

QUERY	1	10	20	30	40																																							
UniRef90_S6BEI3	L	S	A	D	Q	I	S	T	V	Q	A	S	F	D	K	V	K	G	D	P	V	G	I	L	Y	A	I	F	K	A	D	P	S	I	M	A	K	F	T	M				
UniRef90_P02222	M	P	A	D	E	A	S	L	V	Q	N	T	W	N	Q	V	K	T	N	E	V	D	I	L	Y	A	I	F	K	A	N	P	D	D	I	Q	A	K	F	P	Q			
UniRef90_V5YME9	L	S	A	D	Q	Y	S	L	V	K	G	S	T	W	D	Q	V	K	H	S	E	V	D	I	L	Y	A	I	F	K	A	N	P	D	D	I	Q	A	K	F	P	Q		
UniRef90_S6CDG3	L	L	T	S	A	D	Q	A	A	L	V	Q	G	S	A	W	S	K	V	K	T	S	E	V	E	I	L	A	A	V	F	S	A	Y	P	D	D	I	Q	A	K	F	P	K
UniRef90_P29243	L	L	T	S	A	D	E	A	N	L	V	K	S	T	W	N	Q	V	K	H	S	E	V	D	I	L	A	A	V	F	K	A	N	P	D	D	I	Q	A	K	F	P	Q	
UniRef90_S6B7U0	L	L	P	A	N	E	V	A	A	V	K	K	D	T	W	H	I	K	H	S	E	V	D	I	L	E	A	V	F	K	A	N	P	D	D	I	Q	A	K	F	P	K		
UniRef90_P11582	L	L	S	G	D	Q	I	G	L	V	Q	S	T	Y	G	K	V	K	G	D	S	V	G	I	L	Y	A	V	F	K	A	N	P	T	I	I	Q	A	K	F	P	Q		
UniRef90_Q25218	L	T	A	D	Q	A	N	L	V	K	S	T	W	K	Q	V	K	H	S	E	V	D	I	L	Y	A	V	F	K	A	N	P	D	D	I	Q	A	K	F	P	Q			
UniRef90_S6BNF1	L	S	H	D	E	A	E	L	L	K	G	A	W	D	Q	I	K	H	S	E	V	D	I	L	A	V	F	K	A	N	P	D	D	I	Q	A	K	F	P	K				
UniRef90_P02223	S	S	D	Q	A	N	A	I	R	A	S	W	A	G	V	K	H	S	E	V	D	I	L	A	A	V	F	S	D	H	P	D	D	I	Q	A	K	F	P	Q				
UniRef90_V5YMG1	S	A	G	E	A	A	S	L	V	K	S	T	W	N	Q	V	K	H	S	E	V	D	I	L	Y	A	I	F	S	A	Y	P	D	D	I	Q	A	K	F	P	A			
UniRef90_Q45V70	L	S	A	D	E	A	S	L	V	K	S	T	W	A	Q	V	K	H	S	E	V	D	I	L	Y	A	I	F	K	A	N	P	D	D	I	Q	A	K	F	P	Q			
UniRef90_P02226	L	S	A	D	Q	A	S	L	V	K	S	T	W	A	Q	V	K	H	S	E	V	D	I	L	A	A	V	F	T	A	Y	P	D	D	I	Q	A	K	F	P	Q			
UniRef90_Q94442	S	A	D	Q	A	S	L	V	K	S	T	W	N	Q	V	K	H	S	E	V	D	I	L	A	A	I	F	F	A	A	N	P	D	D	I	Q	A	K	F	P	Q			
UniRef90_E2C8N8	M	S	E	K	Q	K	K	L	V	Q	N	T	W	A	I	V	R	K	D	G	L	A	I	M	N	A	F	F	T	R	Y	P	E	Y	Q	D	Q	F	S	K	S			
UniRef90_Q802S6	L	C	D	S	E	R	E	M	I	K	D	T	W	A	K	V	Y	Q	N	G	V	A	I	L	I	R	L	F	V	N	F	P	S	S	K	Q	Y	F	S	Q				
UniRef90_V5YNF8	L	E	A	G	L	I	R	G	S	W	H	I	K	A	G	R	E	V	D	I	L	Y	V	I	F	K	E	N	P	S	S	K	Q	Y	F	P	A							
UniRef90_A4IGG7	L	T	D	V	E	R	G	L	I	K	D	T	W	A	R	V	Y	A	S	G	V	T	L	L	I	R	F	V	N	F	P	S	S	K	Q	Y	F	S	Q					
UniRef90_M4AD09	L	T	D	K	E	R	V	M	I	Q	D	S	W	A	K	V	Y	Q	N	G	V	A	M	L	V	R	L	F	V	N	F	P	S	S	K	Q	Y	F	S	Q				
UniRef90_W4W9U1	L	T	E	K	Q	K	K	L	V	Q	N	T	W	A	I	V	R	K	D	G	V	A	L	L	L	A	F	F	K	Q	Y	P	E	S	S	K	Q	E	F	F	K	S		
UniRef90_C3Y502	L	T	E	G	E	K	A	T	I	R	R	T	W	A	V	M	M	G	N	G	A	N	I	L	L	K	M	F	E	I	N	P	D	T	K	K	V	F	A	K				
UniRef90_V5QQP3	S	E	E	Q	E	A	L	V	V	K	S	W	N	A	M	K	K	N	A	S	E	F	F	L	R	V	F	E	I	A	P	T	A	K	K	L	F	S	F					
UniRef90_Q9U1K3	M	N	S	D	E	V	Q	L	I	K	K	T	W	E	I	P	V	A	T	G	A	A	I	L	T	Q	F	F	N	R	F	P	S	S	N	L	E	K	F	P				
UniRef90_V5YMJ3	L	A	S	E	E	A	L	E	V	K	T	A	W	N	A	V	K	D	N	Q	A	D	M	L	Y	A	V	F	K	D	Y	P	E	I	Q	D	K	E	F	P	A			
UniRef90_V5YLS0	L	D	E	R	Q	V	A	L	I	K	K	S	W	E	I	V	F	A	R	N	V	E	I	L	Y	A	Y	L	E	K	F	P	H	N	Q	E	K	F	A	A				
UniRef90_O97382	L	Y	G	K	E	I	V	A	L	R	Q	A	F	A	A	V	T	P	R	N	V	E	I	F	A	K	L	F	A	A	H	P	E	Y	K	N	L	F	K	K				
UniRef90_O97382	L	Y	G	K	E	I	V	A	L	R	Q	A	F	A	A	V	T	P	R	N	V	E	I	F	A	K	L	F	A	A	H	P	E	Y	K	N	L	F	K	K				
UniRef90_Q6DEW1	L	T	E	S	E	R	G	V	I	K	E	T	W	A	R	V	Y	A	N	G	V	S	I	L	I	R	F	F	V	N	F	P	S	A	K	Q	H	F	S	Q				
UniRef90_A0A026VWVZ6	M	T	E	S	E	R	G	V	I	K	E	T	W	A	R	V	Y	A	N	G	V	S	I	L	I	R	F	F	V	N	F	P	S	A	K	Q	H	F	S	Q				
UniRef90_H2U139	L	T	D	K	E	K	V	M	I	Q	D	S	W	A	V	V	F	Q	S	G	V	A	I	L	V	R	L	F	V	S	F	P	S	S	K	Q	L	F	K	D				
UniRef90_B6SEZ2	T	A	E	E	K	A	A	I	T	S	T	W	S	K	V	E	Q	D	G	H	E	A	L	T	R	L	L	V	V	Y	P	W	T	Q	R	Y	F	F	S	S				
UniRef90_P02112	T	A	E	E	K	Q	L	I	T	G	L	W	G	K	V	N	V	A	G	A	E	A	L	A	R	L	L	I	V	Y	P	W	T	Q	R	F	F	S	S					
UniRef90_K7F490	L	S	D	A	E	K	K	V	I	Q	E	T	W	S	R	V	Y	T	N	G	V	S	I	L	I	R	F	F	V	Q	F	P	S	A	K	Q	Y	F	S	Q				
UniRef90_F6TTF3	T	A	E	E	K	A	A	I	T	S	T	W	A	K	V	E	D	A	G	G	E	T	L	G	R	L	L	V	V	Y	P	W	T	Q	R	F	F	D	S					
UniRef90_P02127	T	A	E	E	K	Q	L	I	T	S	V	W	S	K	V	N	V	E	E	T	E	A	L	G	R	L	L	V	V	Y	P	W	T	Q	R	F	F	D	S					
UniRef90_UPI000332F66D	T	A	E	E	K	A	I	T	N	I	W	S	K	V	N	V	E	E	T	E	A	L	G	R	L	L	V	V	Y	P	W	T	Q	R	F	F	D	S						
UniRef90_M7B321	L	T	Q	A	E	K	A	V	V	A	I	W	G	K	I	A	A	Q	G	T	E	S	L	E	R	L	F	S	S	F	P	E	T	K	T	Y	F	H	K					
UniRef90_B6ZIV9	L	T	R	R	E	Y	A	V	Q	K	S	W	A	I	M	K	K	D	S	A	N	I	F	L	K	I	F	E	V	A	P	S	A	S	Q	M	F	S	F					
UniRef90_O04985	L	T	P	H	Q	T	R	D	V	Q	R	S	W	E	N	I	R	N	D	R	N	A	I	F	V	K	L	F	K	E	T	P	R	T	Q	K	Y	F	A	K				
UniRef90_O02004	L	T	A	E	D	K	K	L	I	Q	A	I	W	K	V	Q	G	H	G	A	E	A	L	Q	R	M	F	I	T	Y	P	T	T	K	T	Y	F	H	K					
UniRef90_P08849	L	S	A	G	E	I	K	L	V	Q	D	S	W	A	P	V	Y	A	N	G	I	A	L	F	V	R	L	F	S	E	N	P	G	F	Q	S	Q	F	R	Y				
UniRef90_UPI0001CBA21D	S	A	A	D	I	E	A	I	Q	K	T	W	A	L	A	K	P	D	G	A	S	V	F	R	Q	L	F	T	D	H	G	Y	Q	P	L	F	S	N						
UniRef90_O97381	S	A	A	D	I	E	A	I	Q	K	T	W	A	L	A	K	P	D	G	A	S	V	F	R	Q	L	F	T	D	H	G	Y	Q	P	L	F	S	N						
UniRef90_E9FXJ8	L	S	S	H	E	R	S	I	R	K	T	W	D	Q	A	K	K	D	G	D	Q	V	L	Y	R	F	I	K	A	H	P	E	Y	Q	K	K	F	S	K					
UniRef90_H3B4U9	L	L	S	D	T	E	V	E	S	I	R	Q	I	W	S	N	V	T	N	G	V	L	I	R	F	F	V	N	F	P	S	A	K	Q	Y	F	S	Q						
UniRef90_H3B2L7	L	T	E	A	D	K	Q	N	L	R	G	I	W	S	T	V	F	E	N	A	E	I	V	I	R	L	F	E	K	Y	P	E	T	K	V	Y	F	S	K					
UniRef90_E9FXJ7	T	G	R	Q	I	R	D	A	Q	R	T	W	E	N	I	R	G	S	G	R	N	A	I	F	I	K	L	F	K	E	T	P	R	V	Q	K	Y	F	A	K				
UniRef90_P02231	M	T	D	A	Q	V	A	A	V	K	G	D	W	E	K	I	K	G	S	G	V	E	L	I	L	Y	F	F	L	N	K	F	P	G	N	F	P	M	F	K				
UniRef90_U4UEU2	S	Y	Q	K	E	I	G	K	M	Q	I	L	F	E	K	H	P	E	Y	Q	Q	L	F	S	P																			
UniRef90_T1JI21	L	T	L	R	Q	K	K	V	V	T	E	I	W	D	L	V	K	Q	N	G	I	D	F	F	I	E	F	F	K	A	F	P	L	N	L	N	N	F	K	A				
UniRef90_P02088	L	T	D	A	E	K	A	A	V	S	K	L	W	G	K	V	N	S	D	E	V	E	A	L	G	R	L	L	V	V	Y	P	W	T	Q	R	Y	F	F	D	S			
UniRef90_Q95NK8	L	S	A	S	D	R	A	I	I	R	K	T	W	Q	A	R	K	D	G	D	Q	L	L	F	R	F	V	K	A	H	P	E	Y	Q	K	L	F	R	S					
UniRef90_G5BS33	L	S	N	E	E	K	A	A	V	T	S	L	W	G	K	V	N	V	E	E	T	E	A	L	G	R	L	L	V	V	Y	P	W	T	Q	R	F	F	E	H				
UniRef90_UPI0003955C04	S	R	L	L	I	V	Y	P	W	T	Q	R	F	F	E	S	D																											
UniRef90_P86391	T	A	E	E	K	Q	L	I	T	C	L	W	G	K	V	D	V	A	G	G	E	S	L	A	G	M	F	V	M	Y	P	W	T	Q	R	L	F	S	E					
UniRef90_V5QR23	T	E	E	Q	E	A	L	V	V	Q	S	W	N	V	M	K	K	N	S	A	E	L	F	L	K	I	F	E	I	A	P	T	A	K	K	M</								

