

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CEPD44pep Tue Feb 1 11:41:35 2022

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      *      :      :****:**** **.*:.*:.*: :.*: **.*:.* **.*:***** *
Pavo_muticus      MQGAMEGGVVRIGDQLILEEDYDETYVPSEQEIIRDFARDIGIDPEKEPELMWLAREGIVA 60
Pavo_cristatus    MQGAMEGGVVRIGDQLILEEDYDETYVPSEQEIIRDFARDIGIDPEKEPELMWLAREGIVA 60
Gallus_gallus     MQGAMEGGVVRIGDQIILEEDYDETYVPSEQEVWDFARDIGIEPEKEPELMWLAREGIVA 60
Chelonia_mydas    --MDMAGPAIRIGDQLILEEDYDETYIPSEQEIQEFAREIGIDPENEPPELMWLAREGIVA 58
Rhinatrema_bivittatum ----MAGPPVRIGDQLILEEDYDENYIPSEQEIKEYAREIGLDPDNEPELMWLAREGIVA 56
Mus_musculus      ----MARRPILLGDQLVLEEDSDETYVPSEQEIILDFARVIGIDPIKEPELMWLAREGIEA 56
Rattus_norvegicus ----MSRRPILLGDQLVLEEDSDETYVPSEQEIILDFARVIGIDPIKEPELMWLAREGIEA 56
Homo_sapiens      ----MAGRPLRIGDQLVLEEDYDETYIPSEQEIILEFAREIGIDPIKEPELMWLAREGIVA 56
Pan_troglodytes   ----MAGRPLRIGDQLVLEEDYDETYIPSEQEIILEFAREIGIDPIKEPELMWLAREGIVA 56
Macaca_mulatta    ----MAGRPLRIGDQLVLEEDYDETYIPSEQEIILEFAREIGIDPIKEPELMWLAREGIVA 56
Callithrix_jacchus ----MAGQPLCIGDQLVLEEDYDETYIPSEQEIILEFAREIGIDPIKEPELMWLAREGIVA 56
Canis_lupus_familiaris ----MAGRPPVRIGDQLILEEDYDETYIPSEQEIILEFAREIGIDPIKEPELMWLAREGIVA 56
Bos_taurus        ----MAGRPIRIGDQLVLEEDYDENYIPSEHEILEFAREIGIDPIKEPELMWLAREGIVA 56
Equus_caballus    ---MAGRPIRIGDQLVLEEDYDETYIPSEQEIILEFAKEIGIDPIKEPELMWLAREGIVA 56
Xenopus_tropicalis ---MMATSARIGDQLILEEDYDENYIPQENEIQEYARVIGIDPDSPELMWLAREGIVA 57
1.....10.....20.....30.....40.....50.....60

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      **.      *****:****:* **.* **.* *.* **.* **.* **.* :      *** :
Pavo_muticus      PLPPQWKPCQDVTGDIYY-FNFNNGQSMWDHPCDDHYRELVTQERKKLLAHGSLKKKEKK 119
Pavo_cristatus    PLPPQWKPCQDVTGDIYY-FNFNNGQSMWDHPCDDHYRELVTQERKKLLAHGSLKKKEKK 119
Gallus_gallus     PLPPQWKPCQDVTGDIYY-FNFNNGQSMWDHPCDDHYRELVAQERKKLLARGNLKKKEKK 119
Chelonia_mydas    PLPPEWKPCQDITGDIYY-FNFSNGQSTWDHPCDEHYRELVIQEREKLSAHGSVKKKDKK 117
Rhinatrema_bivittatum PLPVEWKPCQDITGDIYYFNFSTGQSTWDHPNDEHYRDLVLQERRKLQAQGGAKKKEKK 116
Mus_musculus      PLPKGWKPCQNTITGDLYY-FNFDTGQSIWDHPCDEHYRKLVIQERERWSAPGAIKKKDKK 115
Rattus_norvegicus PLPKGWKPCQNTITGDLYY-FNFDTGQSIWDHPCDEHYRKLVIQEREKWSAPGAIKKKDKK 115
Homo_sapiens      PLPGEWKPCQDITGDIYY-FNFANGQSMWDHPCDEHYRSLVIQERAKLSTSGAIKKK--K 113
Pan_troglodytes   PLPGEWKPCQDITGDIYY-FNFANGQSMWDHPCDEHYRNLVIQERAKLSTSGAIKKK--K 113
Macaca_mulatta    PLPGEWKPCQDITGDIYY-FNFANGQSMWDHPCDEHYRNLVIQERAKLSTSGAVKKK--K 113
Callithrix_jacchus PLPVEWKPCQHVTDGIYY-FNFANGQSMWDHPCDEHYRNLVIQERAKLSTSGAIKKKEKR 115
Canis_lupus_familiaris PLPMEWKPCQDITGDIYY-FNFANGQSMWDHPCDEHYRNLVIQERGKLSAPAAIKKKDKK 115
Bos_taurus        PLPVEWKPCQDITGDIYY-FNFANGQSTWDHPCDEHYRNLVIQERGKLSAPGATKKKEKK 115
Equus_caballus    PLPVEWKPCQDITGDIYY-FNFANGQSMWDHPCDEHYRNLVIQERGKLSAPGASKKKEKK 115
Xenopus_tropicalis PLAAAWKPCQDVTGDIYY-FNFATGQSTWEHPNDEHYRELVIQEREKLLMQGGKKKEKK 116
.....70.....80.....90.....100.....110.....120

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      **      :      *::: :
Pavo_muticus      KK-DKKDKKKDKKQSLKQHTEN-PEP-----EPDSQIRN 152
Pavo_cristatus    KK-DKKDKKKDKKQSLKQHTEN-PEP-----EPDSQIRN 152
Gallus_gallus     KK-DKKDKKKDKKQSLKQHAEN-PEP-----EPDSQIRN 152
Chelonia_mydas    KKKDKKERKDKKEREPMKHAVEMQPEPGILPSTSFYRMSSPILSSECAFPDLDQDSQIRN 177
Rhinatrema_bivittatum KK---KRKKERRKKRSALHLGSP----- 136
Mus_musculus      KK-KEK--KNKKDKETSKSPL----- 133
Rattus_norvegicus KK-KEK--KNKKDKETSKSPLPEQPEQGLLPSSSFLRGLSPLSAPGLADLDLDOEVOARN 172
Homo_sapiens      KK-KEK--KDKKDRDPPKS----- 129
Pan_troglodytes   KK-KEK--KDKKDRDPPKSSLETQPEEGLLPSSSFLCSLSPPSAPGLADLDLDOEIQARS 170
Macaca_mulatta    KK-KEK--KDKKDKETPKSSLETQPEEGLLPSSSFLCSLSPPSAPGLPDLDLDOEIQARS 170
Callithrix_jacchus KK-KEK--KDKKDKETPKSSLETQPEEGLLPSSSFLCSPSPLSAHGLTDLDLDOEIQARS 172
Canis_lupus_familiaris KK-KEK--KDKKDKETSKSPLPEQPEQGLLHSSSFLCRPSLLLAPGLADLDLDOEIQARN 172
Bos_taurus        KK-KEKEKKDKKKDKETSKSPLA----- 136
Equus_caballus    KK-KEK--KDKKDKETSKSPLPEQPEQGLLPSSSFLRGPSPPLPAPGLADMDLDQKMQARS 172
Xenopus_tropicalis KK--KEKKDKKKAKDLPKPTPS----- 136
.....130.....140.....150.....160.....170.....180

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Pavo_muticus	E-----GRRSLS-----HINDSWRQFAGMGPNKLHPTLVSAFNRPCQTLTDVKAVG-SGPP	202
Pavo_cristatus	E-----GRRSLS-----HINDSWRQFAGMGPNKLHPTLVSAFNRPCQTLTDVKAVG-SGPP	202
Gallus_gallus	E-----DRGSLS-----HINDSWRQFAGMGRNKLHPTLVSVFNRPCQTLTEVKTVE-SGPP	202
Chelonia_mydas	EGFLKKGKGKTSGRPPETSDSNRQFAGTSPNKLQPLLTAKSSRTHQILADVEKILGRTPS	237
Rhinatrema_bivittatum	-----LAPVLVPLG-----	145
Mus_musculus	-----	133
Rattus_norvegicus	E-AFKKGRSPCM-----LGDTPWPLMGALPGKLOPLSKGQASRTHQIFADVEKILGRPSI	226
Homo_sapiens	-----	129
Pan_troglodytes	EGSYNKGKSPGM-----LGDTPWHFMGALPRKLOPLSKGQPSQIHQVFADMEKILGRAPA	225
Macaca_mulatta	EGSYNKGKSPGM-----LGDTPWRFMGALPRKLOPLFKGQTSQIHQVFADMEKILGRASA	225
Callithrix_jacchus	KGSCNKGKSLGM-----LGDTPWPLMGALPRRLQSLSKGQASRTHQVFANMEKVLGRAPA	227
Canis_lupus_familiaris	EGSFKKGESPCCK-----LGDTPWPFMGTLPSKLOPLSKGQASQYHHIFADVEKILGNALA	227
Bos_taurus	-----	136
Equus_caballus	EGFFKKKGKSPCM-----LGDTPWPLMGTLPGKLOPLSKGPASRIHQIFADVEKILGRAPV	227
Xenopus_tropicalis	-----	136
	.....190.....200.....210.....220.....230.....240	

Pavo_muticus	FSSFDVYIHQGD-----VPLEVRG-SGH	225
Pavo_cristatus	FSSFDVYIHQGD-----VPLEVRG-SGH	225
Gallus_gallus	FSSVDVYIQQD-----IPLVQGNVRS	226
Chelonia_mydas	FSKSDVDNQGDQDKTPKIGDKPCLGFSDFEGLDVVRTKPIFYVSKKSCSQDIENGRSV	297
Rhinatrema_bivittatum	-----	145
Mus_musculus	-----	133
Rattus_norvegicus	QCKTELGDPOGLESVQKATEKIYLGFSDPETIEKMELRTRQQRPGAGGFONPELLHSGQDV	286
Homo_sapiens	-----	129
Pan_troglodytes	QCRRELGDQOGLEKLOKATEKIYLGFSDPETEELEMRSRQOKLGTAPONTGLLQNVQDV	285
Macaca_mulatta	QCRRELGDQOGLEKLOKVTEKIYLGFSDPETEELEMRSRQOKLGTAPONTGLLQNVQDV	285
Callithrix_jacchus	QCRRELGDQOGLEKLQNSTEKIYLGFSDPKTEELEMRSRQOKLGTAPONTGLLQNSQDV	287
Canis_lupus_familiaris	QCRTEMCDLQGLGKPKPKTEKIYLGFSDPETIEELRTRQOKPSILGPENTRPLONGQEM	287
Bos_taurus	-----	136
Equus_caballus	QRRTELGDQOGLEKPKPKTEKIYLGFSDPETIEELEMRTROOKPGAPGPENPRPLQSGQDV	287
Xenopus_tropicalis	-----	136
	.....250.....260.....270.....280.....290.....300	

