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90 100 110 120

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130 140 150 160

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210 220 230 240

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S R S D P N A K Y H G I L Q A V K Q I L K E E G P K A F W K G H M P A Q L L S V
S     G S E R E F R G L G D C L V K I T K S D G I R G L Y Q G F N V S V Q G I I
N K G H Q P H Y R G P I H G V S V I V R N E G V R K I Y R G I G A A Y I Y Q I
I A I S S Q Q K S S M W G M T L K V M R E E G G I R G L Y R G L V P T A M G V A
T T G P R V S A L S V V R D L G F F G I Y K G A K A C F L R D I
K I Y R N I R H A I G T M L R S E G P F T F Y R G L T P T L V A V F
S N R L N I L G G L R N M V Q E G G V L S L W R G N G I N V L K I A
Q V Q H G P S A I A D T C R H Y N T N G L R G F W K G N F A G C C R L L G
T D R I Y T G L L G A V K D I A R D E G P R G Y F R G L S A A V G T I V
K N P K Y K G T I H C L K T I L L D N I R G L Y R G I S S P M M G I L G
G T G E E A Y K G M L D C F R K I I K N E G F S R L Y R G I T A P I L M E A
Y D Q K A R R Y S G M T D A L L Q I S K N E G I K G L Y S G I L S S A I L R Q A
M G K M A S R F S G F F N C M Y K I F K H E G L R G L Y Y G F W P S L H Y F
G G S G A D A Y S G M L D C F Q K I I R N E G F S R L Y R G I T A P I l M E A
S E A A V L S R P S L W R E A S R I I N E E G F R A F W K G N L V T V A H R L
S I G V A A P K Y R G M V G T L L V I K R E E G V R S L Y S G L S A G L Q R Q M
R N G S G S R V G L G S V L R D L G L R G L Y K G A S A C F I L R D I
I D P R H E L R Y T G M V D C I I K T S K Q E G V K A L Y C G I W P A V L R Q A
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30 40 50 60

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P Y V G I N F A A Y E A L R G V I T P P G K S S I A R K L A C G A L
P F S A I Y F P C Y A H V K A S F A N E D G Q V S P G S L L L A G A I A G M P A
P Y A G L Q F F F Y N I L K K L L E Q D T K S K A G L H S L I S G S C
P E S A I K F M A Y E Q I K R A I R G Q Q E T L H V Q E R F V A G S L
P Y A G V K F F V F E T L V H G S P P D M V T T A H S H R A I C G A C
P Y M G L F F S S Y E L F H Q H L G G K N L P L S S G D A V A G V L A S V L A K
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P L T G I F F C T Y E F L R T L S I S S L N L P E Q T S N F L S A G F A S T F S
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L V N M G D I A T Y E S V K R F L K S N T S L E D G I L I H I T G S T C S G L
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170 180 190 200

The alignment shows a highly conserved sequence across the UniRef90 database. Positions 170, 180, 190, and 200 are highlighted. Most positions are black (conservation), with some yellow highlighting at position 180 indicating conservative substitutions. A few red highlights are visible, particularly at position 190.

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 UniRef90_UP10004454A4B
 UniRef90_W5PCT5
 UniRef90_A0A016PW89
 UniRef90_F8NU34
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 V R H F G M E E G P H L A S S A I S G F V V C C V M H P P D T V M S R M Y N Q
 Y

L Q Q Y S H E S A N P L A C G T I S S T C G Q I A S Y P L A L V R T R M
 T S H R W P S W R W H L V V G C V A G A I A Q I V A Y P F D T V K K R Q A Q A
 Q L K D K P N V P Y I L M A G G C A G M S S W L A C Y P I D V V K T H L Q A
 P K P E P G N K S Q Q M G N D L V A G T A G T I V N T P M D V V K S R I Q N S P
 M S V L G D S V S N H F V S S F I A S M G S A V A S T P D V I R T R L M N Q R
 A E T K S G Q T I N D I V A G T I G G T V G T I L N T P M D V V K S R I Q N S V
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 L G P L G D S P P N H L L S S L L A S L G S A V A S T P D V L R T R L M N Q H
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 E G V W E R F E L R W

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 N W
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 E G L H M P W G S G D A T A G M M A S I L A K T A V F P L D L V R K R I Q R N R
 S Q N Q N H F
 F R E G Y N T F W E T L A A A A M A G M P A A Y F T T P A D V I K T R L Q V
 D H K S K D R E S N H K S S D I N S K V A A I I L T Y P F Q V I R A R L Q Q R P
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 L G I M K M D N V T H L A A G L G A G F V A V C I L G S P V D V V K S R
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 S | A | F | G | Q | V | R | R | Y | D | G | L | L | D | C | A | R | K | V | L | Q | E | E | G | A | Q | G | L | Y | K | G | L | T | P | S | L | L | K | A | F |
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Q | V | Y | S | S | K | S | N | F | R | H | L | L | S | G | L | R | S | L | V | Q | E | G | G | V | R | S | L | W | R | G | N | G | I | N | V | L | K | A |
 F | G | A | G | G | Q | Q | M | Y | R | G | M | V | D | C | L | V | R | V | V | R | N | E | G | V | L | A | L | Y | R | G | T | L | P | N | L | L | R | V | A |
 D | A | L | G | K | H | A | I | Y | N | G | F | V | D | C | A | V | K | N | Y | E | K | E | G | I | P | F | F | F | R | G | L | N | S | T | L | L | R | A | F |
 R | I | A | G | S | V | P | K | Y | N | W | A | W | P | A | L | G | T | I | M | K | E | E | G | F | G | A | L | Y | K | G | F | I | P | K | V | L | R | L | G |
 R | V | H | I | A | G | H | I | Y | S | G | S | I | D | C | L | L | Q | T | I | K | Y | E | G | I | L | A | L | Y | K | G | F | V | P | T | W | F | R | M | G |
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 A | G | G | R | A | R | V | Y | N | T | G | L | L | G | T | F | K | H | I | F | K | T | E | S | I | R | G | L | Y | R | G | L | L | P | E | Y | Y | K | V | V |
 S | S | S | G | V | Y | K | G | A | F | D | C | A | R | T | M | F | R | E | G | G | V | Q | A | F | Y | K | G | F | M | P | S | F | M | R | G | S |
 Q | I | R | T | N | E | I | Y | K | G | T | V | D | C | L | L | Q | T | V | R | S | E | G | A | R | A | L | Y | K | G | F | V | P | T | W | L | R | M | G |
 L | N | S | H | G | T | P | K | Y | N | G | P | I | H | V | L | Q | S | L | L | R | D | G | G | I | R | S | I | Y | R | G | T | S | A | T | L | L | R | D | V |
 T | I | I | L | H | P | A | T | Y | T | G | I | G | D | V | A | R | K | T | I | Q | T | E | G | F | R | G | F | Y | K | G | I | T | P | N | L | L | K | V | A |
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 P V P M P Q Y Y V A G A I S G L A N S F L V G P V E H I R I R L Q I Q T G
 N G A L P T W E R L T C G F V A G A V A R T A T S P L D V V K L C L Q V S S K G
 M A A G G M A G V V A K T V V A P F E R V K I V C Q T G E S S
 K Q I A V W K T M I S G A I A G A M G P C L N C P L D V I K T R L L M G Q K
 D R N V T F V E R A A A G L T A G G V A A M I G N P A D L S L V R M Q S D G L
 Y E H L I A G I S G G A I S T L I L H P L D L M K I R F A V S D G R
 P G V E F V I G A L A A V G A G F F T N P V D V V K V R L Q L Q G E L
 P L G P A M H M L A A A E S G A L T L L T N P I W V V K T R L C L Q
 P W A S F L G A G A L A G V T S Q T M Y P L D L M R A R M A V
 H P P S A L E S V M L G V G S R S V A G V C M L P I T V I K T R
 V V D F I S G T V A G A A Q L V V G H P F D T I K V K L Q S Q P K P
 D G S F P I W K S A I I G G V T S G A L A Q F C A S P A D L V K V Q L Q M E G K R
 I T S F I A G A L A G S L A K T T I A P L D R T K I N F Q I H N E Q
 A G G S Q V I F T N P L E I V K L R L Q V A G E I
 D M I K T R L T V Q
 Q L S Y L Q Y Y A A G A F A G I A N T A L S S P I E H I R I R L Q T Q P
 Q K V A W Y D S M I A G S V S G V V I A R V A T A P M D T V K I R Y Q L Q P L H
 P S V V E T I A G F T A G V C S T L V V H P L D I V K T R L Q V D R F S
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I I N S F R L S I Y T K A M N M H W M H D K K G E V S F G L G L V W G A V G G I
P Y A A I Q F T S H E Q W R R I L Q V D Q N G T N T K G R R F V A G S L
H G A I Q F M T Y E E M K N K Y N Q H R K R P D A K L T T S E Y L T F A A V
I I N A A E A S Y D Q V K Q T I L K I P G F T D S I F T H L L A G L G
C Y G G L Q F T T Y R S V T Q L Q S G L P R R L P P S V E S F I S G A S A
P K R A L L K F A S N D A Y G K Y W R N L F G K K E S T P A L S L T T G S C
P E S A I K F G A Y E S A K R A F A Q L E G H N D P K R L R P T S Q F M S G G F
P T Q A L N F A F K D K Y K K I F L D G V D K R T Q F W R Y F A G N L A S G G A
P Y A S I Q Y A A H E Q Y K R L L S T D K R K Q H L P P H L R F L A G S L
P Y S A V Q F T A H E Q W K R I L G V N G S E R E K P G L N F L A G S L
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P F S A I Y F P A Y A H L K K D V F H E G Y N G K Q L S F L E T L S A A
Q Y F I C G G F
P A R S I N F F T Y G T T K E L Y T R I Y G N G K E S P L I H F M A A A T A G W
T Y G T I K F G T Y Y T L K K V A T D R G L L H D K A G N E S L W C N A A C A T
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L Y S T T C M G L Y D T L K R R W E R D D G G G G P L P L H R K V A A G L F S
K H E A C L P R T F H Q H A V K A W H C R W Q Q R D R L S A G W N M A S A A Q

P F L G V Q Q S V Y D I M K L R A L D S A F A A N S G T F L V C G A I
I I N A A E L A S Y D Q V K Q T L L K L P G F T D N V V T H I L S G L G
H G A L Q F M A Y E Q L K L H R S R M A P S A G T T G L G N V D L F V I S S L
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M L N G S R L G F Y E P I R R R I N R I A G R Q T D A Q T I L G N L T A G A L
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P A S G M Y F M T Y E W L Q K F L K P F G N D S T Q M N L L K T I F A G G M A G
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V F N M I Y F G F Y F N V K D M I P A S Q D P T W E F L R K F A I G L A
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UniRef90_R7V276	I G Q F F A S P T D L V K V Q M Q M E G K R K L E G K P L R F R G V H H A F M		
UniRef90_N6U3N2	G S F I G T P A E I S L I R M T S D G R L P K A E Q R G Y T N V F N A L S		
UniRef90_UP1000258F6CE	A G S V A T L V S F P F D V V R T R F V A Q S E N K K V Y H N I L S A V I		
UniRef90_M5FRK1	T G I T E G I L V N P F E V V K V Q M Q S N R K I S D M P S T F A V T R Q I I		
UniRef90_W5NG03	A F V T Y P F D L L R T R F A A Q G S G D R I Y T S L A N A V R		
UniRef90_A9TMK8	M F W V S V Y P T D V V K V Q M Q M E G R R R L E G K P P R I R G V Y H A F V		
UniRef90_UP1000398F8C9	A G A I Q C I I C C P M E L A K T R M Q L Q G T Y K Q K N K Y N K S D C L I		
UniRef90_B4NY08	S G S V A G I L E S F L V N P F E V V K I T Q Q S H R E K H L R T L S V V K Y I		
UniRef90_G8ZQE9	A G A L S L F F V Y S L D Y A R T R L A A D A S H H G A K R Q F S G L L D V Y K		
UniRef90_C6T891	T G A F A I A V A N P T D L V K V R L Q A E G K P P G V P R R Y S G S L N A Y S		
UniRef90_B6HET1	G G R I A A A I T Y P H E V V R T R L R Q A P T N G K V E M K Y T G L V Q C F K		
UniRef90_I2FY34	A G S I A S Q T L T Y P L D V L R R R M Q V A G M K D S Q G Y K D K N A I N A I Q		
UniRef90_U6NLX0	A G M L S W L F N Y P T D V I K T R F Q A A N Y S S Y M H C I R		
UniRef90_T2MD08	F V V L A M T P F D V I S T R L Y N Q N V N S S G I G L K Y T N F D V F V		
UniRef90_V4T1R8	G A T V G N P A D V A M V R M Q A D G R L P P A Q R R N Y K S V I D A I T		
UniRef90_A7SR69	A V A G A V A Q S G T Y P L D V V R R R M Q M E R G E G M F K Y S S T W D G F K		
UniRef90_Q9D6D0	A V A S A L I G T P A D V I K S R I M N Q P R D K Q G R G L Y K S S A D C L I		
UniRef90_S9X444	C G Y S M W V F A Y P F D I V K S K I Q T D G F L S K A S Y K S A W Q C A K		
UniRef90_A2FI99	A G I I S Q L I A F P F D L I H T R I T I D P K G Y T G M F Q A A K		
UniRef90_W4GZS8	A G L T A C I I T Y P L D F I R T R M S G K I T S Q A Q Y R G M L H A F V		
UniRef90_L8GFD9	S T R T A S I K G N G G G W R R Q I S G H F T T G E L W S M Y L T G T F V G V V		
UniRef90_W6R043	A G F F A S F L S L P F D F I K T R L Q K Q K D P K T G V P Y K G M V D C A R		
UniRef90_D6W7C3	A G V L T L L V T N P I W V V K T R L Q L Q Y Q P E S S R E C Y N G M T D A L V		
UniRef90_E9IGW1	V G A V L G I S P L Y L V K T Q L Q A Q S A Q S I A V G Y Q H N H S G S W D A F R		
UniRef90_B4GH43	S K L I A A A A T Y P Y Q V V R A R L Q D H H H R Y S G T W D C I K		
UniRef90_W4W6Q1	A G M V G Q T S S Y P L D I V R R R M Q T S A I K G Q H Y H T I T S T I M		
UniRef90_UP10003F0CA68	A G I L A A S L V T Q P A D V I K T H M Q I A P A K F R W F G Q A V T		
UniRef90_I0Z724	V S F L A C L L K C R L Q A Q G D A A K A A E A A E V T K V R Y R G P F D V L K		
UniRef90_A0A023F510	U V A A T M G T P A D V V K T R I M N Q P T D P N G R G L I Y K S S T D C L I		
UniRef90_B7PY73	A G C T A S A L T Y P L D F I V A R A R M A V S K H E R Y R N I V H V F H		
UniRef90_Q4SBJ1	A G V P A A S L V T P A D V V K T R L Q V A A R A G Q T Y T G V I D C F R		
UniRef90_D8M9E4	I A Q T V S F P F D T I R K K M Q A Q N K K A L T S D V D V E F N G L W D C I C		
UniRef90_M2UTT1	A G E V L W I S S Y P L D I V K I S K M Q S D G F G A E Q K Y K S M R D C F V		
UniRef90_W0TBR4	A G V T S S G A S Y P L D I L R T R L V A D R N I T G T R L I E V C R		
UniRef90_E4UYX0	S G V L T T I L T N P I W V I K T R M L S T G A H V P G A Y R S M M S G F Q		
UniRef90_UP1000273F8CC	A G V T A Q T C I Y P M E V L K T R L A V G K T G E Y S G I T D C G K		
UniRef90_I3K114	A G I L E H T V M Y P V D S V K T R M Q S L Q P D P N A Q Y K S V Y E A L K		