QUERY	50	60	70	80
UniRef90_S6BEI3	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P02222	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_V5YME9	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_S6CDG3	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P29243	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_S6B7U0	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P11582	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_Q25218	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_S6BNF1	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P02223	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_V5YMG1	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_Q45V70	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P02226	FAGKDL	ESIKGT	ASGF	ETHAN
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UniRef90_E2C8N8	FAGKDL	ESIKGT	ASGF	ETHAN
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UniRef90_M4AD09	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_W4W9U1	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_C3Y502	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_V5QQP3	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_Q9U1K3	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_V5YMJ3	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_V5YLS0	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_O97382	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_O97382	FAGKDL	ESIKGT	ASGF	ETHAN
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UniRef90_Q6DEW1	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_A0A026VVZ6	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_H2U139	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_B6SEZ2	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P02112	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_K7F490	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_F6TTF3	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P02127	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_UPI000332F66D	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_M7B321	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_B6ZIV9	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_O04985	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_O02004	FAGKDL	ESIKGT	ASGF	ETHAN
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UniRef90_UPI0001CBA21D	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_O97381	FAGKDL	ESIKGT	ASGF	ETHAN
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UniRef90_E9FXJ8	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_H3B4U9	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_H3B2L7	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_E9FXJ7	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P02231	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_U4UEU2	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_T1JI21	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P02088	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_Q95NK8	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_G5BS33	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_UPI0003955C04	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P86391	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_V5QR23	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P02109	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_U5D5B6	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_H2MRF9	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_V5N4H6	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_G6D627	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_UPI000331684E	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P02133	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_Q9NG75	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_Q9NG75	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P13787	FAGKDL	ESIKGT	ASGF	ETHAN
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UniRef90_G5BXY5	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_D6R731	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_UPI0003C16005	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P14388	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_P02054	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_S7Q7N2	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_Q533G9	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_Q2KPA4	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_Q63067	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_Q94FT7	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_V5YME0	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_I3S6M0	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_UPI0003AFE419	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_I1HHK1	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_B3RYV6	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_UPI0003958CC0	FAGKDL	ESIKGT	ASGF	ETHAN
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UniRef90_G3IA42	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_S4RW14	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_F7APQ4	FAGKDL	ESIKGT	ASGF	ETHAN
UniRef90_UPI00022F58AA	FAGKDL	ESIKGT	ASGF	ETHAN

QUERY	N	T	F	V	A	S	H	K	P	R	G	V	T	H	D	Q	Q	L	N	F	R	A	G	F	V	S	Y	M	K	A	H	T	D	F	A	G	A	E	A					
UniRef90_S6BEI3	N	Q	M	G	Q	N	H	K	N	R	G	V	T	P	K	Q	Q	F	N	E	F	R	A	S	V	M	S	Y	M	K	A	H	V	S	G	P	N	V	E	K	A			
UniRef90_P02222	K	D	M	A	A	N	H	K	N	R	G	V	T	P	K	Q	Q	F	N	E	F	R	A	S	L	V	S	Y	M	K	A	H	V	S	G	W	N	D	L	A	A			
UniRef90_V5YME9	E	A	F	A	V	R	H	H	K	N	R	G	V	T	K	D	Q	F	N	E	F	R	T	A	F	F	S	Y	I	S	S	N	A	S	T	W	G	D	A	A	A			
UniRef90_S6CDG3	T	E	L	A	N	N	H	K	N	R	G	V	T	T	K	D	Q	F	N	E	F	R	T	A	L	T	N	Y	V	S	S	N	A	S	P	W	G	D	V	A	A	A		
UniRef90_P29243	K	K	L	G	V	D	H	K	N	R	G	V	T	T	K	Q	Q	F	N	E	F	R	T	A	L	T	N	Y	V	S	S	N	A	S	H	V	S	W	G	D	V	A	A	A
UniRef90_S6B7U0	N	E	L	G	Q	S	H	R	N	R	G	V	T	T	K	Q	Q	F	N	E	F	R	T	A	L	M	S	Y	L	K	S	H	N	M	W	A	D	I	A	H	A	A		
UniRef90_P11582	D	A	L	V	A	T	H	K	P	R	G	V	T	T	H	A	Q	F	N	N	F	R	T	A	F	I	A	Y	L	K	G	H	V	D	T	A	A	V	E	A	A	A		
UniRef90_Q25218	S	K	L	G	A	D	H	K	N	R	G	V	T	V	A	Q	F	N	E	F	R	T	A	L	V	A	Y	L	Q	A	H	V	S	W	G	E	V	A	A	A	A			
UniRef90_S6BNF1	S	K	L	G	H	D	H	K	N	R	G	V	T	S	K	D	Q	F	N	E	F	R	S	A	L	T	D	Y	A	S	H	A	S	W	N	D	V	A	A	A	A			
UniRef90_P02223	N	E	L	S	T	S	H	H	N	R	G	V	T	T	K	G	Q	F	N	E	F	R	S	S	L	V	S	Y	L	S	S	H	A	S	W	N	D	A	T	E	A	A		
UniRef90_V5YMG1	S	Q	M	G	Q	T	H	Y	N	R	G	V	T	S	Q	Q	Q	F	N	E	F	R	T	A	F	F	N	Y	M	K	S	H	V	S	F	D	A	A	T	E	A	A		
UniRef90_Q45V70	N	E	M	A	A	S	H	K	A	R	K	I	P	S	Q	A	Q	F	N	E	F	R	A	S	L	V	S	Y	L	S	S	N	V	A	W	A	A	E	S	A	A			
UniRef90_P02226	G	Q	L	A	A	S	H	K	A	R	G	I	S	Q	A	Q	F	N	E	F	R	A	G	L	V	S	Y	V	S	S	N	V	A	W	A	A	E	S	A	A				
UniRef90_Q94442	G	Q	L	A	A	S	H	K	A	R	G	I	P	T	A	Q	F	N	E	F	R	T	S	L	V	A	Y	L	Q	A	N	V	S	W	G	E	V	A	A	A	A			
UniRef90_E2C8N8	I	N	L	A	E	R	H	K	N	R	G	Q	T	R	E	H	F	Q	N	L	R	Y	V	L	E	D	L	I	P	S	V	F	G	T	Q	E	V	Q	E	A	A			
UniRef90_Q802S6	K	L	V	G	K	A	H	A	R	H	N	V	E	P	V	Y	F	K	I	L	C	G	V	I	L	E	V	L	V	A	D	F	P	T	E	V	A	V	A	A				
UniRef90_V5YNF8	N	E	M	G	K	K	A	H	A	R	G	V	T	R	E	Q	F	Q	A	F	R	K	S	A	L	T	Y	I	K	G	H	V	E	W	S	E	L	G	A	A	A			
UniRef90_A4IGG7	V	L	V	G	K	A	H	A	K	Y	K	V	E	P	V	Y	F	K	I	L	S	G	V	I	L	E	I	L	A	E	E	F	G	T	P	E	V	Q	T	S	A	A		
UniRef90_M4AD09	K	L	V	G	K	A	H	A	K	H	K	V	D	P	V	Y	F	K	I	L	S	G	V	I	V	E	V	L	G	E	E	Y	P	T	P	E	V	G	A	A	A			
UniRef90_W4W9U1	I	N	F	T	E	K	H	K	V	R	G	Q	T	P	E	Q	F	E	N	L	K	G	V	I	L	G	A	F	P	S	L	F	G	T	S	E	V	Q	E	A	A			
UniRef90_C3Y502	K	D	I	G	K	K	H	Y	P	A	R	V	P	T	E	Y	F	D	V	I	A	G	A	L	L	C	M	L	K	E	A	V	P	S	A	E	S	M	K	E	A	A		
UniRef90_V5QQP3	K	D	L	G	T	T	H	F	K	Y	G	V	A	D	E	H	F	E	V	V	R	F	A	L	L	E	T	I	K	E	A	V	P	S	A	E	S	M	K	E	A	A		
UniRef90_Q9U1K3	T	K	I	A	V	S	H	P	R	T	V	S	K	E	S	Y	N	Q	L	K	G	V	I	L	D	V	L	T	A	A	C	S	L	D	E	S	Q	A	A	A	A			
UniRef90_V5YMJ3	E	R	I	G	E	T	H	R	N	R	N	T	A	L	T	K	E	D	F	R	N	A	L	T	K	Y	V	A	S	R	V	T	W	N	E	N	A	A	A	A	A			
UniRef90_V5YLS0	N	E	M	G	K	N	H	R	R	R	G	I	P	K	R	A	F	I	E	I	R	A	I	I	V	Q	T	V	S	E	L	C	K	L	D	D	E	K	A	A	A			
UniRef90_O97382	K	K	L	G	R	E	H	I	K	R	G	L	S	R	K	Q	F	D	Q	F	V	E	L	Y	I	A	E	I	S	S	E	L	S	D	T	G	R	N	G	A	A			
UniRef90_O97382	K	K	L	G	R	E	H	I	K	R	G	L	S	R	K	Q	F	D	Q	F	V	E	L	Y	I	A	E	I	S	S	E	L	S	D	T	G	R	N	G	A	A			
UniRef90_O97382	K	K	L	G	R	E	H	I	K	R	G	L	S	R	K	Q	F	D	Q	F	V	E	L	Y	I	A	E	I	S	S	E	L	S	D	T	G	R	N	G	A	A			
UniRef90_Q6DEW1	S	I	V	G	K	S	H	A	K	H	K	V	D	P	E	V	Y	F	K	I	L	T	G	V	M	L	E	V	I	A	E	E	Y	A	N	D	E	V	Q	R	A	A		
UniRef90_A0A026VVZ6	L	S	L	A	D	R	H	K	A	R	G	Q	T	P	E	E	Q	F	N	L	K	K	V	M	A	N	L	F	P	S	V	L	G	T	K	P	E	V	Q	E	A	A		
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UniRef90_K7F490	A	L	V	G	K	A	H	A	K	H	K	V	E	P	V	Y	F	K	F	F	T	G	V	M	L	E	V	I	A	E	E	Y	A	N	D	E	V	Q	R	A	A	A		
UniRef90_F6TTF3	G	Q	L	S	E	L	H	C	K	H	V	D	P	E	N	F	R	L	L	G	N	V	L	V	T	V	L	A	L	T	Y	G	T	P	E	V	Q	A	A	A				
UniRef90_P02127	A	K	L	S	E	L	H	C	K	H	V	D	P	E	N	F	R	L	L	G	N	I	L	I	V	L	A	A	H	F	T	K	D	F	T	Q	A	V	A	A				
UniRef90_UPI000332F66D	A	K	L	S	E	L	H	C	K	H	V	D	P	E	N	F	R	L	L	G	N	V	L	V	I	V	L	A	M	H	F	G	T	P	E	V	Q	A	A	A				
UniRef90_M7B321	A	T	L	S	E	L	H	A	Y	L	R	V	D	P	V	N	F	K	L	L	S	H	C	I	L	C	S	V	A	A	H	F	P	T	P	E	V	H	A	A	A			
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UniRef90_O02004	G	N	M	R	Y	T	H	T	E	R	G	I	P	R	A	P	W	E	D	F	S	R	L	L	L	D	V	L	G	S	K	G	V	T	D	D	L	D	S	A	A			
UniRef90_P08849	S	E	L	S	N	L	H	A	N	L	R	V	D	P	V	N	F	K	L	L	S	Q	C	F	Q	V	V	L	A	V	H	L	G	T	P	E	V	H	S	A	A			
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UniRef90_O97381	N	Q	L	G	K	D	H	V	P	R	K	V	N	K	V	H	F	D	D	F	A	E	H	F	V	P	L	M	K	A	N	L	G	T	P	L	A	E	S	A	A			
UniRef90_E9FXJ8	N	A	L	G	G	A	H	Q	P	R	G	V	T	P	A	M	F	E	E	F	G	V	I	V	E	Q	V	L	E	E	E	L	G	N	A	E	A	R	D	A	A			
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UniRef90_H3B2L7	T	H	L	A	K	R	H	Q	Y	H	R	V	D	V	H	N	F	K	I	L	F	G	V	I	I	K	I	L	K	E	A	L	G	A	T	F	T	E	K	E	S	A		
UniRef90_E9FXJ7	G	N	M	Y	M	H	A	A	R	S	I	P	R	G	V	W	E	D	F	G	R	L	I	F	D	V	L	S	S	K	G	L	S	A	D	E	L	N	S	A				
UniRef90_P02231	N	Q	L	G	T	S	H	K	A	M	G	I	T	K	D	Q	Y	D	Q	F	R	Q	A	L	T	E	L	L	G	N	L	G	F	G	G	N	I	G	A	A				
UniRef90_U4UEU2	I	K	Q	S	T	S	H	V	L	R	N	V	P	D	Q	A	Y	W	D	I	K	T	V	I	L	S	I	V	A	S	S	M	N	P	S	E	V	I	F	V	A			
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UniRef90_P02088	A	S	L	S	E	L	H	C	D	K	H	V	D	P	E	N	F	R	L	L	G	N	M	I	V	I	V	L	G	H	L	H	G	N	D	F	T	P	A	A	A			
UniRef90_Q95NK8	N	A	L	G	G	A	H	F	S	R	G	A	T	P	V	N	F</																											

