F W R Q D T A T G P V L V R G T H L L R
UniRef90_S9PQE0                          L A D S D T A S T F W T A H T A R G P V L V R G A Q L I R
UniRef90_UPI0003AD4BA8                   L G T D A E A A T F W R S G E T         L V R G T D L V R
UniRef90_D8HTR7                          L A D D A T A D T F W P V         G G L L V R G P D L V R
UniRef90_M2XIP7                     L V F A T E G Q A H L Y W R Q Y A Q N E T V I V R G S Y L L R
UniRef90_R4LQU9                          L G T D A T A A F W R A D T A A G P V L V R G P D L V R
UniRef90_UPI0004560B44       Y A V S Q S T S T S D D Q N S I F G L S S D R I L V S G A Y L V R
UniRef90_M2W2P6                          I V T T E L A V S L W R G E V D G G Q L V L V H G P Y L V R
UniRef90_F4RVC4          E T A G Q V W N P I L D S N P S T G V         V K D S L L I W G P Y L V R
UniRef90_Q5BGY6          R D K A H L F W V P A L T A D P L A P         V D Q V G K L S I N L A Y
UniRef90_E3L081              A G E V W N P I L V Q A D       S F S P P T S V I W G P W L V R
UniRef90_V5ESD8                                          S E D S V V I L N A D L L R
UniRef90_U1PLQ7          R T T A Q T T W L L D G T R N G K L         S S V A V E G V E L A R
UniRef90_F3P2R2          R Q S A R T T W Q L E         S T L N G R T V H T D       V E G A Y L A G
UniRef90_R9PKP9                                          T D E T V I L L D V D L L R
UniRef90_J3PMV1              A G E V W N P I L V Q P D S S S       P S T S V L I W G P W L V R
UniRef90_I2FY29                                          S E D S V I L I K V D L L R
```

```
                                         50          60          70          80
UniRef90_K5WW10          T A T L R G R V L S L T G D L K E G V R L T V I G   P K S I R Q I T W N G D S V
UniRef90_Q1NEH4          D A S V R G G T L A L T G D T A Q D S P L E I W   A P A A V R A V T W N G A R V
UniRef90_W3WG96          T A N V T E T S L D L T G D L N A T S P L W I V G A P K N L K T L T F N G G E V
UniRef90_W6PYZ9          T A D L I N K Q L R L T G D V N A T T I I E V I   P S S A T K L T F N G E V L
UniRef90_H2K3F5          H A E L R G S E V H L T G D I T E R T G M E V W G P R G I D T L V W N G R K L
UniRef90_L8WWS5          E A R L S E G E L A L R G D L E K E S M L T V I A E L G A V R R V F W N G F P V
UniRef90_C7ZEJ8          S A S Y D E R K L S I Y G D L D Q E T Q V T V F   A P E S L K T I A W N D K R V
UniRef90_G8A534          S A T V E G S T L N L L G D L N G T T L D V F   A S S E Y T S V T W N G E P V
UniRef90_W7S927          T A A T A G H T L A L T G D T D T D G S V E V F A A A D K I T W N G R D V
UniRef90_Q2U6P1          S A K L E G C D L K L T G D I Q N S T E V S I F   A P K S V C S V N W N G K K T
UniRef90_UPI000369CEED   D V A L D G A T I R L T G D T V E E C G L E V W   A P H G I T D V T W N G D P V
UniRef90_UPI000440D75E   N A S I S G S T L D L Y G D I E T S T V T V Y   A P D S V T N I T W N G A R Q
UniRef90_S8DTS6          N A S I S E G H L A L R G D L N Q S T Y L T V V   A P E R V T S V S W N G D D V
UniRef90_UPI00035C2077   T A A L R D S T V H L T G D T A A P A G L E V W G P R G A D A V T W N G R A V
UniRef90_UPI0003A71135   T A R S I G P F L A L T G D T A R A S D L E V W G P A A V V S W N G R P V
UniRef90_E2LUS4          S A S I S D G E L A L R G D L N V T V M L S V I   A P K S V S S I S W N G Q Q V
