

40

QUERY	G D T F I R H A L L G F E K R F V P S Q H Y V Y M F L V K W Q D L S E K V Y Y	
UniRef90_UPI0003D07A48	G D T Y I R H I E L L G F E K R F F P S Q H Y V Y M F L V K W Q D L T E K L V Y Y	
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UniRef90_W4YV77	V V N A N V T D I E K R R E P T K H Y V Y I I H V T W S D G S V I N V V Y Y	
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UniRef90_I1FRW7	V L E A K V V D I Q K R R Y P S K H Y V Y V I E V V W S E G T Q T L I Y Y	
UniRef90_G5CAJ8	V Y I I N V T W S D S T S Q T I Y Y	
UniRef90_UP100029DA3C5	M F L V K W Q D L S E K V V Y Y	
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UniRef90_UP10003C2AC08	D G R I K V S V F T Y Q K R Y N P D K H Y I Y V V R V L R E G Q A E P F V F	
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UniRef90_W9YCA9	UniRef90_T1GPX7	D G K I K M L F V C H Y Q K I F N P I K G Y T F V V K V D R E G Q H E T F V L
UniRef90_UP1000440B479	UniRef90_UP10003F093DB	D G K L K S V T V H S F Q K R Y D M E K M Y Y T I L K V G R H G N T D S Y L L F
UniRef90_UP10004435D43	UniRef90_UP10001560AA7	D G L I R S L F I C N H I R T Y S P N K G Y A Y V V R V E R E G Q Q G S L V Q
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UniRef90_H9KK61	UniRef90_13MZQ4	R S Q I F I F S V L W S D G S D N F I I Y
UniRef90_H3AQY9	UniRef90_B3M4C4	V R A A A L L Q T E R F Q R F T F S V H W S D D S D T F V C C
UniRef90_A0A024JLU3	UniRef90_E9CH35	A S V D S Y A F E S G R Y W Y L V R C Q M E D G R I W H L C
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UniRef90_H2S0Y7	UniRef90_UP10002038C50	V R A V A L V Q V Q R L Q T F A F S V R W S D G S N T F V R Y
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UniRef90_S2JWE0	UniRef90_A2A241	D G R L K I V K V V C F Q K H Y S M E K F Y M Y I I E V T R H G Q P V T H L C
UniRef90_B4UN82	UniRef90_Q1LUW2	H V I A A S V D S Y A F N N E R Y W Y L V V A K L S N G K H R N L C
UniRef90_R0JKY6	UniRef90_P29366	E P R V F S V K V A S V E K V W N P D K Y Y V Y V M K V S L M M N G N E Y T L L T
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UniRef90_UP1000333ECF9	UniRef90_M7BN65	D G R L T H V E V A G Y R K R Y D P D K Y Y V Y V L R V Y R E D Q K Q P M I Q
UniRef90_B8MWG6	UniRef90_H0WB54	I V E V K V L D V Q K R R V P N K H Y V Y I I R V T W S S G A T E A L Y
UniRef90_UP100046225C1	UniRef90_UP100042ADEE1	L G G R H Q I F I L S V L W S D G S D S L I Y
UniRef90_G8BXR9	UniRef90_UP100045DA91E	V S A H I A D M E E R R G F S F Y Y T F V I E V K T K G G S K Y F I Y
UniRef90_UP10001CE2A7F	UniRef90_UP100044392AD	V T Y T S I D S Y I L E G D Q Y W F V V V Y A R V N Q N C H R I I L Y
UniRef90_UP10003955F27	UniRef90_UP1000443BA79	V S A T I A D T E E K K G F I H Y L F V I E V K T K G G R Y L I F
UniRef90_B6JYX1	UniRef90_UP10003BB824B	G R I R D V F L C R H E K V F H P N K T Y I Y V V K V M R E N S H E T Y I Q
UniRef90_UP100044183BF	UniRef90_I3J203	F P V G I R L T G V L H E K K S K M Y L T S V L W S D Q N E I V V Y Y
UniRef90_UP10002A4A5E1	UniRef90_UP10002A4A5E1	Y P V D V K A V G F M Q C R K Q K N Y M M F V S W S D Q N N I L I Y Y
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		V E S F V H A K T Q Y W Y L L R A V M D N G Q H R N L C
		G R L I S D V F L C R Q E K V F H P N K T Y I Y V V K V M R E N S H E T Y I Q
		D G I L S A S V V S F H Y E M D E Y W F R V H A V F Q P Y K Q L V L F
		Y P I S H L V G V L Q K E K T K F Y K T S V L W S D E S N V V I Y Y
		K L I S A R V I I G G V R R D T P K L K T F M V S G I W S D G S E I I I Y





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QUERY	P D D [L] K [L] P T D N Q T K K P E T Y [L] M
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UniRef90_L8Y5F8	P E D V N P P K E D
UniRef90_U317M8	P D D L T P P K E E P [L] G K K K S
UniRef90_UPI000440EB56	P D D I N P P V E D Y G S K R K S [V] W M
UniRef90_H2RMQ4	P E D E N P P S P N I L K R N E T F V V
UniRef90_UPI0004573691	P D D L N P P K E E C A I K K K T
UniRef90_UPI00044432F0	P E D L N P P T E D
UniRef90_R7UDF6	Q E D I N P P Q R D P P K K K
UniRef90_W4YVV7	P E D V S P P S P D
UniRef90_UPI0003EBC473	P E D E N P P A P N T [L] K R A E T F L V
UniRef90_I1FRW7	P D D I N P
UniRef90_G5CAJ8	P E D V N P P K D S R R K
UniRef90_UPI00029DA3C5	P D D L K [L] P T D N Q L K M P A P V L
UniRef90_R7VPL9	P D D M N P V T D S Q I K K P E V F L L
UniRef90_F7DSL3	V E D F N P P K E E P [L] G R K K
UniRef90_C3YCT4	P E D L A P P P P D P K K P N K T Y [L]
UniRef90_F7FDG1	P D D L K [L] P T D S Q T K K P E T Y [L] M
UniRef90_H3C9R1	P E Y L L F L P F P D Y G S K R K S [V] W M
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UniRef90_UPI0003C450C9	P R D E K A A G T N P A P K P
UniRef90_Q4T9W9	A R D D K T E G [L] G S P P K P E
UniRef90_C7Z6U5	E G D Y E [L] E A G S Q A S Q P S S
UniRef90_I3IV77	S E D L N P P T E D
UniRef90_G2QZM6	Q G D Y E [L] E P
UniRef90_T1JFN5	K D E [L]
UniRef90_UPI0003C2AC08	L R D D K A E G
UniRef90_B5DE87	L R D D K S E G S D A I [V] A P
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UniRef90_UPI0003C14075	P R D D K S G A S N T [L] Q K P E T V W
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UniRef90_UPI0004573671	P K D D K S G N T S S [L] P K
UniRef90_W9YCA9	P G D Y E [L] D P N
UniRef90_T1GPX7	Y R D Q Q E A N N [I] H L L K V K
UniRef90_UPI000440B479	P R D E R P
UniRef90_UPI0003F093DB	S S D I D T P
UniRef90_UPI0004435D43	P G D L E P P Q H S M [V] I I P S S W
UniRef90_UPI0001560AA7	P S D L D P P P G S [L] V I L P
UniRef90_G1X5C9	Q G D L D V
UniRef90_U9UPD2	S D D V E T D N P R Q
UniRef90_H9KK61	L R D Q Q
UniRef90_I3MZQ4	P L D L E P P P G S [L] V I L P
UniRef90_H3AOY9	E F D S Q F P K A L R R L R P Q T
UniRef90_B3M4C4	L R D Q E A K [L] E M P K I K E V
UniRef90_A0A024JLU3	E G D I E T D G P
UniRef90_E9CH35	
UniRef90_Q6BNH5	D N G F D K E S D N Q K E R R S S
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UniRef90_Q60FB6	E S D S Q
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UniRef90_S7RXI9	P G D V E T D [L] E P Q V I E Q
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UniRef90_S2JWE0	E G D I E L D Y D P R V G N V E G N L
UniRef90_A2A241	E Q D S Q Q P K G [L] R R L R P P T
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UniRef90_H0ZKB7	T F D
UniRef90_C5DIH3	N N G F D K E F T
UniRef90_K7FMK7	E F D L E
UniRef90_H3DKX9	A Q D L E P E K N S [V] M I M P S
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UniRef90_F7ESU9	N N D L N P K F P E
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UniRef90_UPI000333EFC9	A R D L E [L] P P N S [V] V I L P
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UniRef90_B8MWG6	P R D E A P R D G E T K
UniRef90_H0WB54	N Q D L E L P P S S M [V] I L P
UniRef90_UPI00046225C1	P G D G E V N V E A R R S E [L] E S
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UniRef90_UPI00045DA91E	K Q I E E S S L F N P D K K P K V Q L V
UniRef90_UPI0001CE2A7F	P L Q Q T E E S S L P D K K P K V Q L V
UniRef90_UPI00044392AD	E N E L K P E K N S I I I M P S
UniRef90_UPI0003955F27	T Q D L D P P E N S A V I M P S [V] F
UniRef90_UPI000443BA79	P I Q Q T V E E E S P D K K P Q V Q L V
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UniRef90_UPI00044183BF	P G D V E T D [L] E P R V
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1 10 20 30 40