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QUERY	WG A T L D T F F G M I F S K M
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UniRef90_V5YMG1	WN D A F D Q M F G Y I L A K
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UniRef90_P02226	WT A G L D N I F G L L F A A L
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UniRef90_E2C8N8	WK K M F D Y L F L I L C Q A I
UniRef90_Q802S6	WT K L L D A I Y W H V K
UniRef90_V5YNF8	WK L A F D K M Y E V V F S N L
UniRef90_A4IGG7	WS K L M A A L Y W H I T G A
UniRef90_M4AD09	WT K F L A T V C S G L K A
UniRef90_W4W9U1	WK K T L D L I F S R L Y Q
UniRef90_C3Y502	WT K L Y G S L
UniRef90_V5QQP3	WK E A Y D Q L V A A I K Q E M
UniRef90_Q9U1K3	WA K L V D H V Y A I I F K A I
UniRef90_V5YMJ3	WN K T F D G I F E I I F S K L
UniRef90_V5YLS0	WN D L L D T V Y H I I F S N L
UniRef90_O97382	L E K V L T F A T G V I E Q G L
UniRef90_O97382	L E K V L T F A T G V I E Q G L
UniRef90_O97382	L E K V L T F A T G V I E Q G L
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UniRef90_P02112	WQ K L V R V V A H A L A
UniRef90_K7F490	WT K L K S L I Y T H V T A
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UniRef90_O04985	WS E A Y N Q L V A A I K Q E M
UniRef90_O02004	WK G V L A V F V N G V
UniRef90_P08849	F D K F L S A V A A V L A E K
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UniRef90_O97381	WK K A F N V M V A T I
UniRef90_O97381	WK K A F N V M V A T I
UniRef90_E9FXJ8	WK N G I R A L V G G V S K T L
UniRef90_H3B4U9	WT K L M S I I C C H V T A
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UniRef90_UPI0003955C04	WQ K L V G V V A H A L A
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UniRef90_V5QR23	WA E A F N H L V A A I K A E M
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UniRef90_H2MRF9	WQ T L F Q F V T A L M K Q
UniRef90_V5N4H6	WS K L M D V L Y W H V T
UniRef90_G6D627	WG K A V D F L Y K H I F V T L
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UniRef90_Q9NG75	MN K G F K L M I S V I E E G L
UniRef90_P13787	WD K F L S I V S S V L T E K
UniRef90_V4ALZ1	WD K F L T V L N N Q I
UniRef90_V5GLC7	WK K A L D V A I D L I A K S
UniRef90_G5BXY5	W I Q L L S N V V I V V T
UniRef90_D6R731	WQ K L L S I V V S A L T S
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UniRef90_Q63067	WQ K L V A G V A T A L
UniRef90_Q94FT7	WGE A Y E H L V A A I K E G M
UniRef90_V5YME0	WS K A L D N M Y A V L V A Y L
UniRef90_I3S6M0	WGE A H D Q L A N A I K A E M
UniRef90_UPI0003AFE419	WQ K L L S G V A T A L A
UniRef90_I1HHK1	WE E A Y D Q L A A A I K D E M
UniRef90_B3RYV6	WS K T F D M I T A A M K S G M
UniRef90_UPI0003958CC0	V D K F M S A V A S V L A E K
UniRef90_UPI000350F47E	WS E A Y N Q L V A A I K Q E M
UniRef90_G3IA42	WD K F M T I L S S I L T E K
UniRef90_S4RW14	WE K F L S Q V S I L L K S
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UniRef90_P01957	L	S	A	A	D	K	S	N	N	V	K	A	G	A	W	K	V	G	T	G	G	A	E	A	L	E	R	M	F	L	S	F	P	T	T	T	K	T	Y	F	P	H
UniRef90_D5L2Y3	L	N	S	D	Q	E	W	Q	Q	V	L	T	M	W	G	K	V	E	G	H	G	H	A	V	L	M	R	L	F	Q	D	H	P	E	T	T	M	D	R	F	D	K
UniRef90_K7F9V7	L	S	S	T	E	K	A	L	I	R	S	E	S	W	Q	K	V	E	G	H	G	I	V	L	F	T	R	L	F	D	L	D	P	D	L	L	P	L	F	R	Q	
UniRef90_M3YFH4	L	S	A	E	E	T	A	A	V	S	S	L	Q	G	K	V	K	V	D	V	V	E	T	L	G	R	L	L	V	V	Y	P	W	T	Q	R	F	F	D	S		
UniRef90_P10781	L	G	A	E	E	T	A	L	V	R	G	V	W	Q	K	V	E	S	A	G	E	E	T	L	T	R	M	F	L	V	Y	P	K	T	K	T	Y	F	P	H		
UniRef90_A6MHQ6	L	S	D	Q	E	W	Q	K	V	I	D	I	W	S	K	V	S	G	H	G	Q	E	V	I	I	R	L	F	Q	K	H	P	E	T	Q	E	K	F	D	K		
UniRef90_E5RWQ0	L	S	P	G	D	K	A	N	V	K	T	V	W	S	K	V	S	G	H	G	A	E	T	L	E	R	L	F	R	V	Y	P	S	T	K	T	Y	F	P	H		
UniRef90_Q3C1F3	T	E	E	Q	E	A	L	V	V	K	S	W	N	A	M	K	K	D	S	A	E	F	F	S	K	I	L	E	I	A	P	P	A	K	Q	L	F	S	F			
UniRef90_C1BY71	T	D	A	E	R	S	A	I	L	G	L	W	G	K	L	S	A	D	E	I	G	A	F	A	R	C	L	I	V	F	P	W	T	Q	R	Y	F	S	S			
UniRef90_Q4RLN3	T	E	D	Q	I	Q	M	I	K	D	S	W	K	V	I	R	D	D	I	A	K	M	F	V	R	L	F	E	T	H	P	E	C	K	D	V	F	F	L			
UniRef90_A7S5B8	L	T	E	T	Q	K	Y	Y	I	K	Q	S	W	M	G	L	E	S	N	G	I	E	I	F	L	R	L	F	S	E	N	P	T	L	Q	L	M	F	F	E		
UniRef90_F6TGD7	L	S	E	Q	Q	Q	L	L	I	V	E	S	W	R	L	I	Q	H	D	G	V	L	L	F	V	R	L	F	E	T	H	P	E	C	K	D	V	F	F	L		
UniRef90_P18987	L	T	A	E	E	K	Q	L	I	T	Q	V	W	S	K	V	A	Q	I	G	G	E	T	L	A	C	L	L	V	V	Y	P	W	T	Q	R	F	F	P	D		
UniRef90_F6UQT5	L	T	G	A	D	I	E	N	I	N	E	V	W	S	K	I	Y	A	N	P	E	E	V	I	S	L	F	L	T	Y	P	Q	T	K	I	Y	F	K	N			
UniRef90_P41331	L	T	E	E	D	K	A	R	V	R	V	A	W	V	P	V	S	K	N	G	A	E	T	L	T	R	L	F	A	A	H	P	W	T	T	K	T	Y	F	P	H	
UniRef90_B5FX70	T	A	E	E	K	Q	L	V	T	T	L	W	G	R	V	N	V	D	G	A	E	A	L	A	R	L	L	V	A	Y	P	W	T	Q	R	F	F	V	S			
UniRef90_W4YI83																																										
UniRef90_W4YI83																																										
UniRef90_W4YI83																																										
UniRef90_U6PGL3	L	T	E	R	Q	H	A	V	I	I	R	T	F	A	K	M	G	S	N	P	V	Q	V	L	L	R	L	F	A	E	Y	P	Q	Y	K	R	I	W	P	Q		
UniRef90_S6CDF9	M	S	A	D	K	V	T	L	V	K	S	T	W	N	E	V	L	K	E	N	E	V	E	L	L	Y	G	V	F	K	D	Y	P	N	I	Q	A	R	F	P	K	
UniRef90_W4XLX6	L	R	A	R	E	Q	E	L	V	Q	K	T	W	G	V	L	E	Q	H	G	A	A	M	F	A	K	L	I	S	A	H	P	A	V	A	Q	M	F	P	F		
UniRef90_W4XLX6	L	R	A	R	E	Q	E	L	V	Q	K	T	W	G	V	L	E	Q	H	G	A	A	M	F	A	K	L	I	S	A	H	P	A	V	A	Q	M	F	P	F		
UniRef90_W4XLX6	L	R	A	R	E	Q	E	L	V	Q	K	T	W	G	V	L	E	Q	H	G	A	A	M	F	A	K	L	I	S	A	H	P	A	V	A	Q	M	F	P	F		
UniRef90_UPI0001CBA21E	L	T	P	S	E	A	I	A	I	Q	S	T	W	L	F	V	E	E	N	G	V	E	L	F	V	K	L	F	T	E	H	P	D	Y	Q	A	L	F	G	Y		
UniRef90_Q575S4	L	T	A	A	D	I	E	N	I	E	I	W	C	K	I	Y	A	N	P	E	E	V	V	I	R	L	F	T	T	Y	P	Q	T	K	V	I	F	K	N			
UniRef90_UPI00042C01C9	T	A	E	E	R	K	N	I	N	E	T	A	T	W	K	L	N	V	E	I	E	S	L	A	R	L	L	I	V	Y	P	W	T	Q	K	F	F	E	D			
UniRef90_P06638	S	S	A	E	K	A	A	I	A	S	L	W	G	K	V	S	G	H	G	A	E	A	L	E	R	L	F	L	S	Y	P	Q	T	K	T	Y	F	S	H			
UniRef90_F2Q9X0	L	T	A	N	Q	I	L	H	I	R	E	T	W	G	V	V	R	A	N	G	F	A	I	F	R	L	I	F	T	D	Y	P	P	E	T	K	K	L	F	R	S	
UniRef90_A0A034WEZ5	S	A	Q	E	V	A	D	I	K	K	S	W	E	V	P	K	A	N	G	A	A	I	L	V	H	F	V	T	K	Y	P	D	N	L	M	H	F	P				
UniRef90_F2Q9X5	L	S	A	A	D	K	K	A	V	A	D	S	W	A	K	M	S	K	A	G	E	R	V	F	L	K	L	K	K	D	S	T	K	A	M	F	K	K				
UniRef90_Q45X17	L	T	A	D	E	T	A	L	V	T	G	L	W	A	K	V	N	V	K	G	G	E	A	L	G	R	L	L	V	V	Y	P	W	T	Q	R	F	F	E	H		
UniRef90_Q90WH9																																										
UniRef90_E9GCI5	L	T	R	P	Q	I	R	N	V	Q	R	S	W	E	S	M	K	S	G	R	N	A	I	F	I	K	L	F	K	E	T	P	R	V	Q	K	H	F	A	K		
UniRef90_I3N5Z8	L	S	A	R	D	R	A	M	V	R	A	L	W	K	K	V	L	E	D	N	V	T	E	A	L	E	R	T	F	L	S	F	P	G	T	K	T	Y	F	P	H	
UniRef90_B9A9D4																																										
UniRef90_P02132	L	T	A	H	D	R	Q	L	I	N	S	T	W	G	K	L	K	T	I	G	Q	E	A	L	G	R	L	L	W	T	Y	P	W	T	Q	R	Y	F	S	S		
UniRef90_UPI0003AF406C	L	S	A	E	S	R	E	A	I	R	S	S	W	R	E	I	Q	E	D	G	V	I	M	F	V	R	L	F	E	T	H	P	E	C	K	D	A	F	F	T		
UniRef90_Q17153																																										
UniRef90_P01979	L	T	D	A	E	K	K	E	V	T	A	L	W	G	K	A	A	G	H	G	A	E	A	L	E	R	L	F	Q	A	F	P	T	T	K	T	Y	F	S	H		
UniRef90_R7URJ5	L	T	D	R	Q	M	T	L	I	E	D	T	S	I	V	I	Q	R	D	G	L	D	M	F	S	R	M	F	E	A	F	P	G	K	E	S	F	G	P	H		
UniRef90_P19789	L	S	A	A	D	K	N	V	K	G	I	F	A	K	I	V	Q	R	D	G	H	G	A	E	T	L	D	R	M	F	T	V	Y	P	Q	T	K	T	Y	F	P	H
UniRef90_A4ZQH7	L	S	A	A	D	K	A	N	I	K	A	A	W	G	K	I	G	H	G	A	E	A	L	E	R	M	F	C	S	F	P	T	T	K	T	Y	F	P	H			
UniRef90_UPI000443AAAAE	L	T	A	E	E	K	V	T	A	L	W	N	K	V	D	V	G	G	E	A	L	G	R	L	L	V	V	Y	P	W	T	Q	R	F	F	D	S					
UniRef90_UPI0003F065FF	T	E	R	Q	R	R	I	V	R	K	T	W	N	D	M	T	G	N	G	T	K	V	F	L	H	I	F	E	M	N	P	K	V	K	Q	L	F	P	C			
UniRef90_P02139	T	D	A	E	R	S	A	I	I	A	L	W	G	K	L	N	P	D	E	L	E	A	L	A	R	C	L	I	V	Y	P	W	T	Q	R	F	F	A	S			
UniRef90_V9LC91																																										
UniRef90_V4ABF4																																										
UniRef90_P18974	L	T	E	D	D	K	N	H	I	R	A	I	W	G	H	V	D	N	N	G	V	E	A	L	T	R	L	F	L	A	Y	P	A	T	K	T	Y	F	A	H		
UniRef90_W5MM94	T	D	A	E	A	K	A	I	K	T	V	W	G	K	V	N	V	D	I	V	G	A	L	A	R	L	L	I	V	Y	P	W	T	Q	R	Y	F	G	A			
UniRef90_B7QBW9	M	T	S	Q	E	K	H	V	I	R	D	T	W	A	I	F	K	K	E	G	V	A	I	F	V	V	L	F	F	K	H	P	A	Y	Q	K	L	F	V	A		
UniRef90_UPI0002C58F48	L	S	A	A	D	Q	A	V	R	A	L	W	R	K	L	G	N	N	A	T	E	A	L	E	R	T	F	T	A	F	P	T	T	K	T	Y	F	A	H			
UniRef90_W5LAM7	T	D	F	E	R	A	T	I	Q	D	I	F	A	S	K	M	D	Y	E	S	V	G	A	L	A	R	C	L	V	V	Y	P	W	T	Q	R	Y	F	G	N		
UniRef90_P02006	L	S	A	D	E	K	Q	L	I	H	A	W	E	K	V	H	T	H	G	A	E	A	L	E	R	M	F	T	V	Y	P	Q	T	K	T	Y	F	H	H			