UniRef90_X8J311          D A Q L S S G E L S L R G D L E K E S M L T V I A E L G A V R R V F W N G V P V
UniRef90_M2YMG9          S A K V E G S D M H I C G D L N A T S A L D I I G A P E P L G K L T F N G K Q V
UniRef90_B5HW58          G V T L D G A T A H L T G D T V E G T G M E V W G P R G M G G I T W N G R P L
UniRef90_UPI0004663686   S A E L R D A T L H L T G D V G I E T G V E V W G P R G I A E V T W N G E P V
UniRef90_L7FBW0          T A E L E D D V V R L T G D T V E A T E L E V W   A P H G V R E V V W N G Q K P L
UniRef90_J9NQD2          S A S I K G D T I N I N G D W D E E T T V E I W   A P N T V R K V S F N G E K L
UniRef90_K5W3E9          N A T L L D G V L A L H G D I N A T T T L D V V   A P S S V K R V I W N G R T V
UniRef90_R0D0S6          G E A A K G G V L S L T G D T E T D S P L E V F   A P K A V T A I R W N G A K V
UniRef90_F0KCT1          S A S I R D N K L E L Q G D T D K A S D I E V F   A P T S V N E I K W N G E K V
UniRef90_G4TGK5          N A T L D D G H L A L F G D L E G D T M L Q L V G L P Q G L N R I T W N G I D V
UniRef90_UPI0001F2B157   N A S I S E N T L H L T G D V N A T S T V E L I S A P P G C K S L Y L S G H S V
UniRef90_UPI0004449AF0   N A T L T E G I L E L R G D L K E G V M L G V V G P R G V R G V R W N G M E V
UniRef90_V6L1D1          G A A Y S A T T L N L T G D T G T D G S I E V F A G A D S L T W N G K P V
UniRef90_UPI00035EE0DB   H A T V R G A T L D L T G D T E T A T P L E V W G P V R S V R W N G Q S V
UniRef90_X8J6L6          N A T L I G S T L A L T G D L K G T T D L E L V   V P F Q V K F A T F N R K P V
UniRef90_V2X6G9          E A A F S G T Q L D L H G D F N I T R L T V I   A P G K V T S V T W N G A P V
UniRef90_W5W591          T A T G E G D R L A L T G D T D T E G G A E V F T A A K S L S W N G N P V
UniRef90_G0S1Q5          S A S I S G N K L N I R A D F N A T T D V E L I G I P E T I T K V T I N S A D I
UniRef90_V2Y5W6          E A T Y S K D Q L D L R G D L D I T T N V T T L V A P K T V T S V T W N G M S V
UniRef90_I4WRM0          S A K Y D D G T L A L T G D G D S D A R A E L F A G D A S R L T W N G R P L
UniRef90_U7Q4D2          S A R I D A G V L Y V L G D N D S A T T L E A F V G S G S I N T V R W N G K T L
UniRef90_UPI000440EB6B   D V E L E D S I I A L R G D L N D T A S L W V L G P S H A K G V S W N G V L T
UniRef90_S1S9Y2          E A A L D G A T I R L T G D T V A E R E L E V W   A P P G I T D V T W N G E A V
UniRef90_UPI00046E57DE   S A K A A K G M L A L I G D T K E T T P L E I W   A S G S I R S A T W N G A R I
UniRef90_F8EUX8          Q A S T T D L T L S L R G D T G Y Q E P L E V W   A P P T I M Y L E W N G H R T
UniRef90_E8RLZ7          E A K L S G G K L E L K G D T M T E S A L T I W G P K G V E S V T F N G E P V
UniRef90_C8WB58          Q A S S T D L T L S L K G D T G S Q E T L E V W   A P P A I T T L E W N S H H V
UniRef90_J2L9J2          S G V A K G G S L V L A G D T A E A S P L E I W   A P N A V R S V S W N G A K V
UniRef90_F0XST5          S A E V S K G T L S I V G D S D A V T T L E A F G S Y T T I H T I E W N G Q A L
UniRef90_W2EKI7          S A E V S G T V R L A A D T A K A G E V E V F G   P A G A A R L V V G G A G V
UniRef90_UPI0003A8069B   T A S L R G G T V A L T G D N A D D K N I E V F   T S A T Q V T W N G R A L