Pavo_muticus	FNS-----GDTKRSPSLL	238
Pavo_cristatus	FNS-----GDTKRSPSLL	238
Gallus_gallus	YST-----GEMKRSPSLL	239
Chelonia_mydas	LDSPNVLEDKGMFLVFEKLSDDWKFEEMTGECVCQDDCLSVRERSTGPGGDKERDPGLS	357
Rhinatrema_bivittatum	-----	145
Mus_musculus	-----	133
Rattus_norvegicus	SECRS-----QTPAHSKLSEAPKGLQLRGEHHNHSIALNCTGPGGDKGQSPVSL	336
Homo_sapiens	-----	129
Pan_troglodytes	VESRS-----QASVHSKLSEAIKGLPLKGEQHSLSLAKLSPTGPGGDKGQSCIPM	335
Macaca_mulatta	VESRS-----QAPVHSKLSEAIKGLPLKGEQHSLSLAKLSSTGPGGDKGQSPIPT	335
Callithrix_jacchus	VESRS-----QAPVHSELSEAIKGLSLQKQHSLSLAKLSFTGPGGDKGQSPIPM	337
Canis_lupus_familiaris	LEG-----QASVHSKLSETIRGLQLEGEQHGHRVAKRGSTGPKGDKSQSPLPS	335
Bos_taurus	-----	136
Equus_caballus	LESRS-----QASVHSKLSEAVKGPQLKGEQHSQNMALKSSTGPGGDKGQSPIPL	337
Xenopus_tropicalis	-----	136
	.....310.....320.....330.....340.....350.....360	

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Pavo_muticus	QAREG-----RRNHDMTLFDSSPTDGWNLQQTADASYAQEQLRSHSRASQS	284
Pavo_cristatus	QAREG-----RRNHDMTLFDSSPTDGWNLQQTADASYAQEQLRSHSRASQS	284
Gallus_gallus	LVREG-----RRNHDMTLFDSSLTDWNLQEMVVASYAQEQLRSHSRVSQS	285
Chelonia_mydas	QANENEAFLLTPSAPDHIFYSRKREMILFDASLPEDLSLIAEFDAHYPORELRAHSTAVES	417
Rhinatrema_bivittatum	-----ALAPLRGLVDTSGS	159
Mus_musculus	-----	133
Rattus_norvegicus	PPSEEEPSLSLSCSSGHVSAARKNKRFLESSPAEDFSWQGVPGEGGDLGREWRREPPGL	396
Homo_sapiens	-----	129
Pan_troglodytes	SSPEEEPSLSLSCSSGHMLPARKSKL-LLDSSPTEDLSRQGVPGEGGSIGSGRRRREPPGL	394
Macaca_mulatta	SSPEEEPSLSLSCSSGHMLPARKSKL-LLDSSPTEDLSWQGVPGEGGSVSGRRRREPPGL	394
Callithrix_jacchus	SSPEEEPSLSLSCSSGHMLPARKSKL-LLDSSPAEDLSWQGVSGEGGSVSGRRRREAPGL	396
Canis_lupus_familiaris	SFHEENPSRSSCSSDHMPAPRKSQLLLDSSGPAEDQSWQGVSGEGGSVGRGRRRKESPGGL	395
Bos_taurus	-----	136
Equus_caballus	PSSEGEPSPPSPCSSDHMLPIRKSKLFLLDSSPAEDLSWQGVYEGGSVGRGRRRREPPGL	397
Xenopus_tropicalis	-----	136
	.....370.....380.....390.....400.....410.....420	

Pavo_muticus	RSKREVQGEALGRAVVLCKSNESISRPERQDAKQMPMET-AADIKADNISGIPENPSRV	343
Pavo_cristatus	RSKREVQGEALGRAVVLCKSNESISRPERQDAKQMPMET-AADIKADNISGIPENPSRV	343
Gallus_gallus	RSKREDQDEALGQAVILCKNSEISRPERQDSKQEMMET-GADIKADDISAIPENPSRV	344
Chelonia_mydas	RLKRKLQDHLSQATKLCKSNEAVGKCEIERSKRAEFVESEGAGLQVAQKMDMLDCHLAV	477
Rhinatrema_bivittatum	TLRGSFSSSSLG	171
Mus_musculus	-----	133
Rattus_norvegicus	WMGOVSKLINDAPERCKETKPTAPKAAEASAEESPRGPLLMPPDTPASEPVPKPPSGDP	456
Homo_sapiens	-----	129
Pan_troglodytes	WMEQVSKLVNKDIPGSKETEPSDPEALGASAEELPOGLLLIPPETLASEPAQNPLSGRA	454
Macaca_mulatta	WMEQVSKLVNKDIPGSKETEPSDPEALGASAEELPOGLLLIPPETLASEPAQNPLSGRA	454
Callithrix_jacchus	WMGOVSKLVNKDIPGSKETEPSDPEALGTLAEDLPQGLLLIPPETLVSEPAQNAISGRA	456
Canis_lupus_familiaris	WMROVSKLVNKDIPGSKETGPSDPEAPRASAKDPPQECFLRPLDLALEPAQNAPSGSA	455
Bos_taurus	-----	136
Equus_caballus	WMGOVSNLVNKDTPRSCKKTEPSDAEAPGASAEEDPPQGLFLVPPATLVSEPAQNTPSGSA	457
Xenopus_tropicalis	-----	136
	.....430.....440.....450.....460.....470.....480	

Pavo_muticus	PQEIMGVQPCLOGMDAKGGINAYHRTSKHVSPSVKD-----EERGDSEI ECDSSDWDSSH	398
Pavo_cristatus	PQEIMGVQPCLOGMDAKGGINAYHRTSKHVSPSVKD-----EERGDSEI ECDSSDWDSSH	398
Gallus_gallus	PQKIMGVQPCLOGIDAEGAINAYHRTSKHVSSSVKDCGGEDEERGDLEI ECDSSDWDSSH	404
Chelonia_mydas	PEVTAETLPHYTIGVEVCAQAGAEISASEPVSLCAGQHE-EKEKANGLGPEPDSSVTSSSA	536
Rhinatrema_bivittatum	-----	171
Mus_musculus	-----	133
Rattus_norvegicus	AIEDRHHPPEAPEPPNEERRPSVPTADSDSSSGGGSS-----LA	496
Homo_sapiens	-----	129
Pan_troglodytes	PEEPPASEKROALGSAELPYKDQKPSVSGPDLESSSSS-----SSSSSSNLA	502
Macaca_mulatta	PGEPPAGEKROTLGSAELPCKDEKPSVSGPDLENSSSSG-----SSSSSSSLLA	503
Callithrix_jacchus	PGEPPAGEKROPPGSAELPCKDQKPSVSGPDLENSSSS-----SSNLV	499
Canis_lupus_familiaris	PGDFPASEQRCPRGSLEPSEGDRKPSGSEPDLESNS-----LS	493
Bos_taurus	-----	136
Equus_caballus	PGESSTSDKRQPPGSPESPEDRKSGSGPDLESSSS-----LA	496
Xenopus_tropicalis	-----	136
	.....490.....500.....510.....520.....530.....540	

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Pavo_muticus	SADTPQILGVSHQFSS---SHHESGRPKDLYAFTEEPMLPYAFLKSPVSIIRSTG-PKSE	454
Pavo_cristatus	SADTPQILGVSHQFSS---SHHESGRPKDLYAFTEEPMLPYAFLKSPVSIIRSTG-PKSE	454
Gallus_gallus	SVDAPQILGVGHQFSS---PHCESGRPKDLYSFTEEPMLPCAFLKSPVSIHSTA-QKSE	460
Chelonia_mydas	DHFVSQILGEVDNFSWDLQSSHESDRQTDLLAAAKGPLTHPFSGLTQTQPOSSANEKLO	596
Rhinatrema_bivittatum	-----SSGGFDTLGLISGG---PSAVVTKPSCGYMRSTILGSRQE	206
Mus_musculus	-----	133
Rattus_norvegicus	SPLGSQVLGEVNNFPWDLQNPQGSVPVMGQSGPGPRDVHFCPFLGPQLSHV-SSAEEOSE	555
Homo_sapiens	-----	129
Pan_troglodytes	SHLGSPVLDEVNNFPWNLQSSRGSEEGVAQSDSGLRDQHFSPFLVPHMSHMQSPDEEOSE	562
Macaca_mulatta	SHLGSPVLDEVNNFPWNLQSSRGSEEGVAQSDSGFRDQHFSPFVPHMSHMQSPVEEOSE	563
Callithrix_jacchus	SHLGSPILHEVNNFPWDWQSSPRSEKGVGQSDSGLRDQHFSPFLVPHVSHMQSSVEEOSE	559
Canis_lupus_familiaris	SHRGSQLGEVNNFPWDLQSSQSGEQGVAESGARRRDQRSPPFLGLQLFPMQNSADKQSE	553
Bos_taurus	-----	136
Equus_caballus	SPLGSQILGEVNNFPWDLQSSQSERGEGPSPGPWRDPHSSPPFLVFPQLSHMQSSADEEOSE	556
Xenopus_tropicalis	-----	136

.....550.....560.....570.....580.....590.....600

Pavo_muticus	REHSSKDKKLFHVLQYEYEGSAGLQSECVRFVVDSCCKLTARESGGAAEGQKEMKKGNRT	514
Pavo_cristatus	REHSSKDKKLFHVLQYEYEGSAGLQSECVRFVVDSCCKLTARESGGAAEGQKEMKKGNRT	514
Gallus_gallus	REHSSKDKMLFHVLQYEYENASLESECVRFVVDSCCKLTAREPDGAAEGQKGMKKGNRT	520
Chelonia_mydas	SDCNSEDEQFYQYVQENDQVPTQEHSCVSFNMKLNRSRDAPEINNEGR-QEETVEEQORT	655
Rhinatrema_bivittatum	-----ERVSLTLPGLLEEDEEE-----	223
Mus_musculus	-----	133
Rattus_norvegicus	SEDYSEDQRFYQHILQMVKISRRLGLEGLPENMQEVPCKDVAGMVCGTANESSRMSSEGE	615
Homo_sapiens	-----	129
Pan_troglodytes	SEDYSEDQRFYQHILQMVKISRWPEGLGLPEMQDMPCRHSASTVCCMAAESSRISSEGE	622
Macaca_mulatta	SEDYSEDQRFYQHILQMVKISRWPEGLGLPEMQDMPCRHSASTVCCMAAESSRMSSEGE	623
Callithrix_jacchus	SEDYSEDQRFYQHILQIVKLSRRLEGLLEPEMQDVPYRHSTGTVCCMAAESSRIPSEGE	619
Canis_lupus_familiaris	SEDSSEKGRFYGHILQMAKISRRLGLEGLPEMQETPCKDIAGRVCMAAESSRMSSEGE	613
Bos_taurus	-----	136
Equus_caballus	SEDYSEDQRFYQHILQMVKISRRLGLEGLPEMPERPSKDIASMVCCVAPESSRMSSEGE	616
Xenopus_tropicalis	-----	136