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

50            60            70            80

This figure displays a sequence alignment of UniRef90 entries, focusing on positions 50, 60, 70, and 80. The alignment is color-coded by residue type, with black for hydrophobic, red for polar, blue for acidic, green for basic, and purple for aromatic residues. Several regions are highlighted with yellow boxes, indicating specific motifs or domains. The UniRef90 entries listed on the left include: C5P625, B2VU02, UPI0003F05A1F, UPI0004411443, UPI0003C16C0B, UPI00022B5445, W2SGB1, W9YSL7, L8G4S2, UPI0003945A9B, UPI0002742A20, R8BKA4, M2MVF7, UPI0001D62116, F1A339, F0XKF9, E9BZ56, UPI000333D670, UPI0003831C27, N1J5W4, S4ANF2, V4AMK9, UPI00044488D, UPI000359B532, UPI000444A934, A6QX78, K4DFB0, U3JX21, B0CQ54, K1QYI8, M5FQI2, W4KQF2, G0SUY8, V8PCT3, K9I058, S9VUF7, S8ELT5, W7I5J3, W5N8P0, UPI00044159EF, F2U7W9, G7E0Y8, R7U5N4, UPI00044076F5, S2KBS0, L1ID41, Q4SKM9, W1NTP2, Q013E0, A8NI51, M2R343, W4Z9Z2, V9KEG7, J3Q3Y2, C5YWH6, R7U5B1, UPI0004548A71, K7J3W7, L5LQF0, UPI00018744A0, J9MSS6, F1NRQ0, E2AIY1, M5FXU3, V5GLG2, H3AHX5, UPI00042BA884, D8QPZ9, K3ZH22, Q5TGL8, I2JZJ0, G1T2N7, H2M4E6, V2XAG0, T1FUR4, Q8TEQ0, G4YVG2, W2SGG9, T1JPN4, K0KHW3, A1L2X2, F2UK06, W5J599, G3IK67, K5WZD5, Q9Y2I1, G7E1X3, H2TEA4, UPI000455EF1A, U3F7D1, F1QM84, UPI000440D091.

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UniRef90\_UPI0004411443  
UniRef90\_UPI0003C16C0B  
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UniRef90\_M2MVF7  
UniRef90\_UPI0001D62116  
UniRef90\_F1A339  
UniRef90\_F0XKF9  
UniRef90\_E9BZ56  
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UniRef90\_I3JX21  
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UniRef90\_W4KQF2  
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90 100 110 120

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

L I D S T E P **L** D S D T S K N S  
 P V Q Q P T E V S S L V E K P M V Q L V  
 S K D **V** T **L** G P Q S T D H K P G V Q L V

P F D S

A G D T Q

P R D E **I** A A G T N P A P K P A S

S P E H **L** K A **V** D S Q G K K P S

P R H

M N D E D P

E Q P R D **L** R P M P T **I** S R P R

P G I Y D P D K P S **V** I A P E  
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P F I A A V P D A P P **L** K T P

P K N Q S D P S E D E D E K  
 E G D **V** E **L** E G D P

D D P P G P F D S

P **L** D Q **V** L K N D S **V** H K I Q P S F  
 D E P P A **L** S D T **V** E

P K Y T P T S S **I** I S Q P S T D **L** M  
 L G D K E T P E E E **V** P

P G E T R **L** P

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

S P D S R P S **L** N N

P F D **I** T P P G E P **V** N S R P K

S R D E E M H A D A H R N Q C E V Y **L**

I G D **L** E S D P S N P **I** E A V E T **L** L

P S Y S E S M E E S R **V** I  
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 D L T S M S V P S F H Q E N G V Y W F R L Q V T F V P D D L T A L Y  
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 K H N V Y I V T S S L R E T S V T  
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 Y V V Y N I N V Q T L D G G G P M T I R  
 V Y I I Q V T D G N H E W T I K  
 V F C D V E R N D R K H W S V Y Y  
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 I P P I E I L E A N K N H E G T S R I T Y T I R V G D V S V R K  
 D Q F D L T V S V T D P E K I G D G M N A Y V Y K V T T Q T S R S K Q F S V K  
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50                60                70                80

The alignment shows a series of UniRef90 protein sequences. Specific residues at positions 50, 60, 70, and 80 are highlighted with yellow boxes. Position 50 is consistently Histidine (H). Position 60 shows variation, with some entries having Cysteine (C) or Tyrosine (Y). Position 70 is mostly Alanine (A), with some Asparagine (N) and Glutamine (Q). Position 80 is mostly Threonine (T), with some Alanine (A) and Isoleucine (I). The alignment spans from approximately residue 40 to 90 of each protein.



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 UniRef90\_W5NGD1  
 UniRef90\_A9T181  
 UniRef90\_V9KB01  
 UniRef90\_E6RDL7  
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 P E H L K V  
  
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 E D S L E  
 D G E V P T  
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 N F N L K  
 D G  
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 P T D L T T  
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 S E E S Q  
  
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 D  
 G Q D V  
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 A S W S E V L N S P P V S T L P R Y

1 10 20 30 40

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50                    60                    70                    80

This figure displays a multiple sequence alignment of UniProt proteins. The sequences are grouped by their UniRef ID. The alignment highlights conservation and divergence across four specific positions: 50, 60, 70, and 80. A color key indicates the type of amino acid substitution: black for identical residues, blue for conservative substitutions, and red for non-conservative substitutions. Yellow boxes are placed over the sequence at position 50 to draw attention to specific mutations or conserved features. The UniRef IDs listed on the left correspond to the sequences shown in the alignment.