UniRef90_V4PY42          T A K F D N G A L H L T G D T E K E S T I E I W   A P K P V Q T L T F N G Q P A
UniRef90_E2M2A8          S A S V N G T T L A L A G D L N G T T T L Q I F   A P T T F S G V T W N
UniRef90_D8HTL5          T A A E Q Y G L L S L T G D T G T D G A F E V F S A A K A L L W N G S W V
UniRef90_G8SFA1          T A T S A G R A L A L T G D N A T D P T I E V F T A A T A I R W N G R P L
UniRef90_L7FGV1          T A E V R G G T L R L T G D S T G A A K I E V I   A S A K K A T W N G R R T
UniRef90_R4LJA0          T A H S R G S R L E L T G D T D S P A S L E I W G A A D A R T V T W N G A P V
UniRef90_S3CBR8          S A R V D R G V I N V Q G D N D V P T T L E A F I G K P A I H T I S W N G R S I
UniRef90_UPI000379F04B   T A R A H G G R L D L T G D T T A A A G L E V W G P G F T R A V S W N G K P I
UniRef90_UPI0003803D01   T A R V K G T A L D L T G D T R E A G T L R V F   A P A G V K T L T W N N R A V
UniRef90_UPI00047728A6   S A S V S H G S I A L Q A D T S A P G A V E V F G N G R D L T V N G R P I
UniRef90_C7QBZ5          T A A S A G R V L N L T G D N G T D P G I E V F   T S A T S V T W N G H A V
UniRef90_UPI0003776329   T A R I T G A R L D L T G D T T D A V Q V R V F   A P R N I T V L T W N G R N V
UniRef90_S8A8J5          S A N I E G P K L H L K G D L V Q A T R L H I L   A P K S V T Q V T F N G K D V
UniRef90_V4QHC2          G A K L S G G K L D L T G D I A T E S A L T I W G P K S I Q T A T F N G E A V
UniRef90_C7ZKF5          S T K V S G K N L S A N F N K T T S V E T P T S V S K V E I G Q R V
UniRef90_V4QTW1          N A T Y T D T G L H L T G D T T E A S T I E I W P A V S E P A I T F N G T V L
UniRef90_G8SDJ0          D A R F A G D E L R L T G D T A A A T P L R V W S P R P Y R T L T W N G R R V
UniRef90_F2T9U0          T A F V R G S E L H I T A D F N T T T P I E I I G A P K N T S T L H I N G E K V
UniRef90_K6V5F0          S A I R E G T T I V L R G D T A A A K L Q V D   A P A G V T S L T W N G T P V
UniRef90_UPI00047C1931   T A Q F S G S T V A L T G D M N A A G S I S V F   A P A G T T A L T W N G A P L
UniRef90_UPI000456024F   N G T V R G D T L Q L Y G Q L S D A S T I E V F   A P P A V K Q V S F N G E K L
UniRef90_UPI0003670678   T A T L A D G K L A L T G D T A A A S E L T V W G P A F T S A S F N G D N L
UniRef90_M2W7S2          S A K Y E D G G L H L R G D T E I E T Q L K V V P S K V T T L T W N G E Y L
UniRef90_UPI0003B41B8C   H V N V S G D T A E L T G D K T A G T L T V Y   V P K V T K L T W N G E A V
UniRef90_W3WZA6          N A S L H D R T L S I Q A D F T E N T T V E I L G L S H L K S V I V N G V D T
UniRef90_K9DBW4          S A R L A D G L L A M T G D V D Q D G A I E I W G P A F E T A S F N G Q P L
UniRef90_R4LI80          T A T S R G R T L D L T G D N G T D P A I E V F   S T A T I R W N G A V V
UniRef90_S9PQE0          E V Q Q D A A L R L V G D V S A A A D I E L W A G A S F C Q L T W N R G E Q
UniRef90_UPI0003AD4BA8   S A T T R H G T T A I R A D I A K S G D I E V F N A T R R L T L N G E Y L
UniRef90_D8HTR7          T A Q A G F V L T G D T K A P R D L E V W G A R S P L L W W N G A P V
UniRef90_M2XIP7          S A E F T T S H L M L R G D T S E E T E I E I F T S P V D G I Y W N G E P L
UniRef90_R4LQU9          S A S V I G S A V S L R A D S A A R A P I E I W A A P