	170	180	190	200
UniRef90_W5AN81	T I L E D E G V G G L Y R G L G P S C M K	L V P A A G I S F M C Y E A C K K		
UniRef90_I0Z516	V T M R R E G V R G L L Y K G L L P N	V M P Q S A I T F F L I Y E K V V M Q L L		
UniRef90_B4LLE9	D I Y S T G G L A G L W R G S L A A L	P R A A V G S G A Q I A T F G K T K T L L		
UniRef90_B4M1A1	K I W V E E G P R T L F R G Y W A T V	L G V I P Y A G T S F F T Y E T L K R E Y		
UniRef90_Q7QJT7	L T W R F E S W R G F Y K G L G P N L	T R V I P A T M V T F V T Y E		
UniRef90_W9RPA3	K T L K T E G F F A F Y K G F L P N	V G R L G S W N V I M F L T L E Q V R		
UniRef90_U1GER0	D I A R H E G P R G F F Q G L G A S V G Q	V P Y M G L F F A S Y E S L R L L L		
UniRef90_S9R2T0	K V I K H E G I F A L Y N G F E A T M	W R H V V W N A G Y F G L I Q K V V R G Q P		
UniRef90_W6QN92	K V W N K N G L A G F F R G L P L G L	G M F P Y A A I D L S T F E Y L K R A L		
UniRef90_Q33BP5	K I F K S D G L R G L Y Q G F N V S V	Q G I I I Y R A A Y F G Y D T A K G M		
UniRef90_K1QK87	H I V R A E G P A T L Y K G F T P T V	L G S I P Y S G A S F T Y E T L K K W H		
UniRef90_UP1000258E97A	R I Y M E E G I L A Y Y R G F P A T L	L G V I P Y A G C S F F T Y D D L R N T V		
UniRef90_W1Q769	L V I K E E G L A S M Y G G L T P H	M R T V P N S M I M F G T W E		
UniRef90_F0ZKB3	K I F A R G G L K N F Y L G L K P T	L I G Q L P S W A V Y F S T Y Q Y F K E L F		
UniRef90_D8PQA5	K I Y K E E G F R A F F F K G G P A R	V L R L R S S P Q F G T L L A Y E T L G K H F		
UniRef90_D6W684	T T V R N E E G I R G L Y K E G I R G L	Y K G M G A P L L G V A P I F A I K K I F		
UniRef90_I2GYU1	K V V R S E G I L S L Y K G L S A S Y L G	S V E G I L L Q W L L Y E Q F K K N T		
UniRef90_Q7PZC5	E I Y V H E E G I R G L W R G V G P T A	Q R A A V V I A A V E L P V Y D F C K L H		
UniRef90_C8V428	K T Y A A E G L A G F W K G G P T L L R A M P			
UniRef90_Q6YX13	R M A R D E G V C S L W R G S P L T V K	R A M I V A A S Q L A T Y D Q A K E A R		
UniRef90_A8J915	R I G R E E G I R G Y Y K G L G P S V L	Q T M H G A V Q F T V Y D E L K Y L A		
UniRef90_R0IWC2	H I L R E E G L T G L W K G N I P A E L	M Y L T Y G S A Q F S A Y T Y V S H L		
UniRef90_A7T4H4	I L W K Q G G P R R I Y A G L T A S Y L K	V M P		
UniRef90_A9RL16	Q T F K N D G A G A F Y K G F W P N F G R	L G S W N V I M F L T L E Q T K K		
UniRef90_A5ABV8	Q I W A R E R G T F Y K G L G P N L L R V	P L P S T W V T F L V Y E N T R		
UniRef90_H2M5G3	T V T R T E G A G A F Y R S Y S T Q L	T M N I P F Q A V H F I T Y E L M Q E Q L		
UniRef90_F6PIE8	D L H K Q S G G V R G L L Y K G F V P	G L F G T S H G A I Q F L V Y E K L K I W N		
UniRef90_UP10002657818	D I I K E G G V R G L W K G W P N V Y R A A	L V N L G D L T T Y D R A K R F I		
UniRef90_U4LIR1	I I H E R E G M K G F F F R G L Q P R V	V T T M P S T A I C W T A Y E M A K F Y F		
UniRef90_UP10003F48C42	K I L T E E G P K A L F K G G I A R L I	R S S P Q F S V T L T A F E L L N K Y F		
UniRef90_G7E208	S V Y R A E G F K G L C R G M D A A M L	R T S M G S S V Q L P A Y N L A K R L A		
UniRef90_A0A024JFS9	K M Y N G S V R G V F R G I T P L	L I R E G H G M G A Y F L A F E E I K V K H		
UniRef90_A7STS5	N I V D K Y G F R G L W K G W L P N V	Q R A A L V N M G D L T T Y D T V K H N K		
UniRef90_W4KDP8	K T Y E R D G W R G F Y R G L P T L A K	V V P A V S I S Y V V Y E H T K R R H		
UniRef90_UP100032A80C2	K I V Q A E G F Q G L W K G V F P N I	Q R A F L V N M G E L A V Y D H A K Q F V		
UniRef90_E5A318	I S A H Q G V L G G V Y R G T A V T W L	R E A Q A Y G V W F T T F E Y L M R N N		
UniRef90_X8IWT4	L I L R E E G P A L V K G F V P K V	P V L R L A P		
UniRef90_A0A024TZB3	K I V A K D G V K G L Y R G M S A P L	V G V T P P F A I C F W G Y D M K A A G M		
UniRef90_R4G4Q2	V L M K E E G I F A L Y K G V T P V	M L R A F P A N A A C F L G F E A C M		
UniRef90_N1PEA2	K M W A R N G I V A F Y R G L P M G L I	G M F P Y A A I D L A T F E G L K K R I		
UniRef90_W5N9D0	L V Y R E E G Y L A L Y K G L I P K I	M R L G P G G A V M L L V Y E Y T Y G W L		
UniRef90_G7YJ45	T I W R D D G I S G L Y R G M L T	N L T K V I P A V G I S L A T Y E A L R R E F		
UniRef90_G0RGC3	L V W K E E G L M G L Y G G L T P H	L M R T V P S A A M M F A M Y E V I L R F F		
UniRef90_A7RL59	R M S K E E G V L T L W R G Y I P T A	V R A M V V N A A Q L A T Y S Q A K Q L S		
UniRef90_G4V9Q6	S I I T R E E G A Q G F F R G L V P S	L L L I A P Q T G I Q F T I Y H S L N Q M I		
UniRef90_A0A022RHP7	K T I R A E G P M A L Y K G F I P T I	S R Q G P F T V V L F V T L E Q V R K		
UniRef90_K1RAC0	K I F T K E G M K G L W R G C L P N	M T R N G I V N I G E V V T Y D I I K D H L		
UniRef90_L8GPF2	R I F R A E G V L G G L Y K G F V P S	Y L R G S A S V V V F M L Y E Q L R R		
UniRef90_A9VA38	Q L L A K E G V A G A G L Y R G I E P	M V L R N A G W N G T Y F A C I G L V R N S		
UniRef90_W8BHA3	T I L R Q E G F R G L Y K G V T P N I	W G S G S S W G L Y F M F Y N T I K T F I		
UniRef90_UP10002652D6E	T I W H E E G Q F A L Y R G V T P T L I	G M I P Y A G A S F Y T Y E T A K I F L		
UniRef90_T0QCM3	S I Y R T E E G L G A F Y K G L S A S A V	G L L S Y G I Q F P V Y E S M K A R I		
UniRef90_D3TJL3	H I F Q N E E G I R G L W K G T L P N	I T R N A L V N C T E L V T Y D L I K E A I		
UniRef90_J5T667	K I V A E E G W R G I R Y R G V P V M	L R Q G A N S A V R F S S Y S T L K Q S M		
UniRef90_U3IZZ8	K I L S E G G I R G L W A G G W V P N	V Q R A A L V N M G D L T T Y D S V K H F L		
UniRef90_R7V276	R I T K E E G V L T L W R G C G P T I	V R A M V V N A A Q L A S Y S Q A K Q F V		
UniRef90_N6U3N2	Q I C G T E S P L V L F R G L W P T V L Q	G P H A G A Q F T C Y D D L Y K Y A		
UniRef90_UP1000258F6CE	S Q H G L G L N G L N K G L S A T I	M R N G V F N A F Y G G Y N V P K L Q K		
UniRef90_M5FRK1	T I Y A K E G V P G F F R G V T A G V	G Q V I P Y M G L F F A T Y E P T R A F L		
UniRef90_W5NG03	K I I S E G G I R G L W A G G W V P N	V Q R A A L V N L G D L T T Y D T M K H F R		
UniRef90_A9TMK8	K V F A A E G V K G L Y R G F G P A M A R	S V P A N A A C F L A Y E L V R E		
UniRef90_UP1000398F8C9	K I Y Q K E G L R G I N R G M V S T F I	R E T P S F G F Y G F L T Y D C M T R Y C		
UniRef90_B4NY08	I K H D G Y G I K G L Y R G I T A L V	A R N A V F H F G F F G Y N A I K D I V		
UniRef90_G8ZQE9	U R N F Q E E G V L G L Y R G F L P S	V A G I I V Y R G L Y D S F K P L L		
UniRef90_C6T891	T I V R Q E E G V G A L W T G L G P N I	A R N G I I N A A E L A S Y D Q V K Q T I		
UniRef90_B6HET1	T V W K E E G G M V A M Y G G L T P H	L R R V V P S A A L M F G M Y E F I L R M F		
UniRef90_I2FY34	N I I K A E G V T G L Y R G L P N L L K	V A P S I G T S F V T Y E A V K		
UniRef90_U6NLX0	S T Y R E G G L R V F F T G L G S T L L	R A F P S N A A T F F T V E W T Y R		
UniRef90_T2MD08	K V F A K E G L L G F Y K G F A H Y P	R G F P H T I I G L V L W D S I I R K N		
UniRef90_V4T1R8	I N R Q M L R Q E G V A S L W R G S S	L T V N R A M I V T A S Q L A T Y D Q V K E M I		
UniRef90_A7SR69	V I V R S E G F I G L F K G M W P N L	L K V A P T I G I Q F A V Y E V S K S A M		
UniRef90_Q9D6D0	Q A V Q G E G F L S L Y K G F L P S W L	R M T P W S M V F W L T Y E K I R E M		
UniRef90_S9X444	G I Y A S S G M M G F Y R G F I P V	L I R A A T A N A V T F Y V Y E		
UniRef90_A2FI99	R I V S E E G V F A L W S G I P T I	V Y E G S Q Y V I S G G L K E R F I Q M Y		
UniRef90_W4GZS8	T I V R D E G A L S L F K G M G P T L L	G S I P Y E G I K F G T Y D L F R E P S		
UniRef90_L8GFD9	N M G Q L G T K R S F W N G V A F N I	C T T A L K Q M A F Y P T Q E V L K R V L		
UniRef90_W6R043	U R N F Q E E G V L G L Y R G F L P G M	F G V T H G A L Q F M T Y E E M K T F Y		
UniRef90_D6W7C3	K I Y K T E E G V R G L Y R G F L P G M	F G V T H G A L Q F M T Y E E M K T F Y		
UniRef90_E9IGW1	S L W L E G G I T A L Y R G W N A N M	P R F V F G S A T Q L T T F G L A S D W L		
UniRef90_B4GH43	Q T W R Y E R M R G F Y K G L V P Y L	H V T P N I C M		
UniRef90_W4W6Q1	K I Y T E E G I M A F Y K G L S M N W V			
UniRef90_UP10003F0CA68	L I F K D Y G L R G F F K G G V P R A L	R T L M A A M I W T V Y E E M M A K M		
UniRef90_I0Z724	H I V R A E K G T L G L F K G F P T P L	V R E V T G N A V M F G V Y D Y L K R Q L		
UniRef90_A0A023F510	K T I E N E G L F A L Y K G F I P V W I	R M A P P W S L T F W L S F E Q I R H		
UniRef90_B7PY73	E I F H K E G A L K L Y R G F A P T M L	G V I P Y A G T S F F T Y E T L K R E S		
UniRef90_Q4SBJ1	K I L R E E G F R A L W K G A G A R M C	R S S P Q F G V T L V T Y E L L Q R W F		
UniRef90_D8M9E4	Q T V K R N G V L G L W R G T L A N L	K V A P Y A G L M F F N E I C K N F Y		
UniRef90_M2UTT1	K T Y K G E G L G G F W R G I G P T	L R A M P		
UniRef90_W0TBR4	E T M Q T E G L R G F F T G I S T A M	T T V L S T A T M F L T Y E S V N I L C		
UniRef90_E4UYX0	Q I Y R T E G F T G F Y Q G L V P A M	F G V I P Y A G L Q F M A Y E Q L K R Y R		
UniRef90_UP1000273F8CC	K L L R R E G V R T F F K G Y I P N L	L L G I P Y A G L D F A V Y E V L K N Y W		
UniRef90_I3K114	R I I R T E G I F R P L R G L N I T M	I G A G P A H A L Y F A C Y E R V K R S L		

210

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230

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D N Q **I** Q W
 V E Y D T Q P T **L** N S F C S G L I A G S I M S V A I T P P D V I S T R M Y N Q G
 H E I I G N T K P N S **L** A F G A A A G A A G Q T A S Y P **L** D I V R R R M Q T M R

G S L E **L** P L G S G D A T A G I L A S T L S K T G V F P **L** D L A R K R P T R T R
 A T S K T G E M C N N L I A G T I L G G I F G T F L S T P F D V V K S R V Q T A P
 I A K K A R D C G C H E D D V P M S G G F S A S I V Y P L N V L R T R L Q T Q

A G Y C D G R D P A P I E R R A V A G G L L G Q S A S Y P **L** D I V R R R M Q T A G
 Y T V A I P G F S T S L I C G G I A G M I A Q T S S Y P **L** D I V R R R M Q T S A

S A K N D V H N F I Y M G S A I A G A T T S T L T N P **L** W L I K T R F I T Q E
 P Y P W
 G P G Q H Y S Y Q Y F T A G A F S G I F T T T I M A P G E R **I** K C **L** L Q **Q**
 R S N K I K E W C Q R S G G A G L A K F V A S I I T Y P H E V V R T R L R Q A
 M E T F G D Q V A N H F I S S F I A S L G S A I A S T P **I** D V I R T R L M N Q R

R G Q G A D G L A T H V A A G L A A G L V A A S A S T P V D V V K T R V M N M K
 A R W G P R A P G Q E G E E R R S S K L T A S V T T Y P S Q V V R S R L Q Q R
 E A I P P P Y A I P G S V T N F I S G A S A G A A A T T I T Y P **L** D L L R T R F

N P H R H Y N P G S H **I** L S G A A A G A I S A A V T T P **L** D V C K T L L N T Q E
 A R R K G K D Q D K M D T F D V L A M S A T S K L V A A T S T Y P Y Q V V R S
 L A N T T L E D N Y V S H S S C C S G F V A A I L G T P A D V I R T R M N Q P T
 N
 P Y P F