		50	60	70	80																																						
UniRef90_S8CU33	L	R	E	S	T	V	P	V	E	E	N	P	K	L	K	L	H	A	K	S	V	F	L	M	T	C	E	A	A	V	Q	L	R	K	T	D	S	T	L				
UniRef90_S6BEL0	F	A	G	K	D	L	A	T	V	K	G	T	P	E	F	A	D	Q	A	K	A	I	I	N	L	L	N	G	V	M	D	K	L	G	S	A	A	T	L				
UniRef90_P01941	F						D	M	S	H	G	S	A	Q	I	Q	A	H	G	K	K	V	A	D	A	L	S	T	A	V	G	H	L	D	D	L	P	T	A	L			
UniRef90_P01957	F						D	L	T	H	G	S	A	Q	I	Q	A	H	G	K	K	V	A	D	A	L	S	T	A	V	G	H	L	D	D	L	P	T	A	L			
UniRef90_D5L2Y3	F	R	G	K	T	P	D	Q	M	R	G	S	E	D	V	K	K	H	G	V	T	V	L	T	Q	L	G	K	I	L	K	Q	K	G	H	H	E	S	E	L			
UniRef90_K7F9V7	F	S				S	P	L	E	C	L	S	P	E	F	L	D	H	I	R	K	K	V	M	L	V	I	D	A	A	V	E	N	L	S	S	L	E	E	G	A	F	
UniRef90_M3YFH4	F	G	D	L	S	P	D	A	I	M	S	N	G	K	V	K	A	H	G	K	K	V	N	S	L	I	N	G	L	K	N	L	D	N	L	K	R	Q	T	L			
UniRef90_P10781	F						D	L	H	H	G	S	E	Q	I	R	N	H	G	K	K	V	V	T	A	L	G	N	A	I	Q	N	L	D	N	L	K	R	Q	T	L		
UniRef90_A6MHQ6	F	K	H	K	S	L	D	E	M	K	S	S	E	E	I	K	K	H	G	T	T	V	L	T	A	L	G	K	I	L	K	Q	K	G	H	H	D	A	E	L			
UniRef90_E5RWQ0	F						D	L	H	H	D	S	A	Q	I	R	T	H	G	K	K	V	L	T	A	L	G	E	A	V	S	H	I	D	D	I	J	A	S	E	L		
UniRef90_Q3C1F3	L	R	D	S	E	V	P	L	D	Q	N	P	K	L	K	P	H	A	M	S	V	F	L	M	T	C	E	S	A	Q	L	R	K	R	E	S	N	L					
UniRef90_C1BY71	F	G	N	L	S	P	A	A	I	M	G	N	P	N	V	A	K	H	G	R	T	V	M	S	F	H	G	L	D	K	A	I	Q	N	L	D	D	I	K	E	N	T	Y
UniRef90_Q4RLN3	F	R	D	V	D	L	E	R	L	R	S	R	E	L	R	A	H	G	L	R	V	M	S	F	I	E	R	V	A	R	L	D	D	Q	L	E	A	L	A				
UniRef90_A7S5B8	F	R	E	S	T	L	E	E	L	K	E	S	R	S	L	Q	G	H	T	K	R	V	M	K	V	V	E	E	N	A	V	A	R	L	E	D	G	H	A	L	A		
UniRef90_F6TGD7	F	R	D	V	D	L	Q	A	L	R	A	N	K	D	L	R	A	H	G	L	R	V	L	S	F	V	E	K	S	V	A	R	L	A	R	L	E	E	L	A			
UniRef90_P18987	F	G	N	L	S	A	A	I	C	G	N	A	K	V	K	A	H	G	K	K	V	L	T	S	F	V	G	D	A	V	K	N	L	D	N	I	K	E	D	T	F		
UniRef90_F6UQT5	L	K	N	L	S	L	Q	E	M	Q	D	N	A	G	I	R	A	H	G	K	R	V	M	G	A	L	N	H	V	I	E	N	L	D	A	V	C	S	A	L			
UniRef90_P41331	F						D	L	S	P	G	S	N	D	L	K	V	H	G	K	K	V	I	D	A	L	T	E	A	V	N	N	L	D	D	V	A	G	A	L			
UniRef90_B5FX70	F	G	N	M	S	P	T	A	V	L	G	N	P	M	V	R	A	H	G	K	K	V	L	T	S	F	G	E	A	V	R	N	M	D	S	V	K	K	C	F			
UniRef90_W4Y183	F	S	I	T	C	Y	N	S	I	V	Q	D	P	Q	A	Q	A	H	G	K	R	A	L	E	T	V	G	T	A	V	D	G	L	D	D	L	D	L	I	L			
UniRef90_W4Y183	F	S	I	T	C	Y	N	S	I	V	Q	D	P	Q	A	Q	A	H	G	K	R	A	L	E	T	V	G	T	A	V	D	G	L	D	D	L	D	L	I	L			
UniRef90_W4Y183	F	S	I	T	C	Y	N	S	I	V	Q	D	P	Q	A	Q	A	H	G	K	R	A	L	E	T	V	G	T	A	V	D	G	L	D	D	L	D	L	I	L			
UniRef90_U6PGL3	F	R	G	I	Q	D	S	S	L	I	N	A	I	E	L	R	R	H	A	S	V	Y	M	C	G	L	T	A	I	I	H	S	M	D	E	L	E	V	Q	M			
UniRef90_S6CDF9	F	T	G	K	D	L	K	M	I	K	N	T	V	D	F	T	I	Q	A	T	R	T	A	S	F	L	N	T	Y	I	N	L	L	P	A	I	K	Q	M	L			
UniRef90_W4XLX6	G	E	N	L	S	Y	S	Q	L	V	Q	N	P	T	L	R	A	H	G	K	R	V	M	E	T	I	G	Q	T	V	G	S	L	D	D	L	D	P	I	L			
UniRef90_W4XLX6	G	E	N	L	S	Y	S	Q	L	V	Q	N	P	T	L	R	A	H	G	K	R	V	M	E	T	I	G	Q	T	V	G	S	L	D	D	L	D	P	I	L			
UniRef90_W4XLX6	G	E	N	L	S	Y	S	Q	L	V	Q	N	P	T	L	R	A	H	G	K	R	V	M	E	T	I	G	Q	T	V	G	S	L	D	D	L	D	P	I	L			
UniRef90_W4XLX6	G	E	N	L	S	Y	S	Q	L	V	Q	N	P	T	L	R	A	H	G	K	R	V	M	E	T	I	G	Q	T	V	G	S	L	D	D	L	D	P	I	L			
UniRef90_UPI0001CBA21E	L	E	G	V	G	I	E	N	I	K	N	V	P	F	L	R	V	H	A	S	H	V	L	I	Y	L	N	T	M	L	E	S	L	N	D	L	V	E	L	L			
UniRef90_Q575S4	L	K	N	I	T	L	E	E	M	Q	V	N	P	T	R	I	R	A	H	G	K	R	V	M	G	A	L	N	Q	V	I	Q	N	L	D	D	I	W	E	S	A	L	
UniRef90_UPI00042C01C9	F	G	N	L	S	T	S	A	I	L	H	N	T	R	V	H	D	H	G	K	K	V	L	N	S	F	G	S	A	V	K	N	M	D	H	I	K	E	S	F			
UniRef90_P06638	F						D	L	S	H	G	S	K	D	L	R	S	H	G	G	K	V	K	A	I	G	N	A	T	H	I	D	D	I	P	H	A	L					
UniRef90_F2Q9X0	M	D	Q	V	D	I	D	Q	F	E	K	N	I	A	L	R	A	H	I	T	R	F	L	H	S	F	D	T	S	V	S	L	D	D	L	Q	Q	L	L				
UniRef90_A0A034WEZ5	F	K	D	V	P	I	V	D	L	N	K	N	E	R	F	R	S	V	T	K	I	M	K	V	F	D	D	N	S	V	N	V	L	G	A	D	E	A	Q	I			
UniRef90_F2Q9X5	F	K	D	I	P	R	D	R	L	A	G	N	A	A	L	R	D	H	G	G	K	V	V	Q	A	L	D	D	F	I	K	G	L	D	S	G	H	E	T	V			
UniRef90_Q45X17	F	G	D	L	S	A	S	A	V	M	H	N	P	K	V	K	A	H	G	E	K	V	L	A	S	F	G	D	G	L	K	H	L	D	D	L	K	G	A	F			
UniRef90_Q90WH9	F	A	G	I	A	Q	G	D	M	A	A	D	A	G	I	S	A	H	G	A	T	V	L	R	K	L	G	E	L	D	K	A	K	G	S	H	A	A	I	L			
UniRef90_E9GCI5	F	A	N	V	P	V	D	S	L	R	G	N	G	D	Y	I	Q	Q	V	A	L	V	A	D	R	L	D	T	L	I	S	A	M	D	D	Q	L	Q	L	L			
UniRef90_I3N5Z8	F						D	L	S	H	G	S	P	G	S	A	V	K	A	H	G	Q	K	V	A	A	A	L	T	L	A	V	D	Q	L	D	L	P	A	L			
UniRef90_B9A9D4	F	V	G	I	P	Q	G	E	L	A	S	S	A	V	A	D	H	G	A	T	V	L	K	K	L	G	E	L	L	K	A	K	G	N	H	A	A	I	L				
UniRef90_P02132	F	G	N	L	N	A	D	A	V	F	H	N	E	A	V	A	A	H	G	E	K	V	V	T	S	I	G	E	A	I	K	H	M	D	D	I	K	G	Y	Y			
UniRef90_UPI0003AF406C	F	R	D	L	D	V	N	T	L	R	A	S	K	E	L	K	A	H	G	L	R	I	M	Y	L	I	E	K	T	V	D	Q	D	D	R	L	E	D	Q	L			
UniRef90_Q17153	L	G	D	V	S	A	E	N	I	K	Y	N	R	K	L	N	G	H	G	L	T	L	W	Y	A	L	I	M	N	F	V	D	Q	L	D	N	L	E	D	C			
UniRef90_P01979	F						D	L	S	H	G	S	A	Q	I	K	A	H	G	K	K	V	A	D	A	L	S	T	A	A	G	H	F	D	D	M	D	S	A	L			
UniRef90_R7URJ5	L	S	S	M	V	P	E	D	H	R	Y	R	K	E	I	S	E	H	G	V	R	V	L	N	T	V	D	T	L	L	R	L	R	H	D	P	D	E	T	L			
UniRef90_P19789	F						D	V	S	H	G	S	A	Q	I	K	A	H	G	K	K	V	V	A	A	L	V	E	A	V	N	H	I	D	D	I	A	G	A	L			
UniRef90_A4ZQH7	F						D	V	S	H	G	S	A	Q	I	K	A	H	G	K	K	V	V	A	A	L	V	E	A	V	N	H	I	D	D	I	A	G	A	L			
UniRef90_UPI000443AAAAE	F	G	D	L	S	A	D	A	V	M	G	N	P	K	V	K	A	H	G	A	K	V	L	Q	S	M	G	D	G	I	K	N	L	D	N	L	K	G	T	F			
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UniRef90_P02139	Y	G	N	L	S	P	A	A	I	M	G	N	P	K	V	A	A	H	G	R	T	V	E	G	G	L	M	R	A	I	K	D	M	D	N	I	K	A	T	Y			
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	90										100										110										120												
UniRef90_S8CU33	K	K	L	G	A	V	H	A	K	Y	G	V	V	Q	E	H	F	D	V	T	R	F	A	L	L	E	T	I	R	E	A	V	G	S	P	Q	L	K	N	A			
UniRef90_S6BEL0	T	N	L	G	T	T	H	K	A	K	G	V	D	S	K	E	Q	F	Q	Q	F	R	R	E	A	T	T	E	L	L	G	Q	L	G	L	G	N	L	G	A			
UniRef90_P01941	S	A	L	S	D	L	H	A	K	K	R	V	D	P	A	N	F	K	L	S	H	C	H	C	L	L	V	T	L	A	S	R	H	L	P	T	P	A	V	H	A		
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UniRef90_D5L2Y3	K	P	L	A	Q	T	H	A	T	K	H	V	D	P	V	K	Y	L	E	F	I	C	E	A	I	M	K	V	I	A	E	K	H	S	T	G	A	N	D	V	Q	A	A
UniRef90_K7F9V7	T	N	L	G	K	T	H	Q	A	V	G	V	K	V	D	S	F	S	A	V	G	E	S	L	L	F	M	L	A	E	K	C	L	S	T	G	A	N	D	V	Q	A	A
UniRef90_M3YFH4	A	K	L	S	E	L	H	C	D	K	H	V	D	P	E	N	F	K	L	L	G	N	V	M	V	C	V	L	A	R	H	F	G	T	P	Q	V	H	A	V			
UniRef90_P10781	A	D	L	S	N	L	H	A	N	K	R	V	D	P	V	N	F	K	L	L	A	Q	C	F	Q	V	V	L	A	V	H	L	G	T	P	E	V	H	V	A			
UniRef90_A6MHQ6	A	P	L	A	Q	S	H	A	N	K	H	K	I	P	V	K	Y	L	E	F	I	C	E	V	I	V	G	V	L	A	E	K	H	S	T	G	S	E	S	Q	A	A	
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UniRef90_Q3C1F3	K	K	L	G	A	T	H	F	K	K	G	V	I	P	E	H	F	F	E	V	T	K	Q	A	L	L	D	T	I	K	E	A	V	P	T	W	S	E	L	K	D	A	
UniRef90_C1BY71	A	A	L	S	V	K	H	S	K	L	H	V	D	P	D	N	F	R	V	L	A	E	C	I	T	V	C	V	L	A	E	K	L	G	N	A	E	D	T	Q	E	A	A
UniRef90_Q4RLN3	V	E	L	G	K	S	H	Y	H	Y	N	A	P	K	P	K	Y	Y	A	E	F	I	C	A	V	Q	P	I	L	K	E	R	F	T	S	E	L	E	E	A	A		
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UniRef90_P41331	S	K	L	S	D	L	H	A	K	L	R	V	D	P	D	N	F	Q	F	L																							