.....610.....620.....630.....640.....650.....660

Pavo_muticus	DEDPR-VWEDA-----GTLKSCASPECLQMACDQGSNSLCQHMEVRVTQIRKTAIE	564
Pavo_cristatus	DEDPR-VWEDA-----GTLKSCASPECLQMACDQGSNSLCQHMEVRVTQIRKTAIE	564
Gallus_gallus	DEDPR-VWEDA-----GTLKALCAPPEY--QMACDQGSNSLCQHMEVRVTQIRNTAIE	568
Chelonia_mydas	EPVPRGLEADL-----FTEGLQVSPGWLYQTTECOESSRLCRQVEGELTQSGKATE	706
Rhinatrema_bivittatum	-----DGS-----	226
Mus_musculus	-----	133
Rattus_norvegicus	HKSIIAPERDS-GLLTWGPPELLEHPPGAVSAPPQGEPSQPAQCQPSG-LRQGLVPPSSD	673
Homo_sapiens	-----	129
Pan_troglodytes	HEAIRVMERDS-RFLSWEPELLEHPPQEVAPAWQEQASQQAHPQSSSTLRQGLVQQSSS	681
Macaca_mulatta	HEAIRVLERDS-RLLSWEPELLEHPPQEVAPAGQEQASQQAHPQSSSPLRQGLVQQSSI	682
Callithrix_jacchus	HEGIRAMERFLSWHQSHGEELLEYPPQEVAPAGQVQASQQAHPQSSSPKQGLVQQSSS	679
Canis_lupus_familiaris	HEAVRAMERDS-RFLAWGLDVLEHPPQEMALASAGQEQASQQAHPQSSSPFRQLVELSSS	672
Bos_taurus	-----	136
Equus_caballus	HEAIRAVERDS-RFLAGRPELLEHPPQEAALVPACQEQASQQAHPQSSSPLRQGPVELSSN	675
Xenopus_tropicalis	-----	136

.....670.....680.....690.....700.....710.....720



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Pavo_muticus      NYSKIEVGEGTGENKPSSETLPAPVOV--GSLAPLRGPVA-SPAGILRGS LHSDVG--SSVD 620
Pavo_cristatus    NYSKIEVGEGTGENKPSSETLPAPVOV--GSLAPLRGPVA-SPAGILRGS LHSDVG--SSVD 620
Gallus_gallus     NYSKIEVGEGTGENKPSGTLAPVOVPLGNLAPLRGPVA-SPAGIQRGS LHSDMG--SSVD 626
Chelonia_mydas    DCSKRELCEGAGSNESPGSLLAPVOAPLGS LAPLRGVVD-GPASALRGS LSTDVENS GVP 765
Rhinatrema_bivittatum ----- 226
Mus_musculus      -----VLGSPALVQAPLWGLAPLRGLGD-APPSALRGSQS VSLGSSADS 177
Rattus_norvegicus IGLAAEPSKMQLLNQVLGPSLAPVQAPLWGLAPLRGLGD-APFSALRGSQS VSLGSSADP 732
Homo_sapiens      -----SLALGSSSLAPVHVPLGGLAPLRGLVD-TPPSALRGSQS VSLGSSVES 175
Pan_troglodytes   GGLTTEPGKMQHLNQALGSSSLAPVHVPLGGLAPLRGLVD-TPPSALRGSQS VSLGSSVES 740
Macaca_mulatta    GGLATEPGKMQHFNQALGSSSLAPVHVPLGGLAPLRGLVD-TPPSALRGSQS VSLGSSVES 741
Callithrix_jacchus GGLATEPGKMQRLNQALGSSSLAPVHVPLGGLAPLRGPVD-TPPSALRGSQS VSLGSSVES 738
Canis_lupus_familiaris RGLAPEPGMLQLLNQVLGSSSLAAGHVPPGGLAPLRGLVD-VPASALRGSQN VNLESSVES 731
Bos_taurus        -----LGSSSLAPVHVPLGGLAPLRGLVD-APPSALHGPOQS VSLGSSVES 179
Equus_caballus    RGLTAEPGKM LLLS QAVGPSLAPVHTPLGGLAPLRGLVD-APPSALRGSQS VSLGSSVET 734
Xenopus_tropicalis -----LGSPLGPVOVSLGSLAPLRGLGEPGGSGVTLS LSSAGSSGGF 180
.....730.....740.....750.....760.....770.....780

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Pavo_muticus      SGLADKG--EAQSLHGT---TRLFKNLHMDVSALGCSFES EDNSKAEENYGG--SLADVT 674
Pavo_cristatus    SGLADKG--EAQSLHGT---TRLFKNLHMDVSALGCSFES EDNSKAEENYGG--SLADVT 674
Gallus_gallus     SGLVDRG--EAQSLHRT---AGLFKNLHMDVSALGCSFES EDNSKAEENHGG--HLADVT 680
Chelonia_mydas    SLLLRGGLTPPOTLKSTGCTKSLGSMHEEKASLNLALDEGENEEEESENQS--PRGTAR 824
Rhinatrema_bivittatum -----EVQSLKGS---ARLLRNLHLDIGSLGGGFYEYESQSMEEGPAYS--RVEKVR 273
Mus_musculus      G-HLGEPTLPPOGLKAAACAKGLLASVHEGKNALSLLTLGEETNEEDEEESDNQSVRSSS 236
Rattus_norvegicus G-HLGEAMLPPQGLKVAACKGLLASVHEGKSALSLLTLGEETNEEDEEESDNQSISSS 791
Homo_sapiens      GRQLGELMLPSQGLKTSAYTKGLLGSIYEDKTALSLGLGEETNEEDEEESDNQSVHSSS 235
Pan_troglodytes   GRQLGELMLPSQGLKTSAYTKGLLGSIHEDKTALGLGLGEETNEEDEEESDNQSVHSSS 800
Macaca_mulatta    GRQLGELMLPSQGLKTSAYTKGLLGSIHEDKTALSLALGEETNEEDEEESDNQSIHSSS 801
Callithrix_jacchus GCQFGEVLVPSQGLKTSASTKGPLGSIREDKNALSLLALGEETNEEDEEESDNLSVHSSS 798
Canis_lupus_familiaris G-QLREVTLPSPQGLKTSAYSKGLLGSINEDKNALSLLALGEETNEEDEAESDNQSVRSSS 790
Bos_taurus        G-QLGELLVPSQGLKPSAATKGLLGSIHEDKNALSLLALGEETNEEDEAESDNQSVRSSS 238
Equus_caballus    G-QLGELTLPSPQGLKTSAYTKGLLGSIHEDTNALNLLALGEETNEEDDVESDNQSVRSSS 793
Xenopus_tropicalis DSSLGGVAGQRKSAPFTKSSAVRRSDERSVLILPLGLDEEEEEEEDDGEQSEEDMSPRGSA 240
.....790.....800.....810.....820.....830.....840

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Pavo_muticus      EAHLQEQRSPTTEEAGSLREKDSLKSRAHEE--ESSLDSGGACPPPTPVKALS GDAHSSLS 732
Pavo_cristatus    EAHLQEQRSPTTEEAGSLREKDSLKSRAHEE--ESSLDSGGACPPPTPVKALS GDAHSSLS 732
Gallus_gallus     EAHLQDQRSPTTEEAGSLREKESLKSRAHEE--ESSLDSGDACPPPTPVKALS GVAHSSLS 738
Chelonia_mydas    LLKNLHMDVSA LGGGFYEYESLKVNHPEESQEFPWDSDGVRPPTLDELNLRDADSSLCG 884
Rhinatrema_bivittatum EAEPQSTMNWKDEAESLPEKESLKEWQLRDIEDASLHSDAICPPTLDKIFSGNADSLSSR 333
Mus_musculus      ELLKNLHLDL GALGGNFYEYESPRTSQPDKK--DVSLDSADDRPPTPGKLFSSQADSSVAS 295
Rattus_norvegicus ELLKNLHLDL GALGGNFYEYESPRTSQPDKK--DVSLDSDDRPPPTPGKLFSSQADSSVGS 850
Homo_sapiens      EPLRNLHLDIGALGGDFEYESLRTSQPEEKDVS LSDAAGPPTPCPKPSSPGADSSLS 295
Pan_troglodytes   EPLRNLHLDIGALGGDFEYESLRTSQPEEKDVS LSDAAGPPTPCPKPSSPGADSSLS 860
Macaca_mulatta    EPLKNLHLDIGALGVDFEYESLRTSQPEEK--DVSLDSAAA PPTPCPKPSSPGADSNLSS 860
Callithrix_jacchus EPLKNLHLDIGALGGDFEYESLRTSQPEKR--DVSLDSDAAGPPTPCQPS SPGADSSLS 857
Canis_lupus_familiaris ELLKNLHLDIGALGADFYEYESPRTSQPEEKDTS LSDAARPPTPGKLFSSQADSNLSS 850
Bos_taurus        ELLRNLHLDIGALGGDFEYESPRASQPEEK--DVSLDSDAAGPLTSGKPFSSQADSSLS 297
Equus_caballus    DLLKNLHLDIGALVGDFECEESPRTSQPEEKDIS LLDLDAAGPPTPGKLFSSQADSSLS 853
Xenopus_tropicalis RLLKNLHMDIGSLGGGFYEYES---QRVEESPAVSH TDDGSEPELQNLGKSDDEEESQKE 297
.....850.....860.....870.....880.....890.....900

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CEPD64pep Tue Feb 1 11:41:35 2022

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Pavo_muticus	QNKEGSEKLAGNEGLGEKAAEVQGEVSAADELPQSLEEGRAGADVPS	SPGQPRAASPD	792
Pavo_cristatus	QNKEGSEKLAGNEGLGEKAAEVQGEVSAADELPQSLEEGRAGADVPS	SPGQPRAASPD	792
Gallus_gallus	QNKEESDEKLAGNEGLGEKAAEVQGDVSAADELPQSLEEGRAGT	DVPS	798
Chelonia_mydas	LNKEESNGKPMGNELLEKEDIDVEDVSVAYKQSGTPGERTAVGTDVVS	QGHFVAASPD	944
Rhinatrema_bivittatum	LATRDSRR-----HAEASPRGTPGDGTDERGGAIN-----APE		367
Mus_musculus	ANGSKSQGRG-----ASFWNPQKE-NENSDPKASSSQMAPELDPGGDQ		338
Rattus_norvegicus	ANVSKSQGRG-----ASLWNPQKE-SQSNPKASSPAAPGLDPGGDQ		893
Homo_sapiens	AVGKGRQSG-----ARPGLPKEEENEKSEPKICRNLTVPKADPTGSEP		339
Pan_troglodytes	AVGKGRQSG-----ARPGLPKEEENEKSEPKICRNLTVPKADPTGSEP		904
Macaca_mulatta	ADGKGRQSG-----ARPGLPKEEENEKSEPKICRNLTVPKADPTGSEP		904
Callithrix_jacchus	ADGKGRQSG-----ARPGFPKEEENEKSEPEASRNLTVPKVDPTGDEP		901
Canis_lupus_familiaris	TDGTGQGRG-----ASAWHLDEKDEKSDPGMSR-----SGVDPGGGQ		890
Bos_taurus	ADDKERR-----EASWLPKGKTEKNDPTSR-----SGVDPGGDQ		336
Equus_caballus	ADGKGRQGR-----GARWLPGEKNEKSDPRTSRSLVTPGVDPGGDQ		896
Xenopus_tropicalis	ESLDYQNAKMSP-----VSNDALSPGQSDLDGRGVVQPGCECLGNLSHANSP		344