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

50            60            70            80

UniRef90_A7S7T4	R R Y S E F T W L R K K L A E E F P N A S I P P L P G K R V L G R F
UniRef90_W5LKA0	R R Y K H F D W L Y A R L V E K F P V I S V P H I P E K Q A T G R F E
UniRef90_T0R6P6	R R Y R D F C D L Q S Q L S S D L S M V L P S L P P K T W L P S
UniRef90_W1PYJ7	R R Y R D F L T L Y R R L K D I F A D Q G W S L P S C W S S I D K S S T L F G S
UniRef90_A0A059CYC8	R R Y S E F V F L W D R L V R R Y P F R I L S Q L P P K R I G P
UniRef90_UP10004407E91	R R Y T E F E Q I H D Y L Q V T Y S H V V I P P L P E K R V L Y A W R K S D T
UniRef90_W0T3B9	R R Y S E F E E L H W E L L H M G F S A L P K L P K K K L M A Y
UniRef90_S4P4X2	R R Y R D F E W L H D Q L E R N H P T L I L P P L P G K Q I T R Y F D H
UniRef90_K6URB1	R S Y K Q F R T L H S R L L K T Y P K S K L P K D L P A M R S K R
UniRef90_I1FJZ7	R R F K D V V A L S D R L L E S Y R G F F P M R P D K N V V E S Q M M
UniRef90_G4ZQJ9	R R Y S M F F D F M V K L Q E L Y S S E T N S S F A S D S Q L P E L P E Q V I S
UniRef90_UP10002B42EF8	R R Y K H V R A F S S Q K I Q T E V P G L S S F E F P S K K L L G N
UniRef90_UP100021A4FFE	R R Y S D F A A M S D M L I N C Y P Y R M V P R L P P K K M L
UniRef90_W4YIP2	R R Y S E F H A L H K R I K K R Y K V P D F P S K R L P N
UniRef90_G3H532	R R Y S D F Q W L R G R L S T L F P G I V L F P L P E K T V T T S P F Q
UniRef90_Q01DC4	R R F Q D F V F L R E H L S R D F P A C V V P P L P D K H R M E Y L T G D R F
UniRef90_L8WSZ3	R R F Q D F M V L S D S L K K Y F P K E V V P K L P S K T L F
UniRef90_UP10002658065	R R Y S E F K S L R D N L V R L F P T V I V P P I P E K H T L T Y L V N S I D
UniRef90_C4Y2X9	R R F S D F V W L H A S L L C S L F P G V I V P P L P E K L L V G R F
UniRef90_T0R9Q2	H R F K D F I A L R S A L T A L V G P N S L P Q C W A D V S K A R S V T G R H R
UniRef90_I0ZA76	R R Y S D F V W L Y D T L C A N N P G V I V P P I P E K N S L G R F Q
UniRef90_G4TVL7	R R Y S D F V W L H R Q L C R K H P F E L V P G I P G K Q V F F N
UniRef90_A0A024GG17	R R Y S E F Y A L H K R I K R N C Q V P D F P P K R V P N W M V
UniRef90_UP10004418CB6	R R Y S D F V W L Q R E L Q R Q F P F E L V P C M P G K Q F
UniRef90_H3H0E0	R R F S D F Y F L Y Q V L L G D F P A C A I P P L P D K Q R L E Y I K G D R
UniRef90_K0KD92	R S F S D F L T F H R D F T L T Y P Q L D L P V F P K M T K Y
UniRef90_A0E5F9	R R Y S D F V W L Q E V L L K R Y P F R L I P E L P P K K I G S Q N
UniRef90_J7RAQ2	R R F S D F V F L R D E L P E C V K L G P L F P E K T L L K Q F N P K R
UniRef90_T0RD83	R C L S D F H N L H H S L K E Y S S W L R K Q S L P K L P M F R M R
UniRef90_F6RB18	R R Y N D F V F H A L L L Q K F P Y R M V P A L P P K R M L G A
UniRef90_UP10003BBD18D	R R Y K H F N W L H N R L G E T P F N V S I P P P M P E K V L Q A N F K
UniRef90_E9C630	R R Y K H F D W L Y G R L A E K F P V I S V P H L P E K Q A T G R F E
UniRef90_H0YW45	R R Y K H F D W L H D R L N E K F N L I A I P P L P D K Q V S G R
UniRef90_U4TZK6	R R F S E F I S L K N L L K E L Q P S L T P P R L P P K T L L K R F
UniRef90_A0A023G700	R R Y S E F V D L H N N L K K E F I G F N P K L P G K W P F
UniRef90_E9GAT1	K A A P D L T E F L S K L P Q L F P D E D F E K L I P Q L P G L D S A
UniRef90_W5M715	R R Y R E F C A I D I L L R E K Y P S R A P M F P F L P S K K Y I
UniRef90_G4YM1	R R Y S E F K S L R D N L Q I L F P T L V I P P I P E K H T L F T Y L I N S I D
UniRef90_Q6BZE1	R R Y R E F Y A L Y Q Q L K L L F A E K G F S L P P A W R N V E K E S S K L F N
UniRef90_B9EXG5	R R Y N E F V Q L Y D I L Y V K Y P Y R A V C S L I P P K R V V V G G
UniRef90_L7X3V4	R R Y S D F D L L N N S L M V C G I G L L L P P K K L I G N
UniRef90_H2RZK6	R R Y Q Q F K E L N D R I L H P M G V R V P L L P P K K L L G S F E P
UniRef90_M4B2Z9	R R Y S E F H E L M K T R I Q A V S A T D V S T H F Q T F G I I E S F P K K K L F
UniRef90_T0S2Y5	R R Y S E F H E L M K T R I T D C Y P W L R K N F P I L S K K W T K
UniRef90_B3RYK8	R T L N E F Q E L H H T L T D C Y P W L R K N F P I L S K K W T K
UniRef90_UP100035A023E	A R Y K Q M R L F H D E L K K E F G A L A P E F P K K K L L A
UniRef90_U6HHR4	R R Y R E F R I L L Q K A L Q S K Y N L L Q D Q I A T L P G K K F F
UniRef90_Q7K490	R R Y R D F A N L H E K L V G E I S I S K K L L P P K K L V G N K Q P
UniRef90_T0QP17	R R Y N A F R H L H R E L R E L F P H E Q M P P L P P T R I L W A K L D P I Y L S
UniRef90_A0A024WAC4	K R Y S E F E E L N C E L L H L G F S A L P N L P K K K L L M S Y
UniRef90_UP1000441E693	K T H Q E L Q E F L L K I P K D L S S E A F D K T I L A A L N Q
UniRef90_Q23DQ7	R R F N D F H W L Y N V L K R H P G S F I P P I P K K T A I K E M
UniRef90_UP10002658BC6	R R Y R E F S N L H A N L K R E F P D F A Y P K L P G K W P F A
UniRef90_G7YM34	R R Y K H F D W L H A R L V S K F P C I C I P S L P D K V I T G R
UniRef90_L7LS10	R R Y S T F H A L H K K V K R M L G S Q A P S G F P P K R L S G F P P K R L R G
UniRef90_E2AV40	R R Y S D F D Y D L H Q K I K E K Y Y D L A K I P F P A K K A F H N
UniRef90_Q4V8Z4	R R F S D F L G L Y E K M S A K N S L M G C P P A P Q K S V V G M T K V K V G K
UniRef90_K5WD98	R R Y S E F V D L H T E L T K S T G A S P P A E L P P K H A L S V F R S R
UniRef90_UP100032B03D1	R R Y S D F E R L H R N L Q R Q F R A M A A I S F P R K R L R R N
UniRef90_A0A022T4X9	R R Y S A F N A L H R R L K K I N D T I S F P P K R V R N
UniRef90_A0E4H6	R R F K D F V A L R N L L A Q Q W P G C Y V P S L P G K K L F
UniRef90_B7QIE8	R R Y H E F Y A L E S K I L L E F H G E L P V S P L P P R R S P S R Q Q Q P P C
UniRef90_J3PNM0	R R Y S H F G L L F I G L N S M Y G E V I D L P T L P E K T F N
UniRef90_F0ZPQ0	R R Y N N F F L L L D K K L K L N G I I D K K D I G L T L P P K K L K V
UniRef90_W5P5E7	R R Y N D F V V F H E A L L H K F P Y R M V P A L P P K R M L G G G P G L R
UniRef90_W4HEA7	G R Y N D F N A L H Q E L K A A A S G Q K G P R F P K R H P F S S L I G K N
UniRef90_J4UKD6	R R F Q D F V F L L R D H L A K S F P A C V I P P I P D K H R L G E L L P R C S V
UniRef90_W1P5W0	R R Y R D F Y T L L Y R Q L K S S F S G H G L S L P S P W L T V E Q S R K I F
UniRef90_H9JGG7	H R Y N D F V E L H D K L V S D H G V G K E L L P P K K V I R N K T P
UniRef90_UP1000462CEB1	K S S A E V T E F I S K L N Q L Y P E E N L E K F I P C L T G P D S F
UniRef90_Q1KKW6	R R Y S E F S W L K K Q L Q K N A G L V P V P D L P A K S L F Y F
UniRef90_UP100032AC3A5	R R F N D F L N L F S Q L K K E F P M K N L P L P P P K K I L R I
UniRef90_A9UR15	R R Y S E F L L A F Q R E I R K Q F P V N D R L E F P A K T F G S V S P
UniRef90_E2AJW8	R R F S D F L G L H D K L T E K Y L R N G I P P A P E K S V I G T T K I K M N S
UniRef90_E7F4M5	R R Y Q D F L W L K G R L E E A H P T L I V H P L P E K F V M K G M V E R
UniRef90_UP10003EA9019	K R H N E F H A L H K K I I L H T P D F P G K R G S N F P K L P G K W P F
UniRef90_X2JH1	R R Y R E F A N L H S L R K E F S G N F P K L P G K W P F
UniRef90_K3WJT7	R R Y S E F R D L R L K I E G A V R E D H C A I M A K R S S F V Q F P H R K W F
UniRef90_I3IV85	R R Y S D F D V L N N S L M V C G I T L P L P P K K L I G N
UniRef90_W5N7E2	R R Y S E F V W L K K K L Q K N A G L V P V P E L P V K T P F T L
UniRef90_D8M9E8	R R Y S D F E F L F N R L T R T F P G R V I P P I P E K R N R
UniRef90_UP100032AC492	R R F K D I V T L S D R L S E A Y R G F F I P P R P D K S I V E S Q V M
UniRef90_A9SD38	R R F R N F E Q L H R R L K D M P Y Y N L T L P P K R F L S S S L
UniRef90_UP10003F059F0	R R Y S E F E L L K N Y L L V T Y P A I V V P P L P E K R G V I H W Q Q L T T N
UniRef90_V4BAI9	R Y R Q L H Q F E Q H E Q M K K F E G V Q N L P Q F P P K K L S L S P L Q
UniRef90_D8LQF4	K R F S E F V A L H A T L S G R G A R G G E G D R I P E D R L P K P P M R T F G
UniRef90_B9N177	R R F S D F L N L F Y E L K K A F P L K T L P P A P P K T I L R M
UniRef90_L1IVY0	K R Y S D F V L L D D V L R S K F W Y M Q V P K L P Q K K F F
UniRef90_M4D4C2	R R F N D F L K L T D K L K R E F P R K S F P S A P P K G L L R M
UniRef90_W4FW45	R R F R D F S L L R D Q L A Q E L H A T D L P S L P P K T W P T
UniRef90_U5H893	K R Y S A F V R L R A D L V R E Y P H F R G W V P R L P P K L A K

