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Supplementary Figure 3A

root	TCTGGAGAGGTGTTGTCTTCAGTATGACTAGAAGACAGCACTGAAAGCAGACAAGAACCCTTAGAACTGTCCTCAGATTTCTTCCACCCATTAAGGAAACAGATTTGTTATAAAATAGGTACATTAGACATGTGCAGGTT
T_syrichta	TCAGGAGAGGTGTTGTCTTCAGTATGACTAGAAGACAGCACTGAAAGCAGACGAGACACCTTAGAAATTGTCCTCAGATTTTCTTCCACCCATTAAGGAAACAGATTTGTTATAA-----ATTAGACATGTGCAGTTT
G_fortis	TCCAGCGAGGTGTTGTCTTCCGTATGACTAGTAAGAAGCACTGAAAGCAGAGAGCGGCCTGCTAGCACGTCCACAGATATCCTTCCACCCATTAAAGAAACAGATCTCCTCTAG-----ACTGAGCACCTTCCACTT
S_salar	TCAGGGGAGGTGCTCTCATCTGTATGACTAGTGAGGTGCACTGGGAGAGAAGACCAGACCACTGTACAGTCCCTAACCTATACCTTCCCTCAAAGAGACTGACCTCTTATAG-----AGACTGATCTCTGAT
O_anatinus	TCCAGCGAGGTGCTGTCTTCCGTATGACTAGCAAGTAGCACCGGAAGCAGAGAAGAACCGACGGAGTTGGCTACAGATTTCTCTCCCCCCCATTAAAGAGACCGATCTACTGTAA-----TTGGGACACCCCCCGGTC
M_davidii	TCGGGAGAAGTGCTGTCTCCGTATGACTAGAAGATGGCACTGAAAGCAGACGCGAGCCCTTAGAGCTGCCCTCAGAGGTCTCTCCGCCCATTAAAGGAAACGGACTTGTTATAA-----AGTAGACATGTCTCA---
T_manatus_latirostris	TCTGGAGAGGTGTTATCTTCAGTATGACTAGAAGATAGCACTGAAAGCAGGCAAGAACCCTTAGAACTGTCCTCAGATTTCTTCCACCCATTAAAGAAACAGATTTGTTATAA-----CTAGACATGTGCAAATTT
T_guttata	TCCAGTGAGGTGTTGTCTTCTGTATGACTAGCAAGAAGCACTGAAAGCAGAGAGCAGCCTGCTAGCACGTCCACAGATATCCTTCCACCCATTAAAGAAACAGATCTCCTCTAG-----ACTGAGCACCTTCCACTT
M_undulatus	TCCAGCGAGGTGTTGTCTTCTGTATGACTAGCAAGAAGCACTGAAAGCAGAGAGCAGCCTGCTAGCATGTCCACAGATATCCTTCCAACCTATTAAAGAAACAGATCTCCTCTAG-----ACTGAGCATCTACCATTC
P_sinensis	ACCAATGAGGTGTTATCTTCTGTATGACTAGCAAGGAGCACTGAAAGCAGAGAACAACCTGCCAGAATGTCCACAGATATCCTTCCACCCATTAAAGAGACAGATTTACTGTAA-----ACCAATCACCTGCAATAT
E_caballus	TCTGGAGAGGTATTGTCTTCAGTATGACTAGAAGACAGCACTGAAAGCAGACAAGAACCCTTAGAACTGTCCTCAGATTTCTCCACCCATTAAGGAAACAGATTTGTTATAA-----ATTAGACAGTGCAGGTT
M_eugenii	TCTGGTGAAAGTGTTATCTTCAGTATGACTATCAAGTGGCACTGAAAGCAGAGAAGACCCC-----TCAGATTTCTTCCACCCATTAAAGAAACAGATTTGTTATAA-----ATCAGGCCTACGCAAGTC
M_musculus	TCGGGAGAGGTATTGTCTTCCGTATGACTAGAGGACAGCACTGAAAGCAGAGAGACTCCCTAGACCTGGCCTCAGATTTCTGCCACCCATTAAGGAAACAGATTTGTTATAA-----ATTAGACACTTGCGGGTT
G_gallus	TCAAGTGAGGTGCTGTCTTCTGTATGACTAGCAAGGAGCACTGAAAGCAGAGAGCAGCCTGCCAGCGACTCCACAGATATCCTTCCAACCTATCAAAGAAACAGATCTCCTCTAA-----ACAGAGCATCTATCATTT
M_domestica	TCCAGTGAAAGTGTTGTCTTCAGTATGACTATCAAGTAGCACTGAAAGCAGAGAAGACCCC-----TCAGATTTCTTCCACCCATTAAAGAAACAGATTTGTTATAA-----ATCAGGCAGTGCAGGTC
X_tropicalis	TCTGGTGAGGTATTATCTTCTGTATGACTAGAA---AGCAATGAAAGCAGAGAACAACCTTCTCAAGTACAAACAACCTCTTTTTCCA---GTAAAAGAGACAGATATATTGTGA-----AAGTTGAGAGTGGCATTT
F_catus	TCCGGAGAGGTGTTGTCTTCAGTATGACTAGAAAGATGGCACTGAAAGCAGACAAGAACACTTAGAACTGTCCTCAGATTTCTTCCACCCATTAAGGAAACAGATTTGTTATAA-----ATTAGACATGCGCAGGGT
F_albicollis	TCCAGCGAGGTGTTGTCTTCTGTATGACTAGCAAGAAGCACTGAAAGCAGAGAGCAGCCTGCTAGCACTTCCACAGATATCCTTCTACCCATTAAAGAAACAGACCTTCTGTAG-----AGTGAGCACCTTCCACTT
P_molurus	ACCAATGAGGTGCTATCATCTGTATGACTAGCAAGAAGCACTGAAAGCAAAGATCAGCCTGCTAGCATATCCACAGATAGTTTTCCACCTATAAAAGAGACAGACCTGTTGTGA-----ATTAGTCACTTAAGATAA
P_alecto	TCTGGAGAGGTGTTGTCTTCCGTATGACTAGAAAGATAGCACTGAAAGCAGACAAGAACCCTTAGAACTATCCTCAGATTTCTTCCACACATTAAGGAAACAGATTTGTTATAA-----ATTAGACATGTGCAGTTT
L_oculatus	ACCAGTGAGGTGCTGTCTCTGTATGACTAGCAAGGAGCCCTGGAAAAGGAGACAAATCTCTAAAACCTCTGTTCAGTACTTTGTTTCCACCCTCAAAGAAACAGATCTCTTGTGA-----AAAGAAAAAAAACCTTC
A_mississippiensis	TCCAGTGAGGTGCTGTCTTCAGTATGACTAGCAAGGAGCACTGAAAGCAGAGAACAGCCTTGTAGCATGTCCACAGATATCCTTCCACCCATTAGAGAGACAGATTTACTGTAA-----AGCAAGTATATACGACAC
D_novemcinctus	TCAGGAGAGGTGTTGTCTTCAGTATGACTAGAAAGATAGCACTGAAAGCAGACGAGGACCCTTAGAACTGTCCTCAGATTTCTTCCACCCATTAAGGAAACAGATTTGTTATAA-----GTTAGACATGAGCAGGTT
L_chalumnae	TCAGGTGAAATGATGTCTTCTGTATGACTAAGAACAAGCACAAGAAACAGAGAGCAATCTAGTAGAGAATTTAGAGACATTGATGCTCCTGTTAAAGAAACAGATATACTGTGA-----ACTTAAGTGCTTCCCTCC
M_gallopavo	TCAAGTGAGGTGCTGTCTTCTGTATGACTAGCAAGGGGGCACTGAAAGCAGAGAGCAGCCTGCCAGCGAGTCCACAGATATCTTTCCAACCTATTAAAGAAACAGATCTCCTCTAA-----ACTGAGCATCTACCATTT
C_picta_bellii	ACCAATGAGGTGCTATCTTCTGTATGACTAGCAAGGAGCACTGAAAGCAGAGAACGGCCTTCTAGAATGTCCACAGATATCCTTCCACCCATTAAAGAGACAGATCTACTGTAA-----ACCAGACACCTGCAATAT
C_cristata	TCGGGAGAGGTGTTGTCTTCCGTATGACTAGAAAGATAGCACTGAAAGCAGACGAGAGTCGCAGGCAATGTCTCAGATTTCTTCCACCCATTAAGGAAACAGATTTGTTATAA-----GTTAAGCATGTACAGGTT
E_edwardii	TCCGGAGAGGTGTTGTCTTCAGTATGACTAGAAAGGAGCACTGAAAGCAGACGAGAGCCCTCCGAAGTGTCTCAGATTTCTTCCACCCATTAAAGAAACAGATTTGTTATGA-----TTTGATATGTGCAGGTTT
C_milii	ACGAATGAACCTCTCTCATCTGTATGACTAGCAAGAAGCACTGAAAGCAGAGAGCCGCTTGTAAGAGGTCAAGAGACAGTGTTATTTCTATTAAGGAAACTGATCTGCTATAA---ATTAGGTGGAAGCGTATATCCTTT
A_carolinensis	ACCAACGAAGTGCTGTCTCAGTATGACTAGCAAGGAGCACTGAAAGCAGAGAACAGCCTACTAGCATGTCCACAGATAGCCTTCCACCCATAAAAGAGACAGATCTATTGTGAATAGGTACCTACGTCAGTTACAGTTT
C_ferus	TCTGGAGAGGTGTTGTCTTCAGTATGACTAGAGGACAGCGCTGAAAGCAGACAAGAACCCTTAGAACTGTCCTCAGATTTCTTCCACCCATTAAGGAAACAGATCTGCTGTAA-----ACTAGACGTGTACAGGTT
H_sapiens	TCTGGAGAGGTATTGTCTTCAGTATGACTAGAAAGATCGCACTGAAAGCAGACAAGACTCCTTAGAACTGTCCTCAGATTTCTTCCACCCATTAAGGAAACAGATTTGTTATAA-----ATTAGAAATGTGCAGGTT
L_africana	TCTGGAGAGGTGTTATCTTCAGTATGACTAGAAAGGTAGCACTGAAAGCAGACGGGAACCCTTAGAACTATCCTCAGATTTCTTCCACCCATTAAAGAAACAGATTTGTTATAA-----CTAGCCCTGTAA---ATT
O_orca	TCCGGAGAGGTGCTATCTTCAGTATGACTAGAAAGATAGCACTGAAAGCAGACAAGAGCCCTTAGAACTGTCCTCAGATTTTCTTCCGCCCATTAAAGGAAACAGATTTGTTATAA-----ATTAGACATGTGCAGTTT
B_taurus	TCTGGAGAGGTGTTGTCTTCAGTATGACTAGCAGGCAGCACTGAAAGCAGACAAGAGCCCTTAGAACTGTCCTCAGATCTCCTTCCACCCATTAAGGAAACAGATTTGTTATAA-----ATTAGACATGTGCAGGTT
