

Supplementary Information

CLUSTAL 2.1 multiple sequence alignment

gi Aspergillus_niger_N/A	-----
gi Aspergillus_nidulans_parA	-----
gi Mus_musculus_alpha	-----
gi Rattus_norvegicus_alpha	-----
gi Macaca_mulatta_alpha	-----
gi Homo_sapiens_alpha	-----
gi Ovis_aries_alpha	-----
gi Bos_taurus_alpha	-----
gi Felis_catus_alpha	-----
gi Canis_lupus_familiaris_alph	-----
gi Falco_peregrinus_alpha	-----
gi Gallus_gallus_alpha	-----
gi Alligator_mississippiensis_	-----
gi Chrysemys_picta_bellii_alph	-----
gi Xenopus_laevis_alpha	-----
gi Xenopus_tropicalis_alpha	-----
gi Ambystoma_mexicanum_alpha	-----
gi Danio_rerio_alpha	-----
gi Petromyzon_marinus_S4RHV1	-----
gi Mus_musculus_epsilon	-----
gi Rattus_norvegicus_epsilon	-----
gi Macaca_mulatta_epsilon	-----
gi Homo_sapiens_epsilon	-----
gi Ovis_arie_epsilon	-----
gi Bos_taurus_epsilon	-----
gi Canis_lupus_familiaris_epsi	-----
gi Falco_peregrinus_epsilon	-----
gi Gallus_gallus_epsilon	-----
gi Felis_catus_epsilon	-----
gi Chrysemys_picta_bellii_epsi	-----
gi Xenopus_laevis_epsilon	-----
gi Xenopus_tropicalis_epsilon	-----
gi Alligator_mississippiensis_	-----
gi Ambystoma_mexicanum_epsilon	-----
gi Danio_rerio_epsilon	-----
gi Mus_musculus_beta	-----
gi Rattus_norvegicus_beta	-----
gi Felis_catus_beta	-----
gi Canis_lupus_familiaris_beta	-----
gi Homo_sapiens_beta	-----
gi Bos_taurus_beta	-----
gi Ovis_aries_beta	-----
gi Macaca_mulatta_beta	-----
gi Xenopus_laevis_beta	-----
gi Alligator_mississippiensis_	-----
gi Chrysemys_picta_bellii_beta	-----
gi Xenopus_tropicalis_beta	-----
gi Danio_rerio_beta	-----
gi Ambystoma_mexicanum_beta	-----
gi Petromyzon_marinus_S4RGA7	-----
gi Strongylocentrotus_purpurat	-----
gi Drosophila_melanogaster_wdb	-----
jgi Branchiostoma_floridae_237	-----
gi Hydra_vulgaris_alpha	-----
jgi Branchiostoma_floridae_112	-----
jgi Branchiostoma_floridae_284	-----
gi Caenorhabditis_elegans_PPTR	-----

Figure S1. *Cont.*

gi Amphimedon_queenslandica_be	-----	
gi Chrysemys_picta_bellii_gamm	-----	
gi Chrysemys_picta_bellii_delt	-----	
gi Falco_peregrinus_gamma	-----	
gi Falco_peregrinus_delta/gamm	-----	
gi Gallus_gallus_gamma	-----	
gi Alligator_mississippiensis_	-----	
gi Alligator_mississippiensis_	-----	
gi Ambystoma_mexicanum_gamma	-----	
gi Mus_musculus_gamma	-----	
gi Rattus_norvegicus_gamma	-----	
gi Ovis_aries_gamma	-----	
gi Bos_taurus_gamma	-----	
gi Canis_lupus_familiaris_gamm	-----	
gi Macaca_mulatta_gamma	-----	
gi Homo_sapiens_gamma	-----	
gi Felis_catus_gamma	-----	
gi Canis_lupus_familiaris_delt	-----	
gi Macaca_mulatta_delta/gamma	MAQGAATGRGIPLQATVAEAGPVDFFPDTSQNSVSPEGRGGKGQAVHAERQ	50
gi Bos_taurus_delta/gamma	-----	
gi Mus_musculus_delta/gamma	-----	
gi Rattus_norvegicus_delta/gam	-----	
gi Danio_rerio_gamma	-----	
gi Danio_rerio_delta/gamma	-----	
gi Xenopus_laevis_delta/gamma	-----	
gi Xenopus_laevis_gamma	-----	
gi Xenopus_tropicalis_delta/ga	-----	
gi Mus_musculus_delta	-----	
gi Rattus_norvegicus_delta	-----	
gi Felis_catus_delta	-----	
gi Bos_taurus_delta	-----	
gi Canis_lupus_familiaris_delt	-----	
gi Macaca_mulatta_delta	-----	
gi Homo_sapiens_delta	-----	
gi Ovis_aries_delta	-----	
gi Falco_peregrinus_delta	-----	
gi Gallus_gallus_delta	-----	
gi Alligator_mississippiensis_	-----	
gi Chrysemys_picta_bellii_delt	-----	
gi Danio_rerio_delta	-----	
gi Ambystoma_mexicanum_delta	-----	
gi Petromyzon_marinus_S4RN43	-----	
jgi Branchiostoma_floridae_237	-----	
jgi Branchiostoma_floridae_252	-----	
gi Strongylocentrotus_purpurat	-----	
gi Caenorhabditis_elegans_PPTR	-----	
gi Hydra_vulgaris_delta	-----	
gi Amphimedon_queenslandica_de	-----	
gi Drosophila_melanogaster_B56	-----	
gi Dictyostelium_discoideum_ps	-----	
gi Dictyostelium_purpureum_N/A	-----	
gi Dictyostelium_fasciculatum_	-----	
gi Polysphondylium_pallidum_N/	-----	
gi Arabidopsis_thaliana_theta	-----	
gi Arabidopsis_thaliana_eta	-----	
gi Arabidopsis_thaliana_zeta	-----	
gi Arabidopsis_thaliana_gamma	-----	
gi Oryza	-----	
gi Oryza_sativa_zeta	-----	
gi Oryza_sativa_theta	-----	
gi Oryza_sativa_eta	-----	

Figure S1. Cont.

gi	Arabidopsis_thaliana_delta	-----
gi	Arabidopsis_thaliana_N/A	-----
gi	Oryza_sativa_kappa	-----
gi	Oryza_sativa_N/A	-----
gi	Arabidopsis_thaliana_alpha	-----
gi	Arabidopsis_thaliana_beta	-----
gi	Oryza_sativa_N/A_2	-----
gi	Arabidopsis_thaliana_epsilon	-----
gi	Chlamydomonas_reinhardtii_w	-----
gi	Schizosaccharomyces_pombe_P	-----
gi	Schizosaccharomyces_pombe_P	-----
gi	Ashbya_gossypii_RTS1	-----
gi	Saccharomyces_cerevisiae_RT	-----
gi	Aspergillus_niger_N/A	-----
gi	Aspergillus_nidulans_para	-----
gi	Mus_musculus_alpha	-----
gi	Rattus_norvegicus_alpha	-----
gi	Macaca_mulatta_alpha	-----
gi	Homo_sapiens_alpha	-----
gi	Ovis_aries_alpha	-----
gi	Bos_taurus_alpha	-----
gi	Felis_catus_alpha	-----
gi	Canis_lupus_familiaris_alph	-----
gi	Falco_peregrinus_alpha	-----
gi	Gallus_gallus_alpha	-----
gi	Alligator_mississippiensis	-----
gi	Chrysemys_picta_bellii_alph	-----
gi	Xenopus_laevis_alpha	-----
gi	Xenopus_tropicalis_alpha	-----
gi	Ambystoma_mexicanum_alpha	-----
gi	Danio_rerio_alpha	-----
gi	Petromyzon_marinus_S4RHV1	-----
gi	Mus_musculus_epsilon	-----
gi	Rattus_norvegicus_epsilon	-----
gi	Macaca_mulatta_epsilon	-----
gi	Homo_sapiens_epsilon	-----
gi	Ovis_aries_epsilon	-----
gi	Bos_taurus_epsilon	-----
gi	Canis_lupus_familiaris_epsilon	-----
gi	Falco_peregrinus_epsilon	-----
gi	Gallus_gallus_epsilon	-----
gi	Felis_catus_epsilon	-----
gi	Chrysemys_picta_bellii_epsilon	-----
gi	Xenopus_laevis_epsilon	-----
gi	Xenopus_tropicalis_epsilon	-----
gi	Alligator_mississippiensis	-----
gi	Ambystoma_mexicanum_epsilon	-----
gi	Danio_rerio_epsilon	-----
gi	Mus_musculus_beta	-----
gi	Rattus_norvegicus_beta	-----
gi	Felis_catus_beta	-----
gi	Canis_lupus_familiaris_beta	-----
gi	Homo_sapiens_beta	-----
gi	Bos_taurus_beta	-----
gi	Ovis_aries_beta	-----
gi	Macaca_mulatta_beta	-----
gi	Xenopus_laevis_beta	-----
gi	Alligator_mississippiensis	-----
gi	Chrysemys_picta_bellii_beta	-----

Figure S1. *Cont.*

gi Xenopus_tropicalis_beta	-----
gi Danio_rerio_beta	-----
gi Ambystoma_mexicanum_beta	-----
gi Petromyzon_marinus_S4RGA7	-----
gi Strongylocentrotus_purpurat	-----
gi Drosophila_melanogaster_wdb	-----
jgi Branchiostoma_floridiae_237	-----
gi Hydra_vulgaris_alpha	-----
jgi Branchiostoma_floridiae_112	-----
jgi Branchiostoma_floridiae_284	-----
gi Caenorhabditis_elegans_PPTR	-----
gi Amphimedon_queenslandica_be	-----
gi Chrysemys_picta_bellii_gamm	-----
gi Chrysemys_picta_bellii_delt	-----
gi Falco_peregrinus_gamma	-----
gi Falco_peregrinus_delta/gamm	-----
gi Gallus_gallus_gamma	-----
gi Alligator_mississippiensis_	-----
gi Alligator_mississippiensis_	-----
gi Ambystoma_mexicanum_gamma	-----
gi Mus_musculus_gamma	-----
gi Rattus_norvegicus_gamma	-----
gi Ovis_aries_gamma	-----
gi Bos_taurus_gamma	-----
gi Canis_lupus_familiaris_gamm	-----
gi Macaca_mulatta_gamma	-----
gi Homo_sapiens_gamma	-----
gi Felis_catus_gamma	-----
gi Canis_lupus_familiaris_delt	-----
gi Macaca_mulatta_delta/gamma	SLQVCQDGVVTWKRIIFTGAGGCSLSKMQWRFSLSPHEGEAPMPLAREIR 100
gi Bos_taurus_delta/gamma	-----
gi Mus_musculus_delta/gamma	-----
gi Rattus_norvegicus_delta/gam	-----
gi Danio_rerio_gamma	-----
gi Danio_rerio_delta/gamma	-----
gi Xenopus_laevis_delta/gamma	-----
gi Xenopus_laevis_gamma	-----
gi Xenopus_tropicalis_delta/ga	-----
gi Mus_musculus_delta	-----
gi Rattus_norvegicus_delta	-----
gi Felis_catus_delta	-----
gi Bos_taurus_delta	-----
gi Canis_lupus_familiaris_delt	-----
gi Macaca_mulatta_delta	-----
gi Homo_sapiens_delta	-----
gi Ovis_aries_delta	-----
gi Falco_peregrinus_delta	-----
gi Gallus_gallus_delta	-----
gi Alligator_mississippiensis_	-----
gi Chrysemys_picta_bellii_delt	-----
gi Danio_rerio_delta	-----
gi Ambystoma_mexicanum_delta	-----
gi Petromyzon_marinus_S4RN43	-----
jgi Branchiostoma_floridiae_237	-----
jgi Branchiostoma_floridiae_252	-----
gi Strongylocentrotus_purpurat	-----
gi Caenorhabditis_elegans_PPTR	-----
gi Hydra_vulgaris_delta	-----
gi Amphimedon_queenslandica_de	-----
gi Drosophila_melanogaster_B56	-----
gi Dictyostelium_discoideum_ps	-----

Figure S1. Cont.

gi Dictyostelium_purpureum_N/A	-----
gi Dictyostelium_fasciculatum_	-----
gi Polysphondylium_pallidum_N/	-----
gi Arabidopsis_thaliana_theta	-----
gi Arabidopsis_thaliana_eta	-----
gi Arabidopsis_thaliana_zeta	-----
gi Arabidopsis_thaliana_gamma	-----
gi Oryza	-----
gi Oryza_sativa_zeta	-----
gi Oryza_sativa_theta	-----
gi Oryza_sativa_eta	-----
gi Arabidopsis_thaliana_delta	-----
gi Arabidopsis_thaliana_N/A	-----
gi Oryza_sativa_kappa	-----
gi Oryza_sativa_N/A	-----
gi Arabidopsis_thaliana_alpha	-----
gi Arabidopsis_thaliana_beta	-----
gi Oryza_sativa_N/A_2	-----
gi Arabidopsis_thaliana_epsilon	-----
gi Chlamydomonas_reinhardtii_w	-----
gi Schizosaccharomyces_pombe_P	-----
gi Schizosaccharomyces_pombe_P	-----
gi Ashbya_gossypii_RTS1	-----
gi Saccharomyces_cerevisiae_RT	-----
gi Aspergillus_niger_N/A	-----
gi Aspergillus_nidulans_parA	-----
gi Mus_musculus_alpha	-----
gi Rattus_norvegicus_alpha	-----
gi Macaca_mulatta_alpha	-----
gi Homo_sapiens_alpha	-----
gi Ovis_aries_alpha	-----
gi Bos_taurus_alpha	-----
gi Felis_catus_alpha	-----
gi Canis_lupus_familiaris_alph	-----
gi Falco_peregrinus_alpha	-----
gi Gallus_gallus_alpha	-----
gi Alligator_mississippiensis_	-----
gi Chrysemys_picta_bellii_alph	-----
gi Xenopus_laevis_alpha	-----
gi Xenopus_tropicalis_alpha	-----
gi Ambystoma_mexicanum_alpha	-----
gi Danio_rerio_alpha	-----
gi Petromyzon_marinus_S4RHV1	-----
gi Mus_musculus_epsilon	-----
gi Rattus_norvegicus_epsilon	-----
gi Macaca_mulatta_epsilon	-----
gi Homo_sapiens_epsilon	-----
gi Ovis_arie_epsilon	-----
gi Bos_taurus_epsilon	-----
gi Canis_lupus_familiaris_epsi	-----
gi Falco_peregrinus_epsilon	-----
gi Gallus_gallus_epsilon	-----
gi Felis_catus_epsilon	-----
gi Chrysemys_picta_bellii_epsi	-----
gi Xenopus_laevis_epsilon	-----
gi Xenopus_tropicalis_epsilon	-----
gi Alligator_mississippiensis_	-----
gi Ambystoma_mexicanum_epsilon	-----
gi Danio_rerio_epsilon	-----

Figure S1. *Cont.*

gi Mus_musculus_beta	-----
gi Rattus_norvegicus_beta	-----
gi Felis_catus_beta	-----
gi Canis_lupus_familiaris_beta	-----
gi Homo_sapiens_beta	-----
gi Bos_taurus_beta	-----
gi Ovis_aries_beta	-----
gi Macaca_mulatta_beta	-----
gi Xenopus_laevis_beta	-----
gi Alligator_mississippiensis_beta	-----
gi Chrysemys_picta_bellii_beta	-----
gi Xenopus_tropicalis_beta	-----
gi Danio_rerio_beta	-----
gi Ambystoma_mexicanum_beta	-----
gi Petrotyzon_marinus_S4RGA7	-----
gi Strongylocentrotus_purpurat	-----
gi Drosophila_melanogaster_wdb	-----
jgi Branchiostoma_floridae_237	-----
gi Hydra_vulgaris_alpha	-----
jgi Branchiostoma_floridae_112	-----
jgi Branchiostoma_floridae_284	-----
gi Caenorhabditis_elegans_PPTR	-----
gi Amphimedon_queenslandica_be	-----
gi Chrysemys_picta_bellii_gamm	-----
gi Chrysemys_picta_bellii_delt	-----
gi Falco_peregrinus_gamma	-----
gi Falco_peregrinus_delta/gamm	-----
gi Gallus_gallus_gamma	-----
gi Alligator_mississippiensis_beta	-----
gi Alligator_mississippiensis_beta	-----
gi Ambystoma_mexicanum_gamma	-----
gi Mus_musculus_gamma	-----
gi Rattus_norvegicus_gamma	-----
gi Ovis_aries_gamma	-----
gi Bos_taurus_gamma	-----
gi Canis_lupus_familiaris_gamm	-----
gi Macaca_mulatta_gamma	-----
gi Homo_sapiens_gamma	-----
gi Felis_catus_gamma	-----
gi Canis_lupus_familiaris_delt	-----
gi Macaca_mulatta_delta/gamma	-----
gi Bos_taurus_delta/gamma	-----
gi Mus_musculus_delta/gamma	-----
gi Rattus_norvegicus_delta/gam	-----
gi Danio_rerio_gamma	-----
gi Danio_rerio_delta/gamma	-----
gi Xenopus_laevis_delta/gamma	-----
gi Xenopus_laevis_gamma	-----
gi Xenopus_tropicalis_delta/ga	-----
gi Mus_musculus_delta	-----
gi Rattus_norvegicus_delta	-----
gi Felis_catus_delta	-----
gi Bos_taurus_delta	-----
gi Canis_lupus_familiaris_delt	-----
gi Macaca_mulatta_delta	-----
gi Homo_sapiens_delta	-----
gi Ovis_aries_delta	-----
gi Falco_peregrinus_delta	-----
gi Gallus_gallus_delta	-----
gi Alligator_mississippiensis_beta	-----
gi Chrysemys_picta_bellii_delt	-----
TLLESYYLMHFRNPGRSLASPIVLGTRWTAEVLGHQVFEAWPRWAGPRP	150

Figure S1. Cont.

gi	Danio rerio_delta	-----	
gi	Ambystoma_mexicanum_delta	-----	
gi	Petromyzon_marinus_S4RN43	-----	
jgi	Branchiostoma_floridiae_237	-----	
jgi	Branchiostoma_floridiae_252	-----	
gi	Strongylocentrotus_purpurat	-----	
gi	Caenorhabditis_elegans_PPTR	-----	
gi	Hydra_vulgaris_delta	-----	
gi	Amphimedon_queenslandica_de	-----	
gi	Drosophila_melanogaster_B56	-----	
gi	Dictyostelium_discoideum_ps	-----	
gi	Dictyostelium_purpureum_N/A	-----	
gi	Dictyostelium_fasciculatum_	-----	
gi	Polysphondylium_pallidum_N/	-----	
gi	Arabidopsis_thaliana_theta	-----	
gi	Arabidopsis_thaliana_eta	-----	
gi	Arabidopsis_thaliana_zeta	-----	
gi	Arabidopsis_thaliana_gamma	-----	
gi	Oryza	-----	
gi	Oryza_sativa_zeta	-----	
gi	Oryza_sativa_theta	-----	
gi	Oryza_sativa_eta	-----	
gi	Arabidopsis_thaliana_delta	-----	
gi	Arabidopsis_thaliana_N/A	-----	
gi	Oryza_sativa_kappa	-----	
gi	Oryza_sativa_N/A	-----	
gi	Arabidopsis_thaliana_alpha	-----	
gi	Arabidopsis_thaliana_beta	-----	
gi	Oryza_sativa_N/A_2	-----	
gi	Arabidopsis_thaliana_epsilon	-----	
gi	Chlamydomonas_reinhardtii_w	-----	
gi	Schizosaccharomyces_pombe_P	-----	
gi	Schizosaccharomyces_pombe_P	-----	
gi	Ashbya_gossypii_RTSl	-----MMRGFKQKLIKTTGSSSSSTQ-KKKDKE-	27
gi	Saccharomyces_cerevisiae_RT	-----MMRGFKQRLIKTTGSSSSSSSKKKDKEK	29
gi	Aspergillus_niger_N/A	-----MKGFRQRVHEQLSRAKDANK	20
gi	Aspergillus_nidulans_parA	-----MKGFRQRVHEQLSRAKDNKS	20
gi	Mus_musculus_alpha	-----	
gi	Rattus_norvegicus_alpha	-----	
gi	Macaca_mulatta_alpha	-----	
gi	Homo_sapiens_alpha	-----	
gi	Ovis_aries_alpha	-----	
gi	Bos_taurus_alpha	-----	
gi	Felis_catus_alpha	-----	
gi	Canis_lupus_familiaris_alph	-----	
gi	Falco_peregrinus_alpha	-----	
gi	Gallus_gallus_alpha	-----	
gi	Alligator_mississippiensis_	-----	
gi	Chrysemys_picta_bellii_alph	-----	
gi	Xenopus_laevis_alpha	-----	
gi	Xenopus_tropicalis_alpha	-----	
gi	Ambystoma_mexicanum_alpha	-----	
gi	Danio_rerio_alpha	-----	
gi	Petromyzon_marinus_S4RNV1	-----	
gi	Mus_musculus_epsilon	-----	
gi	Rattus_norvegicus_epsilon	-----	
gi	Macaca_mulatta_epsilon	-----	
gi	Homo_sapiens_epsilon	-----	
gi	Ovis_aries_epsilon	-----	

Figure S1. Cont.

gi Bos_taurus_epsilon	-----	
gi Canis_lupus_familiaris_epsilon	-----	
gi Falco_peregrinus_epsilon	-----	
gi Gallus_gallus_epsilon	-----	
gi Felis_catus_epsilon	-----	
gi Chrysemys_picta_bellii_epsilon	-----	
gi Xenopus_laevis_epsilon	-----	
gi Xenopus_tropicalis_epsilon	-----	
gi Alligator_mississippiensis	-----	
gi Ambystoma_mexicanum_epsilon	-----	
gi Danio_rerio_epsilon	-----	
gi Mus_musculus_beta	-----	
gi Rattus_norvegicus_beta	-----	
gi Felis_catus_beta	-----	
gi Canis_lupus_familiaris_beta	-----	
gi Homo_sapiens_beta	-----	
gi Bos_taurus_beta	-----	
gi Ovis_aries_beta	-----	
gi Macaca_mulatta_beta	-----	
gi Xenopus_laevis_beta	-----	
gi Alligator_mississippiensis	-----	
gi Chrysemys_picta_bellii_beta	-----	
gi Xenopus_tropicalis_beta	-----	
gi Danio_rerio_beta	-----	
gi Ambystoma_mexicanum_beta	-----	
gi Petromyzon_marinus_S4RGA7	-----	
gi Strongylocentrotus_purpurat	-----	
gi Drosophila_melanogaster_wdb	-----	
jgi Branchiostoma_floridiae_237	-----	
gi Hydra_vulgaris_alpha	-----	
jgi Branchiostoma_floridiae_112	-----	
jgi Branchiostoma_floridiae_284	-----	
gi Caenorhabditis_elegans_PPTR	-----	
gi Amphimedon_queenslandica_be	-----	
gi Chrysemys_picta_bellii_gamm	-----	
gi Chrysemys_picta_bellii_delt	-----	
gi Falco_peregrinus_gamma	-----	
gi Falco_peregrinus_delta/gamm	-----	
gi Gallus_gallus_gamma	-----	
gi Alligator_mississippiensis	-----	
gi Alligator_mississippiensis	-----	
gi Ambystoma_mexicanum_gamma	-----	
gi Mus_musculus_gamma	-----	
gi Rattus_norvegicus_gamma	-----	
gi Ovis_aries_gamma	-----	
gi Bos_taurus_gamma	-----	
gi Canis_lupus_familiaris_gamm	-----	
gi Macaca_mulatta_gamma	-----	
gi Homo_sapiens_gamma	-----	
gi Felis_catus_gamma	-----	
gi Canis_lupus_familiaris_delt	-----	
gi Macaca_mulatta_delta/gamma	EERGCTSGRDLAEGAAEGGANGERRCRVCGTSPEELRRAGPTRKGRGCR	200
gi Bos_taurus_delta/gamma	-----	
gi Mus_musculus_delta/gamma	-----	
gi Rattus_norvegicus_delta/gam	-----MPASSGRGRRQVVQARGRAQGAGRIAWSWGGRPGSEVALRCR	42
gi Danio_rerio_gamma	-----	
gi Danio_rerio_delta/gamma	-----	
gi Xenopus_laevis_delta/gamma	-----	
gi Xenopus_laevis_gamma	-----	
gi Xenopus_tropicalis_delta/ga	-----	
gi Mus_musculus_delta	-----	

Figure S1. Cont.

gi Rattus_norvegicus_delta	-----	
gi Felis_catus_delta	-----	
gi Bos_taurus_delta	-----	
gi Canis_lupus_familiaris_delt	-----	
gi Macaca_mulatta_delta	-----	
gi Homo_sapiens_delta	-----	
gi Ovis_aries_delta	-----	
gi Falco_peregrinus_delta	-----	
gi Gallus_gallus_delta	-----	
gi Alligator_mississippiensis	-----	
gi Chrysemys_picta_bellii_delt	-----	
gi Danio_rerio_delta	-----	
gi Ambystoma_mexicanum_delta	-----	
gi Petromyzon_marinus_S4RN43	-----	
jgi Branchiostoma_floridae_237	-----	
jgi Branchiostoma_floridae_252	-----	
gi Strongylocentrotus_purpurat	-----	
gi Caenorhabditis_elegans_PPTR	-----	
gi Hydra_vulgaris_delta	-----	-MPV- 3
gi Amphimedon_queenslandica_de	-----	-MMPIG 5
gi Drosophila_melanogaster_B56	--MDNEALDPTIKSSTSAAATPTAAASETTTAAASSVVETTTTIAAATASA	48
gi Dictyostelium_discoideum_ps	-----	
gi Dictyostelium_purpureum_N/A	-----	
gi Dictyostelium_fasciculatum	-----	
gi Polysphondylium_pallidum_N/	-----	
gi Arabidopsis_thaliana_theta	-----	
gi Arabidopsis_thaliana_eta	-----	
gi Arabidopsis_thaliana_zeta	-----	
gi Arabidopsis_thaliana_gamma	-----	
gi Oryza	-----	
gi Oryza_sativa_zeta	-----	
gi Oryza_sativa_theta	-----	
gi Oryza_sativa_eta	-----	
gi Arabidopsis_thaliana_delta	-----	
gi Arabidopsis_thaliana_N/A	-----	
gi Oryza_sativa_kappa	-----	
gi Oryza_sativa_N/A	-----	
gi Arabidopsis_thaliana_alpha	-----	
gi Arabidopsis_thaliana_beta	-----	
gi Oryza_sativa_N/A_2	-----	
gi Arabidopsis_thaliana_epsilon	-----	
gi Chlamydomonas_reinhardtii_w	-----	
gi Schizosaccharomyces_pombe_P	-----MKGIKSKMLSRGKSQDTQKSSKKKESK-----	27
gi Schizosaccharomyces_pombe_P	-----MKGLRSKFVKALSLKDEQGSHKNGHSHYISKNGSYVETD	41
gi Ashbya_gossypii_RTS1	-----TGKKPGSANGAAG-----AVGSGGRATVDKKEQKGSAGAK	62
gi Saccharomyces_cerevisiae_RT	EKEKSSTTSSTSKKPASASSSHGTTTHSSASSTGSKSTTEKGKQSGSVPS	79
gi Aspergillus_niger_N/A	SSKKKDSSHSSQ--NNAALGVHHGQQSSSPNQGTPTSSTTSVNDTRGKSPD	69
gi Aspergillus_nidulans_para	SKKKEASQASQQNSANLGIHHGQQSASPNOVTPTSSTTSVNDIRGAPE	70
gi Mus_musculus_alpha	-----	
gi Rattus_norvegicus_alpha	-----	
gi Macaca_mulatta_alpha	-----	
gi Homo_sapiens_alpha	-----	
gi Ovis_aries_alpha	-----	
gi Bos_taurus_alpha	-----	
gi Felis_catus_alpha	-----	
gi Canis_lupus_familiaris_alph	-----	
gi Falco_peregrinus_alpha	-----	
gi Gallus_gallus_alpha	-----	
gi Alligator_mississippiensis	-----	

Figure S1. Cont.

gi Chrysemys_picta_bellii_alpha	-----	
gi Xenopus_laevis_alpha	-----	
gi Xenopus_tropicalis_alpha	-----	
gi Ambystoma_mexicanum_alpha	-----	
gi Danio_rerio_alpha	-----	
gi Petromyzon_marinus_S4RHV1	-----	
gi Mus_musculus_epsilon	-----	
gi Rattus_norvegicus_epsilon	-----	
gi Macaca_mulatta_epsilon	-----	
gi Homo_sapiens_epsilon	-----	
gi Ovis_aries_epsilon	-----	
gi Bos_taurus_epsilon	-----	
gi Canis_lupus_familiaris_epsilon	-----	
gi Falco_peregrinus_epsilon	-----	
gi Gallus_gallus_epsilon	-----	
gi Felis_catus_epsilon	-----	
gi Chrysemys_picta_bellii_epsilon	-----	
gi Xenopus_laevis_epsilon	-----	
gi Xenopus_tropicalis_epsilon	-----	
gi Alligator_mississippiensis_epsilon	-----	
gi Ambystoma_mexicanum_epsilon	-----	
gi Danio_rerio_epsilon	-----	
gi Mus_musculus_beta	-----	
gi Rattus_norvegicus_beta	-----	
gi Felis_catus_beta	-----	
gi Canis_lupus_familiaris_beta	-----	
gi Homo_sapiens_beta	-----	
gi Bos_taurus_beta	-----	
gi Ovis_aries_beta	-----	
gi Macaca_mulatta_beta	-----	
gi Xenopus_laevis_beta	-----	
gi Alligator_mississippiensis_beta	-----	
gi Chrysemys_picta_bellii_beta	-----	
gi Xenopus_tropicalis_beta	-----	
gi Danio_rerio_beta	-----	
gi Ambystoma_mexicanum_beta	-----	
gi Petromyzon_marinus_S4RGA7	-----	
gi Strongylocentrotus_purpurat	-----	
gi Drosophila_melanogaster_wdb	-----	
jgi Branchiostoma_floridiae_237	-----	
gi Hydra_vulgaris_alpha	-----	
jgi Branchiostoma_floridiae_112	-----	
jgi Branchiostoma_floridiae_284	-----	
gi Caenorhabditis_elegans_FPTR	-----	
gi Amphimedon_queenslandica_be	-----	
gi Chrysemys_picta_bellii_gamma	-----MLTCNKA	7
gi Chrysemys_picta_bellii_delta	-----	
gi Falco_peregrinus_gamma	-----MLTCNRA	7
gi Falco_peregrinus_delta/gamma	-----	
gi Gallus_gallus_gamma	-----MLTCNRA	7
gi Alligator_mississippiensis_gamma	-----MLTCNKA	7
gi Alligator_mississippiensis_gamma	-----	
gi Ambystoma_mexicanum_gamma	-----MLTCNQV	7
gi Mus_musculus_gamma	-----MLTCNKA	7
gi Rattus_norvegicus_gamma	-----MLTCNKA	7
gi Ovis_aries_gamma	-----MLTCNKA	7
gi Bos_taurus_gamma	-----MLTCNKA	7
gi Canis_lupus_familiaris_gamma	-----MWTCNKA	7
gi Macaca_mulatta_gamma	-----MLTCNKA	7
gi Homo_sapiens_gamma	-----	
gi Felis_catus_gamma	-----MAESPKAGKSGKSSKE	16

Figure S1. Cont.