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



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UniRef90_I3IZ43	L	S	S	K	D	K	T	V	V	K	T	F	W	G	K	V	D	S	K	S	A	E	I	L	L	G	R	M	L	V	A	Y	P	Q	T	K	T	Y	F	S	H		
UniRef90_P14399																																											
UniRef90_Q9YGF5																																											
UniRef90_B7UCU6																																											
UniRef90_D1LX80	L	T	S	D	E	V	A	A	I	K	S	S	W	S	A	V	K	E	S	G	V	T	L	F	V	K	L	F	T	E	N	P	S	T	F	K	S	Q	F	G	Y		
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UniRef90_UPI00034F873C	L	S	D	G	E	W	Q	L	V	L	N	V	W	G	K	V	E	G	D	G	Q	E	V	L	I	R	L	F	K	G	H	P	E	S	T	L	E	K	F	D	K		
UniRef90_P14393	L	S	A	A	D	A	G	L	L	A	Q	S	W	A	P	V	F	A	N	G	A	S	F	L	V	A	L	F	T	Q	F	P	E	S	A	N	F	N	D				
UniRef90_B3EWC9	L	S	P	A	D	K	T	N	V	K	A	S	W	E	K	L	G	H	G	A	E	A	L	E	R	M	F	L	S	F	P	T	T	K	T	Y	F	P	H				
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UniRef90_G5BXY0	L	S	A	A	D	Q	A	A	V	R	A	L	W	K	K	M	G	T	N	A	T	E	A	L	E	R	T	F	L	A	F	P	S	T	K	T	Y	F	P	H			
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UniRef90_H2YFM6	L	T	T	E	E	V	I	T	L	R	T	T	W	A	E	I	S	K	V	G	L	A	V	L	H	R	L	F	N	D	C	P	E	V	R	P	F	F	P	P			
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UniRef90_A9GV91	L	S	Q	R	T	E	L	E	V	Q	W	S	W	A	K	V	S	D	A	A	A	L	F	Y	R	L	F	T	L	E	P	S	V	R	P	L	F	S	K	N			
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UniRef90_R7TLZ3	L	T	T	A	Q	R	A	A	I	Q	N	N	W	A	T	V	N	S	N	M	Q	E	F	F	M	R	Y	L	S	A	N	P	G	D	I	Q	F	F	P	K			
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UniRef90_UPI00032ADC07	L	S	P	E	E	K	A	A	V	T	A	L	W	N	K	V	E	D	V	G	G	E	A	L	R	R	L	L	I	V	Y	T	W	T	R	R	S	F	M	T			
UniRef90_S5ZYU7																																											
UniRef90_P11749																																											
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	1	10	20	30	40																																					
UniRef90_A8HTG8	L	S	A	K	D	K	D	T	V	K	L	F	W	A	K	V	A	D	K	A	E	E	I	L	S	R	M	L	A	V	Y	P	Q	T	K	T	Y	F	S	H		
UniRef90_C1BF40	L	T	S	D	H	E	K	E	L	I	A	K	I	W	D	K	M	I	P	V	A	S	D	I	L	L	R	M	M	T	T	F	P	E	G	T	K	T	Y	F	A	H
UniRef90_G4HG40	L	S	E	K	T	I	A	T	I	K	S	T	V	P	V	L	E	Q	H	G	V	T	I	F	Y	R	M	F	K	A	H	P	E	L	L	N	I	F	N	H		
UniRef90_UPI000477A4C2	M	T	N	K	Q	Q	I	Q	L	V	K	S	T	W	K	L	L	R	A	V	L	G	D	V	F	Y	R	L	F	F	K	Y	P	M	L	R	N	I	F	N	H	
UniRef90_R7Z646	L	T	P	G	Q	V	E	I	V	K	S	T	I	P	V	L	Q	D	H	G	V	A	I	Y	E	R	M	L	N	A	H	P	E	L	K	N	I	F	N	H		
UniRef90_UPI00032ABB17	L	T	E	K	Q	E	A	L	V	K	S	S	W	E	A	F	K	Q	N	I	V	F	Y	S	S	L	L	E	K	A	P	E	S	K	D	M	F	S	F			
UniRef90_P06148	L	T	T	A	Q	I	K	A	I	Q	D	H	W	G	C	L	Q	A	A	A	D	S	I	F	F	K	Y	L	T	A	Y	P	G	D	L	A	F	F	H	K		
UniRef90_G9DBN1	T	D	H	E	R	Q	T	I	A	D	V	W	G	K	I	N	H	D	E	I	G	A	L	A	R	L	L	I	V	F	P	W	T	Q	R	Y	F	S	S			
UniRef90_U5DJ61																																										
UniRef90_G4QHE2	M	T	I	K	Q	S	I	V	V	K	S	S	W	E	A	F	K	P	R	A	E	A	F	A	R	L	F	A	D	Y	P	A	A	K	P	L	F	S	S	G		
UniRef90_W9VZS9	L	S	E	Q	Q	K	A	L	V	K	S	T	A	P	V	L	Q	E	H	G	V	A	I	Y	K	R	L	L	S	N	H	P	T	L	R	N	I	F	N	T	S	
UniRef90_Q9PVL7	T	N	D	E	R	K	D	I	H	E	V	W	G	K	V	K	A	D	G	A	D	A	L	A	R	V	L	I	V	N	P	W	T	R	K	H	F	S	S			
UniRef90_Q5EEZ5	L	S	A	K	D	K	A	Q	V	K	A	L	W	A	K	A	E	S	K	G	A	E	A	L	G	R	M	L	V	S	Y	P	Q	T	K	T	Y	F	T	H		
UniRef90_J5JNA3	L	T	Q	S	Q	I	D	I	V	K	S	T	A	A	I	L	K	D	Q	G	D	R	I	Y	V	N	M	L	T	A	H	P	E	L	K	N	Y	F	S			
UniRef90_UPI00027F7E11	T	A	D	E	R	A	A	V	T	S	L	W	S	K	V	D	V	R	S																							
UniRef90_P02214	L	D	G	A	Q	K	T	A	L	K	E	S	W	K	V	L	G	A	D	G	P	T	M	F	G	L	L	F	K	T	Y	P	D	T	K	K	H	F	H			
UniRef90_Q8AYQ4	L	T	A	K	D	K	D	A	V	R	T	F	W	A	K	I	S	G	K	A	D	D	V	L	S	R	M	L	K	V	Y	P	Q	T	K	T	Y	F	S	H		
UniRef90_E9FRN3																																										
UniRef90_UPI0003334593	L	S	A	R	E	H	G	H	I	A	Q	V	W	D	L	I	A	G	H	G	A	E	L	L	L	R	L	F	T	V	Y	P	S	T	K	I	Y	F	S	H		
UniRef90_Q45X11	L	T	D	G	E	K	A	L	V	N	G	I	W	S	K	V	D	V	D	G	G	Q	A	L	G	C	L	L	I	V	Y	P	R	T	Q	R	F	F	E	S		
UniRef90_A3AFU2	T	E	E	Q	E	A	L	V	L	K	S	W	A	I	M	K	N	D	S	A	H	I	F	L	K	L	F	E	V	A	P	S	A	R	Q	L	F	F	S			
UniRef90_P80945	L	S	A	K	D	M	A	V	V	K	G	F	W	N	K	I	A	P	K	A	D	E	I	L	G	R	M	L	R	V	F	P	Q	T	K	A	Y	F	S	H		
UniRef90_X1ZAM1	S	G	A	E	V	S	A	I	Q	G	H	W	N	A	V	K	P	N	A	N	A	L	F	V	K	Y	F	T	A	N	P	A	D	Q	A	L	F	K	S			
UniRef90_C1EC08																																										
UniRef90_Q9FEP8	T	A	Q	Q	E	A	L	V	G	S	S	Y	E	T	V	K	K	N	S	V	L	F	Y	T	V	I	L	E	I	A	P	T	A	K	D	M	F	S	F			
UniRef90_UPI0003F4CB53	L	S	S	D	H	A	E	T	V	R	A	T	L	P	A	V	A	A	H	G	V	E	I	F	Y	A	M	F	A	A	H	P	E	L	R	N	I	F	N	Q		
UniRef90_Q6CB74	L	T	D	A	Q	K	I	K	D	S	A	P	F	L	A	E	N	G	T	D	F	A	A	K	M	F	A	T	Y	P	E	V	I	R	Y	F	N	Q				
UniRef90_O13077	T	D	S	E	R	A	I	I	N	S	I	F	S	N	L																											
UniRef90_UPI0004293D32	L	D	Q	N	T	I	D	I	I	K	S	T	V	P	V	L	E	K	H	G	T	D	I	T	K	R	F	F	E	N	Y	P	E	L	K	N	I	F	N	Q		
UniRef90_L7X0Q0	L	S	E	R	E	K	D	V	V	K	E	T	V	P	V	L	Q	D	K	H	G	V	E	I	Y	A	R	M	F	K	Q	H	P	E	L	K	N	M	F	N	Q	
UniRef90_W9YS10	L	S	P	E	H	Q	A	L	V	K	S	T	V	P	V	L	A	E	H	G	V	A	I	Y	K	R	L	L	N	N	H	P	E	L	R	N	I	F	N	S		
UniRef90_M3X009																																										
UniRef90_UPI0003D0F472																																										
UniRef90_B3EWR8	S	S	S	E	R	S	V	I	S	G	L	W	A	K	V	N	A	A	E	V	G	A	L	A	R	L	L	V	L	Y	P	W	T	Q	R	Y	F	G	K			
UniRef90_UPI00035F1C6F	S	A	D	A	Q	L	I	R	R	T	M	E	E	V	A	P	V	A	D	K	F	Y	A	L	L	F	I	R	H	P	E	L	R	E	L	F	P					
UniRef90_UPI00042384CF	L	T	D	N	E	I	K	I	K	S	S	A	P	A	L	A	E	Y	G	E	Q	I	T	G	R	L	L	E	K	N	P	E	L	K	N	I	F					
UniRef90_D2AQM5																																										
UniRef90_Q0CEI5	L	T	P	Q	Q	K	E	L	V	K	A	T	I	P	A	L	E	K	H	G	V	E	I	F	Y	K	M	L	A	K	H	P	E	L	H	N	I	F	N	T		
UniRef90_UPI0004545EE9	T	A	D	E	K	A	A	I	T	S	I	W	D	K	V	E	K	V	D	G	G	E	T	L	G	R	L	L	I	V	Y	P	W	T	Q	R	F	F	D	K		
UniRef90_UPI00037DED22	M	T	K	Q	Q	I	Q	L	V	K	Q	T	W	I	F	L	E	K	D	P	A	D	V	F	Y	Q	L	F	I	K	Y	P	S	L	R	S	M	F	K	G		
UniRef90_UPI00035CEF7B																																										
UniRef90_UPI0003AFB808	L	T	L	E	E	K	L	L	V	T	A	L	W	S	K	V	A	E	V	G	V	E	T	L	G	R	L	L	V	V	Y	P	W	T	Q	R	F	F	E	S		
UniRef90_F2L978	L	T	A	E	Q	M	A	R	V	K	A	T	A	P	V	L	A	A	H	G	S	T	L	Y	A	R	M	F	R	H	H	P	E	L	K	N	L	F	N	Q		
UniRef90_UPI0001E86EA0																																										
UniRef90_O04939	T	E	K	Q	E	A	L	V	N	S	S	W	E	A	F	K	G	N	I	V	V	F	Y	T	S	L	L	E	K	A	P	A	A	K	N	L	F	S	F			
UniRef90_M3W4U4																																										
UniRef90_Q9RC40	L	S	Q	E	T	K	Q	I	V	K	A	T	V	P	I	L	A	E	H	G	E	A	I	Y	K	R	M	F	S	H	H	P	E	L	L	N	I	F	N	Q		
UniRef90_A0A044VD66	L	S	R	E	Q	R	A	L	I	Q	E	T	F	K	H	L	Y	G	N	G	Q	K	I	F	V	L	L	K	D	F	P	E	Y	E	K	L	I	W	Q			
UniRef90_W5XXL5	L	S	P	E	H	E	A	T	I	K	A	T	L	V	L	G	G	K	N	E	I	Y	K	K	M	F	T	A	H	P	E	L	I	A								
UniRef90_I0JWE7	M	T	Q	E	Q	I	K	L	I	Q	K	S	W	L	Y	V	K	A	D	E	A	G	F	Y	K	R	L	F	E	V	E	P	N	V	R	S	L	F	R			
UniRef90_R7TL54	L	S	A	E	H	K	T	T	I	R	D	T	W	P	L	I	S	H	N	G	I	V	V	F	E	K	I	F	E	V	S	P	S	I	R	T	V	F	P	A		
UniRef90_H2T5Q8																																										
UniRef90_UPI00037A27CA	L	S	A	Q	D	R	A	I	V	K	S	T	V	P	L	L	E	S	G	G	E	A	L	F	Y	R	M	L	S	E	Y	P	Q	V	R	P	L	F	N	Q		
UniRef90_D3SCW1	L	S	D	D	H	K	A	I	I	Q	K	T	V	P	I	L	E	S	G	G	E	D	L	T	R	H	F	F	R	D	Y	P	E	V	R	P	L	F	N	Q		
UniRef90_UPI000359ECD9	L	S	A	A	E	A	D	L	L	S	K	S	W	A	P	V	F	A	N	G	D	N	F	L	V	A	L	F	E	K	F	P	D	S	A	N	F	F	A	D		
UniRef90_UPI0003C1633B																																										
UniRef90_P20244	L	S	E	G	N	K	K	A	I	K	N	L	F	Q	K	I	H	S	D	G	A	E	A	L	A	R	L	F	E	C	H	P	Q	T	K	S	Y	F	P	K		
UniRef90_R7UZ91																																										