UniRef90_UPI0004560B44   N A S Y S S D T L H L F G D A D Q E P P I E V F T L P S V R H V L W N G Q E V
UniRef90_M2W2P6          S I D L E F G D L L I R G D V D K D T E V T I Y A V P F N L A Q F N D E I L
UniRef90_F4RVC4          N A S I D K S T L C I W G D V G Q K T G V S A Y I G G L K I Q N V S W N G K L I
UniRef90_Q5BGY6          N S F S D R W I S F R S R A S P E I E V F T A K K V Q A I E W N G K K I
UniRef90_E3L081          N A S I S K S V L H I W G D L E E G L R K E V I I G G L A I G A V E W N G K K I
UniRef90_V5ESD8          N A T Y S T D T L H L W G S L T T A S N T T A I F A L P N L T H V Y W N G H R V
UniRef90_U1PLQ7          T A K F T G D T L Q L T G S V S A E S N V R V I   A P A G I N H V G F N G G S L
UniRef90_F3P2R2          Q A V T N G S T V L T G Q M A K P S T V S V I   P D A A I T S A S W N G Q P L
UniRef90_R9PKP9          N A T Y S T D T I H L W G S V S N E T T A M M A L P G L K N V Y W N G K Q I
UniRef90_J3PMV1          N A T I N K N V L C I W G D F E E G L K K E V I V G G L I I E G V E W N G K K I
UniRef90_I2FY29          N A T Y S T D T L H L W G S L S Q D S T A V M M A L R S L K Y V Y W N G K R V
```
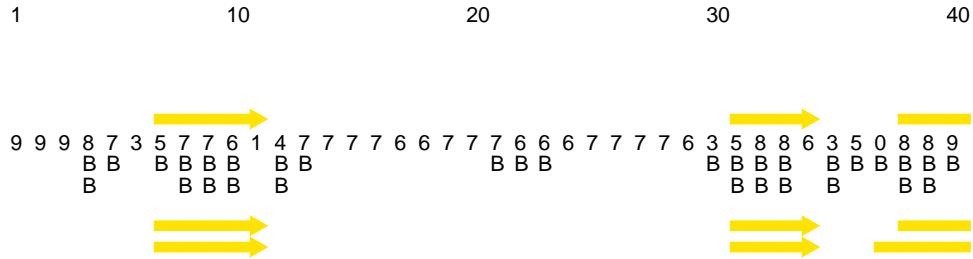
```
                                        90
UniRef90_K5WW10            T A D S A T E G A I T A Q L E L
UniRef90_Q1NEH4            A T A A T P A G S I A A
UniRef90_W3WG96            E F S V D E N G A I S S N L T Y
UniRef90_W6PYZ9
UniRef90_H2K3F5            P T R A T L S G S L L T T
UniRef90_L8WWS5            D T
UniRef90_C7ZEJ8            K I T S Q K   G N L
UniRef90_G8A534            A L E E T D I G S L R G S V T L
UniRef90_W7S927            R T R T T S S G S R T G T L P V
UniRef90_Q2U6P1            S V K S A K G G V I T T T
UniRef90_UPI000369CEED     A T S V S R A H S L L A T
UniRef90_UPI000440D75E     T V S A S E   G F L T
UniRef90_S8DTS6            K T S R L N N G R L L T E V S V E
UniRef90_UPI00035C2077     E T V A T G A D S L R A
UniRef90_UPI0003A71135     P A R R T T S S S L L A T
UniRef90_E2LUS4            S F I P S
UniRef90_X8J311            D T S A S T S G V L
UniRef90_M2YMG9            S F K Q   G G G I V L A T A E Y
UniRef90_B5HW58            R T S A T P M G S L R A
UniRef90_UPI0004663686     P T
UniRef90_L7FBW0            R T S A T D S G S L R A E R P L
UniRef90_J9NQD2            Q V T K S K Y G S F I G T
UniRef90_K5W3E9            H V Q K S N I G T L
UniRef90_R0D0S6            A T K P T A S G S L L A E R P L
UniRef90_F0KCT1            K A L Q T S Y L S Y T
UniRef90_G4TGK5            G T
UniRef90_UPI0001F2B157     W L D S T Y L G S W Q G N P A I Q
UniRef90_UPI0004449AF0     E S L R N
UniRef90_V6L1D1            H T T A S A S G S R T G T V
UniRef90_UPI00035EE0DB     S V T H S V S G S L I A R R P L
UniRef90_X8J6L6            H M S R S L T G T L K G S I D V
UniRef90_V2X6G9            S L D A S
UniRef90_W5W591            Q G Q R T P S G T L T A K P
UniRef90_G0S1Q5            S H S I N E L G N W
UniRef90_V2Y5W6            S L
UniRef90_I4WRM0            A A T H T A S G S L A V T L P V
UniRef90_U7Q4D2            P A T R T P Y G S Y R A A I S
UniRef90_UPI000440EB6B     K A K K N A F G A W S
UniRef90_S1S9Y2            Q
UniRef90_UPI00046E57DE     A T T R T Q S G S V T A T A S L
UniRef90_F8EUX8            S F S R S M N G S L I A K D T L
