

QUERY	1	10	20	30	40																																													
UniRef90_Q8R9A4	F	P	T	W	L	A	P	V	Q	V	V	L	P	I	S	E	K	H	H	E	Y	A	R	K	G	E	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D			
UniRef90_R6YPS8	F	P	L	W	L	S	P	V	Q	V	V	L	P	I	S	S	D	K	H	H	E	Y	A	R	K	G	E	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_Q189B8	F	P	V	W	L	S	P	T	Q	V	V	L	P	I	S	S	D	K	H	H	E	Y	A	R	K	G	E	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_B4S3D2	F	P	L	W	L	A	P	V	Q	V	V	L	P	I	S	T	D	R	A	A	E	Y	A	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D						
UniRef90_F4XEN7	F	P	A	W	L	A	P	V	Q	V	V	L	P	I	V	T	D	R	A	A	E	Y	A	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D						
UniRef90_V2Y7X3	F	P	A	W	L	A	P	V	Q	V	V	L	P	I	V	T	D	R	A	A	E	Y	A	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D						
UniRef90_UPI0004714197	F	P	T	W	L	A	P	V	Q	V	V	L	P	I	T	T	D	R	A	A	E	Y	A	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D						
UniRef90_G8MSB3	F	P	A	W	L	A	P	T	Q	V	V	L	P	I	T	T	D	R	A	A	E	Y	A	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D						
UniRef90_R5AHT5	F	P	T	W	L	A	P	V	Q	V	V	L	P	I	T	T	D	R	A	A	E	Y	A	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D						
UniRef90_R5DCK4	F	P	T	W	L	A	P	V	Q	V	V	L	P	I	S	D	K	F	H	A	D	Y	A	R	K	G	E	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_W0EYX8	F	P	V	W	L	A	P	V	Q	V	V	L	P	I	S	S	D	K	F	H	A	D	Y	A	R	K	G	E	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_T0IHQ4	F	P	L	W	L	A	P	V	Q	V	V	L	P	I	S	S	E	R	H	A	D	Y	A	R	K	G	E	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_F6CQH2	F	P	T	W	L	A	P	V	Q	V	V	L	P	I	S	A	D	R	F	H	A	D	Y	A	R	K	G	E	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_R7PEV3	F	P	L	W	L	T	P	D	Q	V	V	L	P	I	S	A	D	R	F	H	A	D	Y	A	R	K	G	E	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_R7NMY5	F	P	L	W	L	A	P	V	Q	V	V	L	P	I	S	A	D	R	F	H	A	D	Y	A	R	K	G	E	V	Q	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_R7F9P3	L	L	P	L	W	L	A	P	T	Q	V	V	L	P	I	A	D	A	Q	V	E	Y	A	K	K	E	I	K	E	Y	L	K	K	A	G	G	F	R	V	V	E	L	L	D	D					
UniRef90_R7IY13	L	L	P	P	K	L	A	P	T	Q	V	V	L	P	I	A	M	Q	K	K	E	D	K	A	V	E	L	K	K	E	Y	L	K	K	A	G	G	F	R	V	V	E	L	L	D	D				
UniRef90_E2ZC97	F	P	V	W	L	A	P	T	Q	V	V	L	P	I	T	T	E	R	H	A	D	Y	A	R	E	L	V	K	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D			
UniRef90_A4J4Y7	F	P	V	W	L	A	P	V	Q	V	V	L	P	I	T	T	E	R	H	A	D	Y	A	R	E	L	V	K	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D			
UniRef90_U2UJK4	F	P	T	W	L	A	P	V	Q	V	V	L	P	I	T	T	E	R	H	A	D	Y	A	R	E	L	V	K	R	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D			
UniRef90_UPI00047DE079	L	L	P	L	W	L	S	P	V	Q	V	V	L	P	I	V	N	E	P	A	E	A	V	E	R	V	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D						
UniRef90_Q67PA6	L	L	P	P	R	L	A	P	I	Q	V	V	L	P	I	V	G	D	K	V	M	A	R	F	D	P	L	F	D	A	L	L	K	A	G	G	F	R	V	V	E	L	L	D	D					
UniRef90_Q67LA3	F	P	L	W	M	A	P	V	Q	V	V	L	P	I	S	D	D	R	Y	H	A	D	Y	A	G	E	V	V	A	K	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_N9XYL3	L	L	P	T	W	L	A	P	V	Q	V	V	L	P	I	S	D	D	R	Y	H	A	D	Y	A	G	E	V	V	A	K	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_U9VSV1	F	P	L	W	L	A	P	V	Q	V	V	L	P	I	V	S	S	D	A	Q	R	N	D	Y	A	H	Q	L	S	Q	T	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_F8FM54	F	P	L	W	L	A	P	V	Q	V	V	L	P	I	V	S	S	D	A	Q	R	N	D	Y	A	H	Q	L	S	Q	T	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_R6YJS3	F	P	T	W	L	A	P	E	Q	V	V	L	P	I	V	S	S	E	K	Y	A	E	Y	A	D	S	V	Q	K	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D			