gi Canis_lupus_familiaris_delt	-----MAESPKAGKSGKSSKE	16
gi Macaca_mulatta_delta/gamma	VGGTLREKLRRAGPTREGRACRMGGTSREDLRTVELESPKAGKSGKSSKE	250
gi Bos_taurus_delta/gamma	-----MPNKNKKEKESPKAGKSGKSSKE	23
gi Mus_musculus_delta/gamma	-----MPNKNKKEKEPPKPVKSGKGPKKE	23
gi Rattus_norvegicus_delta/gam	GRSGRRRMLRQCSAWRGLGCWSVQDSPQKPSLGGGLREPPKPVKSGKGSKKE	92
gi Danio_rerio_gamma	-----MLTCSKDE-----ARMVLDAPS	17
gi Danio_rerio_delta/gamma	-----MPNKTKKDKDSPKSAKVGTAGQ	23
gi Xenopus_laevis_delta/gamma	-----MPNKNKKDKKEPPKAGKSGKSGKE	23
gi Xenopus_laevis_gamma	-----MPNKNKKDKKEPPKAGKSGKSGKE	23
gi Xenopus_tropicalis_delta/ga	-----MPNKNKKDKKEPPKAGKSGKTGKE	23
gi Mus_musculus_delta	-----MSYKLLKKDKE-PSKLAGGTAKPS	22
gi Rattus_norvegicus_delta	AERAECGRAEPEPERGRRSRAGCGPAEMPYKLLKKDKE-PPKLAGGTAKPS	49
gi Felis_catus_delta	-----GSGRAEMPYKLLKKEKE-TPKLAGGTAKPS	28
gi Bos_taurus_delta	-----MPYKLLKKEKE-PPKLAGGTAKPS	22
gi Canis_lupus_familiaris_delt	-----MPYKLLKKEKVSPPKLAGGTAKPS	23
gi Macaca_mulatta_delta	-----MPYKLLKKEKE-PPKVAKCTAKPT	22
gi Homo_sapiens_delta	-----MPYKLLKKEKE-PPKVAKCTAKPS	22
gi Ovis_aries_delta	-----MAEDNAHQTPKFKE-PPKLAGGTAKPS	26
gi Falco_peregrinus_delta	-----	
gi Gallus_gallus_delta	-----MP---SVGEE-SPKSAKSTTKPG	19
gi Alligator_mississippiensis_	-----MPYKLLKKEKE-PPKSAKSTTKSS	22
gi Chrysemys_picta_bellii_delt	-----MPYKLLKKEKE-PPKSAKSTTKPS	22
gi Danio_rerio_delta	-----MPNKTKEKE-PTKSAKSTTKNS	22
gi Ambystoma_mexicanum_delta	-----	
gi Petromyzon_marinus_S4RN43	-----MPNKNKKDKEPKAAKSAKNSPK	23
jgi Branchiostoma_floridae_237	-----	
jgi Branchiostoma_floridae_252	-----QANRNRAATNN--	11
gi Strongylocentrotus_purpurat	-----MSRKKPGEWISALIVSKHRPGNVPPPTQLTR	31
gi Caenorhabditis_elegans_PPTR	-----MIPADAPPTNIGR	14
gi Hydra_vulgaris_delta	---KLKKDKENSEKKDKGKEE-----ENKGKANLPPQVPVVKKAGP	42
gi Amphimedon_queenslandica_de	KGKKAEEKEKAQNKNNTSAKPSSQNPVATGDNNVPATPVTTGVGV	55
gi Drosophila_melanogaster_B56	AESKNETTATNNNSNTSGSISSSSSNNIVIPASATNGIKESNSNLSTTTT	98
gi Dictyostelium_discoideum_ps	-----MKNDHINYQQLNSQSPILNS	20
gi Dictyostelium_purpureum_N/A	-----MKNDHIN-	7
gi Dictyostelium_fasciculatum_	-----MTSPHIK-----	7
gi Polysphondylium_pallidum_N/	-----MKSPKES-----	7
gi Arabidopsis_thaliana_theta	-----MWKQILSKLPKK-----	12
gi Arabidopsis_thaliana_eta	-----MWKQILSKLPNK-----	12
gi Arabidopsis_thaliana_zeta	-----MIKQIFGKLPR-----	11
gi Arabidopsis_thaliana_gamma	-----MIKQIFGKLPR-----	11
gi>Oryza	-----MMKQIFGR--R-----	9
gi>Oryza_sativa_zeta	-----MIKQILGRFPK-----	11
gi>Oryza_sativa_theta	-----MIKQILGRLPKK-----	12
gi>Oryza_sativa_eta	-----MIKQILGRLPK-----	11
gi Arabidopsis_thaliana_delta	-----MFKQILGKLPK-----	11
gi Arabidopsis_thaliana_N/A	-----MFKQFLSKLPK-----	11
gi>Oryza_sativa_kappa	-----MWKGFLSKLPK-----	11
gi>Oryza_sativa_N/A	-----MWKQFLGKISW-----	11
gi Arabidopsis_thaliana_alpha	-----MFKKIMKGANR-----	11
gi Arabidopsis_thaliana_beta	-----MFKKIMKGHR-----	11
gi>Oryza_sativa_N/A_2	-----MFNKI IKRGGR-----	11
gi Arabidopsis_thaliana_epsilon	-----MFNKI IKLGQK-----	11
gi Chlamydomonas_reinhardtii_w	-----MLKSMKQKFSG-----	11
gi Schizosaccharomyces_pombe_P	-----KSNSHDSSKAPKESPS-----	43
gi Schizosaccharomyces_pombe_P	DVKHTDTHHSSKHELKLLKSHFLKDTLKHKRNNHHANSNNEKHENSDDKIH	91
gi Ashbya_gossypii_RTS1	Q-----PKAKDAGK-----SGAGAAPKVVAACK-----	86
gi Saccharomyces_cerevisiae_RT	QGKHSSSTSKTKTATTPSSSSSSSSSVSRSGSSSTKTKTSSRKQGEQS	129
gi Aspergillus_niger_N/A	NGSQAG-----MYPGTPTKQGQQMAPSV	92
gi Aspergillus_nidulans_para	DASQAGG-----FPPATPTKQGQPMAPSV	94

Figure S1. Cont.

gi Mus_musculus_alpha	-----	
gi Rattus_norvegicus_alpha	-----	
gi Macaca_mulatta_alpha	-----	
gi Homo_sapiens_alpha	-----	
gi Ovis_aries_alpha	-----	
gi Bos_taurus_alpha	-----	
gi Felis_catus_alpha	-----	
gi Canis_lupus_familiaris_alph	-----	
gi Falco_peregrinus_alpha	-----	
gi Gallus_gallus_alpha	-----	
gi Alligator_mississippiensis_	-----	
gi Chrysemys_picta_bellii_alph	-----	
gi Xenopus_laevis_alpha	-----	
gi Xenopus_tropicalis_alpha	-----	
gi Ambystoma_mexicanum_alpha	-----	
gi Danio_rerio_alpha	-----	
gi Petromyzon_marinus_S4RHV1	-----	
gi Mus_musculus_epsilon	-----	
gi Rattus_norvegicus_epsilon	-----	
gi Macaca_mulatta_epsilon	-----	
gi Homo_sapiens_epsilon	-----	
gi Ovis_arie_epsilon	-----	
gi Bos_taurus_epsilon	-----	
gi Canis_lupus_familiaris_epsilon	-----	
gi Falco_peregrinus_epsilon	-----	
gi Gallus_gallus_epsilon	-----	
gi Felis_catus_epsilon	-----	
gi Chrysemys_picta_bellii_epsilon	-----	
gi Xenopus_laevis_epsilon	-----	
gi Xenopus_tropicalis_epsilon	-----	
gi Alligator_mississippiensis_	-----	MESAGE 6
gi Ambystoma_mexicanum_epsilon	-----	
gi Danio_rerio_epsilon	-----	
gi Mus_musculus_beta	-----	
gi Rattus_norvegicus_beta	-----	
gi Felis_catus_beta	-----	
gi Canis_lupus_familiaris_beta	-----	
gi Homo_sapiens_beta	-----	
gi Bos_taurus_beta	-----	
gi Ovis_aries_beta	-----	
gi Macaca_mulatta_beta	-----	
gi Xenopus_laevis_beta	-----	
gi Alligator_mississippiensis_	-----	
gi Chrysemys_picta_bellii_beta	-----	
gi Xenopus_tropicalis_beta	-----	
gi Danio_rerio_beta	-----	
gi Ambystoma_mexicanum_beta	-----	
gi Petromyzon_marinus_S4RGA7	-----	
gi Strongylocentrotus_purpurat	-----	
gi Drosophila_melanogaster_wdb	-----	
jgi Branchiostoma_floridae_237	-----	
gi Hydra_vulgaris_alpha	-----	
jgi Branchiostoma_floridae_112	-----	
jgi Branchiostoma_floridae_284	-----	
gi Caenorhabditis_elegans_PPTR	-----	MHGSGLSL 8
gi Amphimedon_queenslandica_be	-----	
gi Chrysemys_picta_bellii_gamm	G-----	8
gi Chrysemys_picta_bellii_delt	-----	
gi Falco_peregrinus_gamma	G-----	8
gi Falco_peregrinus_delta/gamm	-----	
gi Gallus_gallus_gamma	G-----	8

Figure S1. Cont.

gi Alligator_mississippiensis_	G-----	8
gi Alligator_mississippiensis_	-----	
gi Ambystoma_mexicanum_gamma	G-----	8
gi Mus_musculus_gamma	G-----	8
gi Rattus_norvegicus_gamma	G-----	8
gi Ovis_aries_gamma	G-----	8
gi Bos_taurus_gamma	G-----	8
gi Canis_lupus_familiaris_gamm	G-----	8
gi Macaca_mulatta_gamma	G-----	8
gi Homo_sapiens_gamma	-----	
gi Felis_catus_gamma	GQDII-----	21
gi Canis_lupus_familiaris_delt	GQDII-----	21
gi Macaca_mulatta_delta/gamma	GQDTV-----	255
gi Bos_taurus_delta/gamma	GQDII-----	28
gi Mus_musculus_delta/gamma	GQDTA-----	28
gi Rattus_norvegicus_delta/gam	GQDTA-----	97
gi Danio_rerio_gamma	AN-----	19
gi Danio_rerio_delta/gamma	ENSEH-----	28
gi Xenopus_laevis_delta/gamma	GQDNP-----	28
gi Xenopus_laevis_gamma	GQDNP-----	28
gi Xenopus_tropicalis_delta/ga	GQDNP-----	28
gi Mus_musculus_delta	SSSK-----DGGGENTD-EAQFPQ	41
gi Rattus_norvegicus_delta	SSSK-----DGGGENTDTEAQFPQ	69
gi Felis_catus_delta	SSGK-----DGGGESAE-EAQFPQ	47
gi Bos_taurus_delta	SSSK-----DGGGESTE-EAQFPQ	41
gi Canis_lupus_familiaris_delt	SSGK-----DGGGESTD-EPQFPQ	42
gi Macaca_mulatta_delta	SSGK-----DGGGENTE-EAQFPQ	41
gi Homo_sapiens_delta	SSGK-----DGGGENTE-EAQFPQ	41
gi Ovis_aries_delta	SSSK-----DGGGESTE-EPQPPP	45
gi Falco_peregrinus_delta	-----	
gi Gallus_gallus_delta	GGSG-----KDGAENSEEAQPPQQ	40
gi Alligator_mississippiensis_	GGSX--G-----KDGAENSEEVQQ----	40
gi Chrysemys_picta_bellii_delt	SGSSGGG-----KDGAENSEEVQQ----	42
gi Danio_rerio_delta	NASAG-----KDVGTENSEEAQQ----	40
gi Ambystoma_mexicanum_delta	-----	
gi Petromyzon_marinus_S4RN43	DAADT-----	28
jgi Branchiostoma_floridiae_237	-----	
jgi Branchiostoma_floridiae_252	-----	
gi Strongylocentrotus_purpurat	T-----	32
gi Caenorhabditis_elegans_PPTR	TNT-----	17
gi Hydra_vulgaris_delta	-----	
gi Amphimedon_queenslandica_de	GLPAK-----	60
gi Drosophila_melanogaster_B56	AAAVAAA-----TTVEGVAPAITSTIVVT	122
gi Dictyostelium_discoideum_ps	NKNQTQQ-----NQQQQQQQQQNPQQQQ	44
gi Dictyostelium_purpureum_N/A	-----AQQVSPNLKHQQ	19
gi Dictyostelium_fasciculatum	-----PKQGSDDPISPS	19
gi Polysphondylium_pallidum_N/	-----ASGVAGSPTSPS	19
gi Arabidopsis_thaliana_theta	-----SSSK-----	16
gi Arabidopsis_thaliana_eta	-----KSSKHEHRGR	22
gi Arabidopsis_thaliana_zeta	-----KPSKSLQND	20
gi Arabidopsis_thaliana_gamma	-----KPSKSSHND	20
gi Oryza	-----KNAKSADKD	18
gi Oryza_sativa_zeta	-----KPSKSGDKD	20
gi Oryza_sativa_theta	-----EKPGKSGE-K	21
gi Oryza_sativa_eta	-----KPGKAGDSR	20
gi Arabidopsis_thaliana_delta	-----	
gi Arabidopsis_thaliana_N/A	-----KSSKSDSG-	19
gi Oryza_sativa_kappa	-----KTSASGRGA	20
gi Oryza_sativa_N/A	-----KAPKSGGG-	19
gi Arabidopsis_thaliana_alpha	-----KASKAEAND	20
gi Arabidopsis_thaliana_beta	-----KPSKSEANE	20

Figure S1. Cont.

gi	Oryza_sativa_N/A_2	-----KGQRAADGG	20
gi	Arabidopsis_thaliana_epsilon	-----KFNKSDQHH	20
gi	Chlamydomonas_reinhardtii_w	-----KKDASKNKD	20
gi	Schizosaccharomyces_pombe_P	-----TDP-NGSVIG----	52
gi	Schizosaccharomyces_pombe_P	TTVLASGHEDSDYSTFLPVIETSKVKDANHFPPNYPEPKNDSVSSNIDEF	141
gi	Ashbya_gossypii_RTS1	-----EERSYPTMIAA	97
gi	Saccharomyces_cerevisiae_RT	KQSQQPSQSQKQGSSSSSAAIMNPTPVLTVTKDDKSTSGEDHAHPTLLGA	179
gi	Aspergillus_niger_N/A	VISPSA-----PHVPPPGAAETMPGD	113
gi	Aspergillus_nidulans_para	VISPSG-----PHAPPPGAAETMPGD	115
gi	Mus_musculus_alpha	-----MSSPSPP---AP	9
gi	Rattus_norvegicus_alpha	-----MSSPSPP---AP	9
gi	Macaca_mulatta_alpha	-----MSSSSPP---AG	9
gi	Homo_sapiens_alpha	-----MSSSSPP---AG	9
gi	Ovis_aries_alpha	-----MSSSSPPPPAG	12
gi	Bos_taurus_alpha	-----MSSSSPPPPAG	12
gi	Felis_catus_alpha	-----	
gi	Canis_lupus_familiaris_alph	-----	
gi	Falco_peregrinus_alpha	-----	
gi	Gallus_gallus_alpha	-----	
gi	Alligator_mississippiensis	-----AAAAPLAAM	9
gi	Chrysemys_picta_bellii_alph	-----	
gi	Xenopus_laevis_alpha	-----	
gi	Xenopus_tropicalis_alpha	-----	
gi	Ambystoma_mexicanum_alpha	-----	
gi	Danio_rerio_alpha	-----	
gi	Petromyzon_marinus_S4RHV1	-----	
gi	Mus_musculus_epsilon	-----MS	2
gi	Rattus_norvegicus_epsilon	-----MS	2
gi	Macaca_mulatta_epsilon	-----MS	2
gi	Homo_sapiens_epsilon	-----MS	2
gi	Ovis_aries_epsilon	-----MS	2
gi	Bos_taurus_epsilon	-----MS	2
gi	Canis_lupus_familiaris_epsi	-----MS	2
gi	Falco_peregrinus_epsilon	-----MS	2
gi	Gallus_gallus_epsilon	-----MS	2
gi	Felis_catus_epsilon	-----MS	2
gi	Chrysemys_picta_bellii_epsi	-----MS	2
gi	Xenopus_laevis_epsilon	-----MS	2
gi	Xenopus_tropicalis_epsilon	-----MS	2
gi	Alligator_mississippiensis	YWNVKL-----EIRKEIHSVKAGDMS	27
gi	Ambystoma_mexicanum_epsilon	-----	
gi	Danio_rerio_epsilon	-----MS	2
gi	Mus_musculus_beta	----M-----ETKLPPASTPTSPSS	16
gi	Rattus_norvegicus_beta	----M-----ETKLPPASTPTSPSS	16
gi	Felis_catus_beta	----M-----ETKLPPASTPTSPSS	16
gi	Canis_lupus_familiaris_beta	----M-----ETKLPPASTPTSPSS	16
gi	Homo_sapiens_beta	----M-----ETKLPPASTPTSPSS	16
gi	Bos_taurus_beta	----M-----ETKLPPASTPTSPSS	16
gi	Ovis_aries_beta	----M-----ETKLPPASTPTSPSS	16
gi	Macaca_mulatta_beta	----M-----AQEHGGWGQQLPWR	16
gi	Xenopus_laevis_beta	-----	
gi	Alligator_mississippiensis	----M-----EMKLTPAGTPPSPPS	16
gi	Chrysemys_picta_bellii_beta	----M-----ETKLPPAGTPSPSS	16
gi	Xenopus_tropicalis_beta	----M-----ETKLP--VTPTSPSS	14
gi	Danio_rerio_beta	----M-----ETPTKLPPSSSPSSPT	16
gi	Ambystoma_mexicanum_beta	-----	
gi	Petromyzon_marinus_S4RGA7	-----	
gi	Strongylocentrotus_purpurat	-----	
gi	Drosophila_melanogaster_wdb	-----	

Figure S1. Cont.

jgi Branchiostoma_floridiae_237	-----	
gi Hydra_vulgaris_alpha	-----MPHG	4
jgi Branchiostoma_floridiae_112	-----	
jgi Branchiostoma_floridiae_284	-----	
gi Caenorhabditis_elegans_PPTR	TGAPHQ-----IPPPRTQGAATGGQQ	29
gi Amphimedon_queenslandica_be	--MTSK-----ASKGLGKTPPKAGTP	19
gi Chrysemys_picta_bellii_gamm	-----	
gi Chrysemys_picta_bellii_delt	-----	
gi Falco_peregrinus_gamma	-----	
gi Falco_peregrinus_delta/gamm	-----	
gi Gallus_gallus_gamma	-----	
gi Alligator_mississippiensis_	-----	
gi Alligator_mississippiensis_	-----	
gi Ambystoma_mexicanum_gamma	-----	
gi Mus_musculus_gamma	-----	
gi Rattus_norvegicus_gamma	-----	
gi Ovis_aries_gamma	-----	
gi Bos_taurus_gamma	-----	
gi Canis_lupus_familiaris_gamm	-----	
gi Macaca_mulatta_gamma	-----	
gi Homo_sapiens_gamma	-----	
gi Felis_catus_gamma	-----ES-EIPGRKNN	31
gi Canis_lupus_familiaris_delt	-----ES-ETSSRKNN	31
gi Macaca_mulatta_delta/gamma	-----ESEQISVRKNS	266
gi Bos_taurus_delta/gamma	-----DS-EIPSRKNS	38
gi Mus_musculus_delta/gamma	-----ET-EIASRKNS	38
gi Rattus_norvegicus_delta/gam	-----EA-EIASRKNS	107
gi Danio_rerio_gamma	-----	
gi Danio_rerio_delta/gamma	-----EQASNKKGGNS	39
gi Xenopus_laevis_delta/gamma	-----EHEVSNKKSNS	39
gi Xenopus_laevis_gamma	-----EHEVSNKKSNS	39
gi Xenopus_tropicalis_delta/ga	-----EHEVSNKKSNS	39
gi Mus_musculus_delta	SQ-----SPSSNKRPSNS	54
gi Rattus_norvegicus_delta	PQ-----PPSSNKRPSNS	82
gi Felis_catus_delta	PQPQPQ-----PQPQPSSNKRPSNS	68
gi Bos_taurus_delta	PQPQPQ-----PQ--PPSSNKRPSNS	60
gi Canis_lupus_familiaris_delt	PQ-----PPSSNKRPSNS	55
gi Macaca_mulatta_delta	PQPQPQ-----AQSQPPSSNKRPSNS	62
gi Homo_sapiens_delta	PQPQPQ-----AQSQPPSSNKRPSNS	62
gi Ovis_aries_delta	PQ-----PPSSNKRPSNS	58
gi Falco_peregrinus_delta	-----	
gi Gallus_gallus_delta	PQQQQQ-----QTPSNKRPSNS	57
gi Alligator_mississippiensis_	-QQQQQ-----QTTSNKRPSNS	56
gi Chrysemys_picta_bellii_delt	-QQQPP-----PPTSNNKRPSNS	58
gi Danio_rerio_delta	-----TASKRPSNS	49
gi Ambystoma_mexicanum_delta	-----	
gi Petromyzon_marinus_S4RN43	-----DESVSERGGNK	39
jgi Branchiostoma_floridiae_237	-----	
jgi Branchiostoma_floridiae_252	-----	
gi Strongylocentrotus_purpurat	-----	
gi Caenorhabditis_elegans_PPTR	-----	
gi Hydra_vulgaris_delta	-----	
gi Amphimedon_queenslandica_de	-----DIDGINSDDT	69
gi Drosophila_melanogaster_B56	GGTPPL-----SSLANKLKDNTPPYD	143
gi Dictyostelium_discoideum_ps	QFQHQQ-----VPQLSPQQIPFSEPL	65
gi Dictyostelium_purpureum_N/A	TNTNQT-----VP-LSPQQIPFSEPL	39
gi Dictyostelium_fasciculatum_	SPNMYL-----GNGVQQQQQAPATSP	40
gi Polysphondylium_pallidum_N/	-----GKGIS-----	24
gi Arabidopsis_thaliana_theta	---NHS-----SSSS-----STSKSS	29
gi Arabidopsis_thaliana_eta	EHGGHS-----SSSHTSGASTSKST	43
gi Arabidopsis_thaliana_zeta	SN--GE-----GGVNN-SYYASNSST	38

Figure S1. Cont.

gi	Arabidopsis_thaliana_gamma	SNPNGE-----GGVN--SYIIPNSGI	39
gi	Oryza	FFSGTS-----PSVLD-QVSGLGVD	38
gi	Oryza_sativa_zeta	PIGRSS-----PSVPN-PPLGPRGAE	40
gi	Oryza_sativa_theta	DLAGVG-----SSLPDARTTTDLTMS	42
gi	Oryza_sativa_eta	DAAGPN-----GNEP----SNSYSVA	37
gi	Arabidopsis_thaliana_delta	-----KTSAKFW	18
gi	Arabidopsis_thaliana_N/A	ELN--R-----SSSGP-VSSPVQRS	37
gi	Oryza_sativa_kappa	DLDSGQ-----CSNGAGNGNPIQRTS	41
gi	Oryza_sativa_N/A	-----GGGSPTAKSPLSKGA	34
gi	Arabidopsis_thaliana_alpha	SSMYG-----FDPP-GRSGPGS	36
gi	Arabidopsis_thaliana_beta	PSSYG-----IGLPDNRSGPGS	37
gi	Oryza_sativa_N/A_2	DAAHGR-----PAAAPSSSSGGAQP	41
gi	Arabidopsis_thaliana_epsilon	QDNNNN-----NNNTSTNTVVRGS	39
gi	Chlamydomonas_reinhardtii_w	D-----SQPSTSA	28
gi	Schizosaccharomyces_pombe_P	-----A-----QNDFLTVPKHSGKKV	68
gi	Schizosaccharomyces_pombe_P	PNDNIS-----SASFSLVPQSTPPYL	162
gi	Ashbya_gossypii_RTS1	AVSPGS-----TSG-----PPSPKEAEASPNGID	122
gi	Saccharomyces_cerevisiae_RT	VSAVPSSPISNASGTAVSSDVENGNSNNNNMNINTSNTQDANHASSQSID	229
gi	Aspergillus_niger_N/A	LAPPRKSHVFDRLQTPKDMSEGIRTPKRQHSSRFDISDQRQ-----	155
gi	Aspergillus_nidulans_para	LAPPRKSHVFDRLQTPKDMSEGIRTPKRQHSSRFDISDQRQ-----	157
gi	Mus_musculus_alpha	VACAAISASEKVDGFTRKSVRKAQRQKRSQGSSQFRSQGSQ-----	50
gi	Rattus_norvegicus_alpha	VACAAISASEKVDGFTRKSVRKAQRQKRSQGSSQFRSQGSQ-----	50
gi	Macaca_mulatta_alpha	AASAAISASEKVDGFTRKSVRKAQRQKRSQGSSQFRSQGSQ-----	50
gi	Homo_sapiens_alpha	AASAAISASEKVDGFTRKSVRKAQRQKRSQGSSQFRSQGSQ-----	50
gi	Ovis_aries_alpha	AASAAISAAEKVDGFTRKSVRKAQRQKRSQGSSQFRSQCSQ-----	53
gi	Bos_taurus_alpha	AASAAISAAEKVDGFTRKSVRKAQRQKRSQGSSQFRSQCSQ-----	53
gi	Felis_catus_alpha	-----	
gi	Canis_lupus_familiaris_alph	-----	
gi	Falco_peregrinus_alpha	-MSAAISAAEKVDGFTRKSVRKAQRQKRSQGSSQFRSQSSQ-----	40
gi	Gallus_gallus_alpha	-MSAAISAAEKVDGFTRKSVRKAQRQKRSQGSSQFRSQSSQ-----	40
gi	Alligator_mississippiensis	SAAAAISAAEKVDGFTRKSVRKAQRQKRSQGSSQFRSQSSQ-----	50
gi	Chrysemys_picta_bellii_alph	-MSAAISASEKVDGFTRKSVRKAQRQKRSQGSSQFRSQSSQ-----	40
gi	Xenopus_laevis_alpha	--MSAISAAEKVDGFTRKSVRKAQRQRRSQSSQFLGQGP-----	39
gi	Xenopus_tropicalis_alpha	--MSAISAAEKVDGFTRKSVRKAQRRRGRSQSSQFRGQGP-----	39
gi	Ambystoma_mexicanum_alpha	-----	
gi	Danio_rerio_alpha	--MSAISASEKVDGFTRKSVRKAQRQVCQGSSQFVNSSRP-----	40
gi	Petromyzon_marinus_S4RHV1	MMSATATAAEKVDGFSRRSLRRAGRARRSQSSQFRTRAHL-----	41
gi	Mus_musculus_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Rattus_norvegicus_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Macaca_mulatta_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Homo_sapiens_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Ovis_aries_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Bos_taurus_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Canis_lupus_familiaris_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Falco_peregrinus_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Gallus_gallus_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Felis_catus_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Chrysemys_picta_bellii_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Xenopus_laevis_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Xenopus_tropicalis_epsilon	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	42
gi	Alligator_mississippiensis	SAPTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	67
gi	Ambystoma_mexicanum_epsilon	--QTTTPPSVDKVDGFSRKSVRKA-RQKRSQSSSQFRSQGKP-----	38
gi	Danio_rerio_epsilon	SAATTAPSVDKVDGFSRKSVRKA-RQKRAQSSSQFRSQDKP-----	42
gi	Mus_musculus_beta	PGLSPVPPPDKVDGFSRRSLRRA-RPRRSHSSSQFRYQSNQ-----	56
gi	Rattus_norvegicus_beta	PGLSPVPPPDKVDGFSRRSLRRA-RPRRSHSSSQFRYQSNQ-----	56
gi	Felis_catus_beta	PGLSPVPPPDKVDGFSRRSLRRA-RPRRSHSSSQFRYQSNQ-----	56
gi	Canis_lupus_familiaris_beta	PGLSPVPPPDKVDGFSRRSLRRA-RPRRSHSSSQFRYQSNQ-----	56
gi	Homo_sapiens_beta	PGLSPVPPPDKVDGFSRRSLRRA-RPRRSHSSSQFRYQSNQ-----	56
gi	Bos_taurus_beta	PGLSPVPPPDKVDGFSRRSLRRA-RPRRSHSSSQFRYQSNQ-----	56

Figure S1. Cont.

gi Ovis_aries_beta	PGLSPVPPDPKVDGFSRRSLRRA-RPRDXEGSPLPRAAAAG-----	56
gi Macaca_mulatta_beta	LGGS-VPPRAGAAG-----GAG-----	32
gi Xenopus_laevis_beta	-----	
gi Alligator_mississippiensis	PGLSPVPPEKVDGFSRRSLRRT-RPRRSHSSSQFRYQSSQ-----	56
gi Chrysemys_picta_bellii_beta	PGMSPVPPDPKVDGFSRRSLRRS-RQRRSHSSSQFRYQSNQ-----	56
gi Xenopus_tropicalis_beta	PGLSPVLAADKVDGFSRRSLRRS-RQRRSHSSSQFRYQSKQ-----	54
gi Danio_rerio_beta	TGFS-VPSAEKVDGFPRRSMRRA-RQRRSHSSSQFRYQSSQ-----	55
gi Ambystoma_mexicanum_beta	-----	
gi Petromyzon_marinus_S4RGA7	-----	
gi Strongylocentrotus_purpurat	-MSSGSTAVDKIDPFAKK-SLRKG--KQKKSQGSSQYRLS-----	36
gi Drosophila_melanogaster_wdb	-MSSG-TFVDRIDPFAKR-SLKK---KGKKSQGSSRYRNS-----	34
jgi Branchiostoma_floridiae_237	-----	
gi Hydra_vulgaris_alpha	ASAAQPSTKENVDPFTRKSSVKKIVKSQKKQGSSRFKTT-----	44
jgi Branchiostoma_floridiae_112	MSAATGFPVTDKIDPFSKKQSVKKP--KQKRSQASSRYKAK-----	38
jgi Branchiostoma_floridiae_284	-----MITP--KP-----	6
gi Caenorhabditis_elegans_PPTR	LSATANQFVDKIDPFHNKRGTSSR--LRINN--SSRYNVD-----	65
gi Amphimedon_queenslandica_be	PLGVQSSSLPVPDPFRKMSHINRK---NQQTQSSSRYNLKK-----	57
gi Chrysemys_picta_bellii_gamm	-----SRMVVDAAN-SNGP-----	21
gi Chrysemys_picta_bellii_delt	-----	
gi Falco_peregrinus_gamma	-----SRMVVDAAN-SNGP-----	21
gi Falco_peregrinus_delta/gamm	-----	
gi Gallus_gallus_gamma	-----SRMVVDAAN-SNGP-----	21
gi Alligator_mississippiensis	-----SRMVVDAAN-SNGP-----	21
gi Alligator_mississippiensis	-----	
gi Ambystoma_mexicanum_gamma	-----SRMVVDAAGGSNGP-----	22
gi Mus_musculus_gamma	-----SGMVVDAAS-SNGP-----	21
gi Rattus_norvegicus_gamma	-----SGMVVDAAS-SNGP-----	21
gi Ovis_aries_gamma	-----SRMVVDAAN-SNGP-----	21
gi Bos_taurus_gamma	-----SRMVVDAAS-SNGP-----	21
gi Canis_lupus_familiaris_gamm	-----SRMVVDAAN-SNGP-----	21
gi Macaca_mulatta_gamma	-----SRMVVDAAN-SNGP-----	21
gi Homo_sapiens_gamma	-----MVVDAAN-SNGP-----	11
gi Felis_catus_gamma	LPATPSTVSSKIKVPAAQPIVR---RDKRQNSSRFS-ASNN-----	68
gi Canis_lupus_familiaris_delt	LAAPPSTVSSKIKVPVPQPIVK---KEKRQNSSRFN-ASNN-----	68
gi Macaca_mulatta_delta/gamma	LVAVPSTVSAKIKVPVSQPIVK---KDKRQNSSRFS-ASNN-----	303
gi Bos_taurus_delta/gamma	LIAAPSAASSKIKVPAPQPIVK---RDRRQNSSRFS-ASNN-----	75
gi Mus_musculus_delta/gamma	LTVVQSSSTSTKIKVPIQPVVVPVKDKRQNSSRFN-ASNN-----	78
gi Rattus_norvegicus_delta/gam	LASVQSSSTS-KIKVPVPQVPVK---KDKRQNSSRFN-ASNN-----	144
gi Danio_rerio_gamma	-----GPFQPA-----	26
gi Danio_rerio_delta/gamma	VPPATQLLKKGKQSGSQTPVKKE----KRPNSRFS-LSNN-----	74
gi Xenopus_laevis_delta/gamma	TPPPAQVSKIKVPTPQAVVKKE----KRQSSSRFN-VSNN-----	74
gi Xenopus_laevis_gamma	TPPPAQVSKIKVPTPQAVVKKE----KRQSSSRFN-VSNN-----	74
gi Xenopus_tropicalis_delta/ga	TPPPAQVSKIKVPTPQAVVKKE----KRQSSSRFN-VSNN-----	74
gi Mus_musculus_delta	TPPPTQLSKIKYSGGPQIVKKE----RRQSSFFFN-LNKN-----	89
gi Rattus_norvegicus_delta	TPPPTQLSKIKYSGGPQIVKKE----RRQSSSRFN-LSKN-----	117
gi Felis_catus_delta	TPPPTQLSKIKYSGGPQIVKKE----RRQSSSRFN-LSKN-----	103
gi Bos_taurus_delta	TPPPTQLSKIKYSGGPQIVKKE----RRQSSSRFN-LSKN-----	95
gi Canis_lupus_familiaris_delt	TPPPTQLSKIKYSGGPQIVKKE----RRQSSSRFN-LSKN-----	90
gi Macaca_mulatta_delta	TPPPTQLSKIKYSGGPQIVKKE----RRQSSSRFN-LSKN-----	97
gi Homo_sapiens_delta	TPPPTQLSKIKYSGGPQIVKKE----RRQSSSRFN-LSKN-----	97
gi Ovis_aries_delta	TPPPTQLSKIKYSGGPQIVKKE----RRQSSSRFN-LSKN-----	93
gi Falco_peregrinus_delta	-----	
gi Gallus_gallus_delta	APPPTQLNKIKYSGGPQIVKKE----RRHSSSRFN-LSKN-----	92
gi Alligator_mississippiensis	APPPTQLNKIKYSGGPQIVKKE----RRHSSSRFN-LSKN-----	91
gi Chrysemys_picta_bellii_delt	TPPPTQLNKIKYSGGPQIVKKE----RRHSSSRFN-LTKN-----	93
gi Danio_rerio_delta	TPPPTQLNKIKYSGGPQIVKKE----RRQSSSRFN-LSKN-----	84
gi Ambystoma_mexicanum_delta	-----	
gi Petromyzon_marinus_S4RN43	PPPQTQLNKVKYGSPANIVKKE----KRQSSSRFN-VTKN-----	74
jgi Branchiostoma_floridiae_237	-----	
jgi Branchiostoma_floridiae_252	VPPPTQLTKIKLTGGQQHVVKK---DKRQSSSRFN-ISKNN-----	47
gi Strongylocentrotus_purpurat	-----KGTGTLVKK---DKRQSSSRFN-ISKNN-----	55

Figure S1. Cont.