E Y L P A T S I W T Y I A A S T F S G A C V C L V M Q P A D T A L T R M Y N Q S
 V E R K D I P G W K L C L F G A S A G Y A M W F T S Y P I D I V K S K M Q T D A
 H T R L E D N W V H S M S S V C S G L V A A T S T P A D V I K T R
 V R K Q T Y W Q

I K S R I A E D N V Y A H T S I M S G L A A T S L S C P A D V V K T R M M N Q A
 I N R E D I S T L K I A G Y G G L A G E M L W I S S Y P F D V I K S K M Q S D G

S D S D K L S M N Q I M F A G G F S A I P T T L V M A P G E R **I** K C Q I Q S Q A

I A R N R R R D P S I K H M G G F S G A I G A S I V Y P L N L L R T R L Q S Q G
 Q K N W
 N
 H
 T K Y F E D N I V C H F G A S M I S G L A T T V A S M P V D I A K T R I Q N M R
 N Q G K Y Y L H P N L I D K S S Q A G I G S K C V I Y P L D M V K K R M Q V R G

I H S N I M S N P C H L V S A F A A G F C G T V L A S P V D V V K T R F M N S M

K G E N T N S K I Q R F V F S G V I G G T L G V L V A T P F D V V K S R M Q N Q Q
 Q G G N A T Q P L G P T I L H M A E S G A L T L V L T N P I W V V K T R L C L Q Y
 L T K G P P Q F S K N L C V G G L A G A I A Q T I T Y P L D M V R R I M Q L G H
 V E N D K P S A S G V V L S A I V S K T I A S C F A Y P G D V V R V R M Q D T V
 L R H K L M S D N C H F V S A F G A G F V T T V I A S P V D V V K T R
 P A G E K M P G W M T F G I G S T A G V I T V Y T T M P F D V V K T R M Q S L
 N T P L T D N S L T H S V A S G C S G L V A A V L G T P A D V V K T R I M N Q P
 L K T G Y F N I M C H F V A S M I S G L V T T A A S M P V D I A K T R V Q S M K
 L N I E Y T T L S S S L F A G S L A G L C A K T I I Y P F D L V K K R M Q H A R
 Q T D S I S D F F I K F F A G F A S G T L A S C M N I P F D V A K S R I Q G P Q
 T R H N E F S G Y E S A V A G G F A S T V A K T G V F P L D L I R K R L Q V Q G
 N T S V E D N Y I C H G L S S I S S G L I A A I L G T P A D V V K T R I M N Q P

E A E D S Y V I P K L I F S G G V S G I V S W L S T Y P M D V I K S R L Q A D G
 P S P E N S T Y D R K V I I A G L A S S L A C V M S V T L D M A K C R I Q G P
 L T G S E G S F A A S F L L G W V I T T G A S T A S Y P L D T V R R R M M M T S
 I P G F T D N V V T H L L A G L G A G F F A V C I G S P V D V V K S R M M

Y
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A K G G N L T P W Q N I F V G A A A G A I G Q T I S F P F D V I R K R M M V
 D V D P G S D F A G K L V C G G G A G M V A T I I L T Y P N D T V R R R M Q M Q G
 V D K G Y T A G E S Q F G S A V G V G V I L G L I A S P V N V I K V P

N R Y R G I P F D N K L T T G E Y L T F A A V S K L I A A A A T Y P Y Q V I R A
 R S L N V N R P I L T F L A S V I G G S C V A V T M Q P F D V L A T R L Y N Q Q

A A A Q G L K D T K E L G V G S L V G A A Y W G P V Y P A D V I K S R M Q V D D

T G S S E L H P A E R L V F G A L G G L I G Q S S S Y P L D I V R R R M Q M Q G
 Y Y R N G Y T T S M W

E K H E S Q P W S Q P L R S G M I A G L V S K T I V F P I D T L R R R M Q I M N
 T R M A Q A N S S G G H P E P T D A S G I S K I F A G G V T Y P Y Q V L R A R L
 I E H Y S R N S V N P L G C S T L S H T C G Q L A S F P M Y L L R T R M Q A E T
 S D V I Q S G G N S H L A N G V V A T V L H D A V M N P A E V L K Q R M Q M Y N

250

260

270

280

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[Sequence alignment showing positions 250, 260, 270, and 280. The sequence is composed of various amino acids (A, C, D, E, F, G, H, I, K, L, M, N, P, Q, R, S, T, V, W, Y) and gaps (represented by boxes). Colored boxes highlight specific residues at each position across the sequence.]

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A | V G I | S F S T Y D | L |

P S A | V T M W T Y E
P G G G | I L L V
P A S I | S Y V V Y E

| I A | V G T F T | V | Y D
A | V G I | S F A T N D T |

H | V G | V Q F P | L | Y E K

P A S G M F | L | T Y E A |
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P F T | I | V F | V T | L | E Q | V
P S A L | T | L | V | A Y E N | I
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P H T | I | I | T | L | V V N E
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P W Q F | V | F W | V | S Y E
P S A G T F A T | V | E

P G S | V | Y F A G Y E G | V
P A S | I | T Y | V | V | Y E

P H T | V | L | T F | I | F E Q | L
V | S | I | S | C | F T | V | Y E Q | I

G G G | I | M | I | V | A Y D A | V
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P T A | I | I | S F T | V | F E K
P Q A | I | T | F F | C | Y E Y | I
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P | W | S | L | T | F | W | T | F | E | Q | I

P N A A T F A T
P G A M | L | L | V | T | Y E Y | L
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W | N | V | I | M | F | L | T | L | E | Q

P T | V | V | L | F | V | T | L | E | Q | V

P S A | L | Q | F | M | I | N | E | E
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V | W | S | V | T | Y | F

P N C | L | V | M | L | I | Y | E | K
P H | T | V | C | L | V | F | Y | E | Q | L

P N G A | C | F | L | V | Y | E | L | V
A | V | G | I | S | F | M | T | F | D

P T A | I | S | L | F | V | Y | E | K
P S | T | V | T | F | L | V | Y | E
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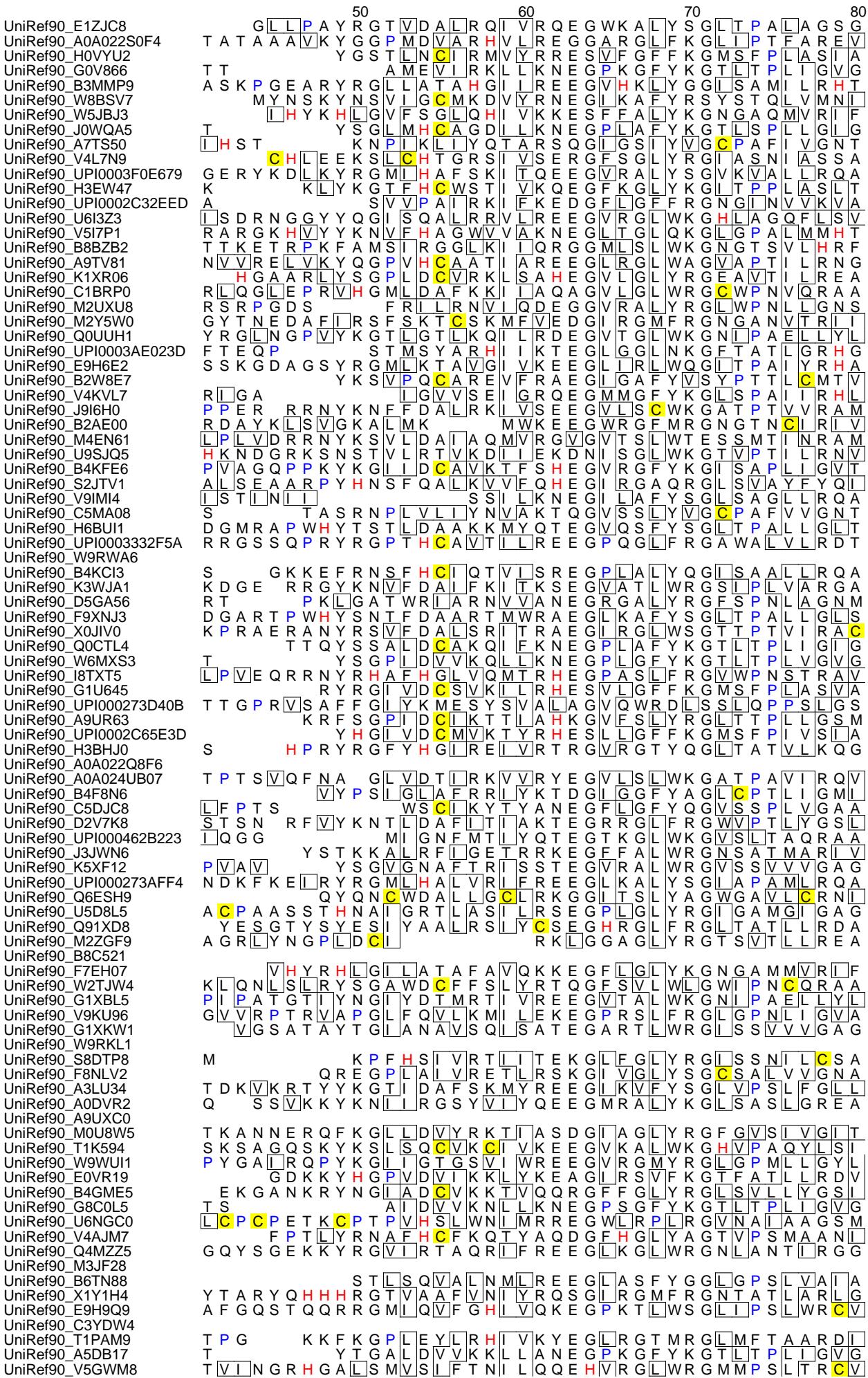
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 W V S P I C G A G A G F G A S G I V T C P L D V I K T K L Q A Q G G N
 Q E P L G A M H L F F A G A L S G V F T T S I M A P G E R I K T L L Q V Q Q A
 Q D K T R V I K D L L A G T A G G I S Q V L V G Q P F D T T K V R L Q T S T T P
 H L V A G A M A G A V E H C V M F P F D S V K T R L Q T S T T P
 A V D A A D L T G G T A G G F A T V V V Q G P L D T V K V K L Q T
 F C G L L S G V I T K T I C A P F D R I R L L Y Q V Q P M F

D G E L S V F G R L A A G A C A G M T S T L V T Y P L D V L R L R L A V Q S G H
 N P A L T P L L T L F W G G V S G L A C A T A S C P V Y V V K T R L Q V T S G T
 R H V S F L G A F V S G A S S G A C S T V L F Q P F D V V K T R L Q E N A

S L T S H A L A G G V A G L F Q S I V C S P M E L A K T R L Q L Q N D S
 E N I Q V V K D L F G G T V G G I A Q V L V G Q P F D T V K V R L Q S A P E G
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UniRef90_T1PAM9
UniRef90_A5DB17
UniRef90_V5GWM8

90 100 110 120

This sequence alignment displays four columns of UniRef90 protein sequences, labeled at the top as 90, 100, 110, and 120. The sequences are color-coded to represent conservation levels: black for highly conserved positions, yellow for conservative substitutions, blue for semi-conservative substitutions, red for non-conservative substitutions, and white for variable positions. The alignment shows significant conservation across the first three columns, with many positions being either black or yellow. In column 120, there is a notable transition to more variable and non-conservative substitutions, indicated by the presence of blue, red, and white boxes.

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 UniRef90_M3JF28
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130 140 150 160

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 S F W V S V Y P T D V V K S V L Q V D D F K N P K Y S G S I D A F R
 A G V V S V G F G G P V D L I K I R L Q M Q T Q P F R E Q P V Y Q G P V Q C I I
 G G I T N S F L A S P I E H V R I R L Q T Q G S G P N V E F K G P L D C I R
 A G A N I V T V P S D L I K I Q M Q M E G K R R L M G E P P R I H N V F Q A L T
 A F T T P L D V V K T L L N T Q E N G L T K G M G E A I H
 G V T A V T L T Y P L D T I R A R L A F Q V T G E H R Y N G I V H T A L S
 A G L A N S V V S G P V E H I R I R L Q T Q S D K A R L Y S G P G D A L R
 E S V I A V T P F E A I K T V L I D D D K R Q S I P K Y Q Q N G R G M L S N Y W
 A S V A T S F I F T P S E R I K Q Q M Q V S S H Y R N C W T A L F
 A G V L A S S V A N P T D V V K I R M Q T A N T S Y R G N A N S G I V V S F M
 A G L A Q S I A T P S E R I K L L I Q I Q N D A A H T R Y K S P I H A A K
 A G A V A Q A T A I Y P L D L V K T R L Q T C A S E A G K G P R L G I L T K
 A G G M T T V I C Q P I D V L R T R L A G Q G G Y V K I Y R G F F H G V Q
 A G A F L G S P P L F I K T Q L Q S Q A A K S I A V G T Q H G R G A L H A L K
 A G S T A C V A C Y P L D L V R T R L T T Q L D G Q E H Y K G I T D A F V
 G F A G P I A T P G F D V V K T R L M A Q T R G L R G G D A Q Y R G M M H A I T
 A G E A L W L G S Y P L D V V K S K M Q S D G F G K E M K Y K G M N D C F R
 V G A I M G T P A D V V K A R I M Q N P T S P D G K G L V Y K N S I D C I Q
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 A G T A G S I A T V A V Y P L D L M H T L L S I Q N Q R R Y H P Y N G I Y D G V C
 A G A A A T T V T Y P L D L L R T R F A A Q G K D R V Y T S I V A S L K
 S G T I A S V I N I P F D V A K S R I Q G P Q P V P G Q I K Y R T C F K T M A
 L G Q F M A S P T D L V K V Q I Q M E G K R R L E G K P P R V K N A F H A F Q
 G L T T P L D V I K T L Q T R G N A R D A E L K N V S G L M Q A A R
 S G V M A Q V V A S P A D L V K V R M Q A D G R L V S Q K P R Y S G P I E A F T
 A A A M S L P F D N V K T K L Q K Q T K N P D G T L P Y K S F I D C G L
 A G I T S V T V T Y P L D V R T R L S I Q S A S F E R P K L P G M W Q T M A
 G F V A S V A S N P V D V I K T R V M N M K V V A G T A P P Y K G A V D C A L
 D N L I S G M V A R G S I G F I T M P I T I I K V R Y E S Y N Y K S I W G A F T
 A G V C S A L V T V V P S D R I K V L L Q T Q P V T G P V M Y N G L I D T A L
 V G A V L G S P L Y L I K T R R Q S F S P V F K N I G H Q H E M G S A L S A L G
 A G C V G A F V G T P A E V A L I R M T A D G R P L A E R R N Y K N A F N A L I
 A G L L E S V V A V T P F E A I K T A L I I D D K Q S P N P K Y Q N G I V R G S I
 F K I C A S T A T Y P H E V L R T R L Q T Q Q R T M A V K A R Y T G I L L H M C K
 W I T A T P F D V V V K S R M Q M D G V K K K E Y K G M L D C M V
 Y A G A M D A V R
 S G F A C A F T S L P F D L V K S R R M N M K K D P L T G K Y P Y T G V V I D C F R
 L L A T I F L S K L C A T T A T Y P H E V L R T R H G M A Y Q P R Y A G V T S T F K
 A G T F A A I L S L P F D F V K T R M Q W Q K K Q I G G G V Q Y S G F F N C V V
 A G L T N S F L L S G P I E H V R I R L Q T Q P H G A N R L Y S G P I D C I R
 G A A G F F G A N G F L A A P I E H I R I R L Q T Q T G A V K E F N G P L D T I R
 A G F V A T T V C S P V D V I K T R V M T A S P A E S R G H S I V G L
 G G V L Q A Y C L A P F D L I K V R L Q N Q T E P R S P P P R Y R G P M H C A A
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 A A G I G V S F V L T P V E L I K C K L Q I Q S V P G N P Q I Y R G P W H C I T
 S G F L Q A Y C L A P F D L I K V R L Q N Q T E P R S P Q P R Y R G P V H C A A
 A G A A S V F G N T P L D V I K T R M Q G L E A R K Y K N T M D C A Y
 A G I F V S L C L H P M D T I K T V I Q S C P A D Q K A L H T I G R
 S G A I G I A L A N P L D V V K V K M Q N D R T K K R L Y R G I G D A L K
 S G L T A S T I S F P L E V A R K R L M A G A L Q G K C P P N M I A A L S
 A G A C T S V Y L T P V E L V I K T L Q V S N L K N S K T S H S K V W P T V K
 F M G S L V F V P S E L I K C R F Q T N S L S S A Q Y S Q S T L K T F Y
 V G A L A S P N I D V L R T R M M N Q S A L R N G T Q R G Y K S T L D C L F
 A G L T S Q A L T Y P F D L I K R A R M A V T H K L E Y A T T L R Q V F Q
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 N T L M N P I L W V K T R M Q L E S R K R S E K V M N A F Q C A K
 A T I A S D A L M N P F D V I K Q R M Q L H S C P I R S V G V R H A F R
 S I A T S F I F T P S E R I K Q Q M Q V G T H Y P N C W N A L I
 G A G M T E A V I A V T P S E T I K T K M I D D A K R P N P Q Y R G L V H G T A
 S K M I A S T I T Y P H E I L R T R M Q I Q T K S N K P E N G K G K L A A A I F
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 A G A V S R T C T A P L D R L K L M H V T A G D K Q F G L I Q G F K
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 A G G V A S F T S L P F D V V R T H L V A Q G K D K V L N N F R H S F G
 I T N P I L W V I K T R L M S Q S N K S A T A S D G M R A P W H Y T S T L D A A R
 N W I V A M P A D V L K S R L Q S A P E G T Y P H G I R S A F R
 G V C E A V L A V T P M E T I K V K F L N D Q R S A N P K F K G F A H G V G
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 S A T F A T L M C Y P L D T V R R Q M Q M K G T P Y N T V F D A I P
 F T S V L M S P C D V A T T R M T N Q A V S A N G R G L Y R N I F D C F V
 A R C V A G V L L M P F T V I K T R F E S G H F K Y K N V A E A L S
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 A G I C S W L A T Y P I D V I K T C Q A D D M R N P K Y N G Y M D C I R
 A G F A N G F L A S P I E H I R I R L Q T Q T G A T K A F A G P I D C A K
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170 180 190 200

