

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Xenopus_tropicalis	MSSVTGNKDRMAVTSRSRKYGVNDVCSPTKSSAPFSPESWYRKAYEESRAGSRPAPEGAG	60
Rhinatrema_bivittatum	MNSVAGSKERIAVTSRSRKFVNEACSPTKPAAPFSPESWYRKAYEESRAGSRPAPEGAG	60
Homo_sapiens	MNSVAGNKERLAVSTRGKKYGVNEVCSPTKPAAPFSPESWYRKAYEESRAGSRPTPEGAG	60
Pan_troglodytes	MNSVAGNKERLAVSTRGKKYGVNEVCSPTKPAAPFSPESWYRKAYEESRAGSRPTPEGAG	60
Macaca_mulatta	MNSVAGNKERLAVSTRGKKYGVNEVCSPTKPAAPFSPESWYRKAYEESRAGSRPTPEGAG	60
Callithrix_jacchus	MNSVAGNKERLAVSSRGKKYGVNEVCSPTKPAAPFSPESWYRKAYEESRAGSRPTPEGAG	60
Canis_lupus_familiaris	MNSVAGNKERLAVSSRGKKYGVNEVCSPTKPAAPFSPESWYRKAYEESRAGSRPTPEGAG	60
Felis_catus	MNSVAGNKERLAVSTRGKKYGVNEVCSPTKPAAPFSPESWYRKAYEESRAGNRPTPEGAG	60
Equus_caballus	MNSVAGNKERLAVSTRGKKYGVNEVCSPTKPAAPFSPESWYRKAYEESRAGSRPTPEGAG	60
Bos_taurus	MNSIAGNKERLAVSTRGKKYGVNEVCSPTKPAAPFSPESWYRKAYEESRAGSRPTPEGAG	60
Mus_musculus	MNSVAGNKERLAVSTRGKKYGVNEMCSPTKPSAPCSPEWYRKAYEESRAGSRPTPEGAG	60
Rattus_norvegicus	MNSVAGNKERLAVSTRGKKYGVNEMCSPTKPSAPFSPESWYRKAYEESRAGSRPTPEGAG	60
Pavo_muticus	-----	
Pavo_cristatus	-----	
Gallus_gallus	MNSVAGNKDRVAVTARSRKYGVTEPCSPTKPAAPFSPESWYRKAYEESRAGSRPVPEGAG	60
Anas_platyrhynchos	MTSVAGTKERGAGTARSRKYGVTEPCSPTKPGAPFSPESWYRKAYEESRAGGRPAPEGAG	60
Chelonia_mydas	MNSVAGNKERIAVTSRSRKYGVTEPCSPTKPAAPFSPESWYRKAYEESRAGSRPAPEGAG	60
Latimeria_chalumnae	MNSVGGNKDRVIMTARNRKYGVTDACSPTK--TAPFSPENWYRKAYEESRAGNRPTPEGAG	59
	1.....10.....20.....30.....40.....50.....60	

Xenopus_tropicalis	SIPGSSGTPSPGSGTSSPGSFGSGSPGPASPGIGNSSPGSLGGSPPGFGTG-----S	110
Rhinatrema_bivittatum	SVPGSSGTPSPGSGTSSPGSFGSGSPGPASPGIGTSSPGSLGGSPPGFGTG-----S	110
Homo_sapiens	SALGSSGTPSPGSGTSSPSSFTGSPGPASPGIGTSSPGSLGGSPPGFGTG-----S	110
Pan_troglodytes	SALGSSGTPSPGSGTSSPSSFTGSPGPASPGIGTSSPGSLGGSPPGFGTG-----S	110
Macaca_mulatta	SALGSSGTPSPGSGTSSPSSFTGSPGPASPGIGTSSPGSLGGSPPGFGTG-----S	110
Callithrix_jacchus	SALGSSGTPSPGSGTSSPSSFTGSPGPASPGIGTSSPGSLGGSPPGFGTG-----S	110
Canis_lupus_familiaris	SALGSSGTPSPGSGTSSPSSFTGSPGPASPGIGTSSPGSLGGSPPGFGTG-----S	110
Felis_catus	SALGSSGTPSPGSGTSSPSSFTGSPGPASPGIGTSSPGSLGGSPPGFGTG-----S	110
Equus_caballus	SALGSSGTPSPGSGTSSPSSFTGSPGPASPGIGTSSPGSLGGSPPGFGTG-----S	110
Bos_taurus	SALGSSGTPSPGSGTSSPSSFTGSPGPASPGIGTSSPGSLGGSPPGFGTG-----S	110
Mus_musculus	SALGSSGTPSPGSGTSSPSSFTGSPGPASPGIGTSSPGSLGGSPPGFGTG-----S	110
Rattus_norvegicus	SALGSSGTPSPGSGTSSPSSFTGSPGPASPGIGTSSPGSLGGSPPGFGTG-----S	110
Pavo_muticus	-----	
Pavo_cristatus	-----	
Gallus_gallus	SALGSSGTPSPGSGTSSPGSFTGSPGPASPGIGTSSPGSLGGSPPGFGT-----GS	110
Anas_platyrhynchos	SALGSSGTPSPGSGTSSPGSFGSGSPGPASPGIGTSSPGSLGGSPPGFGT-----GS	110
Chelonia_mydas	SALGSSGTPSPGSGTSSPGSFGSGSPGPASPGIGSSSPGSLGGSPPGFGTGSPGSGSGSGSS	120
Latimeria_chalumnae	SAAGSSGTPSPGSGTSSPGSFTGSPGPTSPGIGAGSPGSLGSGPPGFGTG-----S	109
	.....70.....80.....90.....100.....110.....120	

Xenopus_tropicalis	PGSGSGGGSSPGSDRGVWCENCNARLVELKQALKLLLPGPFFSGK-----	155
Rhinatrema_bivittatum	PGSGSGGGSSPGSDRGVCCENCNARLVELKQALKLLLPGPFFSSK-----	155
Homo_sapiens	PGSGSGGGSSPGSDRGVWCENCNARLVELKQALKLLLPGPFFPGK-----	155
Pan_troglodytes	PGSGSGGGSSPGSDRGVWCENCNARLVELKQALKLLLPGPFFPGK-----	155
Macaca_mulatta	PGSGSGGGSSPGSDRGVWCENCNARLVELKQALKLLFPGPFFPGK-----	155
Callithrix_jacchus	PGSGSGGGSSPGSDRGVWCENCNARLVELKQALKLLLPGPFFPGK-----	155
Canis_lupus_familiaris	PGSGSGGGSSPGSDRGVWCENCNARLVELKQALKLLLPGPFFPGK-----	155
Felis_catus	PGSGSGGGSSPGSDRGVWCENCNARLVELKQALKLLLPGPFFPGK-----	155
Equus_caballus	PGSGSGGGSSPGSDRGVWCENCNARLVELKQALKLLLPGPFFPGK-----	155
Bos_taurus	PGSGSGGGSSPGSDRGVWCENCNARLVELKQALKLLLPGPFFPGK-----	155
Mus_musculus	PGSGSGGGSSPGSDRGVWCENCNARLVELKQALKLLLPGLPLPGK-----	155
Rattus_norvegicus	PGSGSGGGSSPGSDRGVWCENCNARLVELKQALKLLLPGLPLPGKMLAKDRETMAATRCI	170
Pavo_muticus	-----	
Pavo_cristatus	-----	
Gallus_gallus	PGSGSGGGSSPGSDRGVWCHEHCNARLAELKQALKLLIPGPVSSK-----	155
Anas_platyrhynchos	PGSGSGGGSSPGSDRGVWCHEHCNARLAELKQALKLLIPGPVSSK-----	155
Chelonia_mydas	PGSGSGGGSSPGSGSGVWCENCNARLVELKQALKLLIPGPFFSSK-----	165
Latimeria_chalumnae	PGSGSG--SSPGSDRGIWCENCNARLVELKQALKLLIPGPFFSSK-----	152
	.....130.....140.....150.....160.....170.....180	

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Xenopus_tropicalis      -----DPSLTTVIHDKLVQVNTIRKSWNDRDNRCDICATHLNQLKQEAIQMVTSLHSSPS 210
Rhinatrema_bivittatum  -----DPAFSTVIHDKLVQVNTIRKAWNERDNRCDCATHLNQLKQEAIQMVLTLQEAASS 210
Homo_sapiens            -----DPAFSAVIHDKLVQVNTIRKAWNDRDNRCDICATHLNQLKQEAIQMVLTLQEAAG 210
Pan_troglodytes        -----DPAFSAVIHDKLVQVNTIRKAWNDRDNRCDICATHLNQLKQEAIQMVLTLQEAAG 210
Macaca_mulatta         -----DPAFSAVIHDKLVQVNTIRKAWNDRDNRCDICATHLNQLKQEAIQMVLTLQEAAG 210
Callithrix_jacchus     -----DPAFSAVIHDKLVQVNTIRKAWNDRDNRCDICATHLNQLKQEAIQMVLTLQEAAG 210
Canis_lupus_familiaris -----DPAVSAVIHDKLVQVNTIRKAWNDKDNRCDCATHLNQLKQEAIQMVLTLQEAAG 210
Felis_catus            -----DPAFSAVIHDKLVQVNTIRKAWNDKDNRCDCATHLNQLKQEAIQMVLTLQEAAG 210
Equus_caballus         -----DPAFSAVIHDKLVQVNTIRKAWNDRDNRCDICATHLNQLKQEAIQMVLTLQEAAG 210
Bos_taurus             -----DPAFLAVIHDKLVQVNTIRKAWNDRDNRCDICATHLNQLKQEAIQMVLTLQEAAG 210
Mus_musculus           -----DPAFSAVIHDKLVQVNTIRKSWNDRDNRCDICATHLNQLKQEAIQMVLTLQEAAG 210
Rattus_norvegicus      -----PRGAEDPAFSAVIHDKLVQVNTIRKSWNDRDNRCDICATHLNQLKQEAIQMVLTLQEAAG 230
Pavo_muticus           -----
Pavo_cristatus         -----
Gallus_gallus          -----DPGFSSVIHDKLVQVNTIRKAWNEKDNRCDCATHLNQLKQEAIQMVLTLQEAAN 210
Anas_platyrhynchos     -----DPCFSSVIHDKLVQVNTIRKAWNEKDNRCDCATHLNQLKQEAIQMVLTLQEAAN 210
Chelonia_mydas         -----DPAFSSVIHDKLVQVNTIRKAWNERDNRCDCATHLNQLKQEAIQMVLTLQEAAN 220
Latimeria_chalumnae    -----DPTFSTLIHDKLVQVNTIRKAWNEKDNRCDCATHLNQLKQEAIQMVLTLQEAAT 207
.....190.....200.....210.....220.....230.....240

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Xenopus_tropicalis      VDHYDA-SPGSPTGHSIPALVGPRQMG-SLOPRDWVYMPNPYSTSSYPGFVASKHAG-K 267
Rhinatrema_bivittatum  VEPYDAGSPGSPPLLSFPPTLVGSRHVG-NLOPRDWVYMPPTPYSTATYTGFVTKHSGGK 269
Homo_sapiens            SEHYDA-SPCSPPPLSNIPITLVGSRHVGGLQOPRDWAFVPAFCATSNYTGAFN-KHGS-K 267
Pan_troglodytes        SEHYDA-SPCSPPPLSNIPITLVGSRHVGGLQOPRDWAFVPAFCATSNYTGAFN-KHGS-K 267
Macaca_mulatta         SEHYDA-SPGSPPLLSNIPITLVGSRHVGGLQOPRDWAFVPAFYATSNYTGAFN-KHSS-K 267
Callithrix_jacchus     SEHYDT-SPSSPPPLFNIPITLVGSRHVGGLQOPREWAFVPAFYATSNYTGAFN-KHSS-K 267
Canis_lupus_familiaris SEHYDG-SPGSPPLSNIPALVGSRHVGGLQOPRDWAFVPAFYATSNYTGAFVTKHSS-K 268
Felis_catus            SEHYDG-SPGSPPLSNIPITLVGSRHVGGLQOPRDWAFVPAFYATSNYTGAFVTKHSS-K 268
Equus_caballus         SEHYDG-SPGSPPLSNIPITLVGSRHVGGLQOPRDWAFVPAFYATSNYTGAFVTKHSS-K 268
Bos_taurus             SEHFDG-SPGSPPLSNIPITLVGSRHVGGLQOPRDWAFVPAFYATSNYTGAFVTKHSS-K 268
Mus_musculus           SEHYDT-SLGSPPPISSIPITLVGSRHVGGLQOPREWAFVPAFYATSTYTGLVN-KHSG-K 267
Rattus_norvegicus      SEHYDA-SPGSPPAINSIPALVGSRHVGGLQOPREWAFVPAFYATSTYTGLVN-KHSG-K 287
Pavo_muticus           -----
Pavo_cristatus         -----
Gallus_gallus          SEHYDA-SPGSPPLSNIPITLVGSRHVG-SLOPRDWAYMPAPYATSNYTGAFVANKHSG-K 267
Anas_platyrhynchos     SEHYDA-SPGSPPLSNIPITLVGSRHVG-SLOPRDWAYMPAPYATSNYTGAFVANKHSG-K 267
Chelonia_mydas         TEQYDA-SPGSPPLSNIPITLVGSRHMS-SLOPRDWAYMPTSYTTANYTGAFVANKHSG-K 277
Latimeria_chalumnae    LDHYDA-SPGSPPLSNIPITLVGSRNIISSLOAPRDWAFVPPSYTTSNYTGAFMANKHSI-K 265
.....250.....260.....270.....280.....290.....300