S_harrisii	TCCAGTGAAAGTGTTGTCTTCAGTATGACTATCAAGTGGCACTGAAAGCAGAGAAGACCCC-----TCAGATTTCTTCCACCCATTAAAGAAACAGATTTGTTATAA-----ATCAGATACATGCAGATC
S_scrofa	TCTGGAGAGGTGTTATCTTCCGTATGACTAGAAAGAGAGCACTGAAAGCAGACAGGAGCCCACAGAACTGTCCTCAGATTTCTTCCACCCATTAAGGAAACAGATTTGTTATAA-----ATTAGACATGTGCAGGTT
M_putorius_furo	TCGGGCGAGGTGCTGTCTTCCGTATGACTAGAAAGATGGCACTGAAAGCAGACAGGAACCCTCAGAACTGTCCTCAGATTTCTTCCACCCATTAAGGAAACAGATTTGTTATAA-----ATTAGGCATGCGCAGGGT
M_mulatta	TCCGGAGAGGTATTGTCTTCAGTATGACTAGAAAGATCGCACTGAAAGCAGACAAGACTCCTTAGAACTGTCCTCAGATTTCTTCCACCCATTAAGGAAACAGATTTATTATAA-----ATTAGACATGTGCAGGTT
P_capensis	TCTGGAGAGGTGTTATCTTCCGTATGACTAGAGGAAAGCACTGAAAGCAGACGAGAACCCTTAGAACTATCCTCAGATTTCTTCCACCCATTAAAGAAACAGATTTGTTGTAA-----CTAGATATGTGCAGATTT

Supplementary Figure 3B

root	AGCTTGGAAAGCTTCTGCAGGACCCCTTGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCCAACGTTCTTCAGAAGATGATGTAATTTAGGGGGGAAAAAATCA
X_maculatus	AGCCTGGAGACCTCCACGGGACCCCTGGGGTGGTGCAGGTGACTATCCGCCCTGCCTGCGAACCCCATGTTCTTCGGAAGGTGAAGAACCACAGATATGACCCGACG
G_fortis	AGCCTGGAAGCTTCTCCGGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCCAGCGTTCTTCAGAGGATGATGGAACCTAGGAGGAAAAAATGAT
C_dromedarius	AGCCTGGAAGCTTCGGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCCGGCGTTCTTCAGGAGATGATGTGATGGA-----ACACACACA
A_fimbria	AGCCTGGAGACCTCCACAGGACCCCTGGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCGGAAGGTGAAGAACCACCAACCGGAAATGACCAA
P_nyererei	AGCCTGGAGACCTCTGCAGGACCCCTGGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCGGAAGGTGAAGAACCACCAAAAAACGACCGCCG
L_africana	AGCCTGGAAGCCTCGGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGCGATGGA-----ACACACACA
T_orientalis	AGCCTGGAGACCTCTGCAGGACCCCTGGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGTAACCCCATGTTCTTCGGAAGGTGA-----AGAACACCAACT
A_anguilla	AGCCTGGAGACTTCTGCAGGACCCCTCGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCAATGTTCTTCAGAAGGTGAAGTGCAACAGAAAACTAAACAAAA
C_hircus	AGCCTGGAAGCCTCGGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGATGGA-----ACACACACG
C_lupus_familiaris	AGCCTGGAAGCCTCAGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGATGGA-----ACACACACA
D_rerio	AGCCTGGAGACCTCGGGCGGGCGCTGGGGTGGTGCAGGTGACTAACCGGCCCTGCCTGCGAACCCCATGTTCTTCAGAAAGGTGAACGGCTGAAAACAAGTCCACACAA
L_erinacea	AGCCTGGAAGCTTCAGCAGGACCCCTC---TGTTGCAGGTGACTAACCGTCTGCCTGCGGAGCCACTTCTTCCTTAGAAGATGATGCAAGTACTAAATACTCGGTGCG
S_scrofa	AGCCTGGAAGCCTCGGGCGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGACGTGGTGGG-----ACACACACA
T_guttata	AGCCTGGAAGCTTCTCCGGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAGGATGATGGAACGTAGCAGGAAAAAAGAT
T_scripta_elegans	AGCTTGGAAAGCTTCTGCAGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAACGTTCTTCAGAAGATGAGGCAATTTAGGGGGGAAAAATAATAA
H_burtoni	AGCCTGGAGACCTCTGCAGGACCCCTGGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCGGAAGGTGAAGAACCACAAAAACGACCAACCG
M_undulatus	AGCCTGGAAGCTTCTCCGGGACCCCTTGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAGGATGATGTAATTTAGGAGGAAAAATTAAC
G_morhua	AGCCTGGAGACCTCCGTGGGGCGGCTGGGGTGGTGCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCCTCGTTGAAGAACACACCCTAGGGCCCCCCCCA
P_sinensis	AGCTTGGAAAGCTTCTGCAGGACCGCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAACGTTCTTCAGAAGATGAGGCACCTTAGGAGGAAAAATAATAA
E_caballus	AGCCTGGAAGCCTCAGCGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGATGGAGCACACACACACACA
R_ferrumequinum	AGCCTGGAAGCCTCGGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGATGGG-----AGTCACACA
P_marinus	AGCCTGGAGACGTCCGCAAGGCCCCTCGGGCTGGTGCAGGTGACTAGCCGACTGCCTGCGGACCCCTTGCCACCCCGTGCCCTTAGCAGTGCACGCGCTGTGCAGTGGGT
M_eugenii	AGCTTGGAGACCTCGGCAGGACCACTTGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAAGATGAGGAAAGTGA-----AAAGCTGCA
P_bivittatus	AGT TTGGAAGCTTCTGCAGGACCCCTTGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCCAGCGTTCTTCAGAAGATGATGCAAGTGTG TAGGGAGACAAA TCT
P_vampyrus	AGCCTGGAAGCCTCGGGCGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGCGATGGG-----ACACACACA
G_gallus	AGCCTGGAAGCGTCCGGCGGGCCACTGGGGTGGTGCAGGTGACTAGCCGCCTGCCTGCGAACCCCGCTTCTTCAGGGGTGACGGCGTCCAGAGGGAAAGCAACAG
B_taurus	AGCCTGGAAGCCTCGGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGATGGA-----ACACACACG
L_camtschaticum	AGCCTGGAGACGTCCGCAAGGCCCCTCGGGCTGGTGCAGGTGACTAGCCGACTGCCTGCGGACCCCTTGCCACCCCGTGCCCTTAGCAGTGCACGCGCTGTGCAGTGGGT
M_domestica	AGCTTGGAGACCTCAGCAGGACCACTTGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAAGATGAGGAAAGTGA-----AAATATGCA
X_tropicalis	AGCCTGGAAGCTTCTGCAGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCCCTGCCTTCTTCAGAAGATGATGCCACTGA---AATAAGAACCAA
F_catus	AGCCTGGAAGCCTCAGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCATTCTTCAGGAGATGATGCGATGGA-----ACACACACA
S_salar	AGCCTGGAGACCTCTGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCAGAAGGTGAAGACACAATGTCCAAACAAACCCAAC
F_albicollis	AGCCTGGAAGCTTCTCCGGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAGGATGATGGAGCCCAAGAGGCAAAACAGAT
Z_albicollis	AGCCTGGAAGCTTCTCCGGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAGGATGATGGAACCTAGGAGGAAAAAATGAT
P_humilis	AGCCTGGAAGCTTCTCCGGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAGGATGATGGAACCTAGGAGGAAAAAATTAT
L_oculatus	AGCCTGGAAGCCTCTGCAGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGTAACCCCATGTTCTTCAGAAGGTGAAGATGCTACAGAACACGAAAAAAA