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UniRef90_G0V866	K L R A Q G G F M R M G L T P T M L R E G H G C G T Y F L V Y E A M V A N E
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UniRef90_W5JBJ3	I F R T E G G I R A L Y R G F V P T L M G M V P Y A G F S Y C F E M L K F V C
UniRef90_J0WQA5	K I M R A H G V A G V Y K G Q V P T L W R E G V A Y A I Y F V T Y E K L M Q R E
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UniRef90_H3EW47	S L I Q R E G G Y G C L S R G F L A T V L R D C H P A F G I Y F A S Y D W M A R K M
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UniRef90_A9T8V1	R I Y A D E G L F A L W K G L L P R L M R I P P G Q A I M W
UniRef90_K1XR06	Q T Y R A E G L R G F W K G I F P T L L R A M P
UniRef90_C1BPR0	K T V G N E G F F A L Y K G F I P C W L R M A P W S L T F W L S F E Q I R
UniRef90_M2UXU8	H V Y E T R G L K G L W A G F L P S S L G V L H G A V Q F S I Y E N M K K R R A
UniRef90_M2Y5W0	K I Y H S Q Q G L R G L Y R G I W P S I F G V P Y V G L S F V V Y E T C R P W L
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UniRef90_V4KVL7	K I L Q A E G V K G L W K G V L P N I Q R A F L V N M G E L A C Y D H A K H F V
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UniRef90_J3JWN6	Q T W K N E G F F A L Y K G F W P N W L R L G P W N I I F F V T Y E Q L K K
UniRef90_K5XF12	K I R A V E G L P A F W K G F V P T M V G V V P Y A G V S F F T Y D T L K R L Y
UniRef90UPI000273AFF4	T V Y R T E G L S A F Y V S Y P T T L A I S I P F N A I Q Y T V Y E Q V K R F M
UniRef90_Q6ESH9	W I R L A L M C Y I L F I V F I Q G V Q R A A I V V G V E L P V Y D I T K K H L
UniRef90_U5D8L5	E I F Q H E G L Q G L Y R G L A P R L A M Y I S Q G A I F F T S Y E F L K T I M
UniRef90_Q91XD8	Q M L R K E G L R A F Y T S P T V V M M A P F T A V H F A T Y E A V K R V P
UniRef90_M2ZGF9	L I F K N H G L R G F F H G S V P R A L R T L M A A M A W T V Y E E M M A R M
UniRef90_B8C521	H T F R H D G A L G F W R G L G P T L L R A M P
UniRef90_F7EH07	N T M K K E G V R G L Y R G V S A P L T A V I T P M F A I S F W S Y D I G Q R M V
UniRef90_W2TJW4	T I Y K E G G I R G Y Y R G L V P T I V G M P A Y V G F F F T F E T L K S D N
UniRef90_G1XBL5	K I V R H E G F L S L Y R G F P S Y I R M A P W S L T F T W V S Y E E I R K F
UniRef90_V9KU96	G I Y K D E G I R G F Y R G G A A I I Q I V P H M G L F F G S Y E G I K A G L
UniRef90_G1XKW1	H V Y R A E G F K G F Y R G L T A S Y A G I S E T M I I H F V T Y E A I K K H L
UniRef90_W9RKL1	T V Y R H E G L R A F Y V S Y P T T L A M T I P F T A I Q F T A Y E S L S K V L
UniRef90_S8DTP8	S I L K S E G P M G L Y R G I G A M G L G A G P A H A V Y F S V Y E F C K K S L
UniRef90_F8NLV2	Q I L K N G G L P S L Y T G W G A L L C H P H S V I K F Y T Y E N L K R F I
UniRef90_A3LU34	S I I R Q E E G F F G I Y R G L F P V V M M R Q G A N S A V R F T T Y S T L K Q F V
UniRef90_A0DVR2	R I Y K T E G L R G F Y A G Y G I N L L R T V P A S V T L V S F E Y F K T Y
UniRef90_A9UXC0	Q I L H H E G I L G L Y K G T M P N L L R G A I L T G T K M A T Y D Q T K Q W L
UniRef90_M0U8W5	Y M I L K E G G V K S M W R G N G V N V L K I T P E S A I K F F A W E Q A K A A I
UniRef90_T1K594	I I V C R E G F S A L F R G A A A N M L
UniRef90_W9WUJ1	Y I Y K Q A G F K A F Y R G L S P S L I Q I L P H A G F Q F S F N R L A N H V W
UniRef90_E0VR19	K M Y R T E G L R S F Y S G L T P A L L G L T H V A I Q F P L Y E F F F K M K F
UniRef90_B4GME5	E I M R E E G I L A L Y K G I T P V M L R A F P A N A A C F I I G F E A S M K F L
UniRef90_G8C0L5	Q I V K A E G I L S G V Y K G L T P T I L K Q G S N Q A I R F F V L E S L K D L Y
UniRef90_U6NGC0	K I L R A Q G G L M R G L S A T M I L R E S H H C G T Y F L V Y E E V N K L L K
UniRef90_V4AJM7	C I Y R R E G M A A F Y R S Y T T Q L I M A I P F Q S I H F M T Y E F W Q Q V L
UniRef90_Q4MZZ5	E I L H K E G I S G L Y K G L T S T F I R E M P G Y F V F E G G Y E I S K V L L
UniRef90_M3JF28	Q I F K T E G L M G F Y K G F I P T M V T G V P Y V A L Q L S F F D F Y K K G E
UniRef90_B6TN88	K M Y R E E G W R G L F R G N L I N C I R F P Y S A V Q F A T F E K C K D L M
UniRef90_X1Y1H4	G V E R D G L T G L Y R G F V P N A L K N L P N S S I K L T V F D T V K
UniRef90_E9H9Q9	K I Y R S E G G V H G F Y K G F P M Y L R V A P H T M L N L T F W E F F K G L H
UniRef90_C3YDW4	S I Y R L E G G R G G L M T G L G A T L A R D V P F S A V Y Y A V Y T Q L K Q L Q
UniRef90_T1PAM9	R T Y K N E G F F S L W R G N S A T M A R V I P Y A A I Q F A S H E Q Y K K M F
UniRef90_A5DB17	K G Y S S D G V R F F R G M T S T L I R S F P M N A A C F C F V V S W I M S W T
UniRef90_V5GWM8	E I Y R T E G I R G M T C G L V P T L F R D A P F S G L Y L M F Y T Q A K L M I

210 Q G F A G G G A G Q Q K P A R Q L S P P E □ T A C G A □ S K L A A S □ V T T Y P S
220
230
240

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M K Y A P G V T C K K C D C G G F A G A □ V A Q S F S Y P □ D V T R R M Q L A M
M R V H A M R R E D A V L F G A A A G Y A L W A V I Y P I D V V K S R I Q T D G
Q S Y S D T P R D Q P F I I G S F S G I V T V Y T T M P I D T V K T R M Q S L D
G Q T A Q P T T I Q T L I C G G L A G S A A A F T T P F D V V K T R F Q T Q I
L E H Q I M G D T T H F V S S V V A G L A C I A C S N P V D V A K T R M M N Q R
S K D G K M T T P Q L L F A G G G A G M L S W L F N Y P T D V I K T R F Q T C
K T Y F L H D K S D Q L G C G T V S G A L G A T C V Y P L Q V I R T R M Q A Q R
C G F Q N S S I L L T L F S G A V A G C L A K S A V Y P L D V V K K R F Q A V G
N N Y E T F K K Y P L A N S L I S S G I F Q T V M I T P F D L V S T R □ Y N Q G
L E D E L F Y F Q L T L M C G A A S G I L S T L V T F P F D T V R R R M Q I Q S

T H I G G Q D K □ S N W E Y V Y M S G G S A G A □ T Y P Y Q P □ R A R □ Q Q Y
P S Q N D D Y G K P L K S A T I L M G G V A S F A G Q V V I S Y P M D T C R R Y □
A D S P L P L P S S D A V A G V V A S V V S K T A V Y P L D T T R K R P N R A R
Q K N W
L R N S Q L K D T V H □ M S S M C A G L V G A □ M A T P A D V I K T R V M N Q P
I E K K I S G D N I Y A H T S I M S G L A S T T L S C P A D V V K T R M M N Q
V R Q Y □ T L
K D F D F
S A N S F T □ A S P I □ H M T □ I A G L S A T T □ T H P F D M L K T R
R R H S K T G S I □ T P T S T I □ F A G G M A G I A F W S L A V P F D V L K S R L Q
K F G F P D D F S T H F A T S M F T G V L V C L A M N P F D V I S T R M Y N Q D
L N T G Y F E D N I □ H F T S S M I S G L V T T I A S M P V D I A K T R □ Q N N M K
Q Q A S G Q K P T D P L S S G T T A G I I T V Y T T M P I D T V K T R M
M

E P G A P L N V N Q Q I I C G A G A G V A V S I L A C P T E L I K C R L Q A Q S
R T Q M E E G I K L H F C A S M L S G L L T T I A S M P L D I A K T R I Q N M K
R R L R E R N N T D F L T L S A A S K I L S G S I I Y P Y R V V Q T R M Q T Y
I K R E D I S S □ V K V A T Y G G L A G E A □ W L S S Y P F D V V K S K M Q C D G
M T R K E I P G W K L C S F G A A A G Y S M W L T S Y P I D V I K S K L Q T D S
G P Q G A G A R P R V L V A G G F A G I A S W V T A T P F D V L K A R M Q M D G
Y T P E G K T R D D I P G W K V A M A G M A Y W T A F Y P A D T V K S Q Q Q T N P
T P E G Q N P S S A T V L V A G G F A G I T S W V A A T P L D V I K A R M Q
L P M □ P K E Y H S L A H C A A G G C A S I A T S F I F T P S E R □ K
I Q A G V V R D G T T L A A S F A A G F A G A V A S S P L D V I K T T L
R N D T E N Q T W E L L T A G A S A G V A F N A S V F P A D T I K S
L N R K M D Q Y R D D L K N S T T A G A M A A S L S N P I D V I K T R □ Q T S T
R E H V V N N A F I V P P A V S L V F G A I A G I I S Y P F D I V R R R M Q T D M
N P R N E Y S P V I S H I T A G A I A G A V A A A V T T P L D V A K T I L Q T R G
I L S G L M T V C T H F L S S F T C G L A G A L A S N P I D V V R T R M M N Q R
F E N V S E E R L L V H □ T A G G A A G A L A G A V T T P L D V V K T R □ Q C Q G
K S Y G Q W G M N E E M G E □ C M A G A I S A I P T T G □ M A P S E R I □ K C N E
P D V M V L K T H A S L L C G G I A G A I A Q S I S Y P L D V T R R R M Q L S A
L R L P N P I T Y □ P P S L S S S G G V I A K T G V F P L D T □ R K R □ Q V Q G
E K S R F N S R E T D K T A S D F L G A A G G F S K T C A S C A A Y P H E V I R T
N P Q K K Y D P L T H C T V S G G L A G A V A A G L T T P L D V I K T L L Q T R G
S G G N P N N S G A H A A S G V F A T V A S D A V F T P M D M V K Q R L Q
L P S F E S D P R A N L V C G G L A G S S A S L F T T P F D V V K T R L Q A Q I
Q G T A R P G Q Q L P S G I T F G I G A I A G L V T V Y S T Q P L D V I K T R M
K E H F A F K E G F Q F V C S F A T G L M L S I T T A P M D L I K T R I M S Q D
Y S S D D P R E V D P V E R V M I A G V I A Q V S I F P F E V V K T R L A T
C S A F P P T A □ Q S F F C G G V A G T C A K T L V Y P L D L A K K R F G Q I R
T G Y G M G E H P P E D S T S N W L G L C A S T A T Y P H E V L R T R □ Q T Q Q
N W C F P N F
K G D D H N K P V P K L A F G A V A G A A S V F G N T P L D V V K T R M Q G L E
V K R A D I P A W K L C L F G A F S G T T L W M M V Y P L D V I K S V I Q T
N P K H Q Y D P K S H L I A G G L A G G L A A M L T T P L D C V K T V L N T Q Q
T P K D G D K E N I G L L R T I L C G G V G W I V I F P A D V V K S R I Q I Q S
K L S M K Q I A F M S S I A G S A A G A S A L F I V F P G D T V R K R M M N N A
L Q Y N P R N G Y E R L I A G S I G G I V S V A V T Y P L D L V R A R I T V Q T
E H Y □ A N Q Q Q Q Q Q Q Q H D T D A T A T E G G H G L F R H W F H □ S A R S
P G S T M G K S F S C G L V A G I V A S V V T H P A D V V K T S M Q L F P
R T S Y K P P P Y T R F L A G S M A G V T A S C C T Y P L D M V R A R M A V T
K K Q D V D V V V H T G D T M A L V V G V A A S A P M C H V H I D H H
I A R A D I P A W K L C L F G G L S G Y T L W I G Y P V D V I K S K L Q T D S
P E E M W N T P Y I H F T C G V S A G I L A S V V T Q P A D V L K T K M Q L Y