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Xenopus_tropicalis      PNSLGLANGQDKKTIVSPSHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 327
Rhinatrema_bivittatum  PNVLGIANGQEKKNGSPGHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 329
Homo_sapiens            PSSLGVSNGAEKKSGSPTHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 327
Pan_troglodytes        PSSLGVSNGAEKKSGSPTHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 327
Macaca_mulatta         PSSLGVSNGAEKKSGSPTHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 327
Callithrix_jacchus     PSSLGVSNGAEKKSGSPSHQAKASLQMDTSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 327
Canis_lupus_familiaris PNSLGVSSGAEEKSGSPTHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 328
Felis_catus            PNSLGVSNAGAEKKSGSPTHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 328
Equus_caballus         PNSLGVSNAGAEKKSGSPTHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 328
Bos_taurus             PNSLGVSNAGAEKKSGSPTHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 328
Mus_musculus           PNSLGVSNAGAEKKSGSPTHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 327
Rattus_norvegicus      PNSLGVSNAGAEKKSGSPTHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 347
Pavo_muticus           -----
Pavo_cristatus         -----
Gallus_gallus          PNSLGIVNGVEKKNGSPGHQAKVSFQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 327
Anas_platyrhynchos     PNSLGIVNGVEKKNGSPGHQAKVSFQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 327
Chelonia_mydas         PNSLGIINGVEKKNGSPGHQAKVSLQMATSPSNGNINLSVAIQAHQYLDGTWSLSRTNGV 337
Latimeria_chalumnae    PNSLGIINGVEKKSGSPGHQAKAGLQMATSPSNGNINLSVAIQAHQYLDGTWSMSRTNGV 325
.....310.....320.....330.....340.....350.....360

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Xenopus_tropicalis      TLYPYQISQLMTETGREGLTEAALNRYNADKPSIYS-PPASQSTYVATETSTSTSVAAASF      386
Rhinatrema_bivittatum  TLYPYQISQLITETGREGLTEAVLNRYNADKPSLCN-PPASQSTCVASETSTGTSTVAASF      388
Homo_sapiens            TLYPYQISQLMTESREGLTEAVLNRYNADKPSACS-VPASQSGSCVASETSTGTSTVAASF      386
Pan_troglodytes        TLYPYQISQLMTESGREGLTEAVLNRYNADKPSACS-VPASQSGSCVASETSTGTSTVAASF      386
Macaca_mulatta         TLYPYQISQLMTESGREGLTEAVLNRYNADKPSAYG-VPASQSGSCVASETSTGTSTVAASF      386
Callithrix_jacchus     TLYPYQISQLMTESGREGLTEAVLNRYNADKPSACS-VPASQSGSCLANETSAGTSTVAASF      386
Canis_lupus_familiaris TLYPYQISQLMTETGREGLTEAALNRYNADKPSACS-VPASQSGSCVASETSTGTSTVAASF      387
Felis_catus            TLYPYQISQLMTETGREGLTEAALNRYNADKPAACG-VPASQSGSCVASETSTGTSTVAASF      387
Equus_caballus         TLYPYQISQLMMESGREGLTEAALNRYNADKPSACG-VPASQSGSCAASETSTGPSVAASF      387
Bos_taurus            TLYPYQISQLMTEPGREGLTEAVLNRYNADKPSACS-VPAPQSGSCVASETSSGTSTVAASF      388
Mus_musculus           TLYPYQISQLMTETGREGLTESALNRYNADKPAASS-VPAPQSGSCVASETSTGTSTVAASF      386
Rattus_norvegicus     TLYPYQISQLMTETGREGLTESALNRYNADKPAASS-VPAPQSGSCVASETSTGTSTVAASF      406
Pavo_muticus           -----
Pavo_cristatus         -----
Gallus_gallus          TLYPYQISQLMTETSTREGLTEAALNRYNADKPSLYS-PPASQSTYVAADVSTGTSTVAASF      386
Anas_platyrhynchos    TLYPYQISQLMTETSTREGLTEAALNRYNADKPSLYS-PPASQSTYVATDVSTGTSTVAASF      386
Chelonia_mydas        TLYPYQISQLMTETSTREGLTEAVLNRYNADKPSLYS-FPGSQSTYVASETSTGTSTVAASF      396
Latimeria_chalumnae   TLYPYQISQLMSENCREGLTEAVLNRYNSDRPSMYS-FPGSQTTYVSVSTGTSTAAASF      384
.....370.....380.....390.....400.....410.....420

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Xenopus_tropicalis      FARAAQKLNLSKKKKKQRTTPSLVSETPLFSTSFSGILQTCPPAPPCLLRAVNKVKDNP      446
Rhinatrema_bivittatum  FARAAQKLNLSKKKKKHRPSPSSVSEPPPLFSTNFSGILQTSHPAPPCLLRAVNKVKDTP      448
Homo_sapiens            FARAAQKLNLSKKKKKHRPSTSSAAEPPPLFATSFSGILQTSPPPAPPCLLRAVNKVKDTP      446
Pan_troglodytes        FARAAQKLNLSKKKKKHRPSTSSAAEPPPLFATSFSGILQTSPPPAPPCLLRAVNKVKDTP      446
Macaca_mulatta         FARAAQKLNLSKKKKKRRP-TSSAAEPPPLFATSFSGILQTSPPPAPPCLLRAVNKVKDTP      445
Callithrix_jacchus     FARAAQKLNLSKKKKKHRPSSASSAAEPPPLFATSFSGILQTSPPPAPPCLLRAVNKVKDTP      446
Canis_lupus_familiaris FARAAQKLNLSKKKKKHRPSTSCAAEPPPLFATSFSGILQTCPPAPPCLLRAVNKVKDTP      447
Felis_catus            FARAAQKLNLSKKKKKHRPSTSSVAEPPPLFATSFSGILQTCPPAPPCLLRAVNKVKDTP      447
Equus_caballus         FARAAQKLNLSKKKKKHRPSTSSVAEPPPLFATSFSGILQTSPPPAPPCLLRAVNKVKDTP      447
Bos_taurus            FARAAQKLNLSKKKKKHRPSTSSVAEPPPLFATSFSGILQTSPPPAPPCLLRAVNKVKDTP      448
Mus_musculus           FARAAQKLNLSKKKKKHRPSTPSVAEAPLFATSFSGILQTSPPPAPPCLLRAVNKVKDTP      446
Rattus_norvegicus     FARAAQKLNLSKKKKKHRPSTPSVAEAPLFATSFSGILQASPPPAPPCLLRAVNKVKDTP      466
Pavo_muticus           -----
Pavo_cristatus         -----
Gallus_gallus          FARAAQKLNLSKKKKKHRPSSASSVPESPLFTTSFSSILQASPPPAPPCLLRAVSKVKDTP      446
Anas_platyrhynchos    FARAAQKLNLSKKKKKHRPSSASSAPESPLFTTSFSSILQTSPPPAPPCLLRAVSKVKDTP      446
Chelonia_mydas        FARAAQKLNLSKKKKKHRPSTSSVSESPPLFSTNFSILQTSPPPAPPCLLRAVNKVKDTP      456
Latimeria_chalumnae   FARAAQKLNLSKKKKKHRPSPSYVDPDPLFPNFSGILQMSPPPAPPCLLRAVNKVKDNP      444
.....430.....440.....450.....460.....470.....480

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Xenopus_tropicalis      GLGKVKVMVRICSTLVGESADSSSFLKADPRKKQITLYDPLSCGGQNAFQKRGSQIPPKM      506
Rhinatrema_bivittatum  GLGKVKVMVRICSTLARDTSESSSFLKIDPRKKQITLYDPLSCGGPNAFQKRSSQVPPKM      508
Homo_sapiens            GLGKVKVMVRICSTLARDTSESSSFLKVDPRKKQITLYDPLTCGGQNAFQKRGNQVPPKM      506
Pan_troglodytes        GLGKVKVMVRICSTLARDTSESSSFLKVDPRKKQITLYDPLTCGGQNAFQKRGNQVPPKM      506
Macaca_mulatta         GLGKVKVMVRICSTLARDTSESSSFLKVDPRKKQITLYDPLTCGGQNAFQKRGNQVPPKM      505
Callithrix_jacchus     GLGKVKVMVRICSTLARDTSESSSFLKVDPRKKQITLYDPLTCGGQNAFPKRGNQVPPKM      506
Canis_lupus_familiaris GLGKVKVMVRICSTLARDTSESSSFLKVDPRKKQITLYDPLTCGGQNVFQKRGNQVPPKM      507
Felis_catus            GLGKVKVMVRICSTLARDTSESSSFLKVDPRKKQITLYDPLTCGSQNVFQKRGNQVPPKM      507
Equus_caballus         GLGKVKVMVRICSTLARDTSESSSFLKVDPRKKQITLYDPLTCGGQNAFQKRGNQVPPKM      507
Bos_taurus            GLGKVKVMVRICSTLARDTSESSSFLKVDPRKKQITLYDPLACGGQNAFQKRGNQVPPKM      508
Mus_musculus           GMGKVKVMVRICSTSARDTSESSSFLKVDPRKKQITLYDPLTCGGQNAFQKRSSQVPPKM      506
Rattus_norvegicus     GMGKVKVMVRICSSARDTSESSSFLKVDPRKKQITLYDPLTCGGHNAFQKRSSQVPPKM      526
Pavo_muticus           -----
Pavo_cristatus         -----
Gallus_gallus          GVGKVKVMVRISSTHARDTSESSSFLKVDPRKKQITLYDPVTCGGQNAFQKRGNQVPPKM      506
Anas_platyrhynchos    GVGKVKVMVRISSTLARDTSESSSFLKVDPRKKQITLYDPATCGGQNAFQKRGNQVPPKM      506
Chelonia_mydas        GLGKVKVMVRICSTLARDTSESSSFLKVDPRKKQITLYDPLSCGGQNTFQKRGNQVPPKM      516
Latimeria_chalumnae   GLGKVKVMVRICPTSIGNTSESTSSFLKIDPRKKQITLYDPSTSGAQNLSQKRSSQVPPKM      504
.....490.....500.....510.....520.....530.....540

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Xenopus_tropicalis      FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 546
Rhinatrema_bivittatum  FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 548
Homo_sapiens            FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 546
Pan_troglodytes        FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 546
Macaca_mulatta         FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 545
Callithrix_jacchus     FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 546
Canis_lupus_familiaris FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 547
Felis_catus            FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 547
Equus_caballus         FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 547
Bos_taurus             FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 548
Mus_musculus           FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 546
Rattus_norvegicus      FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 566
Pavo_muticus           -----
Pavo_cristatus         -----
Gallus_gallus          FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 546
Anas_platyrhynchos     FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 546
Chelonia_mydas         FAFDAVFPQDASQAEEVCAG-----TVAEVIQSVVNGADGCVFCFG----- 556
Latimeria_chalumnae    FAFDAVFPQDASQSEIIISLPFSKYITVTSAEQVQSQELQQQDFGICTESTNVMNASFLKI 564
                        .....550.....560.....570.....580.....590.....600