A_mississippiensis	AGCTTGGAAAGCTTCTGCAGGACCCCTTGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAACATTCTTCAGAAGATGATATAATTTAGGAGGAAAAATAA---
D_novemcinctus	AGCCTGGAAGCCTCAGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGGGATGGA-----ACACACACA
T_nigroviridis	AGCCTGGAGACCTCGGCAGGACCACTGGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCATAGG-----TGAAGAACCCTCCTGAAAAAC
L_chalurnae	AGCCTGGAAGCTTCTCTGCAGGACCCCTTGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAACATTCTTCAGAAGATAAAAGTGTTAAAGGATTAAAAACAAA
M_gallopavo	AGCCTGGAAGCGTCCGGCGGGCCACTGGGGTGGTGCAGGTGACTAGCCGCCTGCCTGCGAACCCCGCTTCTTCAGGGGTGACGGCGTCCAGAGGGAAGCAACAG
C_picta_bellii	AGCTTGGAAAGCTTCTGCAGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAACGTTCTTCAGAAGATGAGGCAATTTAGGGGGGAAAAATAATAA
O_latipes	AGCCTGGAGACCTCTCCGGGACCCCTGGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCTGCGTTCTTCCTCGGTGAAGAAGTATCTACGACAGAGGAAAAA
M_auratus	AGCCTGGAGACCTCTGCAGGACCCCTGGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCGGAAGGTGAAGAACCACAAACAGACCGCCG
O_ventralis	AGCCTGGAGACCTCTGCAGGACCCCTGGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCGGAAGGTGAAGAACCACAAACAGACCGCCG
C_milii	AGCCTGGAAGCTTCTCAGCGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCCCTCTTCTTTAGAACGTGATGCCACATACTAATTACTCAGCTCG
O_aries	AGCCTGGAAGCCTCGGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGATGGA-----ACACACACA
A_carolinensis	AGT TTGGAAGCTTCTGCAGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCCAGCGTTCTTCAGAAGATAATGTAATTTAGTGGGGGGGAAA---
A_melanoleuca	AGCCTGGAAGCCTCAGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGATGGA-----ACACACACA
U_maritimus	AGCCTGGAAGCCTCAGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGATGGA-----ACACACACA
M_zebra	AGCCTGGAGACCTCTGCAGGACCCCTGGGGTGTTCAGGTGACTAGCCGCCTGCCTAGCGGAACCCCATGTTCTTCGGAAGGTGAAGAACCACAAACAGACCGCCG
C_livia	AGCCTGGAAGCTTCTCCGGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAGGATGATGTAATTTAGGGGGGAAAAATTAAC
H_sapiens	AGCCTGGAAGCCTCGGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGATGGA-----ACACACACA
A_mexicanus	AGCCTGGAGACCTCCGGCGGACCCCTGGGGTGGTGCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCAGAGGTGACGGGACATCCCGAGTGAGCGCACC
L_weddellii	AGCCTGGAAGCCTCAGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGTTGGA-----ACACACACA
N_brichardi	AGCCTGGAGACCTCTGCAGGACCCCTGGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCGGAAGGTGAAGAACCACAAACAGACCGCCG
S_rubrivinctus	AGCTTGGAGACCTCCGCAGGACCCCTGGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCGGAAGGTGAAGAACCACAAACCGAAACGACCG
F_cherrug	AGCCTGGAAGCTTCTGCAGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAGGATGATGTAATTTAGGAGGAAAAATTAAC
S_harrisii	AGCTTGGAGACCTCGGCAGGACCACTTGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAAGATGAGGAAAGTGA-----AAAGATGCA
O_orca	AGCCTGGAAGCCTCGGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGATGGA-----ACACACACA
A_sinensis	AGCTTGGAAAGCTTCTGCAGGACCCCTTGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAACATTCTTCAGAAGATGATATAATTTAGGAGGAAAAATAA---
G_aculeatus	AGCCTGGAGACCTCCGGCGGGCCCCTCGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCGCTTCTTCGGAAGGTGAAGAACCACACCGACCCGGCCGACC
C_mydas	AGCTTGGAAAGCTTCTGCAGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAACGTTCTTCAGAAGATGAGGCAATTTAGGGGGGAAAAATAATAA
P_Formosa	AGCCTGGAGACCTCCGGCGGACCCCTGGGGTGGTGCAGGTGACTATCCGCCCTGCCTGCGAACCCCATGTTCTTCGGAGGTGAAGAACCACAGATATGACCGACG
A_platyrrhynchos	AGCCTGGAAGCTTCTCCGGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAGGATGATGTAGTTGAGGAGGAAAAAGTAAC
M_musculus	AGCCTGGAGGCTCCGGCGGAGCCGTTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGACGGGATAGA---ACACAGCACACA
A_japonica	AGCCTGGAGACTTCTGCAGGACCCCTCGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCAATGTTCTTCAGAAGGTGAAGTGCAACAGAAAACTAAACAAAA
A_spiniifera	AGCTTGGAAAGCTTCTGCAGGACCCCTCGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAACGTTCTTCAGAAGATGAGGCACCTTAGGAGGAAAAATAATAA
N_furzeri	AGCCTGGAGACCTCTCCGGGACCCCTGGGGTGTTCAGGTGACTATCCGCCCTGCCTGCGAACCCCATGTTCTTCGAGATGAAGAACCACACAGATACGACCAACA
C_jacchus	AGCCTGGAAGCCTCGGCAGGACCCCTGGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATATGATGGA-----ACACACACA
A_macao	AGCCTGGAAGCTTCTCCGGGACCCCTTGGTTGTTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGAGGATGATGTGATTTAGGAGGAAAAATTAAC
P_catodon	AGCCTGGAAGCCTCGGCAGGACCCCTGGGTGGTGCAGGTGACTAGCCGCCTGCCTGCGAAAACCAAGCGTTCTTCAGGAGATGATGTGATGGA-----ACACACACA
O_niloticus	AGCCTGGAGACCTCTGCAGGACCCCTGGGGTGTTCAGGTGACTAGCCGCCTGCCTGCGAACCCCATGTTCTTCGGAAGGTGAAGAAGTCAACAAAAACGACCGCCG

Supplementary Figure 3C

root	GATCCTGCTTACATGAGGGATACCCAGGGAGTTGATGGGATAAATAAACCCAGTATGACTAGTCGTGGAGATGTCTTCTTATAGTTCTCCAGGAAGAGAGATTCAATGATCTAGGTTTAACTCAGATTACTACTGCAGTCTGAACTCAGGATGGAAAGGGAGAAATT
N_brichardi_#1	GATCATTCTTGCCTGCAGAACTCGGGGAGCGGTAAAGCAAGCCAGGCCGTATGACTAGCCATGGACATGTCCTCTATGCCCTATCAGAGCTGGGAGGACTCCGAATGAGCTGGGCTTAACTCAAATCAGTACAGCTATCTGA-----GATAAAAGCCAGAGT---
N_brichardi_#2	GAGGCCGCTTTCCCTGGAGAAC-----CCAGATGGGACTGGTAAGCCGACATGACTAGCAGTGGAATCTCTCAATCTCCACACTGGAAAAGAACTCACAATACCTGGGCTTAAACACATCACAACAGTAATGTAG-----ACTGGGTTTTGGATTAC
P_nyererei_#1	GATCATTCTTGCCTGCAGAACTCGGGGAGCGGTAAAGCAAGCCAGGCCGTATGACTAGCCATGGACATGTCCTCTATGCCCTATCAGAGCTGGGAGGACTCCGAATGAGCTGGGCTTAACTCAAATCAGTACAGCTATCTGA-----GATAAAAGCCAGAGT---
G_fortis	GACCCAGCTTACATGAGGAA-----GCAGGTGGGCAAAACAAACCTGTATGACTAGTCGTGGAAATGTCCTCTACTGTCTCAGGAGAGAGAGAGTCCAAACGACTAGACTGACACAGATTACCAGTGCAGTTTGA-----AATCGACTCAGCCAGACA