UniRef90_E8RLZ7            A V T A Q N D G S L
UniRef90_C8WB58            A F S R N L N G N F I A K
UniRef90_J2L9J2            T T K A T A I G S I A A
UniRef90_F0XST5            T A E R T A Y G A Y R A K I
UniRef90_W2EKI7            P V S R T P S G S L L G R V
UniRef90_UPI0003A8069B     G A L A T D T G S L T G K I P V
UniRef90_V4PY42            Q F E V M E G A L W T
UniRef90_E2M2A8
UniRef90_D8HTL5            P V K P T S S G S V T G T
UniRef90_G8SFA1            R T R S A G P G S F T A A I
UniRef90_L7FGV1            T V T
UniRef90_R4LJA0            A M R R
UniRef90_S3CBR8            R A T R T P Y G S Y T A
UniRef90_UPI000379F04B     A V R P S A G G G L T A
UniRef90_UPI0003803D01     R A E R D A S G A L V A R
UniRef90_UPI00047728A6     S T R T S P S G S L E G N
UniRef90_C7QBZ5            H A K G S A T G S L V G T V S
UniRef90_UPI0003776329     S A Q R D A A G A L V A
UniRef90_S8A8J5            D T Q P A T E G
UniRef90_V4QHC2            A L V P Q S D G S V S A Q P
UniRef90_C7ZKF5            S C L V   Y Q G H F I A
UniRef90_V4QTW1            T L T P T K S G G W I S A P
UniRef90_G8SDJ0            A A T V S R S G P L T A
UniRef90_F2T9U0            V H K T T S
UniRef90_K6V5F0            P A I R D A F G A L V A
UniRef90_UPI00047C1931     A T A V G A A G Q L V G
UniRef90_UPI000456024F     G L Q T T D L G V L R G S I
UniRef90_UPI0003670678     A L A P Q P D G S I K A
UniRef90_M2W7S2            E
UniRef90_UPI0003B41B8C     A T T T D A A G A L V A S V
UniRef90_W3WZA6            P F R
UniRef90_K9DBW4            A L T P Q L D G S V R A
UniRef90_R4LI80            R T
UniRef90_S9PQE0            T W S E T E Y G T
UniRef90_UPI0003AD4BA8     H A R R T G S G T L M A R
UniRef90_D8HTR7            P A R P T A S G S L L A
UniRef90_M2XIP7            K I I K T N S Y S Y V A K V
UniRef90_R4LQU9
UniRef90_UPI0004560B44     G W R
UniRef90_M2W2P6            M L S R T G C G G L K T S I
UniRef90_F4RVC4            R V I K S R Q G F L
UniRef90_Q5BGY6            R T K T T R W G S L T A Q I D
UniRef90_E3L081            H
UniRef90_V5ESD8            D A Q A Q S N A D W L
UniRef90_U1PLQ7            N P T   S A T G S
UniRef90_F3P2R2            P
UniRef90_R9PKP9            E T S P Q D D N G W
UniRef90_J3PMV1            R
UniRef90_I2FY29            E A K
```

```
                      1              10                    20                    30                    40

lupas_21
lupas_14
lupas_28
jnet          →                                                  →              →
conf          9 9 9 8 7 3 5 7 7 6 1 4 7 7 7 6 6 7 7 7 6 6 6 7 7 7 7 6 3 5 8 8 6 3 5 0 8 8 9
sol25             B B   B B B B   B B                       B B B         B B B   B   B B B B
sol5              B       B B B       B                           B B B       B     B B
sol0
jhmm          →                                                  →              →
jpssm         →                                                  →              →
```

lupas_21
lupas_14
lupas_28
jnet
conf
9 9 9 8 5 5 6 4 8 9 9 9 7 1 5 8 8 8 6 1 7 8 8 8 8 6 3 7 8 8 5 0 7 9 8 8 6 4 7 5 4 7
sol25
B B B B B B B B B B B B B B B B B B B B B B
sol5
B B B B B B B
sol0
B B B
jhmm
jpssm

90

lupas_21
lupas_14
lupas_28
jnet
conf   6 8 8 5 4 8 8 5 5 8 9 9 8 7 3 1 8
sol25   B   B   B B   B   B   B
sol5   B
sol0
jhmm
jpssm