gi Caenorhabditis_elegans_PPTR	-----YGGGPVIPRR----ERRQSSSMFN-ISQN-----	41
gi Hydra_vulgaris_delta	-----ASVQVLKR----DNRQSSSSFN-ISKN-----	64
gi Amphimedon_queenslandica_de	VPIAYNSIVSRLQSGSYTHRT----NSRQGSRRFN-ISKN-----	105
gi Drosophila_melanogaster_B56	APPPTPISKVLNITGTPIVRKE----KRQTSARYN-ASKN-----	178
gi Dictyostelium_discoideum_ps	KNNLTQHQQQQQQHQQLAGGQHGSLLRKSYSRRFHEKPQGE-----	107
gi Dictyostelium_purpureum_N/A	K-----AGQQHGSLLRKSYSRRFHEKPQGE-----	64
gi Dictyostelium_fasciculatum	SKLLGQTPKSEA-----IPLTKNTSLRRSASSRFHEKSKVE-----	76
gi Polysphondylium_pallidum_N/	-----LTPKSE-----IPIKNTINLRRSASSRFHEKSSSE-----	54
gi Arabidopsis_thaliana_theta	DNGASKSGNSQTQNAAPPVKPSADSGFKEGNLKGNGNG-----	66
gi Arabidopsis_thaliana_eta	DNGAASKS-HAKNASPAGKSAASDSGFKDGNLKSSGNNNNNNNGV-----	87
gi Arabidopsis_thaliana_zeta	TSISKPSSTSSKSSSASGSRVANG-TLAPNSMSSNRNTNQKKPLGGDAV	87
gi Arabidopsis_thaliana_gamma	SSISKPSSK----SSASNSNGANGTVIAPSSSTSSNR-TNQVN-----	76
gi Oryza	RATSNLGSQPPIISSTGLSYGSGNRVENPNTRTNGNLYSSSF-----	80
gi Oryza_sativa_zeta	RS-SNLSSQTPVISSSGLSYGSGMHVGNANSRVNGNSVQPTV-----	81
gi Oryza_sativa_theta	SRIANPNNYTAAVTNPGQNYTVKNAHHGGAGVSNGLFAPPVF-----	84
gi Oryza_sativa_eta	RSVEQGN-----KRSGNGDYVVPAGLTPNPMNGTTVVYHSN-----	73
gi Arabidopsis_thaliana_delta	DNGESQT-----LDNNNNQGGGDEVLSQRTSSNGDTSILDCVS-----	55
gi Arabidopsis_thaliana_N/A	TSGGSGSPV-----RSNSGKRMSSAVFPASVVAGIEP-----	69
gi Oryza_sativa_kappa	SCGSIPSGR-----STSTIKRMSSAIFPSSVVAGIEP-----	73
gi Oryza_sativa_N/A	GNGEPPAP-----PAAAAGGGG-----	51
gi Arabidopsis_thaliana_alpha	NMIVNHASRGSIVPSSPNSMAAATQPPPMYS-----	68
gi Arabidopsis_thaliana_beta	NVVVSHASRGALVNSSP-SPVTATPPPPPLGS-----	68
gi Oryza_sativa_N/A_2	PVTNVHASRAAAPSSPPSPHAAAAASAPSAGAAASNQASSHHHQQ-----	86
gi Arabidopsis_thaliana_epsilon	RTTTPAPSSVNGESQTTAQSPSQTPNHPMFTTTP-----	74
gi Chlamydomonas_reinhardtii_w	KAGAPAASS----KAPAPRPISAIREKPLPAINEQTLQQQY-----	66
gi Schizosaccharomyces_pombe_P	PIDTTPTPRDEILLENVRT-----VRKQRSSLYHISENR-----	102
gi Schizosaccharomyces_pombe_P	VSQPTPLNKLFLAGAENVDPHSLRPVPRREHSSSQFQVSEKR-----	203
gi Ashbya_gossypii_RTS1	IPRSSHSFERLPTPTKLNPDTDLELIKTPQRHSSSRFEPSPR-----	163
gi Saccharomyces_cerevisiae_RT	IPRSSHSFERLPTPTKLNPDTDLELIKTPQRHSSSRFEPSPR-----	270
gi Aspergillus_niger_N/A	-----RELEKLQGFHEVPPN-RRQELFMQKIDQCNIIFDFNDP--	192
gi Aspergillus_nidulans_parA	-----RELEKLPGFHEVPPN-RRQELFMQKIDQCNIIFDFNDP--	194
gi Mus_musculus_alpha	-----AELHPLPQLKDATSNEQQELFCQKLQCCVLFDFMDS--	87
gi Rattus_norvegicus_alpha	-----AELHPLPQLKDATSNEQQELFCQKLQCCVLFDFMDS--	87
gi Macaca_mulatta_alpha	-----AELHPLPQLKDATSNEQQDLFCQKLQCCILFDFMDS--	87
gi Homo_sapiens_alpha	-----AELHPLPQLKDATSNEQQELFCQKLQCCILFDFMDS--	87
gi Ovis_aries_alpha	-----PELHPLPQLKDATSNEQQELFCQKLQCCILFDFMDS--	90
gi Bos_taurus_alpha	-----PELHPLPQLKDATSNEQQELFCQKLQCCILFDFMDS--	90
gi Felis_catus_alpha	-----MDS--	3
gi Canis_lupus_familiaris_alph	-----MDS--	3
gi Falco_peregrinus_alpha	-----VELSPLPQLKDATFN-EQQDLFCQKLQCCVLFDFMDS--	77
gi Gallus_gallus_alpha	-----VELSPLPQLKDATSNEQQDLFCQKLQCCVLFDFMDS--	77
gi Alligator_mississippiensis	-----VELSPLPQLKDATSNEQQELFCQKLQCCILFDFIDS--	87
gi Chrysemys_picta_bellii_alph	-----VELSPLPQLKDATSNEQQDLFCQKLQCCILFDFMDS--	77
gi Xenopus_laevis_alpha	-----VELSPLPALKDATSN-EQQDLFCQKLEQCCVLFDFMDS--	76
gi Xenopus_tropicalis_alpha	-----VELSPLPPLKDATSNEQQDLFCQKLQCCVLFDFMDS--	76
gi Ambystoma_mexicanum_alpha	-----MDS--	3
gi Danio_rerio_alpha	-----AAPEISALPQLKDASST-EQHELFMQKLQCCKLFDFYDT--	79
gi Petromyzon_marinus_S4RHV1	-----ELAPLPALADTPAS-EQEELFCCKLQCCVIFDFLDS--	77
gi Mus_musculus_epsilon	-----IELTPLPLKDVPTS-EQPELFLKKLQCCVIFDFMDT--	79
gi Rattus_norvegicus_epsilon	-----IELTPLPLKDVPTS-EQPELFLKKLQCCVIFDFMDT--	79
gi Macaca_mulatta_epsilon	-----IELTPLPLKDVPTS-EQPELFLKKLQCCVIFDFMDT--	79
gi Homo_sapiens_epsilon	-----IELTPLPLKDVPTS-EQPELFLKKLQCCVIFDFMDT--	79
gi Ovis_aries_epsilon	-----IELTPLPLKDVPTS-EQPELFLKKLQCCVIFDFMDT--	79
gi Bos_taurus_epsilon	-----IELTPLPLKDVPTS-EQPELFLKKLQCCVIFDFMDT--	79
gi Canis_lupus_familiaris_epsi	-----IELTPLPLKDVPTS-EQPELFLKKLQCCVIFDFMDT--	79
gi Falco_peregrinus_epsilon	-----IELTPLPLKDVPTS-EQPELFLKKLQCCVIFDFMDT--	79
gi Gallus_gallus_epsilon	-----IELTPLPLKDVPTS-EQPELFLKKLQCCVIFDFMDT--	79
gi Felis_catus_epsilon	-----IELTPLPLKDVPTS-EQPELFLKKLQCCVIFDFMDT--	79
gi Chrysemys_picta_bellii_epsi	-----IELTPLPLKDVPTS-EQPELFLKKLQCCVIFDFMDT--	79

Figure S1. Cont.

gi	Xenopus_laevis_epsilon	-----IETPLPPLLKDVPTL-EQPELFLKKLQCCGVIFDFMDT--	79
gi	Xenopus_tropicalis_epsilon	-----IETPLPPLLKDVPTS-EQPELFLKKLQCCGVIFDFMDT--	79
gi	Alligator_mississippiensis	-----IETPLPPLLK-----ACKALTFTES--	87
gi	Ambystoma_mexicanum_epsilon	-----IETPLPPLLKDVQNS-EQSEFLKKLQCCVLFDFMET--	75
gi	Danio_rerio_epsilon	-----IELVALPPLLKDVSAQ-EQPELFLKKLQCCVTFDFMDT--	79
gi	Mus_musculus_beta	-----QELTPLPPLLKDVPAE-ELHELLSRKLAQCGVMFDFLDC--	93
gi	Rattus_norvegicus_beta	-----QELTPLPPLLKDVPAE-ELHELLSRKLAQCGVMFDFLDC--	93
gi	Felis_catus_beta	-----QELTPLPPLLKDVPAE-ELHELLSRKLAQCGVMFDFLDC--	93
gi	Canis_lupus_familiaris_beta	-----QELTPLPPLLKDVPAE-ELHELLSRKLAQCGVMFDFLDC--	93
gi	Homo_sapiens_beta	-----QELTPLPPLLKDVPAE-ELHELLSRKLAQCGVMFDFLDC--	93
gi	Bos_taurus_beta	-----QELTPLPPLLKDVPAE-ELHELLSRKLAQCGVMFDFLDC--	93
gi	Ovis_aries_beta	-----AQAGTPPPSPDVPAE-ELHELLSRKLAQCGVMFDFLDC--	93
gi	Macaca_mulatta_beta	-----VQAQDALPSPDVPAE-ELHELLSRKLAQCGVMFDFLDC--	69
gi	Xenopus_laevis_beta	-----	
gi	Alligator_mississippiensis	-----QELTPLPPLLKDVAVS-ELHELLGRKLQCCVLFDFLDP--	93
gi	Chrysemys_picta_bellii_beta	-----QELTPLPPLLKDVAVA-ELHELLCKKLQCCVLFDFLDC--	93
gi	Xenopus_tropicalis_beta	-----QELTPLPPLKDVPAE-ELHDLFCCKLQCCSVIFQFMDC--	91
gi	Danio_rerio_beta	-----VELTPLPPLLKDVPAE-ELHDLFCCKLQCCVLFDFLDC--	92
gi	Ambystoma_mexicanum_beta	-----	
gi	Petromyzon_marinus_S4RGA7	-----	
gi	Strongylocentrotus_purpurat	-----NNTEIQQLN-LLKDTTPPEQQELVVKLEQCCMVDFMDA--	75
gi	Drosophila_melanogaster_wdb	-----QDVELQQLPPLKADCSSLEQEELFIRKLRQCCVSDFMDP--	74
jgi	Branchiostoma_floridae_237	-----LPVDAPPAEQHELFIKKLQCCSVVDFMDS--	30
gi	Hydra_vulgaris_alpha	-----PVAELQPLT-LLKDAPAQERQELFIKKLQCCVTFDFMDP--	83
jgi	Branchiostoma_floridae_112	-----GGTELVPPLQKDATPA-EQQELFLKKLQCCSVLDFDADDC--	78
jgi	Branchiostoma_floridae_284	-----GSLRPFPS-ADATPA-EQQELFLKKLQCCSVLDFDADDC--	44
gi	Caenorhabditis_elegans_PPTR	-----SAQELVQLALIKDTAAN-EQPALVIEKLVQCQHVDFDYDP--	104
gi	Amphimedon_queenslandica_be	-----PPPDYKPLPPLLKDSIQG-DRESLMLQKIAQCCVVFDFSDP--	96
gi	Chrysemys_picta_bellii_gamm	-----FQPVALLHIRDVPPA-EQEKLFIQKLRQCCVLFDFVSDP--	59
gi	Chrysemys_picta_bellii_delt	-----	
gi	Falco_peregrinus_gamma	-----FQPVALLHIRDVPPA-DQEKLFIQKLRQCCVLFDFVSDP--	59
gi	Falco_peregrinus_delta/gamm	-----	
gi	Gallus_gallus_gamma	-----FQPVALLHIRDVPPA-DQEKLFIQKLRQCCVLFDFVSDP--	59
gi	Alligator_mississippiensis	-----FQPVALLHIRDVPPA-DQEKLFIQKLRQCCVLFDFVSDP--	59
gi	Alligator_mississippiensis	-----	
gi	Ambystoma_mexicanum_gamma	-----FQPVALLHIRDVPPA-EQEKLFIQKLRQCCVLFDFVSDP--	60
gi	Mus_musculus_gamma	-----FQPVALLHIRDVPPA-DQEKLFIQKLRQCCVLFDFVSDP--	59
gi	Rattus_norvegicus_gamma	-----FQPVALLHIRDVPPA-DQEKLFIQKLRQCCVLFDFVSDP--	59
gi	Ovis_aries_gamma	-----FQPVALLHIRDVPPA-DQEKLFIQKLRQCCVLFDFVSDP--	59
gi	Bos_taurus_gamma	-----FQPVALLHIRDVPPA-DQEKLFIQKLRQCCVLFDFVSDP--	59
gi	Canis_lupus_familiaris_gamm	-----FQPVALLHIRDVPPA-DQEKLFIQKLRQCCVLFDFVSDP--	59
gi	Macaca_mulatta_gamma	-----FQPVALLHIRDVPPA-DQEKLFIQKLRQCCVLFDFVSDP--	59
gi	Homo_sapiens_gamma	-----FQPVLLHIRDVPPA-DQEKLFIQKLRQCCVLFDFVSDP--	49
gi	Felis_catus_gamma	-----RELQKLPSLKDVPAA-DQEKLFIQKLRQCCVLFDFVSDP--	106
gi	Canis_lupus_familiaris_delt	-----RELQKLPSLKDVPAA-DQEKLFIQKLRQCCVLFDFVSDP--	106
gi	Macaca_mulatta_delta/gamma	-----RELQKLPSLKDVPAA-DQEKLFIQKLRQCCVLFDFVSDP--	341
gi	Bos_taurus_delta/gamma	-----RELQKLPSLKDVPAA-DQEKLFIQKLRQCCVLFDFVSDP--	113
gi	Mus_musculus_delta/gamma	-----RELQKLPSLKDVPAA-DQEKLFIQKLRQCCVLFDFVSDP--	116
gi	Rattus_norvegicus_delta/gam	-----RELQKLPSLKDVPAA-DQEKLFIQKLRQCCVLFDFVSDP--	182
gi	Danio_rerio_gamma	-----LMHFRDVPPA-EQEKLFVQKLRQCCVLFDFVSDP--	59
gi	Danio_rerio_delta/gamma	-----RELQKLPSLKDVPAA-EQEKLFVQKLRQCCVLFDFVSDP--	112
gi	Xenopus_laevis_delta/gamma	-----RELQKLPSLKDVPAA-EQEKLFVQKLRQCCVLFDFVSDP--	112
gi	Xenopus_laevis_gamma	-----RELQKLPSLKDVPAA-EQEKLFVQKLRQCCVLFDFVSDP--	112
gi	Xenopus_tropicalis_delta/ga	-----RELQKLPSLKDVPAA-EQEKLFVQKLRQCCVLFDFVSDP--	112
gi	Mus_musculus_delta	-----RELQKLPSLKDVPAA-EQEKLFVQKLRQCCVLFDFVSDP--	127
gi	Rattus_norvegicus_delta	-----RELQKLPSLKDVPAA-EQEKLFVQKLRQCCVLFDFVSDP--	155
gi	Felis_catus_delta	-----RELQKLPSLKDVPAA-EQEKLFVQKLRQCCVLFDFVSDP--	141
gi	Bos_taurus_delta	-----RELQKLPSLKDVPAA-EQEKLFVQKLRQCCVLFDFVSDP--	133
gi	Canis_lupus_familiaris_delt	-----RELQKLPSLKDVPAA-EQEKLFVQKLRQCCVLFDFVSDP--	128
gi	Macaca_mulatta_delta	-----RELQKLPSLKDVPAA-EQEKLFVQKLRQCCVLFDFVSDP--	135
gi	Homo_sapiens_delta	-----RELQKLPSLKDVPAA-EQEKLFVQKLRQCCVLFDFVSDP--	135

Figure S1. Cont.

gi Ovis_aries_delta	-----RELQKLPALKDSPTQ-EREELFIQKLRQCCVLFDFVSDP-	131
gi Falco_peregrinus_delta	-----MSLLSLTDAPPH-EREELFIQKLRQCCVLFDFISDP-	35
gi Gallus_gallus_delta	-----RELQKLPALKDAPPH-EREELFIQKLRQCCVLFDFISDP-	130
gi Alligator_mississippiensis	-----RELQKLPALKDAPPH-EREELFIQKLRQCCVLFDFISDP-	129
gi Chrysemys_picta_bellii_delt	-----RELQKLPALKDAPAH-EREELFIQKLRQCCVLFDFISDP-	131
gi Danio_rerio_delta	-----RELQKLPALKDAPPI-DREELFVQKLRQCCVLFDFVTDP-	122
gi Ambystoma_mexicanum_delta	-----RELQKLPALKDAPPG-EREELFVQKLRQCCVLFDFVSDP-	112
gi Petromyzon_marinus_S4RN43	-----PAHVDPARPE-EREDLFVQKLRQCCVVFDFVNDP-	32
jgi Branchiostoma_floridae_237	-----RELQKLAALKDARPE-EREDLFVQKLRQCCVVFDFVNDP-	85
jgi Branchiostoma_floridae_252	-----RELQKLPPLKDTPG-EREDLFSKLLQCCVVFDFISDP-	93
gi Strongylocentrotus_purpurat	-----RELQRLPAIKDADPS-ERETLFIQKLRQCCVVFDFFANDA-	79
gi Caenorhabditis_elegans_PPTR	-----RELQKLPPLIKDTNNS-EKESLFIQKLRQCCVLFDFVVDP-	102
gi Hydra_vulgaris_delta	-----REISKLPLKDTPN-AREDLFLQKLHQCSIIFDFNRPD-	143
gi Amphimedon_queenslandica_de	-----CELTALIPLEKTAASEREELFIQKIQQCTLFDFDS-EP-	216
gi Drosophila_melanogaster_B56	-----LTKIANFQDVSPE-ERPSLFLKLLKQCCVYDFSDN--	142
gi Dictyostelium_discoideum_ps	-----LTKIPGFQEVPPPE-ERPSLFLKLLKQCCVYDFSEN--	99
gi Dictyostelium_purpureum_N/A	-----LQQIPGFHDVPPE-ERQSLLIKLLKQCCVVFDFSDTE--	112
gi Dictyostelium_fasciculatum	-----LQQIPAFNVVPPE-ERPNNLLKLLKQCCALFDFSDSE--	90
gi Polysphondylium_pallidum_N/	-----FTPYEALPGFKDVPNA-EKQNLFVRKLSLCCVVFDFSD---	103
gi Arabidopsis_thaliana_theta	-----FTPYEALPSFKDVPNT-EKQNLFIKKLNLRCRVVFDFDFTD---	124
gi Arabidopsis_thaliana_eta	VQAGPFPSSGGVYEALPSFRDVPIS-EKPNLFIKGLSMCCVVFDFSD---	133
gi Arabidopsis_thaliana_zeta	-----GVYEALPSFRDVPNTS-EKPNLFIKKLSMCCVVFDFDND---	112
gi Arabidopsis_thaliana_gamma	-----QPLPSFKDVPNS-EKQNLIRKLLKCCIVDFDFTD---	113
gi Oryza	-----ELLPSFKDVPNT-EKNNLHVKKLNLCCATFDFDFTD---	114
gi Oryza_sativa_zeta	-----EALPSLRDAPAP-EKPSLFLRKVVVMCVVFDFDFTD---	117
gi Oryza_sativa_theta	-----EPLPAFKDVPAS-EKQNLFVKKVNLCCAVYDFDAD---	106
gi Oryza_sativa_eta	-----SFDVLPRLRDVVIS-EKQELFLKLLRLCCLVDFDFVAE---	91
gi Arabidopsis_thaliana_delta	-----LVPFKDVPSS-EKLNLFVSKVSLCCVTFDFDS---	99
gi Arabidopsis_thaliana_N/A	-----LVSFKDVPNS-EKQNLFVSKLNLCCAVDFDS---	103
gi Oryza_sativa_kappa	-----GAEGE-TREDVFLRKLNVCCVVFDFSSAAA	80
gi Oryza_sativa_N/A	-----VEPLPLFRDVSVS-ERQSLFLRKLQICCFQDFDFTD---	102
gi Arabidopsis_thaliana_alpha	-----VEPLPLFRDVPVS-ERQTLFLRKLQNCFFLDFDFTD---	102
gi Arabidopsis_thaliana_beta	-QQPAAAPQPPLLEPLPLLRDVAAA-DRPGLLVKRLRLVAALFDFDFTD---	131
gi Oryza_sativa_N/A_2	-----ILEVLPLLKDVSSS-DRPLLFMKKAHMCSCCHDFSD---	109
gi Arabidopsis_thaliana_epsilon	-----AEPLPSFRDVSVA-EKQYLFVQKLHLCSFGDFDAD---	100
gi Chlamydomonas_reinhardtii_w	-----NLVRLPSFTDVPVN-KWHSLEKLEQCCVVFDFDNDPS-	139
gi Schizosaccharomyces_pombe_P	-----TLVRLPSFDDVHTS-EREELFIKKLEQCNIIFFDFDNDPS-	240
gi Schizosaccharomyces_pombe_P	-----YTQISKLPGFDDVPPE-EQISLFIKVDQCNIMFDFSDPS-	202
gi Ashbya_gossypii_RTS1	-----YTPLTKLPNFNEVSPE-ERIPLFIAKVDQCNMFDNDPS-	309
gi Saccharomyces_cerevisiae_RT		
gi Aspergillus_niger_N/A	-----TADMKSKEIKRLALHELLDYIANNRS-----VITEPMY-PR	227
gi Aspergillus_nidulans_para	-----TADMKSKEIKRLALHELLDYIANNRS-----VITEPMY-PR	229
gi Mus_musculus_alpha	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-SD	122
gi Rattus_norvegicus_alpha	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-SD	122
gi Macaca_mulatta_alpha	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-SD	122
gi Homo_sapiens_alpha	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-SD	122
gi Ovis_aries_alpha	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-SD	125
gi Bos_taurus_alpha	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-SD	125
gi Felis_catus_alpha	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-SD	38
gi Canis_lupus_familiaris_alph	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-SD	38
gi Falco_peregrinus_alpha	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-AD	112
gi Gallus_gallus_alpha	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-AD	112
gi Alligator_mississippiensis	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-AD	122
gi Chrysemys_picta_bellii_alph	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVESAY-AD	112
gi Xenopus_laevis_alpha	-----ISDLKSKEIKRATLNELVEYVA-TNR-----GVLVETAY-PE	111
gi Xenopus_tropicalis_alpha	-----ISDLKSKEIKRATLNELVEYVS-TNR-----GVLVETAY-PE	111
gi Ambystoma_mexicanum_alpha	-----VSDLKSKEIKRATLNELVEYVS-TNR-----GVIVETAY-PD	38
gi Danio_rerio_alpha	-----VTDLKSKEIKRATLNELVDYVS-TNR-----GVLVEPVY-PE	114
gi Petromyzon_marinus_S4RHV1	-----VSDLKGKEIKRAALNELVDYIT-AGR-----GVLTESVY-PD	112

Figure S1. Cont.

gi Mus_musculus_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Rattus_norvegicus_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Macaca_mulatta_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Homo_sapiens_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Ovis_arie_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Bos_taurus_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Canis_lupus_familiaris_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Falco_peregrinus_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Gallus_gallus_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Felis_catus_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Chrysemys_picta_bellii_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Xenopus_laevis_epsilon	-----LSDLKMKEYKRSTLNELVDY VA-ISR-----GCLTEQTY-PE	114
gi Xenopus_tropicalis_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	114
gi Alligator_mississippiensis	-----LFS-----KNTLLISLKTFLN-YKN-----G-----	107
gi Ambystoma_mexicanum_epsilon	-----LSDLKMKEYKRSTLNELVDY IT-ISR-----GCLTEQTY-PE	110
gi Danio_rerio_epsilon	-----LSDLKMKEYKRSTLNELVDY VT-LSR-----GYLTEQTY-PE	114
gi Mus_musculus_beta	-----VADLKGKEVKRAALNELVECVG-CTR-----GVLIEPVY-PD	128
gi Rattus_norvegicus_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	128
gi Felis_catus_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	128
gi Canis_lupus_familiaris_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	128
gi Homo_sapiens_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	128
gi Bos_taurus_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	128
gi Ovis_aries_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	128
gi Macaca_mulatta_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	104
gi Xenopus_laevis_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	104
gi Alligator_mississippiensis	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	104
gi Chrysemys_picta_bellii_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	104
gi Xenopus_tropicalis_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	104
gi Danio_rerio_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	104
gi Ambystoma_mexicanum_beta	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	104
gi Petrotyzon_marinus_S4RGA7	-----VADLKGKEVKRAALNELVECVG-STR-----GVLIEPVY-PD	104
gi Strongylocentrotus_purpurat	-----VSELRGKEIKRASLNELVDY IT-TGR-----GVLTEPLY-PE	110
gi Drosophila_melanogaster_wdb	-----VTDLGKEIKRAALNDLSTY IT-HGR-----GVLTEPLY-PE	109
jgi Branchiostoma_floridae_237	-----VSDLKGKEIKRASLNELVDY IT-AGR-----GVLTEQTY-PE	65
gi Hydra_vulgaris_alpha	-----VGDLRGKEVKRGTNLNELVDY IT-SER-----GVLTEPLY-PE	118
jgi Branchiostoma_floridae_112	-----VSELRSMEVKRFSLEIIVLDHIG-KT-----GVLLEQTY-PE	112
jgi Branchiostoma_floridae_284	-----VSELRSMEVKRFSLEIIVLDHIG-KT-----GVLLEQTY-PE	78
gi Caenorhabditis_elegans_PPTR	-----VAQLKCKEIKRAALNELIDHIT-STK-----GAIVETIY-PA	139
gi Amphimedon_queenslandica_be	-----MADLRKEIKRAALNELIDY IT-NYK-----EVLSEPLY-PE	131
gi Chrysemys_picta_bellii_gamm	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	94
gi Chrysemys_picta_bellii_delt	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	19
gi Falco_peregrinus_gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	94
gi Falco_peregrinus_delta/gamm	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	19
gi Gallus_gallus_gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	94
gi Alligator_mississippiensis	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	94
gi Alligator_mississippiensis	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	19
gi Ambystoma_mexicanum_gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	95
gi Mus_musculus_gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	94
gi Rattus_norvegicus_gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	94
gi Ovis_aries_gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	94
gi Bos_taurus_gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	94
gi Canis_lupus_familiaris_gamm	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	94
gi Macaca_mulatta_gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	94
gi Homo_sapiens_gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	84
gi Felis_catus_gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	141
gi Canis_lupus_familiaris_delt	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	141
gi Macaca_mulatta_delta/gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	376
gi Bos_taurus_delta/gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	148
gi Mus_musculus_delta/gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	151
gi Rattus_norvegicus_delta/gam	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	217
gi Danio_rerio_gamma	-----LSDLKWKEVKRAALSEMVEY IT-HNR-----NVITEPIY-PE	94

Figure S1. Cont.

gi Danio_rerio_delta/gamma	-----LSDLKWKEVKRAALSEMVEYIT-HNR-----NVITEPIY-PE	147
gi Xenopus_laevis_delta/gamma	-----LSDLKWKEVKRAALSEMVEYIT-HNR-----NVITEPIY-PE	147
gi Xenopus_laevis_gamma	-----LSDLKWKEVKRAALSEMVEYIT-HNR-----NVITEPIY-PE	147
gi Xenopus_tropicalis_delta/ga	-----LSDLKWKEVKRAALSEMVEYIT-HNR-----NVITEPIY-PE	147
gi Mus_musculus_delta	-----LSDLKCKEVKRAAGLNEMVEYIT-HSR-----DVVTEAIY-PE	162
gi Rattus_norvegicus_delta	-----LSDLKFKEVKRAAGLNEMVEYIT-HSR-----DVVTEAIY-PE	190
gi Felis_catus_delta	-----LSDLKFKEVKRAAGLNEMVEYIT-HSR-----DVVTEAIY-PE	176
gi Bos_taurus_delta	-----LSDLKFKEVKRAAGLNEMVEYIT-HSR-----DVVTEAIY-PE	168
gi Canis_lupus_familiaris_delt	-----LSDLKFKEVKRAAGLNEMVEYIT-HSR-----DVVTEAIY-PE	163
gi Macaca_mulatta_delta	-----LSDLKFKEVKRAAGLNEMVEYIT-HSR-----DVVTEAIY-PE	170
gi Homo_sapiens_delta	-----LSDLKFKEVKRAAGLNEMVEYIT-HSR-----DVVTEAIY-PE	170
gi Ovis_aries_delta	-----LSDLKFKEVKRAAGLNEMVEYIT-HSR-----DVVTEAIY-PE	167
gi Falco_peregrinus_delta	-----LSDLKFKEVKRAAGLNEMVEYIT-HNR-----DVVTEAIY-PE	70
gi Gallus_gallus_delta	-----LSDLKFKEVKRAAGLNEMVEYIT-HNR-----DVVTEAIY-PE	165
gi Alligator_mississippiensis	-----LSDLKFKEVKRAAGLNEMVEYIT-HNR-----DVITEAIY-PE	164
gi Chrysemys_picta_bellii_delt	-----LSDLKFKEVKRAAGLNEMVEYIT-HNR-----DVVTEAIY-PE	166
gi Danio_rerio_delta	-----LSDLKYKEVKRAAGLNEMVEYIT-HNR-----DVVTEAIY-PE	157
gi Ambystoma_mexicanum_delta	-----LSDLKFKEVKRAAGLNEMVEYIT-HNR-----DVVTEAIY-PE	19
gi Petromyzon_marinus_S4RN43	-----LSDLKWKEVKRAALNEMVEYIT-HSR-----GVITEPIY-PE	147
jgi Branchiostoma_floridiae_237	-----LSDLKWKEVKRAALNEMVEYIT-HNR-----GVITEAVY-PE	67
jgi Branchiostoma_floridiae_252	-----LSDLKWKEVKRAALNEMVEYIT-HNR-----GVITEAVY-PE	120
gi Strongylocentrotus_purpurat	-----LSDLKWKEVKRAALNELVEYIT-HQR-----GIITEAIY-PE	128
gi Caenorhabditis_elegans_PPTR	-----LSDLKFKEVKRAALNELVDHVSGAPK-----GSLSDAVY-PE	115
gi Hydra_vulgaris_delta	-----LSDLKWKEVKRAALNEIVDYLT-HNK-----NVITEPVY-PE	137
gi Amphimedon_queenslandica_de	-----LSDLKFKEVKRAALNELVEFIT-HNR-----GVITESIY-PE	178
gi Drosophila_melanogaster_B56	-----LSDLKFKEVKRAALHEMVDFLT-NQN-----GVITEVIY-PE	251
gi Dictyostelium_discoideum_ps	-----TYMVSCKGVKQEAALLQCVNFLTSTN-----DQPLHESIY-KM	176
gi Dictyostelium_purpureum_N/A	-----NYMVSCKIKQEAALLQCVQFLTSTN-----DQPLHESIY-KM	133
gi Dictyostelium_fasciculatum	-----SDKSSKAIKLEALLQCVFELSTN-----KEVISEPIY-EA	146
gi Polysphondylium_pallidum_N/	-----ADSKSKS IKREALLQCVDYLSST-----KDAYTEAVY-EA	124
gi Arabidopsis_thaliana_theta	-----PTKNVKEKD IKRQTLLLELDYVVASP-----NGKFSETVI-QE	139
gi Arabidopsis_thaliana_eta	-----PTKNIKEKD IKRQTLLLELDYVNSP-----NGKFSEVGI-QE	160
gi Arabidopsis_thaliana_zeta	-----PSKNLKEKE IKRQTLLLELDYVASV-----GKFNVDVSM-QE	169
gi Arabidopsis_thaliana_gamma	-----PSKNLREKE IKRQTLLLELDYIATV-----STKLSDAAM-QE	148
gi Oryza	-----PTKNIQEKEMKSQTLLLEIVDYVVS-----TVKFPEIVM-LE	149
gi Oryza_sativa_zeta	-----PTKSVKEKEVKRQTLLLELDYIASA-----NGKFPEIIM-QE	150
gi Oryza_sativa_theta	-----PTKDVKEKE IKRQTLLLELDYVTS-----TGKFPEPAV-QE	153
gi Oryza_sativa_eta	-----PTKNLKEKETKRQTLLLELDYVTS-----NGKFSEVVM-SE	142
gi Arabidopsis_thaliana_delta	-----PQQNFKEKE IKRQTLLLEVDYVISSG-----NGKFPESEVI-QE	128
gi Arabidopsis_thaliana_N/A	-----DPGKNSIEKDVKRQTLLLELDVFASG-----SVKFTEPAI-LA	136
gi Oryza_sativa_kappa	-----DPNKSSAEKD IKRQTLLLDLIDYVDSS-----SSRFSEAVI-AA	140
gi Oryza_sativa_N/A	AAAAERGRDSPERERKRQVLVSLVDCVGAA-----EEPLTEAMI-SG	121
gi Arabidopsis_thaliana_alpha	-----TLKNAREKE IKRQTLLLELDVFIQSGA-----GKLTVCQ-EE	138
gi Arabidopsis_thaliana_beta	-----TIKNARDE IKRQTLLLELDVFIQSGS-----SKISESCQ-EE	138
gi Oryza_sativa_N/A_2	-----SLKHPREKEAKRQALLELDYVQAPSPAANANAPARLPENVQ-EA	175
gi Arabidopsis_thaliana_epsilon	-----TLIMPREKE IKRQTLLLELDVFLHSSS-----GKVNETMQ-SE	145
gi Chlamydomonas_reinhardtii_w	-----PTKHVREKE IKRQTLLLELDYVANS-----AGKFTEGVS-ED	136
gi Schizosaccharomyces_pombe_P	-----TDLYGKEVKREALQDLIDLIS-VRK-----EAIDESLY-PS	173
gi Schizosaccharomyces_pombe_P	-----SDLASKE IKREALLMIDYVS-ENR-----GISSASLF-PY	274
gi Ashbya_gossypii_RTS1	-----FDIHGKE IKRITLQELIEFIVTNRF-----TYTEEMY-GH	236
gi Saccharomyces_cerevisiae_RT	-----FDIQGKE IKRSTLDELIEFLVTNRF-----TYTNEMY-AH	343
gi Aspergillus_niger_N/A	VVEMFAKNLFRPIPPVTPQ-----GEAFDPEEDEPVLEVAWPHIQV---	269
gi Aspergillus_nidulans_para	VVEMFAKNLFRPIPPITPQ-----GEAFDPEEDEPVLEVAWPHIQV---	271
gi Mus_musculus_alpha	IVKMISANIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	161
gi Rattus_norvegicus_alpha	IVKMISANIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	161
gi Macaca_mulatta_alpha	IVKMISANIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	161
gi Homo_sapiens_alpha	IVKMISANIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	161
gi Ovis_aries_alpha	IVKMISANIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	164
gi Bos_taurus_alpha	IVKMISANIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	164