250 260 270 280

Q A R R G G A P A R L T P A G S R R G H A R E G P G G F Y K G L V P N V V R V M

V Y L N K Y K G V L D C I S Q S Y Q Q E G L K V F F R G I T V N A V R G F
D N L K S P K Y G N S I S S V A K T L Y A K G G L G A F F K G F G P T M L R A A
T D W G R G L H Y K G A L D C L S K L L K Q E G L M A M Y K G F I P Y W L R V S

M N P E T A K F G M G M W K T L S I I Y N E N G I K G L Y R G M S I N Y L R A I
F D A A S G R K Y S S T L D C L R K V W A A E G V K G F T R G I P T L I R S F
S N R Y K S T V D C F V K V F R E E G L K T F W K G A T P R L G R V L
P G S S N Q H I S V Y Q T L Q S I G K Q E G V R G L Y R G L I P R L V M Y M
H L K A H I V E Y K N T V D C L F K T A S T E G F R A L Y K G F I P S W L R G P
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S N T A E A Y R G M S D V F W R T L Q R E G Y R G F Y K G L F P N L L K V V
F E E A R R H F G R V T A A C L W H I Y L E E G F M G V F K G W T P A M L K G F
V D A K G R G L Y T G L I D C F L K I G K S E G F L G F Y K G I G A N Y M R L A
L H F A P H E Q I S G V Q M M R R L F K S D G L K G F Y R G I T P E V L K V I

N A A Q K Y S G L L D V L R K T Y R N E G F L A F Y K G V I P N T L R V I
Q V E C T S G S P Y S I W N V M R S L Y Q Q G G M R R F Y R G F L P N S L K I L
Y V H R N I P T Y S G V L M T L Q H I W K H E G R R G M Y R G L T V S L L K A A

T D E R G R G Y Y K S S I D C F L K T A Q Q E G F L A M Y K G F F P A W I R M G
G E K A V Y R N S Y E C L V K T V R F E G I R A L W K G F F P T W A R L G
E G E Q N P S H Y K S I T D A V R V I V T E E G L R G L Y K G I V P N L L K V A
V Q L K P Q N Y P N I W I G A L K I F K E E G F L R F F D G L S L R L G R T T
S A P E G T Y Q H G I R S V F K E L M A K E G P K A L Y R G V L P I L I R A F
P V T G K G V L Y K S P V D C F V K M T K I E G V R G L Y K G F L A H Y L R G P
I V D G K P E F K G A I D V I I Q V C R N E G V F S L W K G F F P Y Y A R G P
Q A L G A D K L Y T S T L N C F V K I F K Q E G L L T F W K G A T P R L G R V L

A L A D S A V K Y G G P M D V A K Q V L R S E G V R G L F K G L V P T L A R E V
I V D G K P E Y K G T T D V L L R V A R H E G I F S L W K G F T P Y Y F R G P
D A D A V Y S S A R D A V V K I W R R E G L T G F Y K G L A P N L A R V L

F G A Q Q Q F K S M T D C F K K T Y A A E G L G G F W K G L G P T L L R A M
Y T Q P K F R G S L D V A K S I M A T N G I K G F F K G F V P T I L R A A

V Q Q R A Y R G M L D C A L T S F R Q E G L G V F F R G L T L N S A R A F
A I R G Q G F G T V F M H I L R T E G A R G L Y K G W A I T V G R A M
M A G L K Q R A Y Q G V L D C I V S S A R Q E G L G V F F R G L T I N S A R A F

Q Q M Q V G S H Y R N C W N A L I Q V V K N G G L P S L Y T G W A A V L C R N V
M V H Q N N R H Y T G V W D C G R D I Y Q K Q G F R A F Y K G F T A Y Y L R E A

T A Q T E H L G I V N A T K R I L A R N G P A G L Y R G L G I T L I R A A
T F K G G F V A M F R K I K Q D D G W R G F F K G I T P R V M W V L

T G K Y P N M H E T I L Y I Y R T E G I R G F Y K G L S M N W I K G I
T S H E A D I R S N G M M D A L R I I W R R D G I K G F A R G L T P R V M S T M
A L Q D G A C S Y K S T L D C L L Q T W K N E G F F A L Y K G F W P N W L R G P
V C G A D T F T S G S I R N A I Q Q I V T K E G P Q A L L R G L K P R L L H A P

V E K G G K A K Y T G M T D C A R Q I L K E G G M A S L Y K G T V A T L M R D I
I L P D S D K C R T M F Q T L K Y V C M Q H G I R G L Y R G L S L N Y I R C I

P T R T G Y V N Y E G V L R C G R E V V R R E G W R G L Y R G L T V S L V K A A
R L R E E G T K Y K T F L Q T A R V V A M E E G Y S A F Y R G L Q A Q L I R Q I
N S Q D P R I R C S S L F D A A K I I N E R E G M R G F M R G W K P R I V N A M
L A N S P Y K G V W D C V S R V L R E D G F R A F Y A S Y R T T V L M N A
P G S N T T Q Y S G V F T T L T K I W R Q D G L R G L Y R G L T P R V V M Y M
Q S L S A R Q Q Y R N S F H C G Y R I L T E E G V L R F W T G T T P R L A R I M

A G H K V Y N G L M D C A I K T F K Q E G L G A F Y K G F F P Q W I R G P
A K T G Q Y G G I A N C L H R L Y L E G G I P R F Y R G L Q P A I I G M I

K N F G V T M S Y K G F F N C L L I I I K T E G P T G L F K G L T P S L L K A F
R R M K V Q A R Y T G V W H M C K V I L K E E G W R A F Y V G L G T N L I R A V

A S K Y K N T A D C A M K I L K N E G V G A F Y K G T V P R L G R V L
D N I K N P K N G N S I R D V A K R I Y G R G G L S A F F K G F G P T M L R A A
T P E I L T C Q K Y R N I F E A F K I I Y S S Q R G S A G F A C G M Q A R V I F Q V
A G G G I T P T F T S T I L L H I F R T E G I A A L Y N G L G P T L V R T F
I S S E N R L Y R D S I Y C M K Y I F K N E G I L A F Y H G L F P S M L K S L
A N K G K L E R A P K V M E T L K I E V Y K H E G F L A L Y R G I P T T L G V A

L M S T G G M L I A H I Q P T F K A S I S R I A A S Y L L K P L R I A V K R Y I I
S R Y Q H R T R E A V L S V Y R R L G L V K G F F S G L M P R L V R S L
K K A K Y S S L P D C F A H I K E E G W L T L Y R G F T P T I L G V I

L E K P A Y K S W T Q V V K D I N Q R S G I K G F Y R G F I P T I L R A A
P T K F N G L W S V V V Y V H G K Y G M Q G Y F K G M V P R M L R T L

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P S A I T F L V Y E S V
 P S A A M F F G Y E
 P N G A T F A T F E
 P W S M V F M T F E Q I
 P V A V S F S T Y E
 A N G A T F L G F E
 S G G I V F T I Y E K V
 S G A I F F A S Y E
 W N I I F F V T Y E Q L
 P N A A T F F T V E
 P A A I T Y M V Y E A M
 S T G L T F T F F E
 P H G A L C L V F
 P V S T M F T V Y E M L

P T T I V F L V Y E
 P G A A V F F A Y E Y
 P S A V T M W T Y E
 P W S L C F W L Y E K I
 P W Q F V F W V S Y E
 P S A S S W L S F E
 Q A A I N W T I Y E A L
 P S A A V F I G V E
 H T T L M F V F M E Q L
 H T V L T F I F L E Q I
 S G G I V F L C Y E K I
 P N A A M F G V Y E A L
 H T V L T F I L M E Q L
 P S C I T F L V Y E
 P S A G T F V V Y
 P N A A T F Y A F E
 P N A V T F L S Y E Y L
 P N A V L F F V Y E L V
 P N A V T F L S Y E Y L
 P H S I I F Y T Y E R L
 P W C C L F F L T Y E
 P N A V V F Y T Y E T L
 S T G I M F S V F E
 A V G I S Y A T Y D N I
 P S A L C W L S Y E
 W N I I F F V T Y E Q L
 A A A I C W S T Y E
 P G T V A Y F G T Y E L
 P S A V A F T T Y E F M
 P S A V T M W T Y
 P N T A I M M T T Y E V
 P S A I C W T S Y E
 P T A V H F A T Y E
 Q G A L F F T S Y E T L
 S G G I V F T I Y E N I
 F N I I Q L I V W E Q L
 P Y A G I L A V Y E T L
 I T T A S F L F Y D Q
 P A A M T T M L T Y E
 D V A I T F M I Y D
 P N G A T F A T F E
 P T A L S W S V Y E
 P A T G A L F L A Y E
 P S A I Q F L M Y E N L
 P V A I N F A L Y E K L
 H S V I T
 V S A L S W T V Y D K V
 P Y A G T F F T Y E T L
 P N G A T F A A F E
 M A A M A W T V Y E Q M

1 10 20 30 40

P N S S A A Y A L S G V C A T V M S D A V I T P M D M V K Q R L Q L E S S P
P L P F V A N F T A G A I A G I S E I L T F Y P L D V V K T R M Q L E T G K
K L P F M A L I A S A G L S G S V T S L A L T P I E L I K C K I Q V P V E S
N T L L H L F A G G C G G T V G A I F T C P L E V I K T R L Q S S K L A
S L E V K Q Q V V C G A G A G I A V S L V A C P T E L I K C R L Q A Q S A S
S T V S C Y P L E V L K D R F T V H T G A
T L S P L R S M L A G M A S G V V I A S T A V T P T E R I K T A L I
K Q M D A L S N A V A G C A A S V F S S V V L C P A E L V K K L Q A G R E L
W Q H F V G G G L G A M C G A I V T S P F D V V K T R L Q S D A V I A
P V I K A F L C G S I S G T C S T L L F Q P L D L L K T R L Q T L Q P S S
Y P F W L G G V A G C M A A C T H P P D L T K V R M Q T I P S S
Q R W P R A S K F L L S G C A A T V A E L A T F P P D L T K T R L Q M Q G E A
H F L A G G A S G A S S V V V G H P P D L T V K T R L Q A G R G
S H I Q N L W M G G F A R A A V G F A F M P V T V I K V R
P W V H F V A G G I G G M A G A V C T S P F D V V K T R L Q S D S K N
L K D V V C G S V A G V I G K Y I E Y P F D T V K V R L Q S Q P
K S T S I Q S P F W F G G A A S C L A T F V S H P P D L T K V R L Q T N S T A
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170 180 190 200

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U n i R e f 9 0 _ A 5 D Y B 4			
U n i R e f 9 0 _ V 5 E R 8 5			
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U n i R e f 9 0 _ U P I 0 0 0 2 6 5 7 6 F 1			
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U n i R e f 9 0 _ S 2 J H M 6			
U n i R e f 9 0 _ T 1 L 1 W 9			
U n i R e f 9 0 _ I 4 Y B 1 1			
U n i R e f 9 0 _ G 0 R C K 6			
U n i R e f 9 0 _ M 2 W R 3 9			
U n i R e f 9 0 _ M 2 Y 5 8 2			
U n i R e f 9 0 _ B 8 M 3 P 4			
U n i R e f 9 0 _ A 8 I S P 5			
U n i R e f 9 0 _ G 3 Q A P 9			
U n i R e f 9 0 _ A 0 A 0 1 5 N 0 W 2			
U n i R e f 9 0 _ R 7 T Q N 1			
U n i R e f 9 0 _ A 0 A 0 2 4 G 0 P 3			
U n i R e f 9 0 _ B 9 R G V 3			
U n i R e f 9 0 _ R 9 A I W 1			
U n i R e f 9 0 _ D 3 T Q 1 2			
U n i R e f 9 0 _ K 0 R H B 8			
U n i R e f 9 0 _ J 3 L S K 3			
U n i R e f 9 0 _ B 9 I G H 0			
U n i R e f 9 0 _ H 3 A U 7 8			
U n i R e f 9 0 _ Q 7 Q E Q 1			
U n i R e f 9 0 _ R 9 A P 0 7			
U n i R e f 9 0 _ D 6 X 3 C 2			
U n i R e f 9 0 _ C 9 S 6 F 1			
U n i R e f 9 0 _ S 3 D V J 9			
U n i R e f 9 0 _ D 3 T R Q 1			
U n i R e f 9 0 _ K 2 S 5 9 0			
U n i R e f 9 0 _ G 2 R F G 4			
U n i R e f 9 0 _ G 9 N Z U 6			
U n i R e f 9 0 _ U P I 0 0 0 3 8 C 6 2 7 3			
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U n i R e f 9 0 _ B 4 J Q 3 6			
U n i R e f 9 0 _ Q 2 2 U E 2			
U n i R e f 9 0 _ C 3 Y 2 H 7			
U n i R e f 9 0 _ G 8 Z W Y 4			
U n i R e f 9 0 _ W 5 K W P 6			
U n i R e f 9 0 _ U 9 T Z 2 1			
U n i R e f 9 0 _ M 1 B E 7			
U n i R e f 9 0 _ V 5 H R E 3			
U n i R e f 9 0 _ G 0 R 3 U 0			
U n i R e f 9 0 _ I 0 Y S K 7			
U n i R e f 9 0 _ F 7 V W 9 6			
U n i R e f 9 0 _ K 4 B N 9 7			
U n i R e f 9 0 _ U P I 0 0 0 1 C B 9 E 8 C			
U n i R e f 9 0 _ W 6 U L 1 9			
U n i R e f 9 0 _ I 4 Y G R 1			
U n i R e f 9 0 _ W 9 Y I 4 8			
U n i R e f 9 0 _ U P I 0 0 0 3 F 1 3 4 F E			
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210 220 230 240