90                          100                          110                          120

UniRef90_A7S7T4 UniRef90_W5LKA0 UniRef90_T0R6P6 UniRef90_W1PYJ7 UniRef90_A0A059CYC8 UniRef90_UP10004407E91 UniRef90_W0T3B9 UniRef90_S4P4X2 UniRef90_K6URB1 UniRef90_I1FJZ7 UniRef90_G4ZQJ9 UniRef90_UP10002B42EF8 UniRef90_UP100021A4FFE  UniRef90_F4Q633 UniRef90_W4YIP2 UniRef90_G3H532 UniRef90_Q01DC4 UniRef90_L8WSZ3 UniRef90_UP10002658065 UniRef90_C4Y2X9 UniRef90_T0R9Q2 UniRef90_I0ZA76 UniRef90_G4TVL7 UniRef90_A0A024GG17 UniRef90_UP10004418CB6  UniRef90_H3H0E0 UniRef90_K0KD92 UniRef90_A0E5F9 UniRef90_J7RAQ2 UniRef90_T0RD83 UniRef90_F6RB18 UniRef90_UP10003BBD18D UniRef90_E9C630 UniRef90_H0YW45 UniRef90_U4TZK6 UniRef90_A0A023G700  UniRef90_E9GAT1 UniRef90_W5M715 UniRef90_G4YM1 UniRef90_Q6BZE1 UniRef90_B9EXG5 UniRef90_L7X3V4 UniRef90_H2RZK6 UniRef90_M4B2Z9 UniRef90_T0S2Y5 UniRef90_B3RYK8 UniRef90_UP100035A023E UniRef90_U6HH4 UniRef90_Q7K490  UniRef90_T0QP17 UniRef90_A0A024WAC4 UniRef90_UP1000441E693 UniRef90_Q23DQ7 UniRef90_UP10002658BC6 UniRef90_G7YM34 UniRef90_L7LS10 UniRef90_E2AV40 UniRef90_Q4V8Z4 UniRef90_K5WD98 UniRef90_UP100032B03D1 UniRef90_A0A022T4X9 UniRef90_A04E4H6 UniRef90_B7QIE8 UniRef90_J3PNM0 UniRef90_F0ZPQ0 UniRef90_W5P5E7 UniRef90_W4HEA7 UniRef90_J4UKD6 UniRef90_W1P5W0 UniRef90_H9JGG7 UniRef90_UP1000462CEB1 UniRef90_Q1KKW6 UniRef90_UP100032AC3A5 UniRef90_A9UR15 UniRef90_E2AJW8 UniRef90_E7F4M5 UniRef90_UP10003EA9019 UniRef90_X2JH1 UniRef90_K3WJT7 UniRef90_I3IV85 UniRef90_W5N7E2 UniRef90_D8M9E8 UniRef90_UP100032AC492 UniRef90_A9SD38 UniRef90_UP10003F059F0 UniRef90_V4BAI9 UniRef90_D8LQF4 UniRef90_B9N177 UniRef90_L1IVY0 UniRef90_M4D4C2 UniRef90_W4FW45 UniRef90_U5H893	<p style="text-align: right;">D T E F I K N R Q Q G L E H W L R S L L S</p> <p><span style="color: red;">V D E A F V L E R Q L A L E S F I L R Q L P M P G V M E S P R F L S F L L</span></p> <p>A S P D V V A E R S V I I Q E C L H S I L H S R Y F F G C H K A J V T W F L L S P L</p> <p>D E S F I E Q R R R G L Q R F L N F V V N H P I I K E D G L L A V F L L</p> <p>A D P L F L A K R R K G L S R F I N L V M K H P I L K K D D L V L T F L L T V</p> <p>T D P E F I E R R R A G L E N F L L R V A S H P R L C L F D D Q F I N F L L Q Q E</p> <p>K N A E Y I N Y R K K V L N S Y I H N L F I R A D V R C C A L F L N F</p> <p>M S E T F L E E R Q R C L D Q F L W R L A T H P F F S Y D N A L K M F L T A D</p> <p>Y D N E Y I E E K R N E L L T A Y L A Q L M Q I P E V K A S N V L R D F L E A S</p> <p>Q K Q E F V E Q R R V A L E K Y L R K L A L H P V I R K S E E L R M F L E A K</p> <p>H P D E M E N L E Q Y</p> <p>M N P S F I K Q R K E Q L Q A F F N A I S E S P G N R E F I E Q R R K A L V R F L T L V V R H P T F H G S E V I R F F</p> <p>W R T R G L E Q R R Q G L E T Y I L Q F H P E Q C S Q L H H R P V I G F C M</p> <p>S D F L E H R R R R G L L E T F M R K V V E H P V L A T C E D V V M F L E E Q</p> <p>G P E F V E K R R R L D L H R F L E R L A R H P T L Q R S T L V R A F F E P H</p> <p>N N E E F V S K R S K G L Q L F L N V L L E S E L L R N D R H V A V F L Q</p> <p>N T R E V I E V K R Y F R N R F L R D L F D S D P L L K N C P L V H K F V D P S S</p> <p>S P E F I E A R R R A L H L F L R R C A V H P E I Q H S E Y L T V F L E A S A</p> <p>L A P E V V A A R Q A M L D R C L V S V V A A G P P L S E A P P L L A F L A P A</p> <p>D A F I V Q A R R L A L N K C I Q K T A N H P G L C H D K D L Q L F L E</p> <p>K E N E F V G E R M K L Q A F L R N V L R H P V L A L V E E V R S F L L S T</p> <p>K V L Q Q R R A G L E A Y I Q G V I L Q N Q T P K E L L R F L K L W</p> <p>F N K E F V G E R M R L L E A F V R G V L R Q P L L A V T E E V R A F L L S T</p> <p>F G S E F T S K R A A S L N R F F L E R I S L H P L L K R S K I Y H I F L E S H</p> <p>L T Q Q D I D N R R I Q L D S F L L K G L V N S F G N E E L L L D F L</p> <p>L D P I F L L Q R R R K G L V T F I N L I V N H P V L A K D D L L L T F L T V</p> <p>V S E K F L L E S K S T L N T Y I H N I L K D E I L R C Q I V V Y S F L S P G</p> <p>D R E F I E A R R R A L K R F I N L V A R H P P F S E D E V L R L F L L C F S</p> <p>F D E H F I E K R R R R G L E R F L L N R V A A H P V L G T S N V F L H F L T A A</p> <p>Y E E M F I E H R R A Q L Q E F I N Y M C R H P V L A Q C D A F Q H F L T C P</p> <p>D D K F I L E E R R S G L E T F L R N V L T E P L Y L S N K S L H L</p> <p>D R E F I I E K R R R R G L E R F L L N R V A A H P V L G T S N V F L H F L T A A</p> <p>N T R S L A L S R L E E L S N S W L H C L L N Y D R V D Q S D E V R K F L L T S K</p> <p>S I A Q T T L D R I K G L E N Y I Q L V S Q D P Q M G N S S V F N T F L L T A</p> <p>L S A V E I E Q R R R V M L E R Y I Q L V S Q D P Q M G N S S V F N T F L L T A</p> <p>N N P A F V Q Q R S L Q L E E Y I N R L L S</p> <p>S F L E Q R R E Q L E Q E L L</p> <p>A K C N D L N A Y I T S I E S I C T T T A A A S L L Q A F L E</p> <p>K N N E Y I S Y R K R I L N S Y I Q N L F R P D I R C C A I F L N F L</p> <p>G L Q K Q K E E R R H S D F E P M I R Q L F N T S P A F L Q N Q R V V N N F F Q L S</p> <p>N N D E H L Y Q R M R S F E Q F L N Q N L I L C P T L S V S P Y L S D F L L S I I</p> <p>L S D Q Q L D S R R R R G L L E Q Y I E K V C A V R V I A E H D I V Q D F L L S I I</p> <p>Y E D D F L E E R R K Q L L Q Q W L D R M C R H P V V S Q C S V F K H F L S</p> <p>L N P K L L E E Q R R A A L L E R Y L Q D L V R I S A L S S Q L L S F F L E V</p> <p>M D R E F I A E R Q R G L Q A Y I L D S V T Q H P L L S C S L P V K K F L D P N</p> <p>D F I A K R Q S E L L S N S W L H C L L N Y D R V D Q S D E V R K F L L T S K</p> <p>N T R S L A L S R L E E L S N S W L H C L L N Y D R V D Q S D E V R K F L L T S K</p> <p>S I A Q T T L D R I K G L E N Y I Q L V S Q D P Q M G N S S V F N T F L L T A</p> <p>L S A V E I E Q R R R V M L E R Y I Q L V S Q D P Q M G N S S V F N T F L L T A</p> <p>N N P A F V Q Q R S L Q L E E Y I N R L L S</p> <p>S F L E Q R R E Q L E Q E L L</p> <p>C D D D F I E H R R R A L E R Y I L Q V Y L L S</p> <p>A S N Q V A K A R Q E P L E S Y L V Y L L S</p> <p>G C G R P A K R L K R F I N L V A R H P P F S E D A V L K L F L S F S</p> <p>Q E E K F I T K R E K E L N R Y M T Q V L T Q M P D A L L N 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 A W E L  
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 D  
 N F A L E V  
 D G D L  
 S S D  
 S D I E L P K  
 A W E L  
 T D

**H** F Q Q D **P** K G D P  
 D E

M G  
 E Q F Q K G G F D Q N V K M

S R  
 E W H V D

E W H V Q H V A H P P V P E P S P G L V

D D S S N P A P  
 E E T M E

S E D L R I A L P D R V K K N S T  
 D E H  
 D E

E D E F N Q M K N V K T K

S D  
**P**

M Q D E K E F K S L Q T A S E K V Q  
 T D

L L S S N **P** P R Q S R

D  
 D

D E N Y N G V T D

L Y D I F F L L Q D L A K K

T E G L

N E

Q G

**H** Q

S D A N M **P** P P

**P** L D Q V L K N D N V H K I Q P S F  
 N S Q P S S F S P

E D

140

1                    10                    20                    30                    40

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 UniRef90\_Q17CA9  
 UniRef90\_I1BXD4  
 UniRef90\_B6QPE8  
 UniRef90\_U4LR62  
 UniRef90\_K3X0D7  
 UniRef90\_W5KR76  
 UniRef90\_M1W430  
 UniRef90\_H9IUG0  
 UniRef90\_H2MC59