Figure S1. Cont.

gi Felis_catus_alpha	IVKMISANIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	77
gi Canis_lupus_familiaris_alpha	IVKMISANIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	77
gi Falco_peregrinus_alpha	IVKMISNIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	151
gi Gallus_gallus_alpha	IVKMISNIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	151
gi Alligator_mississippiensis	IVKMISNIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	161
gi Chrysemys_picta_bellii_alpha	IVKMISNIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	151
gi Xenopus_laevis_alpha	IIKMICSNIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	150
gi Xenopus_tropicalis_alpha	IIKMICSNIFRTLPPSDN-----PDFDPEEDEPTLEASWPHIQL---	150
gi Ambystoma_mexicanum_alpha	IVRMISNIFRTLPPSDN-----PEFDPEEDEPTLEASWPHIQL---	77
gi Danio_rerio_alpha	ITTMVSTNIFRTLPPSEN-----PDFDPEEDEPTLEASWPHIQL---	153
gi Petromyzon_marinus_S4RHV1	IIRMVAYNIFRTLPPSEN-----PEFDPEEDEPTLEASWPHIQL---	151
gi Mus_musculus_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Rattus_norvegicus_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Macaca_mulatta_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Homo_sapiens_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Ovis_aries_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Bos_taurus_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Canis_lupus_familiaris_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Falco_peregrinus_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Gallus_gallus_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Felis_catus_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Chrysemys_picta_bellii_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Xenopus_laevis_epsilon	AVRMISVNIFRTLPPSEN-----NEFDPEEDEPTLEASWPHIQL---	153
gi Xenopus_tropicalis_epsilon	VVRMVSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Alligator_mississippiensis	----VSCNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	142
gi Ambystoma_mexicanum_epsilon	VVRMVSYNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	149
gi Danio_rerio_epsilon	VVKMVSYNIFRTLPPSDS-----NEFDPEEDEPTLEASWPHIQL---	153
gi Mus_musculus_beta	IIRMISVNIFRTLPPSEN-----PEFDPEEDEPNLEPSWPHIQL---	167
gi Rattus_norvegicus_beta	IIRMISVNIFRTLPPSEN-----PEFDPEEDEPNLEPSWPHIQL---	167
gi Felis_catus_beta	IIRMISVNIFRTLPPSEN-----PEFDPEEDEPNLEPSWPHIQL---	167
gi Canis_lupus_familiaris_beta	IIRMISVNIFRTLPPSEN-----PEFDPEEDEPNLEPSWPHIQL---	167
gi Homo_sapiens_beta	IIRMISVNIFRTLPPSEN-----PEFDPEEDEPNLEPSWPHIQL---	167
gi Bos_taurus_beta	IIRMISVNIFRTLPPSEN-----PEFDPEEDEPNLEPSWPHIQL---	167
gi Ovis_aries_beta	IIRMISVNIFRTLPPSEN-----PEFDPEEDEPNLEPSWPHIQL---	167
gi Macaca_mulatta_beta	IIRMISVNIFRTLPPSEN-----PEFDPEEDEPNLEPSWPHIQL---	143
gi Xenopus_laevis_beta	-----	
gi Alligator_mississippiensis	AVRMISVNIFRTLPPSEN-----PEFDPEEDEPNLEPSWPHIQL---	167
gi Chrysemys_picta_bellii_beta	IIKMISVNIFRTLPPSEN-----PEFDPEEDEPNLEPSWPHIQL---	167
gi Xenopus_tropicalis_beta	VIKMISVNIFRTLPPPTDN-----PEFDPEEDEPNLEPSWPHIQL---	165
gi Danio_rerio_beta	AIKMISVNIFRTLPPSEN-----PEFDPEEDEPALEASWPHIQL---	166
gi Ambystoma_mexicanum_beta	---MISGNIFRTLPPSEN-----PEFDPEEDEPNLEPSWPHIQL---	36
gi Petromyzon_marinus_S4RGA7	-----	
gi Strongylocentrotus_purpurat	CIQMISCNIFRTLPPSEN-----SDFDPEEDDPTLEASWPHIQL---	149
gi Drosophila_melanogaster_wdb	IIRMISCNLFRTLPPSEN-----PDFDPEEDDPTLEASWPHIQL---	148
jgi Branchiostoma_floridae_237	VVKMIASNIFRTLPPSEN-----TEFDPEEDDPTLEASWPHIQL---	104
gi Hydra_vulgaris_alpha	IVRMVANNCFKTLPPSNN-----PDFDPEKNEPTLEASWPHIQL---	157
jgi Branchiostoma_floridae_112	VVKMIAANIFRLPPAEN-----AEFDPEEDEPTLEASWPHIQL---	150
jgi Branchiostoma_floridae_284	VVKMVSTNIFRLPPAEN-----AEFDPEEDEPTLEASWPHIQL---	117
gi Caenorhabditis_elegans_PPTR	VIKMVAKNIFRVLPSEN-----CEFDPEEDEPTLEASWPHIQL---	178
gi Xenophedon_queenslandica_be	IVRMMTTNAFRTLPPLEQG-----TEYDPDEDEPTLEATWPHIQL---	171
gi Chrysemys_picta_bellii_gamm	VVHMFVAVNMFRTLPPSSNPT-----GAEFDPEEDEPTLEAAWPHIQL---	136
gi Chrysemys_picta_bellii_delt	VVHMFVAVNMFRTLPPSSNPT-----GAEFDPEEDEPTLEAAWPHIQL---	61
gi Falco_peregrinus_gamma	VVHMFVAVNMFRTLPPSSNPT-----GAEFDPEEDEPTLEAAWPHIQL---	136
gi Falco_peregrinus_delta/gamm	VVHMFVAVNMFRTLPPSSNPT-----GAEFDPEEDEPTLEAAWPHIQL---	61
gi Gallus_gallus_gamma	VVHMFVAVNMFRTLPPSSNPT-----GAEFDPEEDEPTLEAAWPHIQL---	136
gi Alligator_mississippiensis	VVHMFVAVNMFRTLPPSSNPT-----GAEFDPEEDEPTLEAAWPHIQL---	136
gi Alligator_mississippiensis	VVHMFVAVNMFRTLPPSSNPT-----GAEFDPEEDEPTLEAAWPHIQL---	61
gi Ambystoma_mexicanum_gamma	VVHMFVAVNMFRTLPPSSNPT-----GAEFDPEEDEPTLEAAWPHIQL---	137
gi Mus_musculus_gamma	AVHMFVAVNMFRTLPPSSNPT-----GAEFDPEEDEPTLEAAWPHIQL---	136
gi Rattus_norvegicus_gamma	AVHMFVAVNMFRTLPPSSNPT-----GAEFDPEEDEPTLEAAWPHIQL---	136
gi Ovis_aries_gamma	VVHMFVAVNMFRTLPPSSNPT-----GAEFDPEEDEPTLEAAWPHIQL---	136

Figure S1. Cont.

gi Bos_taurus_gamma	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	136
gi Canis_lupus_familiaris_gamm	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	136
gi Macaca_mulatta_gamma	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	136
gi Homo_sapiens_gamma	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	126
gi Felis_catus_gamma	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	183
gi Canis_lupus_familiaris_delt	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	183
gi Macaca_mulatta_delta/gamma	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	418
gi Bos_taurus_delta/gamma	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	190
gi Mus_musculus_delta/gamma	AVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	193
gi Rattus_norvegicus_delta/gam	AVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	259
gi Danio_rerio_gamma	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	136
gi Danio_rerio_delta/gamma	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	189
gi Xenopus_laevis_delta/gamma	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	189
gi Xenopus_laevis_gamma	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	189
gi Xenopus_tropicalis_delta/ga	VVHMFVAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	189
gi Mus_musculus_delta	AVTMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	204
gi Rattus_norvegicus_delta	AVTMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	232
gi Felis_catus_delta	AVTMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	218
gi Bos_taurus_delta	AVTMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	210
gi Canis_lupus_familiaris_delt	AVTMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	205
gi Macaca_mulatta_delta	AVTMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQVPGQ	215
gi Homo_sapiens_delta	AVTMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	212
gi Ovis_aries_delta	CTPQFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	209
gi Falco_peregrinus_delta	AVIMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	112
gi Gallus_gallus_delta	AVIMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	207
gi Alligator_mississippiensis_	AVIMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	206
gi Chrysemys_picta_bellii_delt	AVIMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	208
gi Danio_rerio_delta	AVIMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	199
gi Ambystoma_mexicanum_delta	AVLMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	61
gi Petromyzon_marinus_S4RN43	VVHVFAVNMFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	189
jgi Branchiostoma_floridae_237	AVNMFSINVFRITLPPSSNPN-----GAEFDPEEDEPTLEAAWPHLQI---	109
jgi Branchiostoma_floridae_252	AVNMFSINVFRITLPPSSNPN-----GAEFDPEEDEPTLEAAWPHLQI---	162
gi Strongylocentrotus_purpurat	AVQMFAINMFRITLPPSSNPH-----GAEFDPEEDEPTLEAAWPHLQL---	170
gi Caenorhabditis_elegans_PPTR	AIGMFSVNLFRITLPPSSNPT-----GAEFDPEEDEPTLEAAWPHLQL---	157
gi Hydra_vulgaris_delta	ACNMFSVNVFRALPPSMNPA-----GAEFDPEEDEPTLEAAWPHLQI---	179
gi Amphimedon_queenslandica_de	AVRMFGINAFRALPPSANPS-----GAEFDPEEDEPTLEAAWPHLQI---	220
gi Drosophila_melanogaster_B56	AINMFAVNLFRITLPPSSNPN-----GAEFDPEEDEPTLESSWPHLQL---	293
gi Dictyostelium_discoideum_ps	VFEMVAVNLFRITLPPPRINPY-----GVMYDPEEDEPTLEAAWPHIQV---	218
gi Dictyostelium_purpureum_N/A	LFEMVAVNLFRITLPPPRINPY-----GVMYDPEEDEPTLEAAWPHIQV---	175
gi Dictyostelium_fasciculatum_	VFEMVASNLFRITLPPPRINPY-----GVMYDPEEDEPTLEAAWPHIQI---	188
gi Polysphondylium_pallidum_N/	LFEMISINLFRITLPPPRINPY-----GVMYDPEEDEPTLEAAWPHIQI---	166
gi Arabidopsis_thaliana_theta	VVRMVSVINFRITLNPQPREN---KVIDALDLEEEEPMSDPTWPHLQL---	183
gi Arabidopsis_thaliana_eta	VVRMVSANIFRITLNPQPREN---KVIDALDLEEEEPMSDLAWPHLQL---	204
gi Arabidopsis_thaliana_zeta	LTKMVAVNLFRITLPPSANHES---KILEIHDMDDEEPSLEPAWPHVQV---	213
gi Arabidopsis_thaliana_gamma	IAKVAVVNLFRITLPPSANHES---KILETLVDVDEEPALEPAWPHLQV---	192
gi Oryza	ITRMISANLFRITLISPPEK---KVLQAFDLEEDAVMDPAWPHLQI---	193
gi Oryza_sativa_zeta	ITRMVSVNLFRITLTPPREN---K-IEAFDVDEEPPVMDPAWPHLQI---	193
gi Oryza_sativa_theta	VIKMVSTNLFRVFNPAAREN---KPLESFDMEEEEPVMDPAWPHLQI---	197
gi Oryza_sativa_eta	ITKMVSINLFRSSSTPREN---KAIEGVLDLEEEPLMDPAWPHLQI---	186
gi Arabidopsis_thaliana_delta	ATKMISANLFSN-PHRQWKN---KTPEALDLEEEEGSLNPSWPHLQI---	171
gi Arabidopsis_thaliana_N/A	MCRMCAVNLFRVFPNRYSS---S---GGENDD-EPMFDPWPHLQI---	177
gi Oryza_sativa_kappa	SSRMFAVNLFRVFPNRYSS---SSGGGEGEEE-EPMFEPWPHLQI---	183
gi Oryza_sativa_N/A	CVRMFAINLFRVFPKVRSG---AAGAAEDED-EPPFDPSWPHLQA---	164
gi Arabidopsis_thaliana_alpha	MVKMISVNIIFRCLPPASHEN-TGQEP---ADLEEEEPYLEPSWPHLQI---	182
gi Arabidopsis_thaliana_beta	MIKMISVNIIFRSLPPASHEN-TGQEP---ADPEEEEPYLEPSWPHLQI---	182
gi Oryza_sativa_N/A_2	LVAASVNVFRITLPPALHESAAAIDPGAAPDDEEPPYLDPAWPHLQI---	222
gi Arabidopsis_thaliana_epsilon	LIRMVSANIFRCLPPAYHEN-TGAPPEGNDPEEEEPYLEPWWPHLQI---	191
gi Chlamydomonas_reinhardtii_w	IIYMLSNNLFRITLPPVRSBG---DAEGNYDAEEEPYLDPAWPHLQI---	180
gi Schizosaccharomyces_pombe_P	IVHMFVAVNVFRITLPPSNPP-----GEIMDLEEDPALEVAWPHLHL---	215
gi Schizosaccharomyces_pombe_P	VVNTSLNVFRITLPPSNNDY-----SSDMFALDDEPFLFPAWPHLEE---	316
gi Ashbya_gossypii_RTS1	VVNMFKVNLFRITLPPVNPVIG-----DVYDPEDEPVLNLAWPHMQC---	278

Figure S1. Cont.

gi Saccharomyces_cerevisiae_RT	VVNMFKINLFRPIPPPVPVVG-----DIYDPDEDEFPVNELAWPHMQA---	385
gi Aspergillus_niger_N/A	-----VYEFFLRFIESQDFNTNIAKQYIDHHFVLQLELFDSEDPRER	312
gi Aspergillus_nidulans_parA	-----VYEFFLRFIESQDFNTNIAKAYIDHHFVLQLELFDSEDPRER	314
gi Mus_musculus_alpha	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	204
gi Rattus_norvegicus_alpha	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	204
gi Macaca_mulatta_alpha	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	204
gi Homo_sapiens_alpha	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	204
gi Ovis_aries_alpha	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	207
gi Bos_taurus_alpha	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	207
gi Felis_catus_alpha	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	120
gi Canis_lupus_familiaris_alph	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	120
gi Falco_peregrinus_alpha	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	194
gi Gallus_gallus_alpha	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	194
gi Alligator_mississippiensis	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	204
gi Chrysemys_picta_bellii_alph	-----VYEFFLRFLESQDFQPSIAKRYIDQKFVQQLLELFDSEDPRER	194
gi Xenopus_laevis_alpha	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVQQLLELFDSEDPRER	193
gi Xenopus_tropicalis_alpha	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVQQLLELFDSEDPRER	193
gi Ambystoma_mexicanum_alpha	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVQQLLELFDSEDPRER	120
gi Danio_rerio_alpha	-----VYEFFLRFLENPDFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Petromyzon_marinus_S4RHV1	-----VYEFFLRFLEQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	194
gi Mus_musculus_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Rattus_norvegicus_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Macaca_mulatta_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Homo_sapiens_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Ovis_aries_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Bos_taurus_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Canis_lupus_familiaris_epsi	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Falco_peregrinus_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Gallus_gallus_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Felis_catus_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Chrysemys_picta_bellii_epsi	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Xenopus_laevis_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Xenopus_tropicalis_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Alligator_mississippiensis	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	185
gi Ambystoma_mexicanum_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	192
gi Danio_rerio_epsilon	-----VYEFFIRFLESQEFQPSIAKRYIDQKFVLQLELFDSEDPRER	196
gi Mus_musculus_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	210
gi Rattus_norvegicus_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	210
gi Felis_catus_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	210
gi Canis_lupus_familiaris_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	210
gi Homo_sapiens_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	210
gi Bos_taurus_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	210
gi Ovis_aries_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	210
gi Macaca_mulatta_beta	-----GFFIRVMDFISF-----ISLDFETYVAQSR	169
gi Xenopus_laevis_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	210
gi Alligator_mississippiensis	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	210
gi Chrysemys_picta_bellii_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	210
gi Xenopus_tropicalis_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	208
gi Danio_rerio_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVLMLELFDSEDPRER	209
gi Ambystoma_mexicanum_beta	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVMTLLDLFDSEDPRER	79
gi Petromyzon_marinus_S4RGA7	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVMTLLDLFDSEDPRER	192
gi Strongylocentrotus_purpurat	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVMTLLDLFDSEDPRER	192
gi Drosophila_melanogaster_wdb	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVMTLLDLFDSEDPRER	191
jgi Branchiostoma_floridae_237	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVMTLLDLFDSEDPRER	147
gi Hydra_vulgaris_alpha	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVMTLLDLFDSEDPRER	200
jgi Branchiostoma_floridae_112	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVMTLLDLFDSEDPRER	160
jgi Branchiostoma_floridae_284	-----VYEFFLRFLESQDFQPSIAKRYVDQKFVMTLLDLFDSEDPRER	221
gi Caenorhabditis_elegans_PPTR	-----VYAFFLRFLESQDFQPSIAKRYVDQKFVMTLLDLFDSEDPRER	214
gi Amphimedon_queenslandica_be	-----VYAFFLRFLESQDFQPSIAKRYVDQKFVMTLLDLFDSEDPRER	214

Figure S1. Cont.

gi Chrysemys_picta_bellii_gamm	-----VYEFFLRFLFESPDFQPNVAKKY IDQKFVLQLELFDSEDPRE	179
gi Chrysemys_picta_bellii_delt	-----VYEFFLRFLFESPDFQPNVAKKY IDQKFVLQLELFDSEDPRE	104
gi Falco_peregrinus_gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	179
gi Falco_peregrinus_delta/gamm	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	104
gi Gallus_gallus_gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	179
gi Alligator_mississippiensis_	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	179
gi Alligator_mississippiensis_	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	104
gi Ambystoma_mexicanum_gamma	-----VYEFFLRFLFESPDFQPNVAKKY IDQKFVLQLELFDSEDPRE	180
gi Mus_musculus_gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	179
gi Rattus_norvegicus_gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	179
gi Ovis_aries_gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	179
gi Bos_taurus_gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	179
gi Canis_lupus_familiaris_gamm	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	179
gi Macaca_mulatta_gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	179
gi Homo_sapiens_gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	169
gi Felis_catus_gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	226
gi Canis_lupus_familiaris_delt	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	226
gi Macaca_mulatta_delta/gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	461
gi Bos_taurus_delta/gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	233
gi Mus_musculus_delta/gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	236
gi Rattus_norvegicus_delta/gam	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	302
gi Danio_rerio_gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	179
gi Danio_rerio_delta/gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	232
gi Xenopus_laevis_delta/gamma	-----VYEFFLRFLFESPDFQPNVAKKY IDQKFVLQLELFDSEDPRE	232
gi Xenopus_laevis_gamma	-----VYEFFLRFLFESPDFQPNVAKKY IDQKFVLQLELFDSEDPRE	232
gi Xenopus_tropicalis_delta/ga	-----VYEFFLRFLFESPDFQPNVAKKY IDQKFVLQLELFDSEDPRE	232
gi Mus_musculus_delta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLALLDLFDSEDPRE	247
gi Rattus_norvegicus_delta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLALLDLFDSEDPRE	275
gi Felis_catus_delta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLALLDLFDSEDPRE	261
gi Bos_taurus_delta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLALLDLFDSEDPRE	253
gi Canis_lupus_familiaris_delt	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLALLDLFDSEDPRE	248
gi Macaca_mulatta_delta	GGQVGPGCREWGSRGXXXXXXX-XXKKY IDQKFVLALLDLFDSEDPRE	264
gi Homo_sapiens_delta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLALLDLFDSEDPRE	255
gi Ovis_aries_delta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLALLDLFDSEDPRE	252
gi Falco_peregrinus_delta	-----VYEFFLRFLFESPDFQPNVAKKY IDQKFVLSLLDLFDSEDPRE	155
gi Gallus_gallus_delta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	250
gi Alligator_mississippiensis_	-----VYEFFLRFLFESPDFQPNVAKKY IDQKFVLSLLDLFDSEDPRE	249
gi Chrysemys_picta_bellii_delt	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	251
gi Danio_rerio_delta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	242
gi Ambystoma_mexicanum_delta	-----VYEFFLRFLFESPDFQPNVAKKY IDQKFVMSLLDLFDSEDPRE	104
gi Petromyzon_marinus_S4RN43	-----VYEFFLRFLFESPDFQPNVAKKY IDQKFVLQLELFDSEDPRE	232
jgi Branchiostoma_floridae_237	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	152
jgi Branchiostoma_floridae_252	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLQLELFDSEDPRE	205
gi Strongylocentrotus_purpurat	-----VYEFFLRFLFESPDFQPNVAKKY IDQKFVLALLELFDSEDPRE	213
gi Caenorhabditis_elegans_PPTR	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	200
gi Hydra_vulgaris_delta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	222
gi Amphimedon_queenslandica_de	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	263
gi Drosophila_melanogaster_B56	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	336
gi Dictyostelium_discoideum_ps	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	261
gi Dictyostelium_purpureum_N/A	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	218
gi Dictyostelium_fasciculatum_	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	231
gi Polysphondylium_pallidum_N/	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	209
gi Arabidopsis_thaliana_theta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	226
gi Arabidopsis_thaliana_eta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	247
gi Arabidopsis_thaliana_zeta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	256
gi Arabidopsis_thaliana_gamma	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	235
gi Oryza	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	236
gi Oryza_sativa_zeta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	236
gi Oryza_sativa_theta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	240
gi Oryza_sativa_eta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	229
gi Arabidopsis_thaliana_delta	-----VYEFFLRFLFESPDFQPNIAKKY IDQKFVLSLLDLFDSEDPRE	214

Figure S1. Cont.

gi	Arabidopsis_thaliana_N/A	-----VYDLLKFITSPCLDAKVAKYLDHAFIVRLLDLFDSEDPRE	220
gi	Oryza_sativa_kappa	-----VYELLKFIGSSSLDAKVGKKYFDHSFIVKLLNLLDSEDPRE	226
gi	Oryza_sativa_N/A	-----VYELLRLRFVMSPVVDVKIARKYMDNSFVSRLLDLFDSDPRE	207
gi	Arabidopsis_thaliana_alpha	-----IYELLRYIVPSD TD TKVAKRY IDHSFVLRLLELFETEDPRE	225
gi	Arabidopsis_thaliana_beta	-----VYELLRYVVS TD TD TKVAKRY IDHSFVLKLLDLFDSEDPRE	225
gi	Oryza_sativa_N/A_2	-----VYELLRYVVS PD TD TKVAKRYVDHAFVRLLDLFDSEDPRE	265
gi	Arabidopsis_thaliana_epsilon	-----VYELLRYVVSSEIEPKTAKKF INHTFVSRLLDLFDSEDPRE	234
gi	Chlamydomonas_reinhardtii_w	-----VYEFLLRYVVSNDTDAKIAKKYIDQQFVLKLELFDSEDPRE	223
gi	Schizosaccharomyces_pombe_P	-----VYDFFLRFFESPSLNTSVAKVYINQKFIRKLLVLFDSSEDPRE	258
gi	Schizosaccharomyces_pombe_P	-----VYLLFIKFLSPDFRASKAKSLVDRFFNRLLALFDTEDPRE	359
gi	Ashbya_gossypii_RTS1	-----VYEFFLRFVESPD FNHQIAKQFIDQF ILKLELFDSEDIRER	321
gi	Saccharomyces_cerevisiae_RT	-----VYEFFLRFVESPD FNHQIAKQYIDQF ILKLELFDSEDIRER	428
gi	Aspergillus_niger_N/A	DFLKTTLHRIYKGFNLNR-----SYIRRSINN VFFQFYETERFNGIAEL	357
gi	Aspergillus_nidulans_para	DFLKTTLHRIYKGFNLNR-----SYIRRSINN VFFQFSYETERFNGIAEL	359
gi	Mus_musculus_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	249
gi	Rattus_norvegicus_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQTNNIFLRFIYETEHFNGVAEL	249
gi	Macaca_mulatta_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	249
gi	Homo_sapiens_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	249
gi	Ovis_aries_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	252
gi	Bos_taurus_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	252
gi	Felis_catus_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	165
gi	Canis_lupus_familiaris_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	165
gi	Falco_peregrinus_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	239
gi	Gallus_gallus_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	239
gi	Alligator_mississippiensis	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	249
gi	Chrysemys_picta_bellii_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	239
gi	Xenopus_laevis_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	238
gi	Xenopus_tropicalis_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	238
gi	Ambystoma_mexicanum_alpha	DFLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	165
gi	Danio_rerio_alpha	EFLKTLHRIYKGFGLR-----AFIRKQINNIFLRFIYETEHFNGVAEL	241
gi	Petromyzon_marinus_S4RHV1	DFLRTVLHRIYKGLLGLR-----AFIRTQINNILLRYIYETERFNGVGM	239
gi	Mus_musculus_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Rattus_norvegicus_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Macaca_mulatta_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Homo_sapiens_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Ovis_aries_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Bos_taurus_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Canis_lupus_familiaris_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Falco_peregrinus_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Gallus_gallus_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Felis_catus_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Chrysemys_picta_bellii_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Xenopus_laevis_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Xenopus_tropicalis_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	241
gi	Alligator_mississippiensis	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	230
gi	Ambystoma_mexicanum_epsilon	DYLKTVLHRIYKGFGLR-----AFIRKQINNIFLRFVYETEHFNGVAEL	237
gi	Danio_rerio_epsilon	DCLKTVLHRIYKGFGLR-----AFIRKQINNIFLCFVYETERFNGVAEL	241
gi	Mus_musculus_beta	EYLKTLHRIYKGFGLR-----AYIRKQCNHIFLRFIYELEHFNGVAEL	255
gi	Rattus_norvegicus_beta	EYLKTLHRIYKGFGLR-----AYIRKQCNHIFLRFIYELEHFNGVAEL	255
gi	Felis_catus_beta	EYLKTLHRIYKGFGLR-----AYIRKQCNHIFLRFIYELEHFNGVAEL	255
gi	Canis_lupus_familiaris_beta	EYLKTLHRIYKGFGLR-----AYIRKQCNHIFLRFIYELEHFNGVAEL	255
gi	Homo_sapiens_beta	EYLKTLHRIYKGFGLR-----AYIRKQCNHIFLRFIYELEHFNGVAEL	255
gi	Bos_taurus_beta	EYLKTLHRIYKGFGLR-----AYIRKQCNHIFLRFIYELEHFNGVAEL	255
gi	Ovis_aries_beta	EYLKTLHRIYKGFGLR-----AYIRKQCNHIFLRFIYELEHFNGIAEL	255
gi	Macaca_mulatta_beta	CAKCLSFSWLTGKSLGLRGPTLLALSPPAFLCRFIYELEHFNGVAEL	219
gi	Xenopus_laevis_beta	-----	
gi	Alligator_mississippiensis	EYLKTLHRIYKGFGLR-----AYIRKQCNHIFLRFIYETEHFNGVAEL	255
gi	Chrysemys_picta_bellii_beta	EYLKTLHRIYKGFGLR-----AYIRKQCNHIFLRFIYETEHFNGVAEL	255
gi	Xenopus_tropicalis_beta	EYLKTLHRIYKGFGLR-----AYIRKQCNHIFLRFIYETERFNGVAEL	253

Figure S1. Cont.

gi	Danio_rerio_beta	EYLKTTILHRVYGKLLGLR-----AYIRKQINNIFLRFIYETERFNGVAEL	254
gi	Ambystoma_mexicanum_beta	EYLKTTILHRVYGKFLGLR-----AYIRKQCNNIFLRFVYETEHEFNGVAEL	124
gi	Petromyzon_marinus_S4RGA7	-----VCCRFIYETEHEFNGVAEL	18
gi	Strongylocentrotus_purpurat	DFLKTTLHRIYGKFLGLR-----AFIRKQINHIPLRFIYETEHEFNGVGL	237
gi	Drosophila_melanogaster_wdb	DFLKTTLHRIYGKFLGLR-----AFIRKQINNIFLRFIYETEHEFNGVGL	236
jgi	Branchiostoma_floridiae_237	DFLKTTLHRIYGKFLGLR-----AFIRKQINHIPLKFIYETEHEFNGVGL	192
gi	Hydra_vulgaris_alpha	EFLKTTLHRIYGKFLGLR-----AYIRKQINHMFLKFIYETEHEFSGVGL	245
jgi	Branchiostoma_floridiae_112	-----	
jgi	Branchiostoma_floridiae_284	DLKTTMLHRIYGKFLGLR-----AFIRKQINHIPLKFIYETEHEFNGIGEL	205
gi	Caenorhabditis_elegans_PPTR	DFLKTTLHRIYGKFLGLR-----AFIRKHINNMFLRFVYETDSFNGVGL	266
gi	Amphimedon_queenslandica_be	DYKTTTLHRIYGKFLGLR-----AFIRKHINYIFLRFVYETERFAGIAEL	259
gi	Chrysemys_picta_bellii_gamm	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	224
gi	Chrysemys_picta_bellii_delt	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	149
gi	Falco_peregrinus_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	224
gi	Falco_peregrinus_delta/gamm	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	149
gi	Gallus_gallus_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	224
gi	Alligator_mississippiensis_	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	224
gi	Alligator_mississippiensis_	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	149
gi	Ambystoma_mexicanum_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	225
gi	Mus_musculus_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	224
gi	Rattus_norvegicus_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	224
gi	Ovis_aries_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	224
gi	Bos_taurus_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	224
gi	Canis_lupus_familiaris_gamm	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	224
gi	Macaca_mulatta_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	224
gi	Homo_sapiens_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	214
gi	Felis_catus_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	271
gi	Canis_lupus_familiaris_delt	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	271
gi	Macaca_mulatta_delta/gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	506
gi	Bos_taurus_delta/gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	278
gi	Mus_musculus_delta/gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	281
gi	Rattus_norvegicus_delta/gam	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	347
gi	Danio_rerio_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	224
gi	Danio_rerio_delta/gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	277
gi	Xenopus_laevis_delta/gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	277
gi	Xenopus_laevis_gamma	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	277
gi	Xenopus_tropicalis_delta/ga	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	277
gi	Mus_musculus_delta	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	292
gi	Rattus_norvegicus_delta	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	320
gi	Felis_catus_delta	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	306
gi	Bos_taurus_delta	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	298
gi	Canis_lupus_familiaris_delt	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	293
gi	Macaca_mulatta_delta	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	309
gi	Homo_sapiens_delta	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	300
gi	Ovis_aries_delta	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	297
gi	Falco_peregrinus_delta	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	200
gi	Gallus_gallus_delta	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	295
gi	Alligator_mississippiensis_	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	294
gi	Chrysemys_picta_bellii_delt	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	296
gi	Danio_rerio_delta	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	287
gi	Ambystoma_mexicanum_delta	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	149
gi	Petromyzon_marinus_S4RN43	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	277
jgi	Branchiostoma_floridiae_237	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	197
jgi	Branchiostoma_floridiae_252	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	250
gi	Strongylocentrotus_purpurat	DFLKTTLHRIYGKFLGLR-----AYIRKQINNIFYRFVYETEHHNGIAEL	258
gi	Caenorhabditis_elegans_PPTR	DFLKTTLHRIYGKFLGHR-----AYIRKQINNIFYSFYETERHNGIAEL	245
gi	Hydra_vulgaris_delta	DFLKTTLHRIYGKFLNLR-----AYIRKQINNIFYRFIYETEHHNGIAEL	267
gi	Amphimedon_queenslandica_de	DFLKTTLHRIYGKFLGLR-----AHIRKQISNIFYRFIYETEKHNGVAEL	308
gi	Drosophila_melanogaster_B56	DFLKTTLHRIYGKFLGLR-----AFIRKQINNIFYRFIYETEHHNGIAEL	381
gi	Dictyostelium_discoideum_ps	DYKTTTLHRIYGKFLGLR-----GFIRTAIRNLFCFTVYESHQHGISEI	306
gi	Dictyostelium_purpureum_N/A	DYKTTTLHRIYGKFLGLR-----SFIRTAIRNLFCFTVYESHQHGISEI	263

Figure S1. Cont.