UniRef90\_A8HTG8 WK D L S P 50 G S A P V L N K H G K T I M L G V A D A V A S I D D L N A G L  
UniRef90\_C1BF40 L D R P R S P H L R S G H K K I V L A I A E A S K D I S S M M V T L  
UniRef90\_G4HG40 A N Q Q R G R Q Q T A L A N T V Y A A E A L H I D R L E A I L  
UniRef90\_UPI000477A4C2 P M A S Q Y Q K F I D M L S I I V A R I D R P D S I A  
UniRef90\_R72646 N A H Q A T G A Q T P A A L A H A V W A Y A S N I E N L E A L K P A V  
UniRef90\_UPI00032ABB17 L K N F D G I P H Q N S T L E A A H A E K I F D M T R D A I I Q L R A N D V T L  
UniRef90\_P06148 F S S V P L Y G L R S N P A Y K A Q T L T V I N Y L D K V V D A L G N A G K L M  
UniRef90\_G9DBN1 F G N L N A A A I I Q G N T D M E A Q S K K L L S M L D Y V V A H L K Y P V A L L V  
UniRef90\_U5DJ61 D M V E Q G N K L M S M L D A A I K L L D D P D K L V  
UniRef90\_Q4QHE2 A H Q E T G A Q P A A L A H A V W A Y A N N I D N L G A L E T A V  
UniRef90\_W9VZS9 F G D L S P E A I L H N P K I A A H G A K V V H S I I E A S K H L D D L K G Y Y  
UniRef90\_Q9PVL7 W G A G E V V P N S P K V R K H G A T I M S A V G K A I K S I D D L P G A V  
UniRef90\_Q5EEZ5 L R N Q A T G A Q Q A A L G A S V L A Y A S Y I D D L P R L T S A V  
UniRef90\_J5JNA3 F G N L G S D C I X G N P R V K A H X K K V L I S F R N A V T L M D D L K G T F  
UniRef90\_UPI00027F7E11 F D D A T F A A M D T T G V G K A H G V A V F S G L G S M I D D D C Y B G L A  
UniRef90\_P02214 W T D L S P A G S A S V K K H G K T V I G G V A D A V A K I D A L S S G L  
UniRef90\_Q8AYQ4 F T G V V L D D L K K S K L L S E H A L R V M G A V Q R A V H R L Q E P E K L L  
UniRef90\_E9FRN3 L S A S L D E T M L L S H G Q R M L T A V G V A V Q H V H N L R A A L  
UniRef90\_UPI0003334593 F G D L S A D A I I K N P K V A A H G K K V N T S F S E G M K H L D D L K G T F  
UniRef90\_Q45X11 L R N S D V P L E K N P K L K I H A M A V F V M T C E A A A Q L R E N M T T V L  
UniRef90\_A3AFU2 W K D T S P N S P E V K K H G A L I L A T I G D V V N R I E N M T T V L  
UniRef90\_P80945 F A G V G I G D L S G N A F N K Q T L A V I T Y V D K V V A G L G N A A Q L M  
UniRef90\_X1ZAM1 F R N E P N L Y D S L T L K A H G V N V N T V G K A V A G L R E F Y T L L  
UniRef90\_C1EC08 L K E S G P K H S P Q L Q A H A E K V F A L T R D A A T Q L A K G E V T L  
UniRef90\_Q9FEP8 G N Q A N G E Q R Q A L A G S V A A F A E H L V T P D S G I Q Q I M  
UniRef90\_UPI00034FCB53 S D Q K N L A Q P K I L A H A L V A Y A S N I D N L G V L S D F V  
UniRef90\_Q6CB74 F G N L N A E T I L C N P L I A A H G T K I L H G L D R A L K N M D D I K N T Y  
UniRef90\_O13077 T N Q R K G D Q P K A L A L A N T V Y A A A K Y I D K L E T I L P V V  
UniRef90\_L7X0Q0 A H Q S T G T Q P A A L A H A L V A Y A A H I D L G V L T S A V  
UniRef90\_W9YS10 F S S P E D C L S S P E F L D H I R K V M F V I D T A V T N L S S L E Y L  
UniRef90\_M3X009 L D L K P G S S Q V K A H A Q K V A D A L T L A A H L S D D L P G S L  
UniRef90\_UPI0003D0F472 F G D L S N A A L M G N A N V A K H G K D L L A D L K A V K N M D N V K A L Y  
UniRef90\_B3EWR8 N M T N Q K S G N Q K Q A L A M A V Y A F S K Y V D N L S V I L G D V  
UniRef90\_UPI00042384CF P A M D L Q R D R L L H A L T Q V V L N L E D L N D Y L  
UniRef90\_D2AQM5 A H Q A T G E Q P A A L A H A V W A Y A S N I D H P E A L A T A V  
UniRef90\_QQCEI5 F G N L S A T A I M G N P R I R A H G K K V L T S L G L A V Q N M X L  
UniRef90\_UPI0004545EE9 P M E R Q Y Q K F V D M L S I I V A R L D Q Q D T V A  
UniRef90\_UPI00037DED22 A S M A G Q R D R L V T A L G R I V A G V G Q P D V M L  
UniRef90\_UPI00035CEF7B F G N L P A D D I M G N A K V K A R D N K V L D S F T E G L K Y V D H L K G V F  
UniRef90\_UPI0003AFB808 A G G S Q P E A L A R A V Y A Y A A N I D N L S V L G S A V  
UniRef90\_F2L978 L A N L H L G V D P T N P K L T A H A E S L F G L V R D S A A Q L R A N G A V V  
UniRef90\_UPI0001E86EA0 F T Q G R Q P Q A L A N S A Q V K A H G K K V A D A L T R A V A H L D D L P T A L  
UniRef90\_O04939 F R A I P D S S I I T A G A I K Q H G L V Y M A G L K D I I D S M E D E E K M I  
UniRef90\_M3VUA4 F N R G N Q K Q G E Q Q K A L A A S I A S F A S M L V D S A P D P V A M L  
UniRef90\_A0A044VD66 E N I E K Q G R K K I D V L N W I V L N L Q D I D T A L  
UniRef90\_W5XKL5 S P I P D A Y E L S R A S N L R D H V T R F M Q A V G W S V Q H M D D L D T V F  
UniRef90\_I0JWE7 F Q D E D P E E M E R S Q L R H A C R V M N A I N T V E N L H D P E S V L  
UniRef90\_R7TL54 A H Q A S G D Q P R A L A N G V L M Y A R H I D Q L D Q L G D L V  
UniRef90\_H2T5Q8 A H Q A S G Q Q A R A L A N A V I L Q Y A R H I D E M E A L G P L V  
UniRef90\_UPI00037A27CA F K G K S I A D I K A S P K L R D V S S R I F A R L N E F V N N A G K M S A M L  
UniRef90\_UPI000359ECD9 L G D H P D E V Q L L S H G Q R M L Q A V G V A V R Y L D N L R A V L  
UniRef90\_UPI0003C1633B F S G F S A N D K R V K H H G A L V L K A L V D T N K H L D D L P H H L  
UniRef90\_P20244 F E N V A Y N D L V S N S A F N A Q T L V V M E F L G K V V N L G D L N A M L  
UniRef90\_R7UZ91 D M A N Q E S G R Q P I A L A S A V L A Y A Q V I D N P S V L E P A L  
UniRef90\_UPI0003675E6A S H H G E T G S Q P K A L A Q A V L A Y A R N I D N L G V L G G A V  
UniRef90\_B0UIC5 W P D L G P G S P S V K K H G K V I M A A V G D A V G K M N D L V G A L  
UniRef90\_P80726 T H Q A S G D Q Q R A L A N G V L M Y A K H I D H L D A L G P L V  
UniRef90\_UPI0002556D92 S G D L S A D A I M S D T P K V K A H G K K M L D F F G E G I K L N D L K G T F  
UniRef90\_C7PVF6 P A G M P V T K V S E T L N T V I T S L I E Q L D A L G F I I  
UniRef90\_UPI00004F418F F R G M K G E A L L E S V A L D V H G M V V M N T M D E M V S H M D F I E E I L  
UniRef90\_UPI000423RLQ7 A N T D V F K E Q S K K L A S L V F V V E N L K K P G A L L  
UniRef90\_T1EP07 L I K Y G D N W R D S R E F R A Q A L K F V Q T S Q V V K N I Y H M E T L L  
UniRef90\_K9Q0C7 S R Q Q T G G Q P K A L A F T V L Q A A E N I D R L E D L L P V V  
UniRef90\_UPI00016VCN3 V K S E D M R S P Q F K A H I A R V I G G L D R V I D N E D A L N A D L  
UniRef90\_Q65M00 W G S D L N P Q H P M V K K H G A I I M G G I G K A V K N I D D L V R G L  
UniRef90\_S0BBU7 T H Q K V G E Q P K A L A N A V Y M A A A H I D E L E T I L P M V  
UniRef90\_Q9PVM3 F R T L Q D S S A L K Q G K Q Q T A L A Q T V L A A A K H I D Q L E A I V P N V  
UniRef90\_UPI0002E4C509 L I K Y G D N W R D S R E F R A Q A L K F V Q T S Q V V K N I Y H M E T L L  
UniRef90\_B3GWE1 G N Q A N G T Q R R A L A G S I A H F A S A L V D E Q G R P E G I L  
UniRef90\_UPI00034A765B L R N Q Q T G A Q Q A L A N S V L A A A T H I D N L S V I L G A V  
UniRef90\_G9N8G9 D R H R G G T V K E E N G I P K Q V A A L G G A V I S Y A K N I D R V E A L L  
UniRef90\_R7QRC5 L D I S P R S P H M L S H G R K I V L A I A E G A Q D I S Q L A G V S L  
UniRef90\_H3D5V1 S H Q K A G G G Q P E A L A R A V W A Y A A N I D N L G A L G G A V  
UniRef90\_C5AB71 F H Q K D F H K D S P Q I K A H G K K V V D A L T E A S K H L D N I N G A L  
UniRef90\_P83113 A A Q E S G E Q P R R L A G A I L A Y A Q N I D K A L E A L V  
UniRef90\_F6IGG7 D T T D M T E Q K K K L A S L V L V E N L D A L E G A L  
UniRef90\_L8M4R4 L F H N E R D E Q A K K L M K L I G F A V T K I P E I E E T V  
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UniRef90\_Q5YTF8 A A M D T Q R D R L V R A I G H V I D R L E A

	90										100										110										120											
UniRef90_A8HTG8	L	A	L	S	E	L	H	A	T	L	R	V	D	P	A	N	F	K	I	L	A	H	C	I	L	V	V	L	S	I	K	F	P	K	D	F	T	P	E	V		
UniRef90_C1BF40	A	P	L	Q	T	L	H	V	K	L	R	V	D	P	C	H	F	K	I	L	A	H	C	I	L	V	V	L	S	A	A	K	M	G	D	A	P	V	A	H	E	A
UniRef90_G4HG40	K	Q	I	A	H	K	H	R	S	L	G	V	K	P	A	N	F	K	I	L	A	H	C	I	L	V	V	L	S	A	A	K	M	G	D	A	P	V	A	H	E	A
UniRef90_UPI000477A4C2	Q	E	L	S	R	S	H	A	G	Y	G	V	K	P	H	F	K	I	L	A	H	C	I	L	V	V	L	S	A	A	K	M	G	D	A	P	V	A	H	E	A	
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UniRef90_UPI00032ABB17	E	Y	L	A	S	V	H	V	K	G	V	T	D	Q	H	F	K	I	L	A	H	C	I	L	V	V	L	S	A	A	K	M	G	D	A	P	V	A	H	E	A	
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UniRef90_Q5EEZ5	S	A	L	S	E	L	H	A	Q	L	R	V	D	P	C	H	F	K	I	L	A	H	C	I	L	V	V	L	S	A	A	K	M	G	D	A	P	V	A	H	E	A
UniRef90_J5JNA3	E	R	I	A	H	K	H	A	S	L	G	V	R	P	E	Q	Y	A	I	V	G	E	H	N	I	V	G	A	F	A	E	V	L	G	T	P	E	V	A	D	A	
UniRef90_UPI00027F7E11	A	M	L	S	A	L	H	C	D	K	H	T	D	P	E	N	F	L	L	L	G	N	V	I	L	M	V	L	A	T	H	F	S									
UniRef90_P02214	K	K	L	S	R	N	H	L	A	R	G	V	D	P	A	N	D	F	K	L	L	E	A	V	F	K	Z	F	L	D	E	A	T	Q	R	K	D	E	A	T	D	A
UniRef90_Q8AYQ4	L	S	L	S	E	L	H	A	T	L	R	V	D	P	A	N	F	K	I	L	A	H	C	I	L	V	V	L	S	A	A	K	M	G	D	A	P	V	A	H	E	A
UniRef90_E9FRN3	S	E	L	G	R	K	H	E	K	N	G	A	K	L	E	Y	I	D	Y	I	G	P	Q	F	L	C	A	I	R	P	I	L	G	D	D</							