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UniRef90_B9IGH0 UniRef90_H3AU78 UniRef90_Q7QEQ1 UniRef90_R9AP07 UniRef90_D6X3C2 UniRef90_C9S6F1 UniRef90_S3DVJ9 UniRef90_D3TRQ1 UniRef90_K2S590 UniRef90_G2RFG4 UniRef90_G9NZU6 UniRef90_UPI00038C6273 UniRef90_T0QJW9 UniRef90_X8JP0 UniRef90_B4JQ36 UniRef90_Q22UE2 UniRef90_C3Y2H7 UniRef90_G8ZWY4 UniRef90_W5KWP6 UniRef90_U9TZ21 UniRef90_M1BEI7 UniRef90_V5HRE3 UniRef90_G0R3U0 UniRef90_I0YSK7 UniRef90_F7VW96 UniRef90_K4BN97 UniRef90_UPI0001CB9E8C UniRef90_W6UL19 UniRef90_I4YGR1 UniRef90_W9YI48 UniRef90_UPI0003F134FE UniRef90_W2TYQ4 UniRef90_A2QHV6	<p>Q Q L L P K A E S A K A R L M N D L I A G T V G G F V V K S R I Q G A T</p> <p>K E V Q L P P F F G L M I A A A V S K G C A S C I A Y P H E V I R T R</p> <p>S T E S S I Q S P L I C H S A I N A G I I T T A V V N P F W V L K I R L G K G G V Q E W L G M L G S A G T A K C V A T L I T Y P H E V I R T R L R Q L H G A D E M P L V N F S C G V F A G I L A S L V T Q P A D V I K T L R H R V P V V D Y Q F R D N T L A G T V A T T V C S P A D V L R S R L M V L N T P L E D N I T T H S S L C S G L V A S I L G T P A D V I K S R I M N Q P D A S S D P H P G S I W L A G G L A G S I S W V T A T P A D V V K S R L Q A D T</p> <p>H K K S L Q R W S A R S G S A G F A K L I A S L I T Y P H E V I R T R R Q A P K R R D G S I E W Q R M V S G S A A G A A Y N F M F Y P A D T V K S R M Q T E D I D R L H F N D M T H F A S S L L A G L V A T T V C S P L D V V K T R I M S A H E E D A L P G S F A T G C I G A F S G A F G A S M V Y P I N N L R T R L Q A Q G</p> <p>G D G R T L Q P W Q S M A S G F L A G C V G P V C T G P F D V V K T R L M A Q S Q T I V W V W K N L Q L A C G G L A G S T A A L F T T P F D V V K T R L Q T Q T L E V S H V K D G V Q T G A S F M A G I V A A L T S N P I D L A K S R M S M K P</p> <p>T R R N M S R F G Y S A E D A T F S G A F G A S I V Y P I N L L R T R L Q A Q G A E R N R T S S Q L F A A G V L A G L G N G V V S G P V E H R I R L Q T Q S G P G G H T P F W W S F I S G C A A G S T A A L A V N P M D V V K T R M Q T L L S T G E D G V W C H L A A S L V T G L A V T T A M N P F D V V S T R L Y S Q K G G N D S S N R N Q W A T S F S A T I A S D A L M N P F D V I K Q R M Q V</p> <p>K T K M K L L S G S V A G L A A V I C T Y P L D M V R A R L A Y Q S N P S H S Y N P Y L H C V S G G I A G G I A A A L T T P F D C I K T V Q T K G M L S S N L F S E G T H F S A S F M A G T V A T T V C S P A D V I K S R G G N E A G N Q W A T A V A G A S A T T A A D A L M N P F D V I K Q R M Q V</p> <p>Y V H S D F R D A A N F F C G V L A G L T A S L V T Q P A D V L K T K F Y Y N V R Q H N E T L G T N A T S S N D P P S Y K G V A L G G F G T G A I C P V E L I K I R L Q L Q T K N E L D D G L R L R F L S S M C A G L A A S V L S N P A D V I K S R V M N Q Q T T S D P N S I N N S T Y E G G S A G I V A W C S T Y F A D V V K T R I Q</p> <p>Y S Y Q P Q Y N G T E L P S W Q I S G A A G P L T N A P I D T I K T R I Q K A Q P M Q</p> <p>Y Q Q K P P E Q S Q Y L S M A A L S K L I A S A T T Y P H E V V R T R L R E Q T T D K L G M P D S T H F T A S I S A G F V A T T V C S P V D V I K T R V M S A H L A S G L T G G R D N L G T H M C S G L F A S V V S V P A D V V K T R M M S Q V A D H H M K C G V A P I M F S G G F G G A C L W L V V Y P F D C V K S R I Q V M S C E Y D</p> <p>I S L K L F R E W N T L S A S M C S G V V V V M F M T P F D V V S T R Y N Q A T T A A G F E D G M V H L G S S T V S G L A V T T A I N P L D V I S T R L Y S Q R</p> <p>Y T Y Q P H Y N W Q T V I F G F I S G A A G P L T N A P I D T I K T R I Q K A H R K P G Q S K D D I G A L K T M F A G A V G W T S I F P A D V I K S R I Q N N</p> <p>Y A K C R Q T R T E N R T Y E D S S K V T A I L L T Y P Y Q V I R A R L Q Q R P D I A D D E R L V V H A T A G A A A G A L A A A I V T T P L D V V K T Q L Q C Q G I R P G G N S H I A N G T A G C V A T L L H D A A M N P A E V V K Q R M Q M Y N Y K R K S P N T V I S L T F G A V A G V I G Q S S S Y P D I V R R R M Q T T G</p> <p>T G Q G M G Q S T A G D M E H H W V G I M A S S A T Y P H E V I R T R L Q T Q Q N E G L F H A C T G F V S G L I T T I V S M P L D M A K T R Q T M E R V S A A L P F G S G D A A A G M I A S A V S K T A V F P L D T V R K R L Q V Q R P M Q</p> <p>I D R K E I P T Y K I A L Y G G L A G E V L W L A S Y P F D V V K S K M Q T D G P D P K N T H I F I S W M I A Q S V T D V A G L T S Y P F D M V C R R R M M M Q S P G L L E R H G V V Y M V V G G M S A G I F S T F G N N P F D V L K T K M Q G</p> <p>Q T D E H I K L N Y T Q I F M A G V G T G I C S A L V A V P T D R I K V L L Q T R N N R Y P T M F E K I M Y S S F A G Y V A C I V G N P A D I S V V R F Q Q D S K S E G T S P F Y W S F S S G C L A G C V S S V M V N P M D V V K T R I Q V L K E R P Q R N A L H R T L D T F P I A G L I S K L A T F P L D T I R R R D H K S F S D T E N A P F Y W S F A S G C A A G C T A A V A V A V S P C D V V K T R L Q S L L R E G Y S E G V P D M G C S L I S A F V S V V F M N P L D V V R T R L Y N T Y T P L E E G F H L H I S S T I A G S V S T V M T A P M D M V K T R L M L Q R N P S G S Y D P L K H S I V V G G L A G S L G A V L T N P L D V V K T L L Q T R G</p> <p>R K M R C R A Q K K E R A E M L L V G A F S G L T A S T I S Y P L E V A R K R L M V G A Q S R H P Q N W P E M I I S G G I A G T L S W V V S H P T D V I K S R I I Q A L G E D A G V T I S F I L G Y G V T V T A G L L S Y P I D T I R R R M M M T S R S F F K S K S A G D L C G G I A G A V V G Q T S A Y P F E V I R R R M Q V G G N P R K E Y D P I T H C V A G G L A G A V V A A G L T T P L D V I K T L L Q T R G T P Q R Q P D V L G V L V A G G C A G V L A W A V A T P M D V I K S R I L Q A D G L E T G Y V H D F C H F L A S M V S G L A T T I A S M P V D I A K T R I Q S M K T G Y S I G E H P D T G S S H W V G I T S A T F M D H P Q G H S R P P G A A S S</p>
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250 260 270 280

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S A S G K S S A L E V L S T S L R E S G P R F L K G W T P A F I R L G
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V K Q L T G G K L S F S S V G K A L W K Q H G I K G M Y R G C I T V A R S I
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K K N P K Y S G M F H A I A T I R A E E G V L A L W K G L L P R L M R I P
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R G E I K Y K G I H T F Y T I W H H E G F K A L Y R G V T P T L I G M I
S Q N P A L R E V T G F K S A A A A L H K I G G T K A F W R G L K P R V I F N V
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K P I T T N Q S Y K G P L D V A R S I F R S E G I R G I Y R G L G I T V L R D A
T D A T G K N T Y K N S M D C L V K T V R E E G I L T L Y K G L L P C W F R L G
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V T A Q C A D Q E E G V K G F Y K G S M N W L K G I

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Q S L T R P R K Y N G I M D T A I K L Y R E G G I R S L Y K G T C A G M L R D S
L L P A H R R N Y K N V M D A M V R M V K E E G F F T L W R G S I P T I V R A V
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G N L Y K S Y H R R S V A Q I G L Q I I R Q E G I T A L Y R G V T M A L C K S V
N K S A N E E V Y S G V V D C V R K I V H K E G P S A L L K G A G
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E S N C A G L Y R N G L H C A Y Q V L R T E G P S G L Y K G G F A I F A R L A
S S P D P R I R C N G L W D A T K L V Y Q L E G Y R G F G R G M I P R T V N I A

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Q K G P L N G M G R L F L Q I L K K E G P K S L Y L G L T P A L T R S I
G S N A T S L E V A R S V I A K E G V K G L Y S G L T A A V A V A R Q M
F P Y L Y K G L I N C F L K T Y K Q V G I R G F Y K G T G P A L T A Y V

K S S I I N L T K N I I K K E G V L A L Y T G I S A S L C R Q L
K A G H S R M Y N G L V G T A S V I W R E E G L R G M Y R G L G P I V L G Y L
D I Y P S I S V A L S K I H N D G G I G A F Y A G I S P T L I G M L
S P S T L L Q P I R N I T Q H V R S I S T T E G L R S L W R G V A S V I M G A G
D C R P Q P S I Q A L L I A P K I L S K E G P L A F Y K G T L T P L I G I G
E I Y R G T W H A G Y L M L R D E G I T T F Y K G M V P A L L Q I A

K Y Y N G A L D C T R Q T W K H E G F Q G F F R G M T S P L I G S A
S D R H A Q G A Y P S M W A G A R H V W R E E G V R G F Y R G L G V S L I G V S
P V E Q R R H Y R N A F D G L Y R I T R D E G L S S L F R G L T P N L V R G V
S V Y Q A G T H F K E T F G L N K V Y R N E G F R S L F K G L G P N L V G V I
E N P T A Y A H H D N F I D A L S Y L R E E G I L G L Y S G L G S S I L G T A
K I V H A E Q A Y R G I L D C F S K T Y R E A G V R G L Y R G G A P A L Y G I F

G H Y N S A W E A L L K T V K N E G V L A L Y K G A S P P A V G W S

90 100 110 120

L M N S V R F Y C Y S L A C Q A G L T Q Q P G G T V V A G A V A G A L G A F V
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L Y F T S L N A I R Q H A H Q T G I L G R R L Q T H G R S S V L P S L T N S G N
P G S A A Y F A A Y E V T K K A L T P A G H T P A E L H G S L I T A G G M A G
T Y S T V R F G V Y E L G K Q T I E S P G N P A P F Y Q K F L L A G I S
P G Y C L Y F I P Y V F L S E W I T P E T D T G P S P C T M L L A G G V
G E N A V L F M C Y G F C Q D M V Q R V C G L D R N A A L S D V Q K A C Y A G S V
S E T I L I H F V I Y E A L K Q Q M R N S H H S L S P P L T L S P K S H D F F G L
P Y A A L H Y M A Y E Q Y R R W I I D T F P D V W R G P G L D L V A G S F
G V N S L L F A S Y A W S K R I V S P P P Q L S L K E I A L A G G M
P S S A V F V A C Y E C S K N A I E R A S S S F P A P F Q T L E D F V P P L L A A
S S P L A G V A V I N A I V F G V Y G T V Q K N L T E P E S L K S C F A S G A V
P Y A A L H Y M T Y E Q Y R C W I L N N F A P S V G T G P V V D L L A G S A
P E S A M K F G S F E A A K R F F A R I E G V D D V S Q I S K V S T Y L A G G F

T M N S V R L G I Y Q T A E N Y D W T R G D S K A G T V F Y S I L W G G F S G V
P E K A I K L A A N D F F R H Q L S R D G S R L T V F R E M L A G G C C
V Y N S V V F G F F S N A Q R F I S T Y R Y G D G R H P C S L L D L T A A S M L
T Y S G I R F G I Y E E L K S K A G P S S S S Q F L L A S A W C S G F A G G I A

S N Q A I R F F V M T S L K N W Y K G D N P N K P I H P L V T G A F G A I A G A
P Y A A I Q F S A H E E Y K R L L G S Y Y G F R G E A L P P W P R L L A G A L A
P Y S A I S F Y S Y D R Y K N L V Q M V P G L D R D S N N V G V V R L L G G G L
F F N G L R V F Y D C L R S R L A Y L D H G S G K E V L T V S R G F G A G C L
P E F A L V F T L I R Y F L S L Y E D S L D E E T A R V T E W E A A M K A T G S
P K R S I K F L V F D Q S Q Q L F M F G A P W P S P P T Y A F A G G L
V Y T T A R M G F F T T F M N K I T T N A K A E G R P V T F G E R T L A A L S A
T W N T L Y Y G T M H N I Q T E V F D Q H P L S N P V L A A A R K M A T G M V
P F Q M V H F I L Y E L S Q E Q M N P E R I Y N P L S H H M M S G G F A G G
P A H A L Y F A C Y E K L K K T L S D I I H P G G N S H I A N
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P E K A I K L A T N D F F R Q L L S K D G K S L S L V K E M L A G S G A G L C Q
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L F G G L R I G L Y D P V K N F Y V G K D H V G D V P L H L K I A A G M T T G A
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P Y A A I H F S V Y E A Y R R I L A E H M I A S R R R P G P I V D L V A G S A
P G A A F F A T Y D T M K K T L P L Q D N L A P L N H M I A A S
V A H G L Y F G S Y E W S K M K L Q S M T T K S G A R V M G E T S A H M T A G F
T N Q M C L F T A K A Q V D T L W G K H D G D G M V L H P A Q S L V S G G L A
F F S A F S F L Y E T T L K H R Y E E Y V A K N R G R P L N S A E S L V A G S I
P I F A V S F W A Y D T S K L L I L G L T P N R T N K E L S I P E L A T A G F L
P Y A G L Y V L F Y E Q A K R S L S V L Y G R A M D D N T A M M I N S C A G A S

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P F K A I N F Y A Y D T Y R K Q L L K L S G H K N T T N F E R F V A G A A A G I
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P A H A V Y F S V F E S M K K T L G A D S A E H T P
H G A V Q I A A Y G W I K D T I S E A R G V P K E S F S K Q T D I M F A S S T
P Y A A L L Q F G L Y D R H A N S P S A D V S R R W S L E T R R W E R F V C G L A
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P Y A G F S F T F G T L K S L G L N H S D N P D V L V L K T H I N L L C G G I
P A H A V Y F A T Y E M C K G Y L I D P Q D F Q T H P L K T A A S G V A
P Y S A V H L A T Y K K I V H L H M D E L G R I S Q W R A I L A G G G L
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L E T S S L F F W E R V G R E V A F S A G L Y N R E K P L P L S A L F L T G A F
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G V N S L L F A A Y S V S K R I V V S P Y P D L S I P Q I A L A G S M
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P E K A V K L A A A N D Y F R R F H L K D E N N K I S G F R Q G L A G A L
V Y S S M C M V L Y E P F R D A I F R G N N N D G A S G M S F A Q K L M A G G L
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L Y G G L R L G L Y E P S K Y A C D W A F G S T N I L V K I A S G A F A G A T A
V Y G T A R L G M H R A F S D F A R R I E S N Q S P S L P L W V K S L S A I T T
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H G A V Q F A V Y E P L K R W V A L S S L R Q P G D A P S T R E T L V V S T L
L M T A S Q V V T Y D I A K A L L V D T L N M D P V K K S T H F S A S L L
P A R S I N F F T Y G T T K D M Y S R A F N N G N E S A W I H L M A A A T A G W
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P Y S G L K F Y F Y E E M K S H V P E K H K K D I T V K L A C G S V G A P
I I D S V L M H V Y R L H L R D A G F S E P T P G S G I P R L T L F G H G L A G