gi Dictyostelium_fasciculatum	DYLKTTLHRIYGKFIALR-----GYIRTAIRDLCFTFVYESSQHNGVSEI	276
gi Polysphondylium_pallidum_N/	DYLKTTLHRIYGKFIALR-----GFIRTAIKDLFCFTFVYESYQHNGVSEI	254
gi Arabidopsis_thaliana_theta	DCLKTTLHRIYGKFMVHR-----PFIRKSINNIFYRFVFETEKHNGIAEF	271
gi Arabidopsis_thaliana_eta	DCLKTTLHRIYGKFMVHR-----PFIRKSINNIFYRFVFETEKHNGIAEF	292
gi Arabidopsis_thaliana_zeta	EYLKTLHRIYGKFMVHR-----PYIRKAINNIFYRFIFETEKHNGIAEL	301
gi Arabidopsis_thaliana_gamma	EYLKTLHRIYGKFMVHR-----PFIRKAINNIFYRFIFETEKHNGIAEL	280
gi Oryza	EYLKMTLHRIYGKFMVYR-----PFIRKAINNIFYQFIYETEKHNGIAEL	281
gi Oryza_sativa_zeta	EYLKTLHRIYGKFMVHR-----PFIRKAINNIFYQFIYETEKHNGIAEL	281
gi Oryza_sativa_theta	EYLKTLHRIYGKFMVHR-----PFIRKAINNIFYRFIFETEKHNGIAEL	285
gi Oryza_sativa_eta	DYLKTLHRIYGKFMVHR-----PFIRKAINNIFYRFIFETEKHNGVael	274
gi Arabidopsis_thaliana_delta	EYLKTLHRIYGRFMVHR-----PFIRKTMNNILYDFIFETGKHSgiaef	259
gi Arabidopsis_thaliana_N/A	ECLKTTLHRIYGKFMVHR-----PFVRKSMSNIFYRFVFETEKHSgiael	265
gi Oryza_sativa_kappa	DCLKTTLHRIYGKFIHR-----PFIRKAVSNIFYHFVFETDRHNGIAEL	271
gi Oryza_sativa_N/A	ECLKTVLHRIYGKFMGMR-----PFIRKAVSNIFYRFVFETDRHNGIAEL	252
gi Arabidopsis_thaliana_alpha	EYLKTLHRIYGKFMVHR-----PFIRKAMNHIFYRFIYETERHSGIGEL	270
gi Arabidopsis_thaliana_beta	EYLKTLHRIYGKFMVHR-----PFIRKAINNIFYRFIYETERHSGIGEL	270
gi Oryza_sativa_N/A_2	EYLKTVLHRIYGKFMVHR-----PFIRKAINNVFYRFIFETERHNGIGEL	310
gi Arabidopsis_thaliana_epsilon	EYLKTVLHRIYGKFIHR-----PFIRCSIYNIFYKFLYETERCIGIGEL	279
gi Chlamydomonas_reinhardtii_w	DYLKTLHRIYGKFMVHR-----PFIRKAINNVFYRFIFETERHNGVael	268
gi Schizosaccharomyces_pombe_P	DFLKTTLHRIYGKFLSLR-----AFIRRSINNLFQLQVYENEQFNgiael	303
gi Schizosaccharomyces_pombe_P	ELLKTTLHRIYGKFLNLR-----SYIRKSMNNVFLQFIYEREKFGHgiael	404
gi Ashbya_gossypii_RTS1	DCLKTTLHRIYGKFLSLR-----SFIRRSINNIFLQFVYETERFNGIAEL	366
gi Saccharomyces_cerevisiae_RT	DCLKTTLHRIYGKFLSLR-----SFIRRSMMNNIFLQFIYETERKNGVael	473
gi Aspergillus_niger_N/A	LEILGSIINGFALPLKEEHKLFTRVLLPLHKVKSLSMYHPQLAYCIVQF	407
gi Aspergillus_nidulans_para	LEILGSIINGFALPLKEEHKLFTRVLLPLHKVKSLSMYHPQLAYCIVQF	409
gi Mus_musculus_alpha	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	299
gi Rattus_norvegicus_alpha	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	299
gi Macaca_mulatta_alpha	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	299
gi Homo_sapiens_alpha	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	299
gi Ovis_aries_alpha	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	302
gi Bos_taurus_alpha	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	302
gi Felis_catus_alpha	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	215
gi Canis_lupus_familiaris_alph	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	215
gi Falco_peregrinus_alpha	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	289
gi Gallus_gallus_alpha	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	289
gi Alligator_mississippiensis	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	299
gi Chrysemys_picta_bellii_alph	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	289
gi Xenopus_laevis_alpha	LEILGSIINGFALPLKSEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	288
gi Xenopus_tropicalis_alpha	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	288
gi Ambystoma_mexicanum_alpha	LEILGSIINGFALPLKAEHKQFLMKVLIPMHTAKGLALFHAQLAYCIVVQF	215
gi Danio_rerio_alpha	LEILGSIINGFALPLKAEHKQFLMKLIPLHTAKPLALFHAQLAYCIVVQF	291
gi Petromyzon_marinus_S4RHV1	LEILGSIINGFALPLKTEHKQFLVVRVLLPLHTARGLSIFHAQLAYCIVMLF	289
gi Mus_musculus_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Rattus_norvegicus_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Macaca_mulatta_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Homo_sapiens_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Ovis_aries_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Bos_taurus_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Canis_lupus_familiaris_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Falco_peregrinus_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Gallus_gallus_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Felis_catus_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Chrysemys_picta_bellii_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Xenopus_laevis_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Xenopus_tropicalis_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	291
gi Alligator_mississippiensis	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	280
gi Ambystoma_mexicanum_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLIPLHTVRSLSLFAQLAYCIVQF	287
gi Danio_rerio_epsilon	LEILGSIINGFALPLKAEHKQFLVKVLLPLHTVRSLSLFAQLAYCIVQF	291
gi Mus_musculus_beta	LEILGSIINGFALPLKTEHKQFLVVRVLIPLHSVKSLSVFHAQLAYCIVVQF	305

Figure S1. Cont.

gi Rattus_norvegicus_beta	LEILGSIINGFALPLKTEHKQFLVRVLIPLHSVKSLSVFHAQLAYCVVQF	305
gi Felis_catus_beta	LEILGSIINGFALPLKTEHKQFLVRVLIPLHSVKSLSVFHAQLAYCVVQF	305
gi Canis_lupus_familiaris_beta	LEILGSIINGFALPLKTEHKQFLVRVLIPLHSVKSLSVFHAQLAYCVVQF	305
gi Homo_sapiens_beta	LEILGSIINGFALPLKTEHKQFLVRVLIPLHSVKSLSVFHAQLAYCVVQF	305
gi Bos_taurus_beta	LEILGSIINGFALPLKTEHKQFLVRVLIPLHSVKSLSVFHAQLAYCVVQF	305
gi Ovis_aries_beta	LEILGSIINGFALPLKTEHKQFLVRVLIPLHSVKSLSVFHAQLAYCVVQF	305
gi Macaca_mulatta_beta	LEILGSIINGFALPLKTEHKQFLVRVLIPLHSVKSLSVFHAQLAYCVVQF	269
gi Xenopus_laevis_beta	-----	
gi Alligator_mississippiensis	LEILGSIINGFALPLXAEHKQFLVRVLIPLHSVKALSVFHAQLAYCVVQF	305
gi Chrysemys_picta_bellii_beta	LEILGSIINGFALPLKTEHKHFLVRVLIPLHSVKSLSIFHAQLAYCVVQF	305
gi Xenopus_tropicalis_beta	LEILGSIINGFALPLKSEHKQFLVRVLIPLHSAKSLSIFHAQLAYCAVQF	303
gi Danio_rerio_beta	LEILGSIINGFALPLKSEHKQFLVRVLIPLHTAKSLSIFHAQLAYCVVQF	304
gi Ambystoma_mexicanum_beta	LEILGSIINGFALPLKAEHKQFLVRVLLPLHSVKSLSIFHAQLAYCVVQF	174
gi Petromyzon_marinus_S4RGA7	LEILGSIINGFAMPLKSEHKQFLVKVLLPLHTVKVLSLFAQLAYCVVQF	68
gi Strongylocentrotus_purpurat	LEILGSIINGFALPLKTEHKQFLIKVLIPLHKVKCLGLYHAQLAYCVVQF	287
gi Drosophila_melanogaster_wdb	LEILGSIINGFALPLKAEHKQFLVKVLLPLHKVKCLSLYHAQLAYCIVQF	286
jgi Branchiostoma_floridiae_237	LEILGSIINGFALPLKAEHKQFLIKVLIPLHKAKSLSLYHAQLAYCVVQF	242
gi Hydra_vulgaris_alpha	LEILGSIINGFALPLKAEHKQFLKVLVLIPLHKARCLSLYHAQLAYCVVQF	295
jgi Branchiostoma_floridiae_112	-----	
jgi Branchiostoma_floridiae_284	LEILGSIINGFALPLKAEHKQFLKVLVLIPLHKAKSLAQYHAQLAYCVVQF	255
gi Caenorhabditis_elegans_PPTR	LEILGSIINGFALPLKQEHKQFLVKVLLPLHKPKCLSLYHAQLAYCVVQF	316
gi Amphimedon_queenslandica_be	LEILGSIINGFALPLKVEHKQFLIRVLLPLHKAKSLAQYQAQLAYCVVQF	309
gi Chrysemys_picta_bellii_gamm	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	274
gi Chrysemys_picta_bellii_delt	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	199
gi Falco_peregrinus_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	274
gi Falco_peregrinus_delta/gamm	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	199
gi Gallus_gallus_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	274
gi Alligator_mississippiensis	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	274
gi Alligator_mississippiensis	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	199
gi Ambystoma_mexicanum_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	275
gi Mus_musculus_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	274
gi Rattus_norvegicus_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	274
gi Ovis_aries_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	274
gi Bos_taurus_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	274
gi Canis_lupus_familiaris_gamm	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	274
gi Macaca_mulatta_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	274
gi Homo_sapiens_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	264
gi Felis_catus_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	321
gi Canis_lupus_familiaris_delt	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	321
gi Macaca_mulatta_delta/gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	556
gi Bos_taurus_delta/gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	328
gi Mus_musculus_delta/gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	331
gi Rattus_norvegicus_delta/gam	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	397
gi Danio_rerio_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	274
gi Danio_rerio_delta/gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	327
gi Xenopus_laevis_delta/gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	327
gi Xenopus_laevis_gamma	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	327
gi Xenopus_tropicalis_delta/ga	LEILGSIINGFALPLKKEHKIFLLKVLLPLHKVKSLSVYHPQLAYCVVQF	327
gi Mus_musculus_delta	LEILGSIINGFALPLKKEHKVFLVRVLLPLHKVKSLSVYHPQLAYCVVQF	342
gi Rattus_norvegicus_delta	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	370
gi Felis_catus_delta	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	356
gi Bos_taurus_delta	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	348
gi Canis_lupus_familiaris_delt	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	343
gi Macaca_mulatta_delta	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	359
gi Homo_sapiens_delta	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	350
gi Ovis_aries_delta	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	347
gi Falco_peregrinus_delta	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	250
gi Gallus_gallus_delta	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	345
gi Alligator_mississippiensis	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	344
gi Chrysemys_picta_bellii_delt	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	346
gi Danio_rerio_delta	LEILGSIINGFALPLKKEHKMFLIRVLLPLHKVKSLSVYHPQLAYCVVQF	337

Figure S1. Cont.

gi Ambystoma_mexicanum_delta	LEILGSIINGFALPLKEEHKMFLLIRVLLPLHKVKSLSVYHPQLAYCVVQF	199
gi Petromyzon_marinus_S4RN43	LEILGSIINGFALPLKEEHKVFLLKVLPLPHKVKSLSVYHPQLAYCVVQF	327
jgi Branchiostoma_floridae_237	LEVLGSIINGFALPLKEEHKVFLLKVLPLPHKVKSLSVYHPQLAYCVVQF	247
jgi Branchiostoma_floridae_252	LEVLGSIINGFALPLKEEHKVFLLKVLPLPHKVKSLSVYHPQLAYCVVQF	300
gi Strongylocentrotus_purpurat	LEILGSIINGFALPLKEEHTFLLKVLMLPHKAKSLSVYHPQLAYCVVQF	308
gi Caenorhabditis_elegans_PPTR	LEILGSIINGFALPLKEEHTFLLRVLLPLHKVKSLSVYHPQLAYCVVQF	295
gi Hydra_vulgaris_delta	LEVLGSIINGFALPLKEEHKMFLLKVLPLPHKVKALSMHHPQLAYCVVQF	317
gi Amphimedon_queenslandica_de	LEILGSIINGFALPLKEEHKMFLLRVLIPLHKVKSLSCYHPQLAYCVVQF	358
gi Drosophila_melanogaster_B56	LEILGSIINGFALPLKEEHKQFLLKVLPLPHKAKSLSVYHPQLTYCVVQF	431
gi Dictyostelium_discoideum_ps	LEVLGSIINGFALPLKDEHKQFLIKVLIPLHKPKSYSVYCSHLGYCMSQF	356
gi Dictyostelium_purpureum_N/A	LEVLGSIINGFVPLKDEHKQFLIKVLIPLHKPKSYSVYCSHLGYCMTQF	313
gi Dictyostelium_fasciculatum	LEVLGSIINGFALPLKDEHKQFLTKVLLPLHKPKSYSIYCSQLGYCISQF	326
gi Polysphondylium_pallidum_N/	LEVLGSIINGFVPLKDEHKQFLVKVLLPLHKPKSYSVYCSHLGYCITQF	304
gi Arabidopsis_thaliana_theta	LEILGSIINGFALPLKDEHKVFLVRLVPLHKPKSLQMYHQQLSYCITQF	321
gi Arabidopsis_thaliana_eta	LEILGSIINGFALPLKDEHK-----F	313
gi Arabidopsis_thaliana_zeta	LEILGSIINGFALPLKEEHLFLLRALIPLHKPKCSSVYHQQLSYCIVQF	351
gi Arabidopsis_thaliana_gamma	LEILGSIINGFALPLKEEHLFLLRALIPLHRPKCASAYHQQLSYCIVQF	330
gi>Oryza	LEILGSIINGFALPLKEEHLFLLVRLIPLHKPKCIALYHQQLSYCITQF	331
gi>Oryza_sativa_zeta	LEILGSIINGFALPLKEEHLFLLVRLIPLHKPKCIGMYHQQLSYCITQF	331
gi>Oryza_sativa_theta	LEILGSIINGFALPLKEEHLFLLVRLIPLHKPKCVSMYHQQLSYCIVTQF	335
gi>Oryza_sativa_eta	LEILGSIINGFALPLKEEHLFLLVRLIPLHKPKCVSMYHQQLSYCITQF	324
gi Arabidopsis_thaliana_delta	LEVLGSIINGFALPLKEEHLFLLTRVLIPLHKLKCLPNYHQQLSYCIVQF	309
gi Arabidopsis_thaliana_N/A	LEIFGSIINGFALPLKEEHLFLLSRALIPLHKPKSVGNYHQQLSYCITQF	315
gi>Oryza_sativa_kappa	LEVFGSVISGFALPLKEEHLFLLVRLVPLHKPKSVGVYHQQLTYCVTQF	321
gi>Oryza_sativa_N/A	LEVFGSVISGFALPLKEEHLFLLWKALVPLHKPKTVGVYLPQLTYCIIQF	302
gi Arabidopsis_thaliana_alpha	LEILGSIINGFALPMKEEHLFLLIRALIPLHKPKPIAMYHQQLSYCIVQF	320
gi Arabidopsis_thaliana_beta	LEILGSIINGFALPMKEEHLFLLIRVLIPLHKPKPIVYHQQLSYCIVQF	320
gi>Oryza_sativa_N/A_2	LEILGSIINGFALPMKEEHLFLLSRALIPLHKPKSVAIYHQQLSYCIVQF	360
gi Arabidopsis_thaliana_epsilon	LEILGSIINGFALPMKEEHLFLLVRLVPLHKPKSGISYHQQLAYCVTQF	329
gi Chlamydomonas_reinhardtii_w	LEILGSIINGFALPLKEEHLFLLQRLMPLHKPKCVAMYHQQLAYCVTQF	318
gi Schizosaccharomyces_pombe_P	LEILGSIINGFALPLKEEHLFLLSRVLIPLHKAKSLPLYYPQIAYGIVQF	353
gi Schizosaccharomyces_pombe_P	LEILGSIINGFALPLKEEHLFLLSKVLIPLHQTKSVFLYHPQLTYCIVQF	454
gi Ashbya_gossypii_RTS1	LEILGSIINGFALPLKEEHLFLLVRLIPLHKVKRCLSLYHPQLAYCIVQF	416
gi Saccharomyces_cerevisiae_RT	LEILGSIINGFALPLKEEHLFLLVRLIPLHKVKRCLSLYHPQLAYCIVQF	523
gi Aspergillus_niger_N/A	LEKDSSTLTEDVVLGLLRYWPKTNSTKEVMYLNVEDIFEVMDPAE-FAKV	456
gi Aspergillus_nidulans_para	LEKDSSTLTEDVVLGLLRYWPKTNSTKEVMFLNEVEDIFEVMDPAE-FAKV	458
gi Mus_musculus_alpha	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	348
gi Rattus_norvegicus_alpha	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	348
gi Macaca_mulatta_alpha	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	348
gi Homo_sapiens_alpha	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	348
gi Ovis_aries_alpha	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	351
gi Bos_taurus_alpha	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	351
gi Felis_catus_alpha	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	264
gi Canis_lupus_familiaris_alph	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	264
gi Falco_peregrinus_alpha	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	338
gi Gallus_gallus_alpha	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	338
gi Alligator_mississippiensis	LEKETTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	348
gi Chrysemys_picta_bellii_alph	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	338
gi Xenopus_laevis_alpha	MEKDTTLTEPVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	337
gi Xenopus_tropicalis_alpha	LEKDTTLTDPVIRGLLKFWPKTCSQKEVMYLGIEEILDVIEPTQ-FKKI	337
gi Ambystoma_mexicanum_alpha	LEKDTTLTEPVIRGLLKFWPKTCSQKEVMYLGIEEILDVIEPTQ-FKKI	264
gi Danio_rerio_alpha	LEKDP TLTEVVVIRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPTQ-FKKI	340
gi Petromyzon_marinus_S4RHV1	LEKDATLAEIVRGLLKFWPKTCSQKEVMFLGEVEEVLVIEPTQ-FVKI	338
gi Mus_musculus_epsilon	LEKDP SLTEPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi Rattus_norvegicus_epsilon	LEKDP SLTEPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi Macaca_mulatta_epsilon	LEKDP SLTEPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi Homo_sapiens_epsilon	LEKDP SLTEPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi Ovis_aries_epsilon	LEKDP SLTEPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi Bos_taurus_epsilon	LEKDP SLTEPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340

Figure S1. Cont.

gi	Canis_lupus_familiaris_epsilon	LEKDPSTLTPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi	Falco_peregrinus_epsilon	LEKDPSTLTPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi	Gallus_gallus_epsilon	LEKDPSTLTPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi	Felis_catus_epsilon	LEKDPSTLTPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi	Chrysemys_picta_bellii_epsilon	LEKDPSTLTPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi	Xenopus_laevis_epsilon	LEKDPSTLTPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi	Xenopus_tropicalis_epsilon	LEKDPSTLTPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	340
gi	Alligator_mississippiensis_epsilon	LEKDPSTLTPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPSQ-FVKI	329
gi	Ambystoma_mexicanum_epsilon	LEKDPSTLTPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPTQ-FVKI	336
gi	Danio_rerio_epsilon	LEKDPSTLTPVIRGLMKFWPKTCSQKEVMFLGELEEILDVIEPTQ-FVKI	340
gi	Mus_musculus_beta	LEKDATLTHEVIRGLLKYWPKTCTQKEVMFLGEMEEILDVIEPSQ-FVKI	354
gi	Rattus_norvegicus_beta	LEKDATLTHEVIRGLLKYWPKTCTQKEVMFLGEMEEILDVIEPSQ-FVKI	354
gi	Felis_catus_beta	LEKDATLTHEVIRGLLKYWPKTCTQKEVMFLGEMEEILDVIEPSQ-FVKI	354
gi	Canis_lupus_familiaris_beta	LEKDATLTHEVIRGLLKYWPKTCTQKEVMFLGEMEEILDVIEPSQ-FVKI	354
gi	Homo_sapiens_beta	LEKDATLTHEVIRGLLKYWPKTCTQKEVMFLGEMEEILDVIEPSQ-FVKI	354
gi	Bos_taurus_beta	LEKDATLTHEVIRGLLKYWPKTCTQKEVMFLGEMEEILDVIEPSQ-FVKI	354
gi	Ovis_aries_beta	LEKDATLTHEVIRGLLKYWPKTCTQKEVMFLGEMEEILDVIEPSQ-FVKI	354
gi	Macaca_mulatta_beta	LEKDATLTHEVIRGLLKYWPKTCTQKEVMFLGEMEEILDVIEPSQ-FVKI	318
gi	Xenopus_laevis_beta	-----	
gi	Alligator_mississippiensis_beta	LEKDATLTHEVIRGLLKYWPKTCTQKEVMFLGEIEEILDVIEPSQ-FVKV	354
gi	Chrysemys_picta_bellii_beta	LEKDATLTHEVIRGLLKYWPKTCTQKEVMFLGEIEEILDVIEPSQ-FVKV	354
gi	Xenopus_tropicalis_beta	LEKDSSTLTHEVIRGLLKYWPKTCTQKEVMFLGEIEEILDVIEPSQ-FVKI	352
gi	Danio_rerio_beta	MEKDATVTEHIIRGLLRYWPKTCTQKEVMFLGEIEEILDVIEPSQ-FIRV	353
gi	Ambystoma_mexicanum_beta	LEKDATLTHEVIRGLLKYWPKTCTQKEVMFLGEIEEILDVIEPSQ-FIKI	223
gi	Petromyzon_marinus_S4RGA7	LEKDPQLTEPVIRALLKFWPKTCSQKEVMFLGEIEEILDVIESNQ-FVKI	117
gi	Strongylocentrotus_purpurat	LEKDAALTEQVVGGLLKFWPKTCSAKEVMFLGEIEEILDVIEPSQ-FVKI	336
gi	Drosophila_melanogaster_wdb	LEKDPFLTEPVVRGLLKFWPKTCSQKEVMFLGEIEEILDVIDPPQ-FVKI	335
jgi	Branchiostoma_floridiae_237	LEKDATLTEPVVRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPSQ-FVRI	291
gi	Hydra_vulgaris_alpha	LEKDSSTLTPVIMGLLKYWPKTCSQKEVMFLGEIEEILDAIEASQ-FQKV	344
jgi	Branchiostoma_floridiae_112	-----	
jgi	Branchiostoma_floridiae_284	LEKDATLTEPVVRGLLKFWPKTCSQKEVMFLGEIEEILDVIEPSQ-FVRI	304
gi	Caenorhabditis_elegans_PPTR	IEKDSSTLTPQVFEALLKFWPRTCSSEVMFLGEVEEILDIIEPEQ-FKKI	365
gi	Amphimedon_queenslandica_be	LEKDAALTEQVLHGLFKFWPKTNSSEVMFLGEIEEILDIIDAPQ-FVTI	358
gi	Chrysemys_picta_bellii_gamm	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	323
gi	Chrysemys_picta_bellii_delt	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	248
gi	Falco_peregrinus_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	323
gi	Falco_peregrinus_delta/gamm	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	248
gi	Gallus_gallus_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	323
gi	Alligator_mississippiensis_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	323
gi	Alligator_mississippiensis_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	248
gi	Ambystoma_mexicanum_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	324
gi	Mus_musculus_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	323
gi	Rattus_norvegicus_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	323
gi	Ovis_aries_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	323
gi	Bos_taurus_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	323
gi	Canis_lupus_familiaris_gamm	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	323
gi	Macaca_mulatta_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	323
gi	Homo_sapiens_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	313
gi	Felis_catus_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	370
gi	Canis_lupus_familiaris_delt	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	370
gi	Macaca_mulatta_delta/gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	605
gi	Bos_taurus_delta/gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	377
gi	Mus_musculus_delta/gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	380
gi	Rattus_norvegicus_delta/gam	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKI	446
gi	Danio_rerio_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	323
gi	Danio_rerio_delta/gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	376
gi	Xenopus_laevis_delta/gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	376
gi	Xenopus_laevis_gamma	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	376
gi	Xenopus_tropicalis_delta/ga	LEKDSSTLTPVVMALLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	376
gi	Mus_musculus_delta	LEKESSTLTPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FSKV	391
gi	Rattus_norvegicus_delta	LEKESSTLTPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FSKV	419

Figure S1. Cont.

gi Felis_catus_delta	LEKSSSLTEPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FSKV	405
gi Bos_taurus_delta	LEKSSSLTEPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FSKV	397
gi Canis_lupus_familiaris_delt	LEKSSSLTEPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FSKV	392
gi Macaca_mulatta_delta	LEKSSSLTEPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FSKV	408
gi Homo_sapiens_delta	LEKSSSLTEPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FSKV	399
gi Ovis_aries_delta	LEKSSSLTEPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FSKV	396
gi Falco_peregrinus_delta	LEKDSSLTEPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	299
gi Gallus_gallus_delta	LEKDSSLTEPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	394
gi Alligator_mississippiensis_	LEKDSSLTEPVIMGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	393
gi Chrysemys_picta_bellii_delt	LEKSSSLTEPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	395
gi Danio_rerio_delta	LEKDSSLTEPVIMGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	386
gi Ambystoma_mexicanum_delta	LEKDSSLTEPVIVGLLKFWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	248
gi Petromyzon_marinus_S4RN43	LEKDSLTLTEPVVMGLLKYWPKTHSPKEVMFLNELEEILDVIEPSE-FVKV	376
jgi Branchiostoma_floridae_237	LEKDASLTEPVIMGLLKFWPKVHSPKEVMFLNELEEILDVIEPSE-FQKV	296
jgi Branchiostoma_floridae_252	LEKDASLTEPVIMGLLKFWPKVHSPKEVS--NKLGNLLVIHRRS-----	342
gi Strongylocentrotus_purpurat	LEKDPSLTEQVLRLLLFKWPKVHSPKEVMFLNELEEILDVIEPLE-FQKV	357
gi Caenorhabditis_elegans_PPTR	IEKDSSLTEPVISGMLRFWPKQHSPKEVMFLNELEEVLVDVIEPNE-FQKI	344
gi Hydra_vulgaris_delta	LEKDPTLTTEPCIMGLIKFWPKVHSTKEVMFLNELEEILDVIEPNE-FVKI	366
gi Amphimedon_queenslandica_de	LEKDPSLTEPVVTGLLKFWPKVHSPKEVMFLNELEEILDMVEPVE-FVKV	407
gi Drosophila_melanogaster_B56	LEKDPSLSEAVIKSLLKFWPKTHSPKEVMFLNELEEILDMVIEPAE-FQKV	480
gi Dictyostelium_discoideum_ps	IEKEPSLAEPFIFKSILRLWPCGNSQKEVFLSEMEDLLGLVSDEQ-FAKF	405
gi Dictyostelium_purpureum_N/A	IEKDPSLAEPFIFKSILRLWPCGNSQKEVFLSEMEDLLSSVSEDQ-FLKF	362
gi Dictyostelium_fasciculatum_	LEKDPMLALTIFKSILRQWPIGNSQKEVFLFLYEIEDLLGSIRDEQQFTEI	376
gi Polysphondylium_pallidum_N/	IEKDPTLSDVVFKTVLRMWPVGNSQKEVFLFLYEIEDLLNSIGEEQ-FMRI	353
gi Arabidopsis_thaliana_theta	VEKDCKLADTVIRGLLKSWPVTNSSKEVMFLNELEEVLLEATQPPPE-FQRC	370
gi Arabidopsis_thaliana_eta	VEKDCKLADTVIRGLLKYWPVTNSSKEVMFLNEEEVLLEATQPPPE-FQRC	362
gi Arabidopsis_thaliana_zeta	VEKDFKLADTVIRGLLKYWPVTNSSKEVMFLGELEEVLLEATQAEE-FQRC	400
gi Arabidopsis_thaliana_gamma	VEKDFKLADTVIRGLLKYWPVTNSSKEVMFLGELEEVLLEATQAEE-FQRC	379
gi Oryza	VEKDCKLADTVIRGLIKYWPITNSTKEVMFLGELEEILDATQPAE-FQKC	380
gi Oryza_sativa_zeta	VEKDCKLADTVIRGLLKYWPITNSSKEVFLGELEEILEATQPAE-FQKC	380
gi Oryza_sativa_theta	VEKDCKLADTVIRGLLKYWPITNSAKEVMFLGELEEVLLEATQPAE-FQRC	384
gi Oryza_sativa_eta	VEKDCKLADTVIRGLLKYWPVTNSSKEVMFLGELEEVLLEATQPAE-FQRC	373
gi Arabidopsis_thaliana_delta	VEKDCKLADTVIRGMLKYWPVTNSAKEIMFLNELEEILEATQLTE-FERC	358
gi Arabidopsis_thaliana_N/A	IDKEPKLGSVVIGLLKFWPITNSQKEVMFLGEVEEIVAMSVM-FQKI	364
gi Oryza_sativa_kappa	IEKDPKLASSVIGLLRYWPITNSQKEVMFLSEIEEILETISTAE-FQKC	370
gi Oryza_sativa_N/A	IEKEPKLAGTVIRGLLKYWPVTNSQKEMMFLGELEEVLLEATEMAE-FQKC	351
gi Arabidopsis_thaliana_alpha	VEKDYKLADTVIRGLLKFWPVTNCTKEVFLGELEEVLLEATQTVE-FQRC	369
gi Arabidopsis_thaliana_beta	VEKDYKLADTVIRGLLKYWPVTNCSKENLFLGELEEVLLEATQPVE-FQRC	369
gi Oryza_sativa_N/A_2	VEKDYKLADTVIRGLLKYWPVINCQKEVFLGELEEVLLEATQPAE-FQRC	409
gi Arabidopsis_thaliana_epsilon	VEKDYKLADTVIRGLLKFWPLTNCQKEVFLGELEEVLDATEPSE-FQQC	378
gi Chlamydomonas_reinhardtii_w	VEKDSKLAEPVLTALLKYWPVTNSQKEVFLGELEEILELTQAPE-FQKV	367
gi Schizosaccharomyces_pombe_P	VEKDSVTEEVVLGLLRYWPKVNSSEVFLNEIEDIIEVMEPSE-FLKI	402
gi Schizosaccharomyces_pombe_P	IDKDPSLTAKAVLTGILKYWPRINSFKELLFLNEIEDIFEVLEPSE-FVNI	503
gi Ashbya_gossypii_RTsl	LEKEPMLTEEVIMGLLRYWPKVNSTKEIMFLNEIEDIFEVIEPLE-FIKV	465
gi Saccharomyces_cerevisiae_RT	LEKDPFLTEEVVMGLLRYWPKINSTKEIMFLNEIEDIFEVIEPLE-FIKV	572
gi Aspergillus_niger_N/A	QVPLFQQAKSVASPHFQ-----	474
gi Aspergillus_nidulans_parA	QEPLFQQAKSVASPHFQ-----	476
gi Mus_musculus_alpha	EEPLFKQISKCVSSSHFQ-----	366
gi Rattus_norvegicus_alpha	EEPLFKQISKCVSSSHFQ-----	366
gi Macaca_mulatta_alpha	EEPLFKQISKCVSSSHFQ-----	366
gi Homo_sapiens_alpha	EEPLFKQISKCVSSSHFQ-----	366
gi Ovis_aries_alpha	EEPLFKQISKCVSSSHFQ-----	369
gi Bos_taurus_alpha	EEPLFKQISKCVSSSHFQ-----	369
gi Felis_catus_alpha	EEPLFKQISKCVSSSHFQ-----	282
gi Canis_lupus_familiaris_alph	EEPLFKQISKCVSSSHFQ-----	282
gi Falco_peregrinus_alpha	EEPLFKQISKCVSSSHFQ-----	356
gi Gallus_gallus_alpha	EEPLFKQISKCVSSSHFQ-----	356
gi Alligator_mississippiensis_	EEPLFKQISKCVSSSHFQ-----	366
gi Chrysemys_picta_bellii_alph	EEPLFKQISKCVSSSHFQ-----	356

Figure S1. Cont.