UniRef90\_A8HTG8 H V S L D K F L A A L A R A L  
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UniRef90\_G4QHE2 W T A V Y K T L A D T M I  
UniRef90\_W9VZS9 W K A A Y G Q L A D I F I N  
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UniRef90\_Q5EEZ5 V D K F L N N L A L A L S E K  
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UniRef90\_X1ZAM1 W K A A G T E L V A A M R  
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UniRef90\_Q6CB74 W T V A Y T Q L A N I L L I D A  
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UniRef90\_UPI0004293D32 W E K A Y G V I A D V F I S  
UniRef90\_L7X0Q0 W K K A Y Q E I A D I F I S  
UniRef90\_W9YS10 W A A A Y Q Q L A D I  
UniRef90\_M3X009 W S Q L Y G A V V Q A M  
UniRef90\_UPI0003D0F472 L D K F L G H V T S A L V S K  
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UniRef90\_UPI00042384CF W A S G Y G V L A N V  
UniRef90\_D2AQM5 W M T A Y N Y I A E V M I Q A  
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UniRef90\_UPI00037DED22 W K A C Y D A I  
UniRef90\_UPI00035CEF7B W T E A Y G L V A Q V M  
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UniRef90\_I0JWE7 W I K A Y E A L A Q V M I E E  
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UniRef90\_W9GC32 W A D A Y G V V A A T M V G A  
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UniRef90\_M3FBC5 W E E A Y G V I A N A M Y A N M



	1	10	20	30	40																																					
UniRef90_D3G0B8	L	S	K	E	T	S	I	I	K	S	T	V	P	V	L	E	V	H	G	T	K	I	T	T	R	L	F	S	R	H	P	E	L	L	N	I	F	N	H			
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UniRef90_UPI0002486154	L	T	P	E	H	E	A	T	V	T	A	T	L	P	A	I	G	A	N	T	G	E	I	F	Y	A	M	F	A	E	H	P	E	L	L	A	E	F	N	T		
UniRef90_UPI0001FFF3D6	L	T	D	R	T	V	E	L	I	R	N	S	F	A	L	V	E	P	Q	A	E	E	F	Y	A	R	L	F	S	R	A	P	E	T	R	D	L	F	P	N		
UniRef90_W4CHU2	L	T	Q	E	T	R	D	I	V	K	S	T	A	P	V	L	A	E	H	G	T	T	I	F	Y	R	L	F	E	A	H	P	E	L	L	N	I	F	N	H		
UniRef90_UPI00047BD293	L	T	D	K	T	I	E	L	I	K	S	T	V	P	V	L	E	K	H	G	E	D	I	F	Y	N	L	F	T	N	H	P	E	L	L	N	I	F	N	H		
UniRef90_R7T8Q8	L	S	A	E	A	I	A	S	I	Q	A	H	W	N	A	V	S	A	N	G	E	N	A	L	F	Q	Q	Y	F	A	K	Y	P	A	D	Q	G	K	F	K		
UniRef90_UPI00035E6D7F	L	S	E	H	V	I	K	T	V	K	E	T	A	P	V	L	A	E	H	G	E	A	I	F	Y	Q	K	L	F	A	N	H	P	E	L	Q	N	T	F			
UniRef90_P13578	S	A	A	D	R	H	E	V	L	D	N	W	K	G	L	W	S	A	G	Q	A	I	F	Q	E	L	F	A	L	D	P	N	A	K	G	V	F	G	R			
UniRef90_A8STB9																																										
UniRef90_UPI0003AFF6E3																																										
UniRef90_Q7SID0	L	T	D	G	D	K	K	A	I	N	K	I	W	F	K	I	Y	K	E	S	L	N	I	L	L	R	F	L	K	C	F	P	N	Q	A	Q	A	S	F	P	K	
UniRef90_U6PHR6	S	V	R	E	K	E	L	L	R	R	T	W	E	F	L	I	Y	D	L	G	S	S	I	Y	Y	I	F	E	H	N	P	N	L	C	Q	K	L	F	P	S		
UniRef90_J9MPV5	L	I	P	E	Q	I	K	V	S	T	I	P	A	L	E	K	H	G	L	E	I	F	Y	R	L	L	N	K	P	H	P	E	L	L	N	I	F	N	R			
UniRef90_UPI000372B2AE	L	T	Q	K	T	K	D	I	V	K	A	T	A	P	V	L	A	E	H	G	Y	P	I	Y	E	R	L	F	E	A	H	P	E	L	L	N	I	F	N	M		
UniRef90_E8WCH9	L	T	D	R	E	I	S	L	V	R	T	S	L	T	V	V	A	P	Q	A	T	E	M	F	Y	A	L	F	A	R	Y	P	E	V	R	G	L	F	P	E		
UniRef90_K9Y083	L	S	Q	K	T	I	D	I	V	K	S	T	A	P	V	L	K	E	N	S	T	E	I	G	K	R	L	F	T	K	V	P	E	L	L	N	I	F	N	Q		
UniRef90_UPI0002628C30	L	D	T	E	K	L	A	I	V	K	S	S	A	P	V	L	K	E	N	S	T	E	I	G	K	R	L	F	T	K	V	P	E	L	L	N	I	F	N	Q		
UniRef90_UPI0001A63392	L	T	N	E	Q	L	L	L	L	Q	T	S	W	S	I	V	K	H	I	E	K	I	F	L	G	I	F	E	Q	H	S	D	F	R	D	A	F	T	E			
UniRef90_G2QJ43	L	T	E	N	Q	I	A	I	V	K	S	T	V	P	V	L	K	E	H	G	A	T	I	T	T	V	F	Y	K	E	N	P	E	L	N	S	I	F				
UniRef90_I0HJM9																																										
UniRef90_S2XIL7	L	S	S	Q	T	I	A	I	V	K	S	T	V	P	V	L	L	A	E	H	G	Q	N	I	F	Y	K	L	F	S	A	H	P	E	L	L	N	I	F	N	H	
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UniRef90_UPI0004245EE8	L	S	D	E	H	A	E	V	V	R	A	T	L	P	A	I	G	A	H	I	N	E	I	Y	Q	K	M	F	A	A	H	P	E	L	I	D	T	F	N	R		
UniRef90_A0A016PHW4	L	T	A	A	Q	V	A	I	V	K	S	T	A	P	V	L	K	E	A	N	A	E	K	T	I	F	Y	R	M	L	G	A	H	P	E	L	L	K	N	Y	F	S
UniRef90_F0SHM8	L	S	A	K	T	I	E	I	V	K	A	T	L	P	V	L	A	E	A	N	A	E	K	T	I	Y	Q	R	M	F	T	A	N	P	E	V	K	A	Y	F	N	Q
UniRef90_X7F9A6	M	T	P	E	Q	L	E	L	V	T	E	S	F	R	R	T	F	A	G	K	T	A	F	Y	D	R	L	F	A	E	H	P	E	L	R	P	L	F	P	Q	Q	
UniRef90_K4RAU4	L	S	V	Q	S	A	A	T	V	R	A	T	L	P	A	V	L	G	A	N	L	D	A	I	T	T	R	F	F	A	A	R	H	P	E	L	R	D	L	F	N	Q
UniRef90_J8Q8L3	L	N	S	K	T	I	A	I	V	K	S	T	V	P	V	L	E	A	N	L	G	E	I	T	T	R	F	F	Q	A	R	H	P	E	L	L	N	I	F	N	H	
UniRef90_Q9RYR5	L	T	P	E	Q	K	A	I	V	K	A	T	V	P	A	L	E	A	H	G	E	T	I	Y	A	S	M	F	A	A	H	P	E	L	L	N	I	F	N	H		
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UniRef90_UPI00036F44FA	L	S	E	K	A	T	P	V	V	R	A	T	L	P	V	L	E	G	A	D	I	T	E	L	F	Y	R	L	F	D	A	H	P	E	L	R	D	L	F	N	R	
UniRef90_UPI0003FA27BA	L	T	D	I	Q	R	D	I	V	K	A	T	V	P	I	L	E	V	G	G	E	A	L	T	T	H	F	Y	E	D	Y	P	E	V	R	P	L	F				
UniRef90_W4RPS1	L	D	Q	K	T	I	E	I	I	K	S	T	V	P	V	L	E	V	H	G	E	Q	I	F	Y	K	M	F	E	N	H	P	E	L	L	N	I	F	N	H		
UniRef90_E1GHG3																																										
UniRef90_UPI0003711A7B	M	T	R	E	Q	K	Q	L	V	K	D	T	V	P	V	L	R	E	N	G	V	H	F	Y	E	R	M	L	T	H	N	P	E	L	K	H	V	F				
UniRef90_V4PJ00	M	T	P	A	Q	I	R	L	V	Q	A	S	F	A	E	R	L	G	A	T	A	A	E	V	F	Y	H	L	F	V	L	D	P	S	L	K	P	M	F	R	S	
UniRef90_UPI0004768E81	M	T	P	E	Q	I	R	L	V	Q	A	S	F	D	R	L	R	Q	G	A	S	I	F	Y	R	F	F	E	L	S	P	S	L	R	P	L	F	R	T			
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UniRef90_G1QF83																																										
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UniRef90\_A1ZE02 WA E A Y G Q L A Q L L I G E  
UniRef90\_COLT99 WD D C F Q V I S D G I A H D L



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UniRef90_G2Z488	M	T	L	D	Q	K	N	L	I	R	E	S	T	A	Q	I	E	P	K	A	D	E	F	Y	A	A	L	F	V	V	A	P	D	C	R	A	L	F	F	P	
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UniRef90_F8FL46	L	S	Q	P	T	I	D	I	I	K	S	T	V	P	V	L	E	V	H	G	T	A	I	Y	E	R	M	F	S	R	Y	P	E	S	I	H	I	F	N	H	
UniRef90_H2ZAE8	M	N	A	Q	E	I	Q	D	V	R	D	S	W	K	R	L	C	A	D	G	E	K	L	M	Q	K	L	F	N	T	Y	P	E	S	I	K	V	F	S	R	
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UniRef90_UPI00044BSQ2	L	S	E	H	Q	T	Q	L	I	K	E	S	F	A	L	V	G	D	K	I	V	S	Y	F	Y	A	L	F	T	E	C	P	A	L	R	D	M	F	P		
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UniRef90_W7D677	L	T	E	E	Q	K	Q	I	V	K	S	T	A	P	I	L	K	E	H	G	K	E	I	Y	K	K	M	F	A	D	H	P	E	L	L	N	Y	F	N	Q	
UniRef90_I0JTK3	L	N	D	H	T	I	K	V	I	K	S	T	V	P	V	L	E	E	H	G	E	A	I	T	T	H	L	F	L	N	H	P	E	L	K	N	I	F	N	Q	
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UniRef90_E0VF27																																									
UniRef90_UPI0004748B06																																									
UniRef90_B3EWR7	L	S	D	K	D	K	T	F	V	K	A	F	W	G	K	L	K	G	K	G	A	E	A	L	A	R	M	F	G	A	F	P	A	T	K	S	Y	F	A	H	
UniRef90_V8PEV3																																									
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UniRef90_V9XKM6	L	S	P	S	K	D	V	I	A	A	T	S	W	A	G	V	G	A	A	V	G	T	A	F	Y	V	H	L	A	A	D	V	P	D	V	Y	A	V	F		
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UniRef90_H2K3M3																																									
UniRef90_H1VJL2	L	T	Q	D	Q	I	N	I	V	K	S	T	A	P	V	L	K	V	H	G	E	T	I	T	T	L	F	Y	K	D	H	P	E	L	K	N	I	F	S		
UniRef90_A4FQN9																																									
UniRef90_G2G700																																									
UniRef90_UPI000374A1B6	L	S	P	R	T	I	E	L	V	K	A	T	V	P	A	L	E	A	H	G	M	E	M	Y	A	R	M	F	R	D	P	A	I	R	D	L	F	N	Q		
UniRef90_G0HBZ0	L	S	P	A	H	E	E	T	V	K	A	T	L	P	V	I	G	E	N	I	G	D	I	F	Y	A	M	F	A	E	N	P	S	T	K	T	Y	F	H		
UniRef90_UPI0003D77195																																									
UniRef90_UPI000478A6DA																																									
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UniRef90_K7SC23	L	T	P	D	V	I	A	I	I	K	A	T	I	P	A	L	E	A	H	G	L	D	I	M	Y	R	R	L	L	A	D	P	A	I	A	E	M	F			
UniRef90_S3D2U5	L	T	K	S	Q	I	Q	T	I	K	A	T	V	P	V	L	A	Q	H	G	E	T	I	T	K	L	L	V	A	H	P	E	L	K	N	I	F	N	S		
UniRef90_S2KG16	L	T	N	D	Q	E	R	L	I	E	A	T	A	P	V	V	A	D	H	L	D	A	I	T	T	Q	R	F	F	Q	R	Y	P	E	L	V	K	P	L	F	N
UniRef90_UPI0003AD3F17																																									
UniRef90_UPI0003719C2B	L	T	D	E	Q	A	D	T	V	K	V	T	L	P	G	V	G	E	N	I	E	T	I	Y	S	R	M	F	T	A	H	P	E	L	R	D	T	F	N	R	
UniRef90_UPI00047789D8																																									
UniRef90_E3N467																																									
UniRef90_I9W8G5	L	S	A	E	A	R	P	Y	I	D	A	S	V	P	V	L	R	E	H	G	L	A	I	F	Y	R	M	F	A	A	H	P	E	L	T	N	L	F			
UniRef90_UPI000273DCC4	L	T	K	T	E	R	T	I	I	V	S	M	W	A	K	E	S	T	Q	G	T	E	T	L	E	R	L	F	F	S	H	P	E	Y	T	K	T	Y	F	H	
UniRef90_A8QDR7	L	T	Q	K	Q	K	Y	V	L	T	K	N	W	K	E	V	S	A	A	G	V	E	M	F	L	K	M	L	S	H	P	Q	E	Y	K	M	F	P			
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UniRef90_Q14SM8	L	S	E	T	D	R	R	A	L	D	S	S	W	K	R	V	Q	K	A	G	V	N	L	V	L	W	F	F	N	N	I	P	N	M	R	E	R	F	T	K	
UniRef90_Q14SM8	L	S	E	T	D	R	R	A	L	D	S	S	W	K	R	V	Q	K	A	G	V	N	L	V	L	W	F	F	N	N	I	P	N	M	R	E	R	F	T	K	
UniRef90_Q14SM8	L	S	E	T	D	R	R	A	L	D	S	S	W	K	R	V	Q	K	A	G	V	N	L	V	L	W	F	F	N	N	I	P	N	M	R	E	R	F	T	K	
UniRef90_C7FFV6	L	S	N	A	Q	K	A	A	I	K	A	S	W	A	D	L	Q	A	A	G	T	G	F	Y	V	H	L	A	A	E	A	P	A	V	Y	A	N	F			
UniRef90_E0WQP2	L	S	D	S	Q	T	I	A	V	V	K	S	T	I	P	I	L	V	A	T	G	T	H	F	Y	E	R	M	F	T	N	N	P	E	F	K	N	I	F	N	Q
UniRef90_A5VG98	L	S	P	Q	T	M	T	L	V	K	A	T	A	P	A	L	Q	Q	H	G	V	D	I	T	T	R	M	Y	Q	R	D	P	E	I	K	A	L	F			
UniRef90_E5A9L7	L	T	P	D	Q	V	A	I	I	K	A	T	V	P	V	L	A	E	H	G	L	I	T	T	S	K	F	L	T	A	H	P	E	L	K	N	I	F	N	N	
UniRef90_U1TR06	L	D	A	Q	T	I	A	I	V	K	S	T	L	P	A	I	A	Q	L	G	P	Q	F	Y	Q	R	M	L	T	Q	H	P	E	L	K	N	I	F	N	N	
UniRef90_A3QDN6	L	T	D	E	Q	K	Q	L	I	Q	K	S	F	A	E	I	N	Q	N	S	N	F	A	S	H	L	F	A	M												