UniRef90_I3Y987	F	P	L	W	L	A	P	V	Q	V	V	L	P	I	T	T	D	R	Q	A	E	Y	A	V	K	E	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D						
UniRef90_H2FW05	F	P	T	W	L	A	P	T	Q	V	V	L	P	I	V	K	P	E	F	S	E	D	R	S	A	R	K	N	V	E	S	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_U1B9K3	F	P	F	W	L	A	P	V	Q	V	V	L	P	I	V	K	P	E	F	S	E	D	R	S	A	R	K	N	V	E	S	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_K4KFK1	F	P	L	W	L	S	P	E	Q	V	V	L	P	I	T	D	N	Q	A	E	Y	A	E	Y	Q	K	S	V	E	E	S	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_V7PWT9	F	P	V	W	L	S	P	V	Q	V	V	L	P	I	S	E	H	Q	K	E	Y	A	E	Y	Q	K	S	V	E	E	S	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_R5PH44	F	P	L	W	L	T	P	V	Q	V	V	L	P	I	S	E	K	Y	N	D	Y	A	A	K	K	V	Y	C	R	Y	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_W9UUF7	L	L	P	T	W	L	S	P	V	Q	V	V	L	P	I	T	D	K	Q	A	E	Y	A	C	K	K	V	H	E	T	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_I1YF43	F	P	V	W	L	A	P	Q	V	V	V	L	P	I	M	G	V	S	K	E	Y	N	E	H	A	F	K	I	V	A	G	E	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D
UniRef90_B8D611	P	T	W	M	S	P	V	Q	V	V	L	P	I	V	V	S	K	E	Y	N	E	H	A	F	K	I	V	A	G	E	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_UPI00036CEBFB	L	L	P	T	W	L	A	P	Q	V	V	L	P	I	N	I	T	D	K	Q	A	D	Y	A	C	R	E	V	E	E	K	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_Q8GE33	F	P	A	W	L	A	P	V	Q	V	V	L	P	I	N	I	T	D	R	E	V	H	A	Y	A	Q	K	V	L	A	H	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_B3EEC1	F	P	L	W	L	A	P	V	Q	V	V	L	P	I	N	I	T	A	E	V	H	D	Y	A	A	K	T	I	H	T	A	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_R5SGE0	F	P	T	W	L	A	P	E	Q	V	V	L	P	I	N	I	S	E	K	Y	A	D	Y	A	E	K	V	L	A	E	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_F7KV17	F	P	T	W	L	A	P	V	Q	V	V	L	P	I	N	I	S	E	K	Y	A	D	Y	A	E	K	V	L	A	E	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_E0NL03	F	P	L	W	L	A	P	V	Q	V	V	L	P	I	N	I	S	E	K	Y	A	D	Y	A	E	K	V	L	A	E	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_W1U0Q2	F	P	V	W	L	A	P	V	Q	V	V	L	P	I	N	I	S	E	K	Y	A	D	Y	A	E	K	V	L	A	E	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_J0LE36	F	P	L	W	L	S	P	E	Q	V	V	L	P	I	N	I	S	E	K	Y	A	D	Y	A	E	K	V	L	A	E	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_UPI00035CDAC0	F	P	L	W	L	S	P	E	Q	V	V	L	P	I	N	I	S	E	K	Y	A	D	Y	A	E	K	V	L	A	E	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D		
UniRef90_F5RLN2	F	P	V	W	M	A	P	V	Q	V	V	L	P	I	N	I	T	T	E	R	H	A	D	Y	A	E	E	L	R	G	Q	M	F	D	L	G	I	R	V	V	E	L	L	D	D					
UniRef90_M4YUL2	F	P	V	W	L	A	P	V	Q	V	V	L	P	I	S	V	S	E	K	Y	R	D	Y	A	A	A	Y	C	R	D	E	L	L	S	E	E	H	D	G	G	F	R	V	V	E	L	L	D	D	
UniRef90_C0E9S5	L	L	P	L	W	L	A	P	E	Q	V	V	L	P	I	S	G	E																																

QUERY UniRef90_Q8R9A4 UniRef90_R6YPS8 UniRef90_Q189B8 UniRef90_B4S3D2 UniRef90_F4XEN7 UniRef90_V2Y7X3 UniRef90_UPI0004714197 UniRef90_G8MSB3 UniRef90_R5AHT5 UniRef90_R5DCK4 UniRef90_W0EYX8 UniRef90_T0IHQ4 UniRef90_F6CQH2 UniRef90_R7PEV3 UniRef90_R7NMY5 UniRef90_R7F9P3 UniRef90_R7IY13 UniRef90_E2ZC97 UniRef90_A4J4Y7 UniRef90_U2UJK4 UniRef90_UPI00047DE079 UniRef90_Q67PA6 UniRef90_Q67LA3 UniRef90_N9XYL3 UniRef90_U9VSV1 UniRef90_F8FM54 UniRef90_R6YJS3 UniRef90_I3Y987 UniRef90_H2FW05 UniRef90_D1B9K3 UniRef90_K4KFK1 UniRef90_V7PWT9 