gi Xenopus_laevis_alpha	QEPLFKQISKCVSSSHFQ-----	355
gi Xenopus_tropicalis_alpha	QEPLFKQISKCVSSSHFQ-----	355
gi Ambystoma_mexicanum_alpha	QEPLFKQISKCVSSSHFQ-----	282
gi Danio_rerio_alpha	QEPLFKQIAKCVASPHFQ-----	358
gi Petromyzon_marinus_S4RHV1	QEPLFKQISRCVASPHLH-----	356
gi Mus_musculus_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Rattus_norvegicus_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Macaca_mulatta_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Homo_sapiens_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Ovis_aries_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Bos_taurus_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Canis_lupus_familiaris_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Falco_peregrinus_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Gallus_gallus_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Felis_catus_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Chrysemys_picta_bellii_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Xenopus_laevis_epsilon	QEPLFKQISKCVSSPHFQ-----	358
gi Xenopus_tropicalis_epsilon	QEPLFKQISKCVSSPHFQ-----	358
gi Alligator_mississippiensis	QEPLFKQIAKCVSSPHFQ-----	347
gi Ambystoma_mexicanum_epsilon	QEPLFKQISKCVSSPHFQ-----	354
gi Danio_rerio_epsilon	QEPLFKQIAKCVSSPHFQ-----	358
gi Mus_musculus_beta	QEPLFKQVARCVSSPHFQ-----	372
gi Rattus_norvegicus_beta	QEPLFKQVARCVSSPHFQ-----	372
gi Felis_catus_beta	QEPLFKQVARCVSSPHFQ-----	372
gi Canis_lupus_familiaris_beta	QEPLFKQVARCVSSPHFQ-----	372
gi Homo_sapiens_beta	QEPLFKQVARCVSSPHFQ-----	372
gi Bos_taurus_beta	QEPLFKQVARCVSSPHFQ-----	372
gi Ovis_aries_beta	QEPLFKQVARCVSSPHFQ-----	372
gi Macaca_mulatta_beta	QEPLFKQVARCVSSPHFQ-----	336
gi Xenopus_laevis_beta	-----SVFTCC-----	6
gi Alligator_mississippiensis	QQPLFKQVAQC IASPHFQ-----	372
gi Chrysemys_picta_bellii_beta	QEPLFKQIARCISSPHFQ-----	372
gi Xenopus_tropicalis_beta	QEPLFKQIARCVSSPHFQ-----	370
gi Danio_rerio_beta	QEPLFKQIAAC ISSPHFQ-----	371
gi Ambystoma_mexicanum_beta	QEPLFKQIARCIASPHFQ-----	241
gi Petromyzon_marinus_S4RGA7	QEPLFRQIAKCVSSPHFQ-----	135
gi Strongylocentrotus_purpurat	QEMLFRQLAKCVASPHFQ-----	354
gi Drosophila_melanogaster_wdb	QEPLFRQIAKCVSSPHFQ-----	353
jgi Branchiostoma_floridae_237	QEPLFKQISKCVSSPHFQ-----	309
gi Hydra_vulgaris_alpha	MEPLFKKISKCVSSPHFQ-----	362
jgi Branchiostoma_floridae_112	-----	
jgi Branchiostoma_floridae_284	QEQLFKQMSKCVSSPHFQ-----	322
gi Caenorhabditis_elegans_PPTR	IDPLFRQLAKCVSSPHFQ-----	383
gi Amphimedon_queenslandica_be	QEPLFRQLAKCVSSPHFQ-----	376
gi Chrysemys_picta_bellii_gamm	MEPLFRQLAKCVSSPHFQ-----	341
gi Chrysemys_picta_bellii_delt	MEPLFRQLAKCVSSPHFQ-----	266
gi Falco_peregrinus_gamma	MEPLFRQLAKCVSSPHFQ-----	341
gi Falco_peregrinus_delta/gamm	MEPLFRQLAKCVSSPHFQ-----	266
gi Gallus_gallus_gamma	MEPLFRQLAKCVSSPHFQ-----	341
gi Alligator_mississippiensis	MEPLFRQLAKCVSSPHFQ-----	341
gi Alligator_mississippiensis	MEPLFRQLAKCVSSPHFQ-----	266
gi Ambystoma_mexicanum_gamma	MEPLFRQLAKCVSSPHFQ-----	342
gi Mus_musculus_gamma	MEPLFRQLAKCVSSPHFQ-----	341
gi Rattus_norvegicus_gamma	MEPLFRQLAKCVSSPHFQ-----	341
gi Ovis_aries_gamma	MEPLFRQLAKCVSSPHFQ-----	341
gi Bos_taurus_gamma	MEPLFRQLAKCVSSPHFQ-----	341
gi Canis_lupus_familiaris_gamm	MEPLFRQLAKCVSSPHFQ-----	341
gi Macaca_mulatta_gamma	MEPLFRQLAKCVSSPHFQ-----	341
gi Homo_sapiens_gamma	MEPLFRQLAKCVSSPHFQ-----	331
gi Felis_catus_gamma	MEPLFRQLAKCVSSPHFQ-----	388
gi Canis_lupus_familiaris_delt	MEPLFRQLAKCVSSPHFQ-----	388

Figure S1. Cont.

gi	Macaca_mulatta_delta/gamma	MEPLFRQLAKCVSSPHFQ-----	623
gi	Bos_taurus_delta/gamma	MEPLFRQLAKCVSSPHFQ-----	395
gi	Mus_musculus_delta/gamma	MEPLFRQLAKCVSSPHFQ-----	398
gi	Rattus_norvegicus_delta/gam	MEPLFRQLAKCVSSPHFQ-----	464
gi	Danio_rerio_gamma	MEPLFRQLAKCVSSPHFQ-----	341
gi	Danio_rerio_delta/gamma	MEPLFRQLAKCVSSPHFQ-----	394
gi	Xenopus_laevis_delta/gamma	MEPLFRQLAKCVSSPHFQ-----	394
gi	Xenopus_laevis_gamma	MEPLFRQLAKCVSSPHFQ-----	394
gi	Xenopus_tropicalis_delta/ga	MEPLFRQLAKCVSSPHFQ-----	394
gi	Mus_musculus_delta	MEPLFRQLAKCVSSPHFQ-----	409
gi	Rattus_norvegicus_delta	MEPLFRQLAKCVSSPHFQ-----	437
gi	Felis_catus_delta	MEPLFRQLAKCVSSPHFQ-----	423
gi	Bos_taurus_delta	MEPLFRQLAKCVSSPHFQ-----	415
gi	Canis_lupus_familiaris_delt	MEPLFRQLAKCVSSPHFQ-----	410
gi	Macaca_mulatta_delta	MEPLFRQLAKCVSSPHFQ-----	426
gi	Homo_sapiens_delta	MEPLFRQLAKCVSSPHFQ-----	417
gi	Ovis_aries_delta	MEPLFRQLAKCVSSPHFQ-----	414
gi	Falco_peregrinus_delta	MEPLFRQLAKCVSSPHFQ-----	317
gi	Gallus_gallus_delta	MEPLFRQLAKCVSSPHFQ-----	412
gi	Alligator_mississippiensis_	MEPLFRQLAKCVSSPHFQ-----	411
gi	Chrysemys_picta_bellii_delt	MEPLFRQLAKCVSSPHFQ-----	413
gi	Danio_rerio_delta	MEPLFRQLAKCVSSPHFQ-----	404
gi	Ambystoma_mexicanum_delta	MEPLFRQLAKCVSSPHFQ-----	266
gi	Petromyzon_marinus_S4RN43	MEPLFRQLAKCVSSPHFQ-----	394
jgi	Branchiostoma_floridae_237	MVPLFRQLAQCVSSPHFQ-----	314
jgi	Branchiostoma_floridae_252	-IVLNEDFFFGYSN-ISQ-----	358
gi	Strongylocentrotus_purpurat	MTPLFQQLANCVSSPHFQ-----	375
gi	Caenorhabditis_elegans_PPTR	MTPLFSQIARCVSSPHFQ-----	362
gi	Hydra_vulgaris_delta	VEPLFKKLGQCQVSSQHFQ-----	384
gi	Amphimedon_queenslandica_de	MQPLFKQISKCISSQHFQ-----	425
gi	Drosophila_melanogaster_B56	MVPLFRQIAKCVSSPHFQ-----	498
gi	Dictyostelium_discoideum_ps	RNQFFRQMTKCFQSEHFQ-----	423
gi	Dictyostelium_purpureum_N/A	RTQFFRQMTKCFQSEHFQ-----	380
gi	Dictyostelium_fasciculatum_	QQILFKQLARCFQSEHFQ-----	394
gi	Polysphondylium_pallidum_N/	YIPLFKQITKCFNSEHFQ-----	371
gi	Arabidopsis_thaliana_theta	MVPLFRQVARCLNSLHFQ-----	388
gi	Arabidopsis_thaliana_eta	MVPLFRQIARCLNSLHFQAISFRHTLTALLMRSRYSLPVISNEQMEELIL	412
gi	Arabidopsis_thaliana_zeta	MVPLSRQIARCLNSSHFQ-----	418
gi	Arabidopsis_thaliana_gamma	MVPLFRQIARCLNSSHFQ-----	397
gi	Oryza	MVPLFRQIACCLNSSHFQ-----	398
gi	Oryza_sativa_zeta	MVPLFRQIAHCLNSSHFQ-----	398
gi	Oryza_sativa_theta	MVSLFCQIARCLNSSHFQ-----	402
gi	Oryza_sativa_eta	MVPLFRQIACSMNSSHFQ-----	391
gi	Arabidopsis_thaliana_delta	MVPLSRQIAQCLSSSHFQ-----	376
gi	Arabidopsis_thaliana_N/A	MVPLFLRIACCVTSSSHFQ-----	382
gi	Oryza_sativa_kappa	MVPLFRRIAQCICKSSHFQ-----	388
gi	Oryza_sativa_N/A	MVPLFRRIAHCCLNSSHFQ-----	369
gi	Arabidopsis_thaliana_alpha	MVPLFQQIARCLSSSNFQ-----	387
gi	Arabidopsis_thaliana_beta	MVPLFQQIGRCLTSSSHFQ-----	387
gi	Oryza_sativa_N/A_2	MVPLFKQIGRCLNSSHFQ-----	427
gi	Arabidopsis_thaliana_epsilon	VVPLFTQIGKCLNSAHFQ-----	396
gi	Chlamydomonas_reinhardtii_w	MIPLFRQLAKCLNSQHFQ-----	385
gi	Schizosaccharomyces_pombe_P	QVPLFHKLATSISSQNFQ-----	420
gi	Schizosaccharomyces_pombe_P	MSPLFQQIARSISSMHFQ-----	521
gi	Ashbya_gossypii_RTS1	EVPLFVQLAKCISSPHFQ-----	483
gi	Saccharomyces_cerevisiae_RT	EVPLFVQLRKCISSPHFQ-----	590
gi	Aspergillus_niger_N/A	-----VAERALYFWNNEYFCNLVSDNVEIILP--IMFPP	506
gi	Aspergillus_nidulans_parA	-----VAERALYFWNNEYFCNLVSDNVEIILP--IMFPP	508
gi	Mus_musculus_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFAS	398

Figure S1. Cont.

gi Rattus_norvegicus_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFAS	398
gi Macaca_mulatta_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFAS	398
gi Homo_sapiens_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFAS	398
gi Ovis_aries_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGS	401
gi Bos_taurus_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGS	401
gi Felis_catus_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGS	314
gi Canis_lupus_familiaris_alph	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGS	314
gi Falco_peregrinus_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFAS	388
gi Gallus_gallus_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGS	388
gi Alligator_mississippiensis	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGS	398
gi Chrysemys_picta_bellii_alph	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGS	388
gi Xenopus_laevis_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGS	387
gi Xenopus_tropicalis_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGS	387
gi Ambystoma_mexicanum_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGS	314
gi Danio_rerio_alpha	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGN	390
gi Petrotyzon_marinus_S4RHV1	-----VAERALYFWNNEYILSLIEENIDKILP--IMFGN	388
gi Mus_musculus_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	390
gi Rattus_norvegicus_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	390
gi Macaca_mulatta_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	390
gi Homo_sapiens_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	390
gi Ovis_aries_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	390
gi Bos_taurus_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	390
gi Canis_lupus_familiaris_epsi	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	390
gi Xenopus_tropicalis_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	390
gi Gallus_gallus_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	390
gi Felis_catus_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	390
gi Chrysemys_picta_bellii_epsi	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	390
gi Xenopus_laevis_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFAS	390
gi Xenopus_tropicalis_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFAS	390
gi Alligator_mississippiensis	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFSS	379
gi Ambystoma_mexicanum_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFAS	386
gi Danio_rerio_epsilon	-----VAERALYFWNNEYIMSLIEENIDKILP--IMFAS	390
gi Mus_musculus_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	404
gi Rattus_norvegicus_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	404
gi Felis_catus_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	404
gi Canis_lupus_familiaris_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	404
gi Homo_sapiens_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	404
gi Bos_taurus_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	404
gi Ovis_aries_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	404
gi Macaca_mulatta_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	368
gi Xenopus_laevis_beta	-----YYWD-----GFLP--TSFS-	18
gi Alligator_mississippiensis	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	404
gi Chrysemys_picta_bellii_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	404
gi Xenopus_tropicalis_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	402
gi Danio_rerio_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	403
gi Ambystoma_mexicanum_beta	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	273
gi Petrotyzon_marinus_S4RGA7	-----VAERALYFWNNEYILSLIEDNCHTVLP--AVFGT	167
gi Strongylocentrotus_purpurat	-----VAERALYFWNNEYVMSLIEENIDKILP--IMFTN	386
gi Drosophila_melanogaster_wdb	-----VAERALYFWNNEYVMSLIEENIDKILP--IMFPA	385
jgi Branchiostoma_floridae_237	-----VAERALYFWNNEYVMSLIEENIDKILP--IMFPN	341
gi Hydra_vulgaris_alpha	-----VAERALYFWNNEYIMSLIDENSAVILP--IMFSC	394
jgi Branchiostoma_floridae_112	-----VAERALYFWNNEYVMSLIEENIDKILP--IMFSC	354
jgi Branchiostoma_floridae_284	-----VAERALYFWNNEYVMSLIEENIDKILP--IMFSC	415
gi Caenorhabditis_elegans_PPTR	-----VAERALYFWNNEYIVGLIQENSEVIMP--IMFDA	408
gi Chrysemys_picta_bellii_gamm	-----VAERALYFWNNEYIMSLIDENSAVILP--IMFPA	373
gi Chrysemys_picta_bellii_delt	-----VAERALYFWNNEYIMSLIDENSAVILP--IMFPA	298
gi Falco_peregrinus_gamma	-----VAERALYFWNNEYIMSLIDENSAVILP--IMFPA	373
gi Falco_peregrinus_delta/gamm	-----VAERALYFWNNEYIMSLIDENSAVILP--IMFPA	298
gi Gallus_gallus_gamma	-----VAERALYFWNNEYIMSLIDENSAVILP--IMFPA	373
gi Alligator_mississippiensis	-----VAERALYFWNNEYIMSLIDENSAVILP--IMFPA	373

Figure S1. Cont.

gi	Alligator_mississippiensis_	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	298
gi	Ambystoma_mexicanum_gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	374
gi	Mus_musculus_gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	373
gi	Rattus_norvegicus_gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	373
gi	Ovis_aries_gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	373
gi	Bos_taurus_gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	373
gi	Canis_lupus_familiaris_gamm	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	373
gi	Macaca_mulatta_gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	373
gi	Homo_sapiens_gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	363
gi	Felis_catus_gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	420
gi	Canis_lupus_familiaris_delt	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	420
gi	Macaca_mulatta_delta/gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	655
gi	Bos_taurus_delta/gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	427
gi	Mus_musculus_delta/gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	430
gi	Rattus_norvegicus_delta/gam	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	496
gi	Danio_rerio_gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	373
gi	Danio_rerio_delta/gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	426
gi	Xenopus_laevis_delta/gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	426
gi	Xenopus_laevis_gamma	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	426
gi	Xenopus_tropicalis_delta/ga	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPS	426
gi	Mus_musculus_delta	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPA	441
gi	Rattus_norvegicus_delta	-----VAERALYYWNNEYIMSLISDNAARVLP--IMFPA	469
gi	Felis_catus_delta	-----VAERALYYWNNEYIMSLISDNAARVLP--IMFPA	455
gi	Bos_taurus_delta	-----VAERALYYWNNEYIMSLISDNAARVLP--IMFPA	447
gi	Canis_lupus_familiaris_delt	-----VAERALYYWNNEYIMSLISDNAARVLP--IMFPA	442
gi	Macaca_mulatta_delta	-----VAERALYYWNNEYIMSLISDNAARVLP--IMFPA	458
gi	Homo_sapiens_delta	-----VAERALYYWNNEYIMSLISDNAARVLP--IMFPA	449
gi	Ovis_aries_delta	-----VAERALYYWNNEYIMSLISDNAARVLP--IMFPA	446
gi	Falco_peregrinus_delta	-----VAERALYYWNNEYIMSLISDNAARVLP--IMFPA	349
gi	Gallus_gallus_delta	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPA	444
gi	Alligator_mississippiensis_	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPA	443
gi	Chrysemys_picta_bellii_delt	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPA	445
gi	Danio_rerio_delta	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPA	436
gi	Ambystoma_mexicanum_delta	-----VAERALYYWNNEYIMSLISDNAAKILP--IMFPA	298
gi	Petromyzon_marinus_S4RN43	-----VAERALYYWNNEYIMSLVSDNAAKILP--IMFPA	426
jgi	Branchiostoma_floridae_237	-----VAERALYYWNNEYIMSLISDNAQVILP--IMFPA	346
jgi	Branchiostoma_floridae_252	-----VAERALYYWNNEYIMSLISDNAQVILP--IMFPA	390
gi	Strongylocentrotus_purpurat	-----VAERALYYWNNEYIMSLISDNDETILP--IMFPA	407
gi	Caenorhabditis_elegans_PPTR	-----VAERALYYWNNEYVMSLVADNARVIP--IMFPV	394
gi	Hydra_vulgaris_delta	-----VAERALYYWNNEYIMSLVSDNATKAIP--IIFPY	416
gi	Amphimedon_queenslandica_de	-----VAERALYYWSNDYIMSLVGENPQALFP--IILPA	457
gi	Drosophila_melanogaster_B56	-----VAERALYYWNNEYIMSLITDNSAVILP--IMFPA	530
gi	Dictyostelium_discoideum_ps	-----VAERALYLFSNENIVLLIASKNNTLALETIFYKP	457
gi	Dictyostelium_purpureum_N/A	-----VAERALYLFSNENIVLLIASKNNTLALETIFYKP	414
gi	Dictyostelium_fasciculatum_	-----VAERSLLLLSNEHIVGLLSKRSVPALALNYFYKI	428
gi	Polysphondylium_pallidum_N/	-----VAERALLWSNDHVSVLSVSKTCLP-----NV	398
gi	Arabidopsis_thaliana_theta	-----VAERALFLWNNNDHIENLIMQNRKVILP--IIFPA	420
gi	Arabidopsis_thaliana_eta	RYGKYQCLGLLYSALGVAERALFLWNNNDHIENLIMQNRKVILP--IIFPA	460
gi	Arabidopsis_thaliana_zeta	-----VAERALFLWNNNDHIRNLITQNHKVIMP--IVFPA	450
gi	Arabidopsis_thaliana_gamma	-----VAERALFLWNNNDHIRNLITQNHKVIMP--IVFPA	429
gi	Oryza	-----VAERALFLWNNNDHIENLIRQNSKVILP--IIFSA	430
gi	Oryza_sativa_zeta	-----VAERALFLWNNNDHIENLIKQNSRVILP--IIFPA	430
gi	Oryza_sativa_theta	-----VAERALFLWNNNDHIEVLIKQNSKVILP--IILPA	434
gi	Oryza_sativa_eta	-----VAERALFLWNNNDHIENLIKQNYKVILP--IIFPA	423
gi	Arabidopsis_thaliana_delta	-----VAERALYLWNNNDHVTNLVRQNSRIILP--IVFPA	408
gi	Arabidopsis_thaliana_N/A	-----VSERALFLWNNNDQIVNLIGHNRQAILP--IMFTA	414
gi	Oryza_sativa_kappa	-----VAERALFIWNNNDNVISLIAQNRQMIMP--IIVPA	420
gi	Oryza_sativa_N/A	-----VAERALFLWNNNEHLFDLISQNRQTIMP--IIPYA	401
gi	Arabidopsis_thaliana_alpha	-----VAERALFLWNNNEHVGLIAQNRGVILP--IIFAS	419
gi	Arabidopsis_thaliana_beta	-----VAERALFLWNNNEHIVGLIAQNRSVILP--IIYPT	419
gi	Oryza_sativa_N/A_2	-----VAERALFLWNNNDHIVSLIAQNRSVIFP--IIFEA	459

Figure S1. Cont.

gi Arabidopsis_thaliana_epsilon	-----VAERALFLWNNEHIVGLIAQNKDVIFF--IIFEA	428
gi Chlamydomonas_reinhardtii_w	-----VAERSLFLWNNEYIVNLVAQHRHQLLP--ILFPA	417
gi Schizosaccharomyces_pombe_P	-----VAERALYFFNNDYFVHLVEENVDIILP--IIYPA	452
gi Schizosaccharomyces_pombe_P	-----VAERALCLWSNEYFTSLVSQNVVTLPL--IIYPS	553
gi Ashbya_gossypii_RTSl	-----VAEKVLSYWNNEYFLNLCIENAEVILP--IIFPA	515
gi Saccharomyces_cerevisiae_RT	-----VAEKVLSYWNNEYFLNLCIENAEVILP--IIFPA	622
gi Aspergillus_niger_N/A	LYENS-----KGHWNRTHSMVYNAMK	528
gi Aspergillus_nidulans_parA	LFENS-----KGHWNRTHSMVYNAMK	530
gi Mus_musculus_alpha	LYKIS-----KEHWNQTIVALVYNVLK	420
gi Rattus_norvegicus_alpha	LYKIS-----KEHWNQTIVALVYNVLK	420
gi Macaca_mulatta_alpha	LYKIS-----KEHWNPTIVALVYNVLK	420
gi Homo_sapiens_alpha	LYKIS-----KEHWNPTIVALVYNVLK	420
gi Ovis_aries_alpha	LYKIS-----KEHWNPTIVALVYNVLK	423
gi Bos_taurus_alpha	LYKIS-----KEHWNPTIVALVYNVLK	423
gi Felis_catus_alpha	LYKIS-----KEHWNPTIVALVYNVLK	336
gi Canis_lupus_familiaris_alph	LYKIS-----KEHWNPTIVALVYNVLK	336
gi Falco_peregrinus_alpha	LYKIS-----KEHWNPTIVALVYNVLK	410
gi Gallus_gallus_alpha	LYKIS-----KEHWNPTIVALVYNVLK	410
gi Alligator_mississippiensis	LYKIS-----KEHWNPTIVALVYNVLK	420
gi Chrysemys_picta_bellii_alph	LYKIS-----KEHWNPTIVALVYNVLK	410
gi Xenopus_laevis_alpha	LYKIS-----KEHWNPTIVALVYNVLK	409
gi Xenopus_tropicalis_alpha	LYKIS-----KEHWNPTIVALVYNVLK	409
gi Ambystoma_mexicanum_alpha	LYKIS-----KEHWNPTIVALVYNVLK	336
gi Danio_rerio_alpha	LYRIS-----KEHWNPTIVALVYNVLK	412
gi Petromyzon_marinus_S4RHV1	LYKMS-----EEHWNQTILGLNFMVMK	410
gi Mus_musculus_epsilon	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Rattus_norvegicus_epsilon	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Macaca_mulatta_epsilon	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Homo_sapiens_epsilon	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Ovis_arie_epsilon	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Bos_taurus_epsilon	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Canis_lupus_familiaris_epsi	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Falco_peregrinus_epsilon	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Gallus_gallus_epsilon	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Felis_catus_epsilon	LYRIX-----KEHWNPAIVALVYNVLK	412
gi Chrysemys_picta_bellii_epsi	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Xenopus_laevis_epsilon	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Xenopus_tropicalis_epsilon	LYRIS-----KEHWNPAIVALVYNVLK	412
gi Alligator_mississippiensis	LYRIS-----KEHWNPAIVALVYNVLK	401
gi Ambystoma_mexicanum_epsilon	LYRIS-----KEHWNPAIVALVYNVLK	408
gi Danio_rerio_epsilon	LYRIS-----KEHWNPAISALIYNVLK	412
gi Mus_musculus_beta	LYQVS-----KEHWNQTIVSLIYNVLK	426
gi Rattus_norvegicus_beta	LYQVS-----KEHWNQTIVSLIYNVLK	426
gi Felis_catus_beta	LYQVS-----KEHWNQTIVSLIYNVLK	426
gi Canis_lupus_familiaris_beta	LYQVS-----KEHWNQTIVSLIYNVLK	426
gi Homo_sapiens_beta	LYQVS-----KEHWNQTIVSLIYNVLK	426
gi Bos_taurus_beta	LYQVS-----KEHWNQTIVSLIYNVLK	426
gi Ovis_aries_beta	LYQVS-----KEHWNQTIVSLIYNVLK	426
gi Macaca_mulatta_beta	LYQVS-----KEHWNQTIVSLIYNVLK	390
gi Xenopus_laevis_beta	-----AHR--TIVSLIYNVLK	32
gi Alligator_mississippiensis	LYRVS-----KEHWNQTIVSLVYNVLK	426
gi Chrysemys_picta_bellii_beta	LYRVS-----KEHWNQTIVSLVYNVLK	426
gi Xenopus_tropicalis_beta	LYQVS-----KEHWNQTIVSLIYNVLK	424
gi Danio_rerio_beta	LYRVS-----KEHWNQTIIISLIYNVLK	425
gi Ambystoma_mexicanum_beta	LYRVS-----KEHWNQTIVSLIYNVLK	295
gi Petromyzon_marinus_S4RGA7	LYRVS-----KEHWNQTIVALVYNILK	189
gi Strongylocentrotus_purpurat	LYRIS-----KDHWNQTIVALVYNVLR	408
gi Drosophila_melanogaster_wdb	LYRIS-----KEHWNQTIVALVYNVLK	407
jgi Branchiostoma_floridae_237	LYRIS-----KEHWNQTIVALVYNVLK	363

Figure S1. Cont.

gi Hydra_vulgaris_alpha	LYRIS-----KDHWNQTI VALVYNVLK	416
jgi Branchiostoma_floridiae_112	-----	
jgi Branchiostoma_floridiae_284	LYRIS-----KDHWNQTI VALVYNVLK	376
gi Caenorhabditis_elegans_PPTR	LYRIS-----KEHWNQTI VALVYNVLK	437
gi Amphimedon_queenslandica_be	LYRIS-----KEHWNKAIVSLVYNVLK	430
gi Chrysemys_picta_bellii_gamm	LYRNS-----KTHWNKTIHGLIYNALK	395
gi Chrysemys_picta_bellii_delt	LYRNS-----KTHWNKTIHGLIYNALK	320
gi Falco_peregrinus_gamma	LYRNS-----KTHWNKTIHGLIYNALK	395
gi Falco_peregrinus_delta/gamm	LYRNS-----KTHWNKTIHGLIYNALK	320
gi Gallus_gallus_gamma	LYRNS-----KTHWNKTIHGLIYNALK	395
gi Alligator_mississippiensis_	LYRNS-----KTHWNKTIHGLIYNALK	395
gi Alligator_mississippiensis_	LYRNS-----KTHWNKTIHGLIYNALK	320
gi Ambystoma_mexicanum_gamma	LYRNS-----KTHWNKTIHGLIYNALK	396
gi Mus_musculus_gamma	LYRNS-----KTHWNKTIHGLIYNALK	395
gi Rattus_norvegicus_gamma	LYRNS-----KTHWNKTIHGLIYNALK	395
gi Ovis_aries_gamma	LYRNS-----KTHWNKTIHGLIYNALK	395
gi Bos_taurus_gamma	LYRNS-----KTHWNKTIHGLIYNALK	395
gi Canis_lupus_familiaris_gamm	LYRNS-----KTHWNKTIHGLIYNALK	395
gi Macaca_mulatta_gamma	LYRNS-----KTHWNKTIHGLIYNALK	395
gi Homo_sapiens_gamma	LYRNS-----KTHWNKTIHGLIYNALK	385
gi Felis_catus_gamma	LYRNS-----KTHWNKTIHGLIYNALK	442
gi Canis_lupus_familiaris_delt	LYRNS-----KTHWNKTIHGLIYNALK	442
gi Macaca_mulatta_delta/gamma	LYRNS-----KTHWNKTIHGLIYNALK	677
gi Bos_taurus_delta/gamma	LYRNS-----KTHWNKTIHGLIYNALK	449
gi Mus_musculus_delta/gamma	LYRNS-----KTHWNKTIHGLIYNALK	452
gi Rattus_norvegicus_delta/gam	LYRNS-----KTHWNKTIHGLIYNALK	518
gi Danio_rerio_gamma	LYRNS-----KTHWNKTIHGLIYNALK	395
gi Danio_rerio_delta/gamma	LYRNS-----KTHWNKTIHGLIYNALK	448
gi Xenopus_laevis_delta/gamma	LYRNS-----KTHWNKTIHGLIYNALK	448
gi Xenopus_laevis_gamma	LYRNS-----KTHWNKTIHGLIYNALK	448
gi Xenopus_tropicalis_delta/ga	LYRNS-----KTHWNKTIHGLIYNALK	448
gi Mus_musculus_delta	LYRNS-----KSHWNKTIHGLIYNALK	463
gi Rattus_norvegicus_delta	LYRNS-----KSHWNKTIHGLIYNALK	491
gi Felis_catus_delta	LYRNS-----KSHWNKTIHGLIYNALK	477
gi Bos_taurus_delta	LYRNS-----KSHWNKTIHGLIYNALK	469
gi Canis_lupus_familiaris_delt	LYRNS-----KSHWNKTIHGLIYNALK	464
gi Macaca_mulatta_delta	LYRNS-----KSHWNKTIHGLIYNALK	480
gi Homo_sapiens_delta	LYRNS-----KSHWNKTIHGLIYNALK	471
gi Ovis_aries_delta	LYRNS-----KSHWNKTIHGLIYNALK	468
gi Falco_peregrinus_delta	LYKNS-----KSHWNKTIHGLIYNALK	371
gi Gallus_gallus_delta	LYKNS-----KSHWNKTIHGLIYNALK	466
gi Alligator_mississippiensis_	LYKNS-----KSHWNKTIHGLIYNALK	465
gi Chrysemys_picta_bellii_delt	LYKNS-----KSHWNKTIHGLIYNALK	467
gi Danio_rerio_delta	LYKNS-----KSHWNKTIHGLIYNALK	458
gi Ambystoma_mexicanum_delta	LYKNS-----KSHWNKTIHGLIYNALK	320
gi Petromyzon_marinus_S4RN43	LYRNS-----KSHWNKTIHGLIYNALK	448
jgi Branchiostoma_floridiae_237	LYKNS-----KTHWNKTIHGLIYNALK	368
jgi Branchiostoma_floridiae_252	LYKNS-----KTHWNKTIHGLIYNALK	412
gi Strongylocentrotus_purpurat	LYKNS-----KAHWNKTIHGLIYNALK	429
gi Caenorhabditis_elegans_PPTR	LFKNS-----KSHWNKTIHGLIYNALK	416
gi Hydra_vulgaris_delta	LYRNS-----KTHWNKTIHGLIYNALK	438
gi Amphimedon_queenslandica_de	LLRHS-----KQHWNKTIHGLIYNALK	479
gi>Drosophila_melanogaster_B56	LNRNS-----KTHWNKNIHGLIYNALK	552
gi Dictyostelium_discoideum_ps	LHENS-----ISHWNRSIRNLSISSLK	479
gi Dictyostelium_purpureum_N/A	LYENS-----IGHWNKSIRNLSISSLK	436
gi Dictyostelium_fasciculatum_	LHDNA-----NNHWNKTIHGLIYNALK	450
gi Polysphondylium_pallidum_N/	LYENS-----NNHWNKSIRSLSFSSLK	420
gi Arabidopsis_thaliana_theta	LERNT-----QKHWNQAVHSLTLNVQK	442
gi Arabidopsis_thaliana_eta	LERNA-----QKHWNQAVHSLTLNVRK	482
gi Arabidopsis_thaliana_zeta	LERNT-----RGHWNQAVQSLTINVRK	472
gi Arabidopsis_thaliana_gamma	MERNT-----RGHWNQAVQSLTLNVRK	451

Figure S1. Cont.