130 140 150 160

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A S F F S S F V L C P T E L V K C R L Q A M S E M A A S G K I T T S V W S V I K
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170 180 190 200

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D | R R T H G L R G F F S G F G A T A L R D A P | Y A G M Y V L | F Y E M L K S Q T
K T I A Q D G V A A L W K G F G P | M A M A R A F P
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L V V H E E G P | L A L Y R G L L | A H | V R Q | P N T A | I M M A T Y E
K N Y K E A G I R G L Y R G V A P S | L Y G I | F P Y A G L | K F Y F Y E E M K R | H V
E M W T E W G F R G V M R G F W V T | V A R E | E I P | P A Y A G F Y S G F E F T T K R R F
A V W A T E G L P G F Y C G Y S M Q V | A R D | P Y S A L | Q F M T F E Y | L K K R Y
D I Y R K Q G L K G I | N I T | F L R E G L | L G F G I | Y F S T Y E W L | T R N N
T V Y K E G G A R A L Y R G V G P | T L I G | L P Y A G L | K F Y | Y E D | L K S R V
D L Y R E G G M R V F Y R G I | I A G I | S G I | F P Y A A L | D L G T F Q T I | K T W L
S I L R | L D | G | T R G L Y A G | M P | A L A A N I A E N A I | L F T A Y G Y | C R K V V
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D A Y Q H G G L R S L W K G | C G P | S C A R A | A M L M T A G D T | A C Y D | L S K R H F
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290

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 E Y Y W
 Q S H A K I G F F P S F M L G Y A I S I V A S I P A Y P T D T L R R R M M M T S

 G M
 C K C S D N H F A I N F T A G A L S G S I A S V A T L P F D V V K T Q K Q T Q L
 K T R L Q L T S L D A F V I G A V A K A V A T T I T Y P M Q T V Q S I L R F G R
 T P A G S S P S D L N L S A I I L A G G T A G I A M W S I A I P P D V L K S R I

 N D L Q I F P P L V A L T A G M I S S V F V I L A M T P F D V I S T R I Y N Q P
 A D E S G H A S M L A I V A A G C A A G A G A A A I A T P A D V I K T K R Q M I

 G K P A P L R Y W A E L L A G G V A G M V S Q T V S Y P L E V V R R R M Q V G G
 C E R Y N T R E P T F F T S G G V S G S I A S I V T L P F D V V K T R R Q V E D
 G G N S G H H P V A A A S S G A C T I A S D A F M N P F D V I K Q R M Q M
 N M T S S L A A T I N F S S G A M A S A T C S F I T N P F D A V K T R I Q L Q

 E D S K T Q S L G I N I F S G A T S G I L G A A A G S P F F L V K T R L Q S F S
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 T G E G M G E G S G E A Q W F G I S K I L A S S A T Y P H E V I R T R L Q T Q R
 L D R R R R R P G G R R D Y D D A K L T A G A A T Y P Y Q V L R S R L Q N Y D
 K P E E K A P F M H S F M A G C L A G S V A A V A V T P L D V I K T R L Q T L R

 M K W T P E G F Y L H L T S S T I A G L V S T L I T A P I D M V K T R L M L Q R

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 S E S R D L S A G S V I A A G G M A G V V F W L S C Y P M D L I K S R I Q T D H
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 R K M N
 S E M S S L P A F L A A G G V A G I A G W I T T T F P F D V V K T R I Q S S D
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 R A F N N
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250 260 270 280

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 K S R L Q T A E G N T [I] G G V V R G L Y S Q G G F K A F F P G F G P A L A R A V
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 I T Q P D R W L R W D E T A Q A I W R A R G W K G F Y V G L S I G Y L K V V
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 K A G G V K Y K S F M H A L Y L I P K E E G I L A M W K G L L P R L M R I P
 K S K D G S A Q Y S G M V D C F L Q T V N N E G V L K L W S G F V P A F L K L A
 I R S G V M I P Y K G T V G A L T R I A R E E G G R G L Y S G L V P A L A G I T
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 Q S I G A R G E Y K H S V D C A V K I V R E E G F L K L W S G A V P R L G R L M
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 Y I H T S D G H Y K N V R D V V Y K L Y Q K E G I L S L Y K V G K P S L I M N L
 L A G R Q D G F L K T F M G I V R N E G V R P L Y S G L T P T L I R T F
 T S A S D H R A G S L F W T T A R H T Y A Q G G W R A F F V G V G P T I L R A L
 R G T P Y K T V L E A I S G I V A H D G V V G L Y R G F V P N A L K T L
 Q S I E A R H V Y G N S L R C A A L I F K H E G V L T F W S G A V P R L A R V L
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 I Q A A A P G V Y S G V L D C A M K S V S R E G P M V L F R G L N M A L L R A F
 Q Q P G E K P K Y S G G M D V V R Q L Y K E G G V R S V F R G S V A T L A R G P
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 V Q A T K L S A V G T F V K I V E Q G G V P A L Y A G L I P S L L Q V L
 V T G H P R S S I A A T L R A I V R E E G A R G L Y K G L S M N W L K G V
 Q V R S R E D Q Y Q S F F G T V R A V V R E R G L K G L F D G A S L R M S R V L
 Q N E T S M Q V I R G I Y R D G G I K A Y W A G C L P R I L R V G
 T P P E G T P V Q Y I S R E L Q S V V A E G G V S G L F R G L T P S L L R S I
 K T G Q Y K G I V D A A Y Q I Y R K E G L R S F Y K G Y L P N L L G I I
 E F E L K K V R Y I D F F Q T I K L I Y Q R E G I L S A F T K G V G P R M C I N V
 S E T V S I E I M K T F G R A S R A I L E V H G W K G F W R G L K P R I V A N I
 V K N P R F K R Y F D A V K F V Y T E R G L R G F T R G F M P S I L R S F
 G T G E N Y S S S I S A F R T I Y E N E G L I A F F R G W N A N L L R A I
 W R Y G S H V L P T T T W D I M K L I V A K N G I S G L F V G L I P R L I K V A
 H R L N P E N R T K N V L Y L L R Q R V R R F G L V G L Y K G L E A K L L Q T V
 Q S A P T G T Y S G F M D C A R K T I A V D G V K A L W K G F G P A M A R A F
 V D Y K G Q G L Y K G F V D C F T R T A R K E G L F G L Y K G G A A Y F R L G
 G A N Y K G T I D C F Q Q V F A A G G V G A L F K G V V P R M M V Q A
 A V G D G H R M R I G E T A R L I M R E R G F R G F F V G L T I G Y A K V I
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 H G S T Y T S L I D C A T K V F R S E G L R A F Y V S Y P T T L T M T V
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 P Q V G T Q H G Y K N A M D G M R K I Y T T E G V N G L Y R G V G A A M V R G F
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 R P L A G E Q F Y K G I V M T F R T I L R E E G W G R A F Y A G L G T N M M R A V
 A E A R F G R G I T G V A R R L W R E E G L G G F Y R G L V P G V V R V L
 K G V G E D S Y S G I L D C T R R I W S R E G P S A F L K G A A C R
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 D N P P K Q V A T K S V A M R L A S I Y R M G G V P A I F S G L G P R L F K V A
 P D P S Q R R Y R G V L D C V R Q I H A T E G Y R G F W R G F S A C L V R A F
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 S P Y A A P I I K S M C S I V Q K N G F K G L Y R G L S A S L S K T V
 I H K N S K D S Y P N I L K T L Q K I Y R E E G I K G F F K G L S M N W I K G I
 G L A P S S S I A N C L K L T L K E G G A K A L F R G W V P S S L K I V
 G R A K A D M Y K G T I D C W A K I G K Q E G G K A F F K G A F S N V L R G T
 A G P A R T Y R G S L D C L A Q I Y R Q E G L R G V N R G M A S T L L R E T
 H Q T A P T A K P P S F Q F R I A R H E G I S A L Y R G L G P T L L R T F
 K T Y R N V I F T A F R I F G Q E G V P A F Y R G L G A S V L G V I
 E D P T V A H A Q K S A I G I L T K I V Q E N G L L G L Y K G M D T Q I S K A V
 E A K R L Y K N S F A C A T N I F K N E G V G L V F W S G A L P R I G R S L
 Q G V E F P M W M A A Y S I L T H E G P L A F Y K G A V P R F F W T A
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290

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 P A C A V M | G S Y E
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 P T V I S L T L T D K I
 H V A | Q F P V Y E K M
 P T C | V T F V V Y E N L
 S G G I V F T M Y E K
 S G G I V F A V Y E K
 P N A I I M A T Y E E A V
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 V Q G | L | M M T K E R M
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 G S A A Y F A A Y E Y I
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 A V G I S F T T F D
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 P
 A P G | L V L A S K D K
 P A C A | M | S T Y E
 L T A | L M F L V Y E K L
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 P A A A A F Y T Y E R L
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 P T A L Q F T A Y E S L
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 P A C A | M | S
 P N A A T F | L A F E
 P G A M N F A G Y E
 P N M A T F A V F E
 P N A A T F Y V
 P S C V T Y L V F E
 A V G I S F S T Y D S I
 P Q A F S F | T Y E
 G G A | L V L V L Y D E I
 P S G V Y F L A Y D
 P A S G A L F V
 P S A | R L G S Y D G L
 L T Q A I L F Y F R E L
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 UniRef90_M2V609

1 10 20 30 40

Detailed description: This figure displays a sequence alignment of UniRef90 proteins. The alignment is presented in a grid where rows represent different protein entries and columns represent positions 1 through 40. A color scale at the top indicates conservation: blue for highly conserved positions, green for moderately conserved, and red for divergent positions. Yellow boxes highlight specific amino acid changes or motifs across the alignment. The first few rows show a high degree of conservation, while later rows show more variation and highlighted features.

50 60 70 80

G F V R P A S P S P G V L Q L M R A I L E K E G I R S L F R G L G P N L V G V A
T T K K G Y R N W S E I V G S D L S L T R E L Y R G L T V N L V G N T

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UniRef90_Q6FSP4
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P G A A A F F V M Y E Q M K H L L P L L P G E Q S A P A R H L E V V K S A A Q
P A S A L F F V G V Y E P T K Q K L L K T F P D H L S A V A H L T A G A I
P A N M V Y F I G Y E S L R D N S F I Q N K Y S R N P L L C G A I A R V
M Q G L C K F G F Y E V F K I L Y G N L L G E E N T Y L W R T S L Y L A A S A S
S F L F L A Y S Y V R E K R L S A R G S S H N P A L E E I G V G V I A G A F

130 140 150 160

A G V T S A T L T N P I W L V K T R M Q L E A R A R G E K H S N A Q C A I
S G M L T T V L T N P L W V I K T R M M S K A N S D L T S M K V L R
Y G R E Q P F W I P T L A G A T A R V W A R T K M Q S Q R L S Y A E I T Q A L K
L L A G A A A R S L A G L I L M P L T V L K V R Y E S T L Y N Y T S L A S A A R
S N A V G V V I C Y P I S T I I T R L Q V D D G R S N G T A V Q S E N W D R R R
S K S L A T C I A Y P H E V V R T R L R Q E G K Y H G F F Q T I A F
S S T A S G F V V C C V M H P P D T I M S R M Y N Q T G N L Y K G V F D C L F
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T A S F L T N P L D L I K L R L Q V Q R A Y A S Q G T P A A Y R G I I D G L T
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L F A G G V A G M V A A A I V Y P L E V V K T M L T L Y P D R C K S I P D A L S
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A E F L A D I A L C P F E A L K V K T Q T T P P Y A T G V L D G W K
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 UniRef90_A0A058ZYR6
 UniRef90_I1GCF5
 UniRef90_A0A017SPD9
 UniRef90_D3BMQ7
 UniRef90_H3GG07
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 UniRef90_UPI0004623F2A
 UniRef90_Q4P2S5
 UniRef90_UPI00045E0C13
 UniRef90_H9JHR0
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 UniRef90_H9JY9
 UniRef90_F4PYE1
 UniRef90_L2GDX4
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 UniRef90_A9UU01
 UniRef90_W7U0H1
 UniRef90_R7VFJ9
 UniRef90_V9ILN5
 UniRef90_F7EIL3
 UniRef90_G0UZ19
 UniRef90_M5G3N2
 UniRef90_Q94AG6
 UniRef90_C5DD67
 UniRef90_G1KNG5
 UniRef90_M2V609

290

P N A [] M M A T Y E [] I
 P S C [] T F C [] Y E
 P A S G M F M T Y E W []
 P A A [] M [] A T F E
 S S A [] A W T V Y E E []

 P A D G C [] F [] G V E M
 [] T A [] Q W F I [] Y D G V

 Q S G T M [] V M Y Q Y []
 P T C [] V T F [] V V Y E N []

 S T A [] G Y F [] Y E F []
 P Y A G V
 G G A [] F [] G V Y E

 T G G A [] F [] G T Y Q

 [] T G [] Q W L I [] Y D
 S G G I [] V F T M Y E K
 P A T [] V T F [] V Y E N V
 P N A A T F [] G V E

 N T A [] M M A T Y E A V
 P N A A T F A T
 P T A V S F T [] V W
 P T G V S F A V W
 Q S G C [] M L [] F L [] Y Q R L
 [] G G F I [] F L [] A Y E K V
 V [] Q G F L M M T K E R V
 G N A V F F S [] V Y E Y V
 N F G P V W F M
 P S A I S Y F [] V Y E
 P A C A [] M I S T Y E
 [] T G [] Q W L I [] Y D
 P S T L V L L [] F F D E []
 P A A [] M I A S F E Y

 V N G A [] F A A Y E

 P H S I [] F Y T Y E S L

 P T C [] V T F [] V A Y E N V
 P A A I T F
 P S A L [] Q F A F Y E K L

 E T V I [] H F V I [] Y E A L

 P F G [] M F S M F E
 P H A F Y F S T Y E Y M
 P M A A T F Y [] V Y E R M
 P A S [] S W I [] V Y E K M
 [] G G G C F F S
 P N A V V M Y S [] V Y E
 G G A L V L V L L Y D E I
 M T A F T W T I [] F E
 P S V G I [] V V S F Y E V
 P S A I S L L V R D A L L
 Q T G T M [] V T Y Q Y L
 [] T A G Q F F I [] Y D G I