.....910.....920.....930.....940.....950.....960

Pavo_muticus	AEAAEADQLASLAVTVDTVSVDENIVNEMREEAADVKADSRLDAGKLSKVSE	ESSECTIEDL	852
Pavo_cristatus	AEAAEADQLASLAVTVDTVSVDENIVNEMREEAADVKADSRLDAGKLSKVSE	ESSECTIEDL	852
Gallus_gallus	AEAAEADQLASLAVTVDTVSVDENIVNEMREEAADVKADSRLDAGKLSKVSE	ESSECMEDL	858
Chelonia_mydas	VRAAETDQLESVAVTIDTMSVNEKIVNGMREEATDLKTDKLDAGKE---	SEASEHMKEL	1001
Rhinatrema_bivittatum	VEASNAGALANVTLLKDDT-----QILSETRLGATDLRQSSSMHWNDE---	SDPSEQVKEL	420
Mus_musculus	SRASKKQQAEDPVQAGKEGECRRESAAKEPKESALEN-TSDVSEES---	EIHGHLKDA	393
Rattus_norvegicus	NRVSKKEQEEDPVEAEAAA-SREDSAAKEPKESALEN-SASDASEES---	GIHEHLKDP	948
Homo_sapiens	AKASEKEAPEDTVDAGEEGSRREEAAKEPKKKASALEEGSSDASQEL---	EISEHMKEP	395
Pan_troglodytes	AKASEKEAPEDTVDAGEEGSRREEAAKEPKKKASALEEGSSDTSQEL---	EISEHMKEP	960
Macaca_mulatta	AEASEKEAPEDTVDAGEEGSRREEAAKEPKKKASALEEGSSDASQEL---	EISEHMKEP	960
Callithrix_jacchus	AKASEKEAPEDTVDAGEEGCRREQAAKEPKKTASALEEGSSYASKES---	EISEHMKEP	957
Canis_lupus_familiaris	AKANKKEVPENPVDAGEEGSKNREAAE-PKEEASVWKESQSQASQES---	EISEHMKEL	945
Bos_taurus	ANTTEKEAPEDPVDAGEEGSRKEEAAEDPKEEASVPKESRSEVSEES---	EISEHGEQL	392
Equus_caballus	AKADKKEAPEDMVDAGEEGSRKEEAAKEPKREASVLKESRSDGSEES---	EISEHVKEP	952
Xenopus_tropicalis	AQEPAGGEESSPCSPESHSKIKKQENASEHLTTSKTGEPGSVSEHPIMEQDSQDES	SETS	404

.....970.....980.....990.....1000.....1010.....1020

Pavo_muticus	QASNRLDQELIQHV--DLAFQSQFSERVLDVDALSPALDKSPCKAQELGEEE-	KDQSKAS	909
Pavo_cristatus	QASNRLDQELIQHV--DLAFQSQFSERVLDVDALSPALDKSPCKAQELGEEE-	KDQSKAS	909
Gallus_gallus	QASNRLDQELIQHV--DLAFQSQFSERVLDVDALSPALDKSPCKAQELGEEE-	KDQSKAS	915
Chelonia_mydas	QVSDRSHELLRLT--DFGFQSQISEQVLDMGILSAALDSPKVEAQLGEEE-	KDPSKAS	1058
Rhinatrema_bivittatum	QVSDRS-EEHISDR--DFVFHSNLTQVLVVDALSSVLYSS---QAQLLEGR-	KDNADGV	473
Mus_musculus	RHSGSEASGPKSFLGLDLGFRSRISEHLLDGDTLSPVLGGGHWEAAG-LDQEE	QDDSKSS	452
Rattus_norvegicus	QHSSEGTSGPKSFLRLDIGLRGVSEHLLDGNMPPALGGGHWEAAG-LGQEE	QDDSRSS	1007
Homo_sapiens	QLSDSIASDPKSFHGLDFGFRSRISEHLLDVDVLSPLVGGACRQAQQPLGIED	KDDSQSS	455
Pan_troglodytes	QLSDSIASDPKSFHGLDFGFRSRISEHLLDVDVLSPLVGGACRQAQQPLGIED	KDDSQSS	1020
Macaca_mulatta	QLSDSIASDPKSFHGLDFGFRSRISEHLLDIDVLSPLDGTWRQAQQPLGIED	KDDSQSS	1020
Callithrix_jacchus	QLSDSIASDPKSFHGLDFGSHTRISEHLLDVDVLSPLVDGALWQAQQQLGME	KDDSQSS	1017
Canis_lupus_familiaris	QLSDSAASDPKPFGLDFGFRSRISEHLLDVDVLSPLVDGACWEAQR-LGRE	KDDSQSS	1004
Bos_taurus	QLSDSAASDPKSFGLGFGFRSQISERLLDMDVHSSVLDGARWEAQR-LGRE	KDDSQSS	451
Equus_caballus	QLSDSAASDPKSFGLGFGFRSRISEHLLDVGLVLSPLVDGACWEAQR-LGRE	KDDSQSS	1011
Xenopus_tropicalis	EGVKDLSGPAFSEKPVVDVLLSGRLEEKVLDITALSSGPINTKNDIIEEAEE	EVDEIEE	464

.....1030.....1040.....1050.....1060.....1070.....1080

# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CEPD44ps Tue Feb 1 11:41:35 2022

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Pavo_muticus      IDEEQSKRTKAAE-----SERDQ---SGCEASEQ      935
Pavo_cristatus    IDEEQSKRTKAAE-----SERDQ---SGCEASEQ      935
Gallus_gallus     VDEEQSKRTKAAE-----SERDQ---SGCEASEQ      941
Chelonia_mydas    LEEEQSKRTKAAE-----SERDQRFPSACEMAE      1087
Rhinatrema_bivittatum SDEEPRKRS-EVE-----SARGRSPITGSCDIDKG      501
Mus_musculus      IAEPQSKHTQGSE-----REHLQSSLHSQATEEG      481
Rattus_norvegicus RSEPQSKHTQVSE-----REQPRSTLHSQATEEG      1036
Homo_sapiens      QDELQSKQSKGLE-----ERLSPPLPHEERAQSPPRS LATEEE      493
Pan_troglodytes   QDELQSKQSKGLERY-----HRLSPPLPHEERAQSPPRS LATEEE      1060
Macaca_mulatta    QDELQSKQSKGLERYHSSLPALOMEGPDSAALPGLTRLSPPLPHEERAQSPPRS LATEEE      1080
Callithrix_jacchus QDELQSKQSKGLKSS---IPTLHMEVPDSAALTGLTRLSPPLPHEERAQSPPCSLATQEE      1074
Canis_lupus_familiaris QDELQSKQSRASE-----RLSPPLLPGRWLQSPPLHSQATEEG      1041
Bos_taurus        QEELQSKQSGGSE-----RLSPPLLREERLQSLLSHSQATDEG      488
Equus_caballus     QDELKSKQSKGSE-----RLSPPLLHGERLQSPPLHSQATKDG      1048
Xenopus_tropicalis EVIEEEVGPRRALP-----QVTDRIHKPSKDTVES      494
.....1090.....1100.....1110.....1120.....1130.....1140

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Pavo_muticus      KCVALENAS-----QEEAVALQLEEELQDSIHLQGLAALQKAQPEKEIKOE---      982
Pavo_cristatus    KCVALENAS-----QEEAVALQLEEELQDSIHLQGLAALQKAQPEKEIKOE---      982
Gallus_gallus     KCVALENAN-----GEEAVALQLEEELPDSLIDLEELAALQKVQPEKEIKOE---      988
Chelonia_mydas    KCLSLKNAS-----QDDTAALEQKEGSLDSLNTNPEEPAAPHQAQLGEEIKOV---      1134
Rhinatrema_bivittatum KGLILANVM-----QEEETSEQ-DKSVLVTVPHPPEESAAPHQVCDKQELEHE---      547
Mus_musculus      PLQTLEGQP--EWKEAEGPGKDSVASPAPLSLLQ-----      513
Rattus_norvegicus  PLRTLEGQP--EG---QPGKDSVASPAPLSFLQREOVLSPPAFFPERAEKHSQAEELGL      1090
Homo_sapiens      PPQGPEGQP--EWKEAEELGEDSAASLSLQSLQREQAPSPPAACEKGKEQHSQAEELGP      551
Pan_troglodytes   PPQGPEGQP--EWKEAEELGEDSAASLSLQSLQREQAPSPPAAREKGKEQHSQAEELGP      1118
Macaca_mulatta    PPQGPEGQP--EWKEAEKPGEDSAASLSLQSLQREQAPSPPAHEKGTEQHSQAEELGP      1138
Callithrix_jacchus PPQGPEGQP--EWKEAEEPGEDSVASLSPLLQSLQREQAPSPPAHEKGKEQHSQAEELGP      1132
Canis_lupus_familiaris PPOASEGQPEEQEKRAEPPGEDSAGSPVLLSSLQREETPSPPAAQERGKEQRSQAEELGP      1101
Bos_taurus        PPOAPEGQP--EWKEAAEPEEGSLGSPPSVSLQREALPSPPAHERGQEWRPQAEPPGP      546
Equus_caballus     PPOASEGQL--ERKGAEEPPGEDSAGSTIPPVSPQREEILSPPAHERGKEQRSQAE-----      1102
Xenopus_tropicalis VGELESSLN-----VSESPIPADLPSPKPLLDQTDYIAQDLPPYKFVEEISKNAVKYA      546
.....1150.....1160.....1170.....1180.....1190.....1200

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Pavo_muticus      -----      982
Pavo_cristatus    -----      982
Gallus_gallus     -----      988
Chelonia_mydas    -----      1134
Rhinatrema_bivittatum -----      547
Mus_musculus      -----      513
Rattus_norvegicus GQEEAEETEEKVEVSPSSPVVSPEVQ-----      1115
Homo_sapiens      GQEEAEDPEEKVAVSPTPPVSPEVR-----      576
Pan_troglodytes   GQEEAEDPEEKVAVSPTPPVSPEVR-----      1143
Macaca_mulatta    GQEEAEENEEKVAVSPTPLVSPEVR-----      1163
Callithrix_jacchus GQEEAEPEEKVVVSPTPPVSPEVR-----      1157
Canis_lupus_familiaris GQEEAELEEQAASPAAPPVSPELEKRAC PAMAGHLGKDQGVSGDRRVKKGEHGTETPLLG      1161
Bos_taurus        GQE---EPKEKVAVSPTPPGSPEVEKRACHARWHSVGKDQSWSGGERSEKEEHDPPELLLG      603
Equus_caballus     -----EPEEKGVVSPTPPISPEVQ-----      1121
Xenopus_tropicalis GYDRET PRLKKE-----      558
.....1210.....1220.....1230.....1240.....1250.....1260