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Xenopus_tropicalis      -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 597
Rhinatrema_bivittatum  -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 599
Homo_sapiens            -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 597
Pan_troglodytes        -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 597
Macaca_mulatta         -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 596
Callithrix_jacchus     -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 597
Canis_lupus_familiaris -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 598
Felis_catus            -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 598
Equus_caballus         -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 598
Bos_taurus             -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 599
Mus_musculus           -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 597
Rattus_norvegicus      -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 617
Pavo_muticus           -----
Pavo_cristatus         -----
Gallus_gallus          -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 597
Anas_platyrhynchos     -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 597
Chelonia_mydas         -----HAKLGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 607
Latimeria_chalumnae    LAKFHEETKTHDYGKSYTMIGKDDSMQNLGIIPCAISWLFKLINERKEKTGARFSVVRVSA 624
                        .....610.....620.....630.....640.....650.....660

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Xenopus_tropicalis      VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGMQLNQSELRAPTAEKAAFFL 657
Rhinatrema_bivittatum  VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGMQLNQSELRAPTAEKAAFFL 659
Homo_sapiens            VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGTQLNQSELRAPTAEKAAFFL 657
Pan_troglodytes        VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGTQLNQSELRAPTAEKAAFFL 657
Macaca_mulatta         VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGTQLNQSELRAPTAEKAAFFL 656
Callithrix_jacchus     VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGTQLNQSELRAPTAEKAAFFL 657
Canis_lupus_familiaris VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGTQLNQSELRAPTAEKAAFFL 658
Felis_catus            VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGTQLNQSELRAPTAEKAAFFL 658
Equus_caballus         VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGTQLNQSELRAPTAEKAAFFL 658
Bos_taurus             VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGTQLNQSELRAPTAEKAAFFL 659
Mus_musculus           VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGTQLNQSELRAPTAEKAAFFL 657
Rattus_norvegicus      VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGTQLNQSELRAPTAEKAAFFL 677
Pavo_muticus           -----
Pavo_cristatus         -----
Gallus_gallus          VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGMQLNQSELRAPTAEKAAFFL 657
Anas_platyrhynchos     VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGMQLNQSELRAPTAEKAAFFL 657
Chelonia_mydas         VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGMQLNQSELRAPTAEKAAFFL 667
Latimeria_chalumnae    VEVWGKEENLRDLLSEVATGSLQDGQSPGVYLCEDPICGMQLNQSELRAPTAEKAAFFL 684
                        .....670.....680.....690.....700.....710.....720

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/KIFDaBpsTue Feb 1 13:50:45 2022

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Xenopus_tropicalis      DAAIASRRSSQDCDEDDHRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 717
Rhinatrema_bivittatum DAAIASRRSSQDCDEDDHRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 719
Homo_sapiens           DAAIASRRSHQDCDEDDHRNSHVFFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 717
Pan_troglodytes       DAAIASRRSHQDCDEDDHRNSHVFFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 717
Macaca_mulatta        DAAIASRRSHQDCDEDDHRNSHVFFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 716
Callithrix_jacchus    DAAIASRRSHQDCDEDDHRNSHMFFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 717
Canis_lupus_familiaris DAAIASRRGSQKDCDEDDHRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 718
Felis_catus           DAAIASRRGSQKDCDEDDHRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 718
Equus_caballus        DAAIASRRGNQDCDEDDHRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 718
Bos_taurus            DAAIASRRGNQDCDEDDLRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 719
Mus_musculus          DAAIASRRSNQDCDEDDHRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 717
Rattus_norvegicus     DAAIASRRSNQDCDEDDHRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 737
Pavo_muticus          -----
Pavo_cristatus        -----
Gallus_gallus         DAAIASRRGSQDCDEDDHRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 717
Anas_platyrhynchos   DAAIASRRSSQDCDEDDHRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 717
Chelonia_mydas        DAAIASRRSSQDCDEDDHRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 727
Latimeria_chalumnae   DAAIASRRGSKPDCDEDDHRNSHMLFTLHIYQYRMEKSGKGGMSGGRSRLHLIDLGS CVK 744
.....730.....740.....750.....760.....770.....780

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::***:*****:*****
Xenopus_tropicalis      VLSKSRDGS TGQCLSL SALGNVILALVNGSKHIPYKESKLTMLLRESLGNMNCRTTMIAH 777
Rhinatrema_bivittatum VLSKSRDGS SGLCLSL SALGNVILALVNGSKHIPYKESKLTMLLRESLGNMNCRTTMIAH 779
Homo_sapiens           ALSKNREGG SGLCLSL SALGNVILALVNGSKHIPYKESKLAMLLRESLGNMNCRTTMIAH 777
Pan_troglodytes       ALSKNREGG SGLCLSL SALGNVILALVNGSKHIPYKESKLAMLLRESLGNMNCRTTMIAH 777
Macaca_mulatta        ALSKNREGG SGLCLSL SALGNVILALVNGSKHIPYKESKLAMLLRESLGNMNCRTTMIAH 776
Callithrix_jacchus    ALSKNRDGS SGLCLSL SALGNVILALVNGSKHIPYKESKLAMLLRESLGNMNCRTTMIAH 777
Canis_lupus_familiaris ALSKNREGS SGLCLSL SALGNVILALVNGSKHIPYKESKLTMLLRESLGNMNCRTTMIAH 778
Felis_catus           ALSKNREGG SGLCLSL SALGNVILALVNGSKHIPYKESKLTMLLRESLGNVNCRTTMIAH 778
Equus_caballus        ALSKNREGG SGLCLSL SALGNVILALVNGSKHIPYKESKLTMLLRESLGNVNCRTTMIAH 778
Bos_taurus            ALSKNREGG SGLCLSL SALGNVILALVNGSKHIPYKESKLTMLLRESLGNVNCRTTMIAH 779
Mus_musculus          ALSKNREGG SGLCLSL SALGNVILALVNGSKHIPYKESKLTMLLRESLGNVNCRTTMIAH 777
Rattus_norvegicus     ALSKNREGG SGLCLSL SALGNVILALVNGSKHIPYKESKLTMLLRESLGNVNCRTTMIAH 797
Pavo_muticus          -----RDSKLTMLLRESLGNMNCRTTMIAH 25
Pavo_cristatus        -----RDSKLTMLLRESLGNMNCRTTMIAH 25
Gallus_gallus         VLSKNREGS SGLCLSL SALGNVILALVNGSKHIPYKDSKLTMLLRESLGNMNCRTTMIAH 777
Anas_platyrhynchos   VLSKNREGS SGLCLSL SALGNVILALVNGSKHIPYKDSKLTMLLRESLGNMNCRTTMIAH 777
Chelonia_mydas        VLSKNREGG SGLCLSL SALGNVILALVNGSKHIPYKDSKLTMLLRESLGNMNCRTTMIAH 787
Latimeria_chalumnae   VLSKSRDGS SGLCLSL SALGNVILALVNGSKHIPYKESKLTMLLRESLGNMNCRTTMIAH 804
.....790.....800.....810.....820.....830.....840

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***:..*:*****:~:***** . *****:~*
Xenopus_tropicalis      ISAAAGNYTETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHSRN 837
Rhinatrema_bivittatum ISAAAGNYAETLSTIQIASRVLRMKKKKTKYTFKFFWRRSSCEEGRMRRPTQLRPFHSRN 839
Homo_sapiens           ISAAVGSYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHTRA 837
Pan_troglodytes       ISAAAGSYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHTRT 837
Macaca_mulatta        ISAAAGSYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHTRA 836
Callithrix_jacchus    ISAAAGNYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHTRA 837
Canis_lupus_familiaris ISAAAGNYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFQARA 838
Felis_catus           ISAAAGNYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHART 838
Equus_caballus        ISAAAGSYAETLSTIQIAARVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHARA 838
Bos_taurus            ISAAAGNYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHARA 839
Mus_musculus          ISAAASSYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHARA 837
Rattus_norvegicus     ISAAAGSYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHARA 857
Pavo_muticus          ISAAAGNYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHSRN 85
Pavo_cristatus        ISAAAGNYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHSRN 85
Gallus_gallus         ISATAGNYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHSRN 837
Anas_platyrhynchos   ISAAAGNYAETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHSRN 837
Chelonia_mydas        ISAAAGNYAETLSTIQVARSVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHSRN 847
Latimeria_chalumnae   ISATVSGYSETLSTIQIASRVLRMKKKKTKYTSSSSGGESSCEEGRMRRPTQLRPFHTRN 864
.....850.....860.....870.....880.....890.....900

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/KIFDaBpsTue Feb 1 13:50:45 2022

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      : .::*: *.*****:*****:*****:*. *
Xenopus_tropicalis      VVD-PDFLLSLSSDPDYSSSSEQSCDTVIYVGPNGTALSDKELTDNEGPPDFVPIVPVL 896
Rhinatrema_bivittatum  VVDDPNFLLNLSSDPDYSSSSEQSCDTVIYVGPNGTALSDKELTDNEGPPDFVPIVPVL 899
Homo_sapiens            TVD-PDFPIAHLSSDPDYSSSSEQSCDTVIYIGPNGTALSDKELTDNEGPPDFVPIVPAL 896
Pan_troglodytes         TVD-PDFPIAHLSSDPDYSSSSEQSCDTVIYIGPNGTALSDKELTDNEGPPDFVPIVPAL 896
Macaca_mulatta          TVD-PDFPIAHLSSDPDYSSSSEQSCDTVIYIGPNGTALSDKELTDNEGPPDFVPIVPAL 895
Callithrix_jacchus      TGD-PDFPIAHLSSDPDYSSSSEQSCDTVIYIGPNGTALSDKELTDNEGPPDFVPIVPAL 896
Canis_lupus_familiaris  SVD-PDFPIQLSSDPDYSSSSEQSCDTVIYIGPNGTALSDKELTDNEGPPDFVPIVPAL 897
Felis_catus             AGD-PDFPIPLSSDPDYSSSSEQSCDTVIYIGPNGTALSDKELTDNEGPPDFVPIVPAL 897
Equus_caballus          AGD-SDFPIPHLSSDPDYSSSSEQSCDTVIYIGPNGTALSDKELTDNEGPPDFVPIVPAL 897
Bos_taurus              AVE-SDFPIPHLSSDPDYSSSSEQSCDTVIYIGPNGTALSDKELTDNEGPPDFVPIVPAL 898
Mus_musculus            PVD-PEFPLAPLSSDPDYSSSSEQSCDTVIYIGPNGTALSDKELTDNEGPPDFVPIVPAL 896
Rattus_norvegicus       PVD-PEFPLAPLSSDPDYSSSSEQSCDTVIYIGPNGTALSDKELTDNEGPPDFVPIVPAL 916
Pavo_muticus            TVD-PDFPILHLSSDPDYSSSSEQSCDTVIYVGPNGTALSDKELTDNEGPPDFVPIVPAL 144
Pavo_cristatus          TVD-PDFPILHLSSDPDYSSSSEQSCDTVIYVGPNGTALSDKELTDNEGPPDFVPIVPAL 144
Gallus_gallus           TVD-PDFPILHLSSDPDYSSSSEQSCDTVIYVGPNGTALSDKELTDNEGPPDFVPIVPAL 896
Anas_platyrhynchos      TVD-PDFPILHLSSDPDYSSSSEQSCDTVIYVGPNGTALSDKELTDNEGPPDFVPIVPAL 896
Chelonia_mydas          VVD-PDFPILHLSSDPDYSSSSEQSCDTVIYVGPNGTALSDKELTDNEGPPDFVPIVPAL 906
Latimeria_chalumnae     AID-PDLFILNLSSDPDYSSSSEQSCDTVIYVGPNGTSLSDKELTDNEGPPDFVPIIPSL 923
      .....910.....920.....930.....940.....950.....960