M_undulatus	GACCCAGCTTATATGAGGAA-----GCAGATGGGACAAACAAACCTGTATGACTAGTCGTGGAAATGTCATCTTACTGTCTCAAGAAAGAGAGAGTCCAAAGATCTAGACTGACGACAGATAACAAGTGCAGTTTGA-----ACTAGACTCAGCCAGAAA
P_nyererei_#2	GAGGCCGCTTTCCCTGGAGAAC-----CCAGATGGGACTGGTAAGCCGACATGACTAGCAGTGGAATCTCTCAATCTCCACACTGGAAAAGAACTCACAATACCTGGGCTTAAACACATCACAACAGCAATGTAG-----ACTGGGTTTTGGATTAC
O_anatinus	GACATTCTTATCTGAGGAG-----CCGATGGGCTCAATAGCCGCTATGACTAGTCGTGGAGCTGTCTTCGGACGGGCCCCCGGAGAGAGAGTCCAAAGATCTAGGCTTAACTCAGATAACCACGCGCAGTCTGA-----ATCGGAAGAACCGGGGGA
D_rerio	GAGCACACGTGCCAGCAGAGGCCAAAAATGATGGAGGCCAGGGTCGACCCGTATGACTAGCCGTGGAGCTGTCTCT-----TTTCATGGTCGAGAGGACTCCGAATGACTTGGGACTGACACAGATCACAACCGCCATCTGA-----GGAAGGGATTGTGGCGTT
T_guttata	GACCCAGCTTACATGAGGAA-----GCAGGTGGGCAAAACAAACCTGTATGACTAGTCGTGGAAATGTCATCTTACTGTCTCAGGAGAGAGAGAGTCCAAATGACTAGACTTACACAGATTACGACTGCAGTTTGA-----AATTGATTACCCAGACA
P_vampyrus	GCTGCTGCTTACATGAGGGAT-----GTTGACGGGATAAATAAACCCAGTATGACTAGTCGTGGAGATGTCTTCTTATAGTTCTCCAGGAAGAGAGCTCAATGATCTAGGTTTAACTCAGATTACTACTGCAGTCTGA-----GATGGAAAAGTAGAATGT
X_maculatus_#1	GCTGCCGCTTTCCCTGGAGAAC-----CCAGATGGGACTAATAAACCCACCTGACTAGCGGTGGAATCTCTCAATTTCACACTGGAAAAGAACTTCGCATGATCTGGGCTTAAACGACATCAGTTCAGTGATGTAGACTTACTCTGCTGTGAAAGCTGAT
X_maculatus_#2	GATCACACCTGCGCCACCGAAGGGAGGGCTGACGGGAGACAAAGCCAGGCCGTATGACTAGCCATGAACATGTCCTCCAGGCCGTACCAGAGCTGGGAGGACTCCATTGATCTGTGTTTCACTCAAATCAGTACCACAATCTGA-----GAAAGTAGTATCA---
P_sinensis	GACCTCTGTACACGAGGAA-----GTGGATGGGACAAACAAACCCAGTATGACTAGTCGTGGAGATGTCTTCTTACTGTCTCAAGGAAGAGAGAAATCAATGATCTTGGGCTAACTCAAATAACCACTGTGGTTTGA-----GACATTTTTTTGTAATAA
E_caballus	GATCCTGCTTACATGAGGAT-----GTTGATGGGATAAATAAACCCAGTATGACTAGTCATGGAGATGTCT---CATAGTTCTCTAGGAAGAGAGAGTTCAATGATCTAGGTTTAACTCAGATTACTACTGCAGTCTGA-----GATGGAAAAGGGAATAATTT
V_pacos	AATCCCACTACATGAGGGAT-----GTGGATGGGATCAATAAACCCAGTATGACTAGTCGTGGAGATGTCTTCTTGTAGTTCTCCAAGTGGAGGAGCTCAAGATCTAGGCTTAACTCAGTTACTACTGCAGTCTGA-----GAAGGAGAGGTAGAATT
M_eugenii	GACACTCCCTACATGAGAGAG-----GTGGATGGGATAAATAAACCCGTATGACTAGTCGTGGAAATGTCGTCTTATAGTTCTCCAGGAAGAGAGATTCGAATGATCTAGACTAACTCAGATTACCACAGCAGTCTGA-----GTCTGGAAACAGAAAT---
M_musculus	GATCCTGCTTCCATGAGAGAT-----GTGGGAGGGATGAATAAGCCAGTATGACTAGTCGTGGAAATGTCTTCTTATGTTCTCCAAGTAGAGAGAGTTCAATGATCTTGGTTTAAACAGATTACAACTGCAGTCTGA-----AGTGGAAAAGTGAGGTAT
G_gallus	GACCCAGCTTATAGGAGGAA-----GCAGATGGGACAAACAAACCTGTATGACTAGTCGTGGAAATGTCGTCTTACTGCCCGCAAGAGAGAGAGAGTCCAAAGATCTTGGGCTGACACAGATTACCAGTGCAGTTTGA-----ACTAGACTCACTCAGACA
T_rubripes	GACCACAAGTGTCACTGAGGAGTCAAGGAGACACACCTCAGGCCAGACCCGTATGACTAGTCATGGACGGGTCTCTTTAACCTGTCAAGTCTGTGAGGACTCTGGCGAGCTTGGGCTGACCCAAATCACCACAGCCATCTGA-----GAGATGGTCAATTTAT---
M_domestica	GACACTCCCTACATGAGGGAG-----GTTGATGGGATAAATAAACCTGTATGACTAGTCGTGGAAATGTCTTCTATAGTTCTCCAGGAAGAGAGTTCAATGATCTAGGTTTAACTCAGATTACCACAGCAGTCTGA-----GCCTGGAAACATAAAAAA
X_tropicalis	GACCCAGCCTGCAACAGGCAT-----GTTTCTCAAAAGCCAGTATGACTAGCGGTGGAGATGACTTCATTGACTCCACATGGAAGAGAAACA---AATCAACTGGCATTAACTCAGATAACTTCTCTGTATAA-----AGGCCATGTGCTTATATA
F_albicollis	GACCCAGCTTACATGAGGGAG-----GCAGGTGGGACAAACAAACCTGTATGACTAGTTGTGGAAATGTCTTCTTACTGTCTCAGGAGAGAGAGAGTCCAAAGATCTTGGGCTGACACAGATTACCAGTGCAGTTTGA-----AATCAACCCACCCAGACA
P_molurus	GATCCTGCTCATGCTGGGAC-----GCTGATGCTACAAACAAAGCCAGCATGACTAGTTGTGGAAATGTCTATCTATGTTCTCTGGAAGAGAGAAATCAATGATCTTGGATTAACTCAAATAACTACAGCACTATGA-----AATGGACAGTAAAGAGAAC
H_sapiens	GATCCTGCTTACCTGAGGAG-----ATCGATGGGATGAATAAACCCAGTATGACTAGTCGTGGAGATGTCTTCGTACAGTTCTTCGGGAAGAGAGGAGTTCAATGATCTAGGTTTAACTCAGATCACTACTGCAGTCTGA-----CATGAAAAGATAGAATTT
E_europaeus	GATCCCACTTATTTAAGGGAT-----GTTGATGGGATTAACAAGCCAGTATGACTAGTCGTGGAGATGTCTTCTTATAGTTCTCTAGGAGAGAGAAATAGAAATGAGCTAGGCTTAACTCAGATTACTACTGCAGTCTGA-----GATGAAAAGAGC---ATT
L_oculatus	GATCCCGCTTGCCCCAGGAAACT-----GTTGATGGGACGAATAAGCCAGTATGACTAGCAGTGGAGTTATCTCTCTTCCCGCATGGAAGAGAGAGTTCAATGATCTTGGGCTAAACCCAGCTCAGCTCTGGGTCTGA-----ATGTTAAAAATGACAAACT
R_norvegicus	GATCCTGCTTCCATGAGGGAT-----GTGGGTGGGATGAATAAGCCAGTATGACTAGTCATGGAATGTCTTCCTATGTTCTCCGGGTAGAGAGAGTTCAATGATCTTGGTTTAAACCCAGATTACCAGTGCAGTCTGA-----AGAGGAAAAGATGAGGTAT
A_mississippiensis	GACCTGCTTATACAAGGGAT-----GCAGATGGGACAAACAAACCCGTATGACTAGTCGTGGAGATGTCTTCTTATGTTCTCAAGGAAGAGAGAAATCAATGATTTAGGACTAACTCAGATAACTACTCCCGTTTGA-----GTGCAGTTTGCCACACAG
S_salar_#1	GAGGCCCCAGTTCCACTGGTGAAC-----CCACACGGGACTAGAAAAGCCGGCATGACTAGCCATGGAAGTGTCTTTCATTCTCAAGTTGGAAGGAGAGCTCAATGATCTGGGCTTAAACCCAGCATATCAGGAATGTGA-----GCACAGCAGTGCTAC
D_novemcinctus	GATCCCGCTTACGGGAGGGAT-----GTGCACGGGCTGAACAAACCCGTATGACTAGTCGTGGAGATGTCTTCCTGCAGTTCTCCGGGAAGAGAGGAGTTCAAGATCTCGGCTTGACCCAGATCACAACGGCAGTCTGA-----GACCGGGAGAGAGAAATTT
P_flavescens	GACCACACATGTCCCACAGAAAGCCCGGGGAGATATGAGGCAGGCCCGGCTGTATGACTAGCCATGGACACATCTTTATGCCCTATCAGGGCTGGGAGGACTCCGAATGAGCTGGGATTGACTCAAGTCACTACTCCCATCTGA-----GGGAAGGCTATAGAGGGC
L_chalumnae	GACCTTGTTTTTCCCGAGAGTTT-----ACAGATACAACATAACAATCCGTATGACTAGGAGTGACAATGTCTTCTTTTCCCTCAAGGAAGAGAGAAATCAGGTGAGCTGGGCTTAACTCAAACTACTACAGCTCTCTGA-----ACTGCACAGGCTCAGAAA
M_gallopavo	GACCCAGCTTATAGGAGGAA-----GCAGATGGGACAAACAAACCTGTATGACTAGTCGTGGAAATGTCGTCTTAT---CCGCAAGAGAGAGAGGAGTCCAAATGATCTTGGACTGACACAGATTACCAGTGCAGTTTGA-----ACTCGACTCAGACAGACA
C_picta_bellii	GACCTGCTTACCTGAGGAA-----GTGGATGGGACAAACAAACCCAGTATGACTAGTCGTGGAGATGTCTTCTTACTGTCTCAAGGAAGAGAGAAATCAATGATCTTGGACTAACTCAAATAACCACTGTGGTTTGA-----GACATTTTTTGATAATATT
E_edwardii	GACCTGCTTACATGAGGAT-----GTGGATGGGATAAATAAATCAAGTATGACTAGTCGTGGAGATGACCTGCTATAGTTCTGCAGACAGAGAGAGTTTAAATGATCTAGGCTCAACTCAGATTACAACAGCAGTCTGA-----GAAGGAGAAAAG---AAG
H_burtoni_#2	GAGGCCGCTTTCCCTGGAGAAC-----CCAGATGGGACTGGGAAGCCGACATGACTAGCAGTGGAATCTCTCAATCTCCACACTGGAAAAGAACTCACAATACCTGGGCTTAAACACATCACAACAGCAATGTAG-----ACTGGGTTTTGGATTAC
A_carolinensis	GAGCCTGTGTATACTAGGGAT-----GCTGATGCCACAAACAAGCCAGTATGACTAGTCGTGGAAATGTCTTCTTATGTTCTCCCGGCCGAGAGGAATCCAAATGATCTTGGAAATACTCAAATAACCAAGTGCAGTGTGA-----AATAACCAACAACACACA
M_zebra_#1	GATCATTCTTGCCTGCAGAACTCGGGGAGCGGTAAAGCAAGCCAGGCCGTATGACTAGCCATGGACATGTCCTCTATGCCCTATCAGAGCTGGGAGGACTCCGAATGAGCTGGGCTTAACTCAAATCAGTACAGCTATCTGA-----GATAAAAGCCAGAGT---
M_zebra_#2	GAGGCCGCTTTCCCTGGAGAAC-----CCAGATGGGACTGGTAAGCCGACATGACTAGCAGTGGAATCTCTCAATCTCCACACTGGAAAAGAACTCACAATACCTGGGCTTAAACACATCACAACAGCAATGTAG-----ACTGGGTTTTGGATTAC
O_orca	GATCCTTCCACCTGAGGGAT-----GCTGATGGGATAAATAAACCCAGTATGACTAGTCGTGGAGATGTCTCTCTGTAGTTCTCCGGGTAGAGAGGAGTTCAAGATCTAGGTTTAACTCAGATTACTACTGCAGTCTGA-----GCTGGAAGGGCAGCAGTT
C_asiatica	GATCCTGCTTATATGAGGAT-----GTGGGTGGGATAAATAAGCCAGTATGACTAGTCGTGGAGATGTCTCTTATAGTTCTGTGAAAGGGAAGGATTCGAATGATCTAGGTTCAACTCAGATTATGACCACAGTCTGA-----GACGGAGAGAGAGGACAT
L_africana	GAGCCTGCTTACATGAGGAT-----GTGGATGGGATAAATAAGCCAGTATGACTAGTCGTGGAGATGTCTCTTATAGTTCTGCAGGAAGAGAGAGTTCAATGATCTAGGCTCAACTCAGATTACAAGTGCAGTCTGA-----GAT---GAGAGAGGGAAT
G_aculeatus_#2	GATCACTCGTGTCCCCAGAGGCCGAGGAGACCGGAGGCGGGCCAGGAACGTATGACTAGCCATGGACTCGGCCCTGATGCCCTCTCAGATCTGGGAGGAGTCCGAATGAGCTGGGCTTAACTCAAATCAGTACAGTCTGA-----GGGACGTAAAGCAGAGCT
H_burtoni_#1	GATCATTCTTGCCTGCAGAACTCGGGGAGCGGTAAAGCAAGCCAGGCCGTATGACTAGCCATGGACATGTCCTCTATGCCCTATCAGAGCTGGGAGGACTCCGAATGAGCTGGGCTTAACTCAAATCAGTACAGCTATCTGA-----GATAAAAGCCAGAGT---
B_taurus	GATCCTTCCACCTGAGGGAG-----GTTGATGGGCTAATAAACCCAGTATGACTAGTCGTGGAGATGTCTTCTTATAGTCTCCGGGTAGAGAGAGTTCAATGATCTAGGTTTAACTCAGATTACTACGAGTCTGA-----GATGGAAGGGGAGAAATT
S_harrisii	GACACTCCCTACATGAGAGAG-----GTTGATGGGATAAATAAACCTGTATGACTAGTCGTGGAAATGTCTTCTTATAGTTCTCCAGGAAGAGAGGATTCGAATGATCTAGGTTTAACTCAGATCACTACAGCAGTCTGA-----GCCTAGAAACATAGA---
S_salar_#2	GAGGCCCCACTGCCACTGGAGAAC-----CCAGACGGGACTAGAAAAGCCGGCATGACTAGCCATGAGATGTCTTCCATTTCGGGCTTGGAAAGGAACTCCGAATGATCTGGGCTTAAACAGCTGACATCAGGAATGTAA-----GCACACACAACAGTG
P_alecto	GCTGCTGCTTACATGAGGGAT-----GTTGACGGGATAAATAAACCCAGTATGACTAGTCGTGGAGATGTCTTCTTATAGTTCTCCAGGAGGAAGAGTTCAATGATCTAGGTTTAACTCAGATTACTACTGCAGTCTGA-----GATGGAAGAGTAGAATGT
S_scrofa	GATCCAGCTTACATGAGGGAT-----GCTGATGGGATAAATAAGCCAGTATGACTAGTCGTGGAGATGTCTTCTTATAGTTCTCCAAGTAGAGAAATGTTCAATGATCTAGGTTCAACTCAGATTACAAGTGCAGTCTGA-----GCATGGAAGGCTAGAAAT
O_afer	GATCCTGCTTACATGAGGAT-----GTGGATGGGATAAATAAGCCAGTATGACTAGTCGTGGAGATGTCTCTCTATATCTTACAGAAAGGGAAGAGTTCAATGATCTAGGTTCAACTCAGATTACAAGTGCAGTCTGA-----GATAGAGAGGG---ATT
O_latipes_#1	GAGGCCGCTATTGCCCTGGAGAAC-----CCGATGGGACTAGTCGCCAACAATGACTAGCGGTGGAATCTCTTGGATTCTCATATAGGAAGAAAGAGTCCGAATGATCTGGTTTACACACATCACAACAGCCATGTAA---CAGGATTTTTATCAGAAAACA
O_latipes_#2	GACCACACCTGCCCCCCCCGAAGGCCGGGGCAACGTGAAGCAGCCCAGGCCGTATGACTAGCCATGGACAGGCCCTCTGTCCGTTCCACAGCTGGGAGGACTCCGAATGAGCTTGTGTGACACAAGTCACTAGTATTAA-----ACAAACCTGCTACGAACT
O_niloticus_#2	GAGGCCGCTTTCCCTGGAGAAC-----CCGATGGGACTGGTAAGCCGACATGACTAGCGGTGGAATCTCTCAATCTCCACACTGGAAAAGAACTCACAATACCTGGGCTTAAACACATCACAACAGCAATGTAG-----ACTGGGTTTTGGATTAC
O_niloticus_#1	GATCACTCGTGCCTGCAGAACTCAGGGAAGTGTAAAGCAAGCTAGCCCTGTATGACTAGCCATGGACATGTCCTCTATGCCCTATCAGAGCTGGGAGGACTCCGAATGAGCTGGGCTTAACTCAAATCAGTACAGCTATCTGA-----GATAAAAGCCAGAGT---
P_capensis	GATCCTGCTTACAGCAAAGAC-----GTAGACGGGATAAACAAGCCAGTATGACTAGTCGTGGAGATGTCTTCTCATAGTTCTGTGGGAAGAGATGGGTTTAAATGATCTAGGCTCAACTCAATTCAGTGCAGTATGA-----GATAGAGAGGGA---ATT

Supplementary Figure 3D

root	TGCAAGACCTCTGAGACAGTGCCGCCAGGGGGAGGGACGCCCGGCCCGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGCCCGGACCAGAGCGGAGAGACCCAGAGCCCGTCAACACCCCAACACGGAGCTCACCCAGGTCACTGCTCTCTAGTAGGCTGACACACAACCTGACCTCTGCGTCCCT
X_maculatus	TACAAAGGGCGGGGACGGCGGGGAGGCCCGGTGCGGGACGCGCAATCCAGCATGACTAGGCGTGAGCTTCCTTTGGTGGGGGTCGTCCCAACGAGAGGGGGAGAGACTCATGGGACAGGGAACCTCCAAACACAGAGTAACCTCAGATCACGGCTCTCTAG---CGGCACGAGCCCTCCCGCCCCCAACTCGC
G_fortis	TGCAAGAATTCAGAGGGGACTAAC-----AATCCGGCCTGACTAGGCATGGAAATCCCATGGTGGCTGTCGCCAG-----CAGAGTCCGACCACCCACATCAGAACTGACTCAGATAACGGCCCTTAG-----CAGGACCCCAAACTGAGAGGTGAGAA
M_undulatus	TGCAAGAATTCGGAGGGGACTAAC-----AATCCGGCCTGACTAGGCATGGAAATCCCATGGTGGCTGTCGCCAG-----CAGAGTCCAACCACCCACGTCCGAGGTGACTCAGATAACAGCTCTTAG-----CAGGACCTCCAAAATGTA-----
P_nyererei	TGCAAAGCCGGAGACGGCGGGGGGCTAGGGGGAGGGACGCCGAATCCAGCATGACTAGGCGTGAGCTGCCCTTGGTGGGGGTGGACCCCAACAGAGGGGAGAGACCATGGAACTGGGAACCTCCAAACACAGAATTGACTCAGATTACAGCTCTCTAG---CGGCACGAGCCCTCCCGCCCCCAATGAGG
T_truncatus	CGCAAGACCTCTGAGATGGTGCCA-----CGGCCGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGCCCG-----CAGAGCCATCCACAACAACACGGAGCTCACCGAGGTCACTGCTCTCTAG---SCAGACGTGCAGCTGCGCATCACCAGCCTC
M_davidii	CGCAAGACCTCAGAGATGGTGCCG-----AGGCCTGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGCCCG-----CAGAGCCCGTCAACACCCAAACACGGAGCTCACCCAGGTCACTGCTCTCTAG---GCTGATGCACAACCTGACCCCTGAGTCTCA
D_rerio	TGCAAGACTACAGACGGGAACAGT-----AATCCCGCATGACTAGGCGTGAGCTGCCCCTGGTGCAGCCAGAGCCG---CAAACCAAT-----CCAGGGACCGGAAGCTCAAGTTCTGAGTTGACTCAGATCACACACTCTAG---CACCACAGTTACCTCCGCCAGGTGGGCGGG
M_p_furo	TGCAAGACTTCTGAGACAGTACCA-----CGGCCTGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGCCCG-----CAGAGCCATCAACACCCAAACACGGAGCTCACCCAGGTCACTGCTCTCTAG---GCTGACCTGAACTTGGTTCTTGGGCATTG
T_guttata	TGCAAGAATTCGGAGGGGACTAAC-----AATCCGGCCTGACTAGGCATGGAAATCCCATGGTGGCTGTCGCCAG-----CAGAGTCCGACCACCCACGTCAAGAACTGACTCAGATAACGGCCCTTAG-----CAGGACCCCAAACTGAGAGGTGAGAA
P_vampyrus	CGCAAGACCTCCGAGACCGTGCCG-----CGGCCCGCATGACTAGGCGTGGACCTGCTATGGGCTGTCAGCCCG-----CAGAGCCCGTCAACGCCAAACACGGAGCTCACCCAGGTCACTGCTCTCTAG---GCTGACAGCTGCCTGAGC---CCTGGGCGT
P_sinensis	TGCAAGAATTCAGAGGGGACTAAC-----AATCCCGCATGACTAGGCATGGAACTGCCCATGGTGCCTGTCAGCCAG-----CAAAGCCACAGACCCACCTCCGAGCTAACTCAGATCACAGCTGTGTAA-----CAGGAGCTTTCTGACCCAGCATTGGAG
E_caballus	TGCAAGACCTCTGAGACAGTCCG-----CGGCCTGCATGACTAGGCGTGGACCTGCCCATGGCTCCTGTCAGCCCG-----CAGAGCCCGTCAACACCCAAACACGGAGCTCACCCAGGTCACTGCTCTCTAG---GCTGATGCACCACTGAGCCCTGAGCCCT
N_brichardi	TGCAAAGCCGGAGACGGTGGGGGGCTAGGGGGAGGGACGCCGAATCCAGCATGACTAGGCGTGAGCTGCCCTTGGTGGGGGTGGACCCCAACAGAGGGGAGAGACCCTGGAACTGGGAACCTCCAAACACAGAATTGACTCAGATTACAGCTCTCTAG---CGGCACGAGCCCTCCCGCCCCCAACGAGG
M_eugenii	TGCAAGACTTCAGAAACTGTACCC-----AGGCCCGCATGACTAGGCGTGAACTGCCATAATGCCACAGCACC-----CAAAGTCCATCCACACCCAAACACAGAACTCACCGCAGCTAACAGCTGTGTAA---TGGAGCTGTCTTCAGACTCAGTGTGGGCCA
M_musculus	TGCAAGACCTCTGAGACAGTACCA-----CGGCCGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGTCCA-----CAGAGCCATCTACACCCAAACACGGAGCTCACACAGGTCACTGCTCTCTAG---GTTGACCT-----GAACTGAGCGTCTGG
G_gallus	TGCAAGAATTCGGAGGGGACTAAC-----AATCCGGCCTGACTAGGCATGGAAATCCCATGGTGGCTGTCGCCAG-----CAGAGTCCAACCACCTCCACATCAGAGCTAACTCAGATAACGGCCCTTAG-----CAGGACCTCAAGACTGAGAAACCA---
T_rubripes	TGCAAGGCCGGCGGCGGTGACGGGCCTGGGGGCGGGACACCTAATCCAGCATGACTAGGCGTGAGCTTCCCCTTGGTGGGGATAGACCCCAACAGAGGGGAGAGGCGCAGGGGAGAGGGAATTCCAAACACAGAACTGACCGCAGATTACAGCGCTCTAG---CGGCATGAGCCCCCGCGCCCCACCAACGAGG
M_domestica	TGCAAGACTTCAGAAACTGCCCC-----AGGCCCGCATGACTAGGCGTGAACTGCCATGATGCCACAGCACC-----CAAAGCCCCGTCCACACCCAAACACAGAGCTCACCGCAGCTAACAGCTTTGTAG---AGGAGCTCTCCTCAGACTCAGTGTGGGCCA
F_catus	TGCAAGACCTCTGAGACAGTACCA-----CGGCCCGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGCCCA-----CAGAGCCCCGTCCACACCCAAACACGGAGCTCACCCAGGTCACTGCTCTCTAG---GCTGACGGCAACCTGAGC---CCTGAGCGT
S_salar	TGCAAGACGGCGGATGGGAATACA-----AACCCCGCATGACTAGGCGTGAGCTGCCCCTGGTCTGCCAGGAACCC---CAGAAACAACCACCACCAAGGGACAGGGAACCTCCAAACATGGAGCTCACCCAGATCACTACCTCTAG-----CAGCTTGTCTGGC
F_albicollis	TGCAAGAATTCGGAAAGGGACTAAC-----AATCCGGCCTGACTAGGCATGGAAATCCCATGGTGGCTGTCGCCAG-----CAGAGTCCGACCACCCACGTCAAGAACTGACTCAGATTACGGCCCTTAG-----CAGGACCTCAAACTGAGAGGTGAGAA
P_molurus	TGCAAGAATTCGGACGGGACTAAC-----AACCCGGCATGACTAGGCGTGAACTGCCATGTTTCTGTCAGTCAG-----CAGAGCCACACACACCCACGTCCGAGCTAACTCAGATAACCGCTCTTAGA---AGGGCAGATCTCTTGACCCAGAAATGGAGA
O_rosmarus	TGCAAGACCTCTGAGACGGTACCA-----CGGCCCGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGCCCA-----CAGAGCCCATCTACGCCCAACACAGAGCTCACACAGGTCACTGCTCTCTAG---GCTGACACCCAGCCTGTGTCTGTAGCATTTG
H_sapiens	TGCAAGACCTCTGAGACGGTACCG-----CGGCCCGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGCCCG-----CAGAGCCCATCTACGCCCAACACAGAGCTCACACAGGTCACTGCTCTCTAG---GCGGACACACCCCTGGGCCCCTGAGCATCCAG
L_oculatus	TGCAAGAATGCAGATGGGACTAGT-----AATCCAGCATGACTAGGCGTGAGCTGCCACTAGTCAGCATGCCCCAA-----CCAAAGCCTGGCAATTCCGAACGCTGAGCTTACCCAAATAACAGCCCTTAG---CATTCTGTGTATTATACCACTGAACAC
C_simum	TGCAAGACCTCTGAGACAGTGCCG-----CGGCCTGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGCCCG-----CAGAGCCCGTCAACACCCAAACACAGAGCTCACCCAGGTCACTGCTCTCTAG---GCTGACACACAACCTGAGACCTGAGCATCA
A_mississippiensis	TGCAAGAATTCAGAGGGGACTAAC-----AATCCGGCCTGACTAGGCATGGAAATCCCATGATGGCTGCCAGTCAG-----AAAAGTCCACCCACCCACTTTCAGAGATAACTCAGATAACAGCCCTTAGA---CAGTGGCTTTCTTACCCAGAGTTGCAG
O_anatinus	TGCAAGACCTCAGATGGGACGAAC-----AACCCCGCATGACTAGGCATGGAACTGCCGGTGATCCGGGCCAGCACA-----CAGAGCCCCACGACCCCGAACACGGAACTCACTCAGGTCACTGCTCTCTAG---TCTGGGGTAAGATCAGGCTCCAGGTTGGAA
L_chalurnae	TCCAAAATCTCCGATGGGACTCAC-----AACCCGGCATGACTAGGCACGGAGCTACCCCTGGTAGCCGTCACCCGA-----GAGAGCCAGCCCCAGCCCTAACCGCAGAGCTGACCGCAGATAACCACTCTTAGTAG---CCAAGCGCCAGGCCATCGGGGGCCCCAAACT
M_gallopavo	TGCAAGAATTCGGAGGGGACTAAC-----AATCCAGCCTGACTAGGCATGGAAATCCCATGGTGGCTGTCGCCAG-----CAGAGTCCAACCACCTCCACATCAGAGCTAACTCAGATAACAGCCCTTAG-----CAGGACCTCAAACTGAGAAACCA---
M_zebra	TGCAAAGCCGGAGACGGCGGGGGGCTAGGGGGAGGGACGCCGAATCCAGCATGACTAGGCGTGAGCTGCCCTTGGTGGGGGTGGACCCCAACAGAGGGGAGAGACCATGGAACTGGGAACCTCCAAACACAGAATTGACTCAGATTACAGCTCTCTAG---CGGCACGAGCCCTCCCGCCCCCAATGAGG
O_princeps	TGCAAGACACCGGACACAGTGCCA-----CGGCCTGCATGACTAGGCGTGGACCTGCCCATGGGCCCATCAGTCCC-----CAAAGCCCATCCACACCCAAACACAGAGCTCACACAGGTCACTGCTCTCTAG---GTTAACTCTGAGCTGCTGATGGGCTTCAC
C_l_familiaris	TGCAAGACCTCTGAGACGGTGCCG-----CGGCCCGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGCCCG-----CAGAGCCCGTCAACGCCAAACACGGAGCTCACCCAGGTCACTGCTCTCTAG---GCTGACGCCCAACCTGAG---TCCTGAGTA
A_carolinensis	TGCAAGAATTCAGATGGGACTAAC-----AATCCGGCATGACTAGGCGTGAAATTCGATGGTGCCTGTCAGCCAA-----CAGAGCCACAGACCCACGTCCGAGCTAACTCAGATAACAGCCCTTAAT---AGTACAAATATTTTTGATCCAGGGCTAGAG
A_melanoleuca	TGCAAGACCTCTGAGACGGTACCA-----CGGCCCGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGCCCT-----CAGAGCCCGTCAACACCCAAACACGGAGCTCACCCAGGTCACTGCTCTCTAG---GCTGACACCCAACCTGAGTCTGAGCATTTG
C_p_bellii	TGCAAGAATTCAGAGGGGACTAAC-----AATCCAGCATGACTAGGCATGGAAATCCCATGGTGGCTGTCAGCCAG-----CAGAGCCACAGACCCACTTTCAGAGCTAACTCAGATAACAGCTCTTAAT---CAGGAGCTTTCTGACCCAGAATTGGAG
O_latipes	TGCAAGGCCGGTGATGGAGGGGAGCTAGGGGGAGGAACGCTAATCCAGCATGACTAGGCGTGAGTTCCCTTTAGTGGGGTAGAGCCCAACAGAGGGAGAGAACCATGGGTACAGGAGTTCCAAACACAGAATTGACCCAGATTACTGCTCTCTAG---CGGCGCGAGCCCTCCCGTCCCCCAACTAGG
C_ferus	TGCAAGACCTCGGAGACAGTGCCG-----CGGCCTGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGCCCA-----CAGAGCCCGTCAACACCCAAACACGGAGCTCACCCAGGTCACTGCTCTCTAG---GCTGACACATGACCTGAGCATCACCAGCCT
X_S_tropicalis	TGCAAGAATTCGGACGGGCGGAAT-----AATCCGGCATGACTAGGCATGGAACTGCCCATGATGGGGACAGATATAGAC-----CAAAGGGGTCACTAGTCCGACGGCAGAACTGACGCAATTACAGCCCTTAGA---CCAGATGATGGAGGTGTGGGCCATGACAC
C_jacchus	TGCAAGACTTCTGAGCGGTGCCG-----CGGCCCGCATGACTAGGCGTGGACCTGCCCATGGTGCCTGTCAGTCCG-----CAGAGCCCTCTACGCCCAACACAGAGCTCACACAGGTCACTGCTCTCTAG---GCTGACACAACCTGAGCCCTAGCACCACAG
L_africana	TGCAAGACCTCAGAGACAGTGCCG-----CGGCCTGCATGACTAGGCGTGGACCTGCCCCTGGTGCCTGTCAGTCCG-----CAGAGCCCGTCCACGCCCAACACGGAGCTCACCGAGGTCACTGCTCTCTAG---CTGGTGGCCAAGCCTAAGCACCACAGCCTC
G_aculeatus	TACAAAGGCC---GACGGCAGGGGGTCTGGGAGGAGGGACGCCGAATCCAGCATGACTAGGCGTGAGCTGCCCTTGGTGGGGGTGGACCCCAAGAGAGGGGGAGAGAACAGGGGACGGGAACCTCCAAACACAGAATTGACTCAGATCACAGCTCTCTAG---CGGCACGAGCCCCTCGCCCCCAACGAGA
S_harrisii	TGTAAGACTTCAGAAACTGCCCC-----AGGCCCGCATGACTAGGCGTGAACTGCCATAATGCCACAGCACC-----CAAAGCCCATCCACACTAACACGGAGCTCACACAAGTAAGTCCCTTAG---TGGGGCTCTTTTCAGACTCCCTGATGGGCCA
T_manatus	TGCAAGACCTCAGAGACAGTGCT-----CGGCCCGCATGACTAGGCATGGACCTGCCCCTGGTGCCTGTCAGCCCG-----CAGAGCCCGTCCACGCCCAACACGGAGCTCACACAGGTCACTGCTCTCTAG---CTGATGGCCGAGCCTAAAGCACCACAGCCT
S_serofa	TGCAAGACCTCCGAGACCGTGCCG-----CGACCTGCATGACTAGGCGTGGACCTGCCCATGCCCTGTCAGCCCG-----CAGAGCCATCCAGACCCCAACACGGAGCTCACCCAGGTCACTGCTCTCTAG---GCTGACATCAAATA-----ACGGGGCAG
H_burtoni	TGCAAAGCCGGAGACGGCGGGGGGCTAGGGGGAGGGACGCCGAATCCAGCATGACTAGGCGTGAGCTGCCCTTGGTGGGGGTGGACCCCAACAGAGAGGGGAGAGACCATGGAACTGGGAACCTCCAAACACAGAATTGACTCAGATTACAGCTCTCTAG---CGGCACGAGCCCTCCCGCCCCCAACGAGG
T_nigroviridis	TGCAAGGCTTCTGATGGGGAGGGGCCAGGGGGTGGGACACCCAAATCCAGCATGACTAGGCGTGAGCTTCCCCTTGGTGGGGATGGATCCCAACAGAGAGGAGGGACTCCAGGAACAGGCAACTCAACACAGAACTGACCCAGATTACAGCTCTCTAG---CGGCACGAGCCCCTCACCCTCCGATGAGA
O_niloticus	TGCAAAGCCGGAGACGGCGGGGGGCTGGGAGGAGGGACGCCGAATCCGCATGACTAGGCGTGAGCTGCCCTTGGTGGGGGTGGACCCCAACAGAGGGGAGAGACCATGGAACTGGGAACCTCCAAACACAGAATTGACTCAGATTACAGCTCTCTAG---CGGCACGAGCCCTCCCGCCCCCAACGAGG

Supplementary Figure 3E

root	TTTGTGATGCTCCCAGATTGGTCCAGAAAAGAAAAGATAGACTGAATTTGTGTTTGTGAAAAGCGGCTTGCGTTGGAAGATTCCATTATGTCCTCTTCATCCTACTCTTCTTCTTCTCCTCCTCACTCTACCATCGGCATCAGCAGAACTGGAGTCTTTACTGACCCGCTTTCCACATCAGC
L_erinacea	TTTGTGATGCACCGAGGCTGGTTGAGAAAAGAGATGACTGAATGTGTACCTGTGGAAGAGAGCTTAGCCACCAAGATTCT---GTG-----CAAATGTGGAGGATCTTCATACTGCTTTCCACGCACCA
G_fortis	TTTGTAGATGCACCCAAAGCTGTCCAGAAAGGAGAAAGTGAATTTGTGTGTGGAAGAGCGGCTTGGTACTGAGGATTCTTCAAAC-----CACACTTGGAGTCTGTACTGACCTGCTTTCCACACCAAA
P_nyererei	TTTGTAGAGCTCTAAAGCTGTCCAGAAAGGAGAAAGTGAATGTGTGCGTGTGGAAGAGAGCTGGCCCTCGCAAACTCACCACCCTGTCCTCTTCCCTGTCATCACTTTAT-----CTGCATCAGCAGGCTGGAGCTTTACTAAACGCTGGAGCGAGGAGGTT
O_aries	TTTGTGATGCTCCCAGATTGGTCCAAAAGAAAAGATAGACTGAATTTGTGTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCATCATG-----CAGAACTGGAGTCTTTACTGACCCGCTTTCCACGGCAGC
O_anatinus	TTTGTGATGCCCCAAAGCTGTCCAGAAAAGAAAAGATAGACTGAATTTGTACCTGTGGAAGAGCTTGGCTTGGAAGACTTCCCGGAGG-----CAAACCTGGAGTCTGTACTGACCCGCTTTCCACACCAAC
D_rerio	TTTGTGGACGCCCCGCGGCTGGTGCAGAAAGGAGAAAGTGAACCTGGCTGTGGAAAGCAGTCGGGCCCGCGGAGCCTTCATCCCTCATCTCA-----CCCTGGAGCCTGTACTGATGACGATGATGATGATGA
M_conophoros	TTTGTAGAGCTCTAAAGCTGTCCAGAAAGGAGAAAGTGAATGTGTGCGTGTGGAAGAGAGCTGGGCCCTCGCAAACTCACCACCCTGTCCTCTTCCCTGTCATCACTTTAT-----CTGCATCAGCAGGCTGGAGCTTTACTAAACGCTGGAGCGAGGAGGTT
X_maculatus	TTTGTGGAGCTCCCAAAGCTGGTTGAGAAAGGAGAAAGTGAATGTGTGCGTGTGGAAGAGAGCTGGGCCCTGGCGACTTAAACATGTCA-----TCACCTCCCCCCCCACCATCGGCATCTGCAGGCCGGAGCCTGTATAACATGACCAGAGCAGACA
O_niloticus	TTTGTAGAGCTCTAAAGCTGGTGCAGAAAGGAGAAAGTGAATGTGTGTGTGGAAGAGAGCTGGGCCCTCGCAAACTCACCACCCTCATCTCTACCTCGTCATCACTTTAT-----CTGCATCAGCAGGCTGGAGCTTTACTAAACGATGCTGGAGTGAGGA
T_guttata	TTTGTAGATGCACCCAAAGCTGTCCAGAAAGGAGAAAGTGAATTTGTGTGTGGAAGAGCGGCTTGGTACTGAGGATTCTTCAAAGC-----CACACTTGGAGTCTGTACTGACCTGCTTTCCACACCAAA
M_undulatus	TTTGTAGATGCACCCAAAGCTGTCCAGAAAAGAGATGACTGAATTTGTGTGTGGAAGAGCGGCTTGGTAGTGAGGATTCTTTGAGC-----CACACTTGGAGTCTGTACTGACCTGCTTTCCACACCAAA
T_californica	TTTGTGATGCTCCGAAGCTGGTTGAGAAAAGAGATGACTGAATGTGTACCTGTGGAAGAGAGCTTCGCCGCAAGATTCT---GTG-----CAAATGTGGAGGATCTTCATACTGCTTTCCACGCACCA
G_morhua	TTGCTGGACGCCCCAAAGCTGGTGCAGAAAGGAGAAAGTGAATGTGTGCGTGTGGAAGAGAGCTGCCCCCAGAGACCACTCCTCCGTCCTCTCTCCCTCTCTTCTTCACTCTACCGCCCCCATCAGCGGGCTGGAGCCTGTACTGACCCCGGGATGGTTGAGG
P_sinensis	TTTGTGATGCACCAAACTGGTTGAGAAAAGAGATGACTGAATTTGTGTGTGGAAGAGCGGCTTGGCATGGAGGACTCTTCAAAGC-----CATACTTGGAGTCTGTACTGACCTGCTTTCCACACCAAC
O_garnettii	TTTGTGATGCTCTAGATTGGTCCAGAAAAGAAAAGATAGACTGAATTTGTGTTTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCATGATG-----CAGAACTGGAGTCTTTACTGACCTGCTTTCCACATTAGC
P_promelas	TTTGTGGACGCCCCAACTGGTGCAGAAAGGAGAAAGTGAACCTGGCTGTGGAAAGCAGCTTGGTCCCATCGAGTCTTCATCTCTCTCTCTTCATCCTCAGTCCTGTCTTACTCTCAGCTTCAG-----CGGGCTGGAGCCTGTACTGAGGAAGAGGACGAAGGCCCT
G_aculeatus	TTGCTAGACGCCCCAAAGCTGTCCAGAAAGGAGAAAGTGAATGTGTGCGTGTGGAAGAGAGCTTGGCCCTGGCGACTCACCGCCCTCATCTCTGGCTCTTCGTCACTTTACCCCGAGGCCGGAGCTTTACTGACGGAAGGGGTGGAGTGGA
M_eugenii	TTTGTGATGCTCCAAAAGCTGTCAAAAGAAAAGATAGACTGAATTTGTATGTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCACAATT-----CAGAAATGGAGTCTTTACTGATCTGCTTTCCACACCAAC
X_laevis	TTTGTGATGCCCCAAACTGGTTGAGAGAAAAGATGACTGAATTTGTGTGTGGAAGAGAGCTTAGCAGTGACAGTTGGGTAAAC-----CCAGTATGGAGTCTTTATGTAGCTGCTTTCCACACACACA
M_musculus	TTTGTGATGCTCCCAGACTGTCCAGAAAAGAAAAGATAGACTGAATTTGTGTTTGTGGAAGAGCGGCTTGGCTTGGAAGACTTCCATGATG-----CAGAACTGGAGTCTTTACTGACCTGCTTTCCACGTGAGC
G_gallus	TTTGTAGATGCACCCAAAGCTGTCCAGAAAAGAGATGACTGAATTTGTGTGTGGAAGAGCGGCTTGGTACTGAGGATTCTTCAAAGC-----CACACTTGGAGTCTGTACTGACCTGCTTTCCACACCAAA
M_domestica	TTTGTGATGCACCCAAAGCTGTCAAAAGAAAAGATAGACTGAATTTGTACATGTGGAAGAGCGGCTTGGCTTAGAGGATTCCACAATT-----CATAATTGGAGTCTTTACTGATCTGCTTTCCACATCAGC
X_tropicalis	TTGTTGATGCCCCAAAGCTGGTTGAGAGAAAAGATGACTGAATTTGTGTGTGGAAGAGAGCTTAGCAGTGACGGTTCAATTAAC-----CCAGTATGGAGTCTTTATGTAGCTGCTTTCCACACATAA
S_salar	TTTGTAGACGCCCCAAAGCTGTCCAGAAAGGAGAAAGTGAATGTGTGCGTGTGGAAGAGAGCTACGCCCCACAGACTTCTCCTCTTCCACTTCATCCCACTCTTCTTCATCATCG-----TACCCTCAGCATCAGAGGGCTGGAGCCTGTACTGATTACTGAGCAAAAGGCAT
F_albicollis	TTTGTAGATGCACCCAAAGCTGTCCAGAAAGGAGAAAGTGAATTTGTGTGTGGAAGAGCGGCTTGGTAGTGAGGATTCTTCAAAGC-----CACACTTGGAGTCTGTACTGACCTGCTTTCCACACCAAA
P_molurus	TTTGTAGATGCACCTAGGCTATGTCAAAAGGAGAAAATGACTGAATTTGTGTGTGGAAGAGCGGCTTGGTAGAGATGGCCCCCTCAAGT-----CATACCTGGAGTCTGTACTGACCTGCTTTCCACACCAAC
H_sapiens	TTTGTGATGCTCCCAGACTGTCCAGAAAAGAAAAGATAGACTGAATTTGTATTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCATTGTG-----CAGAACTGGAGTCTTTACTGACCCGCTTTCCACATCAGC
R_norvegicus	TTTGTGATGCTCCCAGACTTGTACAGAAAAGAAAAGATAGACTGAATTTGTGTTTGTGGAAGAGCGGCTTGGCTTGGAAGACTTCCATGATA-----CAGAACTGGAGTCTTTACTGACCTGCTTTCCACATGAAC
A_mississippiensis	TTTGTAGATGCACCAAACTAGTTGAGAGGAGAAAGTGAATTTGTGTGTGGAAGAGCGGCTTGGCATGGAGGACTCTTCAAAGC-----CACACTTGGAGTCTGTACTGACCTGCTTTCCACACCAAG
O_cuniculus	TTTGTGATGCTCCCAGATTGGTCCAGAAAAGAAAAGATAGACTGAATTTGTGTTTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCATGATG-----CAGAACTGGAGTCTTTACTGACCCGCTTTCCACGTGAGC
L_sp.	TTTGTAGAGCTCTAAAGCTGTCCAGAAAGGAGAAAGTGAATGTGTGCGTGTGGAAGAGAGCTGGGCCCTCGCAAACTCACCACCCTGTCCTCTTCCCTGTCATCACTTTAT-----CTGCATCAGCAGGCTGGAGCTTTACTAAACGCTGGAGCGAGGAGGTT
L_chalurnae	TTTGTGATGCACCAAACTGGTTGAGAAAAGAGATGACTGAATTTGTGTGTGGAAGAGAGCTTGGGAAGCTGGGATTCTCCTGTG-----CAGGGCTGGAGTCTGTACTGACCTGCTTTCCACACTGAA
M_gallopavo	TTTGTAGATGCACCCAAAGCTGTCCAGAAAAGAGATGACTGAATTTGTGTGTGGAAGAGCGGCTTGGTACTGAGGATTCTTCAAAGC-----CACACTTGGAGTCTGTACTGACCTGCTTTCCACACTAAA
M_mulatta	TTTGTGATGCTCCCAGACTGTCCAGAAAGAAAAGATAGACTGAATTTGTATTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCATTGTG-----CAGAACTGGAGTCTTTACTGACCCGCTTTCCACATCAGC
M_zebra	TTTGTAGAGCTCTAAAGCTGTCCAGAAAGGAGAAAGTGAATGTGTGCGTGTGGAAGAGAGCTGGGCCCTCGCAAACTCACCACCCTGTCCTCTTCCCTGTCATCACTTTAT-----CTGCATCAGCAGGCTGGAGCTTTACTAAACGCTGGAGCGAGGAGGTT
O_mykiss	TTTGTAGACGCCCCAAAGCTGTCCAGAAAGGAGAAAGTGAATGTGTGCGTGTGGAAGAGAGCTACGCCCCACAGACTTCTCCTCTTCTCTTCATCCCACTCTTCTTCATCATCG-----TACCCTCAGGATCAGCGGGCTGGAGCCTGTACTGATTACTGAGCCAACGGCAT
N_leucogenys	TTTGTGATGCTCCCAGACTGTCCAGAAAAGAAAAGATAGACTGAATTTGTATTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCATTGTG-----CAGAACTGGAGTCTTTACTGACCCGCTTTCCACATCAGC
C_milii	TTTGTGATGCACCGAAGCTGGTACAGAAAAGAAAAGTGAATTTGTGTGTGGAAGAGAGCTTGGT---CAAGATTCT---GCC-----CCAATGTGGAGGGTCTACTGACCTGCTTTTACACCAAA
C_griseus	TTTGTGATGCTCTAGATTGGTCCAGAAAAGAAAAGATAGACTGAATTTGTGTTTGTGGAAGAGCGGCTTGGCTTGGAAGACTTCCATGATG-----CAGAACTGGAGTCTTTACTGACCTGCTTTCCACATGAGT
A_carolinensis	TTGCTGATGCGCCCCAGATTGTCCAGAAAAGAGATGACTGAATTTGTGTGTGGAAGAGAGCTTGGTAGGGATGGCTCTTCAAAGT-----CACACCTGGAGTCTGTACTGACCTGTTTCCACACAGC
A_melanoleuca	TTTGTGATGCTCCCAGATTGGTCCAGAAAAGAAAAGTGAATTTGTGTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCATTATG-----CAGAACTGGAGCTTTACTGACCCGCTTTCCACATCAGC
S_harrisii	TTTGTGATGCTCCAAAAGCTGTCAAAAGAAAAGATAGACTGAATTTGTATTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCACGATT-----CAGAAATGGAGTCTTTACTGATCTGCTTTCCACACAGC
C_jacchus	TTTGTGATGCTCCCAGACTGTCCAGAAAAGAAAAGATAGACTGAATTTGTGTTTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCATTGTG-----CAGAAATGGAGTCTTTACTGACCCGCTTTCCACATCAGC
N_brichardi	TTTGTAGAGCTCTAAAGCTGTCCAGAAAGGAGAAAGTGAATGTGTGTGTGGAAGAGAGCTGGGCCCTCGCAAACTCGCCGCCCTGTCCTCCACCTCGTCATCACTCGAT-----CTGCATCAGCAGGCTGGAGCTTTACTAAACGCTGGAGCGAGGAGGTC
S_salar_#2	TTGCTGGACTCCCAAACTGGTGCAGAAAAGAGATGACTGAACCTGTGTGTGTGGAAGAGAGCTGGGCCCA---GCGTACTCCTATACCTCTTCATCCAACTCTTCTTCTTCCCTCC---CGGCTGCTTGAGGCTCGGACACTGTACTGACCTGCACTCACACTGTC
B_taurus	TTTGTGATGCTCCCAGATTGGTCCAAAAGAAAAGATAGACTGAATTTGTGTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCATTATG-----CAGAACTGGAGTCTTTACTGACCCGCTTTCCACGGCAGC
C_picta	TTTGTAGATGCACCAAACTGTCCAGAAAAGAGATGACTGAATTTGTGTGTGGAAGAGCGGCTTAGCATGGAGGACTCTTCAAAGC-----CATACTTGGAGTCTGTACTGACCTGCTTTCCACACCAAC
S_scrofa	TTTGTGATGCTCCCAGATTGGTCCAAAAGAAAAGATAGACTGAATTTGTGTTTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCATTATG-----CAGAACTGGAGTCTTTACTGACCCGCTTTCCACATCAGC
H_burtoni	TTTGTAGAGCTCTAAAGCTGTCCAGAAAGGAGAAAGTGAATGTGTGCGTGTGGAAGAGAGCTGGGCCCTCGCAAACTCACCACCCTG-----TCCCTGTCATCACTTTAT-----CTGCATCAGCAGGCTGGAGCTTTACTAAACGCTGGAGCGAGGAGGTT
S_bolivensis_bolivensi	TTTGTGATGCTCCCAGACTGTCCAGAAAAGAAAAGATAGACTGAATTTGTGTTTGTGGAAGAGCGGCTTGGCTTGGAAGATTCCATTGTG-----CAGAACTGGAGTCTTTACTGACCCGCTTTCCACATCAGC
D_labrax	TTGTTAGATGCTCCCAGCTGTCCAGAAAGGAGAAAGTGAATGTGTGTGTGGAAGAGAGCTAGGCCCTGGCGAGCTCACCGCCCTCTCTAGCTCTTCATCACTTTACCCG-----CAGCATCAGCAGGCTGGAGCCTGTACTGACAGAGGATGGAGTGAGG

Supplementary Figure 4

A



B



Supplementary Figure 5