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Pavo_muticus          -----QSLTQSSEESLEGIANLLEKEVEQDKTHLLQAKEEKIQOOFREEM 1026
Pavo_cristatus        -----QSLTQSSEESLEGIANLLEKEVEQDKTHLLQAKEEKIQOOFREEM 1026
Gallus_gallus         -----QSLTQSSEESLEGIAKELEKEVEQDKMHLQAKKEKIQOOFREEM 1032
Chelonia_mydas        -----VSLNWLSAESLEEVAK--EQELEQEKMRLLQAKEEKVQRFQFEL 1176
Rhinatrema_bivittatum -----ASLKPPRES--SDRIQ--RKELEKEKS-----QLHKLOEEL 581
Mus_musculus          ----- 513
Rattus_norvegicus     -----TAEPAPQKQFSEAVLKGIIEGVTOELEEDHRLLELQEKLOOLEERL 1164
Homo_sapiens          -----STEPVAPPEQLSEALKAMEEAVAQVLEQDQRHLLLESQEKMOQLREKL 625
Pan_troglodytes       -----STEPVAPPEQLSEALKAMEEAVAQVLEQDQRHLLLESQEKMOQLREKL 1192
Macaca_mulatta        -----FTEPVAPPKQLSEALKAMEEAVAQVLEQDQRHLLLESQEKMOQLREKL 1212
Callithrix_jacchus    -----STEPVAPPEQLSEAAVKTMEEAVAQVLEQDQRHLLLESQEKMEQLLEKL 1206
Canis_lupus_familiaris FFWEGMDEAGOSTEPAPPEQ---ASLKAMEEAMAQELEQDWRRLLESQEKMOQLREKL 1218
Bos_taurus            FSWDAMGEVGRSAEPAALREQLSEAALEATDEAVTRELEQEQTRLLESQEKMQRLREKL 663
Equus_caballus        -----SSEPVPAPTQLSEALKTMQEAQAQELEQDQRQLLESKREKIQOQLREKL 1170
Xenopus_tropicalis    -----SSKQAEESKIRDELSEKHVEEKS SVILEQEMELKDKHKQRLLEELRTL 607
.....1270.....1280.....1290.....1300.....1310.....1320

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Pavo_muticus          RLQEEEE----- 1033
Pavo_cristatus        RLQEEEE----- 1033
Gallus_gallus         RLQEEEE----- 1039
Chelonia_mydas        RLQEEEE----- 1183
Rhinatrema_bivittatum RKKEEED----- 588
Mus_musculus          ----- 513
Rattus_norvegicus     CREEEEEEEKEEEEEEEKEEEEEEEKEEEEEEEKEEEGEEEEKEEKEEEEEEEEEEKEEKE 1224
Homo_sapiens          CQEEEEEE----- 632
Pan_troglodytes       CQEEEEEE----- 1199
Macaca_mulatta        CQEEEEEE----- 1219
Callithrix_jacchus    CQEEEEED----- 1213
Canis_lupus_familiaris WQEEEEEE----- 1225
Bos_taurus            CREEEAE----- 670
Equus_caballus        WQEEEEQE----- 1177
Xenopus_tropicalis    RKEEEEKK----- 614
.....1330.....1340.....1350.....1360.....1370.....1380

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* . * ** * :::: . . . * * . : : :
Pavo_muticus          -TRKLYQQKEKSLRTLKEDLAKVCEEE-----ELRVKKEETERLSKLRATITSETAEAKE 1087
Pavo_cristatus        -TRKLYQQKEKSLRTLKEDLAKVCEEE-----ELRVKKEETERLSKLRATITSETAEAKE 1087
Gallus_gallus         -TQKLYQQKEKSLRTLKEDLAKVCEEE-----ELRVKKEEAERLSKLRATITSETAEAKE 1093
Chelonia_mydas        -AQVLHQQKEKSLRSLKEELAKASEEE-----ELRMREEFVEKLSKLRAQIRSETETEKE 1237
Rhinatrema_bivittatum -ARLLQQQHEQKLRITLKERLKAEMEEE-----EAQVKKERDRNLAKLRAQISAEETAEER 642
Mus_musculus          -----SLLKAQLOKATAEEKEKEEETKIREEESRRLVCLRAQVQSRTAEAFEN 560
Rattus_norvegicus     EEHWLYQQKEKSLSLKTQLQKAAEEEE-EKEEETQIREEESQRLACLRAQVQSSTAEAFEN 1283
Homo_sapiens          -ILRLHQQKEQSLSSLRERLQKAIIEEE-----EARMREEESQRLSWLRAQVQSSTQADED 686
Pan_troglodytes       -ILRLHQQKEQSLSSLRERLQKAIIEEE-----EARMREEESQRLSWLRAQVQSSTQADED 1253
Macaca_mulatta        -ILRLHQQKEQSLSSLRERLQKASEEE-----EARMREEESQRLSWLRAQIQSSTQADED 1273
Callithrix_jacchus    -ILWLHQQKEKSLSSLKEQLQKATEEE-----EARMREEESQRLSWLRAQVQSSAQADED 1267
Canis_lupus_familiaris -ILQLHQQKEKALSSLKEQLQKATEEE-----ESQMREEESQRLSQLRAQVQSSAEADEG 1279
Bos_taurus            -ALQLHQQKEKALSSLKEQLQKATEEE-----ETQMREEERQRLSRLRAQVQSSSEADED 724
Equus_caballus        -ILQLQQQKEKALSSLKEQLQKATEEE-----ETRMREEESRRLSRLRARVQSSTEAHEV 1231
Xenopus_tropicalis    -SLEMROGHENNLRALEELLAKQTQEE-----ETKMREVQMORLVRLKELEIEQEEQK 668
.....1390.....1400.....1410.....1420.....1430.....1440

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## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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Pavo_muticus	K	I	R	A	E	Q	E	L	A	L	Q	K	L	R	E	E	W	E	S	L	R	V	L	E	K	E	S	M	R	E	K	K	Q	L	A	L	E	K	M	K	L	E	M	E	E	A	Q	O	K	E	T	I	R	L	E	K	E	---	1144																																																																																											
Pavo_cristatus	K	I	R	A	E	Q	E	L	A	L	Q	K	L	R	E	E	W	E	S	L	R	V	L	E	K	E	S	M	R	E	K	K	Q	L	A	L	E	K	M	K	L	E	M	E	E	A	Q	O	K	E	T	I	R	L	E	K	E	---	1144																																																																																											
Gallus_gallus	K	I	R	A	E	Q	E	L	A	L	Q	K	L	R	E	E	W	E	S	L	V	M	E	K	G	S	M	R	E	K	K	Q	L	A	L	E	K	M	K	L	E	M	E	E	A	Q	O	K	E	T	I	R	L	K	E	---	1150																																																																																													
Chelonia_mydas	K	I	R	A	E	Q	E	A	A	L	Q	K	L	R	E	E	W	E	S	L	O	K	V	E	R	E	S	L	E	E	R	K	K	R	V	L	E	M	L	K	V	E	V	E	E	A	Q	O	R	E	A	T	E	L	E	Q	E	---	1294																																																																																											
Rhinatrema_bivittatum	K	M	R	A	E	K	N	A	A	M	O	D	L	R	E	E	M	E	S	L	O	K	S	E	R	E	N	L	K	E	K	K	T	L	L	I	G	K	L	O	K	E	M	D	D	A	L	R	E	E	K	G	K	I	M	E	E	---	699																																																																																											
Mus_musculus	Q	I	R	T	E	Q	Q	A	L	Q	R	L	R	E	E	A	E	T	L	O	K	A	E	R	A	S	L	E	O	K	S	R	R	A	L	E	Q	L	R	E	Q	L	E	A	E	R	S	A	Q	A	A	L	R	A	E	K	E	A	---	620																																																																																										
Rattus_norvegicus	Q	I	R	A	E	Q	Q	T	A	L	Q	R	L	R	E	E	A	E	T	L	O	K	A	E	R	A	S	L	E	O	K	S	R	R	A	L	E	Q	L	R	E	Q	L	E	A	E	R	S	A	Q	A	A	L	R	A	E	K	E	A	---	1343																																																																																									
Homo_sapiens	Q	I	R	A	E	Q	E	A	S	L	O	K	L	R	E	E	L	E	S	Q	O	K	A	E	R	A	S	L	E	O	K	N	R	Q	M	L	E	Q	L	K	E	E	I	E	A	S	E	K	S	E	Q	A	A	L	N	A	A	---	743																																																																																											
Pan_troglodytes	Q	I	R	A	E	Q	E	A	S	L	O	K	L	R	E	E	L	E	S	Q	O	K	A	E	R	A	S	L	E	O	K	N	R	Q	M	L	E	Q	L	K	E	E	I</																																																																																																											

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Pavo_muticus	-KEQFLRLKERLEMEKKKAAEELEKOFATELQQLKSAAEKHKR-----	1188
Pavo_cristatus	-KEQFLRLKERLEMEKKKAAEELEKOFATELQQLKSAAEKHKR-----	1188
Gallus_gallus	-KEQFLRLKERLEMEKKKAAEELEKOFATELQQLKSAAEKHKR-----	1194
Chelonia_mydas	-KEFVLNELKERLERERKEAAEVLEKOFAAELQELKSTAEKHHK-----	1338
Rhinatrema_bivittatum	-KERAVQELRSGLEROREEALGKLEKQYAKDLEQLRVTAEEKQOR-----	743
Mus_musculus	EKEAALLQLREOLEGERKEAVAGLEKKHSAELEQLCSSLEAKHQE-----	665
Rattus_norvegicus	EKEATILLQLREOLEGERREAVAGLEKKHSTELEQLCSSLEAKHRE-----	1388
Homo_sapiens	-KEKALQQLREOLEGERKEAVATLEKEHSAELERLSCSSLEAKHRE-----	787
Pan_troglodytes	-KEKALQQLREOLEGERKEAVATLEKEHSAELERLSCSSLEAKHRE-----	1354
Macaca_mulatta	-KEKALQQLREOLEGERKEAVARLEKEHGAELERLSCSSLEAKHQE-----	1374
Callithrix_jacchus	-KEKALQQLREOLEGERKEAVARLEKEHSAELERLSCSSLEAKHQEPLGMDARSSECIPAQ-----	1383
Canis_lupus_familiaris	-KEAALRLREQLGERKEAVALEREHRAELDRLSSSLEAKHRE-----	1380
Bos_taurus	-KERALQQLREOLEGERREAAAAALEREHRELERLSSSLEAKHRE-----	825
Equus_caballus	-KEKALQQLREOLEGERKEAVALEREHRAELERLSSSLEAKHRO-----	1332
Xenopus_tropicalis	-KDALHLELREKLSQETNKALELQHAEELENLRAEVKQKHQK-----	769
	.....1510.....1520.....1530.....1540.....1550.....1560	