gi	Oryza	LEKNV-----IEHWNQAVKSLSLNVQK	452
gi	Oryza_sativa_zeta	LERNA-----NGHWNQAVQSLTLNVVK	452
gi	Oryza_sativa_theta	IERNT-----KEHWNQAVQSLSLNVVK	456
gi	Oryza_sativa_eta	LERNA-----RGHWNQAVRSLTLNVVK	445
gi	Arabidopsis_thaliana_delta	LEKNG-----SSHWNQAVKSLTENVLK	430
gi	Arabidopsis_thaliana_N/A	LEKNA-----QNHWNQSVLNLTLNVVK	436
gi	Oryza_sativa_kappa	LEHNS-----QNHWNQAVLNLTDNVKK	442
gi	Oryza_sativa_N/A	LERN-----RHHWNQSVLNLTMNVVK	423
gi	Arabidopsis_thaliana_alpha	LEKNI-----ESHWNQAVHGLSANIKR	441
gi	Arabidopsis_thaliana_beta	LEKNI-----QSHWNQAVHGLT'NIKK	441
gi	Oryza_sativa_N/A_2	LERN-----TSHWNQAVHGLTANVVK	481
gi	Arabidopsis_thaliana_epsilon	LERN-----KGHWNQAVHGLSENVRR	450
gi	Chlamydomonas_reinhardtii_w	LEENT-----NSHWNQAVHGLTCNVVK	439
gi	Schizosaccharomyces_pombe_P	LFEIS-----KSHWNRVIHSMVCNVLK	474
gi	Schizosaccharomyces_pombe_P	LYKTA-----NEHWNSTIQAIACNVLQ	575
gi	Ashbya_gossypii_RTS1	LYELTSQDLDLSDTDEEGNPNQDPYMLVEQAINSGSWNRRAIHAMAFKALK	565
gi	Saccharomyces_cerevisiae_RT	LYELTSQLELDTANGED--SISDPYMLVEQAINSGSWNRRAIHAMAFKALK	670
gi	Aspergillus_niger_N/A	MFMEINPQLFDECSHEYNERQNS-----	551
gi	Aspergillus_nidulans_para	MFMEINPQLFDECSHEYNERQNS-----	553
gi	Mus_musculus_alpha	TLMEMNGKLFDDLTSSYKAERQR-----	443
gi	Rattus_norvegicus_alpha	TLMEMNGKLFDDLTSSYKAERQR-----	443
gi	Macaca_mulatta_alpha	TLMEMNGKLFDDLTSSYKAERQR-----	443
gi	Homo_sapiens_alpha	TLMEMNGKLFDDLTSSYKAERQR-----	443
gi	Ovis_aries_alpha	TLMEMNGKLFDDLTSSYKAERQR-----	446
gi	Bos_taurus_alpha	TLMEMNGKLFDDLTSSYKAERQR-----	446
gi	Felis_catus_alpha	TLMEMNGKLFDDLTSSYKAERQR-----	359
gi	Canis_lupus_familiaris_alpha	TLMEMNGKLFDDLTSSYKAERQR-----	359
gi	Falco_peregrinus_alpha	TLMEMNGKLFDELTSSYKAERQR-----	433
gi	Gallus_gallus_alpha	TLMEMNGKLFDELTSSYKAERQR-----	433
gi	Alligator_mississippiensis	TLMEMNGKLFDELTSTYKAERQR-----	443
gi	Chrysemys_picta_bellii_alpha	TLMEMNGKLFDELTSSYKAERQR-----	433
gi	Xenopus_laevis_alpha	TLMEMNGKLFDELTGSYKAERQR-----	432
gi	Xenopus_tropicalis_alpha	TLMEMNGKLFDELTGSYKAERQR-----	432
gi	Ambystoma_mexicanum_alpha	TLMEMNGKLFDELTGSYKAERQR-----	359
gi	Danio_rerio_alpha	TFMEMNSKLFDELTTSYKSDRQR-----	435
gi	Petromyzon_marinus_S4RHV1	TFMDMNCLEFDELTSYNNERQR-----	433
gi	Mus_musculus_epsilon	AFMEMNSTMFDELTATYKSDRQR-----	435
gi	Rattus_norvegicus_epsilon	AFMEMNSTMFDELTATYKSDRQR-----	435
gi	Macaca_mulatta_epsilon	AFMEMNSTMFDELTATYKSDRQR-----	435
gi	Homo_sapiens_epsilon	AFMEMNSTMFDELTATYKSDRQR-----	435
gi	Ovis_aries_epsilon	AFMEMNSTMFDELTATYKSDRQR-----	435
gi	Bos_taurus_epsilon	AFMEMNSTMFDELTATYKSDRQR-----	435
gi	Canis_lupus_familiaris_epsilon	AFMEMNSTMFDELTATYKSDRQR-----	435
gi	Falco_peregrinus_epsilon	AFMEMNSTMFDELTATYKSDRQR-----	435
gi	Gallus_gallus_epsilon	AFMEMNSTMFDELTATYKSDRQR-----	435
gi	Felis_catus_epsilon	AFMEMNSTMFDELTATYKSDRQR-----	435
gi	Chrysemys_picta_bellii_epsilon	AFMEMNSTMFDELTATYN-----	430
gi	Xenopus_laevis_epsilon	AFMEMNSTLFDELTATYKSDRQR-----	435
gi	Xenopus_tropicalis_epsilon	AFMEMNSTLFDELTATYN-----	430
gi	Alligator_mississippiensis	AFMEMNSTMFDELTATYKSDRQRRLSKAAGEKNEETSGTPRLSRAFCVTQ	451
gi	Ambystoma_mexicanum_epsilon	AFMEMNSTLFDELTATYKSDRQR-----	431
gi	Danio_rerio_epsilon	AFMEMNSALFDELAASYKSDRQR-----	435
gi	Mus_musculus_beta	TFMEMNGKLFDELTASYKLEKQQ-----	449
gi	Rattus_norvegicus_beta	TFMEMNGKLFDELTASYKLEKQQ-----	449
gi	Felis_catus_beta	TFMEMNGKLFDELTASYKLEKQQ-----	449
gi	Canis_lupus_familiaris_beta	TFMEMNGKLFDELTASYKLEKQQ-----	449
gi	Homo_sapiens_beta	TFMEMNGKLFDELTASYKLEKQQ-----	449
gi	Bos_taurus_beta	TFMEMNGKLFDELTASYKLEKQQ-----	449
gi	Ovis_aries_beta	TFMEMNGKLFDELTASYKLEKQQ-----	449

Figure S1. Cont.

gi Macaca_mulatta_beta	TFMEMNGKLFDELTAASYKLEKQQ-----	413
gi Xenopus_laevis_beta	TFMEMNGKLFDELTAASYKLDRQQ-----	55
gi Alligator_mississippiensis	TFMEMNGKLFDELTAASYKLEKQQ-----	449
gi Chrysemys_picta_bellii_beta	TFMEMNGKLFDELTAASYKVEKQQ-----	449
gi Xenopus_tropicalis_beta	TFMEMNGKLFDELTAASYKLDRQQ-----	447
gi Danio_rerio_beta	TFMEMNSKLFDDLTASYKVEKQK-----	448
gi Ambystoma_mexicanum_beta	TFMEMNSTLFDELTAASYKVEKQQ-----	318
gi Petromyzon_marinus_S4RGA7	TFMEMNSKLFDELTAASYKAERQR-----	212
gi Strongylocentrotus_purpurat	TLMEMNSKLFDELTTASYKADRQK-----	431
gi Drosophila_melanogaster_wdb	TFMEMNSKLFDELTTSSYKAERQK-----	430
jgi Branchiostoma_floridae_237	TFMEMNSKLFDELTAANYKAERQK-----	386
gi Hydra_vulgaris_alpha	SFMEMNSKLFDDLTASYKADRQK-----	439
jgi Branchiostoma_floridae_112	-----	
jgi Branchiostoma_floridae_284	TFMEMNSKLFDELTAASYKADRQK-----	399
gi Caenorhabditis_elegans_PPTR	TFMEMNGKLFDELTTSTYKGERLR-----	460
gi Amphimedon_queenslandica_be	AMTAMNPKLFDQLLDSYKAEKQK-----	453
gi Chrysemys_picta_bellii_gamm	LFMEMNQKLFDDCTQQFKAEEKLK-----	418
gi Chrysemys_picta_bellii_delt	LFMEMNQKLFDDCTQQFKAEEKLK-----	343
gi Falco_peregrinus_gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	418
gi Falco_peregrinus_delta/gamm	LFMEMNQKLFDDCTQQFKAEEKLK-----	343
gi Gallus_gallus_gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	418
gi Alligator_mississippiensis	LFMEMNQKLFDDCTQQFKAEEKLK-----	418
gi Alligator_mississippiensis	LFMEMNQKLFDDCTQQFKAEEKLK-----	343
gi Ambystoma_mexicanum_gamma	LFMEMNQKLFDDCTQQFKAEEKQK-----	419
gi Mus_musculus_gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	418
gi Rattus_norvegicus_gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	418
gi Ovis_aries_gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	418
gi Bos_taurus_gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	418
gi Canis_lupus_familiaris_gamm	LFMEMNQKLFDDCTQQFKAEEKLK-----	418
gi Macaca_mulatta_gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	418
gi Homo_sapiens_gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	408
gi Felis_catus_gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	465
gi Canis_lupus_familiaris_delt	LFMEMNQKLFDDCTQQFKAEEKLK-----	465
gi Macaca_mulatta_delta/gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	700
gi Bos_taurus_delta/gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	472
gi Mus_musculus_delta/gamma	LFMEMNQKLFDDCTQQFKAEEKLK-----	475
gi Rattus_norvegicus_delta/gam	LFMEMNQKLFDDCTQQFKAEEKLK-----	541
gi Danio_rerio_gamma	LFMEMNQKLFDDCTQQFKAEEKNK-----	418
gi Danio_rerio_delta/gamma	LFMEMNQKLFDDCTQQFKAEEKNK-----	471
gi Xenopus_laevis_delta/gamma	LFMEMNQKLFDDCTQQFKAEEKQK-----	471
gi Xenopus_laevis_gamma	LFMEMNQKLFDDCTQQFKAEEKQK-----	471
gi Xenopus_tropicalis_delta/ga	LFMEMNQKLFDDCTQQFKAEEKQK-----	471
gi Mus_musculus_delta	LFMEMNQKLFDDCTQQYKAEKQK-----	486
gi Rattus_norvegicus_delta	LFMEMNQKLFDDCTQQYKAEKQK-----	514
gi Felis_catus_delta	LFMEMNQKLFDDCTQQYKAEKQK-----	500
gi Bos_taurus_delta	LFMEMNQKLFDDCTQQYKAEKQK-----	492
gi Canis_lupus_familiaris_delt	LFMEMNQKLFDDCTQQYKAEKQK-----	487
gi Macaca_mulatta_delta	LFMEMNQKLFDDCTQQYKAEKQK-----	503
gi Homo_sapiens_delta	LFMEMNQKLFDDCTQQYKAEKQK-----	494
gi Ovis_aries_delta	LFMEMNQKLFDDCTQQYKAEKQK-----	491
gi Falco_peregrinus_delta	LFMEMNQKLFDDCTQQYKAEKQK-----	394
gi Gallus_gallus_delta	LFMEMNQKLFDDCTQQYKAEKQK-----	489
gi Alligator_mississippiensis	LFMEMNQKLFDDCTQQYKAEKQK-----	488
gi Chrysemys_picta_bellii_delt	LFMEMNQKLFDDCTQQYKAEKQK-----	490
gi Danio_rerio_delta	LFMEMNQKLFDDCTQQYKAEKQK-----	481
gi Ambystoma_mexicanum_delta	LFMEMNQKLFDDCTQQYKAEKQK-----	343
gi Petromyzon_marinus_S4RN43	LFMEMNQKLFDDCTQQYKAERQK-----	471
jgi Branchiostoma_floridae_237	LFMEMNQKLFDDCTQRYKAERQK-----	391
jgi Branchiostoma_floridae_252	LFMEMNQKLFDDCTQRYKAERQK-----	435
gi Strongylocentrotus_purpurat	LFMEINQKRFDDCMQKYKDERQQ-----	452
gi Caenorhabditis_elegans_PPTR	MFMEMNQKLFDECSQAYQKDRVQ-----	439

Figure S1. Cont.

gi Hydra_vulgaris_delta	LLMEMNQKLFQCAQQYNFQIE-----	460
gi Amphimedon_queenslandica_de	IFAEMNQKLFDECSDFKKEELEQ-----	502
gi Drosophila_melanogaster_B56	LFMEIDQRLFDECSKNYQEKQM-----	575
gi Dictyostelium_discoideum_ps	LFMEIDMDLFNKISEKYKESKKK-----	502
gi Dictyostelium_purpureum_N/A	LFMEIDIDLFNKVSEKYKETKKK-----	459
gi Dictyostelium_fasciculatum	LFMEIDLETFNSISCKVMEERA-----	473
gi Polysphondylium_pallidum_N/	LFMDIDVETFNRI SDQYKE-----	439
gi Arabidopsis_thaliana_theta	IFNDIDAELFKDCLAKFREDESK-----	465
gi Arabidopsis_thaliana_eta	IFHDLDPFLFKDECLAKFREDESK-----	505
gi Arabidopsis_thaliana_zeta	VLCEIDQVLFDECLAKFQVEEVN-----	495
gi Arabidopsis_thaliana_gamma	VMAETDQILFDECLAKFQDEAN-----	474
gi Oryza	LFSDRDPELYKECLRKYEENKAK-----	475
gi Oryza_sativa_zeta	LFSDHDVGVDQCKRYEDEKAK-----	475
gi Oryza_sativa_theta	IFMDHDPVLFEECLKKFEDEAK-----	479
gi Oryza_sativa_eta	IFSDHDSAFFGECTQKFNDDELK-----	468
gi Arabidopsis_thaliana_delta	VLSDTNPDLFEECLHKFQEDQQK-----	453
gi Arabidopsis_thaliana_N/A	MFCEMDEALFMSCHARFKEDEAK-----	459
gi Oryza_sativa_kappa	MFSEMDDVLFSACLVKYKEDEER-----	465
gi Oryza_sativa_N/A	MFLEMDEGLLLTCQRNFQEEEEK-----	446
gi Arabidopsis_thaliana_alpha	MFMEMDPFLFEECQQQYEEKQAK-----	464
gi Arabidopsis_thaliana_beta	MFMEMDPFLFEECQRQYEEKQAK-----	464
gi Oryza_sativa_N/A_2	MFLDMDSELFEECQQQYIEKQAR-----	504
gi Arabidopsis_thaliana_epsilon	MFLEMDTELFECECKQYLENEAK-----	473
gi Chlamydomonas_reinhardtii_w	MFQELDEALYEECKRKYEEEQTS-----	462
gi Schizosaccharomyces_pombe_P	LFMDINPSLFDEVDAAEYSESRRK-----	497
gi Schizosaccharomyces_pombe_P	IFVMDADFFNGLVEDYKQAI IK-----	598
gi Ashbya_gossypii_RTS1	IFLETNPVLYENCNSLYLSSLKE-----	588
gi Saccharomyces_cerevisiae_RT	IFLETNPVLYENCNALYLSSVKE-----	693
gi Aspergillus_niger_N/A	-----AEERELGRQQRWEKVLERAKDRKNGVTVP--	581
gi Aspergillus_nidulans_parA	-----AEMREKARQNRWEKVAERAMQRQNGVNLPR--	583
gi Mus_musculus_alpha	-----EKKKELEEREELWKKLEELQLK-----	464
gi Rattus_norvegicus_alpha	-----EKKKELEEREELWKKLEELKLK-----	464
gi Macaca_mulatta_alpha	-----EKKKELEEREELWKKLEELKLK-----	464
gi Homo_sapiens_alpha	-----EKKKELEEREELWKKLEELKLK-----	464
gi Ovis_aries_alpha	-----EKKKELEEREELWKKLEELKLK-----	467
gi Bos_taurus_alpha	-----EKKKELEEREELWKKLEELKLK-----	467
gi Felis_catus_alpha	-----EKKKELEEREELWKKLEELKLK-----	380
gi Canis_lupus_familiaris_alph	-----EKKKELEEREELWKKLEELKLK-----	380
gi Falco_peregrinus_alpha	-----EKKKELEEREELWRKLEELKLK-----	454
gi Gallus_gallus_alpha	-----EKKKELEEREELWRKLEELKLK-----	454
gi Alligator_mississippiensis	-----EKKKELEEREELWRKLEELKLK-----	464
gi Chrysemys_picta_bellii_alph	-----EKKKELEEREELWRKLEELKLK-----	454
gi Xenopus_laevis_alpha	-----EKKKELEEREELWRRLLDLLLLK-----	453
gi Xenopus_tropicalis_alpha	-----EKKKELEEREELWRRLLDLLLLK-----	453
gi Ambystoma_mexicanum_alpha	-----EKKKELEEREELWRKLLDCLKL-----	380
gi Danio_rerio_alpha	-----EKKKEQEREELWRRLLDELRLMK-----	456
gi Petromyzon_marinus_S4RHV1	-----EKKKEEREELWKKLEDLELK-----	454
gi Mus_musculus_epsilon	-----EKKKEKEREELWKKLEDLELK-----	456
gi Rattus_norvegicus_epsilon	-----EKKKEKEREELWKKLEDLELK-----	456
gi Macaca_mulatta_epsilon	-----EKKKEKEREELWKKLEDLELK-----	456
gi Homo_sapiens_epsilon	-----EKKKEKEREELWKKLEDLELK-----	456
gi Ovis_arie_epsilon	-----EKKKEKEREELWKKLEDLELK-----	456
gi Bos_taurus_epsilon	-----EKKKEKEREELWKKLEDLELK-----	456
gi Canis_lupus_familiaris_epsi	-----EKKKEKEREELWKKLEDLELK-----	456
gi Falco_peregrinus_epsilon	-----EKKKEKEREELWKKLEDLELK-----	456
gi Gallus_gallus_epsilon	-----EKKKEKEREELWKKLEDLELK-----	456
gi Felis_catus_epsilon	-----EKKKEKEREELWKKLEDLELK-----	456
gi Chrysemys_picta_bellii_epsi	-----EKKKEKEREELWKKLEDLELK-----	451
gi Xenopus_laevis_epsilon	-----EKKKEKEREELWKKLEDLELK-----	456

Figure S1. Cont.

gi	Xenopus tropicalis_epsilon	-----EKKKEKEREELWKKLEDELELK-----	451
gi	Alligator_mississippiensis_	GSHKQSEGYCMSSNLVSEKKKEKEREELWKKLEDELELK-----	489
gi	Ambystoma_mexicanum_epsilon	-----	
gi	Danio_rerio_epsilon	-----ERKKDKEREDLWRKLEDELELR-----	456
gi	Mus_musculus_beta	-----EQQKAQERQELWQGLEELRLR-----	470
gi	Rattus_norvegicus_beta	-----EQQKAQERQELWQGLEELRLR-----	470
gi	Felis_catus_beta	-----EQQKARERQELWQGLEELRLR-----	470
gi	Canis_lupus_familiaris_beta	-----EQQKARERQELWQGLEELRLR-----	470
gi	Homo_sapiens_beta	-----EQQKAQERQELWQGLEELRLR-----	470
gi	Bos_taurus_beta	-----EQQKARERQELWQGLEELRLR-----	470
gi	Ovis_aries_beta	-----EQQKARERQELWQGLEELRLR-----	470
gi	Macaca_mulatta_beta	-----EQQKAQERQELWQGLEELRLR-----	434
gi	Xenopus_laevis_beta	-----	
gi	Alligator_mississippiensis_	-----ELKKEKERQELWRQDELRLR-----	470
gi	Chrysemys_picta_bellii_beta	-----ELKKEKERQELWKQDELQOLK-----	470
gi	Xenopus_tropicalis_beta	-----EMKREKERQELWRKLDLRLK-----	468
gi	Danio_rerio_beta	-----ELKKERERVELWRNLEDLRER-----	469
gi	Ambystoma_mexicanum_beta	-----ELKKEKERQELWKKLDDLQLR-----	339
gi	Petromyzon_marinus_S4RGA7	-----ERKREKEREDLWQRLLEELQLQ-----	233
gi	Strongylocentrotus_purpurat	-----EKKKEKERDELWKRLSKLEMN-----	452
gi	Drosophila_melanogaster_wdb	-----EKKRERDREELWKKLHELESNRRSSGRTAGGSAT	463
jgi	Branchiostoma_floridae_237	-----ERKKEKEREELWKKLDGLEIN-----	407
gi	Hydra_vulgaris_alpha	-----EKKKERDRDDLWKRDLKLE-----	460
jgi	Branchiostoma_floridae_112	-----	
jgi	Branchiostoma_floridae_284	-----EKKKEKEREELWKQLDKLEIS-----	420
gi	Caenorhabditis_elegans_PPTR	-----EKQREKDRDAFWKKMEALELN-----	481
gi	Amphimedon_queenslandica_be	-----ELKKGKDRNELWKQLDRLKLE-----	474
gi	Chrysemys_picta_bellii_gamm	-----EKLKSKEREAEAWVKIENLAKSNPQYPTYSSTSV	451
gi	Chrysemys_picta_bellii_delt	-----EKLKSKEREAEAWVKIENLAKSNPQYPTYSSTSV	376
gi	Falco_peregrinus_gamma	-----EKLKSKEREAEAWVKIENLAKSNPQYPTYSSTSL	451
gi	Falco_peregrinus_delta/gamm	-----EKLKSKEREAEAWVKIENLAKSNPQYPTYSSTSL	376
gi	Gallus_gallus_gamma	-----EKLKLKEREAEAWVKIENLAKSNPQYPTYSSTSL	451
gi	Alligator_mississippiensis_	-----EKLKLKEREAEAWVKIENLAKSNPQYPTYSSTSV	451
gi	Alligator_mississippiensis_	-----EKLKLKEREAEAWVKIENLAKSNPQYPTYSSTSV	376
gi	Ambystoma_mexicanum_gamma	-----EKLKLKEREAEAWVKIENLAKSNPKYSMPDNST	452
gi	Mus_musculus_gamma	-----EKLKMKEREAEAWVKIENLAKANPQYAVYSQASA	451
gi	Rattus_norvegicus_gamma	-----EKLKMKEREAEAWVKIENLAKANPQYAVYSQASA	451
gi	Ovis_aries_gamma	-----EKLKMKEREAEAWVKIENLAKANP-----	441
gi	Bos_taurus_gamma	-----EKLKMKEREAEAWVKIENLAKANPQYAVYSQAST	451
gi	Canis_lupus_familiaris_gamm	-----EKLKMKEREAEAWVKIENLAKANPQYAVYSQAST	451
gi	Macaca_mulatta_gamma	-----EKLKMKEREAEAWVKIENLAKANPQYTVYSQAST	451
gi	Homo_sapiens_gamma	-----EKLKMKEREAEAWVKIENLAKANPQYTVYSQAST	441
gi	Felis_catus_gamma	-----EKLKMKEREAEAWVKIENLAKANP-----	488
gi	Canis_lupus_familiaris_delt	-----EKLKMKEREAEAWVKIENLAKANPQYAVYSQAST	498
gi	Macaca_mulatta_delta/gamma	-----EKLKMKEREAEAWVKIENLAKANPQYTVYSQAST	733
gi	Bos_taurus_delta/gamma	-----EKLKMKEREAEAWVKIENLAKANPQYAVYSQAST	505
gi	Mus_musculus_delta/gamma	-----EKLKMKEREAEAWVKIENLAKANPQYAVYSQASA	508
gi	Rattus_norvegicus_delta/gam	-----EKLKMKEREAEAWVKIENLAKANPQYAVYSQASA	574
gi	Danio_rerio_gamma	-----EKAKWKEREAEAWIKIENLAKSNPQFLMYIDANS	451
gi	Danio_rerio_delta/gamma	-----EKAKWKEREAEAWIKIENLAKSNPQFLMYIDANS	504
gi	Xenopus_laevis_delta/gamma	-----EKLKLKEREAEAWVKIENLAKSNAQSCCNRWA	504
gi	Xenopus_laevis_gamma	-----EKLKLKEREAEAWVKIENLAKSNAQSCCNRWA	504
gi	Xenopus_tropicalis_delta/ga	-----EKLKLKEREAEAWIKIENLAKSNPQYPMYTDTS	504
gi	Mus_musculus_delta	-----GRFRMKEREEMWQKIEELARLNPQYPMFRAPPP	519
gi	Rattus_norvegicus_delta	-----GRFRMKEREEMWQKIEELARLNPQYPMFRAPPP	547
gi	Felis_catus_delta	-----GRFRMKEREEMWQKIEELARLNPQYPMFRAPPP	533
gi	Bos_taurus_delta	-----GRFRMKEREEMWQKIEELARLNPQYPMFRAPPP	525
gi	Canis_lupus_familiaris_delt	-----GRFRMKEREEMWQKIEELARLNPQYPMFRAPPP	520
gi	Macaca_mulatta_delta	-----GRFRMKEREEMWQKIEELARLNPQYPMFRAPPP	536
gi	Homo_sapiens_delta	-----GRFRMKEREEMWQKIEELARLNPQYPMFRAPPP	527
gi	Ovis_aries_delta	-----GRFRMKEREEMWQKIEELARLNPQYPMFRAPPP	524

Figure S1. Cont.

gi Falco_peregrinus_delta	-----GRFRMKEREEMWQKIEELARLNPOYPMYAPP	427
gi Gallus_gallus_delta	-----GRFRMKEREEMWQKIEELARLNPOYPMYAPPS	522
gi Alligator_mississippiensis_	-----GRFRMKERVEMWQKIEELARLNPOYPMYAPP	521
gi Chrysemys_picta_bellii_delt	-----GRFKLREEREEMWHKVEELARQNPOYPMYAPP	523
gi Danio_rerio_delta	-----EKYKVKEREEMWHKIEALAKQNPQSTKVQLRPG	514
gi Ambystoma_mexicanum_delta	-----GKFKVKEREEMWHKIEELARLN-----	366
gi Petromyzon_marinus_S4RN43	-----QARGQVRGGSCRTQMSTLARCDPAQDLNG----	500
jgi Branchiostoma_floridae_237	-----EKEKVREREAAWDRIEHIAQTNPVMVSTANLGTC	424
jgi Branchiostoma_floridae_252	-----EKEKVREREAAWDRIEHIAQTNPVMVSTVNLGTC	468
gi Strongylocentrotus_purpurat	-----EKDKLLKMDEIWNKLEYKARSNP-----	475
gi Caenorhabditis_elegans_PPTR	-----EKTLENEEKERIWNNEIKQAMGNPOYYVEVKALFA	472
gi Hydra_vulgaris_delta	-----	
gi Amphimedon_queenslandica_de	-----EPKVVKKREDTWTALEKLALMSPHVSKLSSPQN	535
gi Drosophila_melanogaster_B56	-----EREKLSQREELWQQVESLAKTNPEWTKARRFND	608
gi Dictyostelium_discoideum_ps	-----QQQIQQ-REKFKQN-----APETQ	520
gi Dictyostelium_purpureum_N/A	-----QQQQQQQREKTRQN-----VDVS-	477
gi Dictyostelium_fasciculatum	-----KKRQQS IMEDQARLAHQQQQLQMQQHMQQQMQ	506
gi Polysphondylium_pallidum_N/	-----RKTNKI TEKKP-----Q	452
gi Arabidopsis_thaliana_theta	-----EAE IGAKREATWKR-----	479
gi Arabidopsis_thaliana_eta	-----AAETEAKREATWKR-----	519
gi Arabidopsis_thaliana_zeta	-----KTEVVKAKRETRWQR-----	509
gi Arabidopsis_thaliana_gamma	-----ETEVVAKREATWKL-----	488
gi>Oryza	-----EKDHKLKQESVWKR-----	489
gi Oryza_sativa_zeta	-----EKETKLKQEVAWKR-----	489
gi Oryza_sativa_theta	-----ETALRSKREATWKR-----	493
gi Oryza_sativa_eta	-----QEESENSKREALWKR-----	482
gi Arabidopsis_thaliana_delta	-----AEDTKKKNGETWRQ-----	467
gi Arabidopsis_thaliana_N/A	-----QCSAAEKKEVWAR-----	473
gi Oryza_sativa_kappa	-----QASLESKRRLTWEK-----	479
gi Oryza_sativa_N/A	-----RAASEERRKLIWEN-----	460
gi Arabidopsis_thaliana_alpha	-----SKQVEEQQRNRR-----	478
gi Arabidopsis_thaliana_beta	-----SKEVEEQRQYTWKR-----	478
gi Oryza_sativa_N/A_2	-----AKDMEEQRLSAWRQ-----	518
gi Arabidopsis_thaliana_epsilon	-----ACELLEQRELTWKR-----	487
gi Chlamydomonas_reinhardtii_w	-----ERAAMETDRKWEY-----	476
gi Schizosaccharomyces_pombe_P	-----KEDEE IIREERWTILENIAKEN-----	519
gi Schizosaccharomyces_pombe_P	-----QEEVMI IRKQWCQIEALAAE-----	619
gi Ashbya_gossypii_RTS1	-----SQKRREKREENWNKLQEYVRN-----	609
gi Saccharomyces_cerevisiae_RT	-----TQQRKVQREENWSKLEEVKN-----	714
gi Aspergillus_niger_N/A	-----	
gi Aspergillus_nidulans_para	-----	
gi Mus_musculus_alpha	-----	
gi Rattus_norvegicus_alpha	-----	
gi Macaca_mulatta_alpha	-----	
gi Homo_sapiens_alpha	-----	
gi Ovis_aries_alpha	-----	
gi Bos_taurus_alpha	-----	
gi Felis_catus_alpha	-----	
gi Canis_lupus_familiaris_alph	-----	
gi Falco_peregrinus_alpha	-----	
gi Gallus_gallus_alpha	-----	
gi Alligator_mississippiensis_	-----	
gi Chrysemys_picta_bellii_alph	-----	
gi Xenopus_laevis_alpha	-----	
gi Xenopus_tropicalis_alpha	-----	
gi Ambystoma_mexicanum_alpha	-----	
gi Danio_rerio_alpha	-----	
gi Petromyzon_marinus_S4RHV1	-----	
gi Mus_musculus_epsilon	-----	

Figure S1. Cont.

gi Rattus_norvegicus_epsilon	-----	
gi Macaca_mulatta_epsilon	-----	
gi Homo_sapiens_epsilon	-----	
gi Ovis_aries_epsilon	-----	
gi Bos_taurus_epsilon	-----	
gi Canis_lupus_familiaris_epsilon	-----	
gi Falco_peregrinus_epsilon	-----	
gi Gallus_gallus_epsilon	-----	
gi Felis_catus_epsilon	-----	
gi Chrysemys_picta_bellii_epsilon	-----	
gi Xenopus_laevis_epsilon	-----	
gi Xenopus_tropicalis_epsilon	-----	
gi Alligator_mississippiensis	-----	
gi Ambystoma_mexicanum_epsilon	-----	
gi Danio_rerio_epsilon	-----	
gi Mus_musculus_beta	-----	
gi Rattus_norvegicus_beta	-----	
gi Felis_catus_beta	-----	
gi Canis_lupus_familiaris_beta	-----	
gi Homo_sapiens_beta	-----	
gi Bos_taurus_beta	-----	
gi Ovis_aries_beta	-----	
gi Macaca_mulatta_beta	-----	
gi Xenopus_laevis_beta	-----	
gi Alligator_mississippiensis_beta	-----	
gi Chrysemys_picta_bellii_beta	-----	
gi Xenopus_tropicalis_beta	-----	
gi Danio_rerio_beta	-----	
gi Ambystoma_mexicanum_beta	-----	
gi Petromyzon_marinus_S4RGA7	-----	
gi Strongylocentrotus_purpurat	-----	
gi Drosophila_melanogaster_wdb	TSNSAASAASTSLQ-----	477
jgi Branchiostoma_floridae_237	-----	
gi Hydra_vulgaris_alpha	-----	
jgi Branchiostoma_floridae_112	-----	
jgi Branchiostoma_floridae_284	---STANSKTVKAV-----	431
gi Caenorhabditis_elegans_PPTR	---PPAEGKEVTPS-----	492
gi Amphimedon_queenslandica_be	-----	
gi Chrysemys_picta_bellii_gamm	LN-----SPVAMETDGPLIEDLQMLKKTVKEEAC-----	480
gi Chrysemys_picta_bellii_delt	LN-----SPVAMETDGPLIEDLQMLKKTVKEEAC-----	405
gi Falco_peregrinus_gamma	LN-----SPVAMETDGPLIEDLQMLKKTVKEEAC-----	480
gi Falco_peregrinus_delta/gamm	LN-----SPVAMETDGPLIEDLQMLKKTVKEEAC-----	405
gi Gallus_gallus_gamma	LN-----SPVAMETDGPLIEDLQMLKKTVKEEAC-----	480
gi Alligator_mississippiensis	LN-----SPVAMETDGPLIEDLQMLKKTVKEEAC-----	480
gi Alligator_mississippiensis	LN-----SPVAMETDGPLIEDLQMLKKTVKEEAC-----	405
gi Ambystoma_mexicanum_gamma	FN-----SQIAMETDGPLIEDVQMLKKIVKEEAS-----	481
gi Mus_musculus_gamma	VS-----IPVAMETDGPQFEDVQMLKKTVSDEARQVKVGR	486
gi Rattus_norvegicus_gamma	MS-----IPVAMETDGPQFEDVQMLKKTVSDETR-----	480
gi Ovis_aries_gamma	-----QVLKKRVT-----	449
gi Bos_taurus_gamma	IS-----IPVAMETDGPLFEDVQMLRKTVNEEAR-----	480
gi Canis_lupus_familiaris_gamm	MS-----IPVAMETDGPLFEDVQMLRKAVNEEAR-----	480
gi Macaca_mulatta_gamma	VS-----IPVAMETDGPLFEDVQMLRKTVKDEAH-----	480
gi Homo_sapiens_gamma	MS-----IPVAMETDGPLFEDVQMLRKTVKDEAH-----	470
gi Felis_catus_gamma	-----	
gi Canis_lupus_familiaris_delt	MS-----IPVAMETDGPLFEDVQMLRKAVNEEA-----	526
gi Macaca_mulatta_delta/gamma	VS-----IPVAMETDGPLFEDVQMLRKTVKDEA-----	761
gi Bos_taurus_delta/gamma	IS-----IPVAMETDGPLFEDVQMLRKTVNEEA-----	533
gi Mus_musculus_delta/gamma	VS-----IPVAMETDGPQFEDVQMLKKTVSDEARQVKVGR	543
gi Rattus_norvegicus_delta/gam	MS-----IPVAMETDGPQFEDVQMLKKTVSDET-----	602
gi Danio_rerio_gamma	LC-----SPMDMETDGPMLLEDVLMMLKKTVEEEAT-----	480
gi Danio_rerio_delta/gamma	LC-----SPMDMETDGPMLLEDVLMMLKKTVEEEAT-----	533

Figure S1. Cont.