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** : : : * . . . * *****.*****. * :*:
Xenopus_tropicalis      QKTKNEVKCEEIISEVFNKPERDCLKCNTFAELQERLDCIDGSEETSFFPYEELPVPIYAG 956
Rhinatrema_bivittatum  QKTKNDIKLEEASEAPPNKSEGDCLKCNTFAELQERLDCIDGSEETNRFLEELPVOLCA 959
Homo_sapiens            QKTRGDSRPAEAGEAAAGKSERDCLKCNTFAELQERLDCIDGSEEPSFFPFEELPAQFGP 956
Pan_troglodytes         QKTRGDSRPTAGEAAASKSERDCLKCNTFAELQERLDCIDGSEEPSFFPFEELPAQFGP 956
Macaca_mulatta          QKTRGDSRPAEGGEPAAGKSERDCLKCNTFAELQERLDCIDGSEEPSRFSEEVPAQCQP 955
Callithrix_jacchus      QKTRGDSRPAEAGEAAASKSERDCLKCNTFAELQERLDCIDGSEEPSKFFFEELPAQFVA 956
Canis_lupus_familiaris  QKARGDSRPVEAGGAAASHSERDCLKCNTFAELQERLDCIDGSEEPSQFFFEELPAQFGA 957
Felis_catus             QKARGDGRPPEAGGATAGKSERDCLKCNTFAELQERLDCIDGSEEPSQFFFEELPVQFGA 957
Equus_caballus          QKTRGDSRPTAGEAAASKSERDCLKCNTFAELQERLDCIDGSEEPSKFFFEELPAQFGA 957
Bos_taurus              QKARGDSRSTEAGEAGASKSERDCLKCNTFAELQERLDCIDGSEEPSKFFFEELPAQFGV 958
Mus_musculus            QKTRGDSRPGAEAAEAAASKSERDCLKCNTFAELQERLDCIDGSEEPSKFFFEELPIQFGP 956
Rattus_norvegicus       QKTRGDSRPGAEAAEAAASKSERDCLKCNTFAELQERLDCIDGSEEPNRFPPFEELPVQFGP 976
Pavo_muticus            QKTKNEGRLEEGSESGPSTSERDCLKCNTFAELQERLDCIDGSEETNKFFFEEMPAQFSS 204
Pavo_cristatus          QKTKNEGRLEEGSESGPSTSERDCLKCNTFAELQERLDCIDGSEETNKFFFEEMPAQFSS 204
Gallus_gallus           QKTKNEGRLEEGSESGPSTSERDCLKCNTFAELQERLDCIDGSEETNKFFFEEMPAQFSS 956
Anas_platyrhynchos      QKTKNEGRLEEGNESGPSTSERDCLKCNTFAELQERLDCIDGSEETDKFFFEEMPAQFSS 956
Chelonia_mydas          QKTKTEGKLEEVSETDSSKSERDCLKCNTFAELQERLDCIDGSEESNKFFFEELPVQFST 966
Latimeria_chalumnae     QKNKNDIKLEITDTSSENTEKDKCNTFAELQERLDCIDGSEETSNFFFEELPQHCA 983
      .....970.....980.....990.....1000.....1010.....1020

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      : : . . . . . * * : :
Xenopus_tropicalis      DQTTKGSGLTQVTEPKDITETKKEDNIPENSSDKDSRECLGTAHKMOKIHS----AAG 1012
Rhinatrema_bivittatum  DQETKCPILTQVAEPRLSELNKAADNLADSHHSKDEARENVNPSVNMQRNHS--IPFG 1017
Homo_sapiens            EQASRGPRLSQAAGASPLSESDKEDNGSE---GQLTNREGPELPASKMORSHS--PVPAA 1011
Pan_troglodytes         EQASRGPRLSQAAGASPLSESDKEDNGSE---GQLTNREGPELPASKMORSHS--PVPAA 1011
Macaca_mulatta          EQASRGPPLSQAAGASPLSESDKEDNGSE---GQRTDREGPEIPASKMORSHS--PVPTA 1010
Callithrix_jacchus      ELASRALPLSQAAGASPLSESDKEDNGSE---GQRTDREGPENLASKMORSHS--PVTAS 1011
Canis_lupus_familiaris  EQASKCPLLSQAGATNPLCESDREDSGSD---GQSTDREGTDPPASKMQRNHSVPVPGPGP 1014
Felis_catus             QQAGKGPPLSQAAGANPLCESEKEEAGSD---GQLTDREGTDPPASKMQRNHS--PGPTP 1012
Equus_caballus          EQASKCPPLSQAAGASPLFCESDKEDNGSD---GQLPDREGTDPPASKMQRNHS--PVPVA 1012
Bos_taurus              EQAGKSVPLSQAAGASPLCESDKEDDGS---GQLTDKEGAEPASKVQRNHS--PVPAA 1013
Mus_musculus            EQAGRCAPLSQAVGPDTPSESEKEDNGSDN---GQLTEREGTELPASKAQRNRS--PAPTV 1012
Rattus_norvegicus       EQAGRCTSLPSQAAGPDTLSESDKEDNGSDN---GQLTEREGSELPTSKVQPIRS--PGPTV 1032
Pavo_muticus            DQMSKCSVSSQLAELSHLTESDKEDTMLECOHPDREAKENINATPSKTKRNHS--PIPSG 262
Pavo_cristatus          DQMSKCSVSSQLAELSHLTESDKEDTMLECOHPDREAKENINATPSKTKRNHS--PIPSG 262
Gallus_gallus           DQMSKCSVSSQVAELSHLPESDKEDTMPECOHPDREAKENINATPSKTKRNHS--PIPSG 1014
Anas_platyrhynchos      DQMSKCSVSSQLAELSHLPESDKEDTKPECOHPDREAKENINATPSKTKRNHS--PIPSG 1014
Chelonia_mydas          DQMSKCPPLSQVAGLSHLSPASDKEDATADCOQPEKEVRENVSATINKIQNHS--PVPPG 1024
Latimeria_chalumnae     NHLAKYVSMQTQVAESNKTDCQCID-----KDIAEEVNVASGKTQSNHS----AAG 1030
      .....1030.....1040.....1050.....1060.....1070.....1080

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/KIFDaBpsTue Feb 1 13:50:45 2022

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      .:*.****:.*. :      **:.* ** *:.*.***.*****
Xenopus_tropicalis  HITDNATPSSPRSVTGSCGAQSSNSQLGONNSLQGSRESLNSLGFVEGKPRPMGSPRLGI 1072
Rhinatrema_bivittatum PLTNATPSSPRSVITGSCSTQGSSSQLAHSASLQGSRESLNTCGFVEGKPRPMGSPRLGI 1077
Homo_sapiens        APAHSPSPASPRSVPGSSS-QHSASPLVQSPSLQSSRESLNSCGFVEGKPRPMGSPRLGI 1070
Pan_troglodytes     APAHSPSPASPRSVPGSSS-QHSASPLVQSPSLQSSRESLNSCGFVEGKPRPMGSPRLGI 1070
Macaca_mulatta      APAHSPSPASPRSVPGSSS-QHSASPLVQSPSLQSSRESLNSCGFVEGKPRPMGSPRLGI 1069
Callithrix_jacchus  APTHSPSPASPRSVPGSSS-QHSTSPLVQSPSLQSSRESLNSCSFMEGKPRPMGSPRLGI 1070
Canis_lupus_familiaris ALPSSPTPASPRSVPGSSS-QHSAS-----SLQSSRESLNSCGFVEGKPRPMGSPRLGI 1067
Felis_catus         ALPGSPSPASPRSVPGSSS-QHSAS-----SLQSSRESLNSCGFVEGKPRPMGSPRLGI 1072
Equus_caballus      VLTNSPAPASPRSVPGSSS-QHSSSQLVQSPSLQSSRESLNSCGFVEGKPRPMGSPRLGI 1071
Bos_taurus          LLTNSPTPASPRSVPGSSS-QHNSSQLAQSPSLRSSRESLNSCGFVEGKPRPMGSPRLGI 1072
Mus_musculus        TRSSSPSPASPRSVPGSSS-QHSTSQLTQSPSLQSSRESLNSCGFVEGKPRPMGSPRLGI 1071
Rattus_norvegicus   TGSSSPSPASPRSVPGSSS-QHSTSQLTQSPSLQSSRESLNSCGFVEGKPRPMGSPRLGI 1091
Pavo_muticus        ALTNIPTPPSPRSVTGSSSKELSSCOLAHSTSLQSSREGLNTCGFVEGKPRPMGSPRLGI 322
Pavo_cristatus      ALTNIPTPPSPRSVTGSSSKELSSCOLAHSTSLQSSREGLNTCGFVEGKPRPMGSPRLGI 322
Gallus_gallus       ALANISTPPSPRSVTGSSSKELSSCOLVHSTSLQSSREGLNTCGFVEGKPRPMGSPRLGI 1074
Anas_platyrhynchos ALTNVSTPPSPRSVTGSSSKELSSCOLAHSTSLQSSREGLNTCGFVEGKPRPMGSPRLGI 1074
Chelonia_mydas      ALTNIPTPPSPRSVTGSSSNQLSSQLAHSTSLQSSRESLNTCGFVEGKPRPMGSPRLGI 1084
Latimeria_chalumnae PHGNFTPPSPRSVTGSSSNQLSSQLAHSTSLQSSRESLNTCGFVEGKPRPMGSPRLGI 1090
.....1090.....1100.....1110.....1120.....1130.....1140

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*****.*****:*****:* *      ..      : * :****
Xenopus_tropicalis  ASLSKTSEYKPPSSPSQRCVKYTQKGVLPSTSPSMN--IKDSVSHIA-ETLPQPEIRTPP 1129
Rhinatrema_bivittatum ASLSKTSEYKPPNSPSQRCVKYTQKGVLPSPVPLP--LSKDMSTIISDLSLQOEIRTPP 1135
Homo_sapiens        ASLSKTSEYKPPSSPSQRCVKYTQKGVLPSPAPLPP--SSKDSGVASRESLLOPEVRTTPP 1128
Pan_troglodytes     ASLSKTSEYKPPSSPSQRCVKYTQKGVLPSPAPLPP--SSKDSGVASRESLLOPEVRTTPP 1128
Macaca_mulatta      ASLSKTSEYKPPGSPSQRCVKYTQKGVLPSPAPLPS--SGKDSGVASRESLLOPEVRTTPP 1127
Callithrix_jacchus  ASLSKTSEYKPPSSPSQRCVKYTQKGVLPSPAPLPP--SSKDSGMVSESLLQPEVRTTPP 1128
Canis_lupus_familiaris ASLSKTSEYKPPASSPSQRCVKYTQKGVLPSPAPLPP--LSKDSGMVSESLLQPEVRTTPP 1125
Felis_catus         ASLSKTSEYKPPASSPSQRCVKYTQKGVLPSPAPLPP--LSKDACTVSSESLLQPEVRTTPP 1130
Equus_caballus      ASLSKTSEYKPPASSPSQRCVKYTQKGVLPSPAPLPT--SSKDSGMASSESLLQPEVRTTPP 1129
Bos_taurus          ASLSKTSEYKPPASSPSQRCVKYTQKGVLPSPAPLPT--LSKDSGIVSESSESLLQPEVRTTPP 1130
Mus_musculus        ASLSKTSEYKPPSSPSQRCVKYTQKGVLPSPAPPPS--LSKDSGMVSESSESLLQPDVRTTPP 1129
Rattus_norvegicus   ASLSKTSEYKPPSSPSQRCVKYTQKGVLPSPAPPPS--LSKDSGMVSESSESLLQPDVRTTPP 1149
Pavo_muticus        ASLSKTSEYKPPSTSPSQRCVKYTQKGVLPSTTPPPAP--LSKDTMTSTESLLOPEIRTPP 381
Pavo_cristatus      ASLSKTSEYKPPSTSPSQRCVKYTQKGVLPSTTPPPAP--LSKDTMTSTESLLOPEIRTPP 381
Gallus_gallus       ASLSKTSEYKPPSTSPSQRCVKYTQKGVLPSTTPPPAP--LSKDTMTSTESLLOPEIRTPP 1133
Anas_platyrhynchos ASLSKTSEYKPPSTSPSQRCVKYTQKGVLPSTTPPPAP--LSKDTGVTSESSESLLQPEIRTPP 1133
Chelonia_mydas      ASLSKTSEYKPPSTSPSQRCVKYTQKGVLPSTTPPPAP--LSKDSGMVSESSESLLQPEIRTPP 1141
Latimeria_chalumnae ASLSKTSEYKPPSSPSQRCVKYTQKGVLPAPNPSPPQNLKDSGRISMECLOPEIRTPP 1150
.....1150.....1160.....1170.....1180.....1190.....1200