		. : . : . : . : . : . :	* :	:	:	
Pavo_muticus	-----VTSSSLQTOIAEAQRSEAWLRREDLQRAEEKVQOKSYQVAEY	1229				
Pavo_cristatus	-----VTSSSLQTOIAEAQRSEAWLRREDLQRAEEKVQOKSYQVAEY	1229				
Gallus_gallus	-----VTSSSLQTOIAEAQRSEAWLRREDLQRAEEKVQOKAYRLAEY	1235				
Chelonia_mydas	-----VVSSLRKQIAEAQRSEEAOLHHEELERAEQKVQOKMYRVAEF	1379				
Rhinatrema_bivittatum	-----AVASIQEKIMEAQDSEKLQLOEDLLLAQRRSQ----	VIGY 779				
Mus_musculus	-----VISSLQKKIEGAQQKEEAQLQESLGWAEQRAHKVHQVTEY	706				
Rattus_norvegicus	-----VISNLQKKIEGAQQKEEAQLQESLGRAEQRTHKVHQVIEY	1429				
Homo_sapiens	-----VVSSLQKKIQEAQQKEEAQLQKCLGQVEHRVHOKSYHVAGY	828				
Pan_troglodytes	-----VVSSLQKKIEEAQQKEEAQLQKCLGQVEHRVHOKAYHVAGY	1395				
Macaca_mulatta	-----VVSSLQKKIEEAQQKEEAQLQKCLGQVEHRVHOKAYHMAEY	1415				
Callithrix_jacchus	GLYSLS <sup>1570</sup> EGHTPLCVRGPPOVVSSLQKKIEEAQQKEETQLQKCLGQVEHRVHOKAYHMIEY	1443				
Canis_lupus_familiaris	-----VVSSLQKKIEEAQQKEETQLQESLSRAEQRAQOKVHQVLQY	1421				
Bos_taurus	-----VVSSLQKKMQEAHQKEEAQLQESLGRAEQRAHHRVYQVLEY	866				
Equus_caballus	-----VVSSLQKKMEEAQQKEETQLQESLGRAEQRAQOKVHQVLEY	1373				
Xenopus_tropicalis	-----TVSELNSRLQVHGQGEVQTFSELNLS----NKKMLQLMDF	806				
	.....1570.....1580.....1590.....1600.....1610.....1620					

## CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

**File: /media/morpheus/disk1/fst/pep\_msa/CEPD64eps Tue Feb 1 11:41:35 2022**

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*:*:* *: : ** **: *::: ::*:~ : : : * ***. *: : * *:
ERELSELMSEKRHEVEKAHERKMERMKEEHQEVLARIRAQYEEFEERKQRAELFEGLRGEM 1289
ERELSELMSEKRHEVEKAHERKMERMKEEHQEVLARIRAQYEEFEERKQRAELFEGLRGEM 1289
ERELSELMSEKRHEVEKDHERKMARMKEEHQEVLARIQDYEEFEERKQRAELFEGLRGEL 1295
ERELSELMEKKRQEVEKDHDHRKMERMKEEHQEILARIQDYEEFEERKQRAKKLEVLKGEL 1439
ERELSDLLKEKROEVERDHERKLEKLQDHQHILERSRERYEDEERKQARALLGNLQEEL 839
EQELSSLLRDKROEVEREHERKMDKMKEEHWQEMADARERYEAERKQRADLLGHILTGET 766
EQELSSLLRDKROEVEREHERKMDKMKEEHWQEMAEARERYEAERKQRADLLGHILTGET 1489
EHELSSLLREKROVEGEHERRLDKMKEEHQQVMAKAREQYEAERKQRAELLGHILTGET 888
EHELSSLLREKROVEGEHERRLDKMKEEHQQVMAKAREQYEAERKQRAELLGHILTGET 1455
EQELSSLLREKROVEGEHERRLDKMKEEHQQVMAKAREQYEAERKQRAELLGHILTGET 1475
EQELSSLLREKROVEEEEHERRLDKMKEEHHQVMAKAREQYEAERKQLRAELLGHILTGET 1503
EQELSGLLREKROEVEREHERKLDKMKEEHHQVVAAEREQYEAERKQRTTELLGHILTREL 1481
EQELSGLLREKROEVEREHERKMDRMKEEHQVVAAEARQQYEAERKQRAELLGHILTGET 926
EQELSGLLREKROEVEREHERKLDKMKEEHRQVVAAEREQYEAERKQRAELLGHILTGET 1433
EKEMS DLLQEKRLQEVORDHERKLERLKEDHOLELERVRDQLEDEERTQSRMLERLQEEL 866
.....1630.....1640.....1650.....1660.....1670.....1680
```

:	:	*	:	*	.	:	:	*	:	:	:	:	*	:	*	.	:	*	*																																									
ARL	R	L	H	E	V	K	A	L	O	A	E	L	D	E	R	L	T	A	L	O	H	R	H	G	E	K	E	R	R	L	O	E	S	E	N	E	L	E	I	R	A	K	N	V	K	T	R	S	V	H	L	L	S		1349					
ARL	R	L	H	E	V	K	A	L	O	A	E	L	D	E	R	L	T	A	L	O	H	R	H	G	E	K	E	R	R	L	O	E	S	E	N	E	L	E	I	R	A	K	N	V	K	T	R	S	V	H	L	L	S		1349					
ALL	R	O	R	H	E	V	K	A	L	O	A	E	L	D	E	R	L	T	A	L	O	H	R	H	G	E	K	E	R	R	L	O	S	E	N	E	L	E	I	R	A	K	N	I	K	A	R	S	V	O	L	L	S		1355					
ERL	R	L	H	D	G	E	L	R	A	L	O	K	O	L	D	E	.	L	S	D	L	R	O	S	H	K	A	K	E	R	V	O	E	L	E	M	E	M	R	A	K	D	A	K	A	R	C	A	O	L	N	H	O		1499					
Q	R	M	T	O	L	H	E	R	E	Q	A	V	L	R	O	D	M	E	G	R	L	S	D	L	C	G	T	Y	O	E	K	E	R	R	V	H	N	L	E	O	L	F	R	S	T	E	I	K	A	T	A	O	L	S	N	O		899		
E	R	L	R	R	A	H	E	R	E	L	S	M	R	O	E	O	D	Q	O	L	E	D	L	R	R	R	H	R	D	H	E	R	K	L	O	D	L	E	V	E	L	S	S	R	T	K	D	V	K	A	R	L	A	O	L	N	V	O		826
E	R	L	R	R	A	H	E	R	E	L	S	V	R	O	E	O	D	Q	O	L	E	D	L	R	R	R	H	R	D	O	E	R	K	L	O	D	L	E	A	E	L	S	S	R	T	K	D	V	K	A	R	L	A	O	L	N	V	O		1549
E	R	L	R	A	H	E	R	E	L	T	V	R	O	E	Q	H	K	R	L	E	D	L	R	R	R	H	R	E	Q	E	R	K	L	O	D	L	E	D	L	E	T	R	A	K	D	V	K	A	R	L	A	L	E	V	O		948			
E	R	L	R	A	H	E	R	E	L	T	V	R	O	E	Q	H	K	R	L	E	D	L	R	R	R	H	R	E	Q	E	R	K	L	O	D	L	E	D	L	E	T	R	A	K	D	V	K	A	R	L	A	L	E	V	O		1515			
E	R	L	R	A	H	E	R	E	L	T	V	R	O	E	Q	H	K	R	L	E	D	L	R	R	R	H	R	E	Q	E	R	K	L	O	D	L	E	D	L	E	T	R	A	K	D	V	K	A	R	L	A	L	E	V	O		1535			
E	R	L	R	A	H	E	R	E	L	T	V	R	O	E	Q	H	N	R	L	E	D	L	R	R	R	H	R	E	Q	E	R	K	L	H	D	L	E	M	E	L	E	T	R	A	K	D	V	K	A	R	L	A	L	E	V	O		1563		
E	R	L	R	K	S	H	E	R	E	L	A	V	R	O	T	O	D	R	O	L	E	D	L	R	R	R	H	R	E	Q	E	R	K	L	O	D	L	E	V	E	L	E	T	R	T	K	D	V	K	A	K	L	A	O	L	D	L	O		1541
E	R	L	R	R	A	H	E	R	E	L	S	V	R	O	E	O	D	R	O	L	E	D	L	R	R	R	H	R	E	Q	E	R	K	L	O	D	L	E	V	E	L	E	T	R	T	K	D	V	K	A	R	L	A	O	L	D	V	O		986
E	R	L	R	R	A	H	E	R	E																																																			

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:*      : :      * :      .      : *      :      . * :      * :      : :      : :      :
EESLRKKKQOQLLDEGRRTERERDEAALASQLR--LEENRKEHANLLESIRQORKALELLO 1407
EESLRKKKQOQLLDEGRRTERERDEAALASQLR--LEENRKEHANLLESIRQORKALELLO 1407
EESLRKKKQOQLLDEDRTERERDEAALASQLR--LEENRKEHSDLLESIWOLRKALEELO 1413
EAMRKKKQOQLLDEEKOTELORNEASAAQLR--LEASRKEHADLVESIHOLRRILEELO 1557
EELLSKKRQOQLQEEEDIKIREEVMAARLDROELEELRKEHRHLLSIRSRRALEELO 959
EENIRKEKQOQLLDAQROAALEREATATHQHL---EEAKKEHTHLLLETKOOLRRITDDL 883
EENMRKEKQOQLLDAQROAALKEEATATRRHL---EEAKKEHTHLLLESKOOLRRRAIDDL 1606
EETARREKQOQLLDVOROVALKSEETATATHQHL---EEAQKEHTHLLQSNQOLREILDELQ 1005
EETARREKQOQLLDVOROVALKSEETATATHQHL---EEAQKEHTHLLQSNQOLREILDELQ 1572
EETARREKQOQLLDVOROVALKSEETATATHQHL---EEAQKEHTHLLQSNQOLRKILDELQ 1592
EETARRDKQOQLLDVOROVALKSEETATATHQHL---EEAQKEHTHLLQLNQOLRKILDELQ 1620
EETARREKQOQLLDVOROVALKSEETATATHQHL---DEAKKEHTHLLLESNQOLRKILDELQ 1598
KEVARKEKQOQLLDVOROVLLESEETATATHQHL---EEAKKEHTHLLLESNQOLRRILEELO 1043
EETARKEKQOQLLDVORKVALESEEAATHQHL---EEAKKEHTHLLLESNOLRRILDELQ 1550
EENIRORTSLEKEKELSRKTEIKSSTLNLKMQEDLVTEQKLLQDIIKSCHLEKTO 986
.....1750.....1760.....1770.....1780.....1790.....1800

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CEPD44pep Tue Feb 1 11:41:35 2022

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      : .***: * : : * . . . ** : . . * : *
Pavo_muticus      DQKAELEAQVDLLQTRSORLQKRISLEAAVRSKQETLKELEEEESAESPRRKAEHLHVED 1467
Pavo_cristatus    DQKAELEAQVDLLQTRSORLQKRISLEAAVRSKQETLKELEEEESAESPRRKAEHLHVED 1467
Gallus_gallus     DQKAELEAQVDLLQTRSORLQKRISLEAAVRSKQETLKELEEEESAESPRRKAEHLHVED 1473
Chelonia_mydas    DQKAELESQVDLLQTRSORLQKRMSLEAAVKSQETLKELVAEDESMASPRREAEHLHIED 1617
Rhinatrema_bivittatum DQKADLESKVEVLQRRSORLQKRISLEAEMONKQ-ILKETSMGDRGPSPTAEKDLRVED 1018
Mus_musculus      VRRVELESQVDLLQAQSORLQKHLSSLEAEVQRKQDVLKEMAA-EMNASPHPEPGLHIED 942
Rattus_norvegicus VRRVELESQVDLQLOQSORLQKHVSSLEAEVQRKQNILKEMAA-ETNAPPHPEPGLHIED 1665
Homo_sapiens      ARKLKLESQVDLLQAQSQQLQKHFSLEAEAKKQHLLREVTVEENNASPHFEPDLHIED 1065
Pan_troglodytes   ARKLKLESQVDLLQAQSQQLQKHISLEAEAKKQHLLREVTVEENNASPHFEPDLHIED 1632
Macaca_mulatta    ARKLKLESEVDLLQAQSQQLQKHISLEAEAKKQHLLREVTVEEKNVSPHFEPDLHIED 1652
Callithrix_jacchus ACKLELESQVDLLQAQSQQLQKHISLEAEAKKQHLLREVTVEESNAAPQFEPDLHIED 1680
Canis_lupus_familiaris AHKLELESQVDALQTSQSORLQKQVSDLEAEAKRKQDILKELAAKESNASAQCELDLHIED 1658
Bos_taurus        ARKLELESQVELLQAQSORLQKHVSDLEVAQKKQDILKELEVKDSNTSPHLEPDLILLED 1103
Equus_caballus    ARKLELESQVDLLQTSQSORLQKRVSLEAEAKRKQDTLKELAVEESNASARFEPDLHIED 1610
Xenopus_tropicalis NKRTLEAEVALLOSRYTQLLSKVRDLEENRKNIDLKEDTK--VVMSPRVDPAIRLED 1044
      .....1810.....1820.....1830.....1840.....1850.....1860

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      * : . . . : * : * : : * : * : *
Pavo_muticus      LRETIQAHSRREPASMPQSQSHED-----SNFQFDQVRSYISAEGISIRKAKEFLVRQT 1520
Pavo_cristatus    LRETIQAHSRREPASMPQSQSHED-----SNFQFDQVRSYISAEGISIRKAKEFLVRQT 1520
Gallus_gallus     LRETIQAHSRREPASPPQSQSHED-----SNFQFDQVRSYISAEGVSIKAKEFLVRQT 1526
Chelonia_mydas    LRETILRAHSRREPASLTSHSNED-----GDFQLDNVRHYISAEGVSIKAKEFLVRQT 1670
Rhinatrema_bivittatum LRETSRTQARSQLTPLP-----KD-----DQSSWSDVRHYISLEGVSIKAKEFLIHQT 1067
Mus_musculus      LRKSLDTNKNQEVSSSLSLSKKE-----IDLMSVSRQFLSAEGVAVRNAKEFLVRQT 995
Rattus_norvegicus LRKSLGTNENQEVSSSLSLSKKE-----IDLMSVSRHFLSAEGVAVRSACEFLVRQT 1718
Homo_sapiens      LRKSLGTNQTKEVSSSLSQSKEDLYL----DSLSSHNVWHLLSAEGVALRSAKEFLVQQT 1121
Pan_troglodytes   LRKSLGTNQTKEVSSSLSQSKEDLYL----DSLSSHNVWHLLSAEGVALRSAKEFLVRQT 1688
Macaca_mulatta    LRKSLGTNQTKEVSSLSQSKEDLYL----DSLSSHNVWHLLSTEGVALRSAKEFLVRQT 1707
Callithrix_jacchus LRKSLGTNQAKEVSSSFSQSKEDLHL----DSLSSHNVLHLYLSAEGVALRSAKEFLVQQT 1736
Canis_lupus_familiaris LRKSFGINQTKEVSSILSQSKKE-----TNLSLDSVRHYLSAEGIALRSAKEFLVQQT 1711
Bos_taurus        LRRSP-----RTSKE-----TDLSLDSARHYLSAEGVALRNAKEFLMQQS 1143
Equus_caballus    LRKSLGTNQTKEVSSSLSQSKKE-----TDLSLDSVRHYLSAEGIALRSAREFLVRQS 1663
Xenopus_tropicalis LTASASSVHGAAPVPHLDILRNAMTSVQNEFYDNEMDDIRHYISSQGASTQAKDFLHLOT 1104
      .....1870.....1880.....1890.....1900.....1910.....1920

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      *** : * : * : * : : . . * . : : * : * : * : *
Pavo_muticus      HSMRRRHRTALKAAKQQWHQDVQKAQEVVQDPDNSQLLEGMRKNLEEEAKQLDKMKSAMRK 1580
Pavo_cristatus    HSMRRRHRTALKAAKQQWHQDVQKAQEVVQEPDNSQLLEGMRKNLEEEAKQLDKMKSAMRK 1580
Gallus_gallus     HSMRKRHTALKAAKQQWHQDVQKAQEVVQDPNNSQLLEGMRKNLEEEAKQLDKMKSAMRK 1586
Chelonia_mydas    RSMRKRHAALKAATQQRHTMQQARDAVDPGSSQLLEDVRRNLEEEAKQLDKMKSAMRK 1730
Rhinatrema_bivittatum KSMRKRQTALKVARQQRHDMHKAQEELQDPESQILEDVRRNLEEEAKHLNEMKAAMWK 1127
Mus_musculus      RSMRRRQTALKAAQQHWRHELASAQEVDEDLPGTTEVLGNMRKNLNEETRHLDEMKSAMRK 1055
Rattus_norvegicus RSMRRRQTALKAAQQHWRHELASAQEVDEDLPGTQVLENVVRKNLDEETKHLDEMKSAMRK 1778
Homo_sapiens      RSMRRRQTALKAAQQHWRHELASAQEVAKDPPGKALEDMRKNLEKETRHLDEMKSAMRK 1181
Pan_troglodytes   RSMRRRQTALKAAQQHWRHELASAQEVAKDPPGKALEDMRKNLEKETRHLDEMKSAMRK 1748
Macaca_mulatta    HSMRRRQTALKAAQQHHWRHELASAQEVAKDPPGKALEDMRKNLEKETRHLDEMKSAMRK 1767
Callithrix_jacchus RSMRRRQTALKAAQQHWRRELASAQEVAKDPPDIKALEDMHKNLEKETRRLDEMKSAMRK 1796
Canis_lupus_familiaris HSMORRQTALKAAQEHWRQELASAQEATQDPPSAKALEDVVRKDLEETRHLDEMKSAMRK 1771
Bos_taurus        RSMRRRQTALKAAQQHWRQELASAQEADKDPGKTALQEDVCKDLEETRHLDEMKSALWK 1203
Equus_caballus    RSMRRRQTALRAAQQHWRHELASAQEAADKPPGKTALQEDMRKDLEETRHLDEMKSAMRK 1723
Xenopus_tropicalis RSMCHRQSLHAAKKQWCHSMQETHSP----KHSHLLEDVKQNLLEEAHSLNEFQSTMHK 1160
      .....1930.....1940.....1950.....1960.....1970.....1980

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CEPD64pep Tue Feb 1 11:41:35 2022

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Pavo_muticus      GQVLLKRKEEKLSQLESSLLEELS-DEDTLKSVACKKMVTFDLSSSEDNTN-SISSANIHL 1638