UniRef90_R5PH44 UniRef90_W9UUF7 UniRef90_I1YF43 UniRef90_B8D611 UniRef90_UPI00036CEBFB UniRef90_Q8GE33 UniRef90_B3EEC1 UniRef90_R5SGE0 UniRef90_F7KV17 UniRef90_E0NL03 UniRef90_W1U0Q2 UniRef90_J0LE36 UniRef90_UPI00035CDAC0 UniRef90_F5RLN2 UniRef90_M4YUL2 UniRef90_C0E9S5 UniRef90_N2AQE4 UniRef90_UPI0004640707 UniRef90_R5LFN8 UniRef90_G5IHZ9 UniRef90_C4LFH3 UniRef90_K2DFM5 UniRef90_E6RIN3 UniRef90_R7FUP1 UniRef90_D1W4H8 UniRef90_G4D4C6 UniRef90_D3SG47 UniRef90_Q5KWD2 UniRef90_UPI0003098B90 UniRef90_U5Q7T3 UniRef90_N0B312 UniRef90_W2C852 UniRef90_P46244 UniRef90_R5PF04 UniRef90_R6ZU09 UniRef90_G7V991 UniRef90_I3ECM0 UniRef90_C1DF42 UniRef90_D8DUN8 UniRef90_M4U3L9 UniRef90_Q3M248 UniRef90_UPI0003479B02 UniRef90_I3IMI7 UniRef90_C3X6Z9 UniRef90_UPI0002F7C9E6 UniRef90_R7GNR3 UniRef90_G2FCP4 UniRef90_D7GPT6 UniRef90_GRDYK UPI00036C7282 UniRef90_UPI00030BAF33 UniRef90_I014D6 UniRef90_E7G8P4 UniRef90_K2JN78 UniRef90_H1HTW7 UniRef90_Q8EPF3 UniRef90_W4LTM6 UniRef90_UPI000364189A UniRef90_Q9CED2 UniRef90_K9TAH5

50 60 70 80

L R N E K I G F Y K I R E E H T L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
D R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
L R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
D R A E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
T R S E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
H R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
S R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
L R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
L R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
L R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
S R A E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
E R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
D R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
A R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
D R S E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
D R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
D T D K S P G F Y K F A E Q E M R G I P Y R I E I G G P K D I E A G K C V I C P R R D
E S N E K I G F Y K F A E Q E M R G I P Y R I E I G G P K D I E A G K C V I C P R R D
A R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
D R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
L R N E K I G F Y K I R E E A Q L L Q Q R R V P Y M L V C G D D E E V E E G G K V A V V R R T S R R K R
L R E E T P G W K F N E W E M R G V P L R I E I G G P R D V D N K Q C L M V P R R D
Y R A E K I G F Y K I R E E A R L L E K K V P F I L V V V G G D D E E V E E G G K V A V V R R T S R R K R
F R A E K I G F Y K I R E E A R L L E K K V P Y I L V V V G G Q E K E A E A G S V A V V R R R S R R K R
T S G E R L G G K Q I R T A E R L E K K V P V I S V I V V G G Q E K E V D S Q T T L S G I V R R T S R R K R
A R S E K I G F Y K I R E E A R L L E K K V P Y M F I L V V G G Q E K E V D S Q T T L S G I V R R T S R R K R
N R S E K I G F Y K I R E E A R L L E K K V P Y M F I L V V G G Q E K E V D S Q T T L S G I V R R T S R R K R
L R N E K I G F Y K I R E E H T L Q R R V P Y L I V V V G G D D E E V E E G G K V A V V R R T S R R K R
L R N E K I G F Y K I R E E H T L Q R R V P Y F M L V C G D D E E V E E G G K V A V V R R T S R R K R
L V R D E K I G G K K I R E E A R L L E K K V P Y M I V I V G G G A K E A E T D A G G V A V V R R T S R R K R
L R N E K I G F Y K I R E E H T L Q R R V P Y L L V A G G D K E E A E T G T V T V R D R T S R R K R
D S N E K I G G K R I R D N A K M K R V P Y M L V V V G G D K E E K Q A D G N T V I V R E T T S R R K R
S R N E K I G F Y K I R E E H T L Q R R V P Y L L V V V G G D K E E V E S G S V A V V R T T S R R K R
L R N E K I G F Y K I R E E H T L Q R R V P Y L L V V V G G D K E E V E S G S V A V V R T T S R R K R
L R N E K I G F Y K I R E E H T L Q R R V P Y L L V V V G G D K E E V E S G S V A V V R T T S R R K R
D R D E T G G K K I R E E A G K E W I P Y I I V V V G G E R E R E A Q D N T A I N I R V T T S R R K R
L R N E K I G F Y K I R E E H T I H K V I P Y L L V V V G G D K E E V E S G S V A V V R T T S R R K R
D R N E K I G F Y K I R E E G Q V I K K V P Y L L V V V G G D K E E V E S G S V A V V R T T S R R K R
T R N E K I G G R K I R E E A E I L G K K I P P C M I I V V G G Q K K E A R E N S G E I S V R R R S R R K R
N R S E K I G F Y K I R E E A R L L D K K I P Y M L V V V G G A K E E E E E N K I S V R R S R R F F
E R A E K I G F Y K I R E E A Q L M N K I V Y M L V V V G G A K E E E E E Q S G L L S V I R R S R R F F
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90 100 110

G K D L G S M D V N E V I E K L Q Q E I R S R S L K Q L E E L E H H H H H H
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L C E K V T L P L E N L A D E L K D D I Q Q T L F D Q A K K F R D E K T H
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UniRef90_J7TAM5	P	P	R	I	A	P	V	Q	V	V	I	V	P	V	N	V	A	Q	H	K	E	G	V	L	D	K	A	Y	E	L	K	E	R	V	G	K	R	V	K	L	D							
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UniRef90_X1DMM6	F	P	M	P	I	A	P	Y	Q	I	Y	L	C	P	L	G	S	K	V	S	E	V	T	E	N	S	V	A	E	L	L	D	V	E	G	L	R	V	L	L	D							
UniRef90_C9Y6F4	L	P	A	W	L	A	P	V	Q	V	A	V	L	N	I	T	D	A	Q	R	A	D	Y	A	R	S	V	A	K	T	L	Q	N	Q	G	L	R	V	H	L	D							
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UniRef90_E4T2C1	L	P	P	N	L	A	P	R	Q	V	V	I	V	P	V	N	Y	K	S	N	E	Q	L	A	D	E	M	P	K	L	K	A	L	R	A	L	G	I	S	V	K	Y	D					
UniRef90_G5F4Q3	W	P	V	S	V	A	P	Y	E	V	E	V	I	P	V	N	D	V	H	D	W	P	V	A	D	R	L	A	G	E	L	V	A	R	G	V	E	V	V	D								
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UniRef90_R5NUQ4	L	P	P	K	L	A	P	Q	V	V	V	I	V	P	V	N	G	K	A	I	L	D	E	K	V	E	N	G	I	V	A	R	L	R	A	L	G	I	S	V	K	Y	D					
UniRef90_A5YS69	F	P	L	W	L	A	P	E	Q	I	R	I	L	T	P	L	S	D	D	Q	L	G	Y	A	H	R	V	K	N	Q	F	D	D	F	R	V	E	I	D									
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UniRef90_G8ZZH9	W	P	F	W	L	A	S	P	R	Q	V	L	L	V	P	V	G	V	K	Y	Q	Y	A	K	E	V	R	D	K	L	H	N	A	G	F	S	Y	A	D	V	D							
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UniRef90_K9WDT3	W	P	V	M	I	A	P	Y	H	V	I	I	C	N	V	G	D	E	Q	M	A	A	A	E	K	L	Y	A	E	L	N	K	A	G	I	E	T	L	L	D								
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P E V A P Y Q L A I L S V I N N M P E I K D I I E N L E K D F V R I S N I
E Y A A D V E E T L S E A G V R V S L D
W Q E A L S P F K L V I I N I K D K A L N L G I S L Y E D L R K L G I D V L L D
M V I P L G E D T V S Y A L K V C E L L R E K G K R V E L S
L F D
W P Q A I V P Y R A V V V G L A K K E D D A A K A L A G T L A T V W P D V V L D
W P V A C A P F E Y Y V I A G N V K K P E L A E A A Y N R I L E R G R S A V L D