50                  60                  70                  80

90 100 110 120

UniRef90_W4WCL0	Y S K E F I T A R M K M L L H   F   L N R I V N H P   I L S C D K N L H F   L T T K			
UniRef90_K5X9X2	F T S S L R E K N R L T L R S Y L R T L M S S S V I L T S P V F K S F L L S S			
UniRef90_F4R6W4	E G F I A T T R R V A L E I F L Q K T A N H P M L V S D P D L K L F L E S D			
UniRef90_F4NS43	F D E A H V N E R R R R G L Q O Y L D Q I S R H P I F R S E D I V M Q F L			
UniRef90_H2ZEV2	Y E D D F I E G R R V Q L Q T W L C R I A L H P V I S R S D V F V A H F V T S K			
UniRef90_V8PFN4	V G E S D I R E R R R A A F N E I M G L I S K D V A L S S S P E L L E F F L G T R			
UniRef90_H2AXB3	L D S T V T K Q R K I E L A R F L Y D I L L S F D T K W R N S E S V K S F L S L			
UniRef90_TORUI9	R T N K L L V R Q R V R D L Q S F I Q V L I G			
UniRef90_J9HZW3	K N Q E L I E E R A H L L N L F I K Q V V R C P Y L F R S E E L Y L F I R P H			
UniRef90_11GIS2	Y G E D F I V E K R R E K L Q M W T N R I A R H P V I S R S D V F V H F L A			
UniRef90_C5DLL6	C D P D V I E E R V R E L L T T F L Q D D L L S F D T R W R K A R S L C Q F L R I			
UniRef90_G8B9M7	M S N N W L E R K K G L Q W F L L S S V L L D P V L Q K G P I V K S F			
UniRef90_E6R3M0	E D A T I I A R R K R L L E D F L K R L I R H P I L G G E H V L H F L E			
UniRef90_Q28E52	F T P E T I A K R S R A F E Q F L C H V A S L P A L R A S S A F L N F F Y L R			
UniRef90_A8Q7A0	A K E T F I K Q R M L A Q Q E F L D A I C L H A L Y A C P A V A N F L E			
UniRef90_B7FX83	Q D E D F A K I R M E E L S D F L Q E L A R P G Y A S H A A V V A F L E			
UniRef90_UP100026586E1	E F I E H R M Q Q L Q L W V N R M C H P V L S Q S A V W H H F L			
UniRef90_Q4P3M6	E L V E A R R V G L E T C I N K I A N H P L L Q Q D D D F R L F L E S E			
UniRef90_W4FHU1	N P D F I L K R E K E L S S W L N Q V C E S S A A Q S D A L K N F L			
UniRef90_E1C116	D E T V I E E R R Q C A E D L Q F S A N I P A L Y N S K Q L E E F F K			
UniRef90_UP10004411E72	S D T A L S E K N R L T L R S Y L H T L L A S P T L A S S P V L K S F L L S S			
UniRef90_UP1000333EEAC	S S D E F I E K R R Q G L Q H F L E K V L Q S V V L L S D S Q L H L F L Q			
UniRef90_A6QZ17	D D S V I E E R R R V G L E Y F L N C V L L N P E F S G S P L K E V L			
UniRef90_Q4RR16	V G E S D I R E R R A V F C S E D L Q F S A N I P A L Y N S Q H I Q E F F K			
UniRef90_I3L8F2	E D A N L I A R R R R M L Q V F L N R I A R H P L S N D H V F H R F L E			
UniRef90_L8WZW9	Q G D E V I E E Q R Q F A L L E R F M Q R I A A H P I I L R S D D D V F K T F L T T			
UniRef90_A9UXR8	D D A V I E E R R K G L E R F L K I V V G H P L L Q T G S R V L G G F			
UniRef90_M2LUX2	D F V E S R R A A L L E R M L N K S A A H P I L Q H D S D L K L F L E			
UniRef90_Q0V6L7	G S Q K R E E K R H S D L E S A I R			
UniRef90_H2ZVE0	V G E S D I R E R R A V F H E I L R C V S Q D A E L A A S P E L L E F L G T S			
UniRef90_UP10003EBD753	N D R A L L E K A K A Q V R Y L S F I L E D D H L N Q S E A V Y E F L S P S			
UniRef90_Q7Q4R5	Q K Q D F V E Q R R A E L V E K Y L R R L S R H P V L R K S D E L R L F L T A Q			
UniRef90_S8CWW2	G T D F T A R R A H S F Q R F V R L S L H P I L R R A P I L H S F L E			
UniRef90_M1W2T5	K N F V E S R R A A L E R M L N K I A A H P V L Q H D A D L K I F L E			
UniRef90_C4JKS1	K N A E T I A K R S R A F E Q Y L T H L H S L P D L R T T P T F L E F F Y L			
UniRef90_Q08BL4	P E F M E R R R R L D H R F L E R I A R H P I L Q R S T L L R A F F E S T			
UniRef90_Q1WMR5	D R T N Q F N I Y Q S V V T L			
UniRef90_Q23BR6	M S K D V I E E R M K M L S I Y K F V C			
UniRef90_I6TUM8	K Q Q D Q L Q Q K R S D L L Q K Y L K S L V V R P D I L Q N E I F Q E F L E			
UniRef90_Q23QC6	F S K S K E S G R V E E L D T Y L K L			
UniRef90_L1JET7	C S P K F L V K R C V E L N D Y F V Q L L Q L P H L R L T R F L D P R			
UniRef90_M4BLP7	E D E F I E E R R R Q G L E A F I N K I A G H P L A Q N E R C L H M F L Q E			
UniRef90_C3XUQ0	D D P R L L Y H R R K R K L L E R F L R A V D T R P E L Q W S A A F R A F L R P D			
UniRef90_M4BKJ2	S D D V I E H R E R G Q L Q R F L Q I V A G H P P L L Q T G S K V L A S F			
UniRef90_Q5B3T2	D D D F I E D R R K G L E Q F I N R V A G H P			
UniRef90_K1PR03	Q C L D L V E K R R R Y L E I Y L Q L L V P G N V F Y V A K T A L Y D F L H			