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	1	10	20	30	40																																						
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		90	100	110	120																																						
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UniRef90_E9CL82	E	H	I	A	Q	K	H	T	S	Y	N	I	Q	P	N	Q	Y	D	I	V	G	S	H	L	L	A	T	L	D	E	M	F	S	P	S	E	V	L	D	A			
UniRef90_M2VJD4	S	R	I	A	N	K	H	A	S	L	G	N	I	Q	P	A	D	S	Y	P	H	L	F	A	A	I	V	E	V	L	D	E	M	F	S	T	P	K	E	V	L	D	A
UniRef90_C4S113	E	R	I	A	Q	K	H	T	S	L	N	I	Q	P	E	H	Y	A	I	V	G	H	L	L	I	N	T	L	D	E	M	F	S	P	T	K	E	V	L	D	A		
UniRef90_F1Z383	A	Q	I	T	Q	K	H	V	A	L	Q	I	L	P	E	H	Y	P	I	V	G	T	C	L	L	E	V	L	D	E	E	I	A	T	D	A	V	L	D	A			
UniRef90_UPI0002FF84B6	A	R	I	S	D	L	H	A	H	K	R	V	D	P	V	N	F	K	L	L	S	H	L	L	V	T	L	A	C	H	H	P	T	P	A	V	L	H	A	S			
UniRef90_UPI0003AF9209	S	D	L	T	N	K	H	A	S	L	Y	I	K	P	E	H	Y	K	V	V	G	T	Y	L	L	A	A	M	G	E	V	L	G	T	P	E	I	H	D	A			
UniRef90_B6QE53	E	T	I	T	N	K	H	A	S	L	G	I	A	P	D	Q	Y	E	I	V	H	T	H	L	L	E	A	A	M	G	E	V	L	G	T	P	A	V	L	D	A		
UniRef90_S3B1Y0	S	R	I	A	H	K	H	A	S	L	G	I	A	P	D	Q	Y	E	I	V	H	T	H	L	L	E	A	A	M	G	E	V	L	G	T	P	A	V	L	D	A		
UniRef90_Q0UPY5	E	L	I	C	H	K	H	V	S	L	F	I	A	Q	P	D	H	Y	K	I	V	G	K	Y	L	L	E	A	M	Q	E	V	L	G	T	P	D	I	Q	D	S		
UniRef90_V5G252	E	L	I	C	N	K	H	A	S	L	H	I	Q	P	D	H	Y	K	I	V	G	K	Y	L	L	E	A	M	Q	E	V	L	G	T	P	D	I	Q	D	S			
UniRef90_Q9BHK1	S	Q	L	A	H	L	H	A	Q	R	G	I	S	A	E	Y	F	D	V	F	A	E	S	L	M	L	A	V	E	S	T	I	E	S	C	F	D	K	D	A			
UniRef90_P25165	E	K	F	A	V	N	H	I	N	R	Q	I	S	A	E	E	F	G	K	I	V	G	P	F	R	A	V	L	R	I	R	M	G	E	E	I	V	I	A	A			
UniRef90_A3YCM6	Q	R	I	A	H	K	H	T	S	L	D	I	R	P	A	H	Y	D	I	V	G	L	H	L	I	E	T	L	R	E	L	A	G	T	A	E	I	E	D	A			
UniRef90_A6GNY6	T	L	I	V	N	K	H	V	A	L	G	V	K	A	E	H	Y	P	I	V	G	E	C	L	L	Q	A	M	K	E	V	L	G	T	P	E	I	L	D	A			
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UniRef90_V6MJ42	E	K	I	A	Q	K	H	A	S	L	N	I	L	P	E	H	Y	P	I	V	G	E	N	L	L	A	T	I	D	E	M	F	S	P	G	Q	E	V	L	D	A		
UniRef90_D7G782	E	N	L	G	R	K	H	V	D	Y	G	V	T	P	E	M	Y	P	S	V	G	K	A	L	L	T	F	E	K	G	L	G	T	P	L	T	T	K	A				
UniRef90_Q7NSD8	T	R	V	A	H	K	H	V	S	L	G	V	T	R	A	E	H	Y	P	I	V	G	K	H	L	A	S	I	R	E	L	L	G	T	P	D	D	V	L	I	Q	A	
UniRef90_L7KGY0	D	R	I	A	H	K	H	A	S	L	G	V	T	A	D	Q	Y	E	H	L	F	G	A	I	V	E	V	L	G	D	A	V	T	P	E	V	A	N	A				
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UniRef90_Q9YGW2	E	T	L	A	L	T	H	K	K	L	L	V	D	P	Q	N	F	P	M	L	S	E	C	I	I	V	T	L	A	T	H	L	G	T	S	D	E	I	H	C	A		
UniRef90_W9ADN1	K	Q	L	A	H	K	H	R	S	L	N	I	K	P	E	Q	Y	P	I	V	G	K	Y	L	L	A	I	K	E	V	L	G	T	D	D	I	I	E	A				
UniRef90_A5VGJ1	H	R	M	V	A	R	H	V	E	T	G	V	R	P	E	H	Y	P	H	V	A	G	A	L	L	P	A	R	E	V	L	G	T	D	D	V	L	I	A	A			
UniRef90_C7YIP2	E	R	M	C	H	K	H	C	S	L	G	I	K	P	E	H	Y	A	I	V	E	K	Y	L	L	A	A	F	A	E	V	L	G	T	P	Q	V	R	E	A			
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UniRef90_A3LSI6	K	Q	I	V	S	K	H	V	G	L	Q	V	K	A	E	H	Y	P	C	Y	G	N	S	L	I	K	T	M	K	E	L	L	G	P	E	V	A	N	A				
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UniRef90_C9Z355	A	R	I	A	H	K	H	V	S	L	G	V	T	A	D	Q	Y	P	L	V	G	R	H	L	L	G	A	V	A	E	V	L	G	T	P	E	V	G	A	A			
UniRef90_C4QXP8	H	Q	I	V	V	K	H	V	G	L	Q	I	K	A	E	H	Y	P	I	V	G	G	S	H	L	L	K	T	M	A	E	E	L	L	G	T	P	A	F	L	K	A	
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UniRef90_Q49UL6	M	P	V	V	Y	K	H	C	A	L	Q	V	Q	P	E	H	Y	D	I	V	G	E	N	L	I	W	A	I	Q	E	V	T	G	L	E	N	N	D	Q	T			
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UniRef90_H5V2L5	E	L	I	V	H	K	H	V	S	L	N	I	K	A	P	D	Y	N	I	V	G	E	N	L	L	H	S	I	S	E	V	L	S	V	P	M	E	D	G	A			
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UniRef90_K8GH78	D	H	I	A	H	R	H	V	A	T	R	I	L	P	E	Q	Y	P	L	I	G	E	K	L	L	Q	A	M	K	D	V	L	Q	T	D	D	V	I	A	A			
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UniRef90_W5KYY3	V	E	L	G	K	S	H	Y	R	Y	N	A	P	P	K	Y	Y	G	Y	V	G	A	E	F	I	P	I	L	K	D	K	W	T	P	E	L	E	K	A				
UniRef90_K7H197	L	N	L	G	K	I	H	A	R	H	G	F	S	A	H	Y	W	S	V	F	K	E	C	V	L	K	F	L	K	N	E	M	P	F	A	E	I	D	S	A			
UniRef90_Q14SM7	D	R	L	S	S	A	H	L	N	M	Q	V	G	L	E	Y	F	Q	P	L	Q	Q	K	I	A	S	Y	I	A	N	A	L	G	D	S	D	K	A	K	A			
UniRef90_Q14SM7	D	R	L	S	S	A	H	L	N	M	Q	V	G	L	E	Y	F	Q	P	L	Q	Q	K	I	A	S	Y	I	A	N	A	L	G	D	S	D	K	A	K	A			
UniRef90_Q8IFK4	A	H	L	K	S	Q	H	D	P	R	T	I	D	P	V	N	F	V	V	F	R	K	A	L	I	A	T	V	A	G	T	F	G	V	C	F	D	V	P	A			
UniRef90_E4NEB0	A	A	L	G	R	D	H	R	K	F	Q	A	A	P	E	H	Y	P	A	V	G	A	S	L	I	A	A	L	K	H	H	S	W	T	Q	E	V	E	K	S			
UniRef90_R8AMA7	E	K	I	A	Q	K	H	A	S	F	N	I	Q	P	A	Q	Y	Q	I	V	G	E	H	L	L	A	T	I	R	E	L	L	P	G	Q	E	V	L	D	A			
UniRef90_T1VJS6	T	Q	L	G	R	D	H	R	R	Y	G	V	E	R	E	H	Y	E	A	A	G	V	A	L	L	E	R	A	V	R	S	M	Y	G	T	S	E	L	E	D	A		
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UniRef90_K4AGJ7																																											
UniRef90_UPI000345CDB6	E	R	I	A	Q	K	H	T	S	L	N	I	Q	P	H	Q	Y	Q	I	V	G	Q	H	L	L	A	T	I	D	E	L	L	P	G	D	E	V	L	E	A			
UniRef90_B2VWF1	E	L	I	C	H	K	H	A	S	L	Y	I	R	P	E	Q	Y	Q	I	V	G	Q	H	L	L	A	T	I	D	E	L	L	P	G	D	E	V	L	E	A			
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UniRef90\_G0P7W3 W I E L M R Y L  
UniRef90\_M3JVV7 W I K L Y L Y L A N N L Y Q N  
UniRef90\_G8YKQ9 W V K V Y L Y L S N T L  
UniRef90\_Q9XXI2 W R L L L A C V T D E M K  
UniRef90\_P49672 W L A L  
UniRef90\_Q22663  
UniRef90\_X7YCD7 W T D T V E  
UniRef90\_UPI00034AC0AE  
UniRef90\_W4H0C8  
UniRef90\_UPI00032A1881  
UniRef90\_UPI000467D414  
UniRef90\_T1HWR1 W K K F I G I M F D I I Y  
UniRef90\_V9XHI9 W A E V V D G V V E T M A T A  
UniRef90\_M1ZMJ2 W I C L L Q T I  
UniRef90\_UPI0003015F27 W A S A I S R V A G T L T  
UniRef90\_L1IC73 W G I V F K M V C D N M  
UniRef90\_B4NJT7  
UniRef90\_B6EU62 W M C V I S Y M A D S I K S  
UniRef90\_Q6KG54 W  
UniRef90\_G0MAY0 W  
UniRef90\_A7C4X7 L K K I W L D F Y E S I V A T M  
UniRef90\_W2T4S9 F R K F F D F C L K Y I  
UniRef90\_R1FVY8 W S E A V R F L A K V  
UniRef90\_H2W220 W A L I V A F V I E R I K A  
UniRef90\_A3LTH5 W I K T Y V F V A N  
UniRef90\_P14528 W K N V T A V I L S Q M  
UniRef90\_A0A023XDM9 W D Q L L D A F A T I  
UniRef90\_R9RY66  
UniRef90\_U6DK15 M K K A L E L F R N D I A A K  
UniRef90\_H3F2E4 W Q A L F A K A Y A D M K A  
UniRef90\_K2K1I7 W H S V L S F I A Q G M K E  
UniRef90\_UPI00037E85FD W D T L L  
UniRef90\_Q0C3R3 W A I L L K E I A A I  
UniRef90\_G0WD43 W S R V Y S Y L A N  
UniRef90\_W2EJM8  
UniRef90\_A0A059FKB2 W T S V L  
UniRef90\_UPI000477EAB6 W V R A F S L  
UniRef90\_V4A0S1 Y R K A I R F I L E T L I K







Figure 1 is a horizontal bar chart showing the number of days between the first and last positive COVID-19 test results for 100 patients. The x-axis represents the number of days, ranging from 90 to 120. The y-axis lists patient IDs from 1 to 100. Each bar represents a patient's test results, with the length of the bar indicating the duration of the positive test period. The bars are color-coded: red for patients 1-50 and blue for patients 51-100. The chart shows that most patients had a positive test result for between 90 and 110 days, with a few outliers having shorter or longer durations.

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

9 9 9 9 9 9 9 9 9 9 8 7 3 5 9  
 B B B B B B B B  
 B B B B B B  
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 B B B