Pavo_cristatus    GQVLLKRKEEKLSQLESSLLEELS-DEDTLKSVACKKMVTFDLSSSEDNTN-SISSANIHL 1638
Gallus_gallus     GQVLLKKKKEEKLSQLESSLLEELS-DEDTLKSVACKKMVTFDLSSSENTN-SISSVNIHL 1644
Chelonia_mydas    GQVLLKKKKEEKLSQLESSLLEELS-DEDTLKGAACKKVTFDLSDSEDNTN-SLSSSTDVSQ 1788
Rhinatrema_bivittatum GQVLLRKKEEKLSQLESSLLEELS-EEDKPKGAASKKVTFDLSDSEETSTSVMTDLFPQ 1186
Mus_musculus      GHDLKKKKEEKLIQLESSLQEEVS-DEDTLKGS-SIKKVTFDLSDMDLDS-SESLESSPV 1112
Rattus_norvegicus GHDLKKKKEEKLNQLESSLLEEVS-DEDTLKGS-SIKKVTFDLSDMDLDS-SESFESCPL 1835
Homo_sapiens      GHNLLKKKKEEKLNQLESSLWEEAS-DEGTLGGSPTKKAVTFDLSDMDLDS-SESSESFSFP 1239
Pan_troglodytes   GHNLLKKKKEEKLNQLESSLWEEAS-DEGTLGGSPTKKAVTFDLSDMDLDS-SESSESFSFP 1806
Macaca_mulatta    GHSLLKKKKEEKLNQLESSLWEEAS-DEGTLGGSPTKKAVTFDLSDMDLDS-SESSESFCSL 1825
Callithrix_jacchus GHNLLKKKKEETLNQLESSLWEEAS-DEGSLGGAPTKKAVTFDLSDMDLDS-SESSESFCSL 1854
Canis_lupus_familiaris GHDLKKKKEEKLIQLESSLQEEAS-EEDILRGAPTKKVVTFDLSDMEDMS-STSSFACSL 1829
Bos_taurus        GHDLKKKKEEKLHQLESSLREEAS-DEDMLRGPPTKKVVTFDLSDLEDGS-SDSSDSCPL 1261
Equus_caballus    GHDLKKKKEEKLNQLEFSLREEAS-DEDTLRGTPAKKVVTFDLSDMEDTS-SESSESFCSL 1781
Xenopus_tropicalis GQVLLQEKELRLQELSSSLREEIS-EDDAVIRGRNKKVVTFDLSDSDSCFAINHDLFPS 1220
.....1990.....2000.....2010.....2020.....2030.....2040

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.:. *: :. *: :*...* . :.
Pavo_muticus      PKSD-----LGTEAQIALQODKIRYLINSVQHITDELNGVLGVLSLSTLQPPLLTSTPV 1693
Pavo_cristatus    PKSD-----LGTEAQIALQODKIRYLINSVQHITDELNGVLGVLSLSTLQPPLLTSTPV 1693
Gallus_gallus     PKSD-----LRTEVQIALQODKIQYLINSVQHITDELNGVLGVLSLSTLQPPLLTSTPV 1697
Chelonia_mydas    HKFD-----LKPDPVQFP-QLDKIQHLTNTLQHITAEELNGVLGTLGSLNHQPPLLTSTPV 1842
Rhinatrema_bivittatum HPFD-----LKPELQLS-QPNKVQYLSDSLRYRITTELNGILGVLSAIIIPS----- 1231
Mus_musculus      LH-----ITPTPTSADPNKIHLYLSSSLQRISSSELNGVLNVLSLNSQPPPLQGLSQP 1164
Rattus_norvegicus LH-----ITPTPNSADPNKIHLYLSSSLQRISSSELNGVLNVLSLNSQPPPLQGLSQP 1887
Homo_sapiens      PHREWWRRQORIDSTPSLTS-RKIHGLSHSLRQISSQLSSVLSILDLSLNPQSPPPPLIASMP 1298
Pan_troglodytes   PHREWWRRQORIDSTPSLTS-HKIHGLSHSLRQISSQLSSVLSILDLSLNPQSPPPPLIASMP 1865
Macaca_mulatta    PH-----FDSTPGLTS-RKIHGLSHSLRQISSQLSSVLSILDLSLNPQSPPPPLIASMP 1876
Callithrix_jacchus PH-----IASTPTLAF-HNIHELHSLRQISSQLSSVLSIVDSLNSQSPPPPLTSTQ 1905
Canis_lupus_familiaris PH-----INLTTSATFPNEFHLYLNSLHQISSQLNGVLSMLGSLNPQLPPPLFTATP 1881
Bos_taurus        PR-----FNLTPSPITFPNKIHLYLSSSLQSISSQLNGVLGVVGSILNAQ-PPPLFTSTP 1312
Equus_caballus    PH-----VTPTPGPASPNKIHLYLSSSLQRISSQLNGVLSMLGSLSTQPPPPPLFTSTP 1833
Xenopus_tropicalis GDLR-----AQPIPLPSKVHNLTAELRRITAEELNGVLSLGLPLSNDPFPFSTPDPL 1270
.....2050.....2060.....2070.....2080.....2090.....2100

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. . . . . *: **
Pavo_muticus      PL--QVPCDGVPLSTYASLAGLRG-DSRPSAGLSVPDQWAWGSGLSSSRG-FLAGQSV 1749
Pavo_cristatus    PL--QVPCDGVPLSTYASLAGLRG-DSRPSAGLSVPDQWAWGSGLSSSRG-FLAGQSV 1749
Gallus_gallus     ----QVPCDGIPLSTYANLAGLQAGASSRSAGMSVPDQWAWGTGLSSSRG-FLAGQSV 1752
Chelonia_mydas    PMP-ALPSDGVPLSAYTSFARVQAAGPIVPPAGIPLVNQAWSTGLNSSLG-STAGQSV 1900
Rhinatrema_bivittatum ----ASAAGGIPLSTYTSLAGR-----QLPGQAWASTGLSPSMA-SSAAQTV 1274
Mus_musculus      PPPLFTSSSLRSSKNVLDPAYSS-QAKLSLSSITPMSTQAWDPGQGTCLTSSSSSQTVD 1223
Rattus_norvegicus PPPLFTSSSLRSSKNVLDPAYSS-QTKPSSLSMTPTSTQAWDPGQGTCLTSSSSSQTVD 1946
Homo_sapiens      ----AQLPPRPDKSTPTPTTYGSLARFSALSSATPTSTQAWDSCGQGPLR-SSVAQTV 1353
Pan_troglodytes   ----AQLPPRPDKSTPTPTTYGSLARFSALSSATPTSTQAWDSCGQGPLR-SSVAQTV 1920
Macaca_mulatta    ----AQLPPRASKSTPTPTTYGSLARFSALSSATPTSTQAWDSCGQGPLR-SSVAQTV 1931
Callithrix_jacchus ----AHLPPRASKSTPTPTTYGSLARFSALSSATPTSTQAWDSCGQGPLR-SSVAQTV 1960
Canis_lupus_familiaris ----VHTLARDPRSAPTPTCP-LSARVSASPLGRPTSTQAWDPRLGPR-SSVTQTV 1935
Bos_taurus        ----VPLPTQASRSTLAPPHPS-LTRGSASPARPTSAQWTWDPGLGPR-SSAAQTV 1366
Equus_caballus    ----AQTSASWSPRSIPIPTYP---SRVSASFSAPTPTSTQAWDPGLGPR-SSVAQTV 1885
Xenopus_tropicalis S-----AEPGIPLSSFNNLARLGAPOSSAWSSSLPSTVPSVPSP-----SQSV 1314
.....2110.....2120.....2130.....2140.....2150.....2160

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

File: /media/morpheus/disk1/fst/pep\_msa/CEPD44pep Tue Feb 1 11:41:35 2022

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:* :*:**** * * :. . . :*:...*: :. *
Pavo_muticus      RFLAEKWHKYFPGGFPSGSGSDNKLGYVPAGEQMRMFC-----SRESDKMSIQG 1802
Pavo_cristatus    RFLAEKWHKYFPGGFPSGSGSDNKLGYVPAGEQMRMFC-----SRESDKMSIQG 1802
Gallus_gallus     RFLAEKWHKYFPGGFPSGSGSDNKLGYVPAGEQMRMFC-----GRESDKMSIQG 1805
Chelonia_mydas    NMLAEKWRKYFPGGFPSLSGSPAPLDSNLGYLPAGEQIRRFORSQLR--GPETDRSSVOG 1958
Rhinatrema_bivittatum SMLTEKWHKYFPEGIPSLSGNPPPFTRRLGYLSASEQIRLLQOSQLR--VPEPDRQTIQT 1332
Mus_musculus      DFLLEKWRKYFPGGIPLLSGSPPPPENKLGYSVSEQLHFLQSHPR--VPRTDGVSIQS 1281
Rattus_norvegicus DFLLEKWRKYFPTGIPLSSGSPPPPENKLGYSVSEQLHLLQSHSR--VPKTDISIQS 2004
Homo_sapiens      DFLLEKWRKYFPGGIPLLSNSPTPLESRLGYMSASEQLRLLQSHSQ--VPEAGSTTFQG 1411
Pan_troglodytes   DFLLEKWRKYFPGGIPLLSNSPAPLESRLGYMSASEQLRLLQSHSQ--VPEAGSTTFQG 1978
Macaca_mulatta    DFLLEKWRKYFPGGIPLLSNSPAPLESRLGYVSASEQLRLLQSHSQ--VPEVGSTTFQG 1989
Callithrix_jacchus DFLLEKWRKYFPGGIPLLSNGPGPLENRLGYVSASEQLRLLQSHSQ--VPEVGSTTFQG 2018
Canis_lupus_familiaris DFLVEKWRKYFPTGVPLSSNPAPLENRLGYVSASEQLRLLQSHSQ--GPGVGSPDFQS 1993
Bos_taurus        DFLVEKWRKYFPTGIPFLSSGPAPLENRLGYVSASEQLRLLQSHSR--VPQVGTSLQD 1424
Equus_caballus    DFLVEKWRKYFPTGVPLSSGPPPLENRLGYVSASEQLRLLQSHSR--SPRPQVPEAGSTNFQG 1945
Xenopus_tropicalis EILMKKWRKYFPGGTPLFTDQSKLQENRFGYVPAGEQVRMVQNVAQH----TDKRSTQA 1369
.....2170.....2180.....2190.....2200.....2210.....2220

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Pavo_muticus      MIESNKKWLEDFKSDSRVQPSWDLLOWVASHRVLAETPAGLSRETS CDRREWQLSGAV 1862
Pavo_cristatus    MIESNKKWLEDFKSDSRVQPSWDLLOWVASHRVLAETPAGLSRETS CDRREWQLSGAV 1862
Gallus_gallus     MIETNKKWLEDFKSDSRVQPSWDLLOWVASHRVLAETPAGLSRETLCDHRDWQLCGAI 1865
Chelonia_mydas    MIDANKKWLENFKKDSKAP-----LFPSTQKPSAS----- 1988
Rhinatrema_bivittatum MIDANKKWLENFKNDPKVPLYTRTTTTSP----- 1361
Mus_musculus      LIDSNRKWLEHFRNDPKVQLFSSAPKATTTNL----- 1314
Rattus_norvegicus MIESNRKWLEHFRNDPKVQLFSSVPKSTTT----- 2035
Homo_sapiens      IIEANRRWLERVKNDRPLPLFSSTPKPKATLS----- 1443
Pan_troglodytes   IIEANRRWLERVKNDRPLPLFSSTPKPKATLS----- 2010
Macaca_mulatta    IIEANRRWLERVKNDRPLPLFSSTPKPTATLS----- 2021
Callithrix_jacchus IIEANRRWLDHVKNDRPKLHLFSSAPKPTATLS----- 2050
Canis_lupus_familiaris MIEANRKWLEHYRNDPKLQLFSSVPKPAAGSR----- 2025
Bos_taurus        MIAANRKWLEHYKNDPKLPLFSSVPKPAAGSS----- 1456
Equus_caballus    MIDANRKWLERYKNDPKLHLFSSVPKPTAPLG----- 1977
Xenopus_tropicalis MIDTNKKWLENFRNDPKVPRTSRTMGSSPG----- 1399
.....2230.....2240.....2250.....2260.....2270.....2280

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Pavo_muticus      PPP-EGMDGNADFLSAVRLRRSLPIGILLLVSQLWVEHVAESLGIFWSPGCLEVGGGCQR 1921
Pavo_cristatus    PPP-EGMDGNADFLSAVRLRRSLPIGILLLVSQLWVEHVAESLGIFWSPGCLEVGGGCQR 1921
Gallus_gallus     PPPWEGMDGNADFLPAVRLCQSLSIGILLLVSQLLAHVVAESLVVFWSSGCLKVGGGCQH 1925
Chelonia_mydas    -----SPGLVQLG----- 1996
Rhinatrema_bivittatum -----SPGLLQLG----- 1369
Mus_musculus      -----SNLLQLG----- 1321
Rattus_norvegicus -----NLLQLG----- 2041
Homo_sapiens      -----LLQLG----- 1448
Pan_troglodytes   -----LLQLG----- 2015
Macaca_mulatta    -----LLQLG----- 2026
Callithrix_jacchus -----LVQLG----- 2055
Canis_lupus_familiaris -----LLQLG----- 2030
Bos_taurus        -----FLQLD----- 1461
Equus_caballus    -----LLQLG----- 1982
Xenopus_tropicalis -----LLQLG----- 1404
.....2290.....2300.....2310.....2320.....2330.....2340

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# CLUSTAL 2.1 MULTIPLE SEQUENCE ALIGNMENT

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                                .  :: :
Pavo_muticus                   GGCCTQSRAAELSLRSEKHTLVVWGKRLLS----- 1951
Pavo_cristatus                 GGCCTQSRAAELSLRSEKHTLVVWGKRLLS----- 1951
Gallus_gallus                  GGCCTQSRAAELGLRSVKHILVAWGKRLLS----- 1955
Chelonia_mydas                 -----LDENNQIKVYHY----- 2008
Rhinatrema_bivittatum         -----LDENNQIKVYHY----- 1381
Mus_musculus                   -----LDENNRLNVFHY----- 1333
Rattus_norvegicus             -----LDENNRLNVFHY----- 2053
Homo_sapiens                   -----LDEHNRVKVYRF----- 1460
Pan_troglodytes               -----LDEHNRVKEPPGTRGLSGTVKPHIL----- 2040
Macaca_mulatta                -----LDEHNRVKVYRF----- 2038
Callithrix_jacchus            -----LDEHNRVKVFR----- 2067
Canis_lupus_familiaris        -----LDEHNTLKVYHY----- 2042
Bos_taurus                    -----LDENNRLKIYHY----- 1473
Equus_caballus                -----LDENNRLKLYHY----- 1994
Xenopus_tropicalis            -----LDENNQIKVYRY----- 1416
.....2350.....2360.....2370.....

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