UniRef90_G0UCE3	T K P E N M E K R A Q E F R L Y Q Q V L I A L P			
UniRef90_V9F7J5	D D D F I E R M R M E G L Q Q A W M T R M C R H P I V S Q S E V F Q L F L T H R			
UniRef90_I3KSL3	M A T D F I E Q R R R A L L Q V F L N R V A S H P I L L K D S R E L Q T F L Q A N			
UniRef90_D8UV1	S D F I E T R R R A D L E M W M S R L V R H P V L R Y S E T L R F F L S C			
UniRef90_R9NZ99	N N E D F I E K R R R G L Q V F L D K V V H T T V C L S D S Q L H L F L Q T Q			
UniRef90_M3ZP18	S D N F I I N R R A K L L N R Y I T R C A L H P V L H Q S P H F I A F L E			
UniRef90_O14243	L R T K P L E E Q R R Q E L L E D Y I Q V I L Y Q N E E V P Q E L L D F L L Q V K			
UniRef90_W5L4V1	H Q E M W L K E R M S A L E A Y L K A I V M H E D A W R E S E A A F K Q F I E W			
UniRef90_Q9P8J4	F A Q E S I D E R R V A F R D Y L A R I Y A L R C V R H S P A F L A F F			
UniRef90_W5MKG1	N N D K I I D K R K R K F N S F L N N C N D I P E I R N H V V F Q K F L			
UniRef90_G0VJ89	Y E E D F I Q E R M R M L Q Q W I D R M V R H P V I A H S D V M L H F L			
UniRef90_V4BYZ5	T Q E M I S E R K L A F K E Y L S L L Y A I R C V R R S R E F I D F L			
UniRef90_L5KVB8	S T L G T T E R M R I I G L N Y Y I N H I L K Q D E L L N S P E V E A F L Y S D			
UniRef90_S9R9N3	M R P D F I A E R L N A L Q E Y I N Q V L M N P			
UniRef90_Q7PQ07	R H K K V V E H R C D A F E Y L M G L H R L L I S Q N Y L V R			
UniRef90_V9FJA2	L Q E S D L E E R R V Q L E K Y I Q L V S Q D P R L S T S D T F N T F L S			
UniRef90_H2YYP5	E D F I E K R K R K R L I L W M D H M T S H P V L S Q Y E G F Q H F L S			
UniRef90_UP10003C89846	F S T E F T M T K R A N S E R F L Q R L L S M H P V L Q K S L H L S H F F E S Q			
UniRef90_M7NWQ1	N S M S V S S T R Q D H V Q S L T D S L L S D D D I V S K S A I V Y T F F H S V			
UniRef90_G4VAN8	S S R M L L E E R R Q Q A L E E E W M G K L L S D I D L S R S A P A A G F L E			
UniRef90_M0S5B3	D A G F V E S R R A A L E R M L N K T C A H P I L Q H D D L K L F L E			
UniRef90_R7YN91	Q D V N F L N Q R K V Q L E K Y I N S V F L N Q R K V Q L E K Y I N S V F L			
UniRef90_E5SHN2	F N D D V I E E R R R Q G L L N K W M K T V A G H P L L Q S G S Q V L V R F			
UniRef90_G0W5D7	F S N S F T Q K R C H S L Q N F L R R I S K H P M L S Q S N M L E F F L I S			
UniRef90_G8C144	K D H A P A K Q R K R M L Q A Y I L Q S V M K L P I K D K N E I I V F F S			
UniRef90_UP10004407642	Y E D D F I Q E R M R Q L Q G W V N R M V R H P V I C R S E V F H H F L T C T			
UniRef90_UP1000359C3C4	M D P D F V E V R R R I G L E N F L L R V A S H S V L S G D K I F Y L F L T Q			
UniRef90_UP1000273A57A	I D D A F V Q K A R V T L D E Y L E A V L K D E K V I P S E A L Y A F L S P T			
UniRef90_UP100035A226D	F A Q E F I E E R R C T G L E S F I N K I A G H P L A Q N Q K C L H M F L Q E			
UniRef90_A9VDP6	A D D D			
UniRef90_S7ZA01	Y R S A F L D A R R R K L Q T W L A T V L M H P D I G G C P T V R E W			
UniRef90_X8JC60	S Q P K V L E E Q R R A G L E R Y L Q T V F K			
UniRef90_J9K480	D R E C I E G C R R A L K R F I S F L L N N C N K I D E I R N L S V F Q K F L N P			
UniRef90_G1SXQ2	Q N D K I I E K R K R K R F I S F L L N N C N K I D E I R N L S V F Q K F L N P			
UniRef90_G0W7K4	T D E V I E E S R R R E G L E R Y L Q V V A G H P L L Q T G S K V M A A F L Q			
UniRef90_B6JXS1	S D E F I S R R A S L L N R Y I L Q R C S S H P V L H S S P H F I A F L S			
UniRef90_Q17CA9	D E N F I E E R R K R K G L E Q F F V N K I A G H P L A Q N E R C L H M F L Q E			
UniRef90_I1BXD4	D D L P M I E E K R K R K R M L Q T F F L N R V A K H P E L G K D H V F H Q F L E T W			
UniRef90_B6QPE8	S N E K L R E E R R Q G L E K Y I R Q A I N A D Q R W R N T S V W R S F L			
UniRef90_U4LR62	S D Q V I L E E R R Q K G L L Q R F F L Q I V V G H P L L Q T G S K V L A S F			
UniRef90_K3X0D7	Y K M R M P N D R A Q A L T Q Y L M R R V V T L A N R G L F S L D V M D F L E			
UniRef90_W5KR76	L S E Q Q L D A R R R K R G L T E E Y Y L E R V C S V R V I G E S D I M Q E F F L S E S			
UniRef90_M1W430	T R E E S L R G E I R E Y Y L R D A C W Y Q S L A E S E G M K R F L E			
UniRef90_H9IUG0	N D K N S L L D K A K T L I Q Q K Y L E F V L E D D R R I N Q S E A L Y T F F L N P S			
UniRef90_H2MC59	M D P D F V E R R R I G L E N F L L H V A S H P G L S N D K I L S H F L			