gi	Xenopus_laevis_delta/gamma	LT-----	506
gi	Xenopus_laevis_gamma	LT-----	506
gi	Xenopus_tropicalis_delta/ga	LN-----SPVAMETDGPILLEDVQMLKKTVKEEAS-----	533
gi	Mus_musculus_delta	LP-----PVYSMETETPTAEDIQLLKRTVETEAV-----	548
gi	Rattus_norvegicus_delta	LP-----PVYSMETETPTAEDIQLLKRTVETEAV-----	576
gi	Felis_catus_delta	LP-----PVYSMETETPTAEDIQLLKRTVETEAV-----	562
gi	Bos_taurus_delta	LP-----PVYSMETETPTAEDIQLLKRTVETEAV-----	554
gi	Canis_lupus_familiaris_delt	LP-----PVYSMETETPTAEDIQLLKRTVETEAV-----	549
gi	Macaca_mulatta_delta	LP-----PVYSMETETPTAEDIQLLKRTVETEAV-----	565
gi	Homo_sapiens_delta	LP-----PVYSMETETPTAEDIQLLKRTVETEAV-----	556
gi	Ovis_aries_delta	LP-----PVYSMETETPTAEDIQLLKRTVETEAV-----	553
gi	Falco_peregrinus_delta	LP-----SVCCMETETPTAEDIQLLKRTVETEAV-----	456
gi	Gallus_gallus_delta	LP-----LVCCMETETPTAEDIQLLKRTVETEAV-----	551
gi	Alligator_mississippiensis	LP-----PVYCMETETPTAEDIQLLKRTVETEAV-----	550
gi	Chrysemys_picta_bellii_delt	LP-----PVYCMETETPTAEDIQLLKRTVETEAV-----	552
gi	Danio_rerio_delta	LAQEEYMMYNEGGM---PIYSMETETPTVEDIQLLKRTVESEAS-----	555
gi	Ambystoma_mexicanum_delta	-----	
gi	Petromyzon_marinus_S4RN43	-----AVVSMETGTPSSEDIMLLKKSMEETEAV-----	527
jgi	Branchiostoma_floridiae_237	SSCVGG-----SVAMETDANDDAELSLDKMNERG-----	453
jgi	Branchiostoma_floridiae_252	SSCVGCEW-----LSLPSLVLASLQMEFPFLRSCEVLTCCVV---	505
gi	Strongylocentrotus_purpurat	-----LAAEGVPGGRKESKPLLR-----	493
gi	Caenorhabditis_elegans_PPTR	RFNPDEII-----SSRQQNGVDENMKTSTVLSKDEILKNAV-----	508
gi	Hydra_vulgaris_delta	-----	
gi	Amphimedon_queenslandica_de	AFRKSMLSSLTSIASEEPTSPDGVPTSEELKSIPQTPPSSESGAS-----	579
gi	Drosophila_melanogaster_B56	CL-----PVSDSRALCDQYSENSDS-----	628
gi	Dictyostelium_discoideum_ps	KSKQINQNNNNNNNN-----	535
gi	Dictyostelium_purpureum_N/A	-FKQINQKE-----	485
gi	Dictyostelium_fasciculatum	QQQQLQQQMQ-----	516
gi	Polysphondylium_pallidum_N/	QPRPITSNIS-----	462
gi	Arabidopsis_thaliana_theta	-----	
gi	Arabidopsis_thaliana_eta	-----	
gi	Arabidopsis_thaliana_zeta	-----	
gi	Arabidopsis_thaliana_gamma	-----	
gi	Oryza	-----	
gi	Oryza_sativa_zeta	-----	
gi	Oryza_sativa_theta	-----	
gi	Oryza_sativa_eta	-----	
gi	Arabidopsis_thaliana_delta	-----	
gi	Arabidopsis_thaliana_N/A	-----	
gi	Oryza_sativa_kappa	-----	
gi	Oryza_sativa_N/A	-----	
gi	Arabidopsis_thaliana_alpha	-----	
gi	Arabidopsis_thaliana_beta	-----	
gi	Oryza_sativa_N/A_2	-----	
gi	Arabidopsis_thaliana_epsilon	-----	
gi	Chlamydomonas_reinhardtii_w	-----	
gi	Schizosaccharomyces_pombe_P	-----	
gi	Schizosaccharomyces_pombe_P	-----	
gi	Ashbya_gossypii_RTS1	-----	
gi	Saccharomyces_cerevisiae_RT	-----	
gi	Aspergillus_niger_N/A	-----QCQVAEIPVHLDDIDQVAHESQKRLHALK-----	610
gi	Aspergillus_nidulans_para	-----NSTTAEIPLQLDDVDALQESQRRQLQSLK-----	612
gi	Mus_musculus_alpha	-----KALE-KQNNAYNMHSIRSS TSAK-----	486
gi	Rattus_norvegicus_alpha	-----KALE-KQNNAYNMHSILSNTSAQ-----	486
gi	Macaca_mulatta_alpha	-----KALE-KQNSAYNMHSILSNTSAE-----	486
gi	Homo_sapiens_alpha	-----KALE-KQNSAYNMHSILSNTSAE-----	486
gi	Ovis_aries_alpha	-----KALE-KQNSAYNMHSILSNTNDG-----	489
gi	Bos_taurus_alpha	-----KALE-KQNSAYNMHSILSNTNDG-----	489
gi	Felis_catus_alpha	-----KALE-KQNSAYNMHSILSNTSDE-----	402

Figure S1. Cont.

gi	Canis_lupus_familiaris_alph	-----KALE-KQNSAYNMHSILSNTSDE-----	402
gi	Falco_peregrinus_alpha	-----KAMAEKQNSTHNVLNNAHN-TSAK-----	476
gi	Gallus_gallus_alpha	-----KAMAEKQNSTHNVLNNAHN-TSAK-----	476
gi	Alligator_mississippiensis	-----KVLAEKQNSTHNVLNQNNNTSAK-----	487
gi	Chrysemys_picta_bellii_alph	-----KTLVEKQNSTHNVLNNAHNNTSAK-----	477
gi	Xenopus_laevis_alpha	-----KALADKQNP TLCVQNIQNNASAK-----	476
gi	Xenopus_tropicalis_alpha	-----KTLADKQNPALCVQNIQNNASAK-----	476
gi	Ambystoma_mexicanum_alpha	-----KALAEKQKFHHNVQNAQKNTIAK-----	403
gi	Danio_rerio_alpha	-----EVLMIQNNRHDHSLTTTTSIKNNEHD	483
gi	Petromyzon_marinus_S4RHV1	-----NFQN-----NILVK-----	463
gi	Mus_musculus_epsilon	-----RGLR-----RDGI IPT-----	467
gi	Rattus_norvegicus_epsilon	-----RGLR-----RDGI IPT-----	467
gi	Macaca_mulatta_epsilon	-----RGLR-----RDGI IPT-----	467
gi	Homo_sapiens_epsilon	-----RGLR-----RDGI IPT-----	467
gi	Ovis_aries_epsilon	-----RGLR-----RDGI IPT-----	467
gi	Bos_taurus_epsilon	-----RGLR-----RDGI IPT-----	467
gi	Canis_lupus_familiaris_epsilon	-----RGLR-----RDGI IPT-----	467
gi	Falco_peregrinus_epsilon	-----RGLR-----RDGI IPT-----	467
gi	Gallus_gallus_epsilon	-----RGLR-----RDGI IPT-----	467
gi	Felis_catus_epsilon	-----RGLR-----RDGI IPT-----	467
gi	Chrysemys_picta_bellii_epsilon	-----RGLR-----RDGI IPT-----	462
gi	Xenopus_laevis_epsilon	-----RGLR-----SDGI IPT-----	467
gi	Xenopus_tropicalis_epsilon	-----RGLR-----SDGI IPT-----	462
gi	Alligator_mississippiensis	-----RGLR-----RDGI IPT-----	500
gi	Ambystoma_mexicanum_epsilon	-----RGIQN-----SDGVIPT-----	468
gi	Danio_rerio_epsilon	-----RLQGTQGAKEAPVPRPTQVAASGGQS-	497
gi	Mus_musculus_beta	-----RLQGTQGAKEAPVPRPTQVAASGGQS-	497
gi	Rattus_norvegicus_beta	-----RLQGTQGAKEAPVPRPTQVAASGGQS-	497
gi	Felis_catus_beta	-----RLQGTQGAKEAPLQRLTPQVATSGGQS-	497
gi	Canis_lupus_familiaris_beta	-----RLQGTQGAKEAPLQRLTPQVATSGGQS-	497
gi	Homo_sapiens_beta	-----RLQGTQGAKEAPLQRLTPQVAASGGQS-	497
gi	Bos_taurus_beta	-----RLQGTQGAKEAPLQRLTPQVTG-GGQS-	496
gi	Ovis_aries_beta	-----RLQGTQGAKEAPLQRLTPQVTG-GGQS-	496
gi	Macaca_mulatta_beta	-----RLQGTQGAKEAPLQRLTPQVATSGGQS-	461
gi	Xenopus_laevis_beta	-----RLRGLEEAQMNRLNLQHGHSPKT-----	493
gi	Alligator_mississippiensis	-----KLQGLEEAQMNRLNLQHSGLQSGNKS-	497
gi	Chrysemys_picta_bellii_beta	-----KMNGLEEAQMNQLNLQHSRGSKS-----	491
gi	Xenopus_tropicalis_beta	-----RLQSLTEASRNQKNLQERENTAKSQSDT	497
gi	Danio_rerio_beta	-----RLRSLEEAQMNRLNLQNSLSMQSSSKS-	366
gi	Ambystoma_mexicanum_beta	-----QSPNNNSARAAGTS-----	247
gi	Petromyzon_marinus_S4RGA7	-----HLN---NQTNSS-----	461
gi	Strongylocentrotus_purpurat	-----PPSSAGLSNHQQQSSNGSSGSLSSGGAGG	506
jgi	Branchiostoma_floridae_237	-----KTGNSSEPGT-----	470
gi	Hydra_vulgaris_alpha	-----PPMSPNSAPPGDRGANYSPYSPTAHLMA	460
jgi	Branchiostoma_floridae_112	-----LFPEKLT DY LKKDGNMTPLPVATAGGGD	521
jgi	Branchiostoma_floridae_284	-----HDMKLAKK-----	482
gi	Caenorhabditis_elegans_PPTR	-----QAQRDQKK-DRPLMRKSEL PQDIY TMKALE	510
gi	Amphimedon_queenslandica_be	-----QAQRDQKK-DRPLMRKSEL PQDIY TMKALE	435
gi	Chrysemys_picta_bellii_gamm	-----QAQKDQKK-DRPLVRRKSEL PQDIY TMKALE	510
gi	Chrysemys_picta_bellii_delt	-----QAQKDQKK-DRPLVRRKSEL PQDIY TMKALE	435
gi	Falco_peregrinus_gamma	-----QAQKDQKK-DRPLVRRKSEL PQDIY TMKALE	510
gi	Falco_peregrinus_delta/gamm	-----QAQKDQKK-DRPLVRRKSEL PQDIY TMKALE	435
gi	Gallus_gallus_gamma	-----QAQKDQKK-DRPLVRRKSEL PQDIY TMKALE	510
gi	Alligator_mississippiensis	-----QAQKDQKK-DRPLVRRKSEL PQDIY TMKALE	510
gi	Alligator_mississippiensis	-----QAQKDQKK-DRPLVRRKSEL PQDIY TMKALE	435
gi	Ambystoma_mexicanum_gamma	-----LALKDIKK-ERPIVRRKSEL PQDIY TMKALE	511
gi	Mus_musculus_gamma	-----EKSHDSHASQEGVETDWAQAQKELKK-DRPLVRRKSEL PQDPHTEKALE	535
gi	Rattus_norvegicus_gamma	-----QAQKDLKK-DRPLVRRKSEL PQDPHTEKALE	510
gi	Ovis_aries_gamma	-----QAQKDPKK-ERPLARRKSEL PQDLHTKSALE	510
gi	Bos_taurus_gamma	-----QAQKDPKK-ERPLARRKSEL PQDLHTKSALE	510

Figure S1. Cont.

gi	Canis_lupus_familiaris_gamm	-----QAQKDLKK-DRPGVRRKPELPQDPHTKNALE	510
gi	Macaca_mulatta_gamma	-----QAQKDPKK-DRPLARRKSELPQDPHTTKALE	510
gi	Homo_sapiens_gamma	-----QAQKDPKK-DRPLARRKSELPQDPHTTKALE	500
gi	Felis_catus_gamma	-----QAQKDLKK-DRPLVRRKSELPQDLHTKNALE	518
gi	Canis_lupus_familiaris_delt	-----RQAQKDLKK-DRPGVRRKPELPQDPHTKNALE	557
gi	Macaca_mulatta_delta/gamma	-----HQAQKDPKK-DRPLARRKSELPQDPHTTKALE	792
gi	Bos_taurus_delta/gamma	-----RQAQKDPKK-ERPLARRKSELPQDLHTKSALE	564
gi	Mus_musculus_delta/gamma	EKSHDSHASQEGVETDWAQAQKELKK-DRPLVRRKSELPQDPHTEKALE	592
gi	Rattus_norvegicus_delta/gam	-----RQAQKDLKK-DRPLVRRKSELPQDPHTEKALE	633
gi	Danio_rerio_gamma	-----PLHREQRK-ERPLMRRKSELPQDTSTVKALE	510
gi	Danio_rerio_delta/gamma	-----PLHREQRK-ERPLMRRKSELPQDTSTVKALE	563
gi	Xenopus_laevis_delta/gamma	-----	
gi	Xenopus_laevis_gamma	-----	
gi	Xenopus_tropicalis_delta/ga	-----QAQKDLKK-ERPLVRRKSELPQDIYTMKALE	563
gi	Mus_musculus_delta	-----QMLKDIKK-DKVLVRRKSELPQDVYTIKALE	578
gi	Rattus_norvegicus_delta	-----QMLKDIKK-DKVLVRRKSELPQDVYTIKALE	606
gi	Felis_catus_delta	-----QMLKDIKK-EKVLLRRKSELPQDVYTIKALE	592
gi	Bos_taurus_delta	-----QMLKDIKK-EKVLLRRKSELPQDVYTIKALE	584
gi	Canis_lupus_familiaris_delt	-----QMLKDIKK-EKVLLRRKSELPQDVYTIKALE	579
gi	Macaca_mulatta_delta	-----QMLKDIKK-EKVLLRRKSELPQDVYTIKALE	595
gi	Homo_sapiens_delta	-----QMLKDIKK-EKVLLRRKSELPQDVYTIKALE	586
gi	Ovis_aries_delta	-----QMLKDIKK-EKVLLRRKSELPQDVYTIKALE	583
gi	Falco_peregrinus_delta	-----QMLKDIKK-EKALLRRKSELPQDVYTIKALE	486
gi	Gallus_gallus_delta	-----QMLKDIKK-EKVLLRRKSELPQDVYTIKALE	581
gi	Alligator_mississippiensis	-----QMLKDIKK-EKVLLHRKSELPQDVYTIKALE	580
gi	Chrysemys_picta_bellii_delt	-----QMLKDIKK-EKVLLRRKSELPQDVYTIKALE	582
gi	Danio_rerio_delta	-----QGMKEIKK-DKVLVRRKSELPQDVYTIKALE	585
gi	Ambystoma_mexicanum_delta	-----	
gi	Petromyzon_marinus_S4RN43	-----QVQNSKGEGKKVLLRSKSELPQEMSTMRALE	558
jgi	Branchiostoma_floridiae_237	-----QAGVSRGKDLKKMLPRRKSELPDLSLTMRALE	485
jgi	Branchiostoma_floridiae_252	-----FPQAGVSRGKDLKKMLPRRKSELPDLSLTMRALE	539
gi	Strongylocentrotus_purpurat	-----RKSELPRDAFTIKAIG	509
gi	Caenorhabditis_elegans_PPTR	-----GVSSMK-NDMDFGPNHKQSDFFPDEQTTKALG	539
gi	Hydra_vulgaris_delta	-----	
gi	Amphimedon_queenslandica_de	-----NTGAVKTNNKGHMLIRRKSYLPMDNDTSQALQ	611
gi	Drosophila_melanogaster_B56	-----AYDQSEQRARQPPPPPLPPQKAHQEPR	655
gi	Dictyostelium_discoideum_ps	-INNINNINNINNNGSTETKADKP-----SMIRRKSLLPVDPSTIAALS	577
gi	Dictyostelium_purpureum_N/A	-----IETKSDKP-----SMIRRKSLLPVDPSTIAALS	513
gi	Dictyostelium_fasciculatum	-----QHMQQQQQPQTQPSKASMIIRRKSLLPVDPSTIAALS	552
gi	Polysphondylium_pallidum_N/	-----ALPENGEKP-----ISMIRRKSLLPVDPSTIAALS	492
gi	Arabidopsis_thaliana_theta	-----LEEIGNQKQ--KSSL----	492
gi	Arabidopsis_thaliana_eta	-----LEELGVRKA--S-----	529
gi	Arabidopsis_thaliana_zeta	-----LEDLATSKTVVTNEAVLVP	528
gi	Arabidopsis_thaliana_gamma	-----LEELAASKS-VSNEAVLVP	506
gi	Oryza	-----LEEVASAKA-TSGEAVLIS	507
gi	Oryza_sativa_zeta	-----LEEMASAKA-TSGAAVLVS	507
gi	Oryza_sativa_theta	-----LEEIASSKT-ISSEPAVPP	511
gi	Oryza_sativa_eta	-----LEEAAVPRS-DNNNPVGTP	500
gi	Arabidopsis_thaliana_delta	-----LEEIVASMAK-----	477
gi	Arabidopsis_thaliana_N/A	-----LENAASMKPITGKTAVLVT	492
gi	Oryza_sativa_kappa	-----LESAAAFQPVGTGHTAVLVG	498
gi	Oryza_sativa_N/A	-----LERNASFRPVTGDIGFSVL	479
gi	Arabidopsis_thaliana_alpha	-----LDEAVEERE-----REDPMI	493
gi	Arabidopsis_thaliana_beta	-----LAEAAAERDGGGGEDHMI	497
gi	Oryza_sativa_N/A_2	-----LEAAAAKAS-----GDDMVL	533
gi	Arabidopsis_thaliana_epsilon	-----LEEAAASLAN-----	497
gi	Chlamydomonas_reinhardtii_w	-----LQKLAVQKSNRPLPEVKP	495
gi	Schizosaccharomyces_pombe_P	-----AMKLKSQNPPTTVHSTTERL	538
gi	Schizosaccharomyces_pombe_P	-----NKPTDYL	626
gi	Ashbya_gossypii_RTSl	-----LHIS-----SVDNPAVDRIGTGDLH	630
gi	Saccharomyces_cerevisiae_RT	-----LRINNDKQYTIKNPELRNSFNTASEN	741

Figure S1. Cont.

gi Aspergillus_niger_N/A	LDDSSSTERRPRESTASSVSTERPE-----	635
gi Aspergillus_nidulans_parA	LDEAGSKDRRPREGSITSP-----	631
gi Mus_musculus_alpha	-----	
gi Rattus_norvegicus_alpha	-----	
gi Macaca_mulatta_alpha	-----	
gi Homo_sapiens_alpha	-----	
gi Ovis_aries_alpha	-----	
gi Bos_taurus_alpha	-----	
gi Felis_catus_alpha	-----	
gi Canis_lupus_familiaris_alph	-----	
gi Falco_peregrinus_alpha	-----	
gi Gallus_gallus_alpha	-----	
gi Alligator_mississippiensis_	-----	
gi Chrysemys_picta_bellii_alph	-----	
gi Xenopus_laevis_alpha	-----	
gi Xenopus_tropicalis_alpha	-----	
gi Ambystoma_mexicanum_alpha	-----	
gi Danio_rerio_alpha	I-----	484
gi Petromyzon_marinus_S4RHV1	-----	
gi Mus_musculus_epsilon	-----	
gi Rattus_norvegicus_epsilon	-----	
gi Macaca_mulatta_epsilon	-----	
gi Homo_sapiens_epsilon	-----	
gi Ovis_arie_epsilon	-----	
gi Bos_taurus_epsilon	-----	
gi Canis_lupus_familiaris_epsilon	-----	
gi Falco_peregrinus_epsilon	-----	
gi Gallus_gallus_epsilon	-----	
gi Felis_catus_epsilon	-----	
gi Chrysemys_picta_bellii_epsilon	-----	
gi Xenopus_laevis_epsilon	-----	
gi Xenopus_tropicalis_epsilon	-----	
gi Alligator_mississippiensis_	-----	
gi Ambystoma_mexicanum_epsilon	-----	
gi Danio_rerio_epsilon	-----	
gi Mus_musculus_beta	-----	
gi Rattus_norvegicus_beta	-----	
gi Felis_catus_beta	-----	
gi Canis_lupus_familiaris_beta	-----	
gi Homo_sapiens_beta	-----	
gi Bos_taurus_beta	-----	
gi Ovis_aries_beta	-----	
gi Macaca_mulatta_beta	-----	
gi Xenopus_laevis_beta	-----	
gi Alligator_mississippiensis_	-----	
gi Chrysemys_picta_bellii_beta	-----	
gi Xenopus_tropicalis_beta	-----	
gi Danio_rerio_beta	SAANTT-----	503
gi Ambystoma_mexicanum_beta	-----	
gi Petromyzon_marinus_S4RGA7	-----	
gi Strongylocentrotus_purpurat	-----	
gi Drosophila_melanogaster_wdb	DNNPATTNAKIKQDKADN----	524
jgi Branchiostoma_floridae_237	-----	
gi Hydra_vulgaris_alpha	-----	
jgi Branchiostoma_floridae_112	-----	
jgi Branchiostoma_floridae_284	K-----	461
gi Caenorhabditis_elegans_FPTR	KSPSVVKKSSSTGSETTTPAKK-----	542
gi Amphimedon_queenslandica_be	-----	
gi Chrysemys_picta_bellii_gamm	SHCRADELI-SHDGH-----	524

Figure S1. Cont.

gi Chrysemys_picta_bellii_delt	SHCRADELI-SHDGH-----	449
gi Falco_peregrinus_gamma	SHCRADELI-SHDGQ-----	524
gi Falco_peregrinus_delta/gamm	SHCRADELI-SHDGQ-----	449
gi Gallus_gallus_gamma	SHCRADELI-SHDGH-----	524
gi Alligator_mississippiensis_	SHCRADELI-SHDGH-----	524
gi Alligator_mississippiensis_	SHCRADELI-SHDGH-----	449
gi Ambystoma_mexicanum_gamma	SHCRADELL-THDAH-----	525
gi Mus_musculus_gamma	AHCRASELL-SQDGR-----	549
gi Rattus_norvegicus_gamma	AHCRASELL-SQDGR-----	524
gi Ovis_aries_gamma	-----	
gi Bos_taurus_gamma	AHGRAEIPA-PQDGR-----	524
gi Canis_lupus_familiaris_gamm	AHCRADELV-SQDGR-----	524
gi Macaca_mulatta_gamma	AHCRADELA-SQDGR-----	524
gi Homo_sapiens_gamma	AHCRADELA-SQDGR-----	514
gi Felis_catus_gamma	AHCRADQLV-SQDGR-----	532
gi Canis_lupus_familiaris_delt	AHCRADELV-SQDGR-----	571
gi Macaca_mulatta_delta/gamma	AHCRADELA-SQDGR-----	806
gi Bos_taurus_delta/gamma	AHGRAEIPA-PQDGR-----	578
gi Mus_musculus_delta/gamma	AHCRASELL-SQDGR-----	606
gi Rattus_norvegicus_delta/gam	AHCRASELL-SQDGR-----	647
gi Danio_rerio_gamma	THHRAEDMIGTQDGH-----	525
gi Danio_rerio_delta/gamma	THHRAEDMIGTQDGH-----	578
gi Xenopus_laevis_delta/gamma	-----	
gi Xenopus_laevis_gamma	-----	
gi Xenopus_tropicalis_delta/ga	SHCRADELISHDGH-----	577
gi Mus_musculus_delta	AHKRAEEFLTASQEAL-----	594
gi Rattus_norvegicus_delta	AHKRAEEFLTASQEAL-----	622
gi Felis_catus_delta	AHKRAEEFLTASQEAL-----	608
gi Bos_taurus_delta	AHKRAEEFLTASQEAL-----	600
gi Canis_lupus_familiaris_delt	AHKRAEEFLTASQEAL-----	595
gi Macaca_mulatta_delta	AHKRAEEFLTASQEAL-----	611
gi Homo_sapiens_delta	AHKRAEEFLTASQEAL-----	602
gi Ovis_aries_delta	AHKRAEEFLTASQEAL-----	599
gi Falco_peregrinus_delta	AHKRAEEFLTSSQEAL-----	502
gi Gallus_gallus_delta	AHKRAEEFLTSNQEAL-----	597
gi Alligator_mississippiensis_	AHKRAEEFLTSSQEAL-----	596
gi Chrysemys_picta_bellii_delt	AHKRAEEFLTSSQEAL-----	598
gi Danio_rerio_delta	AHKRAEEYLTAHQEAL-----	601
gi Ambystoma_mexicanum_delta	-----	
gi Petromyzon_marinus_S4RN43	VHRAEEYLSTSH-----	572
jgi Branchiostoma_floridae_237	DHKRADDYLTTSFETS-----	501
jgi Branchiostoma_floridae_252	DHKRADDYLTTSFETS-----	555
gi Strongylocentrotus_purpurat	THKRHEEFLVASPETNS-----	526
gi Caenorhabditis_elegans_PPTR	EYKRHDPFLKKVTSTDEQ-----	557
gi Hydra_vulgaris_delta	-----	
gi Amphimedon_queenslandica_de	QYKPERHLGVPNES-----	625
gi Drosophila_melanogaster_B56	EVQRALATLTTLNNY-----	670
gi Dictyostelium_discoideum_ps	SHRSLEDIMSTNSNS---GNDDDDENNHTNHDSEIENEVKEDFRVPPNN	623
gi Dictyostelium_purpureum_N/A	NHRSLEEIISNKNEN---SNDNNDE-----EVKEDSLHYVPY	548
gi Dictyostelium_fasciculatum_	SHRSLEDIVHSSDSEMNCCTDDNNADQQPNN-----DYNGDHKTSTSK	595
gi Polysphondylium_pallidum_N/	NHRSLEGLVHSGDG-----DHDAEETEML-----YDSSESQVPAI	528
gi Arabidopsis_thaliana_theta	-----	
gi Arabidopsis_thaliana_eta	-----	
gi Arabidopsis_thaliana_zeta	RFVSSVNLTTSSSESTGS-----	546
gi Arabidopsis_thaliana_gamma	RFSSSVTLATG--KTSGS-----	522
gi Oryza	PSLARTSSLV-----	517
gi Oryza_sativa_zeta	RTLPRQSSAV-----	517
gi Oryza_sativa_theta	EATVH-----	516
gi Oryza_sativa_eta	NGKFSQAAG-----	509
gi Arabidopsis_thaliana_delta	-----	
gi Arabidopsis_thaliana_N/A	--PRATSIAC-----	500

Figure S1. Cont.

gi	Oryza_sativa_kappa	RQPSANLIATLI-----	510
gi	Oryza_sativa_N/A	P-ASAPLVAPTMT-----	491
gi	Arabidopsis_thaliana_alpha	TS-----	495
gi	Arabidopsis_thaliana_beta	TS-----	499
gi	Oryza_sativa_N/A_2	VN-----	535
gi	Arabidopsis_thaliana_epsilon	-----	
gi	Chlamydomonas_reinhardtii_w	LSALLRV-----	502
gi	Schizosaccharomyces_pombe_P	KKLSLDY TNG-----	548
gi	Schizosaccharomyces_pombe_P	R-----	627
gi	Ashbya_gossypii_RTSl	-----	
gi	Saccharomyces_cerevisiae_RT	NTLNEENENDCDSEIQ-----	757

gi	Aspergillus_niger_N/A	-----
gi	Aspergillus_nidulans_para	-----
gi	Mus_musculus_alpha	-----
gi	Rattus_norvegicus_alpha	-----
gi	Macaca_mulatta_alpha	-----
gi	Homo_sapiens_alpha	-----
gi	Ovis_aries_alpha	-----
gi	Bos_taurus_alpha	-----
gi	Felis_catus_alpha	-----
gi	Canis_lupus_familiaris_alph	-----
gi	Falco_peregrinus_alpha	-----
gi	Gallus_gallus_alpha	-----
gi	Alligator_mississippiensis	-----
gi	Chrysemys_picta_bellii_alph	-----
gi	Xenopus_laevis_alpha	-----
gi	Xenopus_tropicalis_alpha	-----
gi	Ambystoma_mexicanum_alpha	-----
gi	Danio_rerio_alpha	-----
gi	Petromyzon_marinus_S4RHV1	-----
gi	Mus_musculus_epsilon	-----
gi	Rattus_norvegicus_epsilon	-----
gi	Macaca_mulatta_epsilon	-----
gi	Homo_sapiens_epsilon	-----
gi	Ovis_aries_epsilon	-----
gi	Bos_taurus_epsilon	-----
gi	Canis_lupus_familiaris_epsilon	-----
gi	Falco_peregrinus_epsilon	-----
gi	Gallus_gallus_epsilon	-----
gi	Felis_catus_epsilon	-----
gi	Chrysemys_picta_bellii_epsilon	-----
gi	Xenopus_laevis_epsilon	-----
gi	Xenopus_tropicalis_epsilon	-----
gi	Alligator_mississippiensis	-----
gi	Ambystoma_mexicanum_epsilon	-----
gi	Danio_rerio_epsilon	-----
gi	Mus_musculus_beta	-----
gi	Rattus_norvegicus_beta	-----
gi	Felis_catus_beta	-----
gi	Canis_lupus_familiaris_beta	-----
gi	Homo_sapiens_beta	-----
gi	Bos_taurus_beta	-----
gi	Ovis_aries_beta	-----
gi	Macaca_mulatta_beta	-----
gi	Xenopus_laevis_beta	-----
gi	Alligator_mississippiensis	-----
gi	Chrysemys_picta_bellii_beta	-----
gi	Xenopus_tropicalis_beta	-----
gi	Danio_rerio_beta	-----

Figure S1. Cont.

gi Ambystoma_mexicanum_beta	-----
gi Petrymyzon_marinus_S4RGA7	-----
gi Strongylocentrotus_purpurat	-----
gi Drosophila_melanogaster_wdb	-----
jgi Branchiostoma_floridae_237	-----
gi Hydra_vulgaris_alpha	-----
jgi Branchiostoma_floridae_112	-----
jgi Branchiostoma_floridae_284	-----
gi Caenorhabditis_elegans_PPTR	-----
gi Amphimedon_queenslandica_be	-----
gi Chrysemys_picta_bellii_gamm	-----
gi Chrysemys_picta_bellii_delt	-----
gi Falco_peregrinus_gamma	-----
gi Falco_peregrinus_delta/gamm	-----
gi Gallus_gallus_gamma	-----
gi Alligator_mississippiensis_	-----
gi Alligator_mississippiensis_	-----
gi Ambystoma_mexicanum_gamma	-----
gi Mus_musculus_gamma	-----
gi Rattus_norvegicus_gamma	-----
gi Ovis_aries_gamma	-----
gi Bos_taurus_gamma	-----
gi Canis_lupus_familiaris_gamm	-----
gi Macaca_mulatta_gamma	-----
gi Homo_sapiens_gamma	-----
gi Felis_catus_gamma	-----
gi Canis_lupus_familiaris_delt	-----
gi Macaca_mulatta_delta/gamma	-----
gi Bos_taurus_delta/gamma	-----
gi Mus_musculus_delta/gamma	-----
gi Rattus_norvegicus_delta/gam	-----
gi Danio_rerio_gamma	-----
gi Danio_rerio_delta/gamma	-----
gi Xenopus_laevis_delta/gamma	-----
gi Xenopus_laevis_gamma	-----
gi Xenopus_tropicalis_delta/ga	-----
gi Mus_musculus_delta	-----
gi Rattus_norvegicus_delta	-----
gi Felis_catus_delta	-----
gi Bos_taurus_delta	-----
gi Canis_lupus_familiaris_delt	-----
gi Macaca_mulatta_delta	-----
gi Homo_sapiens_delta	-----
gi Ovis_aries_delta	-----
gi Falco_peregrinus_delta	-----
gi Gallus_gallus_delta	-----
gi Alligator_mississippiensis_	-----
gi Chrysemys_picta_bellii_delt	-----
gi Danio_rerio_delta	-----
gi Ambystoma_mexicanum_delta	-----
gi Petrymyzon_marinus_S4RN43	-----
jgi Branchiostoma_floridae_237	-----
jgi Branchiostoma_floridae_252	-----
gi Strongylocentrotus_purpurat	-----
gi Caenorhabditis_elegans_PPTR	-----
gi Hydra_vulgaris_delta	-----
gi Amphimedon_queenslandica_de	-----
gi Drosophila_melanogaster_B56	-----
gi Dictyostelium_discoideum_ps	RYTFT 628
gi Dictyostelium_purpureum_N/A	ISQ-- 551
gi Dictyostelium_fasciculatum_	MIF-- 598

Figure S1. Cont.

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gi|Polysphondylium_pallidum_N/      SQ--- 530
gi|Arabidopsis_thaliana_theta      -----
gi|Arabidopsis_thaliana_eta        -----
gi|Arabidopsis_thaliana_zeta        -----
gi|Arabidopsis_thaliana_gamma       -----
gi|Oryza                             -----
gi|Oryza_sativa_zeta                -----
gi|Oryza_sativa_theta               -----
gi|Oryza_sativa_eta                 -----
gi|Arabidopsis_thaliana_delta        -----
gi|Arabidopsis_thaliana_N/A          -----
gi|Oryza_sativa_kappa                -----
gi|Oryza_sativa_N/A                 -----
gi|Arabidopsis_thaliana_alpha        -----
gi|Arabidopsis_thaliana_beta         -----
gi|Oryza_sativa_N/A_2                -----
gi|Arabidopsis_thaliana_epsilon      -----
gi|Chlamydomonas_reinhardtii_w       -----
gi|Schizosaccharomyces_pombe_P       -----
gi|Schizosaccharomyces_pombe_P       -----
gi|Ashbya_gossypii_RTS1              -----
gi|Saccharomyces_cerevisiae_RT       -----

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Figure S1. A CLUSTAL 2.1 multiple sequence alignment of all analyzed B56 sequences.