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*****:***:..      : .      .: ** :*: :*****
Xenopus_tropicalis  VGMSPQVMKRSISTASFSADAILL-DQQTNNSTASKKEVLSTTMVTVOQPLELNGEDEL 1188
Rhinatrema_bivittatum VGMSPQIMKRSVSSPSGGSVSTFD-EQKSIIISSEPQKEVLSTTMVTVOQPLELNGEDEL 1194
Homo_sapiens        VGMSPQVLKKSMSAGSEGFPETPVDDEQQAATPSESKEILSTTMVTVOQPLELNGEDEL 1188
Pan_troglodytes     VGMSPQVLKKSMSAGSEGFPETPVDDEQQAATPSESKEILSTTMVTVOQPLELNGEDEL 1188
Macaca_mulatta      VGMSPQVLKKSMSAGSEGFPETPVDDEQQAATPSESKEILSTTMVTVOQPLELNGEDEL 1187
Callithrix_jacchus  VGMSPQVLKKSMSAGSEGFPETPVDDEQQAATPSESKEILSTTMVTVOQPLELNGEDEL 1188
Canis_lupus_familiaris VGMSPQVLKKSMSAGSEGFPETPVDDEQQAATPSESKEILSTTMVTVOQPLELNGEDEL 1185
Felis_catus         VGMSPQVLKKSMSAGSQGFPEPVDDEHQGATSPDPKKEVLSTTTVTVOQPLELNGEDEL 1190
Equus_caballus      VGMSPQVLKKSMSAGSEGFPETPIDDEHQGAATSPDTKKEIVSTTMVTVOQPLELNGEDEL 1189
Bos_taurus          VGMSPQVLKKSMSAGSEGFPETPIDDEHQGAATSPDTKKEIVSTTMVTVOQPLELNGEDEL 1190
Mus_musculus        VGMSPQVLKKSMSAGSEGFPETPIDDEHQGAATSPDTKKEIVSTTMVTVOQPLELNGEDEL 1189
Rattus_norvegicus   VGMSPQVLKKSMSAGSEGFPETPIDDEHQGAATSPDTKKEIVSTTMVTVOQPLELNGEDEL 1209
Pavo_muticus        AGMSPQIMKKS SVSSNGDFEETILNEDQQNHSPESKKEILSTTMVTVOQPLELNGEDEL 441
Pavo_cristatus      AGMSPQIMKKS SVSSNGDFEETILNEDQQNHSPESKKEILSTTMVTVOQPLELNGEDEL 441
Gallus_gallus       AGMSPQIMKKS SVSSNGDFEETILNEDQQNHSPESKKEILSTTMVTVOQPLELNGEDEL 1193
Anas_platyrhynchos VGMSPQIMKKS SVSSNGDFEETILNEDQQNHSPESKKEILSTTMVTVOQPLELNGEDEL 1193
Chelonia_mydas      VGMSPQILKKS SVSSNGDFEETILNEDQQNHSPESKKEILSTTMVTVOQPLELNGEDEL 1201
Latimeria_chalumnae VGMSPQIIKKS SVSSNGDFEETILNEDQQNHSPESKKEILSTTMVTVOQPLELNGEDEL 1210
.....1210.....1220.....1230.....1240.....1250.....1260

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/KIF26B.fasta Tue Feb 1 13:50:45 2022