UniRef90\_W4WCLO  
 UniRef90\_K5X9X2  
 UniRef90\_F4R6W4  
 UniRef90\_F4NS43  
 UniRef90\_H2ZEV2  
 UniRef90\_V8PFN4  
 UniRef90\_H2AXB3  
 UniRef90\_T0RUI9  
 UniRef90\_J9HZW3  
 UniRef90\_I1GIS2  
 UniRef90\_C5DLL6  
 UniRef90\_G8B9M7  
 UniRef90\_E6R3M0  
 UniRef90\_Q28E52  
 UniRef90\_A8Q7A0  
 UniRef90\_B7FX83  
 UniRef90\_UP100026586E1  
 UniRef90\_Q4P3M6  
 UniRef90\_W4FHU1  
 UniRef90\_E1C116  
 UniRef90\_UP10004411E72  
 UniRef90\_UP1000333EEAC  
 UniRef90\_A6QZI7  
 UniRef90\_Q4RR16  
 UniRef90\_I3L8F2  
 UniRef90\_L8WZW9  
 UniRef90\_A9UXR8  
 UniRef90\_M2LUX2  
 UniRef90\_Q0V6L7  
 UniRef90\_H2ZVE0  
 UniRef90\_UP10003EBD753  
 UniRef90\_Q7Q4R5  
 UniRef90\_S8CWW2  
 UniRef90\_M1W2T5  
 UniRef90\_C4JKS1  
 UniRef90\_Q08BL4  
 UniRef90\_Q1WMR5  
 UniRef90\_Q23BR6  
 UniRef90\_I6TUM8  
 UniRef90\_Q23QC6  
 UniRef90\_L1JET7  
 UniRef90\_M4BLP7  
 UniRef90\_C3XUQ0  
 UniRef90\_M4BKJ2  
 UniRef90\_Q5B3T2  
 UniRef90\_K1PR03  
 UniRef90\_G0UCE3  
 UniRef90\_V9F7J5  
 UniRef90\_I3KSL3  
 UniRef90\_D8UV1  
 UniRef90\_R9NZ99  
 UniRef90\_M3ZP18  
 UniRef90\_O14243  
 UniRef90\_W5L4V1  
 UniRef90\_Q9P8J4  
 UniRef90\_W5MKG1  
 UniRef90\_G0VJ89  
 UniRef90\_V4BYZ5  
 UniRef90\_L5KVB8  
 UniRef90\_S9R9N3  
 UniRef90\_Q7PQ07  
 UniRef90\_V9FJA2  
 UniRef90\_H2YYP5  
 UniRef90\_UP10003C89846  
 UniRef90\_M7NWQ1  
 UniRef90\_G4VAN8  
 UniRef90\_M0S5B3  
 UniRef90\_R7YN91  
 UniRef90\_E5SHN2  
 UniRef90\_G0W5D7  
 UniRef90\_G8C144  
 UniRef90\_UP10004407642  
 UniRef90\_UP1000359C3C4  
 UniRef90\_UP1000273A57A  
 UniRef90\_UP100035A226D  
 UniRef90\_A9VDP6  
 UniRef90\_S7ZA01  
 UniRef90\_X8JC60  
 UniRef90\_J9K480  
 UniRef90\_G1SXQ2  
 UniRef90\_G0W7K4  
 UniRef90\_UP100045605C0  
 UniRef90\_B6JXS1  
 UniRef90\_Q17CA9  
 UniRef90\_I1BXD4  
 UniRef90\_B6QPE8  
 UniRef90\_U4LR62  
 UniRef90\_K3X0D7  
 UniRef90\_W5KR76  
 UniRef90\_M1W430  
 UniRef90\_H9IUG0  
 UniRef90\_H2MC59

**P**  
 P  S  T A E E E E D A K K R E  
 S F S  L E

**E D**  
 S

**P D D**

**D**

**N F G A D  K A R D M  K G P**

**P T R  T R D E E E D T R Q R E**

**S**

**E T K  A K P K A S**

**P G A S D P S S**  
 S D R  K T G N P S P S K K

**E**

**P**  
 L  D  T M A T S S P  P  V  P

**D E K E W K T G K R K A E K D E T**  
 D E  
 D D E A E

**P T S  K M  T A N P  V S R S S**

**P**

**D**  
 L  F D E

**S D**

**D D**

**P E F  Y Q H T N S E K K**  
**P H**

**P**  
 S D  L H S P P  S T  P K N P  L Q M

**D E N Y N G  T D**

**S E Y  K Q E D M P K K N K**

The figure displays a sequence alignment of UniRef90 entries, showing the conservation of amino acids across a set of 40 positions. The UniRef90 entries listed on the left are:

- UniRef90\_F7FBP4
- UniRef90\_F2TPJ8
- UniRef90\_T0RWE7
- UniRef90\_C5FLE9
- UniRef90\_J9JWG1
- UniRef90\_G9MJ00
- UniRef90\_A0EHE5
- UniRef90\_V9KC96
- UniRef90\_Q6FRG7
- UniRef90\_U6DQ02
- UniRef90\_G8YRV1
- UniRef90UPI0004560441
- UniRef90\_T0RIR0
- UniRef90\_Q4DW43
- UniRef90\_O94291
- UniRef90UPI0003344E12
- UniRef90\_H6C3N7
- UniRef90\_H2Z4U5
- UniRef90\_A0A023FYM8
- UniRef90\_V5HUE2
- UniRef90\_K1WIV3
- UniRef90\_H3H256
- UniRef90\_R7YP00
- UniRef90\_H2ZNJ0
- UniRef90\_I7MDS2
- UniRef90\_W8BK78
- UniRef90\_C5GX97
- UniRef90\_M4C264
- UniRef90\_E6ZS54
- UniRef90\_F4WPD9
- UniRef90\_F4PER0
- UniRef90\_D6REG6
- UniRef90\_A0A017SPV3
- UniRef90UPI0002038650
- UniRef90\_A0C1B7
- UniRef90\_F7AKT1
- UniRef90UPI000441F1B9
- UniRef90UPI0002A4C732
- UniRef90\_H3GE33
- UniRef90\_A0EIC0
- UniRef90\_M2N6R1
- UniRef90\_M0RQG6
- UniRef90\_W4Z7V2
- UniRef90\_W4FRW8
- UniRef90\_A0A024UH26
- UniRef90\_I1FSL0
- UniRef90\_E1ZGD5
- UniRef90\_W8AX53
- UniRef90\_Q6GNJ0
- UniRef90\_M5E852
- UniRef90\_A2RV07
- UniRef90\_G1NMN5
- UniRef90\_G3AZX2
- UniRef90UPI0003C28F48
- UniRef90\_B9EPH1
- UniRef90UPI000161C1DF
- UniRef90\_A0A024GJS2
- UniRef90\_SOYQ13

The alignment shows the following features:

- Conservation:** Yellow boxes highlight conserved residues across the UniRef90 entries.
- Position Labels:** Position numbers 1, 10, 20, and 30 are indicated at the top of the grid.
- Color Coding:** Amino acids are color-coded: black for hydrophobic, blue for polar, red for acidic, green for basic, and purple for aromatic.

lupas\_21  
lupas\_14  
lupas\_28  
jnet  
conf  
sol25  
sol5  
sol0  
jhmm  
inssm

lupas\_21  
lupas\_14

lupas

jnet

cont  
sol25

sol25  
sol5

sol0

jhmm

	90	100	110	120
UniRef90_F7FBP4	F T E E M I S E R K L A F K E Y L	S L L Y S I □ K C V R R S R E F I □ D F L		
UniRef90_F2TPJ8	H Q P D L R Q S L E R Y L	Q H A L L R F E R L A G C E A M K R F L L E		
UniRef90_T0RWE7	M D A T F V E E R R Q A L E H F I	I N E V C N H E K L S K T F E V Q I M L T A N		
UniRef90_C5FLE9	N A K F L E E R R K G L E E Y I	Q A I N S S D P R W R N S T A W R T F L L N □ P		
UniRef90_J9JWG1	Y S K E F V T C R M A L L E R F L	S R L V C H P □ L T E D K H L R V F L T A		
UniRef90_G9MJ00	G N D F T S R R G H S L Q R F L	N R L □ S □ H P V L R R S T L L H S F L E		
UniRef90_A0EHE5	T E Q E I I E R K K G L E E Y I	K Q I I Q N E Q I L N S I L F K E F		
UniRef90_V9KCG6	H V S Q T R E D R W H D L E S T I	R Q L V L S P S Q F L K S E H V R E F F F L G K		
UniRef90_Q6FRG7	Y D E S T K L D R L Q M F N T Y L	T Y L I D V I Y D I K S P L H L Q D T F T N W		
UniRef90_U6DQ02	T E E M I S E R K L A F K E Y L	T T L L Y A I R C V R R S R E F I D F L		
UniRef90_G8YRV1	M S P Q W L E E R R K G L Q W F M T N I L	L N P K L L S S S P V I T R F		
UniRef90UPI0004560441	E L V E A R R R G L E T C I N K I A S H P V	L Q Q D D D L R L F L E		
UniRef90_T0RIR0	R S H E L A L S R L D A L R S Y L	K L L I		
UniRef90_Q4DW43	K N A A T A A V R L Q K L E M Y L	N E M L A A A P	F W S P R	
UniRef90_O94291	R D D V I E E R R Q G L E F R L	V A G H P L I Q T H S R V L S S F L Q		
UniRef90_UP10003344E12	G R F E V I E E R R K G A E D L L	R F T V D I P A L N N S P Q L K E F F R		
UniRef90_H6C3N7	T S A S L L H D L E T Y I L	R F C L G F E P L A E T E A M K K F L		
UniRef90_H2Z4U5	V S G E D D L E N R K E Q L L N	L Y L K S M L R S R M Y R G H T A T F L N F F S		
UniRef90_A0A023FYM8	Y Q D D F I E H R M A K Q L Q W V	N R I C Q H P V M S Q S S V W M H F L T C R		
UniRef90_V5HUE2	D S E D F V E E R R R A A L E R F L	Q R T A C H P S L R V D P D F R E F L E L E		
UniRef90_K1WIV3	Q D Q Q I I D L R K R M L A V F L	N R C R C M D E V R V N D G V W W R F L D P N		
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UniRef90_I7MDS2	Q E Q Q Q L L D Q R Q I D L E N Y L N	L Y L Q N E I L R H D K V L T F L E E K		
UniRef90_W8BK78	N D R N A L E K A K G Q I L Q K F L	N F I L E D D H L N G S E A I Y S F L S P S		
UniRef90_C5GX97	V N T N S R E K R R E G Q L E T Y L	R A I N E A D P Q W R N S S A W R A F L		
UniRef90_M4C264	G S S D F V D K R Q R N L G Y Y I	M S L V Q		
UniRef90_E6ZS54	E L V E A R R R G L E T C I N K I A N H P L	L Q Q D D D F R L F L E		
UniRef90_F4WPD9	Y E D A F I E H R R T Q L Q E F V	D Y V C R H P V L S R S R V W Q H F		
UniRef90_F4PER0	Y N P L V V S H R L R V F N E L L	T F V T L H P V Y S K T P A V I K F L D P		
UniRef90_D6REG6	K G A H D I E T R T L N E V E K L L	E T V I S M P		
UniRef90_A0A017SPV3	E D T A I I D L R K R M L G V F L	N R C R M K E I R E D G V W W R F L D P W		
UniRef90UPI0002038650	G R E S V I E E R R Q C A E D L L	Q F S A N I P A L Y N S K Q L E D F F K		
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UniRef90_H3GE33	K N D A F L Q S R M R G L Q R F L	L N G I M Q S P Y L R C D A V V S F L G E		
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UniRef90_M2N6R1	D P Q F V E E S R R M A L E R M L	N K I A A H P V L Q H D D L K T F L L E S E		
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UniRef90_I1FSL0	N E E N F I Q R R R A N L E R F L	N R L A I H P V I R K D E D F K M F L E N		
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UniRef90_Q6GNJ0	V G E A D I I E R R R A A F N D I	V K A I A K D R Q L A A C P Q L L D F L G S N		
UniRef90_M5E852	P E E F I I Q R R S M E L L Q F L E R V	C R H P T L Q R A K I V Q Q F L E S S		
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 sol5  
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 jhmm  
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lupas\_14  
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jnet  
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sol25  
sol5  
solo  
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jpssm

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