 S S A [] G W A V Y E G V

 P F G [] M F S T F E
 H T F I [] T F Y [] L L E Q
 P N A S A [] F V Y E G L
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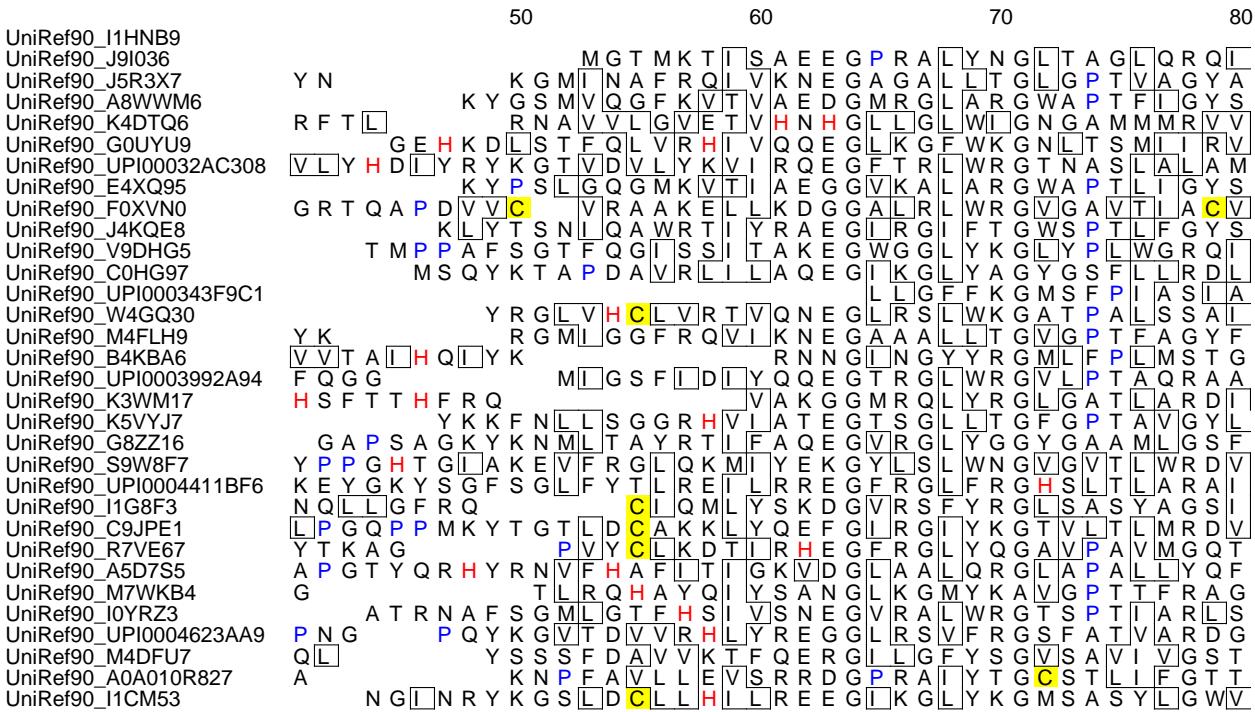
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 P T V I [] H [] G A Y E

 P A S [] S Y V V Y E N L

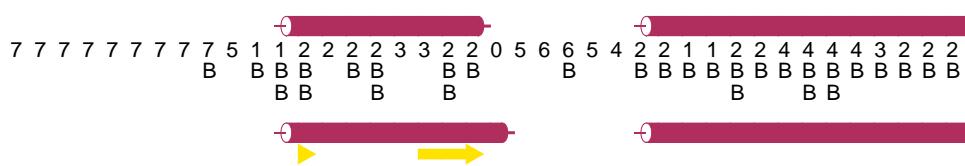
 P S C A [] M I S T Y E V
 [] T A L [] Q W F I [] Y D S V
 F S H G [] T M L

The figure displays a sequence alignment of UniRef90 entries across the first 40 positions. The alignment is color-coded to highlight conservation: yellow for hydrophobic residues, blue for polar residues, and red for charged residues. The x-axis is labeled with positions 1, 10, 20, 30, and 40. The y-axis lists UniRef90 entries, including I1HN B9, J9I036, J5R3X7, A8WWM6, K4DTQ6, G0UYU9, UPI00032AC308, E4XQ95, F0XVN0, J4KQE8, V9DHG5, C0HG97, UPI000343F9C1, W4GQ30, M4FLH9, B4KBA6, UPI000399A94, K3WML7, K5VYJ7, G8ZZ16, S9W8F7, UPI000441BF6, I1G8F3, C9JPE1, R7VE67, A5DTS5, M7WKB4, I0YRZ3, UPI0004623AA9, M4DFU7, A0A010R827, and I1CM53.

lupas_21
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lupas_21
lupas_14
lupas_28
jnet
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sol25
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sol0
jhmm
jpssm



	90	100	110	M	F	I	S	A	I
UniRef90_I1HN9B	L	F	A	G	R	I	G	Y	V
UniRef90_J9I036	G	L	R	I	G	Y	V	P	V
UniRef90_J5R3X7	V	Q	G	A	L	K	F	G	G
UniRef90_A8WWM6	V	Q	G	A	L	K	F	G	Y
UniRef90_K4DTQ6	A	Q	G	L	G	K	F	G	Y
UniRef90_G0UYU9	P	Y	A	A	I	T	F	A	S
UniRef90_UPI00032AC308	P	Y	A	A	I	T	F	A	S
UniRef90_E4XQ95	P	S	V	G	L	Y	M	P	C
UniRef90_F0XVN0	M	Q	G	C	F	K	F	G	Y
UniRef90_J4KQE8	P	A	H	A	V	Y	F	G	S
UniRef90_V9DHG5	A	Q	G	A	F	K	G	W	Y
UniRef90_C0HG97	P	Y	T	M	M	K	F	A	S
UniRef90_UPI000343F9C1	P	F	D	A	I	Q	F	C	I
UniRef90_W4QG30	V	V	I	N	S	V	L	F	G
UniRef90_M4FLH9	I	E	N	S	V	L	F	G	Y
UniRef90_B4KBA6	L	Q	G	A	F	K	F	G	Y
UniRef90_UPI0003992A94	A	I	N	S	I	L	F	G	I
UniRef90_K3WM17	I	V	V	G	E	L	P	V	D
UniRef90_K5VYJ7	P	F	S	A	L	Y	W	F	T
UniRef90_G8ZZ16	P	F	S	A	I	F	F	S	T
UniRef90_S9W8F7	P	F	S	A	I	F	S	T	E
UniRef90_UPI0004411BF6	P	H	A	A	I	G	T	V	Y
UniRef90_I1G8F3	E	T	A	I	H	F	M	I	Y
UniRef90_C9JPE1	P	A	S	G	M	Y	F	M	T
UniRef90_R7VE67	P	A	S	G	M	Y	F	M	T
UniRef90_A5D7S5	A	R	T	A	V	F	F	S	Y
UniRef90_M7WKB4	L	M	N	G	I	R	L	G	T
UniRef90_10YRZ3	I	L	T	S	C	Q	L	G	C
UniRef90_UPI0004623AA9	P	G	S	A	Y	F	A	Y	E
UniRef90_M4DFU7	F	S	S	A	V	Y	F	G	T
UniRef90_A0A010R827	F	K	A	G	V	R	F	L	S
UniRef90_I1CM53	I	Y	E	N	L	K	R	R	W

lupas_21
lupas_14
lupas_28
jnet
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sol5
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Sequence alignment of UniRef90_11HNB9 and UniRef90_11G8F3 across 160 positions. The UniRef90_11HNB9 sequence is on the left, and UniRef90_11G8F3 is on the right. Positions 130, 140, and 150 are indicated above the sequences.

Conservation scale (top to bottom):

- Black: highly conserved
- Blue: conservative substitutions
- Red: semi-conservative substitutions
- Yellow: non-conservative substitutions
- White: deletions

Key mutations and insertions:

- Position 130: UniRef90_11HNB9 has a C, UniRef90_11G8F3 has a Y.
- Position 140: UniRef90_11HNB9 has a V, UniRef90_11G8F3 has a C.
- Position 150: UniRef90_11HNB9 has a T, UniRef90_11G8F3 has a C.
- UniRef90_11G8F3 has several insertions at positions 130, 140, and 150, represented by underscores.

lupas_21
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ipssm

	170	180	190	200
UniRef90_I1HNB9	S A R E E G V A A L W K G V P G L H R Q C L Y G G L R I G L Y E P V K A L F			
UniRef90_J9I036	Q V K A D G I P G L W V G I I P N L R N S V I N A A E L A S Y D Q Y K Q M F			
UniRef90_J5R3X7	R A R E E G I G G F Y A G F G P I L F K Q V P Y T M A K F A V F E V G R T K A			
UniRef90_A8WWM6	M Y R T E G L T G F F K G L P P L W T R Q I P Y T M M K F T C F E K P K P R A			
UniRef90_K4DTQ6	M L V G S H G W K S L Y S G L V P T L V G M P Y A G C S F A V F E T L K S H			
UniRef90_G0UYU9	I I Y R E N S M R N F Y R G L G A S L L Q R V P D L I N F A T Y E T V K Y K L			
UniRef90_UP100032AC308	I L Q S L H R Y R F W W T G G A Q L S R D V P F S A C W S T L E P L R K R			
UniRef90_E4XQ95	K M R A E E G T G T F F K G L K P L W M R Q I P Y T M M K F A C F E K P K P R D			
UniRef90_FOXVN0	E T T R S G G L A S L Y R S L P T T L A M N V P Y G C A S V A L N E H L K K R R			
UniRef90_J4KQE8	R I V A K E G A A G L Y P L W G R Q I P Y T M M K F A S F E T I V E M			
UniRef90_V9DHG5	R I Y S K L G F S G L W N G L P V R I V M G T L T G L Q W M Y D S F K I F M			
UniRef90_C0HG97	T I M R E E G A G A F F K G L E P R V L W G I G G S I F F F A V L E K T K			
UniRef90_UP1000343F9C1	S I C Q E E E G P R G L F R G A W A L M L R D T P L G I Y F V T Y E W C R Q S T			
UniRef90_W4GQ30	E V I A Q N G V K G L V A G L P A V L R D V P F N F I F G A Y E D H T S Q P			
UniRef90_M4FLH9	K I M R T E G F G G A L Y A G F G P I L F K Q V P Y T V A K F V V E K V A E A V			
UniRef90_B4KBA6	R I V K N D G S S G L Y R G L P M M C R D V L P Y G I Y M L V Y R H A S R Y M			
UniRef90_UP10003992A94	K T W K S E G F F A L Y K G F W P N W L R L G P W N I I F F I T Y E Q L K R			
UniRef90_K3WM17	Q V W R Q E G L A G F S A G L V P R A V K V A P A C A I M I S T Y E A A K			
UniRef90_K5VYJ7	R L A R E E G L R G L Y A G F L P I L C K Q I P Y A I G Q F T V N E F C H E L A			
UniRef90_G8ZZ16	T I V K T E G V G A L L F G Y K A T L A R D L P F S A L Q F A F Y E K F R Q W A			
UniRef90_S9W8F7	T L Y S K G G A R A L W K G T L P R C V K V A P S C A I M I S T Y H A T K K Y F			
UniRef90_UP10004411BF6	A I W Q E G I V P G F Y R G F A V S A L G T V P Y R G G I F L V W E R T R L D A			
UniRef90_I1G8F3	T I W K E E G A R G L Y G G M A A H Q L R V V P N S A I F F A Y E			
UniRef90_C9JPE1	E L I R D E G V T S L Y K G F N A V M I R A F P A N A A C F L G F E V A M K F L			
UniRef90_R7VE67	E I F R V E G V R G L Y R G L P G I W V K E V P G S F I Y F G S Y E A A K R S V			
UniRef90_A5D7S5	K I G Q K H G L V G L W R G A L G G L P R V I V G S S T Q L C T F S S T K D L M			
UniRef90_M7WKB4	L L R N E G P L A L Y K G F A M S F W R L W P H S I V S L I V F E Q A R K			
UniRef90_I0YRZ3	Q T E G L R G L F R G L G P T I L T N A P F S A F Y Y L F Y T S L Q E G M			
UniRef90_UP10004623AA9	K T I A Q D G V R A L W R G L G P A M A R A F P A N A A T F L G V E A T K K			
UniRef90_M4DFU7	E I L E K D G I L G L Y A G Y S A T L L R N L P A G V L S Y S S F E Y L K A A V			
UniRef90_A0A010R827	T M V K E H G F A E V Y R G L A S T T L K Q S A T S A V R M G S Y N V L R E Q S			
UniRef90_I1CM53	L V A K E E G I A A L Y G G M T A H L L R V V P N A A I M F F C Y E			

lupas_21
lupas_14
lupas_28

jnet

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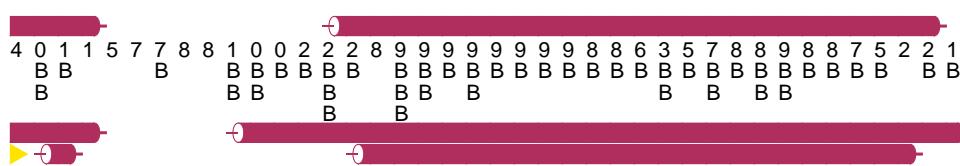
sol25

sol5

solo

jhmm

jpssm



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 UniRef90_UP10003992A94
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 V Q W H N I P V H E R M V A G G L A G L I I A Q S A T Y P L D I V R R R M Q V
 M E E D F F E R F P S Y K N V I V A A V S S I A V C F P L D V A K R R I G M S G
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 M S R R D L H P V A V L T C G G V A G A T G W S V I P A D V V K S Y M Q V G N
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 E N S E F V R K H R K A S N A I N N L L I T T F A G A W A G V L S W V C V I P

F R N M S E E T R R N L G S G I I A G F A A A I I L S Q P A D T L L S
 F A I E G K D I G A D I Y T G A S A G G L A G I I T T P L D V I K T R V Q T Q Q
 A T F D A H R G R I H L V V G A L A G A S A Q I V T Y P L E V I R R V Q Q A

N W
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Q Q H G T S K T V T N L A S G A V A A V C A T L L T Q P T D M L R T H M Q

L E K T Q Q N N L E P L Q S V C C A G A I S A S I T T P L D V V K T R L M T Q V
 K Q H G L P N N S V T F G S G S V A G V V T V Y A T Q P F D T I K T R

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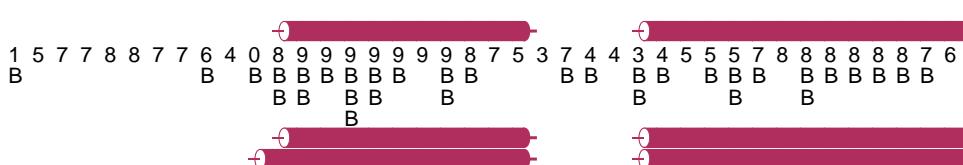


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 G A P G Q S T T S R L I E M S K Q L | G V K G L F T G M G A R L V M G T
 N A S V G S L V K K L G F S G L | W G G L | G P R I I M G T
 T P G R Y R G V L H A L W T | Y K E E G F Q G W Y K G L Q M N W I K G P
 Q G K S G I M H R G V R D C L G H V Y R H E G V R G M Y A G A C L E T A R C V
 D P E R A L K M T T R T T L E I W R D G G L R G L F T G V V P R V G R A G
 S K S A G Q I L K E L G P K G V W N G L | G T R I I M G T
 L R R A A P C P Y N G F A D A A R A I Y T A D G Y R G F F R G A T M R A L A Q A
 A P G E A F G S A M R R I Y K D I G F S G L W N G L P V R I V M G T

250 260 270 280
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 P S S A D V S S A K S L F G S L R T V Y T S E G F F G F F S G V G P R F V W S I
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 A V S E T G G F L R T S I H I L R N E G I R P L C C G L K A S A A R A L
 D A Q G K G L M Y R G L L D A L L Q T A R T E G I F A
 L G L G R G R A P V V K R T M
 H V E A A N K M Y D G V A G T V K Q I L K E E G L V G F T R G M G P R V V H S A
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