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*****.*.***:**:*****.:*****.*:***:.* *.:
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLESYSNSAPV
VFTLVEELTISGVLENGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLECYSTSAPI
VFTLVEELTISGVLDNGRPTSIIISFNSDCSARALASGSRPVSIISSISEDLECYSSSTAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLECYSSMAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLECYSSMAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLECYSSMAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIIGSISEDLECYSSVAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIIGSISEDLECYSSVAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIIGSVSEDLECYSSVAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIIGSISEDLECYSSNAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLECYSSMAPV
VFTLVEELTISGVLDNGRPTSIVSFNSDCSVQALASGSRPVSIISSISEDLDYSSMAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLECYSSAAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLECYSSAAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLECYSSAAPV
VFTLVEELTISGVLDNGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLECYSSAAPV
VFTLVEELTISGVLENGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLECYSSNAPV
VFTLVEELTISGILKNGRPTSIIISFNSDCSVQALASGSRPVSIISSISEDLECYSSNAAV
.....1270.....1280.....1290.....1300.....1310.....1320
```

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***.**:****:***:*:*****:***:****:***:***:***
SEVSITQFLPLPKITLDEKCOEGCRRSSISSWLSEMSTGSDGEQSCHSFIAQACYGHGE 1308
SEVSITQFLPLPKVGLDEKVRDYSSRRSSISSWLSEMSTGSDGEQSCHSFIAQTCYNHGE 1314
SEVSITQFLPLPKMSLDEKAQDAGSRRSSISSWLSEMSAGSEGEQSCHSFIAQTCFGHGE 1308
SEVSITQFLPLPKMSLDEKAQDAGSRRSSISSWLSEMSVGESEGEQSCHSFIAQTCFGHGE 1308
SEVSITQFLPLPKMSLEEKAAEQAGSRRSSISSWLSEMSAGSEGEQSCHSFIAQTCFGHGE 1307
SEVSITQFLPLPKMSLDEKAQEAQAGSRRSSISSWLSEMSVGESEGEQSCHSFIAQTCFGHGE 1308
SEVSITQFLPLPKLALDEKAGEAGSRRSSISSWLSEMSAGSDGEQSCHSFIAQTCFGHGE 1305
SEVSITQFLPLPKLTLDEKAREAGSQRSSISSWLSEVSAGSDGEQSCHSFIAQTCFGHGE 1310
SEVSITQFLPLPKLSLDEKGREAGSRRSSISSWLSEMSTGSDGEQSCHSFIAQTCFGHGE 1309
SEVSITQFLPLPKLNLDEKAREAGSRRSSISSWLSEMSTGSDGEQPCHSFIAQACFGHGE 1310
SEVSITQFLPLPKLGLDEKARDAGSRRSSISSWLSEMSAGSDGEQSCHSFIAQTCFGHGE 1309
SEVSITQFLPLPKLGLLEEKAAEQAGSRRSSISSWLSEMSAGSDGEQSCHSFIAQTCFGHGE 1329
SEVSITQFLPLPKLGLDDKSQDDGSRRSSISSWLSEMSTGSDGEQSCHSFIAQTCYGHGE 561
SEVSITQFLPLPKLGLDDKSQDDGSRRSSISSWLSEMSTGSDGEQSCHSFIAQTCYGHGE 561
SEVSITQFLPLPKLGLDDKSQDDGSRRSSISSWLSEMSTGSDGEQSCHSFIAQACYGHGE 1313
SEVSITQFLPLPKLGLDDKSQDDGSRRSSISSWLSEMSTGSDGEQSCHSFIAQACYGHGE 1313
SEVSITQFMPLPKLGLDDKARDASRRSSISSWLSEMSTGSDGEQSCHSFIAQACYGHGE 1321
SEVNIITKFLPLPKPEFENKCHDSNRRSSISSWLSEMSTGSDGEQSCHSFVAQTCYQGGE 1330
.....1330.....1340.....1350.....1360.....1370.....1380

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*:*.:.      .:.      :      .:.      .:      :      :      :.:.
AMADPP-ISEFTTALQN-----ISVMCTSNRQNSVTENTQAQPELT-EDCKINVSPLKG 1360
AMADAP-IPELTTQNT-----SSDMQNNMNTDDLCLSETS-TQTFNKDSSIRG 1360
AMAEPV-ASEFVSSLQN-----TAVVCREKPKASPDNLLILSEMG-DDSFNKAAPIKG 1359
AMAEPV-ASEFVSSLQN-----TAVVCREKPKASPDNLLILSEMG-DDSFNKAAPIKG 1359
AMAEPA-SSEFVSGIQ-----SAVVCREKPKASPDNLLIPSEMG-DDSFNKATPIKG 1358
AMAEPA-ASEFVSSION-----TAVVCREKPKAGPDNLLILSEMG-GDSLNKATPIKG 1359
AMAEPP-ASELIGSVQN-----SAVVCREKPKAGPDNLLILSDVG-EDPFNKATPIKG 1356
AMADPP-ASELGGGIQS-----SPVVCREKPEVGPDGLLILSDMG-EDSFDKATPIQG 1361
AMADPP-ASEFVSSION-----TAVVCREKPKASPDNLLILSEMG-EDTFNKATPIKG 1360
AMADPP-ASEFVGSIQ-----TAVVCREKPKASPDNLLILSEMG-EDSFNKAAPIKG 1361
AMAEPP-ASEFVSSION-----TAVVCREKPEVGPDNLILLSEMG-EESGNKAAPIKG 1360
AMAEPPASEFVRGIONAAPAAATAAVVCREKTEVGPDNLILLSEMG-EESVNQATPIKG 1388
AMAEPP-VSEFASTIQS-----ASMICVGDKQKPVTDNMLILSEMG-EQAFSKVPPPIKG 613
AMAEPP-VSEFASTIQS-----ASMICLGDKQKPVTDNMLILSEMG-EQAFSKVPPPIKG 613
AMAEPP-VSEFANTIQS-----TSMICVGDKQKPVTDNMLIMSEMG-EQAFSKVPPPIKG 1365
AMAEPP-VSEFASTIQS-----ASMICVGDKQKPVTDNMLILSEMG-EEAFGKVPPIKG 1365
AMAEPP-ISEFAGAIQN-----TSMICVNNDKQNPVTDNLLILSEMG-EETFASKVPPPLKG 1373
ALAEPP-VSDFSKDIQDN-----ITFYMHDKKGIISDNFLVMSENASDDNSNKSPIKS 1383
      1390.....1400.....1410.....1420.....1430.....1440

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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****::*: *.:::*. *.:::*****:::..
CKISTLGKTTVTIISKSSLSGCESCIPMKTNITVYPCIAVSPFKSQECNEGLSGVNHSN- 1419
CKISALGKTTVTIISNSSLSSGCEGYIPMNTNITVYPCISVSSFNKGKEP-DALSADISPI- 1418
CKISTVSKAMVTIISNTANLSSCEGYIPMKTNITVYPCIAMSPRNIOEPEAP-TATPKAGP 1418
CKISTVSKAMVTIISNTANLSSCEGYIPMKTNITVYPCIAMSPRNIOEPEAP-TATPKAGP 1418
CKISTLGKAMVTIISNTANLSSCEGYIPMKTNITVYPCIAVSPRNVOEPEAP-TATPKAGP 1417
CKISTLGKAMVTIISNTANLSSCEGYIPMKTNITVYPCIAMSPRSIOEPEAA-TATPKAGP 1418
CKISTLGKAMVTIISNTADLSSCEGYIPMKTNITVYPCIAMGPRPVOESEASDGPVSSVP 1416
CKISTLGKAMVTIISNTADLSSCEGYIPMKTNITVYPCIAVSPRPVQGPESIAIPAVSSAP 1421
CKISTLGKAMVTIISNTANLSSCEGYIPMKTNITVYPCIAMSPRNVOEPETP-LATVSSVT 1419
CKISTLGKAMVTIISNTASLSSCEGYIPMKTNITVYPCISMSPRNVQEPESV-LATVSSVP 1420
CKISTVGKAMVTIISNTASLSSCEGYIPMKTNITVYPCIAMSPRNVOEPESV-TATPKVSP 1419
CKISTVGKAMVTIISNTASLSSCEGYIPMKTNITVYPCIAMSPRNVOEPESV-TAAPKASP 1447
CKISALGKTTVTIKNTASLSSCEGYFPMKTNITVYPCIAVNSFKAQDTDNA-VSAVNADP 672
CKISALGKTTVTIKNTASLSSCEGYFPMKTNITVYPCIAVNSFKAQDTDNA-VSAVNADP 672
CKISALGKTTVTIKNTASLSSSEGYFPMKTNITVYPCIAVNSFKAQDTDNA-VSAVNADP 1424
CKISALGKTTVTIKNTASLSSCEGYIPMKTNITVYPCIAVNPFFKAQDTDNA-VSAVTADP 1424
CKISALGKTTVTIISNTASLSSCEGYIPMKTNITVYPCIAVSPFKPOETDEA-TSAVTSAA 1432
CKISALGKTTVTKITNTSDLSSPEGYIPIKTNITVHPCTITLNSLPSEFSGA-FSAVNATA 1442
.....1450.....1460.....1470.....1480.....1490.....1500

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.:. :.:***** :*.: :.:
KTPHOENSDAN-CKVEPTYDDPWLKREDDVKRDIASSSD-----VISSTTDH----- 1466
NVPOPLERKES- SRTEITFDPPWLKRENDMKKDHTGSSSEGPRLNLTVGPVKP----- 1470
TLAQSRRESKENS-AKKEMKFEDPWLKREEEVKKETAHPNEEGMMRCETATGPS-NAETRA 1476
TLAQSRRESKENS-AKKEMKFEDPWLKREEEVKKETAHPNEEGTMRCTATGPS-NAETRA 1476
TLAQSRRESKENS-SKKEMTFEDPWLKREEEVKKENAHPSSEEG-IRCEATATGAS-NAETRA 1474
TSAQSRRESKES-AKKEMKFEDPWLKREVEVKKENAHPNED-TCESAMGPL-KAEPRT 1475
RATQSDGREMGGAKTETMKFEDPWLKREEEVKKESAYPGEEG-TGCEAATGPP-KPEARA 1474
RAAQPDQSRRTG-AKTEMRFEDPWLKREEEVKKESAYPGEEG-AGREATGPPAKPEARA 1479
KAAQSRRESREP- AKKEMTFEDPWLKREEEVKKENTHPSEEG-LRLETATGPP-KSEARA 1476
KAAQSRRESKES-AKKEMKFEDPWLKREEEVKKENAYPNEEG-SRFETATGPP-KPEARA 1477
KASQSRRESKES-TRREMKFEDPWLKREEEVKKENAYSSSEEG-VKCEPLPSSL-KTEGKS 1476
KTSQSRRESKES-TRREMKFEDPWLKREEEVKKENTYSSSEEG-VKCE--TSSP-KTEGKS 1502
KAAHLHDGKEPK-AKKDTKFEDPWLKREDDVKNDSSGSSDGSRSDMTTVSAKP----- 724
KAAHLHDGKEPK-AKKDTKFEDPWLKREDDVKNDSSGSSDGSRSDMTTVSAKP----- 724
KVAHPHEGKEPN-AKKDIKFEDPWLKREDDVKNDSSGSSDGSRSDMTTVSAKP----- 1476
KAAHSHEGKES-AKKDIKFEDPWLKREDDVKNDSSGSIDGPRPDMA TVPAKP----- 1476
KVAOPHEEKES-VRKDIKFEDPWLKREDDVKNDSSGASDGPRLTAVGPAKP----- 1484
EATQKBAEIKVRASAEIRFEDPWLKREDDAKRNSSGSSDSDSAKDKTTESSS----- 1495
.....1510.....1520.....1530.....1540.....1550.....1560

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      .      : * *.**      : :      : .*: *****      *: : :      .
--EQDRNQKMQVDRLSSSSS--GEGSISPV--PDNINRIVDGCCEMALN---TQSTVHLSDNYER 1519
--EENKKQIISDDRFSSSS--GEGATSPL--SDNLKRIVDGCCEMTLPSSASQSPVHSDGFRA 1526
EQEQDGKPSPGDRLSSSS--GEVSASPV--TDNFRRVVDGCCEMALPGLATQSPVHPNKS VKS 1534
EQEQDGKPSPGDRLSSSS--GEVSASPV--TDNFRRVVDGCCEMALPGLATQSPVHPNKS VKS 1534
EQEQDRKPSPGDRLSSSS--GEVSASAV--TDNFRRVVDGCCEMALPGLATQSPMHPNKS VKS 1532
EQEQDRKPSPGDRLSSSS--GEVSASPG--TDSFRRVVDGCCEMALPGLATQSPVYANRS VKS 1533
E--QDRKASPGDRLSSSS--GEVSASPG--SDTFRRVVDGCCEMALPGVAAQSPVHANRS LKS 1530
E--QDRKASPGDRLSSSS--GEVSASPG--SDNLRRVADGCCEMALPGVAAQSPVHPNRLG LKS 1535
ERQQDRTDSPGDRPSGSS--SEVSASPV--TDNFRRVVDGCCEMALPSLAAQSPVHPNKS LKS 1534
E--QDKKASPSDRLSSSS--GEVSASPG--ADNFRRVVDGCCEMALPSVAAQSPVHLNKS LKS 1533
EQELDGRPSSGNRLSSSS--SEAAAFQG--TDNVRRVVDGCCEMALPGVLAQSPHLVNRN LKS 1534
EQELDSRPGSGNRLSSSS--LEAATFQV--TDNIRRVVDGCCEMALPGSVAQSPPLHANRN LKS 1560
--EQSTKQSSADRFSSSSSGDAAVSPG--CDSLKRIVDGCCEMAASGSAIQSPVHSSDGLKG 781
--EQSTKQSSADRFSSSSSGDAAVSPG--CDSLKRIVDGCCEMAASGSAIQSPVHSSDGLKG 781
--EQSTKQSSADRFSSSSSGDASVSPG--CDSLKRIVDGCCEMAASGSATQSPVHSSDGLKG 1533
--EHGTKQSSADRFSSSSSGDASVSPG--SDSLKRIVDGCCEMAASGSATQSPVHSIDGLKS 1533
--QONKKQNSADRFSSSS--GETSSSPG--SDPLKRIVDGCCEMALPSATQSPVHSLDALKN 1540
--EKSKKRSSVDRFSSSS--GEAANSVPV--CNLKRIIDGCCEMVMSGSVSQTPHSAEILKT 1552
.....1570.....1580.....1590.....1600.....1610.....1620

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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	.*.*	:	:	:	.	:::	:	:	****:	
Xenopus_tropicalis	GSLPRVSEKSEKLEAEDITSN-----	DVDS	STVSFVTMQQFSKSTLERRVASPKHC	1570						
Rhinatrema_bivittatum	GNLTRGLQKVAKQEDLENSAFN-----	FLVENN	SDCSTAVSQASRSTLERRVASPKQC	1579						
Homo_sapiens	SSLPRAFQKASRQEPPDSLFFYY-----	CAAETNGVGAASGTPPSKATLEGKVASPKHC	1587							
Pan_troglodytes	SSLPRAFQKASRQEPPDSLFFYY-----	CAAETNGVGAASGTOPSKATPERKVASPKHC	1587							
Macaca_mulatta	SSLPRAFQKASRQEPPDSLFFYY-----	CAAETNGVGAASGAQPSKATLERKVASPKHC	1585							
Callithrix_jacchus	SSLPRAFQKASRQEPPDSLFFYY-----	CAAETSGVGPVPGTOPSKATLERKVASPKHC	1586							
Canis_lupus_familiaris	SSLPRAFQKASRQEELGSLFFYH-----	CPAESNGLG---	TAPCKATLERKVASPKHG	1579						
Felis_catus	SSLPRAFQKASRQEPPGSPFYH-----	CAAETNGLGSAQGASPCKAALERKAASPKHC	1588							
Equus_caballus	SSLPRAFQKASRQEELDSLFFYH-----	CAAETNGIGTASGTOPSKATLERKVASPKHC	1587							
Bos_taurus	SSLPRAFQKASRQEELDSLFFYH-----	CASETNIGISASSTOPSKATLERKVASPKHC	1586							
Mus_musculus	SSLPRAFQKADRHEELDS-FYH-----	CLADSNIGFSAASGIPSSKTTLERKVASPKHC	1586							
Rattus_norvegicus	SSLPRAFQKADRHEELDS-FYH-----	CLADSNIGFSAVPGIQSSKTTLERKVASPKHC	1612							
Pavo_muticus	GSLPRGLPKASKPEEPDSNLHS-----	TASDSNGVVSPAHAQFSKASLDKKMASPKHC	834							
Pavo_cristatus	GSLPRGLPKASKPEEPDSNLHS-----	TASDSNGVVSPAHAQFSKASLDKKMASPKHC	834							
Gallus_gallus	GSLPRGLPKASKPEEPDSHLHS-----	TASDSNGVVSPAHPQFSKASLDKKMASPKHC	1586							
Anas_platyrhynchos	RSPLPRGLPKASKLEEPDNHLQF-----	TVTDSGSGASSPAHPQFSKASLDKKMASPKHC	1586							
Chelonia_mydas	GSLPRALQKVKQKEEDAILYH-----	CAAEENGMSSPSLSQCKATLERRVASPKHG	1593							
Latimeria_chalumnae	GSLPRGQRMKQDLDGISHRSLSFGTESNSASATTISQVSTPCSPKASLERRVASPKHG		1612							
	.....1630.....1640.....1650.....1660.....1670.....1680									

	.*:.** ** *****:*****. * . . :* . :	
Xenopus_tropicalis	MLTRPKGMPPLPPVRKSSLDQKNRASPOHHCSS-----PSKHSLSLSPSLPDEL--SMKL	1623
Rhinatrema_bivittatum	ILSRPKGIPPLPPVRKSSLDQKNRASPOHSTCSN---SPSNQSLSSLAVLPDEL--NGKL	1634
Homo_sapiens	VLARPKGITPPLPPVRKSSLDQKNRASPOHSASGSGTSSPLNQPAAFPAGLPDEP--SGKT	1645
Pan_troglodytes	VLARPKGITPPLPPVRKSSLDQKNRASPOHSASSSGTSSPLNQPAAFLAGLPDEP--SGKT	1645
Macaca_mulatta	VLARPKGITPPLPPVRKSSLDQKNRASPOHSASSSGTSSPLNQPAAFGLAPDEP--GGKT	1643
Callithrix_jacchus	VLARPKGITPPLPPVRKSSLDQKNRASPOHSASSSGTSSPLNQPAAFPAGLPDEP--SGKM	1644
Canis_lupus_familiaris	VLARPKGITPPLPPVRKSSLDQKNRASPOHSTCSSGAGSPSHPPAPSAGPQADEA--GGKA	1637
Felis_catus	MLARPKGITPPLPPVRKSSLDQKNRASPOHSACSSGTSSPSHPPAPLLAPFPDEA--GGQA	1646
Equus_caballus	VLARPKGITPPLPPVRKSSLDQKNRASPOHSACSTTSSPLNQPAFFLASFPDEP--SGKM	1645
Bos_taurus	VLARPKGITPPLPPVRKSSLDQKNRASPOHSACSSSSSSSPLNQPAFFLASFPDEP--SSKM	1644
Mus_musculus	VLARPKGITPPLPPVRKSSLDQKNRASPOHGGGSSNTSSPLNQPATFLACFPDES--NGKT	1644
Rattus_norvegicus	VLARPKGITPPLPPVRKSSLDQKNRASPOHSAGGSSTSSPLNQPATFLACFPDES--NSKT	1670
Pavo_muticus	VLTRPKGITPPLPPVRKSSLDQKNRASPOHSAASSTTSSPSGQPAPFFLASFPPEEL--NAKP	892
Pavo_cristatus	VLTRPKGITPPLPPVRKSSLDQKNRASPOHSAASSTTSSPSGQPAPFFLASFPPEEL--NAKP	892
Gallus_gallus	VLTRPKGITPPLPPVRKSSLDQKNRASPOHSAASSTTSSPSGQPAPFFLASFPPEEL--NAKP	1644
Anas_platyrhynchos	VLTRPKGITPPLPPVRKSSLDQKNRASPOHSAASSTTSSPSGQPAPFFLASFPPEEL--NAKP	1644
Chelonia_mydas	VLTRSKGITPPLPPVRKSSLDQKNRASPOHSACSSSTSSPPNQPVSFPAFPDEL--NGKQ	1651
Latimeria_chalumnae	VLTKPKGIPPQPPVRKSSLDQKNRASPOHTNCSSN---SPSNQAVASLTYPDELGSNGKL	1669
	.....1690.....1700.....1710.....1720.....1730.....1740	

		.	.	**	.*	*****.*	*****	.*	*****	.*	*****	**	:	:	:	.
Xenopus_tropicalis	TG	-----LSTDT	KSN	SSSKLFS	SAKLE	QLASRTNS	LG	RSNG	SHYECL	SLERA	AGSLSSV	SSRMV	FS	1682		
Rhinatrema_bivittatum	KG	-----LSMDT	SVN	SSSRFLFS	SAKLE	QLASRTNS	LG	RSNG	SHYECL	SLERA	AGSLSSV	SSRMSP	SPS	1693		
Homo_sapiens	K	-----	DAS	SSSKLFS	SAKLE	QLASRSNS	LG	RATV	SHYECL	SLERA	AGSLSSV	SSRLH	AG	1698		
Pan_troglodytes	K	-----	DAS	SSSKLFS	SAKLE	QLASRTNS	LG	RATV	SHYECL	SLERA	AGSLSSV	SSRLH	AG	1698		
Macaca_mulatta	K	-----	DASS	-KLFS	SAKLE	QLASRTNS	LG	RATV	SHYECL	SLERA	AGSLSSV	SSRLH	AG	1695		
Callithrix_jacchus	K	-----	DAS	SSSKLFS	SAKLE	QLASRTNS	LG	RSTV	SHYECL	SLERA	AGSLSSV	SSRLH	AG	1697		
Canis_lupus_familiaris	K	-----	EAS	SSSRFLFS	SAKLE	QLASRTNS	LG	RAGS	SHYECL	SLERA	AGSLGAG	GWRAH	AG	1690		
Felis_catus	K	-----	EAS	SSSRFLFS	SAKLE	QLASRTNS	LG	RATV	SHYECL	SLERA	AGSLCAG	SWRAH	AG	1699		
Equus_caballus	K	-----	DAS	SSSKLFS	SAKLE	QLASRTNS	LG	RTTV	SHYECL	SLERA	AGSLSSM	SSRMH	AG	1698		
Bos_taurus	K	-----	DAS	SSSKLFS	SAKLE	QLASRTNS	LG	RTTV	SHYECL	SLERA	AGSLSSM	SSRLHT	G	1697		
Mus_musculus	K	-----	DV	SSSKLFS	SAKLE	QLASRSNS	LG	RTTV	SHYECL	SLERA	AGSLSSV	SSRMH	AG	1697		
Rattus_norvegicus	K	-----	DAS	SSSKLFS	SAKLE	QLASRTNS	LG	RTTV	SHYECL	SLERA	AGSLSSV	SSRMH	AS	1723		
Pavo_muticus	KG	PSIDN	SSNN	SSSKLFS	SAKLE	QLASRTNS	LG	RSTG	SHYECL	SLERA	AGSLSSV	VNSKMN	PG	952		
Pavo_cristatus	KG	PSIDN	SSNN	SSSKLFS	SAKLE	QLASRTNS	LG	RSTG	SHYECL	SLERA	AGSLSSV	VNSKMN	PG	952		
Gallus_gallus	KG	SGIDN	SSNN	SSSKLFS	SAKLE	QLASRTNS	LG	RSTG	SHYECL	SLERA	AGSLSSV	VNSKMN	PG	1704		
Anas_platyrhynchos	KG	PGIDS	SSNN	SSSKLFS	SAKLE	QLASRTNS	LG	RSTG	SHYECL	SLERA	AGSLSSV	VNSKMN	PG	1704		
Chelonia_mydas	KG	SSIDT	SSN	-SSSKLFS	SAKLE	QLASRTNS	LG	RSTV	SHYECL	SLERA	AGSLSSV	SSKIS	PG	1710		
Latimeria_chalumnae	KG	-----	PNID	SSSKLFS	SAKLE	QLANRTNS	LG	RSTK	GHYDCL	SLERTES	LTSV	VGSKMS	SIS	1724		
		.....1750	.....1760	.....1770	.....1780	.....1790	.....1800									

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      :*  *:::***:  .*.      :*
Xenopus_tropicalis  KDSTLPRSGRSLNRS-TMSSPINSLSQSAG-----SSPKSSPKKISAVSK 1727
Rhinatrema_bivittatum KDSTMPRTGRSLRS-GLSSLTNSCISQSAG-----ASPKSSPSKISAVSK 1738
Homo_sapiens         KDGTMPRAGRSLGRS-AGTSPPSS-----GASPKAGQSKISAVSR 1737
Pan_troglodytes      KDSTMPRAGRSLGRS-AGTSPPSS-----GASPRASQSKISAVSK 1737
Macaca_mulatta       KDSTMPRAGRSLGRS-AGTSPPSS-----GASPKASQSKISAVSK 1734
Callithrix_jacchus   KDSTMPRAGRSLGRS-AGTSPPSS-----GASPKASQSKISAVSK 1738
Canis_lupus_familiaris KDSTMPRAGRSPGRG-AGASPTAPGPAIAAAAAAPAPGP-----ASPKAGACKVSAVGK 1743
Felis_catus          KDSTMPRAGRSPGRGGAGASPTSLGPAIAAAAAAATGAPGVIAASPAGTCKISAVSK 1759
Equus_caballus       KDSTMPRAGRSPGRS-AGASPTTPGPSAAAG-----ASPKASQSKISAVSK 1743
Bos_taurus           KDSTMPRTGRSPGRS-AGASPTNPGPQTQSAG-----ASPKASQSKISAVSK 1742
Mus_musculus         KDSTMPRTGRSLGRS-TGASPPSCGITQSTG-----ASPKASQSKISAVSK 1742
Rattus_norvegicus    KDSTMPRTGRSLGRS-TGASPPSCGITQSTG-----ASPKASQSKISAVSK 1768
Pavo_muticus         KDTTMPRTGRSISRS-VMSSPTNSALSQSAG-----ASPKAGQSKISAVSK 997
Pavo_cristatus       KDTTMPRTGRSISRS-VMSSPTNSALSQSAG-----ASPKAGQSKISAVSK 997
Gallus_gallus        KDTTMPRTGRSVRS-VMSSPTNSALSQSAG-----ASPKAGQSKISAVSK 1749
Anas_platyrhynchos   KDTTMPRAGRSVRS-VMSSPTNSGLSQSAG-----ASPKAGQSKISAVSK 1749
Chelonia_mydas       KDTTMPRAGRSLRS-AVSSPTNSGISQSAG-----ASPKASQSKISAVSK 1755
Latimeria_chalumnae  RDSTMPRTGRSLSRN-SVSSPTNIPPPVG-----SPKANQSKISAVSK 1767
.....1810.....1820.....1830.....1840.....1850.....1860

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      ***:.*::.*.  ::::*:  *****:***:..  .  *  .*****:.....*
Xenopus_tropicalis  LLLANPKARS-LSASTTKTLFSTKSLPQSVGRSSSLPPNGKNMSWSTQSLRSKGSGLA 1786
Rhinatrema_bivittatum LLLANPKARS-LSASTTKTLFSTKSLPQSVGRSSSLPPNGKNLSWSTQSLSRNRGPGIA 1797
Homo_sapiens         LLLASPRARG-PSASTTKTLFSTKSLPQAVGQSSSPGGKHTPWSTQSLSRNRSSGLA 1796
Pan_troglodytes      LLLTSPKARS-LSTSTTKTLFSTKSLPQAVGQSSSLPPGGKHSWSTQSLSRNRSSGLA 1796
Macaca_mulatta       LLLTSPKARS-LSTSTTKTLFSTKSLPQAVGQSSSLPPGGKHSWSTQSLSRNRSSGLA 1793
Callithrix_jacchus   LLLASPKARS-LSTSTTKTLFSTKSLPQSVGQSPGAPPGGKHSWSTQSLSRTRSSGLA 1797
Canis_lupus_familiaris LLLASPKARS-LAAATTKTLFSTKSLPQAVGQSPGLAA--KPTSWSTQSLSRSRGAGPA 1800
Felis_catus          LLLASPKARS-LATATTKTLFSTKSLPQAVGQSPGLAASAKPTSWSTQSLSRSRGAGPA 1818
Equus_caballus       LLLASPRARS-LATSTTKTLFSTKSLPQAVGQSSASLPPSGKHSWSTQSLSRSRGSGLA 1802
Bos_taurus           LLLASPKARS-LSTSTTKTLFSTKSLPQAVGQSSGPPPGKHSWSTQSLSRSRGSGLA 1801
Mus_musculus         LLLASPKSRSSLSTSTTKTLFSTKSLPQSVGQSSNLPPSGKHSWSTQSLSRNRGSGLA 1802
Rattus_norvegicus    LLLASPKSRSSLSTSTTKTLFSTKSLPQSVGQSSNLPPSGKHSWSTQSLSRNRGSGLA 1828
Pavo_muticus         LLLASPKARS-LSASATTKTLFSTKSLPQSVGQSSSLPPSGKNMSWSTQSLSRNRGSSLA 1056
Pavo_cristatus       LLLASPKARS-LSASATTKTLFSTKSLPQSVGQSSSLPPSGKNMSWSTQSLSRNRGSSLA 1056
Gallus_gallus        LLLASPKARS-LSASATTKTLFSTKSLPQSVGQSSSLPPSGKNMSWSTQSLSRNRGSSLA 1808
Anas_platyrhynchos   LLLASPKARS-LSASATTKTLFSTKSLPQSVGQSSSLPPSGKNMSWSTQSLSRNRGSSLA 1808
Chelonia_mydas       LLLASPKARS-LSASTTKTLFSTKSLPQSVGQSSSLPPNGKNMSWSTQSLSRNRGSGLA 1814
Latimeria_chalumnae  LLLASPKARS-LSASSTKMLFSTKSLPQSVGRSSSLPPNGKNMSWSTQSLSRSRGSGLA 1826
.....1870.....1880.....1890.....1900.....1910.....1920

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      *  *  ***.*****:  :
Xenopus_tropicalis  SKLPLRAVNGRISELLQGTAGNRGVHSHGN---TDSDERGTLHGDKPVVHTLPSPYSKI 1843
Rhinatrema_bivittatum SKLPLRAVNGRISELLQGSVATKGLHLRGN---SDTDERGNLHGDDKPTVHTLPSPYSKV 1854
Homo_sapiens         SKLPLRAVNGRISELLQGGAGARGLOLRAG--PEAEARGGALAEDKPAAAHLLPSPYSKI 1854
Pan_troglodytes      SKLPLRAVNGRISELLQGSAGARGLOLRAG--PEAEERGGALAEDKPAAAHLLPSPYSKI 1854
Macaca_mulatta       SKLPLRAVNGRISELLQGSTGARGLOLRAGAGPEAEERGAALAEDKPAAAHLLPSPYSKI 1853
Callithrix_jacchus   SKLPLRAVNGRISELLQGGAGARG-----GAPAGDRPEDRPAQAQLLPSPYSKI 1846
Canis_lupus_familiaris CKPPPRAVNGRISELLQGGAGARGAEGRAG--AAGEERP-----AAPPLPSPYSKV 1849
Felis_catus          GKPPPRAVNGRISELLQGGAGGR-----X---RGGDERP-----AAPPLPSPYSKV 1861
Equus_caballus       AKLPLRAVNGRISELLQGGAG-RGSPLRAG--PEAEERAGPGDDKPAAPLPSPYSKV 1858
Bos_taurus           SKLPLRAVNGRISELLQGGAGGRGPPGRAG--PEAEDRAIPTDERPPPTAPLPSPYSKI 1858
Mus_musculus         SKLPLRAVNGRISELLQGSAGPRSAQLRAE--AEERSGAPSEDKPAAAHLLPSPYSKI 1858
Rattus_norvegicus    SKLPLRAVNGRISELLQGSAGPRGAQLRAE--AEERSGAPTEKPAAAHLLPSPYSKI 1884
Pavo_muticus         SKLPLRAVNGRISELLQGSASSRGLQLRGN---VEADERGGLHGEEKLAVHVLPSPYSKI 1113
Pavo_cristatus       SKLPLRAVNGRISELLQGSASSRGLQLRGN---VEADERGGLHGEEKLAVHVLPSPYSKI 1113
Gallus_gallus        SKLPLRAVNGRISELLQGSASSRGLQLRGN---VEADERGGLHGEEKPAVHVLPSPYSKI 1865
Anas_platyrhynchos   SKLPLRAVNGRISELLQGSAGSRGLQLRGN---SEAEERGGHLHGEEKPAVHMLPSPYSKI 1865
Chelonia_mydas       SKLPLRAVNGRISELLQGSTSARGLOMRGN---SDTDERGGLHGEEKPAVHMLPSPYSKI 1871
Latimeria_chalumnae  SKLPLRAVNGRISELLQGSAGRVSHPRGA---SDTDERGALLGDEKPIVHTLPSPYSKI 1883
.....1930.....1940.....1950.....1960.....1970.....1980

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/KIFDaBpsTue Feb 1 13:50:45 2022

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****:*****:*****:****:
Xenopus_tropicalis      T P P R K P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S G S S A 1903
Rhinatrema_bivittatum  T P P R K P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1914
Homo_sapiens            T P P R R P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S V M R D S E A T G S S A S S A 1914
Pan_troglodytes        T P P R R P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1914
Macaca_mulatta         T P P R R P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1913
Callithrix_jacchus     T P P R R P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1906
Canis_lupus_familiaris T P P R R P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S V L R D S E A T G S S A S S A 1909
Felis_catus            T P P R R P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S V P R D S E A T G S S A S S A 1921
Equus_caballus         T P P R K P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1918
Bos_taurus             T P P R R P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S T 1918
Mus_musculus           T P P R K P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1918
Rattus_norvegicus      T P P R K P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1944
Pavo_muticus           T P P R K P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1173
Pavo_cristatus         T P P R K P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1173
Gallus_gallus          T P P R K P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1925
Anas_platyrhynchos    T P P R K P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1925
Chelonia_mydas         T P P R K P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1931
Latimeria_chalumnae    T P P R K P H R C S S G H G S D N S S V L S G E L P P A M G K T A L F Y H S G G S S G Y E S M M R D S E A T G S S A S S A 1943
.....1990.....2000.....2010.....2020.....2030.....2040

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Xenopus_tropicalis      Q D S M S E N S S S L S G R C R S L K T P K K R S N A G S Q R R R L I P A L S L D T S P V R K P A N S P G V R W V D G 1963
Rhinatrema_bivittatum  Q D S M S E N S S S L S G R C R S L K T P K K R S N T G S Q R R R L I P A L S L D T S P V R K P I N S P G V R W V D G 1974
Homo_sapiens            Q D S T S E N S S S V G G R C R S L K T P K K R S N P G S Q R R R L I P A L S L D T S S P V R K P P N S T G V R W V D G 1974
Pan_troglodytes        Q D S T S E N S S S V G G R C R S L K T P K K R S N P G S Q R R R L I P A L S L D T S S P V R K P T N S T G V R W V D G 1974
Macaca_mulatta         Q D S T S E N S S S V G G R C R S L K A P K K R S N P G S Q R R R L I P A L S L D T S S P V R K P T N S T G V R W V D G 1973
Callithrix_jacchus     Q D S T S E H S G S V G G R C R S L K A P K K R P N S G S Q R R R L I P A L S L D T S S P V R K P T N S T S L R W V D G 1966
Canis_lupus_familiaris H D S T S D N S S S V G G R C R S L K A P K K R S N S G S Q R R R L I P A L S L D T P S P V R K P A S S T G V R W V D G 1969
Felis_catus            H D S T S D N S S S V G G R C R S L K A P K K R S N S G S Q R R R L I P A L S L D T P S P V R K P A S S T G V R W V D G 1981
Equus_caballus         Q D S M S E N S S S L S G R C R S L K T P K K R S N A G S Q R R R L I P A L S L D T P S P V R K P A G G A G V R W V D G 1978
Bos_taurus             Q D S M S E N S S S V G G R C R S L K A P K K R A N S G S Q R R R L I P A L S L D T P S P V R K P T N S A G I R W V D G 1978
Mus_musculus           Q D S M S E N S S S V G G R C R S L K N Q K K R S N S G S Q R R R L I P A L S L D T P S P V R K T A S S T G V R W V D G 1978
Rattus_norvegicus      Q D S M S E N S S S V G G R C R S L K T P K K R S N S G S Q R R R L I P A L S L D T P S P V R K T A S S T G V R W V D G 2004
Pavo_muticus           Q D S M S E N S S S A S G R C R S L K T P K K R S T T G S Q R R R L I P A L S L D T A S P A R K P A N S P G V R W V D G 1233
Pavo_cristatus         Q D S M S E N S S S A S G R C R S L K T P K K R S T T G S Q R R R L I P A L S L D T A S P A R K P A N S P G V R W V D G 1233
Gallus_gallus          Q D S M S E N S S S A S G R C R S L K T P K K R S T T G S Q R R R L I P A L S L D T A S P A R K P A N S P G V R W V D G 1985
Anas_platyrhynchos    Q D S M S E N S S S A S G R C R S L K N P K K R S N A G S Q R R R L I P A L S L D T S S P A R K P A N S P G V R W V D G 1985
Chelonia_mydas         Q D S M S E N S S S V S G R C R S L K N Q K K R S N T G S Q R R R L I P A L S L D T T S P V R K P A N S P G V R W V D G 1991
Latimeria_chalumnae    Q D S M S E N S S S V S G R C R S L K T P K K R T N T G S Q R R R L I P A L S L D T S P I R K P A N S P G V R W V D G 2003
.....2050.....2060.....2070.....2080.....2090.....2100

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Xenopus_tropicalis      P M C N G Q R G L G E P F E I K V Y E I D D V E R L O R R R S E D C K E V S R N N S K I K I L E H R Q O R I A D I R A K 2023
Rhinatrema_bivittatum  P L R S A Q R G M G E P F E I K V Y E I D D V E R L O R R R G G D S K G V V C F N A K L K I L E H R Q O R I G E V R A K 2034
Homo_sapiens            P L R S S P R G L G E P F E I K V Y E I D D V E R L O R R R G G A S K E A M C F N A K L K I L E H R Q O R I A E V R A K 2034
Pan_troglodytes        P L R S S P R G L G E P F E I K V Y E I D D V E R L O R R R G G T S K E A M C F N A K L K I L E H R Q O R I A E V R A K 2034
Macaca_mulatta         P L R S S Q R G L G E P F E I K V Y E I D D V E R L O R R R G G A S K E V M C F N A K L K I L E H R Q O R I A E V R A K 2033
Callithrix_jacchus     P L R S S Q R G L G E P F E I K V Y E I D D V E R L O R R R G G T S K E V M C F N A K L K I L E H R R Q O R I A E V R A K 2026
Canis_lupus_familiaris P L R S T Q R G L G E P F E I K V Y E I D D V E R L O R R R G G N S K E V T C F N A K L K I L E H R Q O R I A E V R A K 2029
Felis_catus            P L R S T Q R G L G E P F E I K V Y E I D D V E R L O R R R G G N G K E V T C F N A K L K I L E H R Q O R I A E V R A K 2041
Equus_caballus         P L R S T Q R G L G E P F E I K V Y E I D D V E R L O R R R G G S S K E V T C F N A K L K I L E H R Q O R I A E V R A K 2038
Bos_taurus             P L R S T Q R G L G E P F E I K V Y E I D D V E R L O R R R G G S S K E V M C F N A K L K I L E H R Q O R I A E V R A K 2038
Mus_musculus           P L R S T Q R S L G E P F E I K V Y E I D D V E R L O R R R G A T S K E V M C F N A K L K I L E H R Q O R I A E V R A K 2038
Rattus_norvegicus      P L R S T Q R S L G E P F E I K V Y E I D D V E R L O R R R G A T S K E V M C F N A K L K I L E H R Q O R I A E V R A K 2064
Pavo_muticus           P L R S A Q R G L G E P F E I K V Y E I D D V E R L O R R R G G D S K E V I C F N A K L K I L E H R Q O R I A E V K A K 1293
Pavo_cristatus         P L R S A Q R G L G E P F E I K V Y E I D D V E R L O R R R G G D S K E V I C F N A K L K I L E H R Q O R I A E V K A K 1293
Gallus_gallus          P L R S A Q R G L G E P F E I K V Y E I D D V E R L O R R R G G D S K E V I C F N A K L K I L E H R Q O R I A E V K A K 2045
Anas_platyrhynchos    P L R S G Q R G L G E P F E I K V Y E I D D V E R L O R R R G G D S K E V I C F N A K L K I L E H R Q O R I A E V K A K 2045
Chelonia_mydas         P L R S A Q R G M G E P F E I K V Y E I D D V E R L O R R R G G D S K E L I C F N A K L K I L E H R Q O R I A E V R A K 2051
Latimeria_chalumnae    P L R S T Q R G M A E P F E I K V Y E I D D V E R L H R R R G V N K E L I F N A K L K I L E H R Q O R I A E V R A K 2063
.....2110.....2120.....2130.....2140.....2150.....2160

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/KIF26Bps Tue Feb 1 13:50:45 2022

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*:***:*** ***.*****.*** *****. : **:***** *****
Xenopus_tropicalis YEWLLKELEITKQFLMLDPNKWLS EFDLEQTYEVD SIEYLEALECVTERLENRVNFCKAH 2083
Rhinatrema_bivittatum YEWLMKELEVTKQYLM LDPNKWLS EFDLEQAYETDSLEYLEALECVTERLENRVNFCKAH 2094
Homo_sapiens YEWLMKELEATKQYLM LDPNKWLS EFDLEQVWELDSLEYLEALECVTERLESRVNFCKAH 2094
Pan_troglodytes YEWLMKELEATKQYLM LDPNKWLS EFDLEQVWELDSLEYLEALECVTERLESRVNFCKAH 2094
Macaca_mulatta YEWLMKELEATKQYLM LDPNKWLS EFDLEQVWELDSLEYLEALECVTERLESRVNFCKAH 2093
Callithrix_jacchus YEWLMKELEATKQYLM LDPNKWLS EFDLEQVWELDSLEYLEALECVTERLESRVNFCKAH 2086
Canis_lupus_familiaris YEWLMKELEITKQYLM LDPNKWLS EFDLEQVWELDSLEYLEALECVTERLESRVNFCKAH 2089
Felis_catus YEWLMKELEVTKQHLMLDPNKWLS EFDLEQVWELDSLEYLEALECVTERLESRVNFCKAH 2101
Equus_caballus YEWLMKELEMTKQYLM LDPNKWLS EFDLEQVLELDSLEYLEALECVTERLENRVNFCKAH 2098
Bos_taurus YEWLMKELETTKQYLM LDPNKWLS EFDLEQVLELDSLEYLEALECVTERLESRVNFCKAH 2098
Mus_musculus YEWLMKELEATKQYLM LDPNKWLS EFDLEQVLQLDSLEYLEALEGVTERLESRVNFCKAH 2098
Rattus_norvegicus YEWLMKELEATKQYLM LDPNKWLS EFDLEQVLQLDSLEYLEALEGVTERLESRVNFCKAH 2124
Pavo_muticus YEWLMRELEVTKQYLM LDPNKWLS EFDLEQVFELDSLEYLEALECVTERLENRVNFCKAH 1353
Pavo_cristatus YEWLMRELEVTKQYLM LDPNKWLS EFDLEQVFELDSLEYLEALECVTERLENRVNFCKAH 1353
Gallus_gallus YEWLMRELEVTKQYLM LDPNKWLS EFDLEQVFELDSLEYLEALECVTERLENRVNFCKAH 2105
Anas_platyrhynchos YEWLMRELEVTKQYLM LDPNKWLS EFDLEQVFELDSLEYLEALECVTERLENRVNFCKAH 2105
Chelonia_mydas YEWLMRELEVTKQYLM LDPNKWLS EFDLEQVFELDSLEYLEALECVTERLENRVNFCKAH 2111
Latimeria_chalumnae YDWLMKELEVTKQYLM LDPNKWLS EFDLEQTFEVD SLEYLEALEYVTERLEHRVNFCKAH 2123
.....2170.....2180.....2190.....2200.....2210.....2220

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Xenopus_tropicalis LMMITCFDITSRRR 2097
Rhinatrema_bivittatum LMMITCFDITSRRR 2108
Homo_sapiens LMMITCFDITSRRR 2108
Pan_troglodytes LMMITCFDITSRRR 2108
Macaca_mulatta LMMITCFDITSRRR 2107
Callithrix_jacchus LMMITCFDITSRRR 2100
Canis_lupus_familiaris LMMITCFDITSRRR 2103
Felis_catus LMMVTCTFDITSRRR 2115
Equus_caballus LMMITCFDITSRCR 2112
Bos_taurus LMMITCFDITSRRR 2112
Mus_musculus LMMITCFDITSRRR 2112
Rattus_norvegicus LMMITCFDITSRRR 2138
Pavo_muticus LMMITCFDITSRRR 1367
Pavo_cristatus LMMITCFDITSRRR 1367
Gallus_gallus LMMITCFDITSRRR 2119
Anas_platyrhynchos LMMITCFDITSRRR 2119
Chelonia_mydas LMMITCFDITSRRR 2125
Latimeria_chalumnae LMMITCFDITSKRR 2137
